RICHARD D. EMERY
ANDREW G. CELLI, JR.
MATTHEW D. BRINCKERHOFF
JONATHAN S. ABADY
EARL S. WARD
ILANN M. MAAZEL
HAL R. LIEBERMAN
DANIEL J. KORNSTEIN
O. ANDREW F. WILSON
ELIZABETH S. SAYLOR
DEBRA L. GREENBERGER
ZOE SALZMAN
SAM SHAPIRO
ALISON FRICK
DAVID LEBOWITZ
HAYLEY HOROWITZ
THEODOR O. OXHOLM
ALANNA SMALL

EMERY CELLI BRINCKERHOFF & ABADY LLP

ATTORNEYS AT LAW
600 FIFTH AVENUE AT ROCKEFELLER CENTER
10TH FLOOR
NEW YORK, NEW YORK 10020

TELEPHONE
(212) 763-5000
FACSIMILE
(212) 763-5001
WEB ADDRESS
www.ecbalaw.com

CHARLES J. OGLETREE, JR.
DIANE L. HOUK

FOI # 16748

March 3, 2016

Via Fax & Mail

The Port Authority of New York and New Jersey
Attention: FOI Administrator
4 World Trade Center
150 Greenwich Street
New York, NY 10007
Fax: (212) 435-7555

16-09-16 A08:52 IN

Re: FOIL Request re RFP 42022

Dear Secretary of the Port Authority:

Pursuant to The Port Authority of New York and New Jersey's Freedom of Information Code and New York Freedom of Information Law, Article 6 of the Public Officer's Law, this firm hereby requests the following: any and all responses, proposals, materials, or documents from, to, or concerning Lea + Elliot, the Parsons Corporation, and/or CH2M or any of their affiliates, subsidiaries, and/or parent companies' ("Relevant Companies") response and/or proposal to the Port Authority's "REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)," including but not limited to:

1. the Relevant Companies' proposal(s) in response to RFP 42022;

2. any correspondence between the Port Authority and the Relevant Companies concerning RFP 42022;

3. any documents (including but not limited to emails) concerning the evaluation and/or grading of the submissions by the Relevant Companies to RFP 42022 by the Port Authority or others who evaluated the Relevant Companies'.

The request we have is dated May 4, 2015, but we hereby request responses, proposals, materials, and documents to any prior or subsequent RFP for the same work that was submitted by the Relevant Companies.

Please contact Elizabeth Saylor at 212-763-5000 with any questions. Thank you.

Very truly yours,

Andrew G. Celli, Jr.
Elizabeth Saylor

Encl.

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
RECORD REQUEST FORM

Action by (print/type name):

Danny Ng , Freedom of Information Administrator

Signature: Date: 05/24/2016

On behalf of the Secretary of the Port Authority, as Records Access Officer and Custodian of Government Records of the Port Authority.

- [x] The requested records are being made available.
- [ ] Any responsive records that may exist are currently in storage or archived, and a diligent search is being conducted. The Port Authority will respond by _____.
- [ ] A diligent search has been conducted, and no records responsive to your request have been located.
- [ ] The requested records that have been located are not being made available, as they are exempt from disclosure for the following specific reasons:
- [ ] Some requested records that have been located are being made available. The remainder are exempt from disclosure for the following specific reasons:
- [ ] The request does not reasonably describe or identify specific records; therefore, the Port Authority is unable to search for and locate responsive records. Please consider submitting a new request that describes or identifies the specific records requested with particularity and detail.
- [x] Other: Please see attached letter.

This form is promulgated by the Port Authority pursuant to the Port Authority Public Records Access Policy and is intended to be construed consistent with the New York Freedom of Information Law and the New Jersey Open Public Records Act. It is intended to facilitate requests for Port Authority public records and does not constitute legal advice.

THE PORT AUTHORITY OF NY & NJ

FOI Administrator

May 24, 2016

Mr. Andrew G. Celli, Jr.
Emery Celli Brinckerhoff & Abady LLP
Attorneys at Law
600 Fifth Avenue at Rockefeller Center, 10th Floor
New York, NY 10020

Re: Public Records Access No. 16748

Dear Mr. Celli, Jr.:

This is in response to your March 3, 2016 request, which has been processed under the Port Authority's Public Records Access Policy, copy enclosed, for copies of records related to Request for Proposals for the Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an As Needed Bassis (RFP No. 42022).

Material responsive to your request can be found on the Port Authority's website at http://corpinfo.panynj.gov/documents/16748-C/. Paper copies of the available records are available upon request.

Certain portions of the material responsive to your request are exempt from disclosure as, among other classifications, privacy.

Please refer to the above Public Records Access reference number in any future correspondence relating to your request.

Very truly yours,

Danny Ng
FOI Administrator

Enclosure

4 World Trade Center, 18th Floor
150 Greenwich Street
New York, NY 10007
T: 212 435 3642 F: 212 435 7555

THE PORT AUTHORITY OF NY & NJ

Proposal for the

Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an As-Needed Basis

RFP 42022 | June 17, 2015

Submitted by:

CH2M HILL New York, Inc.,
in association with:

STV Incorporated
Ammann & Whitney, Inc
Cambridge Systematics, Inc
Domingo Gonzalez Associates, Inc
Fortune Shepler Saling Consulting, Inc
Gordon H. Smith Corporation
HMMH, Inc
Interactive Elements, Inc
JCMS, Inc
KS Engineers, PC
Naik Consulting Group, PC
RS&H Architect and Engineer, PC
Ross & Barruzini, Inc
Sikora Wells Appel
Simco Engineering, PC
Ting & Li Architects, PC

SECTION A – ATTACHMENT B AGREEMENT ON TERMS OF DISCUSSION

SECTION B – ATTACHMENT C COMPANY PROFILE

SECTION C – TRANSMITTAL LETTER C-1
Acknowledgement of Addenda

SECTION D – QUALIFICATIONS AND EXPERIENCE OF STAFF D-1
Team Organization D-1
Experience and Availability of Project Manager D-3
Exhibit D-1 – Organization Chart D-2
Summary of Key Leaders' Qualifications D-3
Subconsultant Team D-5
Resumes

SECTION E – SPECIFIC RELEVANT EXPERIENCE OF FIRM E-1
Table E-1 – Relevant Project Experience E-2

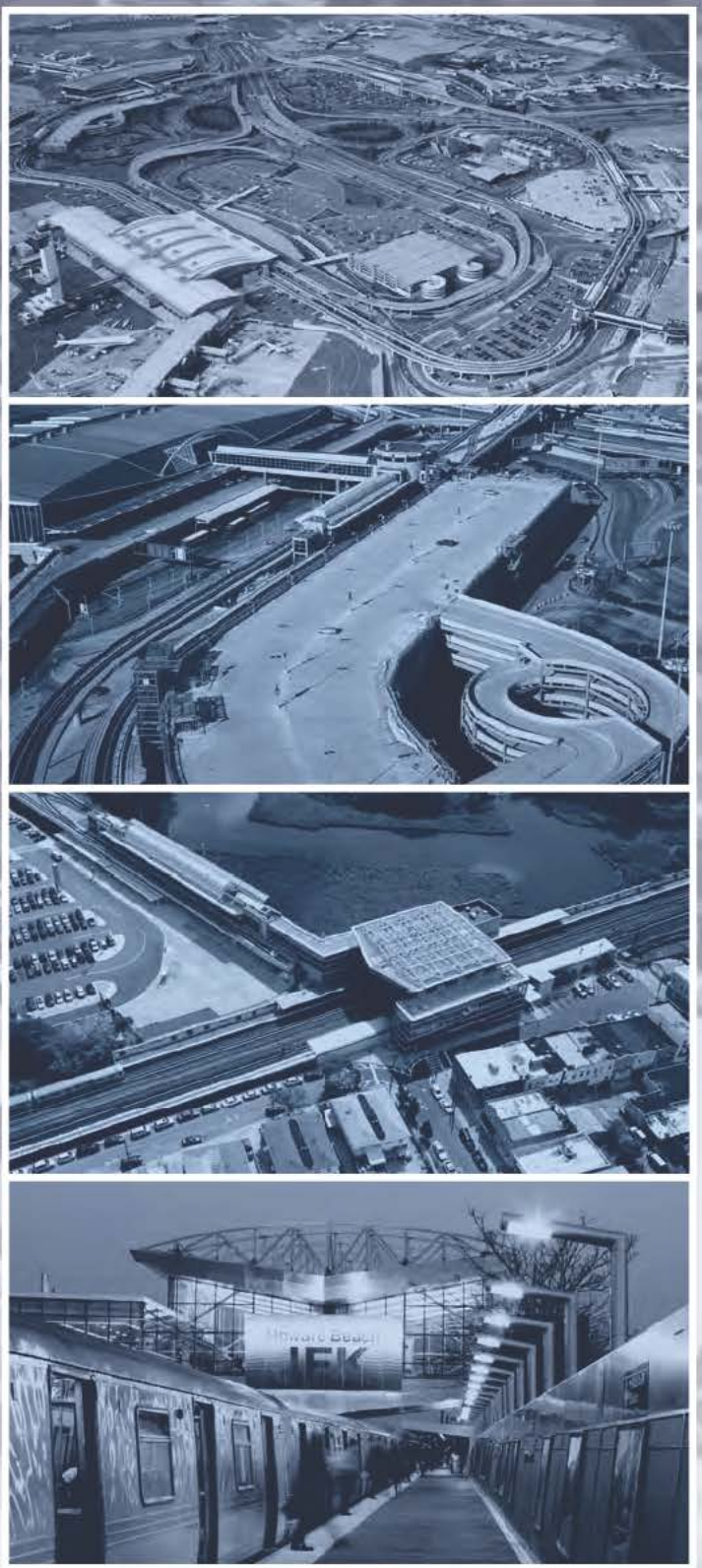
SECTION F – TECHNICAL APPROACH F-1
Project Overview F-1
Project Understanding F-1
Key Issues F-2
Innovative Thinking F-4
Exhibit F-1 – Work Process Flow Chart F-6
Exhibit F-2 – Phase I Schedule F-7
Exhibit F-2 – Phase II Schedule F-8
Phase I Approach F-10
Phase II Approach F-22
Cost Proposal

SECTION G – MANAGEMENT APPROACH G-1
Management Plan G-1

SECTION H – FIRM'S AFFILIATES H-1

SECTION I – CONFLICT OF INTEREST I-1

SECTION J – FORM OF AGREEMENT J-1



Photos: AirTrain JFK and Howard Beach Station Gateway Terminal (CH2M Team)

Section A - Attachment B

Attachment B

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Port Authority or entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with or after this Agreement on Terms of Discussion ("Agreement"), either orally or in writing, is not given in confidence. Such information may be used, or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this Agreement, whether made as part of or in connection with this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Port Authority rights to any matter, which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Port Authority revised Freedom of Information Policy adopted by the Port Authority's Board of Commissioners on October 22, 2014, or as may be amended, which may be found on the Port Authority website at: http://www.panynj.gov/corporate-information/pdf/board_minutes_102214.pdf, not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause injury to the competitive position of the enterprise, and which information is identified by the Proposer as proprietary, as more fully set forth in the FOI Policy, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a proposal.

CH2M HILL New York, Inc.
(Company)

(Signature)

Vice President
(Title)

June 17, 2015
(Date)

ORIGINAL AND PHOTOCOPIES OF THIS PAGE ONLY.
DO NOT RETYPE.

Photos: AirTrain EWR and Gateway Terminal (CH2M Team)

Section B - Attachment C

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

   CH2M HILL New York, Inc.

2. Business Address (to receive mail for this RFP):

   22 Cortlandt St, New York, NY 10007

3. Business Telephone Number: (212) 608-3990

4. Business Fax Number: (212) 566-5059

5. Firm website: www.ch2m.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 02 / 03 / 1930

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   CH2M HILL, Inc.; 9191 South Jamaica Street, Englewood, CO 80112 (EIN [redacted]

   CH2M HILL Companies, Ltd; 9191 South Jamaica Street, Englewood, CO 80112 (EIN [redacted]

9. Officer or Principal of Firm and Title:

   J. David Strong, PE, Vice President

10. Name, telephone number, and email address of contact for questions:

    J. David Strong, Tel: (646) 253-8557, email: david.strong@ch2m.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

_____

2. Business Address (to receive mail for this RFP):

_____

_____

3. Business Telephone Number: _____
4. Business Fax Number: _____
5. Firm website: _____
6. Federal Employer Identification Number (EIN): _ [redacted] _____
7. Date (MM/DD/YYYY) Firm was Established: _____/_____/_____
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

_____

_____

9. Officer or Principal of Firm and Title:

_____

10. Name, telephone number, and email address of contact for questions:

_____

_____

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

   Ammann & Whitney Consulting Engineers, PC

2. Business Address (to receive mail for this RFP):

   96 Morton Street, New York, NY 10014

3. Business Telephone Number: 212.462.8500

4. Business Fax Number: 212.929.5356

5. Firm website: www.ammann-whitney.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 09 / 01 / 1994

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   See attached

9. Officer or Principal of Firm and Title:

   Samuel Weissman, PE, Senior Vice President

10. Name, telephone number, and email address of contact for questions:

    Michael Urbach, PE, 212.462.8570, murbach@ammann-whitney.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

List of Affiliates

Ammann & Whitney, Inc.
96 Morton Street
New York, NY 10014
Tax ID [redacted]

Ammann & Whitney Consulting Engineers, PC (New Jersey Corp.)
96 Morton Street
New York, NY 10014
Tax ID [redacted]

Ammann & Whitney PA, PC (a PA Architecture Company)
2300 Chestnut Street
Suites 310/330
Philadelphia, PA 19103
Tax ID [redacted]

Ammann & Whitney (MA) PC
117 Kendrick Street, Suite 400
Needham, MA 02494
Tax ID. [redacted]

Berger/ABAM Engineers, Inc.
33301 Ninth Avenue South, Suite 300
Federal Way, WA 98003
Tax ID. [redacted]

The Louis Berger Group, Inc.
412 Mount Kemble Avenue
Morristown, NJ 07960
Tax ID [redacted]

Louis Berger & Associates, PC
412 Mount Kemble Avenue
Morristown, NJ 07960
Tax ID [redacted]

Louis Berger International, Inc.
412 Mount Kemble Avenue
Morristown, NJ 07960
Tax ID [redacted]

Louis Berger Services, Inc.
Parkway Plaza, Suite 250
Greenville, SC 29615
Tax ID [redacted]

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

_____

2. Business Address (to receive mail for this RFP):

_____

_____

3. Business Telephone Number: _____
4. Business Fax Number: _____
5. Firm website: _____
6. Federal Employer Identification Number (EIN): [redacted] _____
7. Date (MM/DD/YYYY) Firm was Established: _____/_____/_____
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

_____

_____

9. Officer or Principal of Firm and Title:

_____

10. Name, telephone number, and email address of contact for questions:

_____

_____

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

   Domingo Gonzalez Associates

2. Business Address (to receive mail for this RFP):

   25 Park Place, 5th Floor, New York, NY 10007

3. Business Telephone Number: 212-608-4800

4. Business Fax Number: 212-385-9160

5. Firm website: www.dgalight.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 05 / 31 / 1985

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   Not Applicable

9. Officer or Principal of Firm and Title:

   Domingo Gonzalez, Principal

10. Name, telephone number, and email address of contact for questions:

    Domingo Gonzalez, Principal - 212-608-4800 - dgonzalez@dgalight.com

    Bindhya Budhu, Marketing - 212-608-4800 - bbudhu@dgalight.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☒ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Christopher O. Ward
Executive Director

Office of Business Diversity and Civil Rights

PA ID Number - 3473

Domingo Gonzalez Associates, Inc.

is certified as a ***Minority*** **Business Enterprise** and has met the criteria for ownership and control as established by the Port Authority.

This certification will remain in effect for five years from the date of this notice and may be extended only upon your submission and the Port Authority's acceptance of a recertification package attesting that the ownership and control of the business, on which this certification is granted, has not changed. Please reference the above number on all correspondence.

Lash Green
Director
Certified: October 11, 2011

Roger J. Hsu
Manager, Certification
Scheduled Re-evaluation: October 10, 2016

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

_____

2. Business Address (to receive mail for this RFP):

_____

_____

3. Business Telephone Number: _____
4. Business Fax Number: _____
5. Firm website: _____
6. Federal Employer Identification Number (EIN): [redacted] _____
7. Date (MM/DD/YYYY) Firm was Established: _____/_____/_____
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

_____

_____

9. Officer or Principal of Firm and Title:

_____

10. Name, telephone number, and email address of contact for questions:

_____

_____

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

   Gordon H Smith Corp.

2. Business Address (to receive mail for this RFP):

   200 Madison Ave

   N.Y. NY 10016

3. Business Telephone Number: 212-696-0600

4. Business Fax Number: 212-532-8272

5. Firm website: N/A

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 10 / 1 / 75

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   N/A

9. Officer or Principal of Firm and Title:

   Gordon H Smith President

10. Name, telephone number, and email address of contact for questions:

    212-696-0600

    ghsmith@gordonhsmithcorp.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

Harris Miller Miller & Hanson Inc. d/b/a HMMH

2. Business Address (to receive mail for this RFP):

77 South Bedford Street, Burlington, MA 01803

3. Business Telephone Number: (781) 229-0707

4. Business Fax Number: (781) 229-7939

5. Firm website: www.hmmh.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 08 / 27 / 1981

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

N/A

9. Officer or Principal of Firm and Title:

Mary Ellen Eagan, President and CEO

10. Name, telephone number, and email address of contact for questions:

Mary Ellen Eagan, President and CEO, (781) 229-0707, meagan@hmmh.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☑ No HMMH is in process of submitting the PANYNJ application for WBE certification

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

_____

2. Business Address (to receive mail for this RFP):

_____

_____

3. Business Telephone Number: _____
4. Business Fax Number: _____
5. Firm website: _____
6. Federal Employer Identification Number (EIN): [redacted] _____
7. Date (MM/DD/YYYY) Firm was Established: _____/_____/_____
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

_____

_____

9. Officer or Principal of Firm and Title:

_____

10. Name, telephone number, and email address of contact for questions:

_____

_____

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Patrick J. Foye
Executive Director

Interactive Elements, Inc.

PA ID Number – 681

This certificate acknowledges that the above-named firm is certified as a Women-owned Business Enterprise.

Certification Date: July 3, 2013
Re-Evaluation Date: July 2, 2018

Lash Green, Director
Office of Business Diversity and Civil Rights

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

_____

2. Business Address (to receive mail for this RFP):

_____

_____

3. Business Telephone Number: _____
4. Business Fax Number: _____
5. Firm website: _____
6. Federal Employer Identification Number (EIN): _ [redacted] _____
7. Date (MM/DD/YYYY) Firm was Established: _____/_____/_____
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

_____

_____

9. Officer or Principal of Firm and Title:

_____

10. Name, telephone number, and email address of contact for questions:

_____

_____

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Christopher O. Ward
Executive Director

Office of Business Diversity and Civil Rights

Certificate PA-19889

JCMS, Inc.

is certified as a **Minority Business Enterprise** and has met the criteria for ownership and control as established by the Port Authority.

This certification will remain in effect for five years from the date of notice and may be extended only upon your submission and the Port Authority's acceptance of a recertification package attesting that the ownership and control of the business, on which this certification is granted, has not changed. Please reference the above number on all correspondence.

Lash Green
Director
Certified: October 5, 2011

Roger J. Hsu
Manager, Certification
Scheduled Re-evaluation: October 5, 2016

Form: 6/10/93

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

   KS Engineers, P.C.

2. Business Address (to receive mail for this RFP):

   494 Broad Street, 4th Floor

   Newark, NJ 07102

3. Business Telephone Number: 973.623.2999

4. Business Fax Number: 973.242.2955

5. Firm website: www.kseng.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 04 / 29 / 1991

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

9. Officer or Principal of Firm and Title:

   Kamal Shahid, P.E., President

10. Name, telephone number, and email address of contact for questions:

    Kamal Shahid, P.E. / 973.623.2999 Ext. 101 / kshahid@kseng.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☒ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

Vendor Profile: Certifications

Help & Tools

Business Name: **KS Engineers, P.C.**

Main General Info Public Profile Users Commodity Codes Contacts Employees
Certifications Contract Workforce Composition/EEO Questionnaires

Renew/Apply for Certification | Submit Change Request | Request Missing Certification

Current Certifications

Type	Action	Effective	Renewal	Organization	Reviewer	Actions	Alert
MBE	Reciprocal	3/4/2015	2/20/2016	City of Philadelphia	Jennifer Wise	View	Add Alert
DBE	New	10/3/2005	10/3/2015	New Jersey Unified Certification Program		View	Add Alert
MBE	New	11/10/2013	11/30/2018	New York City		View	Add Alert
MBE	Recertification	4/21/2015	4/21/2018	New York State	Robyn Clarke	View	Add Alert
DBE	New	12/30/1997	12/30/2015	New York Unified Certification Program		View	Add Alert
DBE	New	7/9/2014	4/30/2015	Pennsylvania Unified Certification Program		View	Add Alert
MBE	Recertification	3/15/2010	3/15/2015	The Port Authority of New York & New Jersey	Cecelia Wallace	View	Add Alert

Certification renewals and updates must be submitted to the certification agency with whom your renewal is due.
- For certification renewals and updates with The Port Authority of New York & New Jersey, you may **submit online**.
- For other agencies, you will need to contact the certifying agency outside of this system for instructions.

Applications

Status	Application Number	App Type	Organization	Dates	Contact	Actions
Processing Complete, Decision Made	0440133	Recertification Application	New York State	Started: 3/1/2015 Submitted: 3/5/2015 Received: 3/17/2015	Brian Anglin	View
Received & In Process	0507186	MWBE Recertification Application	The Port Authority of New York & New Jersey	Started: 3/2/2015 Submitted: 3/5/2015 Received: 3/17/2015	Brian Anglin	View
Processing Complete, Decision Made	5215991	Registry Application	City of Philadelphia	Started: 2/23/2015 Submitted: 2/24/2015 Received: 2/25/2015	Brian Anglin	View

Pending/In Process Certifications

Type	Action	Application Date	Organization	Reviewer	Actions
MBE	Recertification	3/5/2015	The Port Authority of New York & New Jersey		

Customer Support

Home | Help | Print This Page | Print To PDF

Copyright © 2015 B2Gnow. All rights reserved.

THE PORT AUTHORITY OF NY & NJ

Anthony R. Coscia
Chairman

Christopher O. Ward
Executive Director

Certified

by

Office of Business & Job Opportunity

KS Engineers, P.C.

Certificate PA-20373

This certificate acknowledges that the above named firm is certified as a **Minority-owned Business Enterprise.** This company has met the criteria for ownership and control as established by the Port Authority Policy for Revised Minority, Woman and Small Business Enterprise (M/W/SBE) Programs, dated June 10,1993.

This certification will remain in effect for five years from the date of notice and may be extended only upon submission by you, and acceptance by the Port Authority of a recertification application attesting that the ownership and control of the business, on which this certificate is granted, has not changed. This office must be notified within 30 days of any material changes in the business which affect ownership and control. Failure to do so may result in the revocation of this certification and/or imposition of other sanctions.

Lash Green
Director
Certified: 3/15/2010

Rosemary Jenkins-Varela
Manager, Certification
Scheduled Re-evaluation: 3/14/2015

Form: 6/10/93

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):
Naik Consulting Group, PC

2. Business Address (to receive mail for this RFP):
135 West 36th Street, 13th Floor
New York, NY 10018

3. Business Telephone Number: (212) 575-2701

4. Business Fax Number: (212) 575-2702

5. Firm website: www.naikgroup.com

6. Federal Employer Identification Number (EIN) [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 08 / 18 / 1997

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):
N/A

9. Officer or Principal of Firm and Title:
Sanjay Naik, President

10. Name, telephone number, and email address of contact for questions:
Kenneth Standig
(212) 575-2701, kstandig@naikgroup.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☑ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Patrick J. Foye
Executive Director

Office of Business Diversity and Civil Rights

PA ID Number-20880

Naik Consulting Group, P.C.

is certified as a **Minority-owned Business Enterprise** and has met the criteria for ownership and control as established by the Port Authority.

This certification will remain in effect for five years from the date of this notice and may be extended only upon your submission and the Port Authority's acceptance of a recertification package attesting that the ownership and control of the business, on which this certification is granted, has not changed. Please reference the above number on all correspondence.

Lash Green
Director
Certified: 2/16/2012

Roger Hsu
Manager, Certification
Scheduled Re-evaluation: 2/16/2017

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

RS&H Architect and Engineer, P.C.

2. Business Address (to receive mail for this RFP):

10748 Deerwood Park Boulevard South

Jacksonville, FL 32256

3. Business Telephone Number: 904-256-2500

4. Business Fax Number: 800-464-4358

5. Firm website: www.rsandh.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 03 / 3 / 1993

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

RS&H, Inc., 10748 Deerwood Park Boulevard South

Jacksonville, FL 32256 EIN: 59-2986466

9. Officer or Principal of Firm and Title:

David T. Sweeney, President, Treasurer and Stephen G. Harrill, Vice President, Secretary

10. Name, telephone number, and email address of contact for questions:

David Full, AICP, 415-986-17025, david.full@rsandh.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? • Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

Ross & Baruzzini, Inc.

2. Business Address (to receive mail for this RFP):

6 South Old Orchard Avenue, Saint Louis, Missouri 63119

3. Business Telephone Number: 314.918.8383

4. Business Fax Number: 314.918.1766

5. Firm website: www.rossbar.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 7 / 24 / 1962

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

9. Officer or Principal of Firm and Title:

William H. Overturf, III, PE - SVP, Chief Operating Officer - Domestic

10. Name, telephone number, and email address of contact for questions:

William H. Overturf, III, PE (314) 918-8383; boverturf@rossbar.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

Sikora Wells Appel

2. Business Address (to receive mail for this RFP):

8 Kings Highway West, Suite A, Haddonfield, NJ 08033

3. Business Telephone Number: 856-433-6380

4. Business Fax Number: n/a

5. Firm website: www.sikora-wa.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 03 / / 1979

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

None

9. Officer or Principal of Firm and Title:

Joseph T. Sikora, President

10. Name, telephone number, and email address of contact for questions:

Joseph T. Sikora, jsikora@sikora-wa.com

856-433-6375

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

SIMCO Engineering, P.C.

2. Business Address (to receive mail for this RFP):

80 Maiden Lane, Suite 501, New York, NY 10038-4892

3. Business Telephone Number: (212) 385 8100

4. Business Fax Number: (212) 385 8101

5. Firm website: www.simcopc.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 06 / 29 / 1995

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

9. Officer or Principal of Firm and Title:

Muhammad A. Siddiqui, President

10. Name, telephone number, and email address of contact for questions:

Muhammad A. Siddiqui, President (212) 385 8100 x1618 msiddiqui@simcopc.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☒ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Patrick J. Foye
Executive Director

Office of Business Diversity and Civil Rights

Certificate PA-19294

Simco Engineering, P.C

is certified as a **Minority Business Enterprise** and has met the criteria for ownership and control as established by the Port Authority.

This certification will remain in effect for five years from the date of notice and may be extended only upon your submission and the Port Authority's acceptance of a recertification package attesting that the ownership and control of the business, on which this certification is granted, has not changed. Please reference the above number on all correspondence.

Lash Green
Director
Certified: February 29, 2012

Roger J. Hsu
Manager, Certification
Scheduled Re-evaluation: February 29, 2017

Form: 6/10/93

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

_____

2. Business Address (to receive mail for this RFP):

_____

_____

3. Business Telephone Number: _____
4. Business Fax Number: _____
5. Firm website: _____
6. Federal Employer Identification Number (EIN): [redacted] _____
7. Date (MM/DD/YYYY) Firm was Established: _____/_____/_____
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

_____

_____

9. Officer or Principal of Firm and Title:

_____

10. Name, telephone number, and email address of contact for questions:

_____

_____

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

Anthony R. Coscia
Chairman

Joseph J. Seymour
Executive Director

Certified

by

Business and Job Opportunity

Ting & Li Architects, P.C.

Certificate PA-16767

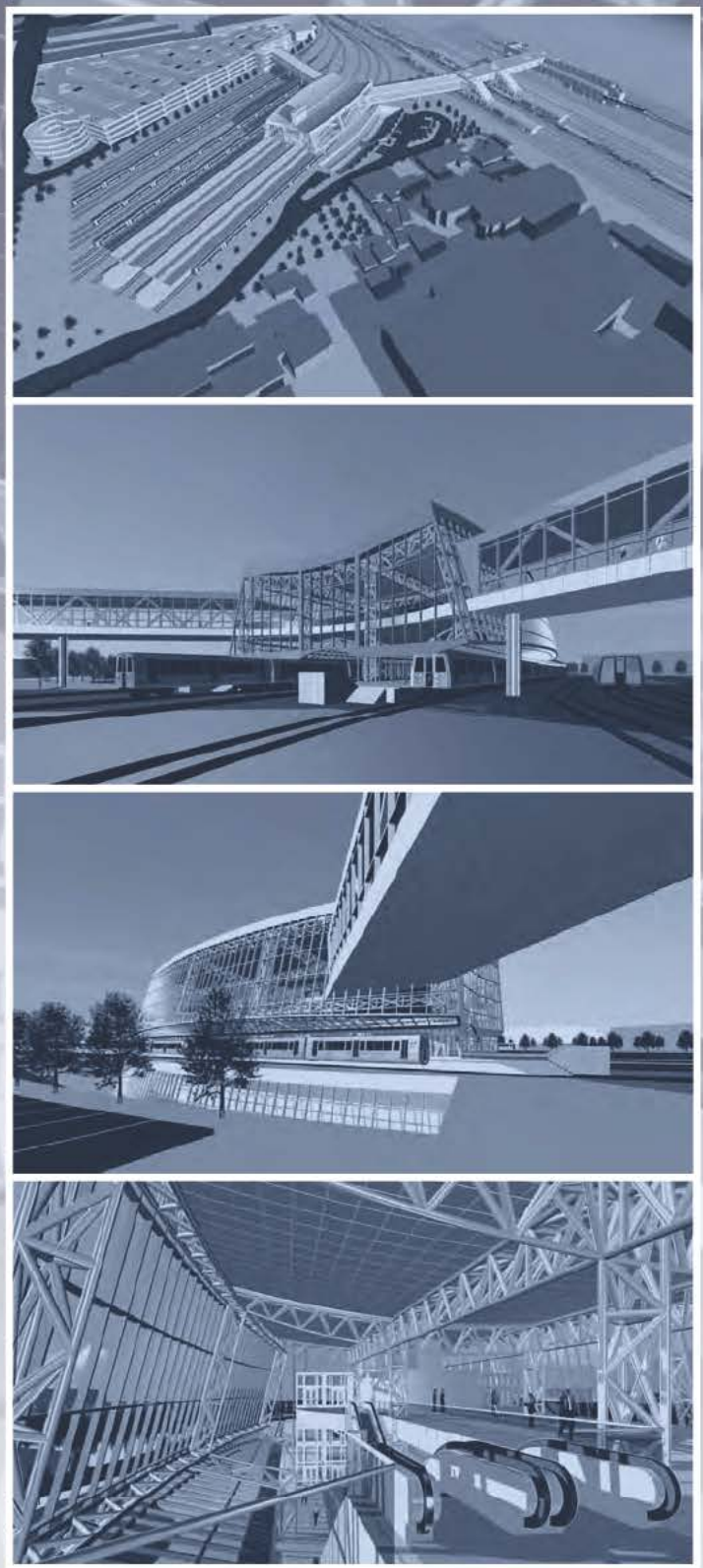
This certificate acknowledges that the above named firm is certified as a **Minority/Woman-owned Business Enterprise.** This company has met the criteria for ownership and control as established by the Port Authority Policy for Revised Minority, Woman and Small Business Enterprise (M/W/SBE) Programs, dated June 10, 1993.

This certification will remain in effect for five years from the date of notice and may be extended only upon submission by you, and acceptance by the Port Authority of a Verification Statement attesting that the ownership and control of the business, on which this certificate is granted, has not changed. This office must be notified within 30 days of any material changes in the business which affect ownership and control. Failure to do so may result in the revocation of this certification and/or imposition of other sanctions. Please reference the above number on all correspondence directed to this office.

Wilfred Chabrier
General Manager
Certified: October 18, 2004

Rosemary Jenkins-Varela
Manager, Certification
Scheduled Re-evaluation: October 19, 2009

Form: 6/10/93 JM



Images: PATH Extension to EWR
(STV Facilities Group)

Section C - Transmittal Letter

CH2M
CH2M HILL New York, Inc.
22 Cortlandt Street
31st Floor
New York, NY 10007
O 212 608-3990
F 212-566-5059

The Port Authority of New York and New Jersey
4 World Trade Center
150 Greenwich Street, 21st Floor
New York, New York 10007
Attention: RFP Custodian

June 17, 2015

Subject: Request for Proposals for the Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an "As-Needed" Basis (RFP 42022)

Dear RFP Custodian:

Over the coming decades, the Port Authority of New York and New Jersey (the Authority) faces many challenges in reconfiguring and modernizing Newark Liberty International Airport (EWR). The first of a critical series of decisions that will shape the future airport is replacing the AirTrain System. Choices made today with respect to its alignment, technology, and procurement method will have far-reaching effects on the airport's future development. The ability to construct the replacement system by 2022 is paramount. To meet this challenge, the Authority requires a committed, local partner to assist in planning, defining, procuring, and overseeing the system's implementation to a successful operation that will become the central element of landside passenger conveyance. CH2M HILL (CH2M), in association with STV, will work with the Authority to forge that long-term program. CH2M and STV enjoy a long-standing working relationship on some of the New York Metropolitan area's highest profile transit and transportation projects, including the AirTrain at John F. Kennedy International Airport (JFK), the Hudson-Bergen Light Rail Transit, and the PATH World Trade Center Hub—delivered on time and on schedule.

The CH2M Team brings:

- ***Staff the Authority knows they can trust***
- ***A reputation for delivering DB/DBOM projects, at NY area airports and around the world***
- ***A local, close-knit core team***
- ***Innovative ideas, tailored for EWR***

Submitting as a single entity, CH2M exceeds the minimum qualifications in the RFP as enumerated below.

A Team that Exceeds Your Minimum Qualifications

Criterion / Description	CH2M Qualifications
A. Successful completion of at least one (1) major airport people mover project that included design, planning and technical functions as well as oversight of the construction of similar scope and complexity as the services contemplated herein. The project shall include work on both the systems and infrastructure components of the project and have a minimum construction value of $1 billion (adjusted for inflation / deflation), and should been completed within the past twenty (20) years.	CH2M had a significant role in the successful completion of the $1.9 billion JFK AirTrain, delivered via a design, build, operate, and maintain (DBOM) model. CH2M provided procurement planning and support and developed System Performance Requirements, O&M Contract and RFP documents. CH2M led oversight of Systems implementation, including infrastructure integration, design review, oversight of installation, testing and commissioning. The project was opened to the public in 2003; final completion occurred in 2006. STV served as the lead designer for the DBOM contractor.

Criterion / Description	CH2M Qualifications
B. Successful completion of a minimum two (2) projects of airport people mover concept development and specification with minimum values of $400 million.	CH2M led teams that developed concepts and specifications for the extension of the EWR AirTrain System to the Northeast Corridor, and also provided similar services for the JFK AirTrain. Each system's total installed cost exceeded $400 million.
C. Successful experience in developing staging of large multiphase construction projects in at least two (2) major airport projects within the last twenty (20) years, which allowed for the continued efficient operation of the airport throughout the entire construction.	In the last 10 years, CH2M developed staging plans for two major airport projects —Chicago O'Hare International and Chhatrapati Shivaji International (Mumbai, India) Airports, and is currently developing staging plans for the Philadelphia International Airport Capacity Enhancement Program. The staging and operational maintenance planning allowed for continued efficient operation of each airport throughout the period of construction.
D. Project Manager shall have a minimum of twenty (20) years of experience and multi-discipline technical expertise performing planning and implementation of Airport people mover systems. The Project Manager shall have professional experience on at least two (2) similar major automated people movers.	Janice Li, PE, has more than 24 years of diverse professional experience in transportation planning, operations, modeling, design, implementation, testing and commissioning and she has had major roles in the planning, design, procurement, construction, operations and maintenance of automated people mover systems including EWR and JFK AirTrains, Washington Dulles (IAD) and Hartsfield-Jackson Atlanta International (ATL) Airports.
E. The designated lead for each of the subject matter focuses shall have a minimum of eight (8) years professional experience in his/her specific expertise. The designated leads shall have professional experience on at least two (2) similar major programs.	Each CH2M Team subject matter leader has more than 20 years of professional experience in his/her field of expertise. Their similar projects include the EWR and JFK AirTrains, the Tampa International Airport Automated People Mover (APM), the Los Angeles International Airport (LAX) APM, the Las Vegas APM, and the Hudson-Bergen LRT, as well as transit systems for MTA, CTA, NJTA, PATH, and other New York Metro agencies.

Having exceeded the minimum criteria, our CH2M Team presents several key differentiators that we believe make us the team of choice for the Authority on this important, cornerstone program at EWR.

Staff You Know and Trust

The real strength of our team lies in its leadership, which will be located at 22 Cortlandt Street, right across from the Authority's offices in WTC Tower 4. Project Manager **Janice Li, PE**, has more than 24 years of exceptional technical and management qualifications, and first-hand contractor oversight experience for the EWR and JFK AirTrain systems. Janice is well known to the Authority for her commitment and ability to collaborate with all parties and deliver complex projects. She has demonstrated this track record on both AirTrain systems and at PATH since 1998.

Ten of our eleven senior staff members, including Project Manager Janice Li, worked to help the Authority deliver the JFK and EWR AirTrains.

Supporting Janice in the leadership of this team are:

- **Robert Davidson, FAIA, NCARB**, who directed the overall master planning, urban design, and terminal building design of EWR, JFK, LGA redevelopment programs as the Authority's former Chief Architect;
- **Steve Pressler, PE**, who is serving as CM Principal-In-Charge on the LGA redevelopment and oversaw the JFK Terminal 4 program; and
- **Kirby King,** who served as the Authority's Deputy Program Manager on the JFK AirTrain program.

Principal-in-Charge **David Strong, PE** was the first Systems Project Manager for the JFK AirTrain and was integral to the systems procurement, design, programming, and commissioning.

The core management team reporting to Janice includes leaders who have also attained recognition in the industry for their service to the Authority:

- **Victor Simuoli, PE**, Systems Integration, who was the Systems Project Manager on the JFK AirTrain;
- **Tedd Snyder, PE**, Systems Lead, whose background includes planning, design, procurement, installation, and commissioning of six APM systems and serves as the Vice Chairman of the American Society of Civil Engineers' APM Standards Committee;
- **Anip Parikh,** Operations Lead, who provided system oversight, vehicle testing, and daily operations monitoring on EWR's current AirTrain system;

Core Management Team

- **Kishor Doshi, PE**, Guideway Structures Lead, who served as STV's Chief Structural Engineer for the JFK AirTrain;
- **James Hemmerly, AIA**, Facilities Lead, who is leading the development of LAX's APM and has designed terminals at JFK and Logan Airports; and
- **Joseph Graziosi,** Construction Manager, who serves as Project Director on several EWR key capital improvement projects.

A Holistic Approach Focused on 2022 Delivery

The time has come to go beyond the high level planning for the Replacement AirTrain Program. To accomplish delivery of a new AirTrain system in 2022, our Team will bring downstream design-build experience up into the concept development. CH2M and STV have a fresh, delivery-oriented mindset, with the experience and perspective of an owner, owner's agent, designer, and constructor, which enables us to give the Authority practical recommendations to move the project forward.

Our firms have repeatedly demonstrated their ability to deliver complex design-build programs within tight timelines. For example, when the completion date of the original EWR AirTrain could not be determined or fixed, the Authority brought in CH2M and we delivered the system in 6 months. On the JFK AirTrain System, CH2M provided support to the Authority from the early procurement stages, including developing the contracting strategy, developing the operations and maintenance (O&M) portion of the DBOM contract, systems specifications, proposal evaluation, and negotiations, through system design. CH2M also provided technical support to the Authority in the interface with the MTA for using the Metrocard as the AirTrain fare medium and helped to negotiate using radio spectrum for AirTrain emergency communications with the Authority's Public Safety Department. Finally, CH2M has

led major airport developments, involving complex construction staging and phasing, at Chicago O'Hare, Philadelphia, and Mumbai International Airports.

STV was the lead designer on the DBOM team that built the AirTrain JFK System. STV is currently completing a planning and conceptual design assignment for an APM system at LAX that is very similar to the EWR AirTrain in many respects. STV has also designed numerous terminal and station facilities at the local airports, as well as for MTA, CTA, PATH, and other local transit and transportation agencies. There is no better partner than a CH2M and STV team to plan and deliver a complex AirTrain Program at EWR.

Local Proven Partners that Form a Close-Knit Core Team

CH2M and STV both have their regional transportation headquarters in the New York Metropolitan area. For more than four decades, CH2M (including legacy companies Halcrow and Booz Allen Hamilton) and STV have helped the Authority plan, design, procure, and deliver some of the most complex transit and transportation projects in the area. Recognizing that large consultant teams can be difficult to manage – both internally and for the Authority – CH2M and STV have formed a two-tiered organization to provide the Authority with seamless access to the expertise required for this project. CH2M and STV will provide the leadership positions for a core team that will drive the Program elements. To complement this core team, we have supplemented our roster with the following specialty subconsultants that will be used as needed:

- Ammann & Whitney
- Cambridge Systematics, Inc.
- Domingo Gonzales Associates (MBE)
- Fortune Shepler Saling Consulting, Inc.
- Gordon H. Smith Corporation
- HMMH, Inc. (WBE)
- Interactive Elements, Inc. (WBE)
- JCMS, Inc. (MBE)
- KS Engineers, P.C. (MBE)
- NAIK Consulting Group, P.C. (MBE)
- Reynolds, Smith & Hills
- Ross & Barruzini, Inc.
- Sikora Wells Appel
- SIMCO Engineering, P.C. (MBE)
- Ting & Li Architects, P.C. (WBE)

Innovative Ideas to Tie Together the Entire EWR Landside

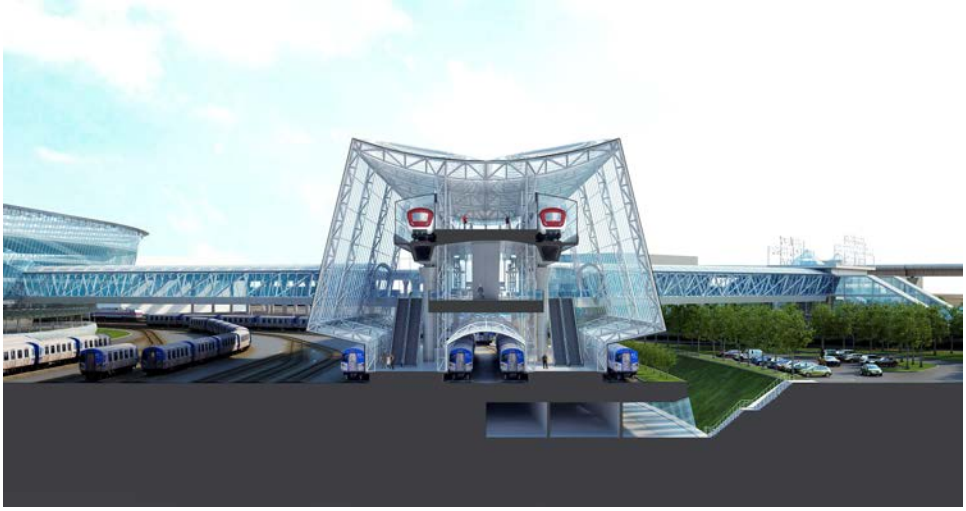
As a final thought, the Replacement AirTrain integration into the ambitious redevelopment of EWR represents an opportunity for innovative thinking, particularly at this early phase of the redevelopment effort where forward thinking can be entertained. Because of CH2M Team leadership's expansive work throughout the history of EWR redevelopment, we have identified a potential opportunity to augment the development of EWR, which is rooted in our leadership of the master planning and design of existing AirTrain Newark and Newark Airport NEC Gateway Terminal, as well as the PATH to Newark Airport Extension Stage I Design.

Anticipating the extension of PATH to the EWR, terminals on the NEC rail right-of-way could provide a dynamic opportunity to collocate the Authority's premier New Jersey rail service with the airport's new premier airport access/airport circulator service in a single gateway terminal and link it to the existing Amtrak/New Jersey Transit platforms—a seamless connection from the World Trade Center Transit Hub in Lower Manhattan to Replacement AirTrain.

Developing the PATH Terminal – the terminus for creating a one-seat-ride to the airport from the World Trade Center – to include the Replacement AirTrain would establish a new EWR Airport Gateway Terminal. This could be accomplished by positioning the Replacement AirTrain alignment, coming from the airport to the NEC, to fly-over the NEC into the proposed PATH terminal, thus completing the public space component of the PATH-to-Newark Extension Program. This solution would also include a new yard and storage site, as well as PATH administration, within the new terminal.

This might also offer the opportunity to:

1) Relocate car rental operations to a consolidated facility with connections to the terminal, better serving airport passengers and potential car rental customers from regional rail who might rent at the airport.
2) Create intermodal curbsides for regional bus to access the PATH and Replacement AirTrain.
3) Include private auto parking to accommodate a park-and-ride service to Lower Manhattan, as well as park-and-fly service to EWR.



PATH Extension | AirTrain Terminal-Newark Airport's Multimodal Gateway Terminal

Our CH2M Team will be happy to provide more detail on this innovative idea during oral presentations.

We are excited to form a partnership with the Authority to evaluate, plan, procure, and deliver this critical component of EWR's future. Should you have any questions or require additional information please do not hesitate to contact me via (908) 507-0220 or email (david.strong@ch2m.com).

Sincerely,

Thomas Klin
President, Northeast Transportation Director

J. David Strong, PE
Vice President, Principal-In-Charge

May 11, 2015

SUBJECT: REQUEST FOR PROPOSALS (RFP) FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) – ADDENDUM # 1

Dear Sir or Madam:

The Port Authority of New York & New Jersey hereby amends the subject Request for Proposal (RFP) letter, dated May 4, 2015 as follows:

In the RFP Letter:

Page 1, after the first paragraph, skip a line and insert the following paragraph:

Proposers are advised, that while not currently anticipated, nothing herein shall preclude the Authority from determining at a subsequent point in time, that performance of the services contemplated hereunder gives rise to the existence of, or the appearance of, a conflict of interest, and thereby conclude that the firm(s) selected for performance of the subject services, are expressly precluded from participation in, or the performance of, other EWR Airtrain Replacement contracting opportunities. Your attention is directed to paragraph 30, of the attached Standard Agreement.

The due date of this RFP remains May 27th at 2:00 P.M.

If you have any questions, please contact Ms. Jessica Smith at JLSmith@panynj.gov

Sincerely,

David Gutierrez, CPPO
Manager, Construction Projects
Procurement Department

Acknowledgement of Addenda #1

J. David Strong, PE
Vice President

June 17, 2015

Procurement Department
4 World Trade Center
150 Greenwich Street, 21st Floor
New York, NY 10007

May 13, 2015

SUBJECT: REQUEST FOR PROPOSALS (RFP) FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) – ADDENDUM # 2

Dear Sir or Madam:

The Port Authority of New York & New Jersey hereby amends the subject Request for Proposal (RFP) letter, dated May 4, 2015 as follows:

In the RFP Letter:

Page 1, Section I. Proposer Requirements, Item A., first line, delete the phrase "airport circulator" and replace with "automated people mover".

Page 1, Section I. Proposer Requirements, Item D., fourth line, delete the phrase "airport circulator" and replace with "automated people mover".

Page 3, Section II. Proposal Format Requirements, Item M., second line, delete "May 27, 2015" and replace with "June 3, 2015".

Please note: The due date of this RFP has been changed to June 3rd at 2:00 P.M.

If you have any questions, please contact Ms. Jessica Smith at JLSmith@panynj.gov

Sincerely,

David Gutierrez, CPPO
Manager, Construction Projects
Procurement Department

Acknowledgement of Addenda #2

J. David Strong, PE
Vice President

June 17, 2015

Procurement Department
4 World Trade Center
150 Greenwich Street, 21st Floor
New York, NY 10007

May 18, 2015

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) - ADDENDUM # 3

Dear Sir or Madam:

The Port Authority of New York & New Jersey hereby amends the subject Request for Proposal (RFP) letter, dated May 4, 2015 as follows:

In the Attachment A:

On page two, under section II. Scope of Work, subsection B., first line, delete "financial analysts".

On page two, under section II. Scope of Work, subsection B., item 11, delete "and financing".

On page four, under Section III. Description of the Consultant's Tasks, under Phase One, Task A: General Planning Services, Item 5 titled "Procurement and Financing Strategy", remove "and Financing" from the title.

On page four, under Section III. Description of the Consultant's Tasks, under Phase One, Task A: General Planning Services, Item 5, delete sub item b), in its entirety.

The following question is from an RFP recipient. The question and the corresponding Authority answer is provided for your information and use, as appropriate.

Question: The Attachment A mentions ". . .future Terminal B expansion programs" and "... redevelopment efforts that may be undertaken by the Authority for EWR, including... Terminal B Expansion". Is a Terminal B expansion study currently available? If not, does the Authority intend to develop a Terminal B expansion study simultaneously with the EWR AirTrain replacement project?

Answer: There is no Terminal B expansion study currently available. We intend on developing a Terminal B expansion study in the future.

Please note: The due date of this RFP remains June 3rd at 2:00 P.M.

If you have any questions, please contact Ms. Jessica Smith at JLSmith@panynj.gov

Sincerely,

David Gutiérrez, CPPO
Manager, Construction Projects
Procurement Department

Acknowledgement of Addenda #3

J. David Strong, PE
Vice President

June 17, 2015

Procurement Department
4 World Trade Center
150 Greenwich Street, 21st Floor
New York, NY 10007

May 26, 2015

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) - ADDENDUM # 4

Dear Sir or Madam:

The Port Authority of New York & New Jersey hereby amends the subject Request for Proposal (RFP) letter, dated May 4, 2015 as follows:

In the RFP Letter:

Page 1, Section I. Proposer Requirements, Item A., last line, delete "ten (10) years" and replace with "twenty (20) years".

Page 1, Section I. Proposer Requirements, Item C., second line, delete "ten (10) years" and replace with "twenty (20) years".

Page 1, Section I. Proposer Requirements, Item D., fourth line, delete "three (3)" and replace with "two (2)".

Please note: The due date of this RFP has been changed to June 17th at 2:00 P.M.

If you have any questions, please contact Ms. Jessica Smith at JLSmith@panynj.gov

Sincerely,

David Gutierrez, CPPO
Manager, Construction Projects
Procurement Department

Acknowledgement of Addenda #4

J. David Strong, PE
Vice President

June 17, 2015

Procurement Department
4 World Trade Center
150 Greenwich Street, 21st Floor
New York, NY 10007

June 4, 2015

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) – ADDENDUM # 5

Dear Sir or Madam:

The Port Authority of New York & New Jersey hereby amends the subject Request for Proposal (RFP) letter, dated May 4, 2015 as follows:

In the RFP Letter:

Page 2, Section II. Proposer Format Requirements, Item A., third line, after "A, B, C, H, I and J below," add "the Attachment D, Staffing Analysis".

The due date of this RFP remains June 17th at 2:00 P.M.

If you have any questions, please contact Ms. Jessica Smith at JLSmith@panynj.gov

Sincerely,

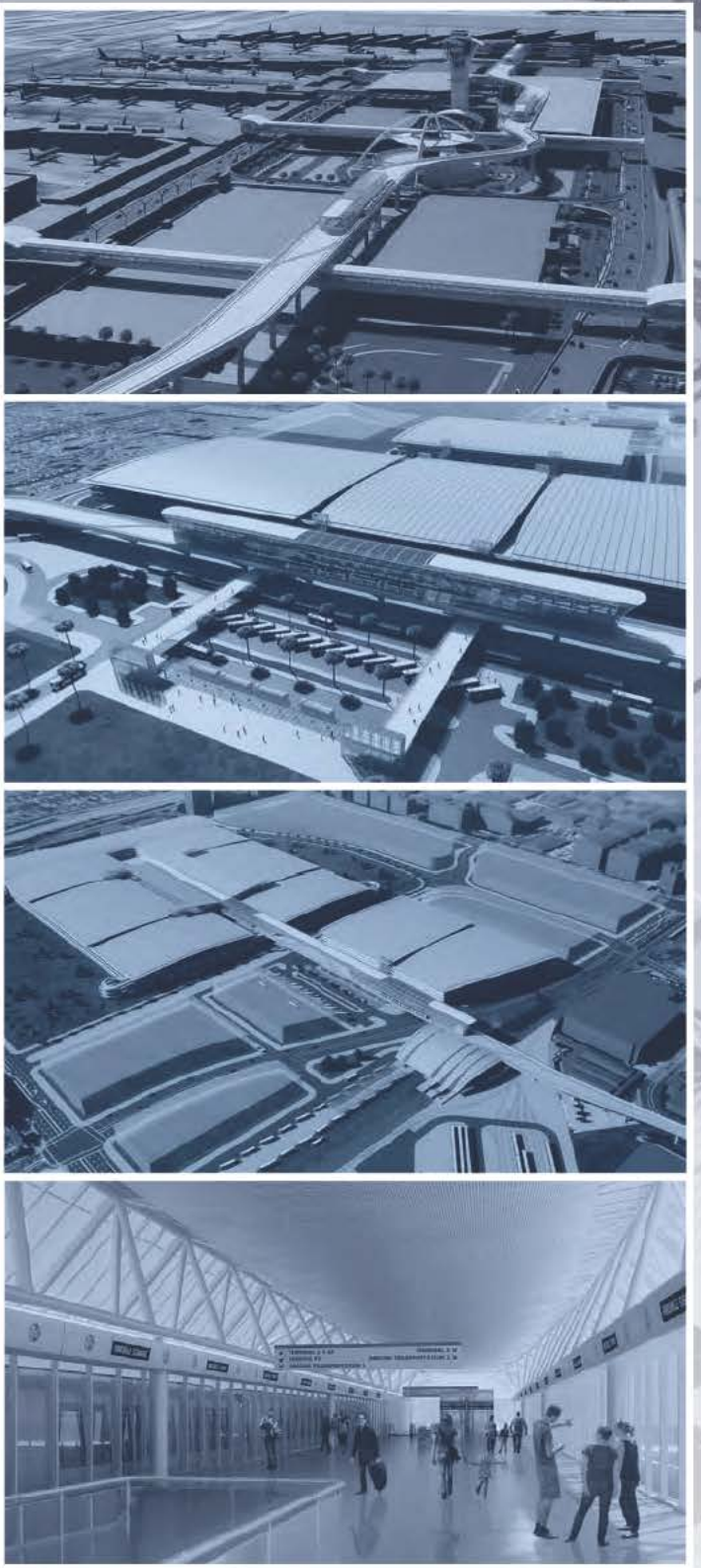
David Gutierrez, CPPO
Manager, Construction Projects
Procurement Department

Acknowledgement of Addenda #5

J. David Strong, PE
Vice President

June 17, 2015

Procurement Department
4 World Trade Center
150 Greenwich Street, 21st Floor
New York, NY 10007



Images: Los Angeles International Airport Landside Access Modernization Program (LAMP) and Airport Metro Connector (STV Facilities Group)

Section D - Qualifications and Experience of Staff

D

The CH2M Team is comprised of seasoned professionals who have proven their value on previous Authority projects like the original Newark AirTrain and JFK AirTrain. Our organization is structured to provide the Authority with a focused, cost-effective core team supported by discipline specialists who can be called upon as required.

Team Organization

The CH2M Team's organization provides the Authority with a world-class team, headquartered across the street from its offices in Lower Manhattan, which uses a core team to accomplish most tasks with specialized subconsultants to provide as-needed expertise. Exhibit D-1 identifies the key individuals, their titles, firm, function, task responsibilities, and reporting relationships for both phases of the project.

Experience and Availability of Project Manager Janice Li, PE

The following table shows projects Janice Li has managed in the past 5 years that are similar to the EWR Replacement AirTrain. If our team is selected, Janice will be 85% available to this project until September 2017, after which she will be 100% available until the end of the contract.

Client/Project	Duration As PM	Current Time Allocation
Federal Railroad Administration, Monitoring and Technical Assistant Contract – Task Order 2 Northeast Corridor	Aug 2014 – Ongoing (forecast end Sept. 2017)	15–20%
Confidential Client, Maryland Purple Line	Aug. 2014 - March 2015	n/a
Regional Transportation Authority, Estimating the Operating Cost Impacts of Capital Projects	Dec. 2012 – Sept. 2014	n/a
PANYNJ, EWR AirTrain Engineering/Overhaul On-Call Service	April 2007 – March 2012	n/a
PANYNJ EWR AirTrain As-Needed O&M Service	May 2009 – March 2012	n/a
Supporting Tasks and Corporate Responsibilities	n/a	85-80%
	Total	100%

Janice Li, PE, Project Manager – Janice has 24 years of exceptional technical and management qualifications and first-hand planning and design experience for both the AirTrain-Newark and AirTrain-JFK systems. She is well known to the Authority for her work on both AirTrain systems and at PATH since 1998. Between 2007 and early 2012, Janice provided extensive support to the Authority at AirTrain-Newark for the O&M contract oversight and the various Capital Asset Replacement Programs for vehicle, train control system, communication system, power distribution system, guideway structure and equipment, and maintenance facility equipment. She has also provided technical oversight for the Honolulu Area Rapid Transit APM System, the Atlanta Airport Consolidated Rental Car Facility APM, the Dulles AirTrain APM, and the Tren Urbino APM Systems. She possesses a comprehensive knowledge of the EWR AirTrain system, as well as best practices in APM technology from around the world. ***There is no better candidate to serve the Authority in this critical role***.

Benefit to the Authority: Janice is a proven commodity, known and respected by the Authority, transit agencies, key stakeholders, systems suppliers, technology providers, consultants, and contractors in the New York Metro area. She will lead the CH2M Team in providing the Authority with the best long-term solution that supports the holistic development of the landside and terminal facilities at EWR.

Exhibit D-1 Organization Chart – Phases I and II

THE PORT AUTHORITY OF NY & NJ

Principal-in-Charge
David Strong, PE

Quality Manager
Kelly O'Connor, PE

Project Manager
Janice Li, PE

Industry Experts
Tim Brown, PE
(Airport Programming)
Scott McIntyre, PE (STV)
(Airport Construction)

PROJECT CONTROLS

Dinesh Damavarapu

Document Control
Dain Devaux (IE)

Scheduling
Yadunandan Lokanath (JC)

Cost Estimating
Kevin Meehan (JC)

Value Engineering
David Kirk, CVS (STV)

Claims/Contract/Warranty
Linda De Lotto

Contractor Invoice Processing
Linda De Lotto

Project Reporting
Philip Rosner (IE)

BIM/CADD
Vincent Poon (STV)

Computer Network
Kevin George

Public Outreach
Maxine Finkelstein (IE)

Administrative Support
TBD (JC)

CORE TEAM

Program Planning/Architecture
Robert Davidson, FAIA, NCARB (STV)

Agency & Stakeholder Coordination
Kirby King

Construction
Steve Pressler, PE (STV)

Systems & Technology
Tedd Snyder, PE

Planning
Anip Parikh

Facilities
James Hemmerley, AIA (STV)

Infrastructure
Kishor Doshi, PE (STV)

System Integration
Victor Simuoli, PE

Construction Oversight
Joseph Graziosi (STV)

CORE DISCIPLINE TEAM

Alignment Layout Design
Tedd Snyder, PE

Train - Electrical
Muamer Dedovic
Larry Scarcia

Train - Mechanical
Marcin Taraszkiewicz, PE

Train Control
Girish Ananthashankaran

Communication
Stuart Landau, PE

Traction Power Substation
Brandon Swartley, PE (STV)
Peter Sokolow, PE

Demand Modeling & Analysis
Anurag Komanduri (CS)
Nikhil Puri (CS)

Train Operation & Analysis
Rick Newton

Passenger Flow & Queuing Modeling Analysis
Steven Scalici, PE (STV)
Victoria Carlin

Architecture
Ronald Lem, AIA (STV)
Daniel Kreiss (TL)

Structural
Christopher Cerino, PE (STV)

Mechanical
Anthony Bayer, PE (STV)

Electrical
Fred Tamayo, PE (STV)

Plumbing
James Perise, PE (STV)

Fire Protection/ Life Safety
Nishant Nayan, PhD

Guideway Structures
Kishor Doshi, PE (STV)
George Assis, PhD, PE (KS)

Site/ Civil
Donald Yue, PE (STV)
Frank Frega, PE (KS)

Site Planning/Utilities
Joseph Brownstein, PE

Traffic Engineering
Patrick O'Mara, PE, PTOE (STV)
Michael Monteleone, PP, AICP (SM)

Testing & Commissioning
Muamer Dedovic

System Assurance
Sahith Moturu

System Safety
Gopala Muthukrishnan

Security
Erin Gorrie
Thomas Lentz (STV)

O&M
Anip Parikh

Constructability Review
Peter Dewes, PE (STV)

QA/QC Inspector, System
Rafael Torres (IE)

QA/QC - Infrastructure/Civil
Santosh Pola (KS)
Rolston Saul, PE (KS)

3rd Party Coordination
Kevin Zsamba

Airport Operations Coordination
Michael Bodek, PE

MPT
Warren Michelsen, PE, PTOE (SM)

SPECIALTY SUPPORT TEAM

Platform Door
Larry Scarcia

Fare System
Brian Stein

Information System
David McGhee (RB)

Traffic Modeling
Kelly Bird, PE (STV)
Keir Opie (CS)

Environmental Assesment/Permitting
Molly MacQueen (STV)
David Full, AICP (RSH)

Building Codes
Harry Orthos

Lighting Design
AC Hickox, LC (DG)

Wayfinding
Kristen Horvath (STV)

Exterior Wall
Mitchell Stein (GS)

Landscape Architecture
Joseph Sikora, RLA (SW)

Geotech/Tunneling
Harald Leiendecker, PE
John Pizzi, PE (STV)

Sustainable Design
Christopher Sawyer (STV)

Climate Resiliency
Adam Hosking

Vertical Transportation
John Saling (FS)

Structural Blast Analysis
Joel Stahmer, PE (AW)

Visualization
Adrian Barrios (STV)

Procurement Development
David Strong, PE

Project Delivery & Legal Support
John Kish, JD

Procurement Support
Christine Coughlan

Life Cycle Cost Benefit Analysis
Eva Chan, CEng

RAMS
Gopala Muthukrishnan

Risk, Threat & Vulnerability Assessment
Victor Simuoli, PE

Site Safety
Michael Bodek, PE

Site Survey
Jason Larson (NK)

GIS/ Mapping
Danielle Hartman

Noise & Vibration
David Towers, PE (HM)

Air Quality
Philip DeVita (HM)

LEGEND
Staff are CH2M, unless otherwise specified:

STV	STV Incorporated
AW	Ammann & Whitney, Inc
CS	Cambridge Systematics, Inc
DG	Domingo Gonzalez Associates (MBE)
FS	Fortune Shepler Saling Consulting, Inc
GS	Gordon H. Smith Corporation
HM	HMMH, Inc. (WBE)
IE	Interactive Elements, Inc (WBE)
JC	JCMS, Inc. (MBE)
KS	KS Engineers, PC (MBE)
NK	Naik Consulting Group, PC (MBE)
RS	RS&H Architect and Engineer, PC
RB	Ross & Barruzini, Inc.
SW	Sikora Wells Appel
SM	SIMCO Engineering, PC (MBE)
TL	Ting & Li Architects, PC (WBE)

Summary of Key Leaders' Qualifications

The following summarizes the expertise of our key leaders, experience that has prepared to serve their roles, and benefits they will convey to the Authority as part of the Replacement AirTrain Team.

Robert Davidson, FAIA, NCARB, Program Planning/ Arhictecture – Bob is an award-winning architect with 35+ years of experience, known for his design of aviation, multimodal, and transit projects. He spent 34 years with the Authority where he served as Chief Architect from 1991 through 2004. He and his staff provided high quality, in-house aviation and multimodal master planning and architectural design services. This work included oversight and design guidance for the EWR and JFK AirTrains.

Benefit to the Authority: No one is more familiar with the development, planning, design, and delivery of the region's two AirTrains. Bob's comprehensive knowledge of these systems, the forces that forged their development, architectural standards to which they were designed, and regulatory environment in which they were built. In addition to his talent as a world-class architect and designer of some of New York and New Jersey's most iconic structures, Bob provides our team with an encyclopedic knowledge of all things EWR AirTrain.

Kirby King, Agency/Stakeholder Coordination – A 30-year veteran of the Authority, Kirby served the Authority in multiple and diverse leadership roles that were essential to fulfilling the Agency's mission to provide critical transportation, terminal and other facilities of commerce and economic development. These positions included Director of the Technology Services Department, Deputy Director for PATH, Assistant Program Director for the JFK AirTrain, and Program Manager for the World Trade Center Development, as well as several years in the Authority's Engineering Department.

Benefit to the Authority: Kirby's ability to work with and across Authority departments, stakeholders, regulators, and virtually every entity that will be involved in the Replacement AirTrain Program makes him the ideal candidate to forget consensus among a group of diverse interests. Through his vast network of relationships in the Authority and the other participating stakeholders, Kirby will help our team maintain momentum through the key decision and approval points that will be critical to program success.

Steve Pressler, PE, Construction – Steven has overseen construction of multiple, large Authority aviation projects, and knows PANYNJ design standards and guidelines, as well as the importance of construction phasing for projects on an active airfield. As Constructability Reviewer, he will use this in-depth knowledge to guide developing well-coordinated and constructible docuements for the Replacement AirTrain that minimizes impacts to EWR's ongoing operations.

Benefit to the Authority: Steve has spent the last 25 years leading some of the Authority's most high profile programs at their three airports, directing preconstruction and construction phases of large-scale aviation projects. His comprehensive knowledge of the airport's infrastructure, operations, access and egress points, as well as his relationships with the local contracting community, will enable our team to facilitate the safest and most expeditious construction of the Replacement AirTrain.

Tedd Snyder, PE, PMP, Systems & Technology – Tedd has more than 30 years of professional experience, focusing on the design and testing of passenger transportation technologies such APMs, rail rapid transit, and monorails. His experience includes the planning, design, systems integration, and procurement of APM systems at Tampa International and Houston Intercontinental airports, the Las Vegas Monorail, and the Jacksonville Automated Skyway Express APM. His expertise covers guideway alignment planning, systems technology assessments and recommendations, vehicle specification and procurement, and installation, testing, and commissioning of APM systems. He serves as Vice Chairman of the ASCE's APM Standards Committee.

Benefit to the Authority: Tedd's experience encompasses all facets of APM planning, design, engineering, systems integration, procurement, installation, and testing. His ability to successfully deliver seven major APM systems, including four airport APM systems, gives the Authority confidence that he can guide the early development of the systems and guideway to provide EWR with a long-term AirTrain solution.

Anip Parikh, Planning – Anip brings more than 16 years of professional experience in transit/ transportation planning, service planning, and operations planning analyses, operations simulation modeling, O&M cost modeling and capacity analysis,

advanced signaling systems, vehicle engineering, and testing and commissioning. Anip served as the project engineer and operations modeler for the EWR AirTrain, where he also monitored the systems daily operations and performance. His projects have included the Hudson-Bergen LRT, the Southern New Jersey LRT, the Newark City Subway, the MTA Flushing Line, and numerous other projects for New Jersey Transit.

Benefit to the Authority: Anip has repeatedly demonstrated his ability to manage all aspects of operations analysis, from service planning to planning analyses to passenger and operations simulation. His leadership of the operations analysis will enable our team to develop accurate forecasts, determine passenger capacity and circulation, accurately analyze an emergency evacuation, determine service maintenance requirements under failure scenarios, and provide a comprehensive Operations Plan for Replacement AirTrain.

James Hemmerly, AIA, Facilities – With more than 35 years of architectural expertise, Jim has led station design for transit facilities throughout the New York Metro area. Those projects include designing NYCT passenger stations for the 2nd Avenue Subway, an 8.5-mile line in Manhattan; designing the new East Side Access LIRR station that will provide direct access to Grand Central Terminal; and developing architectural modifications and additions to the Frank R. Lautenberg (Secaucus Transfer) Station in New Jersey and a new 34th Street cavern station in Manhattan both part of the NJT/PANYNJ ARC Tunnel Project. Jim has also led the design of numerous airport terminals, including JFK Terminal 8 and Boston Logan Terminal A.

Benefit to the Authority: Jim possesses the perfect blend of rail system and airport design experience to create design criteria that will enable the AirTrain stations to complement and integrate with EWR's new terminals. His work in the New York Metro area with its agencies, regulators, stakeholders, consultants, and contractors will enable him to quickly establish guidance documents that promote and protect the Authority's standards.

Kishor Doshi, PE, Infrastructure – Kishor's 35-year career includes overseeing structural design for complex, multimodal facilities, including the new $3.2 billion Transportation Hub at the World Trade Center site and serving as Chief Structural Engineering for the JFK AirTrain. His expertise spans the entire spectrum of bridge structures, including viaducts, multispan composite bridges, and various types of foundations and underpinnings. Kishor has overseen all phases of large-scale projects involving preliminary design, final design, cost estimates, preparation of project reports, alternative analysis, and preparation of contract documents.

Benefit to the Authority: Kishor's experience spans every element of structural engineering. He was the Chief Structural Engineer for the JFK AirTrain system, where he monitored the preparation of structural drawings and specifications for construction of the guideways at the site of the new Jamaica Intermodal Station, as well as providing construction support services and reviewing post-tensioning sequences and the bearing loads. Kishor also designed the floating slab for the International Arrivals Building to isolate the vibrations generated by AirTrain. He also served a Chief Structural engineer for the Hudson-Bergen Light Rail DBOM and the PATH World Trade Center Transportation Hub.

Victor Simouli, PE, Systems Integration – Victor has more than 33 years of experience in and system integration and engineering. He has a broad spectrum of work in complex transit systems engineering and has served in key technical and management positions on large complex projects such as the JFK AirTrain; East Side Access; New York City Transit Signals and Systems Program; LIRR Signal Upgrade Program; and Southern New Jersey River Line.

Benefit to the Authority: Victor's experience in resolving programmatic issues on large, complex mega projects will enable him to manage the development of the entire system, not just the parts that comprise it. With his work on all facets of APM and transit design, the Authority can have confidence that Victor will help bring the entire program solution to fruition.

Joseph Grazioso, Construction Oversight – Joe is a construction management executive with more than 30 years of leadership in preconstruction and project execution for large aviation projects in the New York Metro area. He has knowledge of cost estimating, alternative analysis, risk assessments, contract law, and value management.

Benefit to the Authority: Joe is experienced with large, complex construction projects on active airfields, particularly at EWR and JFK, and will apply these lessons learned and best practices to the Replacement AirTrain project to keep the construction on schedule and within budget.

Dinesh Damavarapu, Project Controls – Dinesh is a program management professional with more than 24 years of extensive and diversified experience on major programs and projects around the world. He specializes in scheduling, project controls, contract administration, risk management and construction management. He is completing an assignment where he has been responsible for program controls for a $5 billion program that joins downtown Toronto to Toronto Pearson International Airport.

Benefit to the Authority: Dinesh is a seasoned program controller whose expertise in managing the scope, schedule, budget, of multi-billion rail and infrastructure programs gives the Authority confidence that he can provide accurate information – in real time – that will facilitate effective decision-making and keep program momentum.

Subconsultant Team

The following table shows each firm's name/address, scope, and summarized their qualifications.

Firm Name/Address	Scope of Services	Summary of Qualifications
STV Incorporated 225 Park Ave S, NY, NY 10003	Infrastructure/Facility	• Lead Arthitect for JFK AirTrain DBOM • Lead Architect for LAX APM facilities
Ammann & Whitney 96 Morton Street, NY, NY 10014	Structural Blast Analysis	• Structural/security engineer for JFK Terminal 5 • PANYNJ Security Call-in Consultant
Cambridge Systematics, 100 Cambridge Dr, Cambridge, MA 02140	Ridership Modeling & Analysis	• PATH ridership analysis, PATH Station to EWR • Travel demand forecasts, PHX Intl Airport
Domingo Gonzalez Associates 25 Park Pl, 5th Fl, NY, NY 10007	Lighting Design	• Architectural lighting design, JFK AirTrain • Architectural lighting design, Dulles APM
Fortune Shepler Saling Inc., 37 Woodland Rd, Maplewood, NJ 07040	Vertical Transportation	• Vertical transportation, EWR Terminal C • Vertical transportation, RDU Terminal 2
Gordon H. Smith Corporation 200 Madison Ave, NY, NY 10016	Exterior Wall	• Exterior wall consultant, JFK AirTrain • Exterior wall consultant, Jamaica Station
HMMH, Inc., 77 South Bedford St, Burlington, MA 01803	Air Quality/ Noise & Vibration	• Part 150 Study, EWR and TEB • Vibration analysis, JFK AirTrain
Interactive Elements, Inc. 60 West 55th St, NY, NY 10019	Project Controls, Public Outreach, Inspection	• Oversight/inspection of MTA vehicles/systems • Track inspection, Hudson-Bergen LRT
JCMS, Inc., 1741 Whitehorse Mercerville Rd, Mercerville, NJ 08619	Cost Estimating/ Scheduling/Project Controls	• Project controls, EWR Fuel System Modification • EWR On-call Program Management Services
KS Engineers, P.C. 65 Broadway, Ste 401, NY, NY 10006	Site/Civil, Geotech, Structural Eng./ Inspection	• PANYNJ On-call Civil Engineering Services • PANYNJ On-call Structural Engineering Services
NAIK Consulting Group, P.C. 135 W 36th St, NY, NY 10018	Surveying	• Topographic/utility surveys, JFK Terminal 5 • Geometric layout – Fed Circ/Hwrd Bch Stations
RS&H, 10748 Deerwood Park Blvd S, Jacksonville, FL 32256	Environmental	• Part 150/NEPA strategy, EWR and TEB • Tampa Intl Airport, environmental services
Ross & Barruzini, Inc., 6 South Old Orchard Ave, St. Louis, MO 63119	Information Systems	• Identity/credential management, PANYNJ • PAX phone system replacement, JFK AirTrain
Sikora Wells Appel, 8 Kings Highway West, Ste A, Haddonfield, NJ 08033	Landscape Architecture	• Landscape architecture, JFK AirTrain • Landsacpe architecture, EWR CAT and SARP MP
SIMCO Engineering, P.C. 80 Maiden Lane # 501, NY, NY 10038	Traffic Engineering/ Ridership	• Traffic engineering, EWR lane closures • Traffic analysis, Manhattan/JFK Access Study
Ting & Li Architects, P.C., 611 Broadway, Suite 42, NY, NY 10012	Architecture	• Design detailing, EWR East Field lighting vault • Architecture/interior design, Marcus Gardens

Index of Staff Resumes

Name	Role
CORE TEAM	
Janice Li, PE	Project Manager
David Strong, PE	Principal-in-Charge/Procurement Development
Kelly O'Connor, PE	Quality Manager
Robert Davidson, FAIA, NCARB (STV)	Program Planning/Architecture
Kirby King, LEED AP BD+C	Agency & Stakeholder Coordination
Steve Pressler, PE (STV)	Construction
Tim Brown	Industry Expert – Airport Programming
Scott McIntyre, PE (STV)	Industry Expert – Airport Construction
Tedd Snyder, PE	Systems & Integration Lead/Alignment Layout Design
Anip Parikh	Planning Lead/O&M
James Hemmerley, AIA (STV)	Facilities Lead
Kishor Doshi, PE (STV)	Infrastructure Lead/Guideway Structures
Victor Simuoli, PE	System Integration Lead/Risk, Threat & Vulnerability Assessment
Joseph Graziosi, PE (STV)	Construction Oversight Lead
Dinesh Damavarapu, PMP, PMI-SP, PMI-RMP, CCP	Project Controls Lead
CH2M (Prime)	
Girish Ananthashankaran	Train Control
Michael Bodek, PE	Site Safety/Airport Operations Coordination
Joseph Brownstein, PE, CDT, LEED AP, Env SP	Site Planning/Utilities
Victoria Carlin	Passenger Flow & Queuing Modeling Analysis
Eva Chan, CEng	Life Cycle Cost Benefit Analysis
Christine Coughlan	Procurement Support
Muamer Dedovic	Train – Electrical/Testing & Commissioning
Linda De Lotto	Claims/Contract/Warranty/Contractor Invoice Processing
Erin Gorrie	Security
Danielle Hartman, GISP	GIS/Mapping
Adam Hosking	Climate Resiliency
John Kish, JD	Project Delivery & Legal Support
Stuart Landau, PE, MIRSE	Communication
Harald Leiendecker, PE	Geotechnical Engineering/Tunneling
Sahith Moturu	System Assurance
Gopala Muthukrishnan	System Safety/RAMS
Nishant Nayan, PhD	Fire Protection/Life Safety

Name	Role
Rick Newton	Train Operation & Analysis
Harry Orthos	Building Codes
Larry Scarcia	Train – Electrical
Peter Sokolow, PE	Traction Power Substation
Brian Stein	Fare System
Marcin Taraszkiewicz, PE	Train – Mechanical
Kevin Zsamba	3rd Party Coordination
STV (Infrastructure/Facilities)	
Adrian Barrios	Visualization
Anthony Bayer, PE, LEED AP BD+C, CEM	Mechanical
Kelly Bird, PE	Traffic Modeling
Christopher Cerino, PE, SECB	Structural
Peter Dewes, PE	Constructability Review
Kristen Horvath, LEED AP BD+C	Wayfinding
David Kirk, AIA, CCC, CCS, CVS-Life, LEED AP	Value Engineering
Ronald Lem, AIA	Architecture
Thomas Lentz, CPP, PSP	Security
Molly MacQueen, LEED AP	Environmental Assessment/Permitting
Patrick O'Mara, PE, PTOE	Traffic Engineering
James Perise, PE, LEED AP BD+C	Plumbing
John Pizzi, PE, D.GE	Geotechnical Engineering/Tunneling
Vincent Poon	BIM/CADD
Christopher Sawyer	Sustainable Design
Steven Scalici, PE	Passenger Flow & Queuing Modeling Analysis
Brandon Swartley, PE	Traction Power Substation
Fred Tamayo, PE	Electrical
Donald Yue, PE	Site/Civil
Ammann & Whitney (Structural Blast Analysis)	
Joel Stahmer, PE	Structural Blast Analysis
Cambridge Systematics (Ridership Modeling & Analysis)	
Anurag Kamunduri	Demand Modeling Analysis
Keir Opie	Traffic Modeling
Nikhil Puri	Demand Modeling Analysis
Domingo Gonzalez Associates (Lighting Design)	
AC Hickox, LC, LEED AP BD+C	Lighting Design

Name	Role
Fortune Shepler Saling Consulting (Vertical Transportation)	
John Saling	Vertical Transportation
Gordon H. Smith Corp (Exterior Wall)	
Mitchell Stein	Exterior Wall
HMMH (Air Quality/Noise & Vibration)	
Philip DeVita	Air Quality
David Towers, PE	Noise & Vibration
Interactive Elemnts Inc. (Project Controls, Public Outreach, Inspection	
Dain DeVaux	Document Control
Maxine Finkelstein	Public Outreach
Phillip Rosner	Project Reporting
Rafael Torres	QA/QC Inspector, System
JCMS (Cost Estimating/Scheduling/Project Controls)	
Kevin Meehan	Cost Estimating
Yadunandan Lokanath	Scheduling
KS Engineers (Site/Civil/Structural/Geotech Engineering, Inspection)	
George Assis, PhD, PE	Guideway Structures
Frank Frega, PE	Site/Civil
Santosh Pola	QA/QC – Infrastructure/Civil
Rolston Saul, PE	QA/QC – Infrastructure/Civil
NAIK (Surveying)	
James Larson	Site Survey
RS&H (Environmental)	
David Full, ACIP	Environmental Assessment & Permitting
Ross & Barruzini (Information Systems)	
David McGhee	Information System
Sikora Wells Appel (Landscape Architecture)	
Joseph Sikora, RLA, ASLA	Landscape Architecture
SIMCO (Traffic Engineering/Ridership)	
Michael Monteleone, AICP, PP	Traffic Engineering
Warren Michelsen, PE, PTOE	MPT
Ting & Li (Architecture)	
Daniel Kreiss	Architecture

Janice Li, PE

Project Manager

Education

MS, Master in Business Administration, University of Delaware
BS, Industrial Engineering, University of Washington

Professional Registrations

Professional Engineer: New York, New Jersey, Connecticut

Relevant Experience

Janice Li has more than 24 years of professional experience focused on planning, engineering, implementation, and management of transportation projects including automated, heavy, commuter, and light rail transit and bus systems. Her expertise is in the management, operations and maintenance (O&M) of transportation systems as well as strategic planning, performance/process improvement, simulation, system integration, asset management, and project delivery. She has provided these supports to airport, transit, and railroad agencies in North America, Middle East, and Europe.

Representative Projects

Project Manager, AirTrain Overhaul On-Call, PANYNJ, Newark, NJ. Janice was the Project Manager who oversaw the overhaul for the Automatic Train Control (ATC), communication, switch, power rail, and power distribution system for the EWR Northeast Corridor Extension (NEC) segment. The ATC scope included the upgrade of ATS, replacement of the Availability Tool, replacement of the simulator, and overhaul of wayside and vehicle ATC components. She also managed the mid-life overhaul program for train and facility equipment and various technical supports in reviewing inspection reports and state-of-good repair options for the guideway structure.

Project Manager and O&M Lead, Newark AirTrain As-Needed O&M Service, PANYNJ, Newark NJ. Janice was the Project Manager and O&M Lead on the Newark AirTrain On-Call O&M Consulting Service Contract. As supplemental staff to PANYNJ, she also provided onsite support in the daily O&M of the AirTrain EWR system that included review and oversight on maintenance plans, procedures, and management for trains, guideway, signal, communication, power distribution system, maintenance facility building and equipment, and station platform door; performance reporting; system safety and security; winter plan; training program; risk assessment of field service works; and engineering investigation and change requests. She oversaw the Condition Assessment Study of the Vehicle, Train Control, and Communication Systems, which included physical inspections and reliability reviews of these systems and developed State of Good Repair needs and capital cost estimates. She has also supported the Long Term Planning of the AirTrain Replacement program. For the O&M contract procurement, her work included supporting contract and technical document development, proposal evaluation, independent cost estimates, and contract negotiation.

System Project Manager (Startup Phase) and O&M Lead, JFK AirTrain Design and Construction, PANYNJ, Queens NY. Janice provided program management oversight and O&M support during the construction and startup phase of the JFK AirTrain service. She was the system project manager during the initial revenue service and design-build closeout phase. For design phase, she supported the O&M document review and car seating configuration design mock-up study. Throughout the project, she provided technical guidance in system performance, quality assurance, schedule, staffing, costing, training, operations policy, maintenance, material management, contract compliance, and contract change orders. She managed the system testing and commissioning program. Janice developed progress monitoring reports and made payment recommendations of contractor invoices. She was on the Availability Review Panel to evaluate contractor daily performance during initial service.

Janice Li, PE

Fare System Modeling Lead, Newark Airport - Northeast Corridor (NEC) Extension Project, PANYNJ. She evaluated the station passenger flow, fare policy, and fare collection system for the Newark Airport NEC station and developed a simulation model to assess station capacity, fare collection equipment requirements, passenger circulation, and station accesses.

O&M Specialist, Industrial Engineering Study, Port Authority Trans-Hudson Corporation (PATH), Harrison NJ. She supported development of a long-term maintenance program plan for the PATH Car Equipment Division.

Fare Study Task Manager and Maintenance Lead, Honolulu Rail Transit Project, Honolulu Authority for Rapid Transportation, Honolulu, HI. Task Manger of the fare study to assess technology options, including closed and open payment systems and near field communication technologies. She also led development of the Rail Fleet Management Plan and supported development of the O&M Plan.

O&M Lead, Consolidated Rental Car Facility (CONRAC) Automated People Mover Design and Implementation, Hartsfield-Jackson Atlanta International Airport, Atlanta, GA. For the construction and implementation phase services of a new landside APM system between terminal and CONRAC, Janice was a key team member provided design and implementation oversight for the operations, maintenance program, facility layout and equipment, security system, and guideway equipment.

Maintenance Information System Specialist, Washington Dulles International Airport Airside APM System, Dulles International Airport, Washington DC. During the testing phase of the Dulles Airport AeroTrain, Janice supported the acceptance review and testing of the MMIS appplication.

Project Manager, Confidential Client, Maryland Purple Line Technical Advisor, Washington, DC. Project Manager provided O&M advisory to a bid team during bid phase for a public-private partnership agreement to develop, design, construct, finance, operate, and maintain the Purple Line Light Rail Project.

Maintenance Specialist, New York City Transit, Flushing and 2nd Avenue Communication Based Train Control (CBTC), New York, NY. She was responsible for developing the support service and maintenance section of the technical specification for the car-borne and wayside systems for the Second Avenue Subway and the Flushing Line.

Task Order Manager, Monitoring and Technical Assistant Contractors – Region 2 (NEC), Federal Railroad Administration, New York, NY. Janice is providing monitoring and technical support to FRA in the oversight of capital projects funded by federal grant or loan program in the Northeast Region. The monitoring portfolio includes the Harold Interlocking NEC Congestion Relief Project, Moynihan Station Redevelopment Project, and Hudson Yards Resiliency and Right-of-Way Preservation Program.

Project Manager, "S" Line South Yard 30% Alternative Design, Virginal Department of Rail and Public Transportation, Richmond VA – Ms. Li was the Project Manager overseeing development of 30% design document for civil site and track design on the passing siding for improving passenger and freight operations along the Buckingham Branch Railroad segment.

Project Manager and Task Manager, RiverLine Capitol Extension – Alternative Analysis, Environmental Impact Statement Submittal, and Preliminary Engineering Design, New Jersey Transit, Trenton NJ – Ms. Li was the task manager oversaw the alignment alternatives analysis for a 1-mile extension of RiverLIne with addiotnal stations from existing Trenton intermodela station to downtown Trenton. The task also included procurement strategy, public outreach, alternatives assessment, capital and O&M cost esimtating, ridership study and traffic modeling. She was the system team project manager during the preliminary engineering and environmental assessment phases.

Employment History

CH2M, 1997-2006 and 2012-present; Lea+Elliott, Inc, 2006-2012; Amtrak, 1991-1997

J. David Strong, P.E.

Principal-In-Charge/Procurement Development

Education

MBA, Duke University
BS, Electrical Engineering, Cornell University

Professional Registrations

Professional Engineer: New Jersey

Relevant Experience

David Strong has more than 32 years of experience in project management, transportation system engineering, major project structuring and delivery, vehicle procurement management support, specification development, system integration, propulsion and braking system design, testing and commissioning. At CH2M's transit business, Mr. Strong leads the Vehicles and Systems Business, and is also responsible for project delivery oversight in the Mass Transit market for the North East Region. As a member of the transportation leadership team, Mr. Strong coordinates business development efforts nationally in areas including transit system engineering, rolling stock procurement support, project structuring and acquisition support.

Representative Projects

Systems Project Manager, JFK AirTrain, PANYNJ, New York, NY. JFK AirTrain Project Manager throughout the project initiation and design review phases. Subsequently served as the Principal-in-Charge during the manufacturing, testing and commissioning phases of the project. Led CH2M's work in the areas of project structuring and Contractor Selection, and in the technical areas of passenger vehicle, train control, traction power, communications engineering, and operations and maintenance planning. Led the team that re-wrote the technical specifications and O&M requirements in order to support the Design-Build-Operate-Maintain procurement approach. Developed the contractor selection process for this $1.5B procurement, and led the proposal technical evaluation for systems elements. Subsequently led the Systems Team in all phases including design review, manufacturing and construction oversight, testing and commissioning, and system startup.

Principal-in-Charge/ Project Manager, Port Authority Trans Hudson (PATH), Automatic Train Control Project. For the first 3 years of the project, served as the Project Manager of CH2M's assignment to provide Program Management Services for PATH's project to install Communications Based Train Control (CBTC) throughout their system. Currently serves as the Principal-in-Charge for this assignment. CH2M is the Prime consultant on this assignment, providing comprehensive services including project administration, document control, design review, installation coordination and oversight, testing and commissioning and safety approvals. The project kicked off late in 2009, and is scheduled to complete in 2017.

Technical Team Manager, Docklands Light Railway (London, UK). Responsible for completing the expansion and enhancement of this fully automated rail system. He was responsible for the design and implementation of integrating a new moving-block train control system with the vehicles and the existing infrastructure. He also led the concept development and specification of a health-monitoring system designed to enhance vehicle availability. He was responsible for developing and implementing

new operating and maintenance procedures. He also managed, planned, and implemented system wide performance demonstrations.

Management Oversight, Canarsie and Flushing CBTC Projects, New York City Transit, NY. Provides management oversight of CH2M's work in the Canarsie Line Resignaling and Flushing Resignaling projects. Also has been actively involved in project work in the area of vehicle integration. Led a special study to review the feasibility of equipping existing R62A and R142A vehicles with computer-based train control (CBTC) equipment for use on the Flushing Line. Under a separate contract to implement CBTC equipment on the Flushing Line and the Second Avenue Subway, served as chairman of the working group responsible for converting existing vehicles to CBTC control.

Management Oversight, Second Ave Subway, New York City Transit, NY. Provided management oversight of CH2M (Former Booz Allen) work in support of the Second Avenue Subway project. CH2M provided expertise in the areas of communications engineering and network design.

Software Developer, Maryland Transit Administration (MTA). Performed software development on the microprocessor-based propulsion logic for the vehicle propulsion and braking system. Directed the vehicle qualification tests for system startup in Pueblo, Colorado, and Baltimore, Maryland. During the start-up of the new system in Baltimore, served as the Field Engineer on behalf of Westinghouse.

Principal-in-Charge, Rolling Stock Projects, New York City Transit. Responsible for the management of staffing, deliverables, and quality of the new car procurement programs for New York City Transit.

Project Director, GEC Rolling Stock, Washington Metropolitan Area Transit Authority. CH2M multi-year General Engineering Consultant (GEC) Contract. Under this contract, CH2M provided a broad range of vehicle engineering support, systems engineering support, and project management assistance. CH2M led several tasks, including: procurement of 184 new railcars from Alstom (6000 Series), rehabilitation of 364 railcars (2000/3000 Series) built by Breda, and specification development and procurement support for Metro's next generation railcar procurement (7000 Series). Provided overall management and leadership of the consultant team and led the response to all client task order requests. Provided oversight of technical work on task orders, and coordinated regularly with senior client staff to assure that client expectations are met. For specific periods of time, also served as the Project Manager on the 2K/3K Rehabilitation Program, and on the 7000 Series task.

Principal-in-Charge, Long Island Rail Road, GEC Rolling Stock Contracts. Responsible for the management of staffing, deliverables, and quality of the General Engineering Consultant (GEC) contract that included completion of two task order contracts: Refinement of Existing Reliability Centered Maintenance Program for Locomotive Engines; Review of Diesel Locomotive.

Project Manager, Massachusetts Bay Transportation Authority, No. 8 Low- Floor Car Engineering Services. As project manager for the No. 8 Low-Floor Car engineering services contract, directed electrical, mechanical, and systems integration engineering work by CH2M specialists for the procurement of 100 low-floor light rail vehicles. Under his direction, the CH2M team oversaw the preliminary vehicle design including car configuration, interior layout, clearance issues, and subsystem configuration. Early in the project, was called on to evaluate critical aspects of the vehicles' specification, especially in the areas of interfaces and clearances.

Employment History

CH2M, 1988-present; Knorr Bremse of Munich, 1987-1988; Westinghouse Electric Corp., 1979–1985

Kelly O'Connor, PE

Quality Manager

Education

Executive MBA, Technology, New Jersey Institute of Technology
M.S., Environmental Engineer, New Jersey Institute of Technology
B.S., Civil Engineering, New Jersey Institute of Technology

Professional Registration

Professional Engineer: New Jersey, New York

Distinguishing Qualifications

- More than 22 years of design, management, and quality assurance experience in the planning, design and construction of infrastructure projects in the transportation and water / wastewater field.
- Provides leadership in the application of QA/QC processes across a portfolio of 250 projects and programs to cultivate predictable and consistent quality throughout the project lifecycle.

Relevant Experience

Ms. O'Connor is the Northeast Transportation Geographic Operations Manager, responsible for the quality and delivery of the portfolio across all transportation segments including Transit and Rail, Highway, Bridge, Aviation, and Ports and Maritime projects. Key projects in the portfolio include Philadelphia Airport Expansion, Anacostia Waterfront Initiative and Automatic Train Control Program for PANYNJ's PATH Line.

Representative Projects

Quality Auditor, Various Projects, United States. Led quality verification audits of civil infrastructure projects by providing a framework for the systematic and controlled review of all activities in the work plan. Reviewed project and program risk assessments and ensure that mitigation procedures are in place, provided audit and compliance reviews related to all project aspects such as contractual, financial, schedule, health and safety, staffing, and QA / QC procedures in compliance with ISO 9001. Identified corrective and preventative actions and opportunities for continual improvement. Projects audited include: Philadelphia Airport Expansion Program; Monitoring and Technical Assistance Support to Federal Railroad Administration; DDOT Anacostia Waterfront Initiative Program; New York City E. Side Coastal Resiliency Study; and Amtrak Master Services for HSEL Support and other civil infrastructure projects.

Quality Manager, Coney Island Outfall Construction Management, New York, NY. Provided QA / QC for the Coney Island water Pollution Control Plant construction management of outfalls, diversion chambers and diffusers. QA / QC included establishing and documenting procedures covering aspects such as the project quality policy, control of records, control of production, monitoring and test equipment, auditing procedures, corrective and preventative action and continuous improvement, in compliance with ISO 9001.

Kelly O'Connor, PE

Product Manager, Pavement Preservation, State Highway Research Program (SHRP2), United States. Manage the implementation of Guidelines for the Preservation of High-Traffic-Volume Roadways (R26). This product is intended to assist the transportation industry identify the best options to preserve and maintain heavily traveled roadways in urban and rural areas and includes aspects such as pavement guidelines, project selection guidelines and monitoring and maintenance procedures.

Product Manager, Model Railroad Agreements, State Highway Research Program (SHRP2), United States. Manage the implementation of Model Railroad Agreements (R16). This product is intended to assist State Departments of Transportation in developing agreement language with Class 1 railroads, developing processes and policies for internal coordination and approvals, facilitation for formal partnering meetings with railroads, support for meeting preparation, documentation, and logistics for all states awarded incentives through the IAP.

Task Lead, $5.25B Panama Canal Third Locks Program, Panama. Led the development of a contingency plan approach for the Autoridad del Canal de Panama to address the short- and long-term response to various completion scenarios for the construction. Identified contingent course of actions for program management, construction, procurement, human resources, project controls, risk and change management, and quality assurance, should transitions occur.

Project Director – QA/QC, Design, Engineering, Pier 17 (South Street Seaport) Demolition and Pier Replacement, New York, NY. Oversee the effort for the design, QA/QC and engineering services during construction for the pier demolition and construction of new pier for the redevelopment of the South Street Seaport Pier. This project includes the design of a new waterfront pier structure, permitting across NYC agencies such as Department of Buildings, MTA, and Department of Environmental Conservation, and coordination among multiple engineering and architectural firms involved in the redevelopment.

Cross Market Lead, Hurricane Sandy and Colorado Floods, NY and CO. Led the effort to create a cross-market approach to immediately provide support to our clients affected by the ravage of Superstorm Sandy in 2012 and again in September, 2013 when severe flooding affected Boulder, Colorado. Led a coordinated effort of response to identify immediate and long-range needs of our clients to best support them across water, environmental, transportation, energy and facilities projects.

Employment History

CH2M, 1999-Present; Boswell Engineering, 1994-1999

Robert Davidson, FAIA, NCARB

Program Planning/Architecture

Education

Bachelor of Architecture; Pratt Institute

Professional Registrations/Certifications

Registered Architect: New Jersey; Fellow, American Institute of Architects (AIA); National Council of Architectural Registration Boards (NCARB)

Distinguishing Qualifications

- Directed the urban design integration of the original AirTrain Newark. Understands key issues and challenges of this project and brings proven experience resolving them. The CH2M team will leverage this experience to begin this project a giant leap ahead of anyone else.

Relevant Experience

Mr. Davidson, an award-winning architect known for his design of aviation, multimodal, and transit projects, leads STV's Aviation + Multimodal National Practice. Prior to joining STV, he completed a 34-year career at the PANYNJ where he served as Chief Architect from 1991 through 2004. Under his leadership, he and his staff provided high quality, in-house aviation and multimodal master planning and architectural design services to the PANYNJ's client departments for the agency's Capital Program. Mr. Davidson has been guided by a design excellence philosophy specifically geared toward transportation in the public realm; a highly specialized component of the architectural profession.

Representative Projects

Program Architect, PANYNJ Various Projects, NY and NJ. Served as Program Architect for the JFK, Newark, and LaGuardia Airport Redevelopment Programs including overall master planning, urban design, and terminal building design; as well as comprehensive Landside Access Programs that included multimodal ground transportation facilities and open public space. Relevant projects included:

- ***AirTrain Newark Light Rail Airport Access System, Former Chief Architect.*** Directed master plan integration of the system into the airport precinct and beyond, as well as the architectural design of three terminal stations, four remote area stations, a maintenance control facility, and traction power substations, all developed to be visually perceived as a "family of structures."
- ***AirTrain Newark Intermodal Airport Terminal, Former Chief Architect.*** Led the station area master plan and architectural design of the terminal, which seamlessly links NJ TRANSIT and Amtrak train service with the AirTrain System in a unified intermodal environment, with the ability to check baggage and be ticketed before entering into the AirTrain System.
- ***Newark Terminal B International Terminal Program, Former Chief Architect.*** Directed architectural efforts for the Federal Inspection Services Hall, which nearly doubles the capacity of the former international facility, and Arrivals Hall, which provides improved meeter/greeter amenities and services, as well as a spacious baggage recheck area for connecting flights.
- ***Newark International Airport P4 Parking Garage, Former Chief Architect.*** Directed architectural design of a 3,400-space parking structure that provides an intermodal connection to the AirTrain

Newark light rail airport access system. Due to its proximity to the airport entrance, the garage was designed as a complementary architectural expression to the airline terminals that it serves.

- ***AirTrain JFK Light Rail Airport Access System, Former Chief Architect.*** Directed development of a master plan for a new fully automated LRT system linking the JFK CTA with the Long Island Rail Road (LIRR) and New York City Transit (NYCT) subway and bus system. The LRT system includes 10 award-winning stations, including intermodal rail connections with NYCT and LIRR.
- ***AirTrain JFK Jamaica Station Rail Link Terminal, Former Chief Architect.*** Directed master plan and architectural design of the award-winning station, which enables passengers traveling on AirTrain to JFK to make connections to LIRR commuter rail, NYCT subway, and bus service. Programs for all three agencies, including PANYNJ, are integrated into the terminal's public spaces.
- ***AirTrain JFK Howard Beach Station Rail Link Terminal, Former Chief Architect.*** Directed master plan and architectural design of the award-winning station, which enables passengers traveling on AirTrain to JFK to make connections to NYCT subway service. The terminal included redevelopment of the existing NYCT platforms to interface with a new intermodal mezzanine.
- ***PATH Commuter Rail System Station Improvement/10-Car Expansion Programs, Former Chief Architect.*** Directed architectural design of the expansion and modernization program that included the renovation of 8 of 13 PATH stations that comprise the system, as well as the future planning and design for expansion of 3 stations to accommodate 10-car service into the World Trade Center.

Program Design Director, LAWA Los Angeles International Airport Landside Access Modernization Program, Los Angeles, CA. Directing facility programming and planning for an Automated People Mover (APM) system that will link the Central Terminal Area (CTA) to all passenger services and amenities within the airport precinct, including: reconfigured CTA roadways and parking garage redevelopment; off-CTA Intermodal Transit Facilities (ITFs); and connections to a Consolidated Car Rental Facility (ConRAC) and regional transit at the airport's edge.

Principal Planner, LAWA On-Call LAX Ground Transportation Study, Los Angeles, CA. Directed planning of the airport CTA and off-CTA landside, as well as off-airport connections to light rail regional transit and the state and local roadway network. Planning components include reconfiguration scenarios for CTA roadways and curbsides, including the integration of an APM system with CTA and off-CTA services including a ConRAC facility, parking garages, and ITFs.

Principal Planner, Metro Airport Metro Connector AA/Draft EIS/EIR, Los Angeles, CA. Oversaw planning, environmental services, and conceptual design for the preparation of an Alternatives Analysis (AA)/Draft EIS/EIR for the Los Angeles County Metropolitan Transportation Authority (Metro) Airport Metro Connector project, linking a planned APM system with the LAX CTA.

Program Architect, ConnDOT Bradley International Airport Ground Transportation Center, Windsor Locks, CT. Directing planning and design for a new Ground Transportation Center (GTC) that will incorporate a ConRAC, public parking, a Transit Center to accommodate regional buses, CAA office space, as well as provisions for regional rail, all within a single structure. Combining programs within as single facility is a by-product of constrained site conditions on the new Terminal B landside. The GTC will be accessible for passengers arriving at the existing Terminal A and the future Terminal B.

Employment History

STV Incorporated, 2004 – Present; Port Authority of New York and New Jersey, 1970 – 2004

Kirby King, LEED AP BD+C

Agency & Stakeholder Coordination

Education

Executive Education - Leadership and Strategic Impact, Tuck School of Business at Dartmouth College
M.P.A., Fairleigh Dickinson University, Public Administration Institute
B.S., Mechanical Engineering, The Polytechnic Institute of New York University

Certification

Green Building Certification Institute, LEED-AP BD+C

Distinguishing Qualifications

- Technologically savvy, with extensive experience in the formulation and oversight of major corporate capital investment and development programs and the design/delivery of cost-effective, high-performance technology solutions.
- Documented success in transportation planning, railroad operations, facilities management and engineering project development and implementation, including sustainability and environmental design.
- Client-centric with the ability to initiate cost effective alliances with customers, global vendors and suppliers.
- Highly effective at building culturally diverse, team-centered and proficient operating units.

Relevant Experience

Mr. King is an accomplished Senior Executive and Corporate Leader with a record of Strategic Vision, Creativity and a demonstrated proficiency in Organizational Management. He has more than 30 years of professional experience with the PANYNJ. He has served the PANYNJ in multiple and diverse leadership roles that have been essential to the fulfillment of the Agency's mission to provide critical transportation, terminal and other facilities of commerce and economic development.

Representative Projects prior to CH2M

Director, Technology Services Department, PANYNJ, 2011-2013. Responsible for: strategic direction and technology leadership of a multi-billion dollar government agency; implementation and oversight of the day to day operations of the systems, enterprise and industry specific applications which support the Port Authority's mission and it's multiple businesses. Services provided include, data processing, voice, data and wireless communications, network operations, desktop support, applications development and support, infrastructure life cycle and asset management, cyber security, surveillance and detection systems, infrastructure protection, building management systems and new technology assessment and assimilation, the provision of which are critical to the accomplishment of the Agency's mission. Provided direction and staff support for implementation of a large portfolio of capital investment projects with major embedded technology components.

Deputy Director, Port Authority Trans-Hudson (PATH), PANYNJ, 2003-2011. Responsible for direction and guidance of the railroad's planning, operations, maintenance, system safety and security. Under the Director, was responsible for the overall development of PATH's long-range business plan and the capital and operating budgets, as well as the implementation of the railroad's major multi-million dollar capital program, including major station, tunnel and right of way rehabilitation and improvement projects, new rail car procurement, security systems, fare collection system and computer based train

control system implementation. Also responsible for system security planning, new technology assessments and appropriate application of new technology enhancements to augment the safety and security of the railroad. Served as a liaison with many other transportation agencies and provided oversight of the railroad customer service program.

Assistant Program Director, New York Airport Access Program, PANYNJ, 1996 – 2003. Managed all phases of a Design, Build, Operate and Maintain (DBOM) Contract valued at approximately $1 billion for construction of a new 8.4 mile Light Rail System (JFK AirTrain) to connect John F. Kennedy International Airport with the Long Island Railroad and New York City Transit subway system in Queens, New York. Managed capital and operating budgets. Initiated and monitored program controls. Served as coordinator and liaison to third parties, government agencies, community outreach, and other affected organizations. Defined objectives and established project priorities. Apprised executive staff of project status. Substituted for the Director in his absence.

Program Manager, World Trade Department, PANYNJ, New York, NY, 1994 – 1996. Managed comprehensive redevelopment of public spaces at the World Trade Center. Provided overall technical project leadership of engineering and construction. Set budgets, schedules, and priorities. Negotiated contracts with outside agencies and contractors. Oversaw the Board Project Authorization process. Prepared and made presentations to appropriate community entities and executive boards. Provided support to interim retail leasing programs. Assisted the Program Director in defining objectives and parameters consistent with department priorities. Informed executive staff of program status on a timely basis. Coordinated all proposed work with other departments, including Operations, Plant and Structures, Planning and Security and Safety.

Engineer of Projects, Engineering Department, PANYNJ, New York, NY, 1993 – 1994. Directed eight project managers and support staff in multiple World Trade capital and maintenance programs involving facility improvements and maintenance. Managed all construction. Ensured adherence to budgetary requirements. Authorized change orders and provided continuing status updates to the executive staff.

Senior Engineer (Project Manager), World Trade Center Recovery, PANYNJ, 1993 – 1993. Provided oversight of design and construction for the restoration and recovery of major systems in the World Trade Center subsequent to the 1993 terrorist bombing. Major efforts included implementation of emergency generator flood protection, elevator machine room cooling, chiller plant restoration and condenser water systems reactivation. Coordinated outside agencies, contractors, and vendors in all aspects of timely fulfillment of the recovery effort. Regularly briefed executive staff on project status.

Employment History

CH2M, 2015-present; PANYNJ, 1982-2013; Martin Marietta Corporation, 1981-1982

Steve Pressler, P.E.

Construction

Education

Post-Masters Degree, Civil/Environmental Engineering; Stanford University
Master of Science, Civil Engineering/Construction Management; Stanford University
Bachelor of Science; U.S. Military Academy at West Point

Professional Registrations/Certifications

Professional Engineer: Virginia

Distinguishing Qualifications

- Steve has overseen the construction of multiple, large PANYNJ aviation projects, and understands PANYNJ design standards and guidelines, as well as the importance of construction phasing for projects on an active airfield. As Constructability Reviewer, he will use this in-depth knowledge to guide the development of well-coordinated and constructible docuements for the replacement AirTrain Newark that minimizes impacts to EWR's ongoing operations.

Relevant Experience

Mr. Pressler has 35 years of experience in the construction industry, and has managed numerous complex, multi-phase aviation programs throughout the country. His extensive expertise directing preconstruction and construction phases of aviation projects includes large-scale facility upgrades at JFK International Airport, LaGuardia Airport, George Bush Intercontinental Airport, and other major airports throughout the United States. Prior to joining STV, Mr. Pressler served as principal-in-charge of several high-profile aviation projects at JFK International Airport, including the $890 million construction of Terminal Four, among the largest aviation terminals in the country, and the construction of the 660,000-sf Terminal One.

Representative Projects

Principal-in-Charge, PANYNJ LaGuardia Redevelopment Program CM, Queens, NY. Providing executive oversight for the $4 billion redevelopment of LaGuardia Airport in Queens, NY. As part of a joint venture, the firm is serving as the construction manager (CM) and overseeing multiple design-build contractors with the overall goal of balancing terminal, airside, and landside capacity; enhancing the overall flow of operations; and improving terminal amenities. Mr. Pressler holds overall responsibility for the program, which includes demolition, decommissioning, construction of parking garages, elevated roadways, new and upgraded utilities, and airfield and hangar modifications. The scope also includes marine work for constructing a deck extension and a new Central Terminal Building (CTB) that is being delivered as PANYNJ's first-ever public-private development.

Principal-in-Charge, Delta Air Lines JFK Terminal Redevelopment Program, Queens, NY. Overseeing multiple construction management and general contractor teams completing landside and airside improvements for Delta Air Lines' international operations at JFK International Airport, in Queens, NY. Mr. Pressler holds overall responsibility for the $1.4 billion terminal expansion and redevelopment project, which will relocate international operations to Terminal 4, and provide for the demolition of Terminal 3 and reallocation of the space to provide aircraft parking. The renovation includes multiple

head-house expansions, gate extensions, taxi-lane and apron paving, utility infrastructure improvements, and environmental remediation.

Principal-in-Charge, LCOR/Schiphol Group JFK International Airport Terminal 4 Construction, Queens, NY. Provided overall direction for the preconstruction phase of the $890 million construction of Terminal 4 to replace the outdated International Arrivals Building from 1957. The 1.5-million-sf Terminal 4 is the gateway for international arrivals at JFK, and has 26 gates in two concourses. The facility was rebuilt in stages and the original structure demolished as new construction permitted. Among the challenges Mr. Pressler successfully addressed was overall project phasing, which required that the more than 50 airlines and terminal tenants remain fully operational during construction. A minimum of 10 of the 16 total contact gates were kept active during each phase.

Principal-in-Charge, British Airways JFK International Airport Terminal 7, Queens, NY. Oversaw the $220 million renovation and expansion of a 470,000-sf terminal at JFK International Airport for British Airways. Mr. Pressler monitored the installation of a new baggage system, and complete upgrade of all public spaces, ticket counters, preferential lounges, locker rooms, and customs areas. The scope of work included the complete modernization of the Federal Inspection Services hall, and extensive on-grade and elevated access. All work was completed while maintaining full terminal operations.

Principal-in-Charge, TOGA JFK International Airport Terminal One, Queens, NY. Supervised construction of a new $230 million international terminal at JFK International Airport in Queens, NY, for the Terminal One Group Association (TOGA). The new terminal accommodates 11 contact and 2 remote gates, with 10 gates serving Boeing 747-400 aircraft. The 660,000-sf structure encompasses two levels, with a partial third “sterile corridor” level. Mr. Pressler facilitated the terminal construction on the site of the former Eastern Airlines Terminal, which was demolished as part of the project. The new facility features a 900-foot-wide check-in lobby, a retail and food gallery, new boarding lounges, and an airline club level on the airside of the security checkpoint.

Principal-in-Charge, MSDC/PANYNJ Moynihan Station Development Phase I, New York, NY. Holding overall responsibility for CM services for Phase I of the development of a new train hall in the James Farley Post Office Building in Midtown Manhattan, with connections to Pennsylvania Station and Amtrak, NJ TRANSIT, Long Island Rail Road (LIRR), and New York City Transit service. This major transit hub is being built in two phases by the Moynihan Station Development Corporation (MSDC), in partnership with the PANYNJ. Mr. Pressler is monitoring the construction of entrances to Penn Station from the Farley Building and new vertical access points to the platforms, thereby improving passenger access to the platforms for all railroads. His team is also managing improvements to pedestrian concourses and platform ventilation, and creation of a waiting room for LIRR passengers. Mr. Pressler is overseeing contract design review, construction supervision and inspection, quality assurance, and project controls, as well as the coordination of the complex staging among three railroads.

Employment History

STV Incorporated, 2010 – Present; Skanska, Inc., 2004 – 2010; AMEC Construction Management, Inc./Morse Diesel Intl., 1990 – 2004; Long Island Rail Road, 1987 – 1989; Al Mihdar & Amoumi Development Company Ltd., 1982 – 1987

Tim Brown

Industry Expert – Airport Programming

Education

MS, Building Construction, University of Florida
BS, Mechanical Engineering, Clemson University

Distinguishing Qualifications

30 years of successful leadership and management experience including:

- Program Director for the multi-billion, multi-year, multi-projects Capacity Enhancement Program (CEP) at Philadelphia International Airport
- Lead Construction Manager for elements of the $5.4 billion Hartsfield Jackson Atlanta International Airport Capital Improvements Program
- Battalion Operations Officer in Panama responsible all major construction operations on a base with more than 600 staff
- US Army Engineer Officer culminating his dynamic career as the District Engineer for the Philadelphia Engineer District for the US Army Corps of Engineers.

Relevant Experience

Mr. Brown brings expertise in overall team direction, management and leadership through every phase of a project/program, while providing guidance to management, as necessary.

Representative Projects

Program Director, Capacity Enhancement Program (CEP), Philadelphia International Airport, Philadelphia, PA. Responsible to the PHL CEO for the execution of all aspects of the program from planning through activation and transition. The program covers airfield and facilities / landside projects and is a multi-billion, multi-year, multi-projects program. The multi-year, multi-phased CEP is designed to modernize the airport, reduce delays, improve on-time performance, provide additional passenger capacity, and increase cargo operations. As the Program Director, directly responsible for implementing key major program elements such as the extension of two existing runways, the construction of a new runway, improvements to the existing taxiway system; facilities and landside projects including new terminals, renovation of existing terminals and concourses, a new consolidated rental agency complex, a new automated people mover, parking garages, road improvements, and a multitude of enabling projects.

Experience prior to CH2M

Construction Manager Executive and Assistant Director for Construction Support Services, Hartsfield-Jackson Atlanta International Airport, Atlanta, GA. Responsible for providing Construction Management Agency services as part of the $6.2 billion multi-year airport expansion and renovation program for the Hartsfield-Jackson Atlanta International Airport. In this role, has a unique perspective managing multiple delivery methods on one program, including oversight of Construction management at-risk projects; Design-build projects; and Design-bid-build projects. Leads a team of 26 people and serves in dual role serving as Assistant Director for Construction Support Services responsible for oversight and management of all construction management responsibilities, and is also directly

responsible for CM oversight for the upcoming $2.5 billion main terminal expansion; the ongoing $500 million Consolidated Rental Facility; the $28 million Central Command and Control Complex. Duties include supporting management of the Limited Liability Company (LLC); contract oversight and management; claims management; quality assurance; safety; and project closeout.

District Engineer, US Army Corps of Engineers Philadelphia, PA. Led a 500-plus engineering organization responsible for planning, engineering, design, and construction of military, environmental cleanup, and water resource projects with an annual operating budget of $185 million, and over $500 million in assets. This included operations of a hopper dredge and the Chesapeake and Delaware Canal as well as maintenance of five flood control dams and four high-level, steel structure bridges. In this role, was responsible for effective liaison with 10 US Senators, 24 US Representatives, 5 State Governors, and numerous federal and state agencies in the execution of the District's function.

Program Manager, North Carolina Central University Capital Improvement Program, Durham, NC. Program Services include program oversight for design, construction, project closeout, and initial warranty response, and coordination with state, city, and county agencies for design approval, rezoning, and issues resolution. Managed 29 projects ranging from $200,000 to $37M using a variety of design and construction acquisition methods – to include request for qualifications design contracts, construction management at risk, single prime contracts, and sole source contracts. Scope included total underground replacement of the campus-wide electrical grid system, numerous road and parking area asphalt paving projects, extensive quality control and quality assurance measures involving testing, special inspections, and construction administration This program had multiple funding sources include Capital Improvement Bond sales, repair and renovation funds, Title III funds, and self-liquidating Bond sales. For his support and dedication to the program, the Board of Trustees of NCCU presented Tim an official University proclamation acknowledging his accomplishment and outstanding teamwork.

Senior Deputy Director, Detroit Public Schools Program Management, Detroit, MI. Responsibilities included assisting the Program Director in the execution of the $1.5 billion Capital Improvement Program for revitalizing the Detroit Public Schools; providing priority management leadership in directing resources to accomplish tasks, goals, and objectives; and overseeing the Limited Liability Company (LLC) by managing assignment of activities, monitoring activities, managing staff, and directing financial control and reporting. Subordinate reporting organizations included Design Management, Administration, Safety. Program Quality, Information Technology, Project Controls. Finance and Diversity.

Employment History

CH2M, 2013-present; Jacobs Engineering, 2003-2013; Barton Malow, 2002-2003;
US Army Engineer Officer, 1981-2002

Scott McIntyre, P.E., LEED® AP

Industry Expert – Airport Construction

Education

Bachelor of Science, Civil Engineering; Worcester Polytechnic Institute

Professional Registrations/Certifications

Professional Engineer: New York; LEED Accredited Professional (AP) Building Design + Construction (BD+C)

Distinguishing Qualifications

- Scott's close working relationship with PANYNJ, and deep understanding of PANYNJ design standards and AirTrain operational requirements gained from his experience on the AirTrain JFK and World Trade Center Transportation Hub, will reduce coordination time and streamline the document review and approval process, keeping this project on track and moving forward.

Relevant Experience

Mr. McIntyre is a civil engineer and project director with more than 35 years of experience managing multidisciplinary teams of designers for major transportation projects in the New York City metropolitan area, including rails stations, terminals, and maintenance facilities. He has managed construction of the award-winning $1.3 billion AirTrain JFK and $1 billion Hudson-Bergen Light Rail Transit system, and is currently directing the $3.2 billion World Trade Center Transportation Hub project. Mr. McIntyre brings extensive expertise in schedule management and budget and project controls. He is skilled in overseeing the effective coordination between design and construction personnel, as well as interfacing with governing and permitting agencies, local community groups, utility companies, and private stakeholders.

Representative Projects

Project Director, PANYNJ AirTrain JFK, Queens, NY. Oversaw design for the Central Terminal area of this $1.3 billion design, build, operate, maintain project at JFK International Airport that involved a new 8.4-mile rail system with 10 new stations and an operations, maintenance, and storage facility. Mr. McIntyre was responsible for overall project controls, including the contractual tracking of more than 40 subconsultants, and the day-to-day management of up to 200 design professionals. As the project security information manager, he was also responsible for the control of confidential and privileged and sensitive security information for the project. The project included extensive utility relocation, with up to 4,000 utility relocations required on airport property alone. It also required 6 miles of new drain and sewer pipes and 1,000 miles of cable. Prior to becoming project director, Mr. McIntyre was responsible for the design of the Central Terminal Area and Van Wyck Expressway elements of the project. He spearheaded the major utility relocations for the Central Terminal Area (CTA). The utility relocations in the CTA were so successful that even with the placement of 250 foundations, at 20 feet by 20 feet each, there was not one utility "hit." Mr. McIntyre effectively managed production of the more than 300 design packages and held overall responsibility for project controls and quality assurance/quality control for this fast-track project. He oversaw client contact and coordination, including numerous private and public agencies to resolve design issue. Mr. McIntyre coordinated widening of the Van Wyck to facilitate traffic flow and safety, as well as guideway construction. He

managed the development of extensive maintenance and protection of traffic plans for the Van Wyck Expressway and the maintenance of terminal and roadway access throughout the airport. Maintenance and protection of traffic was one of the most significant concerns of this project, which was publicly praised as an outstanding success.

Project Director, PANYNJ AirTrain JFK Roadways and Van Wyck Expressway Reconstruction, Queens, NY. Coordinated the widening of 3 miles of the Van Wyck Expressway in Queens, NY, to facilitate traffic flow and safety during construction of the elevated guideway of the AirTrain JFK from the Jamaica Terminal south to JFK International Airport. The $600 million project included the widening of the median, the creation of a construction staging area adjacent to the median on both sides to provide space for construction of the foundations and segmental guideway superstructure, and paving and widening of the shoulders to create temporary travel lanes. Mr. McIntyre managed the development of extensive maintenance and protection of traffic plans to keep traffic flowing during the construction of the guideway, one of the most significant concerns of this project, which was publicly praised as an outstanding success.

Project Manager, TOGA JFK International Airport Terminal One Arrival and Departure Structures, Queens, NY. Oversaw the civil engineering for the $330 million international terminal constructed at JFK International Airport in Jamaica, Queens, NY, for use by Air France, Lufthansa, Korean Air, Iberia, and Japan Airlines. The terminal was constructed on the site of the old Eastern Airlines Terminal, which was demolished as part of the work. The new 650,000-sf terminal has a 2-level roadway system and is compatible with the JFK Master Plan. The firm's work for the Terminal One Group Association (TOGA) project included design of the approach and departure level roadway structures, encompassing an extensive number of highway bridges. The roadway structures were of the same type designed by the team as part of the complete roadway network at the airport to ensure the total continuity of the airport roadway system. The roadway network is complex, accommodating several movements and serving various needs in short distances. Mr. McIntyre also managed the design and removal of various site utilities, including telephone service, sanitary sewer, storm sewers, domestic gas, domestic water, high temperature hot water, and chilled water systems. The construction was fast-tracked with an accelerated design and construction schedule.

Project Director, PANYNJ World Trade Center Transportation Hub, New York, NY. Managing the firm's services for this $3.2 billion PANYNJ project at the World Trade Center (WTC) site in Lower Manhattan. This intermodal facility is a major regional transportation hub that will serve as a gateway to Lower Manhattan for commuters, workers, residents, and visitors connecting the WTC PATH station to the 1, 9, N, and R subway lines, as well as the New York City Transit Fulton Street Transit facility and the World Financial Center. Mr. McIntyre is responsible for extensive coordination with public agencies, such as the New York State Department of Transportation, New York City Department of Transportation, MTA, and Lower Manhattan Development Corporation, as well as with utility companies and private stakeholders, such as retail vendors and cultural organizations.

Employment History

STV Incorporated, 1994 – Present; Skidmore, Owings and Merrill, 1986 – 1994; McCumsey Associates, 1985 – 1986; Edwards and Kelcey, 1977 – 1984

Tedd L. Snyder, PE, PMP

Systems & Technology Lead/Alignment Layout Design

Education

B.S., Mechanical Engineering, Pennsylvania State University

Professional Registrations

Professional Engineer: Florida

Certifications/ Affiliations

Certified Project Management Professional # 422000
Vice Chairman of the American Society of Civil Engineers' APM Standards Committee

Distinguishing Qualifications

- Driverless Automated Systems design, procurement, performance, and safety oversight.
- Project Management of the design, development, and construction of Automated Transit systems, and Communications Based Train Control.
- Rail Systems and Vehicle Integration Engineering, procurement, testing, and safety certification.
- Mechanical Design Engineering and Analysis for monorail vehicles, monorail switches, and rail rapid transit.
- System and Vehicle Test Engineering including environmental qualification testing, and field performance and validation testing.

Relevant Experience

Mr. Snyder has more than 30 years of professional experience in passenger transportation engineering design and engineering management, focusing on the design and testing of passenger transportation technologies such as rail rapid transit, monorail, and automated people-mover (APM) systems.

Representative Projects

Senior Systems Engineer, MTA-Metro Railcar and Train Control Replacement Project, Baltimore, MD. Leading the CBTC procurement project by writing a complete Train Control technical specification, and providing the MTA with comprehensive project procurement support. The $600 M project involves the complete replacement of an existing track circuit based train control with a CBTC automated system including ATO and ATS subsystems.

MTA-New York City Transit, Flushing Line, New York, NY. Assisted the office of Capital Project Management with the design review, delivery, installation, testing, and commissioning of a Communications Based Train Control system for the #7 Flushing Line. The project included the retrofit installation of wayside equipment over 11 route miles of track, with 22 stations, and 506 railcars, valued at more than $700 M. He provided system engineering, and project management support during a 77 month project delivery.

MTA-New York City Transit, Culver CBTC Interoperability, New York, NY. Led the development and design review of the Siemens position and speed measurement equipment retrofit. The modifications to the train, including the onboard computer, tachometer integration, and addition of accelerometers, as well as the additional guideway transponders, are part of the Culver contract that will result in the

modification of the L-line train fleet. Also part of the Task Force team that reviewed the integration and interoperability of two CBTC system suppliers on the Culver Test Track.

Deputy Project Manager, Las Vegas Monorail, NV. Las Vegas Monorail design, build operate and maintain (DBOM) project which involved the deployment of an automated monorail operating adjacent to the strip. To support the Owner, called upon his experience in automated people mover (APM) development, and rail transportation engineering in the review of system operations and design development. Also served as the lead technical engineer responsible for the detailed review and oversight of an all new vehicle and system design involving the use of communications based train control, vehicles developed with Insulated Gate Bipolar Transistor (IGBT) propulsion, hydraulic suspension and braking, and lightweight fully composite carbody construction.

Lead Project Engineer, Seattle Monorail Fire Recovery, WA. Responsible for developing, testing, and implementing solutions to restore two vintage 42 year old Alweg monorail trains to service following a vehicle fire. The work included retrofit of certain vehicle interior elements, drive train inspection and retrofit, underfloor fire hardening, motor overspeed detection, underfloor heat detection, and the addition of vehicle-to-wayside grounding. In addition, responsible for the restoration of the vehicle damaged by the fire including the structural inspection, metallurgical analysis, and structural repairs.

Project Manager, Washington Metropolitan Area Transit Authority, Washington DC. Managed a $400 million dollar rail vehicle overhaul project of 364 cars. The project involved the complete interior and electrical/mechanical rehabilitation of each car, including conversion from DC to AC traction and auxiliaries. The work involved the design review, in-process inspection, testing, and warranty management for the 364 car fleet. With the complete delivery and introduction into service of all 364 cars, the work included the resolution of remaining engineering issues, and reliability monitoring in order to improve the in-service performance of the fleet. Working with the Authority's stakeholders, as well as the Contractor, the reliability driven work was planned, executed, and measured for effectiveness.

Experience prior to CH2M

Systems Engineering Manager, Bombardier Transit Corporation, Systems Division, Orlando, FL. As the lead technical manager for the Jacksonville Automated Skyway Express monorail project, responsible for the execution of all aspects of the design, system integration, installation support, and testing of an automated people mover. Subsystems included automatic train control, supervisory control and data acquisition (SCADA), traction power, guideway switching, guidebeam, electrical installation design, and facility design for the stations, central control, and maintenance areas.

Manager Mechanical Engineering, The Transportation Group, Inc, Orlando, FL. Supervised and directed the mechanical design activities for all automated guideway transit (AGT) and automated people mover (APM) project contracts and technical sales proposals. His project design and delivery work included extension of the WED way APM system at the Houston Intercontinental Airport, design and installation of an APM at the Tampa Airport, and design of a WED way system for the Architect of the Capitol for use by the U.S. Senate.

Employment History

CH2M, 1999-present; Bombardier Transit Corporation, 1994-1999; The Transportation Group, 1986-1994; The Budd Company/Transit America, 1981-1986

Anip Parikh

Planning Lead/O&M

Education

Masters of Science, Mechanical Engineering, Stevens Institute of Technology
Bachelors of Engineering, Mechanical Engineering, Gujarat University

Relevant Experience

Mr. Parikh has more than 16 years of professional experience in transit and transportation planning, service planning, and operations planning analyses, operations simulation modeling; O&M cost modeling and capacity analysis; transit industry advanced signaling systems including CBTC Systems, vehicle engineering and testing and commissioning.

Representative Projects

Senior Systems Engineer, Newark AirTrain, PANYNJ, Newark, NJ. Reviewed contractor's mechanical design documents and test procedures. Provided system oversight and witnessed several static and dynamic acceptance tests including vehicles, stopping accuracy and communication. Responsible in monitoring the monorail's daily operations and provided daily report. Daily reports were helpful in identifying the maintenance requirement and trends; train/car deficiency charts showed and report assisted in proactive resolution of technical issues.

Senior Systems Engineer, PATH CBTC Project, PANYNJ, NJ. Currently supports project team to provide Program Management Services for PATH's project to install Communications Based Train Control (CBTC) throughout their system. Supports project team in reviewing design submittals for conformance with the technical specification requirements. Leads in reviewing contractor's submittals on training aids and materials, PTE/BTE, and maintenance manuals. Also supports team in field testing and commissioning efforts.

Secaucus Transfer Station (NJT), NJ Transit, Secaucus, NJ. Supported team in model development. He was involved in reviewing and analyzing Northeast Corridor (NEC) and Mainline/Bergenline (ML/BL) schedules. Analyzed load generation and equipment cycle data for NJT. Reviewed contractor's drawings and validated model input parameters.

Senior Systems Engineer, NJ Transit. Led the efforts in creating simulation models for several projects, including the Southern New Jersey Light Rail Transit System (SNJLRTS/ River LINE); the SNJLRTS Capitol Extension; the initial operating segment (IOS), the subsequent operated segment (SOS) and the minimal operated segment (MOS) phases of the Hudson–Bergen Light Rail Transit System (HBLRTS); Newark City Subway (NCS) extension to Grove Street; and the Newark–Elizabeth Rail Link (NERL).

Simulation Modeler, Southern New Jersey Light Rail Transit System (SNJLRTS/ River LINE). Developed a simulation model for River LINE peak and off-peak operation. He performed a capacity analysis, operations analysis, and fleet requirement analysis for the River LINE. Responsible for creating the River LINE public timetable; he analyzed numerous scenarios, including station and line capacity analyses, and assisted in preparing the crew assignments and vehicle utilization, including fueling and operator roster. Prepared several simulation model scenarios to determine operational impacts for owner-initiated change orders (e.g., station move, passing siding, train connection with NEC, operational speed enhancement and restrictions). Involved in operational analysis to quantify system

performance needs and to determine the optimal double track area for SNJLRTS alignments to minimize the cost.

Operations Analyst, Hudson-Bergen Light Rail Transit System (HBLRTS). Responsible for conducting an operation analysis, creating operations simulation model to monitor the operation and ensure collision avoidance for several segments of the system (IOS-1, IOS-2, IOS-3, SOS, MOS-2, MOS-3 and 8th Street Extension to Bayonne) for peak and off-peak periods. Responsible in developing string charts, various scenarios and service plans; in conducting fleet requirements study and operation analyses exercise. Also carried out a revenue-mileage analysis to help the client resolve payment conflicts with the contractor. Reviewed the contractor's operating performance documents and supported measuring the contractor's performance per the contract's SDQI requirements.

Senior Systems Engineer, Southern New Jersey Light Rail Transit System (SNJLRTS), Berlin, Germany. As a resident vehicle engineer, ensured that the vehicle met specification requirements during production and testing. Responsible for witnessing vehicle acceptance testing (i.e. Carbody water tightness, Brake system test, Door test, HVAC test, Dynamic commissioning test) and quality inspections for the light rail vehicle. Reviewed test procedures (i.e. Doors, HVAC, Brake test) submitted by the contractor, authored test witness reports, and monitored the contractor's daily activities, including design modification, vehicle configuration, and vehicle production. Developed and maintained the contract data requirements list matrix, compliance matrix, and test procedure and report approval matrix for SNJLRTS to track contractor's progress in USA and Germany. Developed the vehicle validation plan for all subsystems of the SNJLRTS vehicle as per specification requirements. Created and maintained the fault-tracking database of the faults and problems recorded during the qualification and acceptance tests performed in Germany, Switzerland and Camden, NJ to track and address subsystem issues.

Operations Analyst, Newark City Subway (NCS) and Extension to Broad Street. Responsible for reviewing current and proposed revenue operations of the Newark City Subway. Created and analyzed several simulation scenarios to analyze the fleet requirement and headways for the NCS extension. Developed and recommended an optimized schedule to New Jersey Transit. Applied a simulation model for operation analysis and helped in resolving the client's operational issues, especially with yard pull-in and pull-out operation. Developed operating timetable and operation network simulation models to identify operational conflicts and train running times.

Operations Analyst, Southern New Jersey Light Rail Transit Capitol Extension. Involved in SNJLRTS Capitol Extension's several alternative alignments studies. Responsible for Operations Analysis for the Environmental Impact Statement (EIS). Created simulation models to determine the run times for ten different alternative alignments. Involved in operational analysis and in traffic engineering analysis.

Senior Systems Engineer, Houston METRO, Rail Operations Analysis and Rail Simulation Modeling. Technical lead for rail operations and simulation modeling analyses to provide Total Procurement Support Services to Houston METRO. Led efforts on RTC model validation, verification, and calibration efforts. Developed base case model, and testing various operating scenarios and infrastructure configurations using RTC.

Employment History

CH2M, 1999-present

James Hemmerly, AIA

Facilities Lead

Education

Master of Architecture, University of Pennsylvania
Bachelor of Arts, Urban Studies, Cornell University

Professional Registrations/Certifications

Registered Architect: New Jersey; American Institute of Architects (AIA)

Distinguishing Qualifications

- Proven understanding of the need to incorporate a high degree of flexibility into designs for transportation facilities to accommodate changing technologies, operational needs, and other future variables; can mine a wealth of data from other APM and transit projects to provide the best possible solutions for the new AirTrain at EWR.

Relevant Experience

Mr. Hemmerly is an architect and project manager with more than 30 years of experience in the planning, design, budgeting, and documentation of aviation and transit facilities and programs. He has served as project manager on large, complex assignments, including those in occupied facilities that require coordination of multiple disciplines and phasing plans to maintain ongoing operations. Mr. Hemmerly has a comprehensive understanding of the design and construction process and is known for his ability to successfully integrate function with aesthetics for transit stations and intermodal facilities. Each facility incorporates durable, vandal-resistant, and easily maintainable flooring, wall, and ceiling treatments blended with lighting, artwork, and graphics that establish station identity while clarifying passenger movement and orientation to transfer stations and surrounding neighborhoods.

Representative Projects

Project Architect, LAWA Los Angeles International Airport Landside Access Modernization Program, Los Angeles, CA. Lead the team responsible for facility programming and planning for an Automated People Mover (APM) system that will link the Central Terminal Area (CTA) to all passenger services and amenities within the airport precinct, including: reconfigured CTA roadways and parking garage redevelopment; off-CTA Intermodal Transit Facilities (ITFs); connections to a Consolidated Car Rental Facility (ConRAC) and regional transit at the airport's edge.

Project Architect, Metro Airport Metro Connector AA/Draft EIS/EIR, Los Angeles, CA. Lead planning and conceptual design for the preparation of an Alternatives Analysis (AA)/Draft EIS/EIR for the Los Angeles County Metropolitan Transportation Authority (Metro) Airport Metro Connector project, linking a planned APM system with the LAX CTA.

Senior Architect, MTA Capital Construction/NYCT Second Avenue Subway, New York, NY. Lead the team in the development of New York City Transit (NYCT) passenger stations as part of an 8.5-mile-long subway project in Manhattan. This included conceptual design of five stations and final design on two. The station control areas provides good surveillance lines to the station elevator. escalators, mezzanine, and platforms. The mezzanines will be open to the platforms below, creating grand,

spacious stations. State-of-the-art acoustical treatments reduce noise at the platform level, and passenger amenities are designed as integral components of the station.

Senior Architect, NJ Transit Access to the Region's Core Project, NJ and NY. Lead the team in the development of architectural modifications and additions to the Frank R. Lautenberg (Secaucus Transfer) Station in New Jersey and generated the architectural design for a new 34th Street station in Manhattan for this $8.7 billion project that called for a 2-tube rail tunnel beneath the Hudson River to connect New Jersey with New York City.

Senior Architect, MTA Capital Construction/LIRR East Side Access, New York, NY. Designed the new 330,000-sf Long Island Rail Road (LIRR) concourse to serve the new deep station to be constructed 90 feet below the existing Metro-North Railroad lines under Park Avenue. This Metropolitan Transportation Authority (MTA) project will provide direct LIRR access to Grand Central Terminal. The project budget of $7.6 billion project includes the connection to the 63rd Street Tunnel, the new deep station, escalator connections to the concourse, the concourse (to be developed in an under-used track area between 44th and 49th streets on the west side of Park Avenue), and six street entrances.

Architectural Manager, Amtrak Gateway Project Hudson Yards Tunnel and Extension & Systems-Level Design, New York, NY. Coordinating the architectural team reimagining New York's Penn Station complex as part of Amtrak's Gateway Project, which intends to significantly increase the region's rail capacity. Mr. Hemmerly is responsible for working with various disciplines and stakeholders to integrate rail service planning, pedestrian flow analysis,and integrated operations planning into a master plan that integrates the existing Penn Station, the under construction Moynihan Station, and the proposed Penn South development, into an overall Penn Station Development Plan that addresses long standing space and wayfinding issues with Penn Station's current configuration, including complicated transfers between NYCT and PATH stations at nearby Herald Square.

Design Coordinator, American Airlines JFK International Airport Terminal 8, Queens, NY. Responsible for coordinating design services for a new $1.3 billion, 2.2-million-sf terminal at JFK International Airport to house American Airlines, American Eagle, and other carriers. The terminal includes 54 gates, can process 14 million passengers a year, and includes a customs and immigration facility large enough to serve 2,400 people per hour. Mr. Hemmerly managed the coordination of all design documents from three architectural teams, the engineering group, and interiors group, located in multiple offices.

Deputy Project Manager, Delta Air Lines Logan International Airport Terminal A, Boston, MA. Managed the design of a new $400 million, 25-gate domestic terminal as part of a modernization program to consolidate Delta's operations at Logan Airport to the renovated Terminal A. The facility is made up of a 362,000-sf terminal and 284,000-sf satellite concourse connected by a pedestrian tunnel. The design of Terminal A, the first air terminal to earn LEED® certification, features heat-reflecting roof and windows, low-flow faucets and waterless urinals, self-dimming lights, and stormwater filtration.

Employment History

STV Incorporated, 2011 – Present; Sole Proprietorship, 2010 – 2011, AECOM/DMJM Harris, 2003 – 2010; HOK, 2001 – 2003; DMJM Harris/DMJM Architects, 1993 – 2001; Agoos/Lovera Architects, 1988 – 1993; Ewing Cole Cherry Parski, 1986 – 1988; Bower Lewis Thrower Architects, 1981 - 1986

Kishor Doshi, P.E.

Infrastructure Lead/Guideway Structures

Education

Master of Science, Structural Engineering; University of Cincinnati
Bachelor of Engineering, Civil Engineering; University of Bombay

Professional Registrations/Certifications

Professional Engineer: New Jersey

Distinguishing Qualifications

- As Chief Structural Engineer for the AirTrain JFK, Kishor oversaw the design and construction of the guideways, and will use this expertise to develop innovative and cost-effective structural solutions for the AirTrain replacement at EWR.

Relevant Experience

Mr. Doshi is a principal structural engineer for the firm's New York Region, and an STV vice president with 35 years of experience. He provides key project management and oversight expertise for the design of airport roadways and structures, including bridges, ramps, and sign structures, as well as for other major transportation projects. Mr. Doshi is experienced with overseeing structural design for complex, multimodal facilities, including the new $3.2 billion Transportation Hub at the World Trade Center site in Lower Manhattan. His expertise spans the entire spectrum of bridge structures, including viaducts, multispan composite bridges, and various types of foundations and underpinnings. Mr. Doshi has overseen all phases of large-scale projects involving preliminary design, final design, cost estimates, preparation of project reports, alternative analysis, and preparation of contract documents.

Representative Projects

Chief Structural Engineer, PANYNJ AirTrain JFK, Queens, NY. Performed the final design to accommodate continuous welded rail forces and seismic loads for the $1.3 billion PANYNJ light rail system in Jamaica, Queens, NY, that connects JFK International Airport with the New York City transportation network. Mr. Doshi monitored the preparation of structural drawings and specifications for construction of the guideways at the site of the new Jamaica Intermodal Station. He provided construction support services and reviewed post-tensioning sequences and the bearing loads. Mr. Doshi also designed the floating slab for the International Arrivals Building to isolate the vibrations generated by AirTrain.

Chief Structural Engineer, NJ TRANSIT Hudson-Bergen Light Rail Transit DBOM, NJ. Developed the structural design of all bridges, retaining walls, track slabs, foundations, station platforms, maintenance building foundations, and catenary pole foundations for the $1 billion Hudson-Bergen light rail transit system — the transit industry's first major design, build, operate, maintain (DBOM) assignment in the country. Mr. Doshi was responsible for the structural design aspects of the excavation, drilling, and placement of concrete retaining walls, along with construction of 8 new bridge structures, rehabilitation of 10 existing bridges, and construction of 16 stations. He oversaw the preliminary and final design of the 28-span, half-mile-long Newport Viaduct, which features continuous steel curved girders; the unique "flying Y" structure, an 8-span triangular-shaped structure; and a 10-

foot-diameter, 95-linear-foot caisson next to the Holland Tunnel. The project, spanning Hudson and Bergen counties, NJ, included seismic analysis for all the structures.

Chief Structural Engineer, PANYNJ World Trade Center Transportation Hub, New York, NY. Responsible for structural engineering for this new $3.2 billion intermodal facility at the World Trade Center site in Lower Manhattan. The hub features a striking steel-and-glass shell surrounding a 2-million-sf interior, and underground concourses that connect pedestrians to four office towers, 11 subway lines, PATH trains, and ferry service. Mr. Doshi is managing the development of carefully documented specifications and the diligent review of shop drawings to maintain the accurate geometry of the steel components. He has guided the logistics of erection and construction, and worked with the contractor to determine the most effective means and methods of constructing the structures. As part of this effort, Mr. Doshi has overseen the structural design of a unique underground bridge that supports highway traffic at the upper level, and two tracks of subway at the lower level. The design includes the underpinning to support the operating subway, the fabrication and construction of the bridge structure around the operating subway system, and the load transfer of the No. 1 line subway box from the underpinning system to the new bridge structure.

Project Manager, NJ Transit General Engineering Services Contract, NJ. Supervised and coordinated all aspects of this general engineering consultant contract consisting of bridge design engineering tasks for a number of NJ TRANSIT rail lines. The individual tasks were performed as an extension of NJ TRANSIT's staff. The projects required close coordination with numerous subconsultants.

Project Engineer, PANYNJ Corbin Street Flyover and Three Conrail Bridges, Port Newark, NJ. Provided conceptual design for the PANYNJ for the proposed Corbin Street Flyover and replacement of three Conrail railroad bridges in Port Newark, NJ. The Corbin Street Flyover is a 10-span curved girder bridge in a horseshoe alignment consisting of two units of four and six continuous spans each, rendering an overall structural length of 1,010 feet. The structure comprises welded plate girders supporting a composite concrete deck. The piers are reinforced concrete, single-column hammer-head piers supported by drilled pier shafts. The railroad bridges comprise 7-span, simply supported, precast concrete slab beam construction supporting ballasted tracks. They span Bound Creek in the intermodal yard and are supported by concrete-filled steel pipe piles.

Project Manager, SEPTA Railworks Trackwork and Bridge Rehabilitation Program, PA. Managed design for the replacement or rehabilitation of 25 railroad bridges in greater Philadelphia, over which a 3-track electrified rail line runs a total length of 4 miles. Mr. Doshi also supervised the inspection, calculation of load ratings, and preparation of contract documents for this Southeastern Pennsylvania Transportation Authority (SEPTA) project. He coordinated structural engineering work with signal, catenary, and trackwork efforts, and supervised a multidisciplinary team of engineers for the design of the new Temple Station on the main line Ninth Street branch, requiring the replacement of the bridges at either end of the station.

Employment History

STV Incorporated, 1986 – Present; Iffland Kavanagh Waterbur, 1979 – 1986

Victor Simuoli, PE

System Integration Lead/Risk, Threat & Vulnerability Assessment

Education

M.S., Electrical Engineering, NYU Polytechnic School of Engineering
B.S., Electrical Engineering, NYU Polytechnic School of Engineering

Professional Registrations

Professional Engineer: New York

Distinguishing Qualifications

- Accomplished Program/ Project Manager with significant expertise in systems engineering, and demonstrated experience in successfully managing large scale and diverse projects.
- Experience in identifying and developing solutions for resolving programmatic issues on large, complex mega projects.
- Ability to communicate effectively, both orally and in writing, to a wide variety of audiences.

Relevant Experience

Victor Simuoli is a Senior Director, Systems Engineering, Transit Division, with more than 20 years of experience in project management and system integration and engineering. He has broad experience in complex transit systems engineering, having served in key technical and project management positions on large complex projects (East Side Access; New York City Transit Signals and Systems Program; Long Island Rail Road Signal Upgrade Program; JFK Air Train; Southern New Jersey River Line).

Representative Projects prior to CH2M

Systems Project Manager, JFK Air Train, Port Authority of New York and New Jersey, New York, NY, 1998-2003. Deputy Systems Project Manager for the JFK Air Train mega project through the project initiation and design review phases, and subsequently assumed the project manager role during construction, testing and commissioning of the system, a $1.9 billion fully automated light rail system that successfully opened at JFK Airport in 2003. Managed a consultant budget of approximately $3 million a year and led a diverse team of technical and rail operations professionals during the procurement, design, fabrication, and testing and commissioning of the system. Directed and guided systems integration and engineering activities (Automatic Train Control, Communications and SCADA, Vehicles, Traction Power, Operations and Maintenance, Reliability, Availability, Maintainability and Safety, Security, and Fare Collection) and successfully managed and led the system testing and commissioning activities through demonstrated system operation and system start-up. Prepared and presented technical briefings on key systems issues to the Port Authority Program Director, and provided strategies for the resolution of programmatic, scheduling and technical issues.

Project Manager, Project Management Oversight, Federal Transit Administration (FTA), New York, NY, 2004–2015.

- MTACC East Side Access. Project manager responsible for federal project management oversight (from 2010-2015) of the MTA's East Side Access (ESA) mega project valued at over $10 billion, which when completed in 2020, will bring Long Island Railroad into Grand Central Terminal. The systems component of this project is valued at over $700 million. Led a multidisciplinary team of professionals responsible for monitoring project performance and adherence to scope, budget, and schedule, as well as providing recommendations for solution of technical and programmatic issues. Directed and guided the activities (including project cost and schedule control, construction management, risk analyses), of the Project Management Oversight Consultant project team, in addition to providing technical expertise in the areas of

systems integration, railroad systems, and operational readiness. Prepared and delivered briefings to FTA and MTA senior management on Program status and major issues.

  - Evaluated ESA claims for reimbursement resulting from Super Storm Sandy in 2013.
  - Worked with both the Second Avenue Subway and East Side Access project teams to develop acceptable Safety and Security Management Plans and Safety Certification Plans, and assisted in the development of safety certification processes for both projects (2007-2010).

- MTA New York City Transit. Project manager (from 2004-2010) responsible for the federal project management oversight of a technology-intensive New York City Transit Signals and Systems Capital Program, valued at over $1.2 billion. Projects in this Program included the: Automatic Train Supervision (ATS) system; Communications Based Train Control (CBTC) Canarsie Pilot; Public Address/Customer Information System (PA/CIS); Flushing Interlocking Phase II; and the Concourse Line Signal Modernization projects. Worked with NYCT to develop action plans and performance metrics to resolve complex programmatic and technical issues.
- MTA Long Island Rail Road. Project manager (from 2004-2009) responsible for the federal project management oversight of the Long Island Rail Road (LIRR) Capital Program, valued at approximately $500 million. Worked with LIRR to develop an action plan to address deficiencies in its signal upgrade program (converting to microprocessor-based technology from traditional relay-based equipment), Signal and Communications projects in this Program included: Jamaica Interlocking; Queens High Speed Interlocking; Jamaica Interlockings (Jay, Hall, Dunton); Valley Interlocking; Fiber Optic Backbone; Improved Radio Coverage Program. Also provided an assessment for the FTA of the risks involved in LIRR's Positive Train Control (PTC) implementation strategy.

Participated in numerous risk assessments (from 2006-2014) including: Programmatic Risk Assessments for the MTA East Side Access project; Risk Assessments for the Harold Interlocking work on East Side Access; Systems Risk Assessment for the MTACC Second Avenue Subway Phase 1; and Systems Risk Assessment for Los Angeles County MTA Westside Extension.

Deputy Director of Engineering, Integrity Monitoring, Port Authority of New York and New Jersey, New York, NY, 2007 – 2007. Provided integrity monitoring services as part of a joint venture for the construction of Tower 1 at the World Trade Center site. Managed the engineering component of the joint venture and provided support and expertise in the areas of construction management, project controls, procurement, and risk assessment.

Lead Systems Engineer, New Jersey Transit River Line Light Rail System, New Jersey Transit, Newark, NJ, 1997. Lead Systems engineer during the procurement phase of the River Line, a $1 Billion Light Rail project that opened in 2004. Prepared and delivered industry review presentations in the areas of rail signaling and traffic control interfaces at grade crossings; interfaces with the NJ statewide radio system, and led the contractor pre-qualification evaluation effort for the systems portion of the project. Participated in a diagnostic team to review proposed grade crossings and make design recommendations for safe crossings.

Director (agency employee), MTA New York City Transit, Automatic Vehicle Location and Control, New York, NY, 1996 – 1997. Led the technical and administrative management of a multimillion-dollar pilot project for the Department of Buses utilizing Global Positioning Satellite (GPS) technology to locate and track buses in real time at the Bus Command Center, and provide real-time customer information at bus stops and kiosks.

Employment History

CH2M, 2015-present; Urban Engineers, 2004-2015; Booz Allen Hamilton, 1997-2004; MTA New York City Transit, 1996-1997; MTA Long Island Bus, 1994-1996; Xybion Corporation, 1990-1993; Riverside Research Institute, 1982-1990

Joseph Graziosi

Construction Oversight Lead

Education

Bachelor of Science, Engineering Technology/Construction Engineering Technology; New Jersey Institute of Technology

Distinguishing Qualifications

- As an industry leader in the aviation construction field, Joseph is experienced with large, complex construction projects on active airfields, particularly at EWR and JFK, and will apply these lessons learned and best practices to the replacement AirTrain Newark project to keep the construction on schedule and within budget

Relevant Experience

Mr. Graziosi is a construction management executive with more than 30 years of experience providing leadership in preconstruction, business development, and project execution for a number of markets, including large aviation projects in the New York metropolitan area. Mr. Graziosi has proven skill in team building; effectively leading staff to meet the vision, mission, and goals of the clients he serves. He has comprehensive knowledge of project management tools and fundamental practices, including cost estimating, alternative analysis, risk assessments, contract law, and value management. Prior to joining STV, Mr. Graziozi served as Director of Aviation Market Center of Excellence for a large international construction company, where he was responsible for the development of market strategies for various aviation projects on the national level, post 9/11. He supported regional offices in identifying projects, understanding needs, and developing proposals for key capital improvement projects and TSA-mandated enhanced checked-baggage screening programs at multiple airports, including: Charlotte-Douglas, Newark-Liberty, Fort Lauderdale-Hollywood, and Kalamzoo-Battlecreek.

Representative Projects

Project Director, PANYNJ United Airlines New Air Cargo Transfer Facility, Newark, NJ. Oversaw construction management of the United Airlines New Air Cargo Transfer Facility at Newark Liberty International Airport in Newark, NJ, for the PANYNJ. Mr. Graziosi supervised all aspects of this ground-up construction. Special chanaleges for this project included; construction type which was unique for this airport as it included a fabric roof structure over a barrel vault truss system, and challenges to the foundation systems due to very poor geological formations (both natural and manmade) at this location. Interfaced with PANYNJ tenant liaison on all TAA matters on behalf of client (United Airlines).

Project Director, PANYNJ United Airlines Terminal A-1 Improvements, Newark, NJ. Oversaw improvements to Terminal A-1, including new gates, passenger loading bridges, ramp services facilities and improved security features. Interfaced with PANYNJ tenant liaison(s) on all TAA matters on behalf of client (United Airlines).

Project Director, United Airlines Newark-Liberty Hangar 14 Feasibility Studies, Newark, NJ. Oversaw design and budget development for improvements to Hangar 14. Studies included subsurface investigation, structural assessment, fire protection systems, security systems and office conditions. Under consideration was to replace hangar floor due to major settlement issues with new helical piling

foundation system, new AFFF fire suppression system, and modifications ao hanagar doors to accomidate various aircraft configurations (Airbus and Boeing). Studies and budget development was completed. Project never advianced past the planning stages due to lease issues with the PANYNJ.

Project Director, United Airlines New Ground Services Equipement Facility, Newark, NJ. Oversaw design and budget development for proposed new ground-up GSE facility adjacent to United Aircargo facility at north cargo area of Newark Liberty. Design and budget development was completed. Project never advianced past the planning stages due to lease issues with the PANYNJ.

Project Executive, Continental Airlines Training Center, Newark, NJ. Oversaw design and construction management of the $15 million Continental Airlines Training Center at Newark Liberty International Airport in Newark, NJ. The project involved re-purposing conversion of the existing Terminal C mobile lounge into a airside training facility for crew and ramp servies employees. Interfaced with PANYNJ tenant liaison on all TAA matters on behalf of client.

Project Executive, Continental Airlines Express Maintenance Center, Newark, NJ. Oversaw design and construction management of the $5 Million Express Maintenance Center at Newark Liberty International Airport in Newark, NJ. The project involved re-purposing conversion of existing space under terminal C -2 into an express maintenance center, including the installation of an automated parts retrival system to support Continentals Regional Jet Fleet. Interfaced with PANYNJ tenant liaison on all TAA matters on behalf of client.

Development Partner, PANYNJ JFK Airport Animal Import/Export Facility, Queens, NY. Oversaw coordination of services for the construction of a new animal import/export facility at JFK International Airport in Queens, NY, for the PANYNJ. Mr. Graziosi coordinated the veterinary and cargo services required to operate this facility. He oversaw the design team, operator, and developer-leasing, and coordinated the financial aspects of the project.

Project Executive, Delta Airlines Terminal 4 New West Concourse Expansion, Queens, NY. Supervised the budget development and planning for an expansion of Delta Airlines Terminal 4 New West Concourse at JFK International Airport in Queens, NY, for the PANYNJ. Mr. Graziosi oversaw planning for this $400 million expansion, which was part of the overall $800 million expansion and renovation of the terminal.

Project Executive, PANYNJ Continental Airlines Air Cargo Transfer Facility Design-Build, Queens, NY. Supervised overall design and construction management of the new, $75 million Continental Airlines landside air cargo transfer facility at JFK International Airport in Queens, NY, for the PANYNJ. Mr. Graziosi oversaw all aspects of ground-up construction for this design-build project. Interfaced with PANYNJ tenant liaison on all TAA matters.

Employment History

STV Incorporated, 2015 – Present; Facchina, 2012 – 2014; Pavarini Florida/The Structuretone Organization, 2011 – 2012; Skanska, 2004 – 2011; J.A. Jones Construction Group, 1998 – 2003; Pep Boys, 1994 – 1998; Toys ‘R’ Us, 1992 – 1993; J. Graziosi General Contractors, 1989 – 1991; Sordoni Construction Company, 1987 – 1988; Mellon-Stuart Company, 1985 – 1986; Morse/Diesel, 1982 – 1984

Dinesh Damavarapu, PMP, PMI-SP, PMI-RMP, CCP

Project Controls Lead

Education

M.Sc., International Construction Management, Nanyang Technological University
BA.Sc. (Hons), Construction Management, RMIT University
DCE, Diploma in Civil Engineering, Andhra Pradesh State Board of Technical Education

Professional Registration

PMP - Project Management Professional, PMI; PMI-SP - Certified Scheduling Professional, PMI; PMI-RMP - Risk Management Professional, PMI; Certified Cost Professional

Distinguishing Qualifications

- Program management professional with more than 24 years of extensive and diversified experience on major programs and projects around the world
- Specialized in scheduling, project controls, contract administration, risk management and construction management
- Project Management Software: Primavera Project Planner P3, Primavera P6 Professional Project Management (Ver.8.2), Microsoft Project 2007, Primavera Risk Analysis, Suretrak and Asta Powerproject, Ecosys Enterprize Project Controls, Primavera Contract Management

Relevant Experience

Mr. Damavarapu offers unique combination of skills demonstrated through achievements of results in leading and performing a full range of project management and control functions including oversight, direction, training in the areas of planning and scheduling, cost engineering, performance measurement, change control management, earn value management, risk management, and claims management. He has an extensive experience in setting up WBS, integrated program/project plans and schedules, master schedules, contractor schedules; maintaining and updating the schedules and plans; communicating the schedules and plans at different levels of organizations, carrying out risk analysis, preparation of what-if analyses, preparation of reports, delay analysis and extension of time assessment.

Representative Projects

Manager, Project Controls/Scheduling, Metrolinx Rapid Transit Implementation (RTI) LRT Program, Metrolinx, Toronto, Canada. This is the Metrolinx's 5 in 10 plan which includes Eglinton Crosstown LRT, Scarborough LRT, Finch West LRT, Sheppard East LRT, and Viva BRT Projects. Responsible for all the scheduling activities; preparation of work break down structure; preparation, establishment and maintenance of the integrated master schedules for all the projects; preparation and establishment of the schedule management procedures and specifications; monitoring and evaluation of work progress against the target schedule and highlight any deviations for necessary action; liaising with all the project stakeholders and project managers in obtaining the schedule information and updating the schedule, preparation of what-if scenarios and related reports; evaluation and recommendation of extension of time claims, schedule risk analysis, setting up schedule coding structures, evaluation and recommendation of contractors and consultant schedules; setting up and recommendation of contract milestones, durations and interface milestones, carrying out earned value analysis, managing, mentoring a team of scheduling professionals.

Dinesh Damavarapu, PMP, PMI-SP, PMI-RMP, CCP

Scheduling Lead, Union Pearson Express, Metrolinx, Toronto, Canada. This 22-kilometre section of track between Bathurst Street and Highway 427 is being upgraded as part of GO's Georgetown South Project, which is improving infrastructure along the to accommodate the UP Express, current and future GO Transit, Canadian National, and Via Rail services. Beyond the 427, a newly constructed 3.3 km (2.1 mi) rail spur will carry the UP Express to Toronto Pearson International Airport Terminal 1. The Union Pearson Express fleet will consist of six trains; each one composed of three diesel multiple unit (DMU) cars, for a total of 18 DMUs. Dinesh is responsible for setting up the master schedule; maintaining, updating and communicating the master schedule on monthly basis.

Scheduling Manager, The Panama Canal Expansion Program, Canal De Panama, Republic of Panama. This project scope includes blasting (basalt – 5.3 million m^3), excavation (35 million m^3), dredging (13.5 million m^3), concrete (4.8 million m^3), dams, water saving basins, coffer dams, access and hauling roads, ocean side barge loading/unloading docks, industrial plants, operations, maintenance and control buildings, and installation of gates and valves. In charge of all the scheduling activities of the $3.2B Third Set of Locks project of the $5.3B Panama Canal Expansion Program. Responsible for the preparation and establishment of the integrated program master schedule; evaluation and acceptance of the design and build contractor's baseline schedules and monthly updates; evaluation of the contractors' schedule performance and preparation of forecast reports; preparation and establishment of the scheduling procedures and program controls procedures; monitoring trends/risks/issues; leading and supervising a team of scheduling professionals; mentoring and training client staff; contract management; schedule delay analysis and claims evaluation; carrying out risk analysis using Pertmaster Risk Expert; participating in the payment evaluation process; carrying out earned value analysis.

Prior to CH2M HILL

Planning and Controls Manager, Masdar Development, Abu Dhabi Future Energy Company, Abu Dhabi, UAE. This 6 sq km city will rely entirely on solar energy and other renewable energy sources, with a sustainable, zero-carbon, zero-waste policy and will be a car free city. The travel will be accomplished within the city via public mass transit and personal rapid transit (PRT) systems, with existing road and railways connecting to other locations outside the city. Dinesh was part of the project management team managing the 1st phase of the city which involves construction of Masdar Institute of Science and Technology (MIST); responsible for scheduling, cost engineering, document controls, reporting, risk management activities.

Project Controls Engineer, The Palm Jumeirah, Nakheel, Dubai, UAE. Part of the program management team who were managing the infrastructure works (Roads, bridges, utilities, sewage treatment plant, desalination plant, substations, monorail system etc.) responsible for cost engineering and scheduling activities managing the contractors and consultants.

Employment History

CH2M, 2009-Present; Parsons Brinckerhoff, 2007-2009; Hill International, Dubai, 2006-2007, Parsons Brinckerhoff, 2004-2006; SembCorp E&C, 2003-2004; Samsung Corporation, 1995-2003, BHPVHBS, Visakhapatnam, AP, 1992-1995; Shikhara/ PABC, Nellore, AP, 1990-1992; K.Venkateswarlu & Co, Warangal, AP, 1989 -1990

Girish Anathashankaran

Train Control

Education

M.S., Industrial Administration (MBA), Carnegie Mellon University
Bachelor of Technology, Electrical Engineering, Indian Institute of Technology, New Delhi, India

Relevant Experience

Mr. Ananthashankaran has more than 27 years of experience in design, specification development, system integration, implementation, testing, project management and oversight of Signal/ Automatic Train Control and Communications projects in India, Europe and the United States. Mr. Ananthashankaran is the lead technologist for Systems Engineering for Signals & Train Control practice for the Transit & Rail Market in the USA; and focuses on Advanced Train Control implementation projects in the Northeast Region.

Representative Projects

JFK AirTrain, PANYNJ, New York, NY. Provided oversight of the ATC (Seltrac ™ loop based system including ATP, ATO and ATS) aspects of the JFK Airport Light Rail System (LRS) Project for the Construction phase. His role on the project included the following:

- Conducting Design review of ATC subsystems – Car borne, Wayside and ATS
- Interfacing with vehicle engineers to resolve system integration and interface issues between ATC and other vehicle subsystems
- Developing, implementing, and managing a test and commissioning oversight plan for the ATC based on review of test plan and procedures, test results, and test witnessing
- Reviewing all system and OSHA category hazards due to ATC and ensuring proper mitigation strategy via design, test, or analysis for closure towards safety certification
- Reviewing software releases for vital subsystems prior to testing, commissioning and cut-in to service.

Port Authority Trans-Hudson (PATH), ATC Project, Program Services Support, Jersey City, NJ. ATC Technical lead on the Program Management Services consulting team Phase II CBTC project for the PATH System. In addition, he was the Acting Project Manager for the CH2M Team from December 2009 to December 2010. His role included the following:

- Technical oversight of the CBTC design review.
- Coordination and system integration of CBTC design aspects with the Secondary Train Detection System.
- Support PATH's interaction with the FRA for PTC approvals.

MTA New York City Transit, Flushing Line CBTC, New York, NY. Currently the chair of the Systems Integration working group for the Flushing Line Communication Based Train Control (CBTC) project. His role on this project includes the following:

- Leading the review and compliance of train control system engineering design aspects to meet CBTC contract specifications for the Flushing Line.

Girish Anathashankaran

- Supporting the Program Manager – Signals and CBTC Technical Manager for Flushing Line on project level technical issues and risk mitigation.
- Leading the System Integration oversight of the construction phase of CBTC and all interfaces.
- Leading the Test & Commissioning working group for oversight of testing activities at the Factory and site.

MTA New York City Transit, Culver Line CBTC, New York, NY. Currently a member of the Task force for the Culver Line Communication Based Train Control (CBTC) Interoperability certification project. His role on the project involves:

- Supporting the procurement of the CBTC system for Interoperability Safety Certification.
- Supporting Design reviews of system functional changes to the Interoperability Interface Specifications (I2S) that form the basis of future CBTC projects including the Queens Boulevard Line (QBL); Testing oversight.

Maryland Transportation Authority (MTA), Baltimore, Maryland. Supporting the technical team for the preparation of the ATC technical specifications, independent engineer's estimate and migration/ phasing of a new proposed ATC system with the existing cab signal system on Metro system.

MTA New York City Transit, Canarsie Line CBTC, New York, NY. Mr. Ananthashankaran led the Testing and Commissioning oversight effort on the Canarsie Line CBTC project. His role included the following:

- Chairing the Test and Commissioning working group and oversight of the effort by Siemens Transportation Systems to manage the testing schedule, test documentation, logistics of testing, and intermediate cutover planning leading into revenue service.
- Review of Contractor Safety analysis of vital software changes for CBTC wayside and car borne subsystems with respect to adequacy of functional and regression test coverage.
- Review of retrofit of speed sensor equipment and software updates.

MTA New York City Transit, Indefinite Quantity (IQ) Engineering Services for Signal/ Communication projects, New York, NY. Mr. Ananthashankaran was the project manager for this task order based Contract and responsible for managing staff, resources & budget to support System Engineering, Signal Engineering, SSI Engineering, Specification development tasks.

Agency wide Reconfiguration of 800MHZ Radio System, PANYNJ, New York, NY. Mr. Ananthashankaran managed this radio project awarded under a Radio Call-In Contract and was responsible for managing staff, quality of technical deliverables, resources & budget to support preliminary design, detail engineering, oversight of construction, and oversight of testing & commissioning to meet the FCC mandate for the Agency.

Toronto Transit Commission (TTC), Scarborough Rapid Transit (SRT), Signal Principles Testing, Toronto, Canada. Mr. Ananthashankaran managed a multiyear project task to provide qualified staff and technical expertise to review the design and testing deliverables including support for oversight of testing for the ATC upgrade to the vital centralized computer (VCC) for the SRT.

Employment History

CH2M, 2001-present; Ansaldo Signal, 2000-2001; Kirloskar Electric Co., 1990-1993; Sundaram Clayton Ltd, 1985-1990

Michael Bodek, PE

Site Safety/Airport Operations Coordination

Education

M.S., Civil and Environmental Engineering, Carnegie Mellon University
B.S., Civil Engineering Technology, University of Pittsburgh

Professional Registration

Professional Engineer: Pennsylvania

Distinguishing Qualifications

- Experienced with airport geometric designs, grading and drainage, erosion and sediment control, construction phasing, airport planning, construction plans and specifications, shop drawing and contractor submittal reviews, project bidding, cost estimates and budgeting, benefit-cost analysis, and field observation and inspection.
- Managed seven AF horizontal projects (runways, taxiways and aprons) valued at $145M in construction
- Training: Certified PCASE pavement training via the USACE Transportation Systems Center

Relevant Experience

Mr. Bodek has 19 years of professional experience in aviation engineering, emergency management and planning, and security and protection services. He is experienced with airport geometric designs, grading and drainage, erosion and sediment control, construction phasing, airport planning, construction plans and specifications, shop drawing and contractor submittal reviews, project bidding, cost estimates and budgeting, benefit-cost analysis, and field observation and inspection. His background also includes vulnerability assessments, facility security plans, and severe weather damage assessments. Mr. Bodek has been trained to identify and respond to chemical, biological, radiological, and nuclear weapons of mass destruction incidents. He has experience in threat assessment and planning, as well as design of facility-specific security and protection plans.

Representative Projects

Design Manager, Capacity Enhancement Program, Philadelphia International Airport, Philadelphia, PA. Concept design manager to assist the City of Philadelphia with a long term comprehensive program designed to expand the existing airport system to accommodate current and future air service demand at PHL – the fifth most delayed airport in the country and a "pacing" airport within the National Airspace System.

Engineering Support, O'Hare Modernization Program, Chicago O'Hare International Airport, City of Chicago Department of Aviation, Chicago, IL. Engineering drawing preparation for FAA NAVAID/ airfield coordination meetings as part of the $6.6B expansion and modernization project that includes a new air carrier runway, reconfiguration and extension of existing runways, and various other substantial infrastructure projects across the entire airfield campus.

Project Manager, USACE-Omaha IDIQ for CONUS and OCONUS Airfield Obstruction Surveys, USACE, Omaha District, Various Locations Globally. Performed airfield obstruction surveys that meet FAA, UFC, and USACE regulations at US Army installations worldwide. This work included survey of existing

airfield features and potential obstructions. Responsibilities included leading the survey team, coordination with onsite clients, and preparation of airfield obstruction charts, marking charts, PAR and ILS data sheets, and summary spreadsheets.

Design Manager/Quality Control Manager, 2010, 2011 and 2013 Airfield Joint and Crack Sealing Project, Pittsburgh International Airport, Allegheny County Airport Authority, Pittsburgh, PA. Served as the design manager for the Airfield Joint and Crack Sealing project at Pittsburgh International Airport, for multiple runways. Provided a cursory level pavement evaluation, prioritized repairs, conceptual design report, prepared the engineer's report, construction plans, specifications, and cost estimate for repairing the defective joint sealant, cracks, spalls and shattered slabs on the airfield. As QC Manager, responsible for assigning quality control reviewers for each submittal and for documenting the quality control process from start to finish.

Project Manager, Taxiway B North Replacement, USACE Louisville District, Wright-Patterson AFB, OH. Led the team in the design of this horizontal airfield project with full depth reconstruction of a 3,000-ft segment of Taxiway B. Design included all associated demolition, PCASE pavement design, grading, drainage, and taxiway marking and lighting. Ensured compliance with UFC 3-260-01 and 3-260-02. Prepared UFGS using SPECSINTACT and MII cost estimating. Prepared SWPPP and supporting environmental permitting documents. Project achieved LEED Silver certification.

Design Manager, Apron and Taxiway Reconstruction, Maine Air National Guard Base, US National Guard Bureau, Bangor International Airport, Bangor, ME. Managed the engineering design for the repair and rehabilitation of the KC-135 aircraft refueler parking ramp, connector taxiway, aircraft fueling system, and deicing drainage system. Prepared three horizontal design packages phased to accommodate aircraft operations for this KC-135 ramp. Design included PCASE pavement design, airfield lighting, marking, and signage, and ensured compliance with UFC 3-260-01, 3-260-02.

Engineering Support, Engineering On-Call Contract, Palm Beach International Airport, Palm Beach County, West Palm Beach, FL. Various tasks associated with servicing the on-call engineering contract with Palm Beach County. Duties included airside and landside components such as parking lot layouts, verification of compliance with 14 CFR Part 139 Certification requirements for Precision Free Obstacle Zone (POFZ), and initial design activities for Concourse A Apron Improvements.

Engineering Support, On-Call General Civil Engineering Task Order, Washington-Dulles International Airport, Metropolitan Washington Airports Authority, Sterling, VA. Engineering design for various general civil engineering task order projects at the Washington-Dulles International Airport.

Engineering Support, 4th Runway and Associated Taxiways, Washington Dulles International Airport, Metropolitan Washington Airports Authority, Sterling, VA. Various engineering support services associated with the design of a new 9,500 foot concrete pavement runway at Washington Dulles. Duties included plan set and construction specification review to support the multi-phase, multi-package design effort, as well as lead designer for an access road to a new Airport Rescue and Fire Fighting Station at the north end of the field.

Employment History

CH2M, 2005-Present; Michael Baker, Jr., Inc., 2004-2005; Delta Airport Consultants, Inc., 2003-2004; County of Cambria, PA, 1995-2003

Joseph Brownstein, P.E., CDT, LEED AP, Env SP

Site Planning/Utilities

Education

B.S., Civil Engineering, Pennsylvania State University

Professional Registrations

Professional Engineer: New York, New Jersey, Massachusetts

Certifications

Construction Documents Technologist (CDT)
LEED Accredited Professional (LEED-AP), LEED-AP BD+C
Envision Sustainability Professional (ENV SP)

Distinguishing Qualifications

- Experience in utility coordination and relocations, flood analysis, flood protection and drainage design in support of transit and transportation infrastructure improvement
- Skilled in maintenance and protection of traffic, construction staging, and the preparation of contract drawings, specifications and estimates

Relevant Experience

Mr. Brownstein has extensive experience in project management and coordination for design, design-build and construction including utility coordination and relocations, flood analysis, flood protection and drainage design in support of transit and transportation infrastructure improvements. Additionally, his experience includes maintenance and protection of traffic, construction staging, and the preparation of contract drawings, specifications and estimates. His responsibilities include technical writing for studies, reports and preparation of Contract Documents and Constructability Reviews. Mr. Brownstein's recent experience has included post-Superstorm Sandy flood analysis, flood mitigation alternative evaluation studies and design for flood protection measures.

Representative Projects prior to CH2M

Lead Civil Engineer, JFK AirTrain Airport Access Program, PANYNJ, Queens, NY. Responsible for coordination of utility verification and relocation work as part of the PANYNJ project management team. This fast track design/build project resulted in a new 8.4-mile (13.5-kilometer) light rail transit (LRT) system to directly link JFK and the Long Island Rail Road's Jamaica Station. Responsibilities involved extensive coordination with the final design team, contractors, public agencies, and public and private utility companies. Also reviewed maintenance and protection of traffic (MPT) and construction staging plans required to implement utility relocations for the project. Work included coordination among disciplines for providing protection for and maintaining existing and proposed utilities during construction of the LRT system. Additional responsibilities included review and coordination of all drainage design for roadways, new tracks, and proposed station sites.

Lead Civil Engineer, Eastern Rail Yard Design Review, New York, NY. Representing LIRR interests, responsible for the review of the developer's design of the overbuild known as Hudson Yards above the eastern portion of LIRR's West Side Yard and of the replacement of the Maintenance of Equipment building. The eastern portion of the rail yard is an approximately 13-acre site located between West 30th and West 33rd Streets from 10th to 11th Avenues. Work involves supporting and coordinating

with LIRR staff for review of the Hudson Yards overbuild platform plans and design reports as related to West Side Yard site, railroad infrastructure and facilities, drainage and utilities, clearance, access and operations. Complex site is an active LIRR rail yard with NYCDOT viaduct structures above and Amtrak Tunnels below.

Civil, Utility and Drainage Engineer, Canarsie Tunnel Rehab, East 14 Street, Manhattan and North 7th Street, Brooklyn, NY. Supported the design of future open cut construction shafts between street level and the existing NYCT "L" Train subway tunnel; Initial work included an inventory study of existing utility record drawings, coordination and management of a third party Subsurface Utility investigation / test pit program, and field verification of utility surface features. Ongoing work included an alternatives study to locate new station entrances, a circuit breaker house and NYCT substation with the intent to minimize impact on existing utilities including Con Edison oil-o-static high voltage transmission lines, ECS telecommunications conduits, and NYCDEP water and sewer mains. All work was coordinated with NYCT and utility companies and City agencies as well as design disciplines related to excavation methods, construction staging, work zone traffic control and final restoration of utilities and roadways. The results of the utilities investigation and studies were being incorporated into contract documents to form a biddable set of construction documents.

Lead Civil Engineer, Staten Island Railroad St. George Terminal Yard Flood Mitigation Feasibility Study, Staten Island, NY. Responsible for performing engineering studies and evaluations for developing effective mitigation measures / alternatives for various storm events and surges. Mitigation and resiliency measures included temporary and permanent flood barriers, upgrading of the drainage system, storm water detention and hardening of yard power, signals, and energy and communication systems. Developed flood mitigation alternatives in coordination with coastal hydrology, geotechnical and structural engineers to provide a final report which will determine a flood mitigation plan for the NYCT facility based on effect of resiliency, yard operation impacts, capital cost, maintenance costs, agency/community impacts and time frame to implement/construct.

Lead Civil Engineer, NJ Transit Flood Analysis and Mitigation Project, Newark and Secaucus, NJ. Flood analysis and flood mitigation design for the Newark Light Rail System and the commuter Rail Station. Developed near term and long term flood mitigation alternatives for an underground light rail station and an at grade commuter rail station. Focus on protecting critical station elements such as passenger and emergency access/egress, signal and communications systems, electrical power (facility and traction), emergency generators and fuel supply.

Project Engineer, LIRR Flood Investigation and Recommended Improvements Study, West Side and LIC Yards Manhattan and Queens, NY. Study involving site verification and analysis to determine the depth and extent of flooding due to super storm Sandy. All information was correlated with actual site conditions, measured data and the observations of witnesses. Alternatives and recommendations for improvements to prevent future flooding at the two LIRR yards were provided along with order of magnitude cost estimates. Project was expanded by the client to include a flood protection study for the Queens Portals of the East River Tunnels and to support LIRR's preparation of FTA grant applications.

Employment History

CH2M, 2015-present; Parsons Brinckerhoff, 1999-2015; Dewberry, 1993-1999;
Bechtel/ PB Joint Venture, 1990-1993

Victoria Carlin

Passenger Flow & Queuing Modeling Analysis

Education

B. MSc (Hons), Transport Planning with Business Management, Imperial College, UK
Diploma of Imperial College, Imperial College, UK
BA (Joint Hons), Geography and Economics, Lancaster University, UK

Distinguishing Qualifications

- More than 11 years of experience in pedestrian modeling, using PEDROUTE and PAXPORT, specializing in pedestrian planning, primarily related to stations.
- Highly proficient in undertaking both spreadsheet and dynamic modeling analysis, as well as interpreting the outputs of dynamic simulation models in the context of standards compliance.

Relevant Experience

Ms. Carlin has completed the Legion training program and has built, audited, and managed many Legion models. Her modeling experience includes building, developing, auditing and reporting on pedestrian models and managing pedestrian planning studies. Vicky is a leader in the understanding and application of corporate and legislative standards with experience of facilities planning for key decision making bodies as well as private sector clients.

Representative Projects

Lead Modeler, MTA New York City Transit, R211 Passenger Flow Analysis, New York, NY. Lead modeler on evaluating rolling stock car configuration and interior layout options through dwell time modeling using the LEGION model. Conducted field surveys to gather input data and built and calibrated the models to test different boarder and alighter demand profiles. Employed techniques to accurately represent the behavior of New York passengers. Developed the report with analysis and results on dwell times, passenger distribution and levels of service for different sensitive analysis on car configuration, door configuration and interior layout.

Project Manager, London Olympics Crowd Management Strategy, Southeastern Trains, UK. In preparation for the London 2012 games and on behalf of Southeastern Trains, led the CH2M team involved in the development of crowd management plans for each station most acutely affected by the Olympic Games (12 in total). This project continued from planning to implementation and involved the cooperation and liaison with the boroughs, the Olympic delivery agencies as well as security firms who marshalled at the events. These plans involved the development of Legion models to understand the impacts of high volumes of spectators and devised strategies to minimize crowding.

Technical Package Manager, Euston Station Redevelopment, Network Rail, UK. Network Rail proposed station enhancements to include the introduction of a station mezzanine and retail complex within the existing station structure, along with structural and mechanical/electrical advice. CH2M provided the pedestrian flow analysis using static analysis techniques.

Technical Specialist, Evergreen Line Pedestrian Modeling, British Colombia Ministry of Transportation and Infrastructure, Vancouver, Canada. On behalf of the Ministry of Transportation and Infrastructure, CH2M was appointed as technical consultants providing design and interchange optimization advice at six key stations on the proposed Evergreen line extension in Vancouver.

Victoria Carlin

Technical Modeler, Bank Station Upgrade Project, UK. Bank/Monument Station is one of the busiest stations on the London Underground network. Any future capacity enhancements at this station are required to reduce forecast crowding within the station while also reducing passenger journey times. Working on behalf of Bam Nuttal, Ferrovial and Kier Construction, provided technical leadership for the pedestrian modeling discipline working with architects to develop a proposed design for the capacity enhancement scheme.

Technical Modeler, LOCIP Upgrade Project, London Overground, UK. Working on behalf of London Overground Rail Limited to assist in their preparations for an upgrade from four-car to five-car operation. This included undertaking wait time assessment using Legion pedestrian modeling software in order to assess the suitability of selective door opening at stations where platform lengthening is not possible.

Modeling Advisor, PLANET Framework Model Development, HS2 Limited, UK. As development partner to HS2, was seconded to the strategy and analysis team to oversee the update of the PFM model. This model is used to provide the evidence for the business case for the proposed high speed network linking London to the north of England. Assisted with the identification of the requirements for the model update, and developed a program for the planned set of actions to achieve these. Managed the work package undertaken by external contractors to update the demand matrices in order to provide transparent analysis for the Hybrid Bill in 2013 taking into account the latest and potential WebTAG requirements. Also developed a number of risk analysis scenarios to assess the variability in the outline business case in relation to various parameters. While at HS2 Limited, became AGILE trained.

Technical Specialist, Elephant and Castle Redevelopment, Lend Lease, UK. On behalf of developers Lend Lease undertook the pedestrian modeling to assess the required station improvements to mitigate against the increased transport trips at this important central London transport hub. This model extended onto street level incorporating bus arrivals and the interchange between bus and trains.

Technical Specialist, Earls Court Redevelopment, Capital and Counties, UK. Undertook station sizing analysis for input into the Earls Court development transport application. Three key stations were analyzed during the project including Earls Court station, West Brompton station and West Kensington station. Included full stakeholder engagement program and coordinated liaison between Network Rail, LUL, TfL and the project team. In addition, produced three Legion station models of Earls Court, West Brompton and West Kensington stations for a number of design variations.

Technical Specialist, Haymarket Pedestrian Modeling, Transport for Scotland, UK. On behalf of Transport for Scotland using Legion pedestrian modeling software, CH2M provided design advice on the proposed Haymarket tram-train interchange, testing the most up-to-date design options as well as undertaking tests on evacuation scenarios.

Technical Specialist, Northern Line Extension, Transport for London, UK. On behalf of TfL developed pedestrian models in order to inform the design of the proposed new stations on the Northern Line extension. Two stations were modelled including Battersea and Nine Elms.

Employment History

CH2M, 2003-present

Eva Chan, C.Eng., MICE

Life Cycle Cost Benefit Analysis

Education

MSc, Finance and Management, Cranfield University, UK
MSc, Civil Engineering, Hong Kong University of Science & Technology
BEng, Civil & Structural Engineering, Hong Kong University of Science & Technology

Professional Registrations

UK Institution of Civil Engineers, Member (MICE) and Chartered Engineer

Relevant Experience

Ms. Chan has more than 15 years of experience managing infrastructure projects in throughout the United States, Hong Kong, United Kingdom and Mexico. She holds two MSc degrees in civil engineering and in finance and management. Eva has been involved in a variety of projects with a focus on technical due diligence and procurement of PPP projects, risk assessment, financial forecast and modeling, cost benefit analysis and asset management.

Representative Projects

Procurement Advisor, Goethals Bridge, PANYNJ, New York, NY. Procurement advisor to PANYNJ for the new Goethals Bridge. The work involves project risk registers, identification of major risk items and advice to the client on optimal risk allocation and mitigation measures.

Risk Analyst and Modeler, Preliminary Cost Benefit Analysis (CBA) of Alternatives for Modifying or Replacing the Bayonne Bridge, PANYNJ, NY. Risk analyst and modeler for a preliminary CBA for Bayonne Bridge project alternatives working closely with PANYNJ staff to coordinate efforts from various divisions to the overall CBA model framework.

Tiger Grant Application for Port Newark Container Terminal (PNCT) Access Project, County of Essex New Jersey, NJ. Developed Cost Benefit Analysis model to support the client to bid for Tiger Grant VI. PNCT was successful in receiving the grant. The access project, once completed, will improved gate capacity and truck transaction times.

O&M Task Lead, Hampton Roads Projects Cost Analysis, Virginia Office of Transportation Public-Private Partnerships, Virginia Department of Transportation, VA. O&M task leader to provide O&M cost estimate for the development and implementation of the 9 priority road, bridge, and tunnel within the Hampton Roads region. The concept level estimates of the candidate projects are provided to inform the feasibility of the various funding options.

O&M Task Lead,I-64 and I-85 Managed Lane Value for Money Analysis, Virginia Office of Transportation Public-Private Partnerships, Virginia Department of Transportation, VA. O&M task leader to provide value for money (VfM) analysis for the proposed managed lanes along I-64 and I-85 in VA.

Procurement Advisor, Portsmouth Bypass Procurement, Ohio Department of Transportation, Ohio, OH. Procurement advisor to provide technical input and procurement services for the Portsmouth Bypass, which will be delivered by DBFOM model. Assist ODOT to draft Request for Information and Request for Qualification documents.

Eva Chan, C.Eng., MICE

Procurement Advisor, Grand Parkway (SH99) Operation and Maintenance Advise, Texas Department of Transportation, Texas, TX. Procurement advisor to provide comments to the traffic and revenue forecast and estimated the toll collection cost of the managed lane projects. Developed O&M and lifecycle cost estimate for the 190-mile toll road under different procurement scenarios.

Consultant, Asset Management Benchmarking, Heathrow Express, UK. Consultant for the development of methodology and benchmark indicators to evaluate the operational and asset management performance of Heathrow Express against other train operating companies.

Consultant, Delay Minutes Analysis, Network Rail, UK. Consultant for the statistical and trends analysis for the delay minutes of Network Rail's train services. Problematic areas were identified and recommended improvement measures made to reduce the delay minutes in the future.

Consultant, Milton Keynes Waterway Park Business Plan, British Airways, UK. Consultant for preparation of a business plan for British Airways to bid for the BIG Lottery Fund. The work included market assessment, marketing strategy, financial evaluation and risk management plan.

Consultant, Market Assessment on Rail Freight, Confidential Client, UK. Consultant for preparation of a high-level briefing paper on UK rail freight market for the board directors that led to potential acquisition.

Project Advisor, Transshipment Mega-Terminal of the Atlantic, AMEGA, Costa Rica. Project advisor for conceptual design and engineering due diligence of the facility and proposed operations, as well as development of the financial and market rationale. Tasks for the strategic business case development include financial and funding analysis, assessment of anticipated returns on investment, and support for project sponsors in meetings to attract investment partners.

Project Advisor, North Tarrant Expressway, Cost Reasonableness Exercise, Texas Department of Transportation, Austin, TX. Project Advisor for reviewing and auditing the cost estimate on routine maintenance, lifecycle maintenance and toll collection cost provided by the project developer. Negotiate the final O&M cost with the project developer in order to make sure that the price proposed is reasonable under the FHWA guideline.

Project Manager, Lender's Technical Advisor for Indiana Toll Road, Indiana Toll Road Concession Company, IN. Project manager to undertake audit and certification of major maintenance and capital improvement works throughout the concession period. Conducted review on annual operating and maintenance budget.

Project Manager, Lender's Technical Advisor for Chicago Skyway, Skyway Concession Company, Chicago, IL. Project manager to undertake audit and certification of major maintenance and capital improvement works throughout the concession period. Conducted review on annual operating and maintenance budget.

Project Manager, Lender's Technical Advisor for Pocahontas Parkway, Transurban 895, Richmond, VA. Project manager to undertake audit and certification of major maintenance and capital improvement works throughout the concession period. Conducted review on annual operating and maintenance budget.

Employment History

CH2M, 2007-present; IFX Markets, UK, 2006; Hong Kong Government, Hong Kong, 2002-2005

Christine Coughlan

Procurement Support

Education

B.A., English and Economics, Rutgers College

Distinguishing Qualifications

- Experienced in procurement planning and strategy
- Familiar with procurement process: bid/ proposal stage, selection of successful contractor, contract award, contract and change management administration, contract close-out. Experienced with DBOM procurements.
- Preparation of contract commercial provisions, and evaluation procedures
- Specialize in performance of Buy America(n) Audits of contractors to verify domestic content requirements are met

Relevant Experience

Ms. Coughlan has more than 33 years of professional experience in procurement and contract administration—25 years in the public transportation arena and 8 years in private industry, focusing on construction, DBOM projects, rolling stock, & professional services contracting

Representative Projects

Procurement and Commercial Specialist, Superstorm Sandy Recovery and Resiliency Program, NJ Transit, Newark, NJ. Prepares client solicitation packages for consulting and construction work, performs cost and price analyses, formulates negotiation strategy and participates in negotiation sessions, prepares procurement justification packages, and expedites procurements through the client's approval and processing system assisting both client project management and procurement staff, on an ongoing basis.

Commercial Specialist, Electric Locomotive Procurement Amtrak, Philadelphia, PA. Performed a commercial evaluation of the proposals received for the electric locomotives against the criteria noted in the Request for Proposals (RFP) document, conducted a detailed price analysis comparing elements of the cost proposals received and the engineer's estimate, and drafted a commercial evaluation summary document. Clarification requests were issued to the proposers, and the responses received scrutinized. Also drafted a recommendation for award document for the client, supported by the results from the technical and commercial proposal evaluation process. The firm selected for contract award was determined to have submitted the proposal representing the best value to Amtrak, and the selection justification was explained. These tasks were performed for two rounds of proposal submissions under Amtrak's request for Best and Final Offers (BAFO) and Amtrak's subsequent request for Last and Final Offers (LAFO). Drafted a contract management plan which lays out the Change Order control process for the contract & identifies the responsibilities of the Client's procurement and project management staff as well as the responsibilities of the Contractor. In addition, participated in the Buy American audit review, and the drafting of Amtrak's internal audit response documents. Was part of the Buy American audit team performing the Interim Buy American audit of the rolling stock manufacturer in November of 2012, and the Post Delivery Buy American audit in November of 2013. Continued contract and change management assistance is provided to Amtrak on an ongoing basis.

Christine Coughlan

Procurement Management, Portal Bridge Capacity Enhancement Project, New Jersey Transit Corporation (NJ Transit), Newark, NJ. Provided procurement support services, performed the procurement cost analysis and prepared the federal compliance justification package required to process the initial NJ Transit contract award to the Construction Management (CM) team. This initial contract award was in excess of $16 million, and involved 14 firms and 15 separate tasks. This effort involved issuance of clarification requests, negotiations, and evaluation of several supplemental proposals received from the CM team. Examined the level of effort by firm and by task, overhead rate documentation, salary rates, fees, and direct expenses proposed by the Construction Management team. Detailed proposed costs were compared to NJ Transit's independent Engineer's Estimate in the price analysis process. Two change orders to NJ Transit's Portal Bridge design and engineering contract and one change order for the Portal Bridge CM contract have been reviewed and processed to date.

Commercial Specialist, Transit Car Overhaul, Port Authority Transit Corporation (PATCO), a subsidiary of the Delaware River Port Authority (DRPA), Camden, NJ. Led the preparation of the Terms and Conditions and Evaluation Procedure documents for the PATCO Transit Car Overhaul procurement. Drafted and finalized the Terms and Conditions documents from the outline stage through the 100% submittal stage. Participated in the Industry Review meeting and process, addressing the concerns raised by potential proposers, and the client. Researched and reviewed recent vehicle purchase and overhaul contracts from other agencies for pertinent requirements, practices, and contract language. Reviewed the Federal Acquisition Regulations and the Best Practices Procurement Manual to assure that the required language and procedures were incorporated into the solicitation documents. Attended meetings with the client as needed, to review requests for information and clarification received from potential proposers during the solicitation phase of the procurement, to brief the client on issues requiring a client business decision, and to provide recommendations. Reviews the requests for payment against the milestone payment requirements, and assists with the negotiation, review, and processing of contract change order requests.

Commercial Specialist, Long Distance Single Level Cars (LDSL) Procurement, Amtrak, Philadelphia, PA. Performed similar tasks for this long distance single level cars procurement, as noted under the Electric Locomotive Procurement project. In addition, she was one of three team members who performed the preliminary Buy American Audit. As part of the audit team, assisted with the preparation of the audit review strategy, compiled and analyzed a Critical Systems Manufacturer List to confirm American component origin, and assisted with the preparation of the Audit report to the client. Continued contract and change management assistance is provided on an ongoing basis.

Commercial Specialist, Procurement of 10 New Diesel-Electric Locomotives South Florida Regional Transportation Authority (SFRTA), Pompano Beach, FL. Leads the contract management effort for this project. She drafted a Project Management Plan for document flow and processing, and for change order request dispensation. Participates in weekly progress meetings, and advises & assists the client with contract issues and change order management.

Employment History

CH2M, 1998-present; New Jersey Transit Corp., 1988–1998; North American Philips Lighting Corp. (NAPLC), 1986–1988; Intermountain Specialty Equipment Co., 1981–1986

Muamer Dedovic

Systems & Technology – Train (Electrical) /Testing & Commissioning

Education

Bachelor of Technology, Electronics Engineering, British Columbia Institute of Technology
Associate Degree, Diploma in Electronic Engineering & Computer Control, British Columbia Institute of Technology

Professional Registrations

Engineer-in-Training (EIT): New York

Distinguishing Qualifications

- New car procurement engineering support from concept to revenue stage.
- Specification development, car equipment design review, testing, commissioning and system integration.
- Vehicle project engineering, equipment maintenance, overhaul and refurbishment plans and estimates.

Relevant Experience

Mr. Dedović has 14 years of progressively responsible experience in engineering, operations and maintenance, testing and commissioning and procurement management of rail transit vehicles. He has conducted technology, reliability, and performance studies, prepared technical specifications, performed design reviews, managed first article inspections, and witnessed and directed qualification and acceptance testing of various vehicle's electro-mechanical equipment and systems. Rolling stock subsystem expertise includes doors, brake, HVAC, wayside power feed, communication, propulsion and traction motors, auxiliary power units, compressors, health management system, CBTC and other electronic and electrical systems.

Representative Projects

Rail Vehicle Engineer, New York City Transit, R211. Supporting the CH2M's rail engineering team in the concept evaluation, specifications preparation and procurement phases of the NYCT's new generation R211 subway cars.

Representative Projects prior to CH2M

Technical Support Manager, Faiveley Transport North America, 2011 – 2013. Provided engineering and technical management support to Customer Service, OEM and business development teams, expertise and representation at customer meetings, pre-bid discussions and customer site visits. Developed technical documents for upgrades and overhauls of doors, brakes, APS, and HVAC equipment.

- Provided an engineering oversight and an on-site-support during the qualification and trial running of a conversion Tread Brake Units for New York City Transit (NYCT) R142, R142A, R143 and R160 car-classes. Assisted in development of cost estimates, supported the installation, testing and trial running efforts.
- Provided technical expertise and an on-onsite support during the evaluation of a prototype oil-less brake air-compressor on NYCT's R46 test cars. Assisted in preparation of technical and commercial

documents to support the loan agreement efforts with NYCT. Specific areas of support include performance and reliability tracking through QA documents.

- Led a task to perform a condition assessment analysis and cost estimates for the overhaul of passenger doors on Southeastern Pennsylvania Transportation Authority's (SEPTA) M4 fleet. The responsibilities included development of scope of work and technical proposals to support the assessment of feasible replacement technology, modifications and enhancements to doors and Electronic Door Control Unit (EDCU). Reviewed Engineering Modification Instructions (EMI), test procedures and provided engineering support during the qualification process.
- Oversaw a project to retrofit the aging pneumatic with an electronic equivalent door sensitive edge on Southeastern Pennsylvania Transportation Authority's (SEPTA) Comet-II fleet. The work included development of technical specifications, risk assessment, scope of work, cost estimates, test and qualification plans. Provided engineering support during the retrofit and in-service testing stages.
- Provided engineering services and led the investigation into a series of un-commanded door opening of passenger doors on New Jersey Transit (NJT) Comet V cars. Prepared an engineering report for the above investigation and proposed a modification to the existing door controls and EDCU software, which led the NJT to optimize the doors maintenance practice on its Comet V and Multilevel fleets.

Vehicle Maintenance Technical Analyst, British Columbia Rapid Transit Company, 2002 –2011.
Provided railcar engineering and new car procurement project management expertise. Responsibilities included technical support associated with operations and maintenance of automatic train control equipment, passenger doors, communications, brake control, traction and auxiliary power units, health management and other electrical systems.

- Provided an engineering support during the acquisition of 48 new ART 1300-1400 series MK-II vehicles from design to revenue service stages. Supported the design review process and attended FAIs for CBTC, propulsion, APS, HVAC, doors and brakes control systems. Oversaw a construction of new vehicles at Bombardier plant in Mexico and attended weekly meetings to ensure on-time production and testing schedule, resolve open technical issues and verify compliance with design requirements. Assisted in development and implementation of testing and commissioning plans for CBTC, propulsion, APS, HVAC, doors, and brake control systems.
- Developed and implemented plans for continues improvement of vehicle reliability. Conducted and coordinated technical investigations, equipment failure analysis and other technical tasks aimed to identify and improve the overall performance of revenue vehicles. Developed technical solutions and implemented modifications to passenger doors, brakes control and propulsion system with results that led to significant performance and reliability gains.
- Headed and performed an assessment studies on system's technology conversion alternatives, prepared business-cases and determined the most cost-effective alternatives for car equipment changes and upgrades through vendor qualification and selection process, inventory control, procurement and contract management.

Employment History

CH2M, 2013 – present; Faiveley Transport North America, 2011 –2013; British Columbia Rapid Transit Company, 2002 –2011; Rapid Transit Project 2000 LTD, 2001 –2002

Linda De Lotto

Claims/Contract/Warranty/Contractor Invoice Processing

Education

B.A., Biology, Northeastern University, Boston, MA

Distinguishing Qualifications

- 25 years of contract administration experience

Relevant Experience

Ms. De Lotto has more than 25 years of experience in contract administration for transit and rail projects.

Representative Projects

Change Orders/Contract Administrator, PATH ATC Project, Jersey City, NJ. Currently serves as a Change Order Analyst/Contract Administrator on CH2M's assignment to provide Program Management Services for PATH's project to install Communications Based Train Control (CBTC) throughout their system. CH2M is the Prime consultant on this assignment, providing comprehensive services including project administration, document control, design review, installation coordination and oversight, testing and commissioning and safety approvals. The project kicked off late in 2009, and is scheduled to complete in 2017. Ms. De Lotto developed the process for reviewing invoices and preparation of the supporting documentation needed by PATH Accounts Payable to process payments. Ms. De Lotto currently manages the Change Order process including reviewing and negotiating Proposed Change Orders. Ms. De Lotto processes Change Order documentation and updates the Technical and Commercial Specification as needed to formalize approved scope changes. Ms De Lotto also manages the documentation/correspondence management system, reviews and edits correspondence and provides responses to contractual submittals.

Correspondence Manager, NYCT R160 Subway Procurement, Brooklyn, NY. Responsible for managing the processing of correspondence through the entire cycle from receipt of incoming submittals, assignment of correspondence and coordinating responses back to the Carbuilder. Ms. De Lotto managed the document control database. Ms. De Lotto assisted with the review of invoices and reconciled discrepancies as needed.

Correspondence Manager, WMATA Series 5000 Procurement, Washington DC. Ms. De Lotto assisted the WMATA Project Manager with coordinating responses to submittals and contractual correspondence. Ms. De Lotto reviewed all invoices, including subcontractor documentation, prior to submittal to WMATA and reconciled discrepancies as needed.

Erin Gorrie

Security

Education

BS, Civil and Environmental Engineering, Villanova University

Certification

DHS Suitability – Granting Agency: TSA

Distinguishing Qualifications

- More than 14 years of professional experience supporting domestic and international clients, and leading projects and teams with a matrix of skills and backgrounds.

Relevant Experience

Ms. Gorrie's experience spans the full spectrum of client security operations, including security planning, security analytics, communications systems, organizational design and analysis, strategy, regulatory and policy, and operations, as well as more functionally oriented experience across risk management and transportation safety. She is a recognized leader in the field of transportation security consulting, having consulted to the FAA, TSA, DHS, FTA, and numerous public-sector clients.

Representative Projects

Program Manager, Federal Transit Administration. Provided security and counter-terrorism technical assistance to 26 of the largest transit agencies in the United States – managing teams of security, safety and operations experts; tracking project financials; and delivering the final reports to the FTA and transit agencies. Conducted Threat and Vulnerability Assessments and Scenario Worksheets, advised the transit agencies on security and counter-terrorism strategies as well as developed gap products for each transit agency. Results: Provided transit agencies with results of assessments and documents to help secure their facilities such as operating procedures; critical asset lists; security plans; handling of sensitive security documentation procedures; and training/public awareness outreach materials.

Security Manager, Etihad Rail, United Arab Emirates. Supported Etihad Rail to develop a security strategy for the railway network currently under construction. Responsible for leading benchmarking activities and crafting sophisticated strategic initiatives for both public and private stakeholders. Results: The security strategy laid the foundation for the security program of the railway, with forward-thinking implementation aligned with their requirements and objectives. Due to project success – client is issuing additional task orders.

Strategic Security Planner, Federal Transit Administration (FTA). Participated in the development of the Office and Security's strategic plan focusing on the next generation of FTA's all hazards support to the transit industry. Results: This plan provided a detailed road map centering on the current state of the office as well as its external relationships with APTA, TSA and TRB. As a result of the project, the FTA realized the importance of providing guidance documents to industry stakeholders. Developed enhancement products to assist transit agencies with an 'all-hazards' approach to safety, security and emergency management. The products included: Security Management Planning Model, Training Strategic Plan and Implementation of plan, Guide to Conducting Strategic Plans at the State and Local

Level, and an All-Hazards Playbook for the Office of Safety and Security. Results: Ms. Gorrie's products provided stakeholders with critical information to help improve operations.

Subject Matter, Expert, Department of Homeland Security (DHS), Industry Engagement and Resilience (IER), CS&C, DHS. Supported the implementation of Executive Order 13636, Improving Critical Infrastructure Cybersecurity, Section 9, Identification of Critical Infrastructure at Greatest Risk. Activities included providing subject matter expertise to support the Voluntary Program under EO 13636 and the Cybersecurity Assessment and Risk Management Approach (CARMA).

Security Consultant, Transportation Security Administration (TSA), Intermodal Security Training and Exercise (I-STEP) Program. Led the development of a countermeasure effectiveness tool that quantifies the effectiveness of countermeasures deployed to applicable asset types. Results: The tool allows TSA to make operational and strategic decisions on the relative effectiveness of countermeasures against TSSRA scenarios. The project is being incorporated to the Mission Risk Knowledge (MRK) Center at TSA. Led the Pipeline Analysis team to identify trends and draw high-level conclusions about the overall security posture of critical pipeline facilities across the country based on aggregated data. Also assisted the Freight Rail Division by developing a prototype to measure the state of resilience in the freight rail industry. Results: Both projects provided key decision makers with assessment of security posture - deliverables exceeded client expectations and additional funding was received to further develop each tool.

Security Consultant, TSA, Under the Grant Guidance Program. Developed a risk based approach for TSA's grant allocation and developed the groundwork for the grants lifecycle in FY07 and beyond. Provided advice as a transportation security subject matter expert for the Grant Guidance, Transit Security Fundamentals and BASE program. Results: The model was used to allocate over $400M is transit security grants to U.S. rail and bus properties to improve security.

Security Consultant, Federal Aviation Administration (FAA). Assisted with the safety hazard analysis and certification of the new Federal Aviation Administration (FAA) telecommunications infrastructure system. Performed hazard and risk analyses; hazard mitigation analysis; fault tree analysis; and an analysis for the replacement of all communication systems within the FAA national communications network.

Subject Matter Expert, TSA. Provided subject matter expertise support for a High Speed Rail Security Workshop. The workshop was comprised of public- and private-sector high-speed rail stakeholders from the U.S., Europe, and Asia. The team developed a high-level risk assessment for potential future high-speed rail networks in the U.S. Results: The risk assessment identified key threats and vulnerabilities to high-speed rail based on an analysis of historical attacks, unique vulnerabilities of high-speed rail, and detailed impact assessments.

Security Consultant, American Public Transportation Association. Supported APTA with the Infrastructure and Risk Management Security Working Groups, helping to organize and run meetings, develop recommended practices and track progress of standards and guidance documents.

Employment History

CH2M, 2003-present; Booz Allen Hamilton, 2003-2014; Dewberry, Engineer, 2000-2003;
URS, 1999-2000

Danielle Hartman, GISP

GIS/Mapping

Education

M.S., Geography, Rutgers University
B.A., Biology and Environmental Studies, Swarthmore College

Certification

Certified Geographic Information Systems Professional

Distinguishing Qualifications

- Experienced with developing and managing large data sets.
- Expert in ESRI mapping software and New York metropolitan area spatial data.
- An early leader in providing expert GIS services to organizations in NYC, including the Mayor's Office, Department of Environmental Protection, Regional Plan Association, and Columbia University.

Relevant Experience

Ms. Hartman is an accomplished geographer with 16 years specialized experience with geographic information systems (GIS) and cartography. She excels at translating technical data into usable information for the decision-making process, whether in the form of traditional maps and databases or as interactive software dashboards. Her technical expertise includes data development, spatial analysis, software design, information management for large projects, advanced cartography, consulting, and training.

Representative Projects

Data Manager, Maintenance Management System Implementation Strategy - Test Case: Fire Protection & Life Safety (FPLS) Systems, PANYNJ, New York, NY. This asset management project included the collection and evaluation of field data to document compliance with new federal regulations, and to recommend improvements for maintenance process efficiencies. Ms. Hartman developed the software used on tablet computers for field inspection at seven facilities, and performed data quality control and formatting for the client's data system. She also assisted in the development of wrenchtime estimates for future staffing needs. The tablet computer application was quickly developed using VBA data collection forms and Excel tables for maximum flexibility. More than 25,000 assets were recorded.

GIS Analyst, Climate Change and Population Growth Effects on NYC's Sewer and Wastewater Systems, NYCDEP, New York, NY. In a joint venture with Hazen & Sawyer, this study assessed pressures on NYC's wastewater infrastructure, including population growth, climate change, and sea level rise. Adaptation strategies included green and gray infrastructure. Following Hurricane Sandy the scope was expanded (by $1 million) to evaluate each wastewater treatment plant and pump station in the City. Ms. Hartman developed data for engineering models including planimetrics, elevation, FEMA zones, and utilities. Prepared geodatabase and metadata files for client deliverables.

GIS Developer, Above and Underwater Inspection of Waterfront Facilities, PANYNJ, (Multiple locations). Designed custom asset management software for marine diving team using Delphi PASCAL. Laptop application was developed for data entry during field inspections, integrating data in MS-

Access, ESRI shapefile, and CAD formats. Compiled final databases and developed queries to evaluate condition assessments to prioritize repairs. Deliverable included condition maps exported from GIS to CAD. Digital workflow significantly improved efficiency over previous- paper-based methods. These projects are part of Halcrow's waterfront inspection services on-call contracts with PANYNJ.

Cartographer, Comprehensive Long-Term Regional Goods Movement Plan, PANYNJ, New York, NY. Responsible for developing a map series for the current and projected freight transport framework. Overview maps illustrated the core multi-modal network and modeled performance in the northeast US. Series of project maps highlighted recommended strategies. Data integrated multiple federal basemaps and regional/state-based model results.

Analyst and Cartographer, Downtown NY Demographic Analysis, Silverstein Properties, New York, NY.. Examined the demographic changes in Downtown Manhattan over the past 10 years using US Census and American Community Survey data. Produced over 30 maps of population, age, education, and employment; collaborated on statistical summary tables.

Cartographer, Private Ferry Service Study, PANYNJ, New York, NY. Developed a series of more than 50 maps showing commuting patterns and potential ferry pier locations in the NYC metro area. Used "Journey to Work" data at the Census Tract level. Halcrow project.

GIS Analyst, Access to the Region's Core, NJ Transit and PANYNJ, New York, NY. Provided detailed geographic information for properties impacted by the ARC Tunnel project, including building characteristics and landmark status.

Cartographer, Port Market Analysis, PANYNJ, New York, NY. Developed a series of maps to support a study on freight transport services from competitive ports to inland markets.

Cartographer, Manufacturing and Industrial Subsectors Study, NYCEDC, New York, NY. Developed more than 60 maps for manufacturing and industrial sub-sectors by zip code, as part of a comprehensive baseline assessment of current dynamics and future trends within the City's manufacturing industries. The project aimed to promote an appropriate mix of industrial space in NYC, and explored nascent "green" trends in energy efficiency, green manufacturing processes; and manufacturing of green end products.

Employment History

CH2M, 2008-present

1998-2008, CommunityCartography, Inc.

1998-2008, HydroQual, Inc.

1996-1998, MCS, Inc.

Adam Hosking

Climate Resiliency

Education

M.Sc., Coastal Zone Management, Bournemouth University, UK
B.Sc., (Honors), Geographical Science, University of Portsmouth, UK

Distinguishing Qualifications

- More than 18 years of expertise in the preparation of long-term strategic coastal management plans and the development of planning frameworks
- Responsible for the development of national guidance for strategic flood risk management, and the management of multidisciplinary teams undertaking a variety of coastal projects including strategic planning, mathematical modeling, options assessment, economic appraisal, environmental impact assessment and geomorphological reviews

Relevant Experience

Mr. Hosking is experienced in the review and appraisal of climate change impacts and the development of adaptation strategies for their management. He has expertise in the development and execution of stakeholder engagement strategies for flood and coastal protection, sound knowledge of coastal geomorphology and the practices and procedures of coastal zone management, as well as experience and expertise in the economic appraisal of coastal protection projects.

Representative Projects

Project Director, Climate Change and Population Growth Effects on New York City Sewer and Wastewater Systems, New York City Economic Development Corporation (NYCDEP), New York, NY. Providing overall strategic guidance for study to proactively consider the potential impacts of future climate change and development on the drainage infrastructure of New York City. Study will include development of methodologies to translate climate model outputs into storm-water modeling inputs (including intensity-duration frequency curves), vulnerability assessments, adaptation response analysis and future action recommendations.

Technical Advisor, Vulnerability Assessment and Risk Management Tools for Climate Change: Assessing Potential Impacts and Identifying Adaptation Options, Hazen & Sawyer, New York, NY. Inputs to Water Research Council project. Providing technical inputs on issues related to potential impacts of sea level rise and future storminess on salinity at downstream freshwater intakes for New York City water supply. Additional inputs on climate scenario selection and adaptation planning approach.

Project Manager, Design Review of Lake Pontchartrain and Vicinity, Louisiana Office of Coastal Protection and Restoration (OCPR), LA. Responsible for tasks to support Louisiana OCPR in review of potential design issues on the New Orleans Lake Pontchartrain and Vicinity flood protection project. Includes structural, geotechnical and coastal process review and analysis by CH2M HILL staff, and management and review of inputs by seven external (subconsultant) experts. Included review of coastal modeling process and results.

Adam Hosking

Project Manager, Peer Review of Outfall Canal Floodwall Remediation Design, Southeast Louisiana Flood Protection Authority, New Orleans, LA. Management of study to review U.S. Army Corps of Engineers analysis and design on six projects to deliver +8 foot North American Vertical Datum (NAVD) Safe Water Elevation, on the 17th Street, Orleans and London Avenue Outfall Canals in New Orleans.

Team Member, North Carolina Sea Level Rise Risk Management Study, Dewberry, NC. Member of the study management team for 3 year, $5 million project considering the potential impacts of sea level rise and increased storminess, and developing and appraising potential adaptation options. Providing inputs on climate change analysis, decision-making framework development, coastal impacts, and study logistics.

Project Manager, Flagler Beach Shore Protection Project Feasibility Study, City of Flagler Beach, FL. Responsible for coordination of the project to identify potential beach quality sand sources offshore Flagler County, Florida, as part of the feasibility stage of a Federal shore protection project. . Included preliminary scoping analysis ahead of detailed field investigation, including beach material sampling/ analysis, seismic, sonar and magnetometer surveys and vibrocore sampling.

Principal Coastal Scientist, Guidebook for Hydrodynamic Considerations in Coastal and Marine Environmental Impact Assessment (EIA) Applications, Trinidad and Tobago. Provided coastal geomorphology inputs and defined decision-making process for guidebook to advise coastal/marine developers in Trinidad and Tobago on selection and application of appropriate tools/methods to determine potential impacts of proposed activities in the coastal zone.

Project Manager, Louisiana's Comprehensive Master Plan for a Sustainable Coast, LA. As project manager of CH2M HILL's inputs, provided specialist advice on development of the planning and decision making framework for this long-term strategic plan to integrate hurricane protection and ecosystem restoration for the Louisiana coast. Inputs involved leading the definition of decision making, prioritization and sequencing processes, plus contributions to document content, plan development approach and public/stakeholder outreach. Plan formulation metrics included analysis of potential future climate-change scenarios. Also management of follow-on project to incorporate Master Plan recommendations into state regulatory processes.

Project Manager, Southeast Atlantic Regional Sediment Source Study, U.S. Army Corps of Engineers (USACE), Jacksonville, FL. Responsible for the development of the first regional sediment management plan to be developed by the Jacksonville District of USACE. The plan will bring together existing information of identified future beach nourishment needs (from federal, state, local and private sources) and set out a plan for linking these needs with known domestic beach sand sources. Sand source information to include a rating system to clarify the status of the certainty of the quality and quantity of sand.

Project Manager, SCOPAC: Preparing for the Impacts of Climate Change, UK. Responsible for coordination of inputs from CH2M, the UK Met Office Hadley Centre for Climate Change and the Universities of Portsmouth and Newcastle, reviewing climate change scenarios for the south coast of England, developing methodologies for assessing their impacts and making recommendations for future management of changing risks to coastal infrastructure and environment.

Employment History

CH2M, 1994-present

John Kish, JD

Project Delivery and Legal Support

Education

University of Michigan School of Law, JD cum laude
BA, Indiana University

Distinguishing Qualifications

- Seasoned administrator of major projects and is trained as a lawyer with extensive public contracting experience
- Familiar with transportation planning studies with an emphasis on financial analysis including design/build as funding and as a project delivery alternative
- Currently acting as Program Manager for Finance and Administrarion and Program Manager for Implementation Planning on the Philadelphia International Airport's Capacity Enhancement Program

Relevant Experience

Mr. Kish has the senior executive experience necessary for the successful implementation of this Project. Mr. Kish brings the breadth and depth of experience, with an aviation-specific focus, necessary for the proper execution of the myriad of financial and administrative activities required for a successful planning, design and delivery effort. In addition, Mr. Kish has the proven leadership and management of non-aviation major capital programs focusing on the execution of complex and critical capital project with a focus on the details, eternal relationship management which establishes a broader context and criteria for success, as well as budget and schedule compliance. Mr. Kish's varied expertise provides an invaluable knowledge of the dynamic organizational, financial and legal dimensions of capital program creation, development and implementation.

Representative Projects

Program Manager for Finance and Administration and Program Implementation Manager, Capacity Enhancement Program, Philadelphia International Airport, PA. The Capacity Enhancement Program ("CEP") is a multi-billion dollar program to expand the airside and landside capacity of the Philadelphia International Airport ("PHL") which currently handles 30 million passengers per year as a hub for American Airlines/U.S. Airways. As Program Manager of Finance and Administration, responsibility for development of cash flow and funding analysis, as well as other program financing support and program-wide administrative efforts. As Program Implementation Manager, tasked to develop the implementation strategy, addressing financial feasibility as well as program needs, and a Program Definition interim report for the program in the face of airline operational issues and economic issues which included a program-wide cost validation report. Other management responsibilities include the project definition efforts for the proposed Automated People Mover and Ground Transportation Center, as well as the revision of the ALP and related Environmental Analysis.

Representative Projects prior to CH2M

Chief Executive Officer, Indianapolis Airport Authority, Indianapolis, IN. Chief executive officer of the independent governmental entity that owns and operates Indianapolis International Airport, serving more than 8 million annual passengers and the nation's eighth largest cargo hub. Responsible for

approximately 500 employees and all aspects of airport development, including its entire Capital Improvement Program and operations, as well as the airport police and fire departments, and operation of five reliever airports and a downtown heliport. Reported to the one-member governing board of the Authority.

Project Director, Midfield Terminal Project, New Indianapolis Airport, Indianapolis, IN. As project director and chief executive reporting to the Board of the Airport Authority, responsible for all aspects of a $1.1-billion capital development project to create a new passenger complex between two operating runways. The Midfield Project opened to the public on time and on budget on November 11, 2008. The Midfield Project included the programming, design, and construction delivery of a new 40-gate passenger terminal (including apron, taxiways, and runway modifications), new 7,100-car parking garage, surface parking lots, new public roadway system, firehouse, emergency operations center, rental car facilities, and airline fuel farm. It also included the coordination and funding of the design and construction of a new air traffic control facility and a new highway interchange, with construction administered by the FAA and Indiana Department of Transportation. With the airport under a private management contract with the airport authority, hired as the third employee of the Authority in April 2001. He had responsibility to develop and implement a new comprehensive organization to create and deliver the Midfield Project. Organizational efforts included the hiring of all Authority project staff, development of financial controls and budgeting activities, and development and implementation of a financing plan for the issuance of $1.4 billion in revenue bond debt over 8 years. Responsibilities also included developing procurement and contracting plans for all professional services and construction activities, which maintained an appropriate emphasis on local providers as well as participation by disadvantaged, minority-owned, and women-owned businesses.

Advisor to the President of the Board, Indianapolis Airport Authority, Indianapolis, IN. Served as the principal advisor to the president of the Board from 2001 to 2007 concerning Authority matters, including the renegotiation of the contractual compensation following the terrorist attacks on September 11, 2001. Responsibility culminated in a negotiated transition to public operation at the end of the contract in 2007.

Commissioner, Indiana Department of Administration, Indianapolis, IN. Mr. Kish was appointed by the governor to lead this agency with primary administrative responsibilities for state government. The department and its 600 employees had responsibility for all state construction projects (other than highways), centralized purchasing functions, delivery of general services to other state agencies, oversight and approval of all contracting activities, and for property leasing throughout Indiana. He was responsible for the successful implementation of the construction of the Indiana Government Center complex and parking facility. He also was responsible for the initiation, design, and construction of the state's new maximum security prison, moving from site selection to inmate occupancy in 3 years.

Employment History

CH2M, 2010-present; Indianapolis Airport Authority, 2001-2010; White River State Park Development Commission, 1994-1998; Indiana Department of Administration Commissioner, 1989-1993; General Motors Corporation, 1983-1988; Dann Pecar Newman & Kleiman, 1998-2001; Lewis & Wagner, 1993; Barnes & Thornburg, 1979-1983

Stuart Landau, PE, MIRSE

Systems & Technology – Communication

Education

B.E., Electrical Engineering, The Cooper Union School of Engineering; Minor in Computer Engineering

Professional Registrations

Professional Engineer: New York; New Jersey

Distinguishing Qualifications

- Transit Signaling, CBTC and Conventional Wayside
- Information Technology
- Software and Hardware Design
- 24/7 Critical Infrastructure Support

Relevant Experience

Stuart Landau is an electrical engineer with 27 years of experience in system integration, software development, microprocessor-based design, rapid-transit signal engineering, information technology and support of critical infrastructure.

Representative Projects

Project Oversight, Port Authority Trans-Hudson (PATH), CBTC Phase II ATC System, Jersey City, NJ. Provide project oversight for design and installation of Communication-Based Train Control (CBTC) on the PATH heavy-rail rapid-transit system.

- Review contractor's design for conformance with contract requirements and industry standards.
- Review of CBTC system and subsystem design of OBCU, ZC and CBTC interface to SSI
- Review of products and materials including processor-based interlocking, data communication systems, signal appliance wiring, testing procedures, power distribution, maintenance manuals, training classes.
- Lead reviewer of wayside and radio data communication system design, products and procedures.
- Reviewer of processor-based interlocking including application software (Boolean equations).
- Verify contractor's calculations, including power loads, radio propagation, optical link budgets.
- Perform factory and field testing.
- Provide guidance on technical issues.
  - Methods to measure and improve ballast resistance to support new track circuits.
  - Modifications to existing negative traction return system due to changes in track circuit layout.
- Review contractor correspondence and prepare responses on behalf of PATH, including recommendations for approval or other disposition of submitted designs, products and procedures.
- Lead and participate in internal design reviews and make recommendations for design modifications.
- Provide expert advice to the project oversight team on current PATH signaling practice based on prior PATH experience and knowledge of its current signaling system.

Stuart Landau, PE, MIRSE

Experience Prior to CH2M

Signal Engineer, Port Authority Trans-Hudson (PATH) Corp, Signal Division, Jersey City, NJ, 1992-1996. Responsible for development and implementation of advanced hardware and software solutions for railroad signaling systems; provide technical support to Signal Design, Construction, and Maintenance groups for both new and conventional railroad signaling technology.

- Designed a microcontroller-based data acquisition system for the PC replacement of signal circuit event recorders; still in use as of 2015 to record signal activity throughout the railroad;
- Managed the testing, delivery and installation of code system replacements for Newark and 33rd Street interlockings;
- Created a Windows-based simulator for studying relay operation of the PATH signal system for use by Signal Trainees and continuing education of signal staff.

Risk Team Member, JP Morgan Chase, Vice President, Securitized Products Technology, New York, NY, 2007-2010. Design, develop, integrate and support risk valuation and reporting systems for the securitized products trading business. Key developer of strategic risk reporting system and integration with risk valuation system acquired from Bear Stearns.

Vice President, Securitized Products Technology, Co-Manager of Trading Analytics Development, 2005-2007. Co-manage a team of six New York developers and provide technical guidance to a Houston development team for delivering workflow automation solutions to the Securitized Products Trading desk.

Associate Director, Barclays Capital, Residential Mortgage-Backed Securities Technology, New York, NY, 2004-2005. Establish electronic workflow for new Mortgage-Backed Securities trading business by automating trade, position and price flow.

Vice President, Merrill Lynch, Mortgage Systems Technology Group, New York, NY, 2000-2004. Lead the design, development, testing, and support of mortgage- and asset-backed securities trading and risk systems.

Assistant Vice President, Credit Suisse First Boston, Equity Technology, New York, NY, 1998-2000. Design, develop, test, and maintain equity trading applications for program trading and derivatives trading desks.

Programmer/Analyst, Securities Industry Automation Corp. (SIAC), AMEX Market Data Systems, Brooklyn, NY, 1996-1998. Perform design, coding, and documentation and support testing and operations of trading floor applications for the American Stock Exchange.

Professional Organizations/Affiliations

Member, American Railway Engineering and Maintenance-of-Way Association, Committee 37 (Signal Systems)
Member, Institute of Electrical and Electronics Engineers, Vehicular Technology Society
Member, Institution of Railway Signal Engineers, North American Section

Employment History

See Experience Prior to CH2M above

Harald Leiendecker, PE

Geotechnical Engineering/ Tunneling

Education

M Dipl Ing, Civil Engineering, Essen, Germany
International Welding Engineer, SLV Duisburg, Germany

Professional Registration

Professional Engineer: New York, Florida, New Jersey, Washington, Massachusetts, DC

Distinguishing Qualifications

- More more than 17 years of experience in the analysis and design of tunnels and shafts, underground excavations in soft ground and hard rock, cut slopes in soil and rock, deep and shallow foundations, and earth retaining structures

Relevant Experience

Mr. Leiendecker is a lead tunnel engineer who is experienced in the preparation of cost estimates, schedules, technical specifications, and CAD drawings using Microstation. He has also worked on-site as a tunnel engineer performing construction oversight. Harald's extensive expertise in numerical modeling includes the use of computer programs such as UNWEDGE, UDEC, PLAXIS 3D, Phase2, to solve engineering problems including ground support design in soft ground to hard rock as well as frost propagation due to artificial ground freezing.

Representative Projects

Tunnel Design Engineer, Pavonia/Newport Station, PANYNJ, Hoboken, NJ. Responsible for the conceptual design of waterproofing repairs for the Pavonia/Newport Underground Station on the PATH system. Signed and sealed conceptual design drawings and corresponding design report recommending the use of either a PVC membrane system or an EOP dewatering system.

Engineer of Record, Blue Plains Tunnel Design-Built Project, District of Columbia, Water and Sewer Authority, Washington, DC. Final design of 5 major shaft structures, with the largest having a diameter of 149 feet and a depth of 196 feet constructed using concrete slurry diaphragm walls and cast-in-place concrete liners. This is part of a design-build project, lead by Traylor Brothers, Skanska, and Jay Dee Joint Venture Contractors, currently under construction.

Team Leader, Trans-Hudson Express (THE) Tunnel Project, Manhattan Tunnels, Barnard/Judlau JV, New York, NY. Preparation of the design report and the preliminary construction impact assessment report for the Manhattan Shaft Area. This includes the preliminary assessment of ground movements due to shaft and SEM adit construction, and the associated impact on adjacent buildings, utilities and other structures. Also reviewed the work of CH2M's sub-consultants performing the development of an additional site investigation program, and the design of the slurry-walled Manhattan shaft.

Tunnel Engineer, Trans-Hudson Express (THE) Tunnel Project, NJ Transit, Newark, NJ. Preliminary Design Phase; responsible for excavation and ground support design of soft ground tunnels and SEM adits underneath the Hudson River. Preparation of design drawings for ground support of the cross passages, including ground freezing and jet grouting options. Harald was responsible for the development of the ground freezing laboratory testing program, and associated thermal finite element

calculations using TEMP/W. Preparation of geotechnical instrumentation and monitoring drawings for the segmentally lined running tunnels.

Team Leader, Trans-Hudson Express (THE) Tunnel Project – Palisades Tunnel, Newark, NJ. Team leader during the Bid Phase responsible for the conceptual design of the tunnel portal, estimation of construction-induced noise and vibration, hard rock TBM performance estimate and development of geotechnical instrumentation requirements.

Lead Tunnel Design Engineer, New York Harbor Siphon, NYCDEP, New York, NY. Responsible for evaluation of immersed tube alternative crossing the Hudson River in soft ground as well as mixed face and rock sections. Geotechnical analyses for channel dredging, and responsible for selection of ground freezing test program for Staten Island launching shaft.

Tunnel Design Engineer, East Side Access (ESA) Tunnel Project, Dragados/Judlau, New York, NY. Responsible for alternate rock support design in hard rock TBM running tunnel. The alternate rock support replaced steel ribs as shown in contract drawings with a tightly spaced MAI rock bolt arrangement. The steel ribs had to be removed from the running tunnels, due to space limitations when pulling back the TBM through the tunnel. Performed rock mass quality assessment, signed and sealed rock support calculations and drawings as well as supervised installation of rock bolts and pull-out testing.

Quality Control Tunnel Engineer, University Link U220/U230/250, Sound Transit, Seattle, WA. Responsible for quality control on SEM soft ground cross passage as well as station waterproofing drawings, related specifications and calculations for the initial and cast in place liner for the U220 contract. Signed and sealed contract U230 (TBM running tunnels) SEM soft ground cross passage excavation and ground pre-support drawings as well as interface drawings with the running tunnels. Signed and sealed contract U250 (Underground Station) waterproofing membrane drawings and specifications.

Project Manager & Engineer-of-Record, Government Cut Tunnel, Miami Dade County, Miami, FL. Responsible for the design of an 8,100 ft long 14 ft I.D., segmentally lined sub-aqueous TBM-driven tunnel delivered as a design & build project.

Lead Tunnel Designer, Rosslyn New Station Entrance, WMATA, Rosslyn, VA. Led a group of engineers for excavation sequences and initial support systems of access shaft, cavern and cross passage structure in hard, blocky rock under shallow cover; layout of the cavern geometry, performed numerical analyses on rock reinforcement using drill and blast excavation and SEM excavation methods. Designed drainage waterproofing systems of underground structures and developed drawings and an adjacent construction report. Represented the design firm at meetings with WMATA.

Employment History

CH2M, 2010-present; Dr. G. Sauer Corporation, 2008-2010; Parsons Brinkerhoff, 2006-2008; CDM Smith, 2000-2006; Jessberger + Partner (now CDM Smith), 1997-2000

Sahith Moturu

System Assurance

Education

Graduate Level Course in Model Based Systems Engineering, Cornell University
Bachelor of Applied Science, Electrical Engineering, University of Toronto

Certificate, Project Management, University of Toronto
Introductory AutoCAD, Centennial College

Distinguishing Qualifications

- 4+ years of experience in safety assurance of railway signaling systems: Onboard systems, Track Circuits, Interlockings, Switch Machines and Relays
- Experience in performing physical simulation of signaling equipment for safety certification, e.g. Audio and Power Frequency Track Circuits, On-Board Computer, Tuned Loops, Fail-Safe Relays.
- Knowledge of different railway signaling and safety standards: AREMA, CENELEC 50124, IEEE 1483
- Sound understanding of CBTC and SSI Functional Principles and Safety Concepts as applied at NYCT
- Familiar with operation of Positive Train Control systems: Experience working on ACSES
- Proficient in using ITEM Toolkit Software for Fault Tree Analyses
- Basic programming skills: C, C++, Visual Basic and Java
- Completed a Graduate level course in Model Based Systems Engineering
  - Created a conceptual design for a toy for the course project using Systems Engineering tools, e.g. Context Diagrams, Decision Matrices, Quality Functional Deployment, and Parametric Diagrams.

Relevant Experience

Sahith Moturu is a Systems Assurance Engineer and has 4 years of experience in safety assurance aspects of signal/train control systems and products for rail transportation. Prior to CH2M, he worked at Alstom where he conducted safety analyses of Alstom products for applications on signal projects, including deployment of Positive Train Control at NJ Transit. He brings a unique perspective to system safety services to CH2M and serves as a resource for current system projects.

Representative Projects

Project Engineer, Northeast Corridor Monitoring and Technical Assistance, Federal Railroad Administration, Department of Transportation, Washington, DC.

- Track cost and schedule progress of NYC based projects funded by FRA's High Speed Intercity Rail Fund.
- Attend grantee's recurring project meetings to gather information on project performance and provide technical assistance as required.
- Analyze project information obtained from the grantee and present to the FRA on a monthly basis.

Sahith Moturu

Safety Assurance Manager, Flushing Line CBTC Upgrade, MTA New York City Transit, New York, NY.

- Review and provide technical feedback on safety documentation submitted by the CBTC and SSI signaling system vendor and the Independent Safety Assessor, e.g. Hazard Analyses, Hazard Log, Independent Subsystem Safety Reviews.
- Manage the schedule and deliverables summary of safety documents for the project.
- Conduct meetings for the client's Safety Working Group to discuss release of key deliverables.
- Created a Hazard List for the client that provides a mapping between the safety requirements of their CBTC vendors in support of NYCT's CBTC Interoperability standard.

Signal Engineer, Culver Test Track Project, New York City Transit, Metropolitan Transit Authority, New York, New York, May 2011—Present.

- Actively observe CBTC testing conducted by two signaling suppliers on behalf of NYCT. Scope of testing includes activities onboard the train as well as inside the CBTC signal and Relay rooms.
- Diligently report on progress made and issues encountered to NYCT management.

Experience Prior to CH2M

Safety Assurance Engineer, Alstom Transport – Signaling Division, Rochester, New York, 2011 – 2014

- Perform Hardware FMEA's on vital circuits in compliance with AREMA guidelines
- Analyze safety of PCBs using a various types of safety analyses: Functional Block Analysis, Vital Spacing Analysis, Trace Break Analysis and Connector FMEAs.
- Determine and evaluate possible combinational failures on a board using an established process in conjunction with engineering judgment and reasoning.
- Analyze application logic software code, across various onboard projects, for safe implementation as per Numerical Assurance safety concepts and software safety requirements.
- Maintain Hazard Logs for Onboard projects and effectively track hazards and safety requirements towards closure.
- Monitor product change requests and provide evaluation of the degree to which safety is affected.
- Actively participate in safety alerts as required and assist the product design team to arrive at a solution.
- Generate fault trees to model system level failure modes being investigated as part of safety alerts
- Test track circuit and onboard products in-house to support safety analyses and safety alerts.

Employment History

CH2M, 2014-present; Alstom Transport, 2011-2014; Ehvert Mission Critical, 2010; Bombardier Aerospace, 2007 and 2008

Gopala Muthukrishnan

System Safety/RAMS

Education

M.S., Industrial Management, Montana State University-Bozeman
B.E., Mechanical, PSG College of Technology (India)

Certifications

ASQ Certified Reliability Engineer

Distinguishing Qualifications

- System Safety Analysis (FMECA, FTA, Hazard Analysis/Risk Assessment)
- System Safety Program Plan (SSPP) for Commuter Rails & Transit Agencies
- Title 49 CFR 238 – Passenger Equipment Safety Standards
- Title 49 CFR 236 – Subpart H and Subpart I (CBTC and PTC Safety Certification Process)
- Reliability Prediction, Modeling, Growth Analysis
- Fire Safety Analysis
- Quality Management Systems, ISO 9001:2008

Relevant Experience

Mr. Muthukrishnan is a System Assurance Engineer with 7 years of experience in reliability & safety engineering and strong technical knowledge in quality control, safety & reliability analysis, statistics, and project management. He has 4 years of experience in rail car systems engineering with major carbuilder and worked with Transit Authorities in Northeast region. He has expertise in Reliability (Prediction, Modeling, Growth Analysis), FTA, FMECA, FRACAS process, Safety Hazard Analysis (SHA), System Safety Assessment (SSA), Fire Safety Analysis and is familiar with MIL-STD, NFPA-130, 49 CFR 238, ISO and QS-9000 standards. He is an ASQ Certified Reliability Engineer.

Representative Projects

Safety Consultant – System Safety Support, NYCT, New York, NY. Provide safety consultant support for development and implementation of Communication Based Train Control (CBTC) for Canarsie and Flushing lines. Working as Chair for 'System Safety Working Group' and coordinated system safety tasks. Reviewed safety submittals from CBTC vendors and managed 'Independent Safety Assessor'. Managed the process for Safety Certification as per 49 CFR 236 Subpart H.

Safety Consultant, Metro-North Railroad, Office of System Safety, NY. Consulting support for MNR's Office of System Safety to assist them preparing NTSB hearing for Bridgeport, Spuyten Duyvil and Valhalla accidents. Developed a comprehensive 'Accident investigation procedure' for major and critical accidents. Assisting MNR's safety department to investigate the critical accidents and preparing detailed accident investigation report. Revised MNR's Passenger Train Emergency Preparedness Plan as per FRA rule 49 CFR Part 239. Reviewed MNR's existing System Safety Program Plan (SSPP) and recommended improvements based on APTA, PTSB guidelines and proposed FRA rule 49 CFR Part 270.

Technical Team – RAMS Support, WMATA, Washington DC. Provided safety consultant support for 'Return to Automatic Train Operation Analysis' study. Conducted an independent assessment on the findings of NTSB reports on 2009 Fort-Totten accident, subsequent studies implemented by WMATA,

and the corrective actions and mitigations put in place by WMATA to return to ATO operation. Reviewed ATC safety analysis and recommendations provided to WAMTA by other consultant. Reviewed NTSB recommendations provided to WMATA pertains to ATO operations. Reviewed WMATA's internal operating procedures, rules book, engineering and maintenance procedures, training programs and quality control procedures. Provided a comprehensive report and identified steps required by WMATA to resume ATO operation.

System Assurance Engineer, R211 Railcars, NYCT, New York, NY. Provided Reliability and Safety Consulting support for development of Technical Specification for next generation NYCT subway trains. Developed detailed requirements for Reliability, Maintainability and System Safety for all systems and subsystems of R211 trains. Analyzed reliability of different technological options available for NYCT future cars and provided Pros and Cons of each potential option. Developed a Reliability Block Diagram for 4 and 5 car train set with different system configuration and calculated overall reliability of each potential options.

System Assurance Engineer, R179 Railcars, NYCT, New York, NY. Provided Reliability and Safety consultant support for procurement of R179 cars for New York City Transit (NYCT) Authority. Reviewed Carbuilder's RAMS submittals to ensure the system meets the specified requirements stated in Technical Specification and other mandatory safety standards.

Experience Prior to CH2M

Safety Engineer, 7000 Series Railcars, WMATA, Washington, DC, 2012 – 2013. Provided support to System Safety Program for passenger rail cars designed and manufactured for WMATA 7000 series. Developed initial list of hazard from design reviews and performed Primary Hazard Analysis (PHA) to identify assess, and make recommendations on the resolution of potential hazards.

Developed Hazard Tracking Log from the inputs of Primary Hazard Analysis and used as primary tool to identify, assess hazards and made closure recommendations to Safety and Security Certification Committee. Maintained Open Items Log to capture hazards unable to be closed before revenue service and provided summary reports to Safety and Security Certification Committee.

Developed Specification Conformance Checklist to verify all safety and security critical aspects of the Specification have been satisfied. Performed Failure Mode Effect and Criticality Analysis to identify potential system and subsystems failure modes and their subsequent effects on entire system and ensured no single point failure cause safety critical hazards. Performed Fault Tree Analysis to assess undesired top level events by systematically analyzing the order of faults for the event to occur.

Performed Operating & Support Hazard Analysis (O&SHA) to evaluate the maintenance manuals, operating procedures and emergency procedures for their adequacy to prevent hazards or risks introduced into the system and to prevent occupational injuries to maintenance and operating crew. Performed Fire Safety Analysis to assess fire performance of car materials and assemblies and verified all combustible materials met the flammability and smoke emission performance criteria of NFPA-130. Fire simulation has been done by using NIST's fire modeling software CFAST Version 6.

Employment History

CH2M, 2013-present; Kawasaki Rail Car Inc., 2009-2013; Satyam Computer Service Ltd, 2005-2007

Nishant Nayan, PhD

Fire Protection/Life Safety

Education

B.Eng., Chemical Engineering, Manchester University, UK
Ph.D., Chemical Engineering, Birmingham University, UK

Distinguishing Qualifications

- Multidisciplinary experience in the application of Ventilation and Fire-Life Safety System design
- Experienced user of Computational Fluid Dynamics (CFD) to solve a variety of mechanical and chemical engineering applications, and proficient in the use of subway environment modeling software such as Subway Environment Simulation (SES).
- Experienced with codes and standards such as ASHRAE, NFPA, New York City and State Building Codes.

Relevant Experience

Dr. Nayan has performed code analysis and site surveys for clients such as Grand Central Terminal in New York City in a client facing capacity. He has successfully completed projects for New York City Transit (NYCT), Metro North Railroad NYC (MNR), Ohio DOT, Los Angeles Metro, Amtrak, and Vancouver Subway. Dr. Nayan performed ventilation systems commissioning measurements with analysis of data using SES software for LA Metro. In addition to his role as a consultant engineer, Dr. Nayan is familiar with the ISO9001 requirements and Quality Management Systems as a trained and certified QA auditor.

Representative Projects

Lead Surveyor, Survey and Assessment of Fire Protection and Life Safety Systems, PANYNJ, New York, NY. Lead surveyor for the fire protection and life safety assets within all rail, tunnel and bridges under the jurisdiction of PANYNJ. A comprehensive asset survey is being carried out to establish the procedures and logistics including manpower requirements for tasks such as inspection, testing, and maintenance. The aim of project is conformance with the national, state, and local code requirements.

CFD and SES Project Engineer, LA Eastside LRT Metro Gold Line, Los Angeles County Metropolitan Transportation Authority, CA. Responsible for constructing and simulating the 3D CFD models for Mariachi and Soto underground stations that have been operational since 2009. SES simulations were performed for the congested gas mitigation and also to obtain the boundary conditions for the CFD simulations that were performed for an emergency scenario. The scope of work was also to review information and prior simulations from other clients and construct new CFD models for ventilation analysis, to the client's requirements

Ventilation Engineer, Lytle Tunnel Ventilation Rehabilitation and Park Restoration, ODOT, Cincinnati, OH. Responsible for the 1-D simulation of normal, congested and emergency ventilation in the three-bore Lytle Tunnel. Nishant provided the ventilation design and performance specification for the design-build stage of the project.

Tunnel Ventilation Engineer, Fire Life Safety and Ventilation Systems Design Oversight, Rio Metro, Rio de Janeiro, Brazil. The project is being carried out to upgrade the Rio subway systems to meet capacity that will be required for the Rio Olympics. The scope is to perform ventilation system analysis

using CFD and SES for seven stations and demonstrate to the client that the ventilation system design will be effective for emergency ventilation under the requirements of NFPA 130. Design challenges include a 3 km long tunnel under mountainous terrain that must be ventilated without shafts as well as passenger egress provisions.

Prior to CH2M HILL

Mechanical Engineer, Grand Central Terminal Complex –Project No. 65900, MTA Metro North Railroad (MNR), New York, NY. Participated in the visual performance assessment, non-destructive testing as well as an asset registers creation for the steam distribution system within GCT. Final deliverables included a report identifying remedial repairs and design recommendations for steam traps, expansion joints, anchors, pipes, valves and other system elements and develop an asset tag list for equipment identification and maintenance.

Mechanical Engineer, Grand Central Terminal Complex –Task Order 12, MTA Metro North Railroad (MNR), New York, NY. Performed the design, construction management and commissioning supervision of the stairwell pressurization systems and cooling of the SCADA center at the Grand Central Terminal. Design drawings were developed for the pressurization systems and cooling system using the Variable Refrigerant Flow (VRF) system and the design package including specifications were prepared for MNR. Reviewed submittals; shop drawings as well managed the budget and responded to RFI's. Also provided construction support to the client for construction supervision as well as participation in the systems commissioning.

Project Manager and Lead Engineer, Cortlandt Street Ventilation CFD Study, MTA New York City Transit, New York, NY. Responsible for the Cortlandt Street ventilation upgrade including the preparation of the Computational Fluid Dynamics (CFD) models to study the effect of mechanical ventilation for control of smoke in the station. The station's retrofit includes the proposed design of an over-ceiling duct in order to exhaust hot gases and links with the ventilation system of the PATH station.

Lead Ventilation Engineer, George Washington Bridge Redevelopment, PANYNJ, New York, NY. Responsible for ventilation design of the project. As part of the redevelopment of the Port Authority Bus Garage on the Manhattan side of the George Washington Bridge, tunnel ventilation design and analysis was performed in the due diligence phase. A feasibility study was performed to examine the proposed design for the extension of the cover of the roadway ceiling. As there was no dedicated mechanical ventilation, conceptual longitudinal and semi-traverse ventilation schemes were investigated using CFD simulations.

Employment History

CH2M, 2013-Present
Hatch Mott MacDonald, 2006-2013
Eli Lilly and Company, 2004-2006

Rick Newton

Train Operation & Analysis

Education

Advanced Level Proficiency Degree, Data Processing
Meramec Community College, St. Louis, MO

Relevant Experience

Mr. Newton has more than 18 years of professional experience as a railroad operations analyst with focus on simulations/modeling of light rail and heavy-haul rail systems, as well as load flow modeling, O&M and fleet planning, railroad and LRT operating rules and procedures, and scheduling. He also has capabilities in graphic design and conceptual/preliminary technical design capabilities. He is well versed in many software applications such as CH2M's VISTA, Rail Traffic Controller (RTC), the Train Operations Model (TOM), OpenTrack, AutoCAD, Microstation, CorelDRAW, Google Sketch-Up, Photoshop, Illustrator, InDesign, Primavera, and the suite of Microsoft applications, among others.

Representative Projects

Rail Network Modeling and Operations, TEX Rail Commuter Line, Fort Worth Transit Authority (FWTA), Fort Worth, TX. Currently developing an RTC network operations simulation model for the proposed TEX Rail commuter line. This model is being used to prepare an analysis to verify/modify siding locations and lengths, proposed schedules & meets, trip and cycle times, and interaction/interchange and associated issues with the Fort Worth & Western Railway, Trinity Railway Express, Union Pacific, BNSF, and Amtrak. This analysis will also provide some avenues for contingency operations as well as identify how well the overall network recovers during system blockages, outages, and other abnormal events.

Operations and Modeling Analyst, Operations & Maintenance and Rail Fleet Management Plans for the North/South LRT Project, University Line and Medical Center Project Light Rail Transit Extensions, Utah Transit Authority (UTA), Salt Lake City, UT. Prepared the Operations & Maintenance and Rail Fleet Management Plans for the North/South LRT project as well as the University Line and Medical Center Project Light Rail Transit extension. Developed and modeled simulations for analysis of the rail alignment for crossover placement, contingency operations, vehicle fleet sizing, development of operating schedules and to ensure operational headways meet capacity requirements of the system. Created additional simulations to determine the impact on run-times and fleet requirements with the addition of proposed stations along the line. Assisted in the final design of the North/South Light Rail Transit Line. Worked closely with UTA/Salt Lake City Light Rail Transit System (TRAX) staff, including developing the light rail start-up procedures, and revenue operating rules and procedures, developing training program plans and a track access plan. Through operation simulation and analysis, a full schedule was developed and a detailed operational track schematic used by UTA under normal and emergency operating conditions.

Also responsible for the preparation of several revisions of the Rail Fleet Management Plan for the UTA's FrontRunner commuter rail line from Pleasant View to Salt Lake City, UT, and additionally the proposed extension between Salt Lake City and Provo. Prepared several revisions of the Operations and Maintenance Plan for the FrontRunner system, which included working with the Union Pacific Railroad and the UTA on ROW requirements, track design, and operational requirements including rules and operating procedures, and signaling requirements necessary for mixed freight and passenger

operations north of Ogden to Pleasant View. Developed a Maintenance-of-Way Rulebook for the FrontRunner system, developed training materials, administered and taught General Code of Operating Rules and Maintenance-of-Way Rules training classes.

Operations Planner, East Nashville Commuter Rail– Lebanon Line, Regional Transportation Authority of Middle Tennessee (RTA), Nashville, TN. Was responsible for preparing the initial Rail Fleet Management Plan and the Operations and Maintenance Plan for the initial corridor of operation, from Nashville to Lebanon, TN for the East Nashville Commuter Rail project. This included addressing fleet requirements and researching potential used locomotives and passenger cars, their availabilities, and their impact on operations. Also included was identifying and analyzing operations over the Nashville & Eastern Railroad and assisting in developing conceptual schedules and fleet utilization for the commuter railroad, and developing rules & operating procedures as well as a roadway worker protection plan.

Operations, Traction Power and Modeling Analyst, - Phase I and Phase II Design/Build, Pasadena Gold Line Construction Authority and Metro Gold Line Foothill Extension Construction Authority (MTA), Los Angeles, CA. Developed and modeled operational simulations and analyzed the proposed alignment to verify fleet sizing and special trackwork placement, operating methodology, headways, and proposed schedules. Modeled traction power load flow simulations for TPSS and OCS verification, and assisted in determining potential new substation locations. Was responsible for conceptual redesign of the downtown LA Gold Line yard and shop facility trackwork, providing additional storage for future fleet requirements. Provided operational analysis and support for the project, and also developed specialized track schematics for use during operating contingencies and to assist emergency response in locating incidents along the ROW.

Operations and Modeling Analyst, Segment 5 Double Track Project, South Florida Regional Transportation Authority (Tri-Rail/SFRTA), Ft. Lauderdale, FL. Was responsible for developing and modeling operational simulations and performing analyses of the South Florida Rail Corridor with Booz Allen Hamilton's VISTA network simulation model. Verified preliminary engineering design of the rail alignment and signal system would support proposed operational train headways. Analyzed the alignment to verify crossover placement for terminal layovers, contingency operations, vehicle fleet sizing, and line haul capacity, and provided recommendations for additional special trackwork that would enhance operational capabilities for Tri-Rail and CSXT railroad. Developed and analyzed simulations to verify that operations could be maintained through various phases of construction, and was responsible for preparing several versions of Tri-Rail's Rail Fleet Management Plan, including the development of a new schedule that helped reduce the fleet requirement.

Employment History

CH2M, 1997-Present

Harry Orthos

Building Codes

Education

School of Engineering Rutgers University
B.A., Architectural & Building Construction Manhattan Technical Institute
Columbia University School of Architects
Fordham University – Certificate Diploma Business Management & Development

Distinguishing Qualifications

- More than 44 years of experience in architectural design development, and detailing from designer to Senior Architect Group Leader
- Extensive experience in government and industrial plant layout and design, selection of cost-effective architectural finishes, roofing systems, structural building systems and building materials.

Relevant Experience

Mr. Orthos led and participated in condition surveys and studies for upgrading existing building conditions for compliance and building code requirements, and various methods of remedial work. Responsibilities included coordinating with disciplines and trades and performing code analysis to determine life safety conditions. His background includes heavy government and manufacturing design projects, distribution and warehouse buildings, pharmaceutical buildings, newspaper plants, electronic manufacturing, food and beverage, textiles and synthetic fibers, and specialty chemicals and research laboratories. Harry has worked extensively on studies for upgrading buildings for compliance with GMPs and building code requirements and has supervised, analyzed and resolve field problems, and investigated material with cost value estimates.

Representative Projects

Lincoln Tunnel Tower Building Upgrade, PANYNJ, New York, NY. Participated in condition surveys and studies for upgrading existing conditions at the Lincoln Tunnel tower building. Responsibilities included coordinating with all disciplines and trades and performing code analysis and life safety condition analysis. Supervised, analyzed and resolved field problems, and investigated suitability of materials and cost factors. Interfaced and coordinated with Port Authority during contract document and construction phases.

Holland Tunnel Ventilation Facilities, PANYNJ, New York, NY. Identification, inspection, testing, and verification of the physical condition of facilities housing 24 blowers and exhaust tunnel ventilation fans at the Holland Tunnel. Code analysis investigation for compliance with NYC building codes, including egress from blower room areas and cost estimates of materials.

Architect, U.S. Postal Service, New York, NY. Extensive experience in feasibility studies and preparation construction documents for postal Retail Stores, Customer Service Facilities and Mail Processing Facilities including repair and alteration projects. Professional services from conceptual design through design documents and specifications, which includes construction details selection and detailing of architectural building systems including roofing systems and construction estimates. Also coordinating with constructor in filed during construction phase and reviewing shop drawings.

Harry Orthos

Coordinating with USPS Officials for security requirements, which also includes upgrading doors receiving security access control readers, construction details and hardware specifications-coordinating with security hardware specialists.

The design is based on using USPS Standard Building Designs for Small Standard Building Designs (SSBD) from 1000 SF to 8,000 SF; Medium Standard Building Designs (MSBD) from 8,000 SF to 50,000 SF, Retail Store Designs, and modular site adaptation.

USPS Projects:

- Morgan GMF: Studies and upgrading of existing 1,000,000 SF general mail facility with extensive alterations throughout all levels including designing new BMEU at first level. Coordinated with all equipment vendors, look-out galleries. Building upgrade include compliance to NYC Building Codes, OSHA regulations and ADA requirements.
- Long Island City Astoria Alternate Quarter Station, NY (5,000 SF) - Prepare design and construction documents based on latest USPS Standard Design Criteria related to retail store and adapt modular site plans to facilitate the relocation of the finance unit and carriers to the new Astoria Station.
- Brooklyn Processing & Distribution Center (P&DC), NY (750,000 SF) – Prepared design construction documents for several projects at this facility and they include:
  - Upgrade office space at second floor (40,000 sf) to accommodate Triboro District Staff relocated from Queens P&DC
  - Relocation Post Master Area within second floor (15,000 sf)
  - Chiller and Boiler Replacement: Convert storage space to a boiler room and upgrade this space to meet NYC Code and modify roofing system to accommodate new roof opening to install roof access for future chiller replacement
  - PACS and CCTV – Currently preparing design to replace all exterior/interior doors to accept new security access card readers, new turnstile, and provide separate entrance to Credit Union area
- Queens P&DC, NY (700,000 SF) - Renovation of the Queens P&DC administration area to relocate New York Metro Area (NYMA) personnel from the second floor to the third floor. Prepared four layout schemes based on USPS Standards for offices and cubicles, as well as the layout for large and private conference rooms. Upon selected the scheme prepared design documents to remove interior partitions, and electrical and communication systems associated with cubicle furniture. The renovation included new cubicles and furniture, a closed-circuit television camera and security access systems, a new suspended ceiling, and new communication.
- Canal Street Station, NY (47,000 SF) – Analyzed the condition of the existing exterior windows and doors of this State Historic Preservation Office (SHPO)- designated historic site and found that the framing needed replacement. Prepared construction documents to completely replace all exterior windows including upgrading the thermal performance of the building fenestration with insulating glass, while still maintaining the historic design of the window units. The window replacement meets the USPS Standard Design Criteria and Energy Conservation requirements.

Employment History

CH2M, 1970-present

Larry Scarcia

Systems & Technology – Train (Electrical)

Education

BS, Electrical Engineering Technology, State University of New York

Certifications

Member of the Institute of Electrical and Electronics Engineer
Chair and Co-Chair during the last 5 years of the IEEE New York Section of the Vehicular Technology Society (VTS)

Distinguishing Qualifications

- Technical expert on vehicle electrical subsystems and test/commissioning of vehicles.
- Systems engineering expert with a focus on whole car integration of all car subsystems, including Monitor and Diagnostics, Passenger Info, CCTV, CBTC, Propulsion and Braking, Auxiliary Power.
- Direct test and commissioning experience having led the oversight of the NY JFK Airport Airtrain system vehicle testing and integration with Automatic Train Control.
- Technical field engineering expert with the ability to understand complex technical problems and provide detailed analysis and solutions. Also, provide field training to shops to help the technicians solve problems.
- Direct design and manufacturing experience. Work in partnership with carbuilders to help resolve fleet reliability issues.

Relevant Experience

Mr. Scarcia has more than 22 years of professional experience in rail car electrical and electromechanical systems design/testing with a primary focus on vehicle electrical subsystems and test/commissioning of vehicles. He is also experienced with CBTC systems, propulsion systems and propulsion system compatibility between different fleets, passenger information systems and CCTV. Mr. Scarcia has hands-on design experience from having worked for General Electric on design of both diesel and dual mode locomotives and for Morrison Knudson on design, manufacturer and testing of heavy rail cars and locomotives.

Representative Projects

Lead Electrical Engineer, JFK AirTrain Light Rail System, PANYNJ, New York, NY. Focusing on all of the vehicle's electrical systems integration, including VMS, Propulsion, Auxiliary Power, Train Control, Friction Brakes, Door System, HVAC, Coupler, Lon Works Networks, Passenger Information and Communications. Responsible for all of the vehicle qualification testing at Bombardier's test track in Ontario Canada and on-site at JFK airport. One of the JFK team members who saw the JFK project from its inception all the way through design, construction, testing and commissioning, and revenue service.

Advisor, PATH CBTC Project, PANYJN, NJ. CH2M supports the Port Authority Trans-Hudson (PATH) to deliver and implement Communication Based Train Control (CBTC) and Secondary Train Detection System (STDS) on the entire PATH system to meet the Program objectives and compliance to the Positive Train Control (PTC) Rule. Served as part of maintenance study on the new PA-5 Vehicles with a

focus on improving door system reliability and recommending door system corrective and preventative maintenance philosophy.

Working Group Chair, New York City Transit, Track Geometry Car (TGC) CBTC Installation, New York, NY. Canarsie (L) line working group chair for Work Train (Track Geometry Car) on NYCT's Canarsie (L) line project. The Work Train working group was handling the custom installation and testing of CBTC (ATPM only) of the Siemens equipment onto two Plasser American Track Geometry Inspection Trains. Responsible for the overall coordination between NYCT CPM group, CBTC Supplier – Siemens, and NYCT MOW group (with Plasser) on the project. Responsible for the overall coordination between NYCT Capital Project Management (CPM) group, CBTC Supplier – Siemens, and NYCT Maintenance of Way (MOW) group (with Plasser) on the project. Led the working group on the project and led the test and commissioning exercises to get the vehicle safety certified and ready for service. Team overcame many technical and logistical problems with doing the work. A safety certificate to operate the train was issued at the completion of the project.

Vehicle Analyst, New York City Transit, R160, R188, R179 and R211 Door Systems, New York, NY. Responsible for test witnessing and tracking all vehicle commissioning exercises on R160. Mr. Scarcia is currently leading the test oversight on the R179 new vehicles. Also supported the bi-monthly field "train trouble TT" meetings for the past 5 years on R160 and is again supporting TT Meetings on R188. In addition, and is delivered subsystem training and troubleshooting workshops on R160 and R188 to NYCT shops. Participated in the R188 CBTC working group meeting and is responsible for the door systems installed on the current R160, R188 and upcoming and R179 NYCT mass rapid transit fleets. Involved with the next generation R211 study, focusing on door system designs for the future fleet. Led the various new technology trials for latest rack and pinion door system and CCTV system on R160 and led the working group that oversaw the CBTC conversion of two of NYCT's Plasser-built Track Geometry Inspection Trains.

Inspection Project Manager, Metro North Railroad, New York, NY. Inspection oversight contract with Metro North on the new BL-20GH diesel electric locomotives and Comet II coach rehabilitation. These contracts were for the production inspection and testing oversight on 20 new locomotives and 104 push-pull coaches to be used on the Waterbury and East of Hudson lines.

Test Planner, Long Island Rail Road, New York, NY. Responsible for writing, implementing, and witnessing propulsion system static and dynamic test plans for new GE propulsion (e-cam) equipment installed on LIRR M-1 vehicles. These test plans were used to qualify 132 M-1 heavy metro vehicles that underwent a selected component overhaul program to help lengthen their service. In addition, provided engineering support to the in house LIRR overhaul team for vehicle wiring, passenger side doors, and brakes. Helped develop the overhaul program management plan and work process plan.

Technical Support – Vehicle Overhaul Program, Washington Metropolitan Area Transit Authority, Washington, DC. Provided technical support on a manufacturer's vehicle overhaul program in the areas of vehicle wiring, propulsion, auxiliary power, and train control. Reviewed and augmented propulsion equipment bench test hardware and procedures. Also involved in the final design review for the new 5000 series cars propulsion system.

Employment History

CH2M, 1996-present; General Electric Corporation, 1994-1996; Morrison Knudson Corporation, 1993-1994

Peter Sokolow, PE

Traction Power Substation

Education

B.S., Electrical Engineering, Pratt Institute

Professional Registration

Professional Engineer: New York, New Jersey, Pennsylvania, Delaware

Distinguishing Qualifications

- More than 44 years of experience in electrical and control system engineering for public and government facilities
- Served as the engineer of record, designing electrical power distribution systems including medium voltage substations, low voltage switchgear distribution apparatus and motor control centers and lighting system upgrades

Relevant Experience

Mr. Sokolow is experienced in vehicle maintenance facility upgrades and has spent over thirty-five years as an engineer of record designing electrical power distribution systems, including medium voltage substations, low voltage switchgear distribution apparatus and motor control centers and lighting system upgrades. He has worked as Resident/ Assistant Resident Engineer in the field for projects involving facilities and infrastructure, aeronautical (Airport Facilities, airfield lighting systems, utilities investigation), Transportation (Bus Terminal Facilities), and Educational facilities.

Representative Projects

Electrical Engineer, PATH Christopher Street Access Control, PANYNJ, New York, NY. PATH Christopher Street access control and CCTV system upgrades. Electrical Group Leader for design of station CCTV system upgrade and implementation of a LENEL type security system including biometric type card readers and laser intrusion detection system to record unauthorized track incursions. This project is classified "Confidential and Privileged."

Analyst, Modifications to Infrastructure to Manage Climate Change and Population Growth Effects on New York City Sewer and Waste Water Systems, NYCDEP, New York, NY. Performed field surveys of NYC DEP critical infrastructure; in particular, 50 pump stations in all 5 boroughs. In addition, Mr. Sokolow prepared report findings, equipment recommendations, estimate review and recommended resiliency measures such that catastrophic weather effects may be reduced during extreme events.

Senior Electrical Group Leader, LaGuardia Airport Transformer Upgrades, PANYNJ, New York, NY. Responsible for the PANYNJ LaGuardia Airport transformer upgrades project, which replaces obsolete apparatus at five existing substations located in the car rental, fuel farm, marine air terminal, and Hangars 7 and 5A areas of the airport. Our design plans and implementation instructions have allowed the work to be performed efficiently with minimal interruption and inconvenience to tenants' operations.

Electrical Engineer, Newark Liberty Airport and JFK Airport, PANYNJ, New York, NY. For Newark Liberty Airport and JFK Airport, Mr. Sokolow implemented and designed airfield lighting switchgear upgrades and supervised the design and implementation of a SCADA system to control the airfield lighting Navaids.

Peter Sokolow, PE

Senior Electrical Group Leader, CCTV System Design, PANYNJ, Richmond, NY. This project included the design of a CCTV system to monitor truck access entering and exiting the Howland Hook facility. Key features of the system included design of a pole mounted camera to view traffic on a bridge within the facility to monitor the incoming and outgoing truck traffic to maintain U.S. Customs regulations.

Electrical Engineer, USPS, Grand Central Station, New York, NY. Responsible for the study and report to replace the existing fused switch 4,000 ampere, 480 VAC switchboard with a new UL approved 4,000 ampere, 200,000 ampere interrupting capacity equipped with draw out type switchgear with full ground fault interrupting capability to limit outages to portions of the facility instead of the entire facility. The new low voltage distribution system was designed, bid, and built with full construction support during critical facility power outages and tie-in phases. In addition, the emergency power transfer switch was removed and replaced without interruption to postal operations.

Senior Electrical Group Leader, USPS, Gracie Station, New York, NY. Designed a plan to replace all existing distribution apparatus located on three floors and the basement with modern equipment while postal operations remained uninterrupted during the upgrade period. Mr. Sokolow provided construction phase services including commissioning the new distribution apparatus. In addition, Utility (Con Edison) coordination, permitting approvals and installation verification for a new 2000 ampere service entrance main disconnect was performed for the Postal Service.

Electrical Group Leader, George Washington Bridge, Lockheed Martin, PANYNJ, New York, NY. Design that upgraded the GWB anchorages intrusion detection system that was compromised by the installation of de-humidification systems. The design incorporated the following features:

- CCTV interface to activate cameras to verify unauthorized access
- Added door and gate monitoring within the anchorages
- Additional LENEL access control panels
- Additional microwave/infrared type intrusion detectors

Electrical Task Leader, Airports Projects, PANYNJ, New York, NY. Mr. Sokolow worked at the Port Authority for sixteen years on various projects at J.F. Kennedy, LaGuardia, and Newark (Liberty) airports. For the PATH Trans–Hudson subway system, he was involved with the station's improvement project. This project upgraded power panel and added lighting uninterruptible power supplies (UPS) to all PATH subway stations without interruption to service or tenants operations.

Electrical Task Leader, Yonkers Industrial Park, PANYNJ, Yonkers, NY. Supervised the repair and upgrade to the main 15 kV GE vertical lift switchgear. He designed and supervised the construction of five low voltage (480 VAC) substations in the existing tenant areas without interruption to tenant operations. Tenants included Kawasaki Rail Car and Westinghouse Airbreak Company (WABCO). Mr. Sokolow supervised contractor activities including scheduling, review and approval of change orders, change order cost evaluation, utility delineation, contractor man power tracking and overall project schedule enforcement including approval of delay requests, and approval of Contractors' request for payment.

Employment History

CH2M, 2004-present; Crane Associates, 1999-2004;
Port Authority of New York & New Jersey, 1983-1999

Brian Stein

Systems & Technology – Fare System

Education

M.B.A, Northeastern University, Boston, MA
B.S., Electrical Engineering, Northeastern University, Boston, MA

Certifications

Member of Smart Card Alliance, American Public Transportation Association and Canadian Urban Transit Association
APTA Committees – Member of Fare Management Committee and TCIP Programs
Member of IEEE and IEEE Intelligent Transportation Systems Society

Distinguishing Qualifications

- Experienced with Automated Fare Collection Systems for Public Transportation Industry.
- Familiar with Mobile Technologies- Loyalty programs, Trusted Service Managers, NFC, and BLE
- Skilled in project management, QA/Test Plans, and Life Cycle Maintenance Programs

Relevant Experience

Mr. Stein have over 20 years of project management experience, including development of contract requirements, technical specifications, quality assurance and testing program plans and procedures, life cycle maintenance programs, cost estimations, and project time schedules; engineering experience in software, firmware, hardware design and development. He also has over 15 years of sales and marketing experience, including new business development, working with clients in the public transportation sector, new payment system technologies. Brian has demonstrated ability to work well with all internal and external functional areas and all levels of management from C-suite executives to line managers and is skilled in consulting on commercial and technical issues with both internal and external customers for hardware/software development projects

Representative Projects

Subject Matter Expert, Union Station to Toronto Pearson International Airport Express Line, Toronto, Canada. Support of the Professional Services provided to assist Union-Pearson Express in the development of technical specifications, scope of work documents; and cost estimates for the procurement of an electronic ticketing system for their airport/ rail link service. This innovative rail line links Toronto Pearson International Airport's Termina 1 to Toronto's downtown Union Station. The express line is scheduled to open on June 5, 2015.

- Assistant Treasurer, Executive Committee and Board Member for the Smart Card Alliance – 2013 – present
- Provided content for the writing of various Payment and Transportation related white papers in association with the Smart Card Alliance – 2013 Honor Roll Council Contributor Recognition for the Payment Council, Transportation Council and Mobile & NFC Council

Project Manager, Metro-North Railroad, NY. Scheduling Process Review Services being provided to support Metro-North Railroad (MNR) assess current "As-Is" trainmen, crew and equipment scheduling process and tools to determine what software tool(s) should compose MNR's "To-Be" scheduling process.

Brian Stein

Subject Matter Expert – AFC, Smart Card, Mobile Technology, Des Moines Area Region Transit Authority, IA. Providing Subject Matter Expertise support for AFC, Smart Card and Mobile Technologies for helping DART develop their requirements and specifications for procuring a new Smart Card based AFC system. Additionally, providing contract negotiation and project implementation support.

Project Manager, South Florida Regional Transportation Authority, FL. Professional Advisory Services being provided to help SFRTA manage the Easy Card AFC project and other associated ancillary services, which include Subject Matter Expertise support for AFC, Smart Card and Mobile Technologies as well as the Policies and Procedures development.

Project Manager, Various Tasks, Metro, St. Louis, MO. Oversight of various tasks being provided to Metro in support of their new Smart Card AFC project with Indra and Scheidt & Bachmann. Mr. Stein is also providing Subject Matter Expertise support for AFC, Smart Card and Mobile Technologies, as well as Standard Operating Procedures development.

Project Manager, Maryland Transit Administration, MD. Professional Services provided to support the MTA Office of Treasury for the development of technical specifications, scope of work documents; and cost estimates for the procurement of a Mobile Ticketing system for MARC Train and Commuter Bus to augment MTA's current Fare Collection and Ticketing services. Additionally, Mr. Stein oversaw the assessment of MTA's Ticket Vending Machine Network for Payment Card Industry (PCI) compliance.

Experience Prior to CH2M

Senior Manager, Accenture Mobility Services, Accenture. Provided Business Development and Subject Matter Expertise support on Mobile Technologies for Financial Service Industry Clients. Also served as a Business Development Manager – Public Transit, where he created and expanded name brand recognition of Transportation System Solutions and offerings for US Public Transportation Market, including Fare Collection, Tolling, and High Speed Rail Industries. He contributed to the development of Proposals, Request for Proposals, and Technical Scopes of Work, and industry Points of Views for the US Public Transportation Market, including Fare Management and Tolling.

- Former Chair of UTFS WP4 Workgroup – Contributed to development of APTA's UTFS Contactless Fare Media System Standard
- Provided content for the writing of various Payment and Transportation related white papers in association with the Smart Card Alliance – Council Contributor Recognition 2010 & 2012 Payment Council Honor Roll and Transportation Council Top Contributor
- Former Board Member of Massachusetts Association of Regional Transit Authorities

Employment History

CH2M, 2012-present; Accenture Mobility Services, 2010-2012; Giesecke & Devrient America, Inc., 2008-2010; Scheidt & Bachmann USA, Inc., 1997-2008

Marcin Taraszkiewicz, PE

Systems & Technology – Train (Mechanical)

Education

B.S., Aerospace Engineering, University of Michigan, College of Engineering
Coursework towards MBA DePaul University, Kellstadt Graduate School of Business

Professional Registration

Professional Engineer: Virginia, New York

Distinguishing Qualifications

- More than 21 years of experience with development and integration of rail vehicle systems, which includes background in transit engineering, project management, design, testing, commissioning, integration, and operation

Relevant Experience

Mr. Taraszkiewicz has vehicle system expertise including Carbody and truck structure; vehicle interiors/exteriors; couplers and draft gears; passenger doors; HVAC systems; trucks; pneumatic and friction brake systems; smoke, flammability, toxicity; reliability, maintainability, and safety analyses; and vehicle dynamics.

Representative Projects

Systems Engineer, Green Line Light Rail Vehicle Procurement, MBTA, Boston, MA. Provided engineering services to support procurement of 100 low floor LRVs supplied by AnsaldoBreda. Responsible for overseeing the climatic chamber testing of the vehicle heating, ventilation, and air conditioning (HVAC) system. Instrumental in helping implement a number of system modifications to ensure proper performance of the system.

Systems Engineer, Red Line and Green Line Overhaul, MBTA, Boston, MA. Wrote the specification for the overhaul of the MBTA's fleet of No. 2 Red Line subway cars and No. 7 Green Line LRVs. The scope of the overhaul contained a number of modifications that have been included as a result of coordination with the MBTA's maintenance and engineering personnel to improve the reliability and ease of maintenance of the existing equipment.

Lead Mechanical Engineer, Washington Metropolitan Area Transit Authority (Metro). On the 5000 series procurement of 192 rail cars, which were supplied by CAF (Spain). His primary responsibility was to review project design documentation and provide engineering guidance to the client. Led an effort to perform non-destructive structural testing of Metro's 2000 and 3000 series cars. Provided oversight of the entire effort, from generating an initial project cost estimate to the non-destructive testing and final report preparation.

Lead Mechanical Engineer, Niagara Frontier Transit Authority (NFTA). Managed the overhaul of 27 light rail vehicles for the NFTA. This overhaul included extensive replacement of car body structural frame members along with significant upgrades to the air supply, propulsion, HVAC, and communication systems. Assumed the lead technical role in the evaluation and integration of all upgraded systems on the project.

Marcin Taraszkiewicz, PE

Project Engineer, Massachusetts Bay Transportation Authority, MA. Support of the procurement of 100 low-floor light rail vehicles (LRVs), which are being supplied by Breda (Italy). Primary responsibilities included overseeing the climatic chamber testing of the vehicle HVAC system. Instrumental in helping to implement a number of system modifications to ensure proper performance of the system. Wrote the specification for the overhaul of the Authority's fleet of No. 7 SRC vehicles and for the overhaul of the trucks on the Authority's fleet of No. 2 vehicles. The scope of the overhaul contained a number of modifications that have been included as a result of Marcin's work with the Authority's maintenance and engineering personnel in an attempt to improve the reliability and ease of maintenance of the existing equipment. Wrote the specification for the overhaul of the HVAC units on the MBTA's fleet of commuter rail cars.

Rail Engineer, Metra Commuter Rail. Wrote the specification for the procurement of a fleet of DMU vehicles for a proposed new commuter rail line. As part of this effort, evaluated a number of existing DMU technologies and configurations with the goal of selecting the proper equipment mix to meet Metra's performance requirements.

Quality and Testing Manager, Maryland Transit Administration (MTA), MD. Heavy rail transit car rehabilitation project, worked at the car builder assembly plant in Hunt Valley, MD. His primary responsibilities were to evaluate the inspection and testing programs at the plant and work with the car builder to streamline the process.

Field Site Engineer, ABB Daimler-Benz Transportation, Inc., Frankfurt Flughafen PTS. Managed and conducted all system start-up activities. The scope of his responsibilities included all electrical, electronic, and mechanical systems on both the vehicles and the wayside. One of the main challenges on this project was the installation, testing, and TUEV (the German national safety certification body) certification of new safety critical wayside train control software while the first portion of the system operated in revenue service. Also led an effort to increase system performance beyond its planned capacity. Working in conjunction with the central control software group, helped to identify areas where system efficiency could be improved through non-safety critical software enhancements. As a result of this effort, the system passenger capacity was increased through the reduction of headways between trains.

Mechanical Design Engineer, AEG Transportation Systems, Inc./ABB Daimler-Benz Transportation, Inc. Took the lead role in several automated vehicle mechanical design projects that included transit systems in Denver, Las Vegas, Kuala Lumpur, and Singapore. The scope of the work also involved engineering support during the vehicle assembly process, cost estimating, evaluation of engineering changes based on operating costs, and component testing activities.

Operations Group Leader, Matra Transit, Inc./OATS, Inc./Testing Engineer, Matra Transit, Inc., Chicago O'Hare AGT Construction. Participated in the testing and commissioning of the wayside automated train control system for the Chicago O'Hare airport people mover. Also maintained worker safety on the track by conducting system safety inspections.

Employment History

CH2M, 1998-present

Kevin Zsamba

3rd Party Coordination

Education

Pursuing degree in Construction Management, Ashworth College
Attended DeVry Technical Institute
Completed Conrail Signal Training Classes
Completed NJ Transit Signal Training Classes
Completed NJ Transit Management Training Classes

Distinguishing Qualifications

- Expert in Railroad Signals and Signaling Systems, Project Management, Construction Management and Rail Safety

Relevant Experience

Mr. Zsamba has over 36 years of experience in working with Railroad Signaling Systems in a progressively advancing technological field. He has proactively enforced safety rules and procedures with internal and external customers to ensure efficient use of labor forces and equipment.

Representative Projects

Port Authority Trans-Hudson (PATH) Phase II ATC System, NY and NJ.

- Interfacing with the client (PATH) and the supplier/ installer (The Siemens Team), managing and coordinating track outages for multiple disciplines to achieve efficient and productive use of time.
- Reviewing contractor's design for conformance with contract requirements and industry standards.
- Reviewing contractor's submittals and correspondences; prepare responses on behalf of PATH recommending approval or other dispositions on designs, materials, test and construction procedures.
- Providing construction oversight and inspection of work performed on site.
- Witnessing testing and commissioning of installed equipment.

Experience Prior to CH2M

Assistant Superintendent, Signal and Electric Traction, New Jersey Transit, NJ, 2002–2010.

- Manages staff activities conducting signal and electrical traction system inspections and tests
- Supervise Construction, testing, start up and operations for Newark Light Rail signal and electric traction modernization improvements
- Primary liaison for outside contractors performing signal, track and tunnel ventilation work.
- Responsible for coordinating track outages for multiple contractors working within the same outage limits for the most efficient and productive use of time.
- Trained Staff in proper FRA/NJ Transit signal testing procedures, various types of troubleshooting techniques and maintenance procedures on all signal system equipment. Proper procedure for sectionalizing and grounding the electric traction system.
- Ensure that employees perform assigned tasks properly and within allotted time according to the task to provide a safe, reliable and efficient transit system.

Kevin Zsamba

Signal Supervisor Construction, New Jersey Transit, NJ, 1998–2002.

- Prepare schedules for work crews, plan track outages, stage equipment and material at locations, coordinating, testing and approving the installation of all signals, switches, cables, and other associated signal equipment.
- Maintain an inventory of parts and project future needs necessary to complete the project on time.
- Ensure that the crew is working in a safe, efficient manner and has performed assigned tasks properly and according to specification.
- Projects include: Graw Interlocking, connecting the NJCL and the North East Corridor in Rahway, NJ.
- Far Hills passing siding at Far Hills, NJ.
- Matawan and Middletown Station renewal with elevated platform.

Signal Supervisor, Communications & Signals, New Jersey Transit, NJ, 1991–1998.

- Manage all aspects of day-to day operations for the Signal Department on Raritan Valley Line or the North Jersey Coast Line
- Prepare daily work assignments for work crews.
- Chair monthly safety meetings along with safety supervisor.
- Ensure that the section maintainers were completing all FRA test on time and in compliance with FRA and NJ Transit standards.
- Responsible for payroll, vacation schedules, vehicle coordination and signal support for all ongoing projects.

Signal Engineering Design Department New Jersey Transit, NJ, 1987–1991.

- Design of automatic signal locations, grade crossing s and interlocking.
- Responsible for the complete design of new signal system including all cad work, signal layout, control lines and schematics on the Raritan Valley Line.
- Revised plans as necessary based upon field observations and input for successful installation and commissioning of signal equipment.

Employment History

CH2M, 2010-present; New Jersey Transit, 1983–2010; Consolidated Rail Corporation, 1978–1983.

Adrian Barrios

Visualization

Education

Bachelor of Arts, Architecture; University of San Carlos, Philippines

Distinguishing Qualifications

- Adrian is proficient in various 3-D software tools that he uses to produce photorealistic renderings, visual effects, and walk-through animations of transit and transportation projects, including an APM at LAX, that allows design teams and clients to better visualize design options and explain project intent to other stakeholders and community groups.

Relevant Experience

Mr. Barrios is an architectural designer with particular expertise in 3-D modeling and rendering. He has prepared concept designs and renderings for a wide variety of project types, including highways and bridges, transportation facilities, and educational, justice, military, and residential facilities. In addition, he is skilled at coordinating with multidisciplinary design teams to meet both project and client standards. His computer skills include AutoCAD, 3D Studio Max, V-Ray, Rhinoceros, Adobe Photoshop, Adobe After Effects, and ArcGIS.

Representative Projects

Architectural Designer, JetBlue Yellow Parking Garage Design-Build, Queens, NY. Prepared 3-D drawings to document ADA and safety issues in support of the design-build of a full-service airport garage for JetBlue Airways at John F. Kennedy (JFK) International Airport in Queens, NY. The $60 million garage is a critical component of the master plan for the JetBlue Terminal at JFK, which is built around the historic TWA Terminal. The garage, a steel structure with precast concrete spandrels, features a central glass elevator core that transports passengers to a connector level which leads to the new terminal. Mr. Barrios used Rhinoceros and AutoCAD to prepare the 3-D studies.

Architectural Designer, LAWA LAX Ground Transportation Study, Los Angeles, CA. Developed architectural concepts and renderings for various on- and off-airport ground transportation improvements at Los Angeles International Airport (LAX) for Los Angeles World Airports (LAWA). Concepts included options for multimodal curbsides, an integrated automated people mover (APM), and a new central passenger processor building within the central terminal area (CTA); a consolidated bus operations facility and intermodal transportation facility to be intergraded with a future dedicated Busway or APM; and a transit hub and consolidated rental car facility (ConRAC) on a development parcel off airport property.

Architectural Designer, ConnDOT Bradley International Airport New Terminal B Complex, Windsor Locks, CT. Developed 3-D studies for Terminal B and concourse redevelopment at Bradley International Airport in Windsor Locks, CT. The estimated $574.5 million ConnDOT program includes: a 19-gate domestic and international terminal; landside arrival and elevated departure roadways; a multi-level ConRAC and parking garage; two elevated pedestrian connectors linking the terminal to the garage; and a central utility plant. Mr. Barrios developed a series of 3-D concepts and renderings using Rhinoceros and Autodesk 3D Studio Max for the design team, client, and site users to better visualize

the options for landside and airside programming and planning. Mr. Barrios's 3-D visualization studies incorporated such design concepts as massing diagram analysis, view simulations, and spatial relationships.

3-D Renderer, NYCT Mother Clara Hale Bus Depot Design-Build, New York, NY. Developed the 3-D renderings for the $262 million design-build replacement of the Mother Clara Hale Bus Depot in Manhattan. The 390,000-sf, New York City Transit (NYCT) project has a goal of LEED certification to the Gold level and will feature low-emission boilers, solar-air heating, heat-recovery units, natural lighting, rainwater recycling, and a green roof. Mr. Barrios coordinated closely with the client to develop optimum views for the renderings.

Architectural Designer/3-D Renderer, PANYNJ George Washington Bridge Bus Station Redevelopment, New York, NY. Prepared 2-D and 3-D renderings for the redevelopment modernization of the George Washington Bridge Bus Station in Manhattan. The $152 public-private redevelopment of this PANYNJ facility will transform shuttered space in the lower levels of the eastern building and vacant space in the lower levels of the western building into 120,000 sf of prime retail space. Mr. Barrios conducted an existing condition study to develop the 3-D rendering and design and participated in studies to analyze key structural elements of the station. He prepared 3-D renderings of the Broadway façades using Rhinoceros, and participated in programming and the development of concept design for various project schemes.

Designer, PANYNJ George Washington Bridge Bike/Walkway Safety Program, New York, NY. Developed 3-D renderings of various options for the installation of safety fencing along the pedestrian/bicycle lanes on the upper level of the George Washington Bridge between Manhattan, NY and Fort Lee, NJ, for the PANYNJ. In addition to the new fencing, Mr. Barrios prepared designs for other safety and security enhancements that included CCTV, emergency telephones, and lighting upgrades.

Architectural Designer/3-D Renderer, NYCDOT East 8th Street Ramp Replacement, Brooklyn, NY. Coordinated the final graphic presentation for the $13.6 million replacement of the East 8th Street access ramp over the Belt Parkway in Brooklyn, NY. The design includes a new superstructure consisting of continuously supported steel stringers and a reinforced concrete deck, as well as modifications to the ramp's substructure to meet current New York City Department of Transportation (NYCDOT) seismic design criteria.

Employment History

STV Incorporated, 2008 – Present; Freelance Architectural Designer and Renderer, 2006 – 2008; Ferco Seating System, 2004 – 2006; Espina-Perez Espina & Associates, 2002 – 2004

Anthony Bayer, P.E., LEED® AP BD+C, CEM

Mechanical Engineer – Facilities

Education

Master of Engineering, Mechanical Engineering; Stevens Institute of Technology
Graduate Certificate, Computational Methods in Fluid Dynamics and Heat Transfer; Stevens Institute of Technology
Bachelor of Engineering, Mechanical Engineering; Stevens Institute of Technology

Professional Registrations/Certifications

Professional Engineer: New Jersey; LEED Accredited Professional (AP) Building Design + Construction (BD+C); Certified Energy Manager (CEM), Association of Energy Engineers

Distinguishing Qualifications

- Lead HVAC Engineer for AirTrain JFK; understands operational requirements and design standards for both stations and maintenance facilities

Relevant Experience

Mr. Bayer is a supervisory mechanical engineer with more than 35 years of experience, in particular with the design and specification of HVAC systems. Mr. Bayer has extensive experience providing mechanical design and construction support services for central utility plants, industrial facilities, transportation facilities, railway maintenance facilities, and commuter rail stations. As a project manager, he has been responsible for client liaison, proposal preparation, energy analyses, life-cycle cost analyses, feasibility studies, budgets, detailed HVAC design, specifications, load calculations, and hydraulic calculation. He is also adept at the preparation of LEED project templates and the implementation of LEED heat-recovery design features.

Representative Projects

Lead HVAC Engineer, PANYNJ AirTrain JFK DBOM, Queens, NY. Led design of HVAC systems for the $1.3 billion design, build, operate, and maintain (DBOM) project featuring a light rail system with an innovative elevated track structure, 10 award-winning light rail stations, and the 2-story, 64,000-sf operations, maintenance, and storage facility (OMSF). The 8.4-mile system consists of a 2-mile segment that connects the JFK International Airport terminals with car rental areas, parking lots, and New York City Transit (NYCT) subway stations, and a 3-mile extension to the Jamaica Transportation Center. Mr. Bayer wrote specifications for the six stations that connect the terminals to the light rail system, including Jamaica Station with access to Long Island Rail Road (LIRR) and NYCT; the Howard Beach Station; Federal Circle Station with access to car rental facilities; and the Long-Term Parking Station. He also provided conceptual design for HVAC systems for the OMSF, which is used by PANYNJ to maintain light rail vehicles and to house the system's central control. He provided the conceptual design of HVAC systems for offices and locker and restroom areas, cooling systems for equipment rooms, and heating and ventilation for the maintenance areas.

Lead Mechanical Engineer, PANYNJ Hoboken PATH Station Underplatform Exhaust System Replacement Investigation, Hoboken, NJ. Performed the feasibility investigation and generated the Stage 1 Report for the removal and replacement of the Hoboken PATH Station's three vaneaxial

underplatform exhaust fans for the PANYNJ. Mr. Bayer investigated all associated variable frequency drives, sound attenuators, and automatic temperature controls system and ductwork, which had a total capacity of 165,000 cfm.

Supervisory HVAC Engineer, NJ Transit Access to the Region's Core Project, NJ. Responsible for the design and specifications of HVAC systems for a new underground commuter rail station at 34th Street and Broadway and auxiliary facilities for the proposed $8.7 billion Access to the Region's Core tunnel from New Jersey to Manhattan. The HVAC design included a 4,060-ton centrifugal chiller plant, a 4-cell induced-draft counterflow cooling tower, two pressure-reducing valve stations totaling 30,000-pounds-per-hour of Con Edison high-pressure steam service, diesel fuel oil systems, and catalytic convertor systems serving emergency generators, air conditioning systems for the underground commuter rail station, and HVAC systems serving six fan plant buildings. Air-handling systems serving platform and mezzanine levels of the station were to be of the custom field-erected type. Mr. Bayer was responsible for supervising a team of engineering and design personnel. The project was canceled in final design.

Lead HVAC Engineer, MTA/LIRR Mid-Suffolk Electric Yard GEC Services, New York, NY. Generating the HVAC design criteria and performing the HVAC design, specification, and construction administration for the new maintenance and inspection facility, employee welfare facility, traction power substation, and storage/utility facilities at the Mid-Suffolk Electric Yard for the Metropolitan Transportation Authority(MTA)/Long Island Rail Road (LIRR) project, which is a critical part of the $10 billion East Side Access project. As part of a long-term expansion strategy to increase capacity and provide more resilient and reliable passenger service for Nassau and Suffolk county residents, the firm is also using this general engineering consultant (GEC) effort to provide preliminary design for track, signal, and traction power modifications needed to expand the railroad's existing Ronkonkoma Storage Yard, with a connection to the existing LIRR main line.

Lead HVAC Engineer, NJ Transit Hoboken Terminal and Yard Complex Rehabilitation and Redevelopment, Hoboken, NJ. Designed HVAC systems for several components of the $120 million rehabilitation of the 54-acre NJ TRANSIT transportation complex in Hoboken, NJ, including the renovation of the historic main waiting room, improvements to the South Yard, and the rehabilitation of the 13-acre Yard "B." Mr. Bayer designed a new replacement high-pressure steam boiler plant, including two, dual-fuel, 350-HP scotch-marine firetube-type, 150-psig steam boilers; a de-aerator; and blowdown systems. For the award-winning renovation of the main waiting room in the Beaux-Arts terminal, he designed HVAC systems for the ticket offices and a radiant hot water slab heating system for the waiting room. The improvements to the South Yard included design for a new welfare facility, an additional train washer, a new diesel repair shop, a service and inspection facility, a wheel truing machine building, and ancillary buildings housing pump equipment and electrical and mechanical support systems.

Employment History

STV Incorporated, 1989 – Present; Lockwood Greene Engineers, 1988 – 1989; STV/Seelye Stevenson Value & Knecht, 1987 – 1988; Kallen & Lemelson, 1986 – 1987; The Austin Company, 1984 – 1986; Edwards and Zuck P.C., 1982 – 1984; O'Connor and Jeffrey Consulting Engineers, 1978 - 1982

Kelly Bird, P.E.

Traffic Modeling

Education

MS, Transportation Engineering and Planning; New York University Polytechnic Institute of Engineering
BE, Civil Engineering; Pennsylvania State University

Professional Registrations/Certifications

Professional Engineer: New York

Distinguishing Qualifications

- Expertise developing traffic simulation models using cutting edge modeling software such as Synchro and VISSIM to evaluate the traffic impacts of transit construction projects on adjacent roadways; visualization options available within these models provide a more detailed understanding of how proposed improvements will function and help ease public concern regarding non-traditional traffic improvements

Relevant Experience

Ms. Bird is a transportation engineer with broad experience providing civil engineering services for transportation and highway projects. She possesses a range of experience involving roadway and bridge design and rehabilitation, traffic engineering, construction management, and green infrastructure design systems. Ms. Bird is proficient at performing intersection capacity analysis, traffic simulation modeling, cost estimating, and maintenance and protection of traffic (MPT) planning. Her experience also extends to traffic, pedestrian, and parking analyses, including traffic simulations using Aimsun and VISSIM modeling software and pedestrian simulation using the STEPS program.

Representative Projects

Transportation Engineer, Charlotte Douglas International Airport Roadway Improvements, NC.
Developed a VISSIM traffic simulation model to evaluate and identify the recommended sequence of construction for the new elevated roadway and pedestrian access between the main terminal and a new parking garage/rental car facility. The firm developed traffic simulation models for passenger and commercial vehicle roadways serving the arrival and departure levels for existing conditions and for alternative construction stages. Ms. Bird's analyses encompassed all of the existing and proposed physical geometry of the airport frontage roadway system, including roadway configurations, pedestrian crossings, and upper- and lower-level curbside parking. The model estimated vehicle assignments and routes within the terminal roadway system based on peak-hour passenger volumes entering and exiting the terminal, passenger modal split, vehicle occupancy, and access restrictions for the curb spaces for different vehicle types. It also assigned curb dwell times according to vehicle types. The firm used the Quick Analysis Tool for Airport Roadways (QATAR), which is a macroscopic model developed to evaluate airport roadway operations for curbside and adjacent through lanes. The QATAR analyses were used as a validation tool for the VISSIM traffic simulation analyses. The simulation models allowed airport project managers to more easily and quickly decide the best construction staging and sequencing operations, allowing contractors to begin work sooner.

Kelly Bird, P.E.

Traffic Engineer, NYCT Queens Plaza Flushing Line MPT Plan, Queens, NY. Developed work layout plans and traffic detour plans for the track panel installation on the elevated No. 7 line in Queens, NY, for New York City Transit (NYCT). The detour plans include work zone limits; placement of cranes, lay down, and panel staging areas; lane, sidewalk, and crosswalk closures; traffic and pedestrian diversion routes; and the location of traffic mitigation measures, including signs, traffic barriers, variable message signs, and traffic enforcement agents. Ms. Bird worked with NYCT to develop these plans for approval by the New York State Department of Transportation, and conducted field reconnaissance during the construction periods to make sure the MPT plans were followed or modified.

Traffic Engineer, NYCT Repair of Circuit Breaker Houses, New York, NY. Preparing work layout plans to repair four NYCT circuit breaker houses in Queens and Brooklyn, NY. The planned work layout areas provide for MPT while closing roadways and sidewalks within the vicinity of the project. Ms. Bird is developing detailed MPT plans showing sign locations, traffic barriers, and traffic enforcement agent placement for lane closures and temporary traffic control as required by the Manual on Uniform Traffic Control Devices (MUTCD). The plans will be submitted for approval by the New York City Department of Transportation (NYCDOT) Office of Construction Mitigation and Coordination (OCMC). Once approved, field implementation will take place.

Traffic Engineer, LIRR Ronkonkoma Branch New Main Line Second Track, NY. Evaluated the impact to traffic of adding a second track on the Long Island Rail Road (LIRR) along 12.6 miles of the 17.9-mile corridor between Farmingdale and Ronkonkoma, NY. Creation of a full double-track line would accommodate the extension of Farmingdale trains to Ronkonkoma, increase service reliability, allow for half-hourly east and west off-peak service, and provide operational recovery for more commuters. For this proposed $435 million project, Ms. Bird developed simulation models using VISSIM software to evaluate the traffic impacts on the adjacent intersections for 18 at-grade crossings during the AM, midday, and PM peak periods. The models were for assessing the traffic impacts of increased train frequency at peak periods and to mitigate the impacts at key intersections.

Traffic Planner, PANYNJ WTC Transportation Hub, New York, NY. Performing pedestrian flow modeling using STEPS software to simulate pedestrian conditions throughout the World Trade Center (WTC) Transportation Hub and PATH Terminal, under both normal and emergency egress conditions, for the PANYNJ. The 2-million-sf, $3.2 billion intermodal facility will link 11 subway lines, PATH trains, and ferry service to locations on and around the WTC site; provide 400,000 sf of retail space; and serve 250,000 users per day. The study focuses on pedestrian movement throughout the Hub, which will contain 47 escalators and 19 elevators. Ms. Bird is identifying congested circulation areas to make sure the entire layout operates as a system to maintain an acceptable level of service. She has focused the model results to specific zones, which have been categorized as critical “mixing bowls” that could potentially create severe queuing if not properly sized. One particular condition that Ms. Bird is modeling and determining the impacts of involves the sudden large volumes of pedestrians generated by arriving trains.

Employment History

STV Incorporated, 2008 – Present; The Whiting-Turner Contracting Co., 2007

Christopher Cerino, P.E., SECB

Structural Engineer – Facilities

Education

Bachelor of Architectural Engineering, Structural Emphasis; Pennsylvania State University

Professional Registrations/Certifications

Professional Engineer: New York; Structural Engineering Certification Board (SECB)

Distinguishing Qualifications

- 20 years of experience managing the design of large-scale, complex transit projects in the New York City metro area
- Directed structural design for transit station improvements and maintenance facilities

Relevant Experience

Mr. Cerino, Director of Structural Engineering in STV's New York office, is experienced in managing the design of large-scale, complex projects. With nearly 20 years of experience, he has overseen the design of various transit structures. Mr. Cerino coordinates the design efforts among various disciplines and directs teams to successfully prepare and deliver structural plans on schedule. Mr. Cerino is skilled in the use of building information modeling (BIM) to prepare design drawings, and works closely with project architects to prepare structural plans that accommodate visionary building designs.

Representative Projects

Structural Engineering Director, NYCT Station Repairs 4th Avenue Subway Line, Brooklyn, NY. Leading the design of the rehabilitation of the 9th and 59th street stations along the 4th Avenue subway line in Brooklyn, NY, for NYCT. Water infiltration, structural deterioration, and advanced age have contributed to the need to repair the 9th Street and the 59th Street stations to extend their service lives. Station elements in need of repair include street stairs, platform edges, rubbing boards, platform floors, steel columns and beams, mezzanine floor drainage, and track wall and ceiling tiles. Project efforts require modifying stairs, handrails, sidewalks, street curbs, and gates, as well as making structural repairs to steel columns and framing. The project will correct current water damaged tunnel walls, repair damaged columns and stairs, and reconstruct the platform edges. The firm's responsibilities on this task order include studying record drawings and structural condition surveys to determine if additional repairs are necessary. Phasing and staging plans for track outages and construction staging are focused on minimizing disruptions to operations and pedestrian movement.

Structural Engineering Director, MTA Capital Construction/LIRR East Side Access Sunnyside Station Train Washer Building, New York, NY. Led the design of a new 400-foot-long, multilevel train washing facility as part of multiple tasks included in the $10 billion project to extend Long Island Rail Road (LIRR) service to Manhattan's east side for the Metropolitan Transportation Authority (MTA). This facility will replace two existing train washers used by Amtrak and NJ TRANSIT trains, and features steel-braced and moment frames, as well as several building retaining walls to facilitate construction of the facility on the rapidly sloping site. Because of very tight site conditions, the massive washing tanks had to be located on a second story above the washer rather than the traditional adjacent position on grade. This location proved challenging for the lateral seismic forces in the short direction moment frames.

Christopher Cerino, P.E., SECB

Lead Structural Engineer, NYCT Replacement of 11 Hydraulic Elevators, New York, NY. Oversaw structural engineering services, including preliminary and final design, for the replacement-in-kind of 11 elevators at six subway stations throughout the boroughs of Manhattan, the Bronx, and Queens, NY, as part of an on-call design services agreement with NYCT. The firm designed new structures for the elevator guiderails, sills, and hoist beams, as well as modifications to existing structures as needed to accommodate the new components. In some cases, the team reinforced the current structures because of deterioration or other issues. Mr. Cerino and his team conducted extensive research regarding elevator casing and piston installation replacement, and provided recommendations on the design drawings. He also provided construction support services.

Constructability Reviewer, MSDC/PANYNJ Moynihan Station Development Phase I, New York, NY. Performed a structural and constructability peer review for the development of a new train hall in the James Farley Post Office Building in Midtown Manhattan that will connect Penn Station and Amtrak, NJ TRANSIT, Long Island Rail Road, and New York City Transit service. This major transportation hub is being built in two phases by the Moynihan Station Development Corporation (MSDC), in partnership with the Port Authority of New York and New Jersey (PANYNJ). The firm is managing the construction of entrances to Penn Station from the Farley Building and new vertical access points to the platforms, which improve passenger access to the west side of platforms for all railroads.

Structural Discipline Lead, NYCT New Stair Entrance from Grand Central Terminal to the Grand Central Subway Station, New York, NY. Directed the structural design for the $19.8 million station improvements to access Grand Central Subway Station from Grand Central Terminal in Midtown Manhattan. The project includes a new, 12-foot-wide stairway at 42nd Street and reconfiguration of the passenger service-control area at the Lexington Avenue line, as well as a secondary stair leading from the mezzanine to the IRT subway platform. The project area is part of a multilevel, below-grade subway structure beneath 42nd Street. Mr. Cerino led the precise determination of structural dimensions necessary to accommodate the limited project area clearance. The main-level stair penetrates the historic façade of the 42nd Street Concourse, creating a pathway between existing structural members while maintaining the operational upper-loop track.

Employment History

STV Incorporated, 2010 – Present; DeSimone Consulting Engineers, 1996 – 2010; Raytheon Engineers and Constructors, 1995 – 1996

Peter Dewes, P.E.

Constructability Review

Education

Bachelor of Science, Civil and Environmental Engineering; Clarkson College of Technology

Professional Registrations/Certifications

Professional Engineer: New Jersey

Relevant Experience

Mr. Dewes is a project manager and rail systems engineer with more than 40 years of experience in the development and design of railroads, yards, rail stations, corridor analyses, and other transportation projects. His expereince includes valuable insights gleaned from his role as STV's project manager for PANYNJ on the PATH to Newark Liberty Stage 1 Preliminary Design. In addition, Mr. Dewes' has management experience with new rail connections, restoration of service on existing lines, and electrification of former diesel-only service lines. He has extensive experience coordinating design and construction activities with active railroad operations. Mr. Dewes has worked with more than 50 federal, state, and local agencies and utility companies to obtain environmental, zoning, and relocation permits. He has also been responsible for developing right-of-way acquisition documents, overseeing transit facility improvements, providing construction services, preparing feasibility studies and due diligence investigations, testifying before planning boards, and performing community relations.

Representative Projects

STV Project Manager, PANYNJ PATH Extension to Newark Liberty International Airport Stage I Design Study, NJ and NY. Managed the operations analysis and studies with modeling simulations and cost estimates for the extension of PATH service from Pennsylvania Station to Newark Liberty International Airport in Newark, NJ, for the PANYNJ. The new connection would be made via an existing Northeast Corridor (NEC) station and would require 5 miles of new track, installation of a cut-and-cover tunnel with curved approach areas, new platform areas at the NEC station, and a new yard in the vicinity of the station to service the increased train traffic. Mr. Dewes also oversaw the conceptual design of the signal and communication systems and architecture modifications.

Project Manager, PANYNJ IQC for Federally Funded Hurricane Sandy Projects, NJ and NY. Managed multidisciplinary design services to restore and protect the PATH transit system in Northern New Jersey, under an indefinite quantity contract (IQC) that was part of a multibillion-dollar resiliency program undertaken by the PANYNJ following the devastation of Hurricane Sandy. The firm provided expertise with railroad and rail systems, electrical/electronics, architectural, structural, civil, geotechnical, environmental, traffic, HVAC, plumbing, and fire protection to address a wide range of vulnerabilities throughout the PATH system. Mr. Dewes oversaw both in-house staff and five subconsultants for the evaluation of flood protection options and preparation of condition assessment reports for 11 locations. He also guided the preparation of estimates and the investigation of environmental requirements and permitting, as well as provided advice on the grant process. Individual design tasks that Mr. Dewes oversaw included evaluating flood protection options at the Exchange Place, Newport, and Grove Street stations, along with the Harrison Car Maintenance Facility; studying the best option for constructing a new vehicle storage yard in Jersey City; developing concept

plans to extend and elevate tracks at the South Street Yard in Newark; preparing concept plans to raise tracks G and H between the Amtrak flyover and Hackensack Bridge; reviewing a report detailing construction options for a Ninth Street crossover in Manhattan; and developing conceptual designs to protect traction power and communication equipment at Substation No. 14 in the Harrison Yard. Additional tasks include studying how to implement intelligent transportation system applications to facilitate real-time information sharing between the many transportation entities in the New Jersey/New York metropolitan area.

Design Manager, CATS LYNX Blue Line Extension Light Rail Project, NC. Managed preliminary and final engineering for the system, facility, and station disciplines for this new 9.3-mile light rail transit (LRT) line from the central business district of Charlotte, NC, northeast to the University of North Carolina at Charlotte. This extension of the South Corridor LRT Line, which opened in 2007 as Charlotte's first major rapid transit line, will include 11 stations, two surface park-and-ride lots, two parking garages, the North Yard Maintenance Facility, and modifications to the existing Vehicle Maintenance Facility. Mr. Dewes was responsible for the design of the new North Yard maintenance facility, modifications to the existing vehicle maintenance facility, station platforms, garages, park-and-ride lots, and landscaping. He also coordinated design of the traction power, communications, signal, and overhead contact systems.

Manager - Project-Wide Tasks, MTACC/LIRR East Side Access, New York, NY. Supervised the control, budget, and coordination of project-wide tasks to support the development of the engineering contract documents for the $7 billion MTA Capital Construction (MTACC) project to link the Long Island Rail Road (LIRR) to Grand Central Terminal in Midtown Manhattan via the existing 63rd Street tunnel. Tasks included surveying, civil and site engineering, utility design, right-of-way and property acquisition, maintenance and protection of traffic during construction, development of design criteria, and standard and directive design drawings. Mr. Dewes coordinated with the Access to the Region's Core Tunnel engineering consultant, the systems engineering consultant, the project management consultant, subconsultants, New York City agencies, and utility companies. He also managed project-wide surveying.

Project Manager, NJ TRANSIT Metropark Construction Management, NJ. Provided railroad operations and railroad construction support services to the construction manager for the development of Metropark Station. Mr. Dewes supervised the review of site-specific construction work plans and procedures according to Amtrak operating and construction practices to determine contractor compliance. Mr. Dewes analyzed the positioning of cranes adjacent to the corridor, excavation in and adjacent to the embankment supporting the tracks, and compliance with Amtrak's work windows and train movement criteria for the NJ TRANSIT project.

Employment History

STV Incorporated, 2000 – Present; Edwards and Kelcey Inc., 1983 – 2000; RBA Associates, 1975 – 1983; Blauvelt Engineering, 1973 – 1975; New Jersey Department of Transportation, 1972 – 1973

Kristen Horvath, LEED® AP BD+C

Wayfinding

Education

BS, Mechanical Engineering, Stevens Institute of Technology

Professional Registrations/Certifications

Professional Engineer: New York; LEED Accredited Professional (AP) Building Design + Construction (BD+C)

Distinguishing Qualifications

- Experienced developing intuitive wayfinding signage for large airports that gives passengers more control over their journey; understands how well-executed wayfinding can support an improved airport level of service and enhance passenger satisfaction

Relevant Experience

Ms. Horvath is a designer, facility planner, and programmer with more than 15 years of experience in transportation and government projects. She has participated in multiple design projects and zoning evaluations for mixed-use facilities, and has worked with program development and documentation of sites for the Port Authority of New York and New Jersey (PANYNJ), New York State Historic Preservation Office (SHPO), U.S. Army Corps of Engineers (USACE), and New York City School Construction Authority (NYCSCA), among others. Ms. Horvath also has experience designing components of mass-transit systems, including canopies for bus and subway stops, and has worked with government entities across the United States.

Representative Projects

Designer, Massport Logan International Airport Wayfinding Program, Boston, MA. Prepared contract documents and reviewed shop drawings for new wayfinding signage at Logan International Airport in Boston. Ms. Horvath developed conceptual and preliminary design for signage at the Terminal C security checkpoint and the Terminal B garage for the Massachusetts Port Authority (Massport) project.

Senior Designer, Massport Airport Signage Standards and Guidelines, Boston, MA. Overseeing development of new signage standards and wayfinding guidelines for to be used by tenants and consultants in designing and implementing wayfinding signage systems at Massport airports. Included within the standard will be documentation on wayfinding analysis, graphics standards, typical sign faces, and construction and fabrication details for all typical sign types.

Designer, Massport Hanscom Field Identity and Entrance Signage, Boston, MA. Prepared concept through 60% design documents and reviewed shop drawings for identity and entrance signage at Hanscom Field in Bedford, MA. Hanscom Field is New England's largest general aviation facility, and the Hanscom Civil Air Terminal is one of the busiest in New England and home to two aviation flight schools. STV was engaged by Massport to provide field identity and entrance signs at several key locations along the approach roadway to the airfield to increase visibility and enhance its recognition to travelers.

Kristen Horvath, LEED®AP BD+C

Designer, LAWA LAX Ground Transportation Study, Los Angeles, CA. Developed concepts and documents for the planning of the Central Terminal Area (CTA) and off-CTA landside of the Central Terminal of Los Angeles International Airport (LAX) for Los Angeles World Airports (LAWA). Ms. Horvath's planning also included off-airport connections to regional transit and the state and local roadway network. Planning components include reconfiguration scenarios for CTA roadways and curbsides and the integration of an automated people mover system with CTA and off-CTA operations such as a proposed consolidated rental car facility, public parking, and a consolidated bus facility.

Designer, JetBlue Yellow Parking Garage Design-Build, Queens, NY. Developed contract documents and reviewed shop drawings for this new 1,500-space, 6-level parking garage on a 107,000-sf footprint with 650,000 sf of above-grade parking at JFK International Airport in Queens, NY. The $60 million garage serves JetBlue's Terminal 5 and connects to an existing AirTrain Station via a skywalk connection.

Architectural Designer, PANYNJ WTC Chiller Plant, New York, NY. Prepared design development drawings for the plant that will provide chilled water to the World Trade Center (WTC) Transportation Hub in Lower Manhattan. The plant is being designed to accommodate mechanical, electrical, and plumbing requirements and will be incorporated into the overall footprint of the National September 11 Memorial & Museum.

Designer, PANYNJ George Washington Bridge Bus Station Redevelopment, New York, NY. Prepared concept design for the redevelopment of the George Washington Bridge Bus Station in Upper Manhattan to consolidate the bus station function along with mechanical, electrical, and plumbing support spaces on the third level of the 2-building facility. Raw shell space is being developed on the first and second levels of both buildings for retail tenants. Ms. Horvath is also assisting with the preparation of construction documents.

Junior Designer, Metro-North Grand Central Terminal North End Access Improvements, New York, NY. Provided design amplification, prepared construction drawings, responded to requests for information, and provided construction support for this $65 million project to improve access to Grand Central Terminal in Midtown Manhattan. Specific items addressed in the project included the design of four new access points on 45th and 47th streets directly into the Grand Central platform area, two cross-passageways to allow passengers access between platforms, and provisions for disabled access at selected entrances.

Employment History

STV Incorporated, 1997 – Present

David Kirk, AIA, CCC, CCS, CVS-Life, LEED® AP

Value Engineer

Education

Master of Architecture; Columbia University School of Architecture and Urban Design
Bachelor of Arts, Math and Physics; Columbia College

Professional Registrations/Certifications

Registered Architect: New York; LEED Accredited Professional (AP); Certified Cost Consultant (CCC); Certified Value Specialist (CVS)-Life; Certified Construction Specifier (CCS)

Distinguishing Qualifications

- Worked for PANYNJ for 30+ years, and supervised, administrated, and facilitated the PANYNJ's Value Management Program
- Also served as former Manager of Design/Lead Architect for the AirTrain at Newark Liberty International Airport

Relevant Experience

Mr. Kirk is a risk and value engineering (VE) manager with more than 45 years of experience overseeing design, estimates, VE and risk analysis, and critical path method (CPM) scheduling for large-scale transportation and other facility projects in the New York metropolitan area. He has extensive experience in capital program construction for major transportation facilities, including airport terminal, airside, and landside facilities; tunnels and bridges; and automated transit/rail systems and mass transit facilities. Prior to joining STV, Mr. Kirk served as the Senior Project Controls, Cost, and Schedule Specialist for a project management oversight consulting (PMOC) contract at the Federal Transit Administration (FTA)'s Region II and Lower Manhattan Recovery Offices, which involved monitoring the transit and infrastructure aspects of all New York region FTA-funded transit projects and the World Trade Center (WTC) site redevelopment, including the overall project design and construction plans, quality processes and procedures, project controls, and risk management. In addition, Mr. Kirk brings experience from his 31-year career with the PANYNJ, where he held positions of increasing leadership in planning, design, estimating, and construction.

Representative Projects

Former Manager of Design/Lead Architect, PANYNJ Newark Liberty International Airport AirTrain System, Newark, NJ. Managed design for the $500 million Newark Liberty International Airport AirTrain system in Newark, NJ, and served as the lead architect/project manager for the seven on-airport monorail stations, from conceptual design to the preparation of final design contract documents. Mr. Kirk oversaw the preparation of the request for proposals and selection process for the design-build construction of the automated people mover (APM) system and maintenance facility, which resulted in the selection of the monorail design for integration with the PANYNJ's in-house overall APM master plan and design.

Former Value Analyst/Manager, PANYNJ Value Management Program, New York, NY. Supervised, administrated, and facilitated the PANYNJ's Value Management Program for many urban development, WTC, aviation, bridge and tunnel, and transit facilities in the New York and New Jersey region. Mr. Kirk

played a major role in creating the Value Management program to conduct value planning, VE, and risk assessment reviews of capital projects using multidisciplinary teams of outside experts, certified value specialist facilitators, and risk analysts. He was a leader, participant, or manager at numerous value analysis workshops for the PANYNJ's Office of the Deputy Executive Director for Capital Programs. Mr. Kirk pioneered the concept of integrating value management and risk management whereby risk mitigation is assessed in a VE workshop environment.

Former Manager of Projects, PANYNJ JFK International Airport Capital Construction Projects, Queens, NY. Supervised several engineering project managers involved in all capital construction for landside, airside, and terminal PANYNJ projects at JFK International Airport in Queens, NY. Projects managed by Mr. Kirk included the design and construction of the Crash-Fire-Rescue Police Facility, the conversion of the 500,000-sf Building 14 hanger/airline operations facility for adaptive reuse, a new general aviation facility, runways/taxiways, parking facilities, and upgrade of the FAA Building.

Former Manager of Projects, PANYNJ Newark Liberty International Airport Redevelopment Program Capital Construction Projects, Newark, NJ. Oversaw several engineering project managers involved in all capital construction projects, including the monorail systems, landside access, and parking facilities, as part of the multibillion-dollar Newark Liberty International Airport Redevelopment, Program.

Former Architectural/Engineering Project Manager, PANYNJ Newark Liberty International Airport Redevelopment Structural Parking Facility, Newark, NJ. Served as both the project manager and lead architect from the conceptual design phase to the preparation of contract documents for a $50 million PANYNJ structural parking facility adjacent to Terminal C at Newark Liberty International Airport.

Senior Project Controls, Cost, and Schedule Specialist, FTA Lower Manhattan Recovery Office PMO, New York, NY. Responsible for cost and schedule project controls and risk assessment oversight, as part of the team providing project management oversight (PMO) to the FTA Lower Manhattan Recovery Office for the $2.87 billion WTC Transportation Hub and the $550 million WTC Vehicle Security Center and Tour Bus Parking Facility. The Hub will provide direct connections to the PATH system and access to the New York City Transit (NYCT) Fulton Street Transit Center and numerous subway lines by way of the Dey Street concourse. Mr. Kirk monitored the transit and infrastructure aspects of the WTC site redevelopment, including the overall project design and construction plans, quality processes and procedures, project controls, and risk management. He also conducted VE workshops as requested by other national offices.

Value/Risk Analyst, NJ TRANSIT Broad Street Station Rehabilitation and Center Platform Installation Program, Newark, NJ. Led a major VE effort and conducted a risk assessment review for the $200 million rehabilitation of NJ TRANSIT's landmark Broad Street Station in Newark, NJ, and the complex construction of a passenger track underpass and new center platform on the NJ TRANSIT Main Line. The project involved the phased construction of railroad bridges at a higher elevation over Martin Luther King, Jr. Boulevard and the construction of the new center platform under operating conditions.

Employment History

STV Incorporated, 2008 – Present; Carter & Burgess, Inc., 2004 – 2008; Fluor Enterprises, Inc. - 2002 – 2004; PACO Group, Inc., 1996 – 2002; PANYNJ, 1965 – 1995

Ronald Lem, AIA

Architect

Education

Master of Science, Advanced Architectural Design; Columbia University
Bachelor of Architecture; Pratt Institute School of Architecture

Professional Registrations/Certifications

Registered Architect: New York; American Institute of Architects (AIA)

Distinguishing Qualifications

- Expertise developing phased, cost-effective solutions for improved access to APM systems and transit stations, including AirTrain JFK and other PANYNJ projects, and for internal/external station circulation will result in designs that provide more commuter-friendly facilities

Relevant Experience

Mr. Lem has more than 20 years of experience in architectural design, production, project administration, and construction management for a variety of construction projects. He has particular expertise in the design of transportation facilities, including rail stations for major light rail systems nationwide, as well as designs for military, office, commercial, residential, and institutional projects. Mr. Lem's background also includes participation in presentations and coordination efforts with clients, governmental officials, and the public, in addition to oversight and coordination of design staff.

Representative Projects

Lead Architect, PANYNJ AirTrain JFK DBOM, Queens, NY. Performed station design and systems coordination for the $1.3 billion light rail system design-build-operate-maintain project in Queens, NY. Mr. Lem coordinated client meetings and presentations, developed design solutions, and directed their implementation. He also organized the design staff and job consultants. The project entailed the design of 10 environmentally controlled, multistory train stations; an operations, maintenance, and storage facility; and miscellaneous industrial structures. The 8.4-mile light rail system connects John F. Kennedy International Airport terminals with car rental facilities, parking areas, and the New York City transportation network, including the Long Island Rail Road and the NYCT subway and bus systems. This high-security project involved special document controls.

Project Architect/Acting Design Manager, PANYNJ WTC Transportation Hub, New York, NY. Overseeing ongoing design and post-design services during construction of the World Trade Center (WTC) Transportation Hub in Lower Manhattan. Mr. Lem also coordinates with various other design teams and stakeholders abutting the site to facilitate overall design and construction activities. The Hub's substructure and super structure was topped-off in late 2014. Partial openings of the facility have since occurred, including the East West Concourse connecting the temporary PATH station to the World Financial Center. The facility is undergoing continued installation of finishes, vertical circulation elements, and preparation for the installation of exterior glazing and an operable oculus skylight. The high-profile, $4.3 billion complex also features extensive security safeguards. For his involvement on the project and contribution to other work performed on the WTC site, Mr. Lem received a Presidential Citation at the 2012 AIA convention.

Ronald Lem, AIA

Design Director, PANYNJ/NYCT AirTrain JFK Howard Beach Station, Queens, NY. Developed design and construction documents for a design-build intermodal light rail station in the Howard Beach section of Queens, NY, connecting the NYCT subway and bus system with the PANYNJ's $1.3 billion AirTrain JFK light rail system. Mr. Lem provided a design that employs the architectural vocabulary of an airport terminal, including an extensive use of glass to provide plenty of natural light, as directed by PANYNJ to provide aesthetic design consistency with the AirTrain system's primary Vertical Circulation Building in Jamaica. The materials and systems selected for the Howard Beach Station reflect life-cycle considerations. Therefore, the design made use of high-quality, durable items that could be easily maintained. Mr. Lem coordinated the design to meet all of NYCT's maintenance and operational requirements.

Senior Project Architect, NYCT Platform Screen Door Pilot Program, New York, NY. Assisted in the initial presentation to NYCT for the agency's Platform Screen Door Pilot Program on the L Line, connecting Brooklyn and Manhattan. Mr. Lem's design experience with the AirTrain JFK system, which features platform screen doors, made him particularly suitable for this effort. He investigated numerous transit systems in Asia, including Japan, China, Singapore and Taiwan, as a preliminary part of this program, identifying to identify existing systems where platform screen doors had been retrofitted to in-service transit systems, and to present the results of his research to NYCT. He is currently preparing for Task 2, conducting a field visit to the selected station(s), as well as meeting with the engineers of record and the system fabricator/supplier. The goal is to gather data from clients on the benefits and potential complications of various system types. Follow up tasks will include station documentation and preliminary design, design development, and contract document preparation.

Design Manager, NYCT Cortlandt Street Station Reconstruction, New York, NY. Directed design of the reconstruction of the NYCT Cortlandt Street Station on the No. 1 subway line in Lower Manhattan, a facility that has been out of service since sustaining heavy damage in the attacks of September 11, 2001. The project requires extensive coordination with ongoing construction at the nearby PANYNJ World Trade Center Transportation Hub. Mr. Lem lead the design effort for the station, and conducting design presentations with NYCT, the PANYNJ, and the New York City Department of City Planning. He has also prepared complete design criteria documents for the station. Unlike typical NYCT stations, the Cortlandt Street platforms will be air tempered and include smoke management systems in compliance with National Fire Protection Association (NFPA) 130, Standard for Fixed Guideway Transit and Passenger Rail Systems, utilizing two fan plants. The station will also feature realigned tracks set on vibration isolators. The design was heavily influenced by the need for complex construction sequencing in an extremely tight area.

Employment History

STV Incorporated, 2003 – Present; RDC Architects, Singapore, 1996 – 1998; MG Design International, 1995 – 1996; RC Architects, 1994 – 1995; Team-System Architects, 1992 – 1994

Thomas Lentz, CPP, PSP

Security

Education

Bachelor of Science, Biology and Equivalent Sports Medicine; State University of New York, Cortland

Professional Registrations/Certifications

Certified Protection Professional (CPP), Physical Security Professional (PSP); American Society for Industrial Security (ASIS)

TSI Transit Safety and Security Certified; U.S. Department of Transportation (USDOT)

Distinguishing Qualifications

- A security specialist experienced working with PANYNJ and transit agencies in the New York metro area, Thomas can provide input and options for consideration related to critical infrastructure protection strategies that enhance security to AirTrain's transit operations

Relevant Experience

Mr. Lentz is a senior security specialist with more than 15 years of experience evaluating and implementing physical security programs and related technologies for transit lines and facilities around the country. Certified in Transit Safety and Security through the U.S. Department of Transportation, he has provided assessments and analysis in support of Concept of Operations (ConOps) plans and various hardening strategies involving video surveillance and other remote monitoring systems. Mr. Lentz is adept at preparing comprehensive vulnerability assessments for ferry, bus, and rail stations; bus rapid transit, light rail transit, and commuter rail systems; bridges and roadways; port operations, including cruise line terminals; and control centers. Trained in executive protection, Mr. Lentz has provided risk management services that include preparing threat and site assessments and developing and implementing complete security plans, policies, and procedures.

Representative Projects

Physical Security Subject Matter Expert, PANYNJ WTC Site-Wide Operations Control Center, New York, NY. Evaluated the functions of the Site-Wide Operations Control Center, which will serve as the consolidated security center for the redeveloped World Trade Center (WTC) site in Lower Manhattan. The assessment was in support of the development of a ConOps document as part of the master security plan for PANYNJ. Mr. Lentz reviewed project documentation and provided input and options for consideration related to critical infrastructure protection strategies. He also compiled data relevant to the operational and technical requirements and specifications as they relate to each ConOps for the development of security components, including the Site Logistics Coordination Center, Vehicle Security Center, Transportation Hub Security Coordination Center, and Site-Wide Coordination Center.

Site and Security Specialist, PANYNJ Staten Island Bridges CCTV System Upgrade and Replacement, New York, NY. Performed site and security assessments to evaluate the CCTV and communications system used by the PANYNJ to monitor and secure the three Staten Island bridge crossings (the Bayonne Bridge, the Goethals Bridge, and the Outerbridge Crossing) between New Jersey and Staten Island, NY. These bridges combined handle 65 million vehicles annually. Mr. Lentz evaluated the current video system and assisted with defining operational and functional requirements.

Thomas Lentz, CPP, PSP

Physical Security Specialist, Amtrak Penn Station New York Gap Analysis, New York, NY. Conducted site surveys to determine camera placements and physical station hardening strategies for improvements to Amtrak's Penn Station control center in Midtown Manhattan, including establishment of a video surveillance system for indoor and tunnel locations. Mr. Lentz performed detailed site surveys and attended meetings with Amtrak personnel and facility stakeholders. He assisted in systems engineering to develop functional requirements and establish the design for the video and remote monitoring system, which was included in the design package detailing IP-based security solutions.

Senior Security Specialist, DHS Mass Transit Technical Assistance Program, Nationwide. Provided threat, vulnerability, impact, and needs assessments for various public transportation organizations throughout the nation for the Department of Homeland Security (DHS) Office of Grants and Training (G&T). The assessments involved state, city, and regional agencies. Mr. Lentz used the G&T Transit Risk Assessment Module to assess operations, assets, and vulnerabilities for hundreds of bridges, transit stations, maintenance yards, bus systems, and control centers. Upon completion of the review and analysis, he led the development of draft and final reports that provided recommendations to enhance security to transit operations against weapons of mass destruction. Mr. Lentz was responsible for coordinating with executives from each agency to make sure that all work was performed to the agency's standards. The transportation agencies included Amtrak, NJ TRANSIT, Caltrans, the Bay Area Rapid Transit District (BART), San Francisco Municipal Railway, the Memphis Area Transit Authority, the Southern Florida Regional Transportation Authority, the Jacksonville Transit Authority, the Chicago Transit Authority, the Port of Los Angeles, the Port of Long Beach, and the Metropolitan Transportation District of Oregon.

Technical Lead/Safety and Security Specialist, ConnDOT NHHS Rail Corridor Program Management, CT. Preparing a system safety program plan (SSPP), preliminary hazard analysis (PHA), and threat and vulnerability assessment (TVA) for ConnDOT's program to expand intercity and high-speed rail service in the 62-mile New Haven-Hartford-Springfield (NHHS) rail corridor. The $647 million program includes 38.7 miles of new second track, new passing sidings and interlockings, bridge improvements, signal system upgrades, positive train control implementation, preliminary station layouts, and at-grade crossing improvements. For the PHA and TVA effort, Mr. Lentz has identified and systematically assessed hazardous conditions, threats, and vulnerabilities that could potentially affect the safe and secure operation of the system elements from preliminary engineering through operational phases. He also identified design, engineering, and safety-security mitigation options and prepared recommendations to reduce overall risk. Mr. Lentz is completing the SSPP to support system safety and comply with FTA and American Public Transportation Association requirements.

Employment History

STV Incorporated, 2008 – Present; Science Applications International Corporation (SAIC), 2004 – 2008; Parsons Brinckerhoff Homeland Security, 2003 – 2004; U.S. Secret Service, 1997 – 2003; New York State Police, 1997; Keil Equipment Company, 1995 – 1997; Finnish Line Fitness, 1993 – 1995; U.S. Army, 1985 - 1989

Molly MacQueen, LEED® AP

Environmental Assessment/Permitting

Education

Master of City Planning, University of Pennsylvania
Bachelor of Arts, Urban Studies, Wheaton College

Professional Registrations/Certifications

LEED Accredited Professional (AP)

Distinguishing Qualifications

- Molly's experience leading the preparation of environmental documents for large transit and rail projects nationwide provides her the understanding of approval requirements and processes needed to develop environmental documents that receive timely approval from the various federal, state, and local review agencies, which will help keep the AirTrain Newark project on schedule.

Relevant Experience

Ms. MacQueen has more than 30 years of experience with a wide range of environmental analyses, land-use and zoning studies, development projects in the New York metropolitan area, and the preparation of compliance documents that meet NEPA criteria. Her experience includes directing the evaluation of Environmental Impact Statements (EISs) and Environmental Assessments (EAs) and permitting for transportation facilities, including FTA- and FRA funded projects. Ms. MacQueen is an experienced multidisciplinary team leader, and has applied this experience in the development of master plans, and design charettes leading to a locally preferred alternative. Ms. MacQueen's experience also includes evaluations prepared under state-level NEPA guidance in California, Connecticut, Maryland, Massachusetts, and the Pacific Northwest.

Representative Projects

Project Director, PANYNJ Cross Harbor Freight Movement Program, NJ and NY. Directing the day-to-day management of the joint venture partnership and subconsultants for this major freight movement study and Tier I EIS for PANYNJ. The NEPA Tier I EIS is evaluating alternatives to improve the movement of goods in the New York/New Jersey region through consideration of different options to improve crossings of New York Harbor.

NEPA Advisor, FRA High-Speed Rolling Stock Engineering Support Services, Pacific Northwest. Assisting FRA and acting as adjunct staff for the evaluation of NEPA documents prepared in support of the disbursement of grants for the High-Speed Intercity Passenger Rail program in the Pacific Northwest. Ms. MacQueen is also directing the applicant Washington State Department of Transportation in the preparation of environmental documentation in compliance with FRA requirements for 13 NEPA documents (CatEx and EAs) for the Pacific Northwest Rail Corridor. Ms. MacQueen also evaluated the conformity of the NEPA EA with grant agreements' statements of work for the West Vancouver Freight Access Improvement project.

Technical Lead for Environmental Compliance, RCTC Perris Valley Line, Perris, CA. Led environmental investigations to support the proposed 20-mile extension of commuter rail service along the San

Jacinto Branch Line between Perris and Riverside, CA. The project received funding under the FTA Small Starts program. Ms. MacQueen led a team of professionals in a NEPA EA and an Environmental Impact Report (EIR) under the California Environmental Quality Act. Included in her work was consultation with Native American tribes along the corridor as well as coordination with the cities of Riverside and Perris.

Environmental Discipline Lead, CHSRA Los Angeles-to-Anaheim Section EIR/EIS, CA. Directed a team of environmental planners in the preparation of the NEPA- and California Environmental Quality Act-compliant EIR/EIS for the California High-Speed Rail Authority for the 22-mile Los Angeles-to-Anaheim section of a planned high-speed rail line. Ms. MacQueen's team considered alternatives, including a dedicated high-speed track or locating service within the Los Angeles-to-San Diego corridor and sharing track segments with other passenger and freight operators. She also guided permit applications for the USACE under Sections 408 and 404 of the Clean Water Act, focusing on river crossings, and recommended a streamlined procedure for permit development between two separate HST sections.

NEPA Lead, MTA BWI/Amtrak Station Fourth Main Line Track Improvements, Baltimore, MD. Directed the preparation of a NEPA EA for the proposed replacement and expansion of the Amtrak/MARC rail station at Baltimore/Washington International (BWI) Thurgood Marshall Airport and the addition of 9 miles of fourth track. Ms. MacQueen met regularly with MTA and Amtrak to provide project reporting for the FRA, and she and her team met with several Maryland resource agencies to address sensitive water and cultural resources in the corridor. She also instituted an interdisciplinary design review between the NEPA and engineering teams to provide an informal setting to address environmental issues and make sure that impact avoidance was integrated with project design. Simultaneously, the environmental team was kept fully informed of operational requirements, such as track speeds and resultant curve requirements, which could result in environmental impacts requiring mitigation. The approach established by Ms. MacQueen was effective in keeping the entire project team informed and the MTA's directors aware of issues. In turn, the MTA was able to keep the FRA fully informed as the NEPA process and preliminary engineering advanced.

Project Manager, PANYNJ North Avenue Improvements Review, Elizabeth, NJ. Led the consideration of NEPA review options for a suite of improvements being considered to the North Avenue corridor in Elizabeth, NJ, as a subconsultant for PANYNJ, to consider improvements to ease truck congestion near Newark Liberty International Airport and Port Elizabeth. The analysis included an evaluation of project segmentation issues, a determination of independent utility for each project, and a recommendation of which type of NEPA document would be required for each of the three proposed projects.

Environmental Lead, Amtrak Washington Terminal Yard Master Plan, Washington, DC. Contributing to the existing conditions report and analysis as part of a 2-phase program to guide design and construction efforts over the next 15 years at the Amtrak Washington Terminal Yard. The firm is conducting a comprehensive study of the existing layover/maintenance facility and service operations and developing plans to address projected increases in the number and frequency of train movements, train lengths, and layover and servicing requirements.

Employment History

STV Incorporated, 2000 – Present; Molly MacQueen Planning and Environmental Review, 1998 – 2000; Wall & Associates, 1993 – 1998; New York State Urban Development Corporation, 1984 – 1993

Patrick O'Mara, P.E., PTOE

Traffic Engineering

Education

Master of Science, Civil Engineering, University of Connecticut
Bachelor of Science, Civil Engineering, Manhattan College

Professional Registrations/Certifications

Professional Engineer: New Jersey; Professional Traffic Operations Engineer (PTOE), Transportation Professional Certification Board

Distinguishing Qualifications

- Experienced solving airport landside access issues from recent work at JFK
- Understands pedestrian flow in transit stations from his work at the WTC Transportation Hub and California High Speed Rail Authority program

Relevant Experience

Mr. O'Mara is a transportation engineer, task leader, and project manager with nearly 20 years of experience managing and conducting traffic engineering, transit planning, and pedestrian circulation and mobility studies for a variety of transportation projects. His expertise includes traffic impact analyses, traffic signal pre-emtpion at highway-rail grade crossings, and pedestrian studies for both station planning and on-street safety and capacity projects. Mr. O'Mara is adept at using pedestrian simulation modeling to evaluate emergency egress scenarios in high-traffic locations and analyzing evacuation times and alternate scenarios in coordination with the client. He has performed detailed work on major projects, such as the Metropolitan Transportation Authority Capital Construction/Long Island Rail Road East Side Access and the PANYNJ World Trade Center Transportation Hub.

Representative Projects

Senior Transportation Engineer, PANYNJ WTC Transportation Hub, New York, NY. Performed pedestrian flow analyses for the design of the new PATH Terminal within the newly redesigned WTC site. His tasks included examining and validating computer simulations of pedestrian flows, and sizing/locating individual pedestrian circulation elements within the terminal to efficiently process pedestrians while maintaining the structural and architectural design needs. He was responsible for QA/QC for the computer simulation modeling of pedestrian flows, configuring street access points, assessing the potential for significant conflicts associated with crossing pedestrian flows, and evaluating emergency egress scenarios. He prepared the Final Engineering pedestrian analysis report, responded to PANYNJ comments, and updated the report based on new redesigns. He examined the influence of construction staging activities on pedestrian movement and terminal egress times, and met with the developer regarding the pedestrian space needs at the tower lobbies within the Hub.

Deputy Project Manager, NYCEDC JFK International Airport Access, Queens, NY. Managed a study to evaluate corridor management and capacity expansion strategies to assist the PANYNJ, NYCDOT, and NYSDOT in the development of policy to improve the movement of passengers and goods to and from JFK International Airport in Queens, NY. He was responsible for the coordination of obtaining and evaluating existing plans, data, and preferred access alternatives from multiple agency stakeholders to

identify viable short- and long-term improvement initiatives. He led the evaluation of six short-term alternatives, such as ramp closures/metering, roadside travel-time information, and a pilot program on the Belt Parkway to allow small commercial vehicles. He presented study findings to stakeholders' executives. He also completed the Categorical Exclusion documentation for a Van Wyck Expressway ramp closure pilot program and received approval from FHWA. The travel-time information sign to JFK that was installed at the Whitestone Bridge is a product of this study.

Pedestrian Task Leader, CHSRA Los Angeles-to-Anaheim Project EIR/EIS, CA. Prepared the pedestrian sections of the Station Needs Assessment report for the four proposed stations along the 45-mile Los Angeles-to-Anaheim segment of the statewide high-speed rail (HSR) system for the California High-Speed Rail Authority (CHSRA). For each station, Mr. O'Mara documented existing station characteristics/operations and provided a description of general station needs to accommodate future HSR service. These pedestrian assessments included sizing of platforms and ticketing, waiting, and baggage claim areas; identifying vertical circulation and emergency egress requirements; and recommending general pedestrian circulation/intermodal connection needs. He reviewed static and dynamic pedestrian simulation modeling analyses, examined on-site traffic circulation, and recommended off-site parking facilities for proposed designs of the Anaheim Regional Transportation Intermodal Center. Mr. O'Mara also prepared the basis of design report for station facility requirements and has performed technical and formatting QA/QC review of the Transportation Impacts Report for the Los Angeles-Anaheim HSR segment. Most recently, he has performed NFPA 130 emergency egress analyses for preliminary designs of the Anaheim, Los Angeles, and Norwalk stations.

Senior Engineer, SFMTA Central Subway Design Review, San Francisco, CA. Reviewed the Evaluation of Station Exiting and Operational Capacity Report for the Moscone, Market Street, and Chinatown stations in San Francisco, for the San Francisco Municipal Transportation Agency. He was responsible for examining pedestrian emergency egress analyses as per NFPA 130 and California Building Code; reviewing station egress times during normal operations; and recommending preferred evaluation criteria for determining sufficient platform exiting, faregate, and vertical circulation capacity.

Senior Engineer, Houston METRO Houston Intermodal Terminal, Houston, TX. Performed pedestrian flow analyses for the design of the new Houston Intermodal Terminal, which would serve commuter rail, bus, LRT and BRT services. Mr. O'Mara identified locations within the Terminal that may experience pedestrian congestion and proposed design recommendations to improve pedestrian flow conditions. The analyses were unique in that pedestrian movements through the Colonnade, or main circular concourse, would be interrupted on a regular basis by crossing LRT trains.

Traffic Engineer, Philadelphia 30th Street Station Circulation Study, Philadelphia, PA. Examined taxi operations around 30th Street Station in Philadelphia, to resolve traffic operation issues and improve vehicular and pedestrian circulation. Mr. O'Mara was responsible for performing an accident analysis for the station area and conducting pedestrian counts and observations both inside the station and on the street. Based on these data collection effort and analysis, he identified existing taxi conflict areas, high accident locations, and pedestrian crossings operating at a poor level of service.

Employment History

STV Incorporated, 2003 – Present; Eng-Wong, Taub & Associates, 1996 – 2002

James Perise, P.E., LEED® AP BD+C

Plumbing Engineer – Facilities

Education

Bachelor of Science, Mechanical Engineering; Stevens Institute of Technology

Professional Registrations/Certifications

Professional Engineer: New York; LEED Accredited Professional (AP) Building Design + Construction (BD+C)

Distinguishing Qualifications

- Designs efficient and effective plumbing and fire protection system for transit stations and maintenance facilities, as well as specialized systems to address industrial drainage issues in shop areas, such as oil-water separators, trainwashers with a built-in reclamation system, and potable and non-potable water outlets; fire protection systems include standard wet, as well as specialized dry fire sprinkler systems that use the FM-200 chemical fire protection agent in sensitive electronic areas

Relevant Experience

Mr. Perise has more than 15 years of experience in the design and project management of advanced plumbing, fire protection, and mechanical systems for transportation facilities. Mr. Perise's expertise covers all aspects of design, code analysis, system selection, life-safety systems review, and construction phase services. With his specific interest in energy and resource conservation, Mr. Perise focuses on incorporating sustainability into his designs and has helped projects achieve LEED certification.

Representative Projects

Chief Plumbing and Fire Protection Engineer, NJDPMC CRRNJ MEP Restoration, Jersey City, NJ. Managing the designs of plumbing and fire protection systems at the Central Railroad of New Jersey Terminal (CRRNJ) in Jersey City, NJ, for the New Jersey Division of Property Management and Construction (DPMC). The terminal sustained significant damage from Hurricane Sandy and most of the terminal's MEP equipment was damaged. Mr. Perise is responsible for onsite condition assessments and the preparation of plans to replace plumbing systems at the terminal. He is working closely with the client and engineering disciplines to coordinate the restoration of this facility.

Lead Plumbing and Fire Protection Engineer, PANYNJ George Washington Bridge Bus Station Redevelopment, New York, NY. Reviewing the plumbing and fire protection design for the $152 million redevelopment of the 294,000-sf George Washington Bridge Bus Station in Upper Manhattan for the PANYNJ. The project entails designing 120,000 sf of new retail space and a new open-air, roof-level bus concourse with five additional bus gates. Mr. Perise is working with PANYNJ and the developer to design upgraded plumbing systems for the retail and bus concourse spaces, including drainage stormwater, sanitary and vent, gas, cold and hot water, and sprinkler systems.

Lead Plumbing and Fire Protection Engineer, NYCT JFK, LGA, and Baisley Park Bus Depots Fire Protection System Upgrades, New York, NY. Supervising the design and installation of new fire protection systems at three New York City bus depots, under a task-order contract with New York City

Transit (NYCT) to improve facilities. Mr. Perise is providing quality review of the new fire protection systems capable of preserving life and property at John F. Kennedy International Airport, LaGuardia Airport, and the Baisley Park bus depots. He is also providing construction administration services for the projects.

Task Manager/Lead Plumbing Engineer, PANYNJ Repair and Rehabilitation Resiliency Projects at the Holland and Lincoln Tunnels, New York, NY. Overseeing mechanical, electrical, and structural engineering services for the assessment and replacement of pumping systems and components, as well as structural and fire protection elements, at the Holland and Lincoln tunnels, for the PANYNJ. Mr. Perise is supervising the assessment for required repairs to the tunnel pumps, as well as the issue of flood resiliency. He is also conducting an evaluation of the fire standpipe system to identify piping and components requiring replacement due to damage caused by Hurricane Sandy to these critical highway tunnels connecting New Jersey and Manhattan.

Mechanical Engineer/Plumbing, LIRR Rolling Stock Support Equipment Task-Order Contract, Port Jefferson, NY. Supervised and implemented plumbing designs for various projects at Long Island Rail Road (LIRR) maintenance facilities as part of a task-order contract with the LIRR Equipment Engineering Department. Mr. Perise was responsible for the plumbing designs on the Port Jefferson Yard oil/water separator replacement and carbon filtration system task. He sized the oil/water separator and coordinated with the equipment manufacturers to develop the design details, drawings, and specifications for the oil/water separator and the carbon filtration system.

Lead Mechanical Engineer, Amtrak Investigation of Hurricane Sandy Storm Surge and Yard Flooding, New York, NY. Oversaw mechanical engineering services for an assessment study of damage incurred by the Hurricane Sandy storm surge to Amtrak facilities in the New York metropolitan area. Mr. Perise and the project team developed recommendations that included reconstruction of Substation 41 in Kearny, NJ, at a flood-resistant elevation; installation of flood-resistant hatches and bulkheads at vulnerable ventilation buildings and pump rooms; enhancements to emergency power systems; improvements to the water resistance of pumps as well as power and control systems; and installation of real-time water level detection systems. Additional recommendations included preventive measures for backflows from existing drainage systems, rehabilitation of six floodgates protecting New York Pennsylvania Station, and modifications to the East River Tunnels' Long Island City portals to resist the revised design flood level. He also prepared cost estimates for all recommended repairs and improvements.

Employment History

STV Incorporated, 2012 – Present; WSP Flack + Kurtz2006 – 2012; MGJ Associates, 2005 – 2006; Flack + Kurtz, Inc., 1997 - 2005

John Pizzi, P.E., D.GE

Geotechnical Engineering/Tunneling

Education

Master of Science in Civil Engineering, Geotechnical Engineering; New Jersey Institute of Technology
Bachelor of Engineering, Civil Engineering; Stevens Institute of Technology

Professional Registrations/Certifications

Professional Engineer: New Jersey;
Diplomate, Geotechnical Engineering (D.GE);
Member, American Society of Civil Engineers (M.ASCE)

Relevant Experience

Mr. Pizzi is a supervising geotechnical engineer with more than 35 years of experience on a variety of bridge, retaining wall, and transportation facility projects in the New York metro area. His responsibilities have included developing and executing subsurface exploration programs; administering and supervising boring contracts; performing geotechnical studies and analyses; and producing geotechnical reports for roadway, retaining wall, bridge, and building foundations. Mr. Pizzi's structural engineering experience has encompassed the analysis and design of highway and railroad bridge structures, including preparation of final contract plans, specifications and estimates (PS&E), and review of shop drawings. His seismic engineering experience includes investigations and studies related to preliminary seismic engineering, including soil and foundation behavior under seismic loading, foundation stiffness evaluations, soil-structure interaction, and liquefaction potential evaluation.

Representative Projects

Project Manager/Geotechnical Engineer, PANYNJ SIR North Connection to the Conrail Chemical Coast Line, NJ and NY. Responsible for the $30 million design of a new rail link connecting the existing Staten Island Railway (SIR) timber trestle facility just west of the Arthur Kill Lift Bridge to the existing at-grade Conrail Chemical Coast Line facility to the west in Port Elizabeth, NJ. The project included new rail lines on embankment and structures, modifications of the existing bridge conveying vehicular traffic on Bayway Avenue near Conrail, partial modification and rehabilitation of the existing steel trestle approach to the Arthur Kill Lift Bridge, multiple grade separation structures, utility relocations, and appurtenances. Mr. Pizzi was responsible for preparation of preliminary and final design plans and complete contract documents for construction of the new railroad connection.

Geotechnical Engineer, PANYNJ GWB Palisades Interstate Parkway Helix Ramp Replacement, Fort Lee, NJ. Reviewed the subsurface investigation and foundation design for three bridges that will replace the Palisades Interstate Parkway (PIP) Helix ramp at the George Washington Bridge (GWB) in Fort Lee, NJ, part of a $350 million program for PANYNJ. The design calls for converting the three bridges that make up the ramp: a 5-span tangent bridge crossing over I-95; a 3-span curved bridge crossing over Hudson Terrace; and a 2-span curved bridge crossing over the eastbound approach to the lower level of the GWB. Mr. Pizzi reviewed design criteria, the foundation plans designed by PANYNJ, and foundation drawings and specification prepared by subconsultants.

John Pizzi, P.E., D.GE

Senior Geotechnical Engineer, PANYNJ Outerbridge Crossing Main Span Pier Protection System, NJ and NY. Providing the geotechnical evaluation and analysis for a fender system replacement design for the main piers of the Outerbridge Crossing, a cantilever bridge between Perth Amboy, NJ, and Staten Island, NY, as part of a security task-order contract with the PANYNJ. The design contains security measures for the main span piers that encompass a range of hazards, including vessel collisions and terrorist attacks. Mr. Pizzi is analyzing the fender system deep foundation elements for behavior under extreme lateral loading conditions. He is also preparing geotechnical input parameters for the structural model of the vessel collision protection system.

Senior Geotechnical Engineer, NJ TRANSIT Portal Bridge Capacity Enhancement, NJ. Performed a geotechnical review of the 100% final engineering plans and specifications for the $1.3 billion Portal Bridge Capacity Enhancement project, which will replace the outdated Portal Bridge crossing the Hackensack River at Secaucus and Kearny, NJ, with a new, 3-track fixed bridge. The bridge serves as a major link along the Northeast Corridor and will eliminate the bottleneck along a section of track carrying commuter trains from Northern New Jersey to Manhattan. Mr. Pizzi provided comments that were addressed by the designers.

Supervising Geotechnical Engineer, NJ TRANSIT Access to the Region's Core Project, NJ and NY. Oversaw the geotechnical analysis and design for the preliminary, extended preliminary, and final design phases of the $8.7 billion NJ TRANSIT Access to the Region's Core tunnel project. The tunnel would have been the second Hudson River rail tunnel, augmenting the capacity of the 100-year-old tunnel to New York Pennsylvania Station. Mr. Pizzi worked on the New Jersey surface alignments for a new underground station in Manhattan at 34th Street and Broadway. He was responsible for geotechnical engineering investigations, studies, analyses, and foundation recommendations. Mr. Pizzi designed subsurface investigation programs, reviewed and evaluated subsurface and laboratory data, and analyzed and designed railroad bridge foundations, retaining walls, embankments over soft soils, and excavation support systems.

Lead Geotechnical Engineer, NJDOT Route 52 Causeway-Somers Point Bridge, NJ. Prepared the project geotechnical report and monitored preliminary and final geotechnical design for a $200 million, 2.2-mile-long segmental concrete causeway, which replaced four bridges on Route 52 in Somers Point and Ocean City, NJ. Mr. Pizzi planned and executed the subsurface exploration program, and geotechnical studies and analyses relating to structure and roadway foundations, earth retaining structures, liquefaction potential, and soil-structure interaction under seismic loading.

Lead Geotechnical Engineer, NJDOT Route 36 Bridge Replacement over the Shrewsbury River, NJ. Planned and executed the subsurface exploration program for a new high-level, fixed bridge that was constructed off-line to replace a bascule bridge in Monmouth County, NJ. Mr. Pizzi prepared geotechnical studies and analyses relating to structure and roadway foundations, earth retaining structures, liquefaction potential, and soil-structure interaction under seismic loading. He also prepared the project geotechnical report. The bridge replacement included approach roadways that consisted of four, 12-foot-wide lanes; two, 8-foot-wide shoulder/bike lanes; two, 8-foot-wide sidewalks; and an 8.75-foot-wide median.

Employment History

STV Incorporated, 2006 – Present; Hardesty & Hanover, LLP, 1978 – 2006

Vincent Poon

Building Information Modeling (BIM)/CADD

Education

Bachelor of Architecture; University of Buffalo

Distinguishing Qualifications

- Knows how to manage, coordinate, and integrate the entire BIM process between the design team and general contractor. He will use his BIM expertise gained from such projects as the New York City Police Training Academy to manage the BIM process and deliver PANYNJ a unique digital product that facilitates high quality design, construction, and system management.

Relevant Experience

Mr. Poon has more than 15 years of experience in architectural design and more than 10 years of experience specializing in BIM for a wide range of high-profile projects across the United States and around the world. He provides direction and strategic leadership to the firm's BIM effort, and is highly skilled at developing BIM execution plans as well as establishing methodologies and best practices for design-technology integration to produce multi-discipline, coordinated models. Mr. Poon is adept at 3-D digital modeling and 2-D CAD, and has implemented and delivered basic to advanced training in CAD and BIM. He has developed unique and innovative techniques using a variety of digital design tools, and brings a depth of knowledge regarding advanced computational and performance base design optimization capabilities in Revit. Mr. Poon has provided customized training in Revit Architecture on projects up to 6.2 million sf, and has directed the implementation of BIM in preconstruction and construction phases on projects ranging from 250,000 sf to 12 million sf.

Representative Projects

Architectural Designer, PANYNJ Electronic Tolling at New York-to-New Jersey Bridges and Tunnels, New York, NY. Providing final design of an $88 million design-build project to implement all-electronic tolling at all bridges and tunnels between New York and New Jersey operated by the PANYNJ. The project entails installation of electronic toll collection systems on four bridges and two tunnels, removal of 14 toll booths, full-depth reconstruction of concrete approach lanes, repairs to toll booth structures and tunnel roofs, curb replacement, and creation of two new express open road tolling zones for future use.

BIM Designer, ConnDOT Bradley International Airport New Terminal B Complex Program and Design, Windsor Locks, CT. Oversaw BIM development for the $574.5 million design of the new Terminal B complex at Bradley International Airport, in Windsor Locks, CT. The program includes a 19-gate domestic and international terminal; landside arrivals and elevated departure roadways, a multi-level consolidated rental car facility and parking garage, two elevated pedestrian connectors linking the terminal to the garage, and a central utility plant.

CAD Manager, MWAA Dulles International Airport Tier 2 Midfield Concourse, VA. Developed CAD standards and drawings for the new Tier 2 Midfield Concourse at the Washington Dulles International Airport for the Metropolitan Washington Airports Authority (MWAA). Mr. Poon also coordinated with the client and implemented productivity enhancement tools and techniques for the design team. The

new concourse replaced Concourse C/D to accommodate a hub for United Airlines and Star Alliance. The new 4,000' x 140' terminal included 22 narrow-body and 22 wide-body gates to serve domestic and international flights.

BIM Manager/Trainer, NYCDDC New York City Police Training Academy CM, Queens, NY. Guided basic to intermediate training in the use of Revit and advanced parametric modeling techniques for the custom exterior wall system for the design-bid-build of a new police training academy on a 35-acre site in Queens, NY. The $656 million Phase I of the New York City Department of Design and Construction (NYCDDC) project includes a 349,000-sf academic building, a 205,796-sf physical training facility, and a 124,949-sf central utility plant. Phase II is expected to include firing ranges, a tactical village for urban training, and other elements. The project is LEED® registered with a goal of Silver certification. Mr. Poon also provided BIM consultation for the project, which links the Primavera P6 critical path method schedule with Revit to produce a 4-D time-phased presentation of the 3-D construction build out. Navisworks Manage is being used for 4-D/5-D graphic scheduling management, phasing presentations, and BIM coordination for this high-profile project.

BIM Designer, SUNY University of Albany School of Business Building, Albany, NY. Managed the BIM implementation planning for the design of this new 2-story, 96,000-sf building on the SUNY campus in Albany, NY. The 2-story concourse links various business programs within the building, and the trading lab adjacent to the main entry. Other features include technologically advanced classrooms and meeting spaces, breakout rooms for team projects, expanded space for career services, student reception areas, and collaborative research centers, graduate assistant workspace, and a café with an outdoor garden. The $16 million project is intended to earn LEED® certification. Mr. Poon supported the design team to develop a coordinated, multidiscipline model, and resolved technical BIM questions.

BIM Manager, NYSOGS South Beach Psychiatric Center Emergency Response and New Central Services Building, Staten Island, NY. Provided oversight of BIM efforts during the fast-track design-build of a new 47,000-sf Central Services Building at the South Beach Psychiatric Center in Staten Island, NY, for the New York State Office of General Services (NYSOGS). The $41 million facility houses core functions previously located in the basement of the existing Building 8/9, which includes the kitchen, maintenance and warehouse facilities, emergency generator, boilers, air handling systems, chillers, and main loading dock. All of these systems were severely affected by flooding during Hurricane Sandy. The new facility, designed to meet a 500-year flood level, is set at a substantially higher and safer elevation. Mr. Poon helped the design team strategize BIM efforts to aid in the coordination of activities among MEP disciplines and invested stakeholders to ensure that the project schedule was maintained, and to avoid cost overruns. He created work plans, coordinated with the project manager to develop effective schedules, and performed clash detection analyses and QA for building models. Mr. Poon also produced construction documents and assisted with contract documentation.

Employment History

STV Incorporated, 2011 – Present; Perkins+Will, 2009 – 2011; New Jersey Institute of Technology, 2008 – 2009; Kohn Pedersen Fox, 2003 – 2008; Gensler, 2001 – 2003; Stephen Lepp Associates, 1997 – 2001; Frank Hall Design Associates, 1997 - 2002

Christopher Sawyer

Sustainable Design

Education

Bachelor of Arts, Environmental Engineering, State University of New York at Plattsburgh

Distinguishing Qualifications

- Experience with PANYNJ Sustainability Guidelines and LEED design criteria
- Expertise designing high performance buildings and in life cycle costing will deliver cost effective, functionally optimized sustainable solutions for the replacement of AirTrain Newark

Relevant Experience

Mr. Sawyer has applied technical control and production expertise to architecture, engineering, and site specifications for numerous PANYNJ projects in the New York metro area for more than 15 years. He has written and developed specifications and assembled project manuals for design development and construction documents phases, prepared addenda, and provided field assistance during bidding phases and construction contract administration. With a special interest in sustainability, Mr. Sawyer incorporates green design into construction documents and office master specifications and when selecting materials, products, and systems for projects. He has lectured on sustainability at The Bernard and Anne Spitzer School of Architecture at The City College of New York, and on material innovation and construction at the Columbia University Graduate School of Architecture, Planning, and Preservation. He teaches Certified Construction Specifier courses for the Construction Specifications Institute, of which he is an active member.

Representative Projects

Project Manager, PANYNJ On-Call Architectural Engineering Services, New York, NY. Overseeing a multidisciplinary team of engineers for mechanical, electrical, and plumbing engineering services for an on-call contract with the PANYNJ. Most of the projects involve mechanical system upgrades at the Port Authority Bus Terminal in Midtown Manhattan, with additional projects at JFK International Airport, Newark-Liberty International Airport, George Washington Bridge Bus Station, the Lincoln Tunnel, and the Journal Square PATH station. Mr. Sawyer is working extensively with PANYNJ and maintaining all project schedules and budgets. So far, more than 100 tasks have been issued for various assessment and design projects. Representative projects include bird nettings, seismic upgrades, retail development assessments, plumbing and piping condition surveys, ceiling repairs, and garage exhaust systems.

Specifications and Sustainable Design Manager, NYCT Mother Clara Hale Bus Depot Design-Build, New York, NY. Wrote, edited, reviewed, and coordinated architectural specifications and drawings for this $225 million, LEED Gold certified bus depot terminal in Manhattan's Harlem neighborhood. Originally a trolley barn built in the late 1800s, the existing facility has been modified and rehabilitated twice to serve as a bus depot. New York City Transit (NYCT) is replacing the depot with a new 3-story, 390,000-sf, environmentally friendly building that will accommodate 150 buses. Sustainable design features include a 50,000-gallon rainwater collection system that reduces water use by one million

gallons a year, and a passive heating panel on the south façade that allows air to be pulled in and preheated in the space between the façade and exterior masonry.

Specifications and Sustainable Design Coordinator, PANYNJ George Washington Bridge Bus Station Redevelopment, New York, NY. Developed specifications and responsible for plans, and programs to achieve the sustainability goals set by the PANYNJ for the $152 million redevelopment of the George Washington Bridge Bus Station in Upper Manhattan. The extensive, multidisciplinary rehabilitation project will enhance the physical presence of this significant historic structure, which serves more than 7.4 million bus passengers, annually, and consolidate and improve interstate bus operations.

Specifications and Sustainable Design Manager, PANYNJ WTC Chiller Plant, New York, NY. Wrote and developed specifications for the construction of the new central chiller plant at the World Trade Center (WTC) site in Lower Manhattan. The plant will supply all WTC facilities. Mr. Sawyer also examined ways to make the facility more sustainable, and recommended using high-recycled-content steel and concrete and installing sensors to control lighting. He also evaluated construction documents to determine the extent of compliance with LEED® criteria and PANYNJ Sustainability Guidelines.

Specifications and LEED Coordinator, DASNY Bronx Psychiatric Center Campus Redevelopment, New York, NY. Wrote and developed architectural specifications and coordinated sustainability design and construction efforts for the consolidation of the 180,000-sf Bronx Psychiatric Center campus in the Bronx, NY. The new campus will provide state-of-the-art mental health facilities consistent with the Campus Master Plan. Mr. Sawyer focused on guiding the Dormitory Authority of the State of New York (DASNY) project to achieve LEED Silver-level certification. Sustainable design features included enhanced groundwater infiltration using bio-swales, bio-retention areas, and underground storage facilities; a stormwater treatment system to treat runoff from the large parking area; native plants for landscaping; and site lighting designed with minimum illumination levels to reduce light pollution.

Specifications and LEED Manager, USACE USMA Preparatory School Design-Build, West Point, NY. Wrote and developed the project manual and specifications for the $107 million relocation of the U.S. Military Academy (USMA) Preparatory School to new campus facilities in West Point, NY. Mr. Sawyer also oversaw sustainable design and construction efforts for the U.S. Army Corps of Engineers (USACE) project, which achieved LEED Gold certification. To improve energy performance, Mr. Sawyer specified energy-efficient systems, automatic controls, lighting and temperature controls in cadet rooms, and sun shades on the eastern façade. Water conservation techniques include high-efficiency fixtures within the barracks, use of a cistern to capture stormwater for irrigation, and selection of low-water native landscaping species. In addition, a construction phase recycling program and measures to control indoor air quality during construction were developed.

Employment History

STV Incorporated, 2009 – Present; HLW International LLP, 2007 – 2009; Peter Marino Architect PLLC, 2006 – 2007; Polshek Partnership Architects LLP, 1998 – 2006; Asymptote, 2000 – 2001; Pei Cobb Freed & Partners Architects LLP, 1996 – 1998

Steven P. Scalici, P.E.

Passenger Flow & Queuing Modeling Analysis/ Traffic Modeling

Education

MS, Management Science, Polytechnic Institute of New York University
MS, Transportation Planning and Engineering, Polytechnic Institute of New York University
BS, Civil Engineering, Polytechnic Institute of New York University

Professional Registrations/Certifications

Professional Engineer: New York, New Jersey, Connecticut and 5 other states

Distinguishing Qualifications

- Led the passenger flow analyses at all light rail stations for the AirTrain JFK; will use this experience to model pedestrian movements for AirTrain Newark to provide a positive passenger experience and ease customer anxiety and frustrations
- Understands how to minimize passenger congestion and provide a more comfortable transition for passengers from one mode of transportation to the next

Relevant Experience

Mr. Scalici has more than 30 years of experience in transportation planning, traffic engineering, and transit and pedestrian planning projects. He is knowledgeable about the National Fire Protection Association (NFPA) 130 Standards for Fixed Guideway Transit and Passenger Rail Systems, which allows transportation analysts to examine the transit terminal and platform configurations in order to meet the NFPA's time standards for emergency evacuations of pedestrians. Mr. Scalici has also written and co-authored several publications, including "Assessing Pedestrian Circulation in Emergency Conditions." In this co-authored publication, he simplified the complex guidelines to make them more accessible to transportation engineers. Mr. Scalici has performed detailed work with NFPA 130 guidelines on major projects, such as the East Side Access project and AirTrain JFK International Airport light rail system. In addition, he is skilled at assessing pedestrian environments, both existing and planned, to identify potential problem areas and recommend measures that will improve conditions.

Representative Projects

Task Manager for Pedestrian Studies, PANYNJ AirTrain JFK DBOM, Queens, NY. Led the passenger flow analyses at all light rail stations for this $1.3 billion PANYNJ DBOM project connecting JFK International Airport with the LIRR Jamaica Station. He was responsible for station planning for emergency conditions during peak-load scenarios. The analyses used NFPA station evacuation guidelines to evaluate station circulation elements, including the platforms, stairwells and escalators, and doorway thresholds, accounting for the presence of baggage carts, short-train headways, dual-train arrivals, and train loadings based on AW-2 near-capacity loading conditions.

Senior Transportation Analyst, PANYNJ WTC Transportation Hub, New York, NY. Managing pedestrian and traffic flow studies for the design of the new PATH rail connection into a newly redesigned WTC site in Lower Manhattan. He determined O/D pairs as input to computer simulation of pedestrian flows, sized individual pedestrian circulation elements within the terminal and how they function as a system within the structure, configured street access points; assessed potential for

significant conflicts associated with crossing pedestrian flows, and evaluated conditions during time-specific emergency incidents. He wrote two chapters of the Basis of Design Manual, examined pedestrian flow needs during construction phases, and participated in value engineer sessions for the PANYNJ project. He tested a number of platform configurations to achieve the shortest clearance times under normal and emergency conditions. For the 6-level vertical circulation bank connecting the PATH and NYCT terminals, he assessed numerous stair and escalator configurations to minimize pedestrian conflicts. He also examined pedestrian flow needs during construction phases.

Task Leader, PANYNJ LaGuardia Airport Pedestrian Flow Study, Queens, NY. Led the examination of pedestrian flows in the Central Terminal Building (CTB) for a marketing study of retail uses at LaGuardia Airport in Queens, NY. A key element of the study involved tracing people's movements and creating pedestrian "flow trees," or diagrams of how people move through the CTB and where they stop to shop or continue along their path.

Senior Transportation Engineer, City of Ottawa Confederation LRT, Canada. Oversaw the analyses of pedestrian flow studies for the design of the new Ottawa LRT into the city's downtown core. The $2.1 billion project involves converting a 7.8-mile bus transitway to an LRT system. O/D pairs were givens as input to computer simulation of pedestrian flows, sized individual pedestrian circulation elements within the terminal and how they function as a system within the structure, configured street access points, and assessed potential for significant conflicts associated with crossing pedestrian flow. He is overseeing reviews and guidance to Ottawa with respect to all stations' normal operating LOS analyses and the detailed passenger modeling analyses for the construction consultant team.

Traffic and Passenger Flow Task Leader, LIRR East Side Access, New York, NY. For all studies, Mr. Scalici was responsible for street-level traffic and pedestrian impact analyses in the Grand Central Terminal (GCT) area, design of platform and stairwell elements for normal and NFPA emergency conditions, and detailed pedestrian level-of-service analyses throughout the complex, including linkages to and from the Lexington Avenue subway and the 42nd Street Shuttle. He worked closely with the systems engineering design team to evaluate subsequent alternative terminal designs and their passenger flow impacts. More recently, he has tested the effect on pedestrian levels of service of closing street connections from Madison Concourse, and identifying the ability of GCT to clear all pedestrian flows versus available passageway capacity to the street. He also led the effort to create a pedestrian simulation model of the project's new Madison Concourse and the existing Grand Central North passageway, and examined the effect on pedestrian flow of possible access changes within the entire GCT-East Side Access complex. He oversaw the pedestrian simulation scenarios to help the MTA understand how the introduction of LIRR riders into GCT will affect pedestrian conditions and operations in GCT and test potential changes to the connection between Madison Concourse, GCT, and the subways. The model also examined the installation and location of fare card touchless validators in the East Side Access's Madison Concourse so these devices do not affect passing pedestrian flows.

Employment History

STV Incorporated, 2002 – Present; Eng-Wong, Taub & Associates, 1990 – 2002; Parsons Brinckerhoff, 1980 – 1990; John J. Kassner & Associates, 1979 - 1980

Brandon Swartley, P.E.

Traction Power Substation

Education

Master of Science, Electrical Engineering (Power Systems); Drexel University
Bachelor of Science, Electrical Engineering (Power Systems); Drexel University

Professional Registrations/Certifications

Professional Engineer: New Jersey

Distinguishing Qualifications

- Having served as Lead Traction Power Engineer for transit projects nationwide, Brandon understands current industry standards and best practices that can help optimize AirTrain's power systems, based on experience with other transit agencies using similar traction power systems

Relevant Experience

Mr. Swartley is an electrical power systems engineer with in-depth knowledge of traction power system design for rail systems. He has more than 20 years of experience preparing power system studies, analyses, simulations, specifications, design packages, and test plans for AC and DC power systems. Mr. Swartley is also experienced in electric utility and nuclear power plant design and has prepared power system studies for high-voltage transmission, power plant distribution, and traction power systems using a variety of software programs. Mr. Swartley directs and executes power system studies, design project deliverables, procurement and installation, and testing for AC and DC electrified railway systems.

Representative Projects

Project Manager/Lead Traction Power Engineer, PANYNJ PATH Traction Power System Study, NJ and NY. Oversaw preparation of a PATH DC traction power load flow study for the PANYNJ. The study analyzed more frequent train service, longer train sets, and the use of new PA-5 vehicles with more powerful traction motors. Mr. Swartley simulated the infrastructure and electrification models for the 650 V DC and third rail system using RAILSIM software. He also analyzed the benefit of wayside energy storage systems.

Senior Traction Power Engineer, PANYNJ PATH Substation 8 Replacement, Kearney, NJ. Prepared electrical design criteria and installation sequencing drawings for construction of a new traction power PATH substation. This substation consisted of two 2 MW, 12-pulse rectifiers, 38 kV AC switchgear, 750 V dc switchgear, and all associated auxiliary systems. Mr. Swartley was responsible for the conceptual design and layout of all electrical equipment, including equipment dimensions and ratings.

Project Manager/Lead Traction Power Engineer, Amtrak Metuchen Frequency Converter Project, Edison, NJ. Led preparation of the design-build contract specifications and 30% preliminary engineering drawings for the Amtrak Metuchen frequency converter in Edison, NJ. Mr. Swartley provided technical oversight of a multidisciplinary engineering team. He prepared an evaluation of motor-generator and static frequency converter technologies for the 60 MW upgrade of new 25 Hz frequency converter capacity at Amtrak's Metuchen Station. The evaluation compared the available power conversion equipment and all associated auxiliary systems, including harmonic filtering, cooling,

transformers, switchgear, protective relaying, and control systems. Mr. Swartley prepared all system studies, including 60 Hz and 25 Hz load flow, short-circuit, and harmonic calculations using PSS/E and EMTP. He also led the initial utility company interface activities for the main and auxiliary power supply connections. During the construction phase, he responded to requests for information regarding the design criteria and requirements and provided reviews of all final design submittals.

Lead Power Systems Engineer, MWAA Phase II Extension to Dulles Airport/Route 772 Rail Yard and Maintenance Facility, VA. Directed preparation of the electrical engineering and power distribution design for the Route 772 Rail Yard and Maintenance Facility, a large railyard and maintenance complex, for the Metropolitan Washington Airports Authority (MWAA), in cooperation with the Washington Metropolitan Area Transit Authority (WMATA). Mr. Swartley led the electrical engineering team designing a 34.5 kV underground distribution system from the utility interface to two traction power substations, including a 34.5 kV and 480 V distribution system that connects to the service and inspection, warehouse, maintenance of way, transportation and police, train wash, and vehicle storage buildings. He also led the design of two 9 MW traction power substations and all supporting traction power systems, including feeders and connections to the third rail, negative return, jumpers, sectionalizing, and contact rail heating systems to support a yard sized to store 228 vehicles. Mr. Swartley directed the RAILSIM load flow model preparation and simulations for sizing all traction power equipment, integrating operations. He was responsible for all power system analysis, including cable sizing, short-circuit, and protective relaying studies.

Lead Traction Power Engineer, LIRR Hicksville Station Improvements and North Track Siding, NY. Led preparation of a traction power load flow study for the Long Island Rail Road (LIRR) Hicksville Station. The study required building an infrastructure model, electrification model, and operating plan for the existing conditions and proposed modifications. For M8 vehicles, Mr. Swartley prepared tractive effort, braking, and efficiency curves. He directed simulations using RAILSIM software. The report documented normal and substation outage conditions to determine vehicle operating voltages, substation and feeder loading, and rail-to-earth voltages. He also provided recommendations for system improvements.

Project Manager/Lead Traction Power Engineer, Amtrak 25 Hz System Acela Load Flow Study. Prepared a traction power load flow study on Amtrak's 25 Hz system to determine the power demand and resulting electrical system operation for Years 2014 and 2018. Amtrak used the study results to determine the adequacy of the existing transmission, distribution, and generation equipment within the 25 Hz network. The study was required due to the projected increase in the number and type of Acela trains and the replacement of the HHP-8 and AEM7 locomotives with Siemens ACS-64 Sprinters. Mr. Swartley used RAILSIM software to calculate train performance along the Northeast Corridor and PSS/E software to simulate the 25 Hz electrical system.

Employment History

STV Incorporated, 2015 – Present; SYSTRA Consulting, Inc., 2008 – 2015; PSEG Nuclear, LLC, 2004 – 2008; Stone and Webster, 1994 – 2004; Delmarva Power, Substation Design and Protective Relaying, 1993; Atlantic Electric, Transmission, and Distribution Planning, 1991 – 1992; Adels, Evans, and Associates, 1989 – 1991

Fred Tamayo, P.E.

Electrical Engineer – Facilities

Education

BS, Electrical Engineering, Rensselaer Polytechnic Institute

Professional Registrations/Certifications

Professional Engineer: New Jersey

Distinguishing Qualifications

- Fred has served in supervisory roles for commuter rail and transit agencies throughout the New York metro area, including Former Engineering Manager—Power Division, for Metro-North Railroad, and brings a results-oriented approach that recognizes operations and constructability issues from a client's perspective, such as the importance of minimizing disruptions to ongoing operations by developing phasing plans to maintain electrical service during construction

Relevant Experience

Mr. Tamayo is a seasoned electrical engineer with more than 25 years of experience in project management and electrical engineering design for various types of transit facilities in the New York metropolitan area. Prior to joining STV, Mr. Tamayo served in supervisory roles for MTA's commuter rail and transit agencies, during which time he gained direct experience developing design for substations, overhead and underground distribution systems, station design, electrical distribution rooms, and emergency lighting systems in tunnels and stairwells. He has also directed the design of electrical systems for building infrastructure, campus distribution, master plans, and the adaptive reuse of existing facilities. In addition, Mr. Tamayo has experience guiding MEP design for new construction and renovation projects, developing infrastructure studies for complex facilities, and providing design for low- and medium-voltage systems and central utility plants.

Representative Projects

Chief Electrical Engineer, PANYNJ Newark Liberty International Airport Terminal B Fourth Electrical Substation, Newark, NJ. Supervising engineering services to provide a new electrical substation and associated distribution at Newark Liberty International Airport in Newark, NJ. The substation will help support loads for new aircraft ground power units and preconditioned air, as well as future Satellite B1 conversion for international usage. The PANYNJ project consists of the development of a centrally located substation sized to support future loads based on first contingency redundant design. The substation will also have 1,000-kW back-up emergency power capability through the installation of a new diesel-driven generator. Mr. Tamayo is coordinating the electrical design with the firm's project architect and other engineering disciplines to integrate staging and phasing for the modification and upgrade of the airport's power system while providing continuity of service to the terminal during construction and cut over.

Lead Electrical Engineer, NYCT Architectural and Engineering Design for the Repair of 12 Circuit Breaker Houses, New York, NY. Led field surveys to document electrical equipment and identify potential areas of water infiltration for the investigation and design of repair work for 12 circuit breaker houses that were severely damaged by Hurricane Sandy. The 12 facilities, located in Queens,

Brooklyn, and the Bronx, NY, house important equipment for the operation of the subway system, including DC breakers, circuit breakers, terminal test boxes, telephone and communications equipment, copper bus ducts, wiring, battery switch boxes, and lighting and heating systems. The firm is preparing the assessment of damage and scope of work development for each of the 12 houses, which have similar but unique conditions, in addition to developing the design implementation, contract documents, and construction support services. Mr. Tamayo also directed an analysis for maintaining active traction power while hardening the substation. This entailed analysis of the existing track circuits and traction power distribution of the affected circuit breaker house.

Lead Electrical Engineer, NYCT 17 Fan Plants and Adjacent Tunnel Flood Mitigation, New York, NY. Directed the electrical team that performed field surveys to document electrical equipment and identify potential areas for water infiltration at 17 fan plants in Lower Manhattan, Queens, and Brooklyn for the New York City Transit (NYCT) system. The electrical distribution equipment sustained significant damage during Hurricane Sandy. The firm provided all engineering and architectural services for the repair of the fan plants, emergency exits, and vents, and developed staging logistics and construction bid documents for 17 construction packages. Mr. Tamayo led the identification of possible infiltration areas, including duct bank systems and manholes, and the development of both short-term and long-term mitigation plans to harden electrical equipment.

Former Engineering Manager - Power Division, Metro-North Railroad, NY and CT. Managed the design office, including design and drafting functions, for Metro-North Railroad maintenance and construction efforts in New York and Connecticut. The office provided design for infrastructure and operating capital projects, including medium-voltage and low-voltage distribution, control circuits, and programmable logic controller programming. Mr. Tamayo directed design and drafting work, verified drawing corrections based on field inspections, coordinated design activities with chief power directors, directed and supervised activities of engineers and designers, and prepared annual budgets.

Former Administrative Project Manager, New York City Transit, New York, NY. Oversaw the replacement of positive and negative cables for traction power and modifications to contact rail, as well as installation of dewatering pumps, construction of fan chambers with a programmable logic controller-based control, and rehabilitation of electrical distribution rooms throughout New York City. Mr. Tamayo also calculated voltage drops, developed schematic diagrams, enhanced design guidelines and standard specifications, and designed combined power, lighting, and communication systems for various train stations, including one-line diagrams.

Employment History

STV Incorporated, 2012 – Present; Bard, Rao + Athanas Consulting Engineers, 2006 – 2012; Syska Hennessy Group, 2005 – 2006; Schoor DePalma Engineers and Consultants, 2001 – 2005; Metropolitan Transportation Authority, 1994 – 2001; New York City Department of General Services, 1987 – 1994; New York City Department of Finance, 1987

Donald Yue, P.E.

Site/Civil Engineer

Education

Master of Science, Civil Engineering; Columbia University
Bachelor of Science, Civil Engineering; Columbia University

Professional Registrations/Certifications

Professional Engineer: New Jersey

Distinguishing Qualifications

- As Chief Civil Engineer for the AirTrain JFK, understands track design issues including horizontal and vertical alignment, as well as the importance of facilitating traffic flow and safety during construction of LRT guideway for Automated People Mover systems

Relevant Experience

Mr. Yue is a Principal Civil Engineer and Engineering Chief in STV's New York City office with 40 years of civil engineering and management experience in the design and construction of complex utility relocation projects for rail and transportation projects. An expert in utilities and related site design, he is familiar with construction for the protection and proper layout of electrical, water, sewer, gas, and communications utilities. Mr. Yue is adept at coordinating utility design and construction with all related design and construction elements, including site development, track geometry, alignment, right-of-way, and rail facilities, including stations, shops, and yards. His background also includes planning and implementing extensive maintenance and protection of traffic plans for utility relocation in dense urban areas.

Representative Projects

Chief Civil Engineer/Utility Coordinator, PANYNJ AirTrain JFK DBOM, Queens, NY. Directed civil design for the $1.3 billion light rail transit (LRT) system linking JFK International Airport's nine passenger terminals to the New York City transportation network. This design, build, operate, maintain (DBOM) project required early accelerated design decisions to establish cost-effective parameters that would also permit refinements during final design to meet the aggressive schedule. Under this framework, Mr. Yue directed and coordinated all civil design efforts, including track design involving horizontal and vertical alignments for the 8.4-mile system, and extensive interface with the NYSDOT for the widening of the Van Wyck Expressway to facilitate traffic flow and safety during the LRT guideway construction. He oversaw roadway alignment for access roads in the maintenance yards, as well as distribution roads for the airport. He oversaw the ramp realignment for the Van Wyck Expressway, as well. Mr. Yue directed the redesign of traffic signals at several intersections along the alignment and modification of street lighting along the Van Wyck Expressway, in airport parking lots, and along airport roads where required. His civil design responsibilities also covered surveys and mapping, roadway clearance interface, utility interface, utility clearances, and development of maintenance of traffic plans for the busy airport traffic and overcrowded expressways connected to the airport. Mr. Yue oversaw the development of a new drainage system design for the system's maintenance yard, incorporating 9,000 feet of piping with a watershed of 12 acres. The project also involved up to 3,000 utility relocations on airport property alone.

Donald Yue, P.E.

Civil Group Manager, PANYNJ WTC Transportation Hub, New York, NY. Overseeing civil site design for the $3.2 billion World Trade Center (WTC) Transportation Hub, an integral part of the reconstruction of the 16-acre WTC site and revitalization of Lower Manhattan. The 2-million-sf intermodal hub, whose acclaimed design is by renowned architect Santiago Calatrava, will link PATH service, 11 subway lines, the Battery Park City Ferry Terminal, the World Financial Center, the National September 11 Memorial and Museum at the WTC, and One World Trade Center. Underground pedestrian concourses will serve 10 million sf of commercial development in five office towers and more than 400,000 sf of retail development. Mr. Yue directs the Hub plaza design to interface with the remapping of city streets and utilities, and the utility relocation design to allow for the construction of multilevel concourses below grade. He also manages the maintenance and protection of traffic (MPT) design, including the analysis of vehicular access and maneuvering, in coordination with NYSDOT and NYCDOT. Mr. Yue's civil responsibilities include surveys and mapping, foundation drainage system design, interdisciplinary coordination for utility service connections and permits, and meetings with stakeholders to develop a harmonious interface. He is also supervising design modifications, managing permitting issues, and providing construction support services.

Lead Civil Engineer, PANYNJ Cortlandt Street Station Reconstruction Final Design, New York, NY. Performing site utility design for the reconstruction of the Cortlandt Street Station in Lower Manhattan, a No. 1 Line subway station that was devastated in the September 11 terrorist attacks. The design ties the station into the Transportation Hub and other buildings at the 16-acre World Trade Center site. Mr. Yue directs the placement of transformer vaults inside an existing basement, a task that entails extensive coordination with the building owner, PANYNJ, Con Edison, New York City Transit, and various other city agencies to address legal, technical, and operational issues. When the project is completed, the transformers will supply the electricity needed to operate the station's building systems. Mr. Yue oversees the survey, site design, staging, and traffic management design for the project, and conducts interdisciplinary and third-party coordination.

Chief Civil Engineer, NJ Transit ARC Tunnel Project, NJ and NY. Directed the civil final design for the $8.7 billion Access to the Region's Core (ARC) Tunnel, which consisted of a new 9-mile long commuter rail connection between Secaucus, NJ, and Midtown Manhattan, via new rail tunnels under the Palisades, Hudson River, and midtown Manhattan. Mr. Yue oversaw the survey mapping, design of track alignments, site construction, grading and drainage, utility relocations, infrastructure coordination, construction easements, and maintenance and protection of rail, vehicular, and pedestrian traffic. Extensive interactive third-party coordination was conducted to stage utility relocations and traffic lane shifts around open cut construction zones in busy 34th Street while channeling the highly congested pedestrian flow to Penn Station and flagship retail stores. He was also responsible for managing production of civil drawings and specifications for contract bid packages and integrating QA/QC activities, as well as interfacing with the client and third-party entities.

Employment History

STV Incorporated, 1973 – Present

Joel Stahmer, PE

Structural Blast Analysis Engineer

EDUCATION

BE, Civil Engineering (with highest honors), Pratt Institute/1988

BA, Economics, University of Hawaii/1974

BA, Psychology, University of Hawaii/1974

PROFESSIONAL REGISTRATIONS

Professional Engineer: NY, NJ, VA, MD, MA, PA, FL, Puerto Rico

PROFESSIONAL MEMBERSHIPS

American Society of Civil Engineers

American Institute of Steel Construction

PUBLICATIONS

"Construction of the Dulles Aerotrain System" presented to the 13th International APM/AT Conference, 2011 – Co-Author

"Atlantic City Expressway Widening—Thru Girder Replacement" presented to the International Bridge Conference, 2004

"Failure of the 300'-Diameter Radio Telescope" presented to the 13th Annual Structures Conference of the American Society of Civil Engineers, 1989

EMPLOYMENT HISTORY

Years with firm:	27
Total Years:	27

EXPERIENCE SUMMARY

Joel is an innovative, highly proficient structural engineer specializing in aviation. His portfolio encompasses new design, expansion/renovation and adaptive reuse – particularly for terminals but also including baggage, parking, people-mover and maintenance facilities. He has extensive experience in the application of both proprietary and commercial software for the analysis of linear and non-linear structures with static and dynamic loads and has gained specific expertise in the design, analysis and investigation of structures for blast, seismic and other dynamic loadings. In addition to his tenure at Ammann & Whitney, Joel was an assistant professorship at Pratt Institute, teaching advanced structural analysis and design.

RELEVANT EXPERIENCE

MWAA, Main Terminal Aerotrain Station, Dulles International Airport, VA: Lead Structural Engineer for preliminary design and principal-in-charge of construction administration for a new $388 million, 147,000sf underground automated people-mover station. Located between the main terminal and the control tower, design involved deep underground construction, extensive protection and underpinning of existing foundations and phased demolition and reconstruction of existing structures, including reconstruction of the south finger on top of the station. Analysis for effects of a suitcase-borne threat for the portions of the station adjacent to the baggage handling equipment and spaces was also provided.

MWAA, Concourse C East Aerotrain Station, Dulles International Airport, VA: Lead Structural Engineer for a new, 320,000sf, $131 million underground people-mover station. The below-grade, multi-level station is nearly 800' long, 250' wide and over 50' deep. The station structure was designed to allow future construction of the Tier 2 concourse without disruption to operation of the station. The main southern portion of the station is located under future apron areas and will support loading from Group V aircraft (Boeing 747). The unique roof structure features a 4ft-thick, two-way slab with bonded post-tensioning tendons. The station structure included design of interface structures with the precast TBM tunnels extending from the north end of the site and with existing cut and cover tunnel boxes at the south end of the site.

JetBlue Airways, Terminal 5/5i, JFK International Airport, NY: Structural Project Manager responsible for a new 625,000sf terminal and subsequent 150,000sf expansion, including elevated, precast, concrete roadway. Total construction value $675 million. The new terminal connects to JFK's landmark TWA international terminal, AirTrain and a parking garage. The JetBlue terminal was built on an existing apron that encompasses a myriad of utilities

underneath. This required careful planning to enable maintenance of all ongoing airport operations during construction. Also, the connection to the TWA terminal required consideration of the existing building's landmark status. To meet the security needs of current air travel, a major component of the project was to assist the baggage consultant in designing a custom tailored space for in-line baggage screening with sufficient capacity to handle the 26 gates. Design was completed on a very aggressive 14-month schedule. Multiple construction packages were prepared, including demolition, foundations, structural steel and fit-out.

Confidential Client, Confidential Project, Northeast, USA: Lead Structural Engineer for new design and renovation of a state-of-the-art research facility at a major airport in the northeast to investigate the detection of explosive compounds. Joel led explosive siting analysis and full structural design services. The project is structured as a multi-phase design and construction effort with additional facilities being designed and constructed to meet evolving client requirements. The first phase, currently under construction, will provide a 13,000sf addition that will accommodate office and non-hardened laboratory spaces and four laboratories that are designed to shield the office areas and adjacent laboratory spaces from an accidental explosion in one of the hardened facilities. Two of the laboratories are designed for large quantities of high explosives. Design includes provisions to add up to four additional high explosive laboratories.

MBTA, Blue Line Airport Station, Boston, MA: Structural Engineer for design of the new MBTA Airport Station on the Blue Line. Construction staging was critical because the new facility is located on existing tracks that remained operational during construction. The project included design of 10,000sf of new track platforms, 20,000sf of main concourse with fare collection systems, equipment rooms, pedestrian bridge for platform cross-connection, 500ft truss canopy over a bus drop-off area, and demolition of the existing station. Exterior concourse walls are curved glass curtain walls spanning 40ft from ground level.

MBTA, Community College Station Orange Line Pedestrian Bridge, Charlestown, MA: Structural Engineer for design and coordination of a new elevator and pedestrian bridge. The project included design of a 113ft enclosed truss pedestrian bridge over the tracks connecting the existing station concourse to two new elevator towers, facilitating handicapped access to train platforms. Underpinning of the existing platforms and roof canopies was required. Extensive coordination was required with new Central Artery viaducts being constructed overhead. Construction staging was critical to maintain service during construction.

University of Pennsylvania, Pedestrian Bridge, Philadelphia, PA: Project Manager for the design of an award-winning 110ft pedestrian bridge over Amtrak and SEPTA tracks. The project included evaluation of various alternatives, utility and railroad coordination and civil and structural design.

Regional Commuter Terminal, Philadelphia International Airport, PA: Lead Structural Engineer for design of a new $26 million, 38-gate regional commuter terminal. Engineering services included developing schematic through final design and construction documents and construction support for a new terminal and elevated pedestrian bridge. The enclosed pedestrian bridge connects the new terminal to existing terminals. The terminal was designed and constructed on a fast-track basis (28 months from notice-to-proceed to useful occupancy). The terminal includes a passenger ticket lobby, passenger movement areas, security check-points, hold rooms, baggage claim area, baggage handling facilities, concessions and other passenger amenities, airline club, airside shuttle bus lounge, airline operations area and ticket office space.

CAMBRIDGE SYSTEMATICS
Transportation leadership you can trust.

ANURAG KOMANDURI

DEMAND MODELING & ANALYSIS

FIRM

Cambridge Systematics, Inc.

TOTAL YEARS OF EXPERIENCE

8

YEARS OF ROLE SPECIFIC EXPERIENCE

8

EDUCATION

M.S., 2006, Transportation Engineering, University of South Florida

B. Tech, 2004, Civil Engineering, Indian Institute of Technology, Madras

Anurag Komanduri is an Associate of Cambridge Systematics as a Travel Demand Forecaster with more than eight years of experience in the areas of travel demand forecasting, transportation economics, transportation engineering, statistical analysis, and geographic information systems (GIS). Mr. Komanduri has been a part of various travel data collection efforts for clients, including the Port Authority of New York and New Jersey, the New York Metropolitan Transportation Council, the Southern California Association of Governments, the Ohio Department of Transportation, and the East-West Gateway Council of Governments. His studies have led to new transit services, as well as the restructuring of existing services.

Prior to joining Cambridge Systematics, Mr. Komanduri served as a Graduate Research Assistant at the University of South Florida's Center for Urban Transportation Research, where he participated in a number of transit projects. Mr. Komanduri received a Master's degree in Transportation Engineering from the University of South Florida and a Bachelor's degree in Civil Engineering from the Indian Institute of Technology, Madras.

RELEVANT PROJECT EXPERIENCE

Port Authority of New York and New Jersey, PANYNJ All-Electronic Toll Feasibility – Market Analysis, NY/NJ Area

For PANYNJ, Cambridge Systematics developed a preliminary understanding of customer responses to "all electronic tolling" in terms of the potential increase in E-ZPass utilization and estimates of remaining non-E-ZPass customers that will choose to switch to video tolling. Mr. Komanduri supported the choice modeling efforts that developed base measures of E-ZPass penetration under different business scenarios, including the price differential between E-ZPass and video transactions, the method of payment and ease of payment for video transactions, and video account options.

New York Metropolitan Transportation Council, NYMTC Establishment Survey, NY/NJ Area

For the New York Metropolitan Transportation Council (NYMTC), Cambridge Systematics, as part of a team, is conducting establishment surveys, commercial vehicles surveys and visitor surveys. The data collected from this survey will be used to enhance the granularity of the regional activity-based and commercial vehicle models; and to develop a new visitor model. Mr. Komanduri serves as the technical lead for Cambridge Systematics and is responsible for delivering a detailed data needs assessment and quality assurance and quality control plan. Additionally, once the survey data have been collected, Mr. Komanduri also will oversee the development of expansion weights and the development of a web-based data sharing platform.

Port Authority of New York and New Jersey, PANYNJ Cross Harbor Freight Movement, NY/NJ Area

For the Port Authority of New York and New Jersey (PANYNJ), Cambridge Systematics, as part of a joint venture, provided multidisciplinary services for the Cross Harbor Freight Movement Program. The program focused on developing an Environmental Impact Statement (EIS) for project alternatives designed to improve freight movement to, from, and through New York City and the northern New Jersey region. Mr. Komanduri served

as Deputy Project Manager for this project, and led the qualitative and quantitative market research efforts that helped evaluate the market potential for improved rail and ferry services. As part of the project, Mr. Komanduri designed the focus group moderator's discussion guide. The findings from these focus groups were used to support the design of revealed and stated choice surveys. Results from these surveys were used to estimate choice models that helped quantify the potential for the improved transportation options

Metropolitan Council, Metropolitan Council Travel Behavior Inventory, Minneapolis-St. Paul, MN

For the Metropolitan Council in Minneapolis-St. Paul, Cambridge Systematics is conducting a comprehensive overhaul of the regional travel demand model. As part of this project, a suite of custom travel surveys, including household, transit onboard, origin-destination, and special generator have been administered. The data from these surveys will be used to develop a new activity-based travel demand model. Mr. Komanduri serves as Deputy Project Manager for this study and is responsible for overseeing the technical aspects of the study.

City of Evanston, Evanston Skokie Swift North Shore Corridor Travel Market Analysis, Evanston, IL

For the City of Evanston in Illinois, Mr. Komanduri conducted a detailed market analysis to determine the potential for transit improvements in the north/shore suburbs of Chicago. The project analyzed the feasibility of expanding rail service Chicago Transit Authority (CTA) in northern Chicago.

Southeastern Wisconsin Regional Planning Commission, SEWRPC Kenosha-Milwaukee Commuter Rail Study, Wisconsin

For the Southeastern Wisconsin Regional Planning Commission (SEWRPC), Cambridge Systematics was part of a team that conducted a detailed planning study of an extension of the commuter rail service from Kenosha to Milwaukee along the Union Pacific North Line. Mr. Komanduri assisted the travel demand forecasting effort and the Federal Transit Administration New Starts submittal.

City of Madison, Madison Metro Transit Onboard Survey, Madison, WI

Cambridge Systematics administered a transit onboard survey on behalf of the City of Madison, Wisconsin. Mr. Komanduri developed the sampling and logistics plan and initiated the development of a data-driven online retrieval engine. Mr. Komanduri also developed a disaggregate expansion methodology that utilized both boarding and alighting data to better represent transit movements in the region.

Chicago Transit Authority, CTA Fare Model, Chicago, IL

For the CTA, Cambridge Systematics developed a new fare model that allowed the agency to model the response of transit riders to fare and operational changes. As part of this survey, stated preference surveys were designed to evaluate the preferred fare option under different pricing schemes. Choice models developed from these surveys were incorporated within a spreadsheet tool and shared with CTA. Mr. Komanduri served as Deputy Project Manager for this study and was responsible for overseeing the survey administration efforts.

Denver Regional Transportation District, Denver RTD Transit Onboard Survey, Denver, CO

For the Denver Regional Transportation District (RTD), Cambridge Systematics, as part of a team conducted an onboard survey for the West Corridor. This corridor will be served in 2013 by a new light rail line. The survey served as the "baseline" to understand transit usage patterns for riders. In two years' time, an "after" survey will be conducted to see how transit rider patterns have changed with the implementation of the new rail line. Mr. Komanduri served as the technical lead for Cambridge Systematics and led the design of the sampling plans and the expansion procedures. A two-phase approach was implemented for this study. First, an on-to-off survey was administered to develop an understanding of boarding-alighting patterns of riders. Second, a personal interview style onboard survey was administered to understand trip and socio-demographic information. The on-to-off data was used in support of a detailed expansion procedure.

CAMBRIDGE SYSTEMATICS
Transportation leadership you can trust.

KEIR OPIE

TRAFFIC MODELING

Mr. Opie is a Principal with Cambridge Systematics with 17 years of experience in transportation simulation, travel demand modeling, and traffic operations analysis. He is an expert in the majority of the industry-standard microscopic and mesoscopic simulation modeling platforms, including VISSIM, and in integrating these models with regional travel demand models. His prior positions include serving as the Manager of Transportation Simulation and Modeling at the International Intermodal Transportation Center of the New Jersey Institute of Technology (NJIT) and as an Adjunct Professor in the Interdisciplinary Transportation Graduate Program at NJIT.

FIRM

Cambridge Systematics, Inc.

AREAS OF EXPERTISE

- Microscopic Simulation Modeling
- Mesoscopic Simulation Modeling
- Traffic Operations Analysis
- Multi-resolution Dynamic Traffic Assignment Modeling
- Travel Demand Modeling and Forecasting
- ITS Analysis

EDUCATION

M.S., Transportation, New Jersey Institute of Technology, 2007

B.S., Civil Engineering, University of Waterloo, 1998

RELEVANT PROJECT EXPERIENCE

Customized Evacuation and Recovery Modeling and Simulation Tool (CMST), PANYNJ

Mr. Opie served as the Cambridge Systematics Project Manager in assisting in the development of a customized evacuation and recovery modeling and simulation tool. Mr. Opie oversaw the development of an Aimsun mesoscopic traffic simulation model that is capable of simulating the concurrent evacuation of the PANYNJ facilities of Newark Liberty International Airport and the nearby container seaport terminals of the Port of Newark/Elizabeth along with the interactions with regional traffic flows in northern New Jersey. The model is able to be run both as a scenario planning tool as well as a real-time traffic management decision tool through Aimsun Online.

New York City DOT Manhattan Traffic Model (MTM), New York City DOT

Mr. Opie served as the lead technical supervisor in developing an integrated mesoscopic/microscopic modeling platform in Aimsun. The MTM was developed to allow for the impacts of development and operational changes to the roadway network in the Manhattan Central Business District to support planning studies and to design appropriate policy responses to longer term trends in traffic volumes throughout the city. The integrated modeling platform incorporates the New York Metropolitan Transportation Council's Best Practice Model in TransCAD for travel forecasting, an Aimsun mesoscopic traffic model covering all of Manhattan south of 179th Street and includes regional facilities to/from other NYC boroughs, New York State, and New Jersey and an Aimsun microscopic traffic model covering the 34th Street corridor bounded by 32nd Street, the East River, the Hudson River, and 37th Street.

Sheridan Expressway Planning Study, New York City DOT

Mr. Opie served as the Simulation Task Leader overseeing the development of a mesoscopic Aimsun model for the Bronx, with a focus on the Sheridan Expressway and the Hunts Point Food Markets. Through integration with the NYMTC's BPM in TransCAD, the final mesoscopic model was able to model the operational impacts of changes ranging from land use development changes to significant future roadway modifications to local access issues to the food markets.

FHWA Integrated Corridor Management Tools, Strategies, and Deployment Support

Mr. Opie helped oversee the Analysis, Modeling, and Simulation (AMS) components for the three ICM Stage 2 corridors (in Dallas, Texas, Minneapolis, Minnesota, and San Diego, California), where platforms supporting corridor management planning, design, and traffic operations analysis based on interfacing travel forecasting models, mesoscopic simulation models, and microscopic simulation models were developed. In addition, he assisted in the developed a set of multi-modal performance measures to measure mobility and reliability.

Caltrans D7 Active Transportation Management, California State Department of Transportation (Caltrans), District 7, Division of Operations, Office of Traffic Engineering

Cambridge Systematics conducted this investigative study on the feasibility of implementing active traffic management (ATM) strategies in Caltrans District 7 freeway corridors to improve congestion relief. The Study established a framework for decision-making to proceed with the implementation of ATM strategies. Mr. Opie served as the senior simulation modeler in developing an Aimsun micro model of the I-105 corridor which was used in a detailed simulation based analysis of the candidate ATM strategies.

Gateway Cities Strategic Transportation Plan, Los Angeles County Metropolitan Transportation Authority (LACMTA)

Cambridge Systematics is leading the development of the Gateway Cities Strategic Transportation Plan (STP). Mr. Opie was responsible for the creation of the multi-resolution Aimsun model to analyze a variety of roadway, transit, freight, active transportation, and intelligent transportation systems (ITS) project improvements. The model covers a large portion of Los Angeles County, and includes stretches of the heavily congested corridors of I 5, I 405, I 605, I 710, I 105, SR-91, and SR-60 freeways in the Gateway Cities jurisdiction.

Connecticut Value Pricing Pilot Studies, Connecticut Department of Transportation

Cambridge Systematics as part of a team is conducting simulation-based traffic operations analyses for two different potential pricing projects in Connecticut. Mr. Opie is serving as the project manager for Cambridge Systematics and is overseeing the operations analyses for the studies. The first project is examining I-84 through Hartford, CT, and includes portions of both I-84 and I-91 and the majority of the downtown core of Hartford, CT. The second project is studying the I-95 corridor between the New York State line and New Haven, CT, a heavily congested 50-mile stretch of the I-95 corridor.

Guidebook on Utilization of DTA Modelling, FHWA

Mr. Opie served as a key staff member in the authoring of a document to provide guidance to practioners on how to apply Dynamic Traffic Assignment (DTA) within a network modeling framework, including regional planning models and traffic operation models. This guidebook was recently published as the fourteenth volume of FHWA's Traffic Analysis Tools program.

Update to NYMTC's 2012 Transportation Conformity Determination, New York City Department of Transportation (NYC DOT)/ New York Metropolitan Transportation Council (NYMTC)

Mr. Opie managed and produced the emissions forecasts that were released in the amendment of NYMTC's 2012 Transportation Conformity Determination. The fast-tracked project involved the update of travel demand forecasting efforts using NYMTC's Best Practices Model (BPM) and the associated emissions forecasts to allow the addition of two new Select Bus Service (SBS) routes in Queens, Brooklyn, and Manhattan to the 2011-2015 Transportation Improvement Program.

EMPLOYMENT HISTORY

Cambridge Systematics, 2010-present; New Jersey Institute of Technology, International Intermodal Transportation Center, 2001-2009; Urbitran / Garmen Associates, 1998-2001

NIKHIL PURI, PTP

DEMAND MODELING & ANALYSIS

CAMBRIDGE SYSTEMATICS
Transportation leadership you can trust.

FIRM

Cambridge Systematics, Inc.

TOTAL YEARS OF EXPERIENCE

14

YEARS OF ROLE SPECIFIC EXPERIENCE

14

EDUCATION

MS, 2004, Transportation Engineering, Pennsylvania State University

BE, 1998, Transportation Engineering, Bangalore University – India

RELEVANT LICENSES/CERTS

Professional Transportation Planner : 2007

Mr. Puri is Regional Manager of the Travel Demand Forecasting Practice in the NY Region, with 14 years of experience in transportation planning and travel demand forecasting. He has worked on regionally significant studies including environmental impact statements, alternatives analyses, economic impact and toll impact studies, and long range planning efforts, dealing with both transit and highway issues. In addition, he has been involved extensively in the integration of the New York Best Practice Model (NYBPM) and microsimulation models, the integration of commuter models with air passenger models, and the application of traffic simulation models. Mr. Puri has expertise in analyzing, interpreting, and communicating complex model results to audiences that range from technical experts and decision-makers to the public. Prior to joining Cambridge Systematics, Mr. Puri led a team of transportation modelers on amongst two of the largest regional multimodal transportation planning projects in the New York metro region. His team calibrated, validated, and applied the NYBPM on the two projects, and was credited with providing valuable input to New York Metropolitan Transportation Council (NYMTC) towards the improvement of the model. Mr. Puri served on the Travel Model Review Program-sponsored NYMTC Travel Demand Model Peer Review panel in April 2012.

RELEVANT PROJECT EXPERIENCE

New York Metropolitan Transportation Authority, West of Hudson Regional Transit Access AA, NY

For the New York Metropolitan Transportation Authority (MTA) Metro-North Railroad, Mr. Puri was the transportation planning/modeling technical lead for the Alternatives Analysis (AA) phase of the study (prior to joining Cambridge Systematics). He was responsible for the travel demand forecasting aspect of the project, and for developing a modeling framework to integrate the travel demand model with an air passenger model developed by a sub-consultant, and communicating complex results to key stakeholders such as the Port Authority of New York and New Jersey (PANYNJ). In addition, Mr. Puri screened alternatives and provided substantial input to the transportation planning process. The Federal Transit Administration (FTA) SUMMIT program was tested with the NYBPM, to determine benefits.

PANYNJ, Professional Program and Project Management Services for the PATH to EWR. Cambridge Systematics, as part of a team, is examining the extension of the PATH rail system to Newark International Airport, and provides advisory services related to ridership forecasting, Federal Transit Administration guidelines, and the New Starts process. Mr. Puri is the project manager for Cambridge Systematics.

New York Metropolitan Transportation Council, New York Congestion Management Process, NY

Mr. Puri managed the Congestion Management Process (CMP) report update for NYMTC. Using NYMTC's performance analysis tools to generate estimates of congestion performance measures over the 10-county NYMTC region, Cambridge Systematics identified congestion hot spots, estimated the impacts of CMP projects on congestion, and compared the performance of NYMTC's transportation system with peer regions.

New York Metropolitan Transportation Council, NYMTC On-Call Policy and Planning Support, NY

Cambridge Systematics provides on-call transportation planning services to NYMTC. Mr. Puri manages three mini-bid task orders under this contract, two of which are on-site support to NYMTC staff.

New York Metropolitan Transportation Council, New York City DOT Select Bus Service Conformity Determination, NY, NY

Mr. Puri was Project Manager on a project that required an addendum to the current NYMTC Conformity process. The project required developing five analysis-year forecasts for two new bus rapid transit (BRT) projects in New York City. The project, which had a very aggressive schedule, was delivered on time and within budget.

North Carolina Department of Transportation, North Carolina DOT I-95 Economic Impact Assessment, NC

For the North Carolina DOT, Cambridge Systematics is leading a study to examine the economic impacts of tolling the I-95 corridor in North Carolina. As part of the study, Cambridge Systematics also is examining the economic impact of alternative funding options. Mr. Puri is the travel demand modeling and traffic analysis task manager for the study. His role entails communicating traffic forecasts and model enhancements to the client and the project team; working closely with a traffic engineering subconsultant that is using the forecasts developed by his team as an input to their traffic analysis; and also working with economists and planners relying on the traffic forecasts. In addition, he is supporting the public outreach effort. The modeling effort entailed assessing an existing model developed for a prior phase of the project, refining the model, and producing credible forecasts for several alternatives.

Indiana Department of Transportation and the Indiana Finance Authority, Ohio River Bridges Traffic and Revenue Study, IN/KY

For the Indiana DOT and the Indiana Finance Authority, Mr. Puri was the transportation modeling task leader. His team was responsible for assessing the available models in the region, developing recommendations on how best to adjust the models to improve the quality of forecasts for the study, and the development of demand forecasts. In addition he was involved with the toll and revenue forecasts for the study. In an effort to improve the quality of model forecasts, the team coordinated cell-phone and intercept origin-destination surveys, both link based and of the residents, that will be used to gain a better understanding of travel patterns in the Louisville, Kentucky region and aid in the validation of the model.

New York State Thruway Authority, Tappan Zee Bridge/I 287 Corridor EIS for Rockland and Westchester Counties, NY

For the New York State Thruway Authority, Mr. Puri was the transportation modeling technical lead (prior to joining Cambridge Systematics). He was involved in the environmental impact statement (EIS) and AA phase of this project, and was responsible for the travel demand NYBPM and traffic microsimulation tasks. He coordinated with the client and was involved with public outreach. Mr. Puri was instrumental in developing the process to integrate travel demand and traffic microsimulation models. He performed model calibration and validation with a focus on the mode-destination choice aspect; evaluated multimodal alternatives with commuter rail, BRT, light rail and high-occupancy toll lane elements; performed ridership and highway demand forecasts; toll plaza capacity analysis; and estimation of operating and maintenance costs. Mr. Puri introduced a process to reduce inherent mode-specific constants.

AC HICKOX, LC, LEED AP BD+C

Lighting Design

Formerly the owner of AC Hickox Lighting Design, AC has over 30 years' experience in design and project management in both performing arts and architectural lighting design. Since the merger of ACH/LD with DGA in 1999, AC's focus has been on large-scale, fast-track and/or complex efforts in transportation, security, exterior and theatre facility projects. She has served on the faculties of Teachers College-Columbia and University of Illinois at Urbana, lectured at CCNY and is an authorized instructor in AGi32. AC is a principal of DGA, is Lighting Certified and a LEED Accredited Professional with BD+C specialty.

2 Station Sea Beach Line
12 Stations West End Line
2nd Avenue Subway
71st St./Continental Ave. Station Rehab.
96th Street Station Rehabilitation
All Aboard Florida
ARC, THE Tunnel
Atlantic Avenue Station: LIRR & NYCT
Barclays Center Arena
Brooklyn Bridge Park
Buffalo Canal Waterfront
Coney Island Parachute Jump
Dulles Corridor Metro Rail System
East 180th Street Station
East Side Access for LIRR at Grand Central Station
GW Bridge Bus Terminal Master Plan & Modernization
GW Bridge Necklace Lighting
Hudson Park & Boulevard
Morrisania Air Rights Houses Outdoor Redevelopment
New York Botanical Garden Visitors' Center
New York Transit Museum
Newark International Airport Terminal A
NYC DOB Energy Code Compliance Program
PATH Downtown Terminal
PATH Downtown Terminal Master Plan
PATH Newport Station
PATH System Design Guidelines
PATH Tunnel Exits
Prototype Schools K6 and IS
Restoration of the Apollo Theatre
Restoration of Great Hall at City College of NY
Restoration of the Roundabout Theatre
South Street Seaport Museum
Tampa APM and ConRac
Tappan Zee Bridge
Westchester Children's Museum
WTC Temporary PATH Station
WTC Transportation Hub (Cortlandt Street Station)

Education: BA English and Theatre, Wittenberg University
MFA Lighting Design, University of Illinois

Employment: 2010-Present: Domingo Gonzalez Associates, Vice President/Project Manager
1999-2009: Domingo Gonzalez Associates, Senior Associate/Project Manager
1989-1999: AC Hickox Lighting Design, Senior Theatrical Designer
1980-1999: Principal, AC Hickox Lighting Design

Affiliations: IESNA and United Scenic Artists Local 829

Awards:

2015:	IES/NY Lumen Lighting Award: *Dulles Corridor Metrorail*
2015:	IES Illumination Lighting Award of Merit: *Dulles Corridor Metrorail*
2015:	IES Illumination Lighting Award of Merit: *Brooklyn Bridge Park*
2014:	GE Edison Lighting Award of Merit: *Dulles Corridor Metrorail*
2014:	AIA NYS Excelsior Award for Public Architecture: *East 180th St. Station*
2013:	IES Illumination Lighting Award of Merit: *PS/IS 276, New Battery Park City School*
2013:	Victorian Society NY Preservation Award: *MTA East 180th St. Station*
2013:	Lucy G. Moses Stewardship Award: *MTA East 180th Street Station*
2011:	AIA NY Design Award: *Brooklyn Bridge Park*
2010:	Building Brooklyn Award: *Atlantic Avenue Station Rehabilitation*
2009:	ASLA Honor Award, Analysis & Planning: *Brooklyn Bridge Park*
2004:	GE Edison Lighting Award of Merit: *NY Botanical Gardens Visitors' Center*
2004:	NY Transit Project of the Year: *WTC Temporary PATH Station*
2003:	Lucy B. Moses Preservation Award: *South Street Seaport Museum*
1998:	Lucy B. Moses Preservation Award: *Great Hall @ City College of NY*

Publications:

Illuminate	July	2012:	96th Street Subway Station
NYC Transit	Sept.	2003	Lighting Design Guide-New Stations
Building Type Basics–Transit	Spring	2004	Building Type Basics for Transit Facilities
Lighting Dimensions	May	2000	Spotlight on AC Hickox

Lectures:

Cooper Union	April	2012:	NYC Energy Conservation Code Commercial Lighting

JOHN C. **SALING**

Fortune Shepler Saling Inc.
Elevator Consultants
37 Woodland Road
Maplewood, NJ, 07040 U.S.A.
T: 862.400.6382
John.Saling@fs2ec.com
Website: http://www.FS2EC.com

PROJECT ASSIGNMENT

Fortune Shepler Saling Incorporated
Principal/Project Manager/Consultant

FORTUNE SHEPLER SALING INCORPORATED

SINCE 12/1/2013

YEARS WITH OTHER FIRMS

25

PREVIOUS POSITIONS

Director of New Equipment Operations, Manhattan - ThyssenKrupp Elevator Co.
Area Manager - Lerch Bates, Inc.
Regional Manager - Lerch Bates, Inc.
Modernization Manager, Project Manager, New Equipment Account Executive - Otis Elevator

EDUCATION

AB Economics/Organizational Behavior, Brown University, Providence, RI - 1983
MBA Operations Management/Marketing, Columbia University, New York, NY -1989

NOTABLE ELEVATOR CONSTRUCTION PROJECTS

International GEM Tower, New York, NY
250 West 55th Street, New York, NY
11 Times Square, New York, NY
PANY/NJ WTC Vehicle Security Center, New York, NY
Rockefeller University, New York, NY
East River Plaza, New York, NY
NYCT Fulton Street Station – 5 Escalators & 5 Elevators
Liberty Plaza Station – Escalator Replacement
PANY/NJ Newark Airport Terminal B – Elevator & Escalator Replacement
PANY/NJ Journal Square Escalator Replacement
NYCT Court Square Station – 2 Escalators & 3 Elevators
DASNY- John Jay College of Criminal Justice, New York, NY
East River Science Park, New York, NY

Fordham Law School, New York, NY
Mt. Sinai Hess Center for Science & Medicine, New York, NY

NOTABLE ELEVATOR DESIGN PROJECTS

PANY/NJ Newark Airport – Terminal C, Newark, NJ
Memorial Sloan Kettering Breast & Imaging Center, New York, NY
Akhmat Tower, Grozny, Chechnya
Prospect-Verona Bridge Observatory, Verona, ME
Citicorp at Court Square (Modernization), LIC, NY
Trump SOHO, New York, NY
Northeast Asia Trade Tower, Songdo, South Korea
Renaissance Square | Ritz Carlton, White Plains, NY
Nouvel Chelsea, 100 Eleventh Avenue, New York, NY
Ridge Hill Village, Yonkers, NY
Crown Casino & Tower, Sydney, Australia
USPS Morgan Post Office, New York, NY
Kula Tower, Belgrade, Serbia
Marriott Marquis Hotel (Modernization), NY, NY

OTHER QUALIFICATIONS

QEI Elevator Inspector – 1999
NYC Elevator Inspector – 2003
OSHA 10
29 CFR Part 1926 – Basic Rigging, Hoisting & Crane Insp.

GORDON H. SMITH CORPORATION
200 MADISON AVENUE
NEW YORK, N.Y. 10016-3901

(212) 696-0600
FAX: (212) 532-8272

BIOGRAPHICAL SKETCH
OF
MITCHELL L. STEIN

SENIOR TECHNICAL CONSULTANT

Prior to joining the Gordon H. Smith Corporation over twenty five years ago, Mr. Stein had nearly 20 years experience in the curtain wall and skylight industry, having been employed as an Engineer and Senior Designer by such well known firms as Lupton Manufacturing Company, Tube Lite, SWS Industries and Ampat Eastern Corporation.

EDUCATION

Associates Degree in Civil Engineering Design, Burlington State College
Industrial Engineering, Trenton State College

INDUSTRY EXPERIENCE

Lupton Manufacturing Company --- Curtain Wall Draftsman
Tube Lite --- Senior Curtain Wall Draftsman
SWS Industries --- Senior Curtain Wall Designer
Ampat Eastern Corporation --- Senior Curtain Wall Designer

PROFESSIONAL EXPERIENCE

Gordon H. Smith Corporation --- Senior Technical Consultant

LIST OF RELEVANT PROJECTS

Since joining the Gordon H. Smith Corporation over 20 years ago, Mr. Stein has been involved in the design, construction, specification preparation, shop drawing review, mock-up observation and field inspection/testing of such prestigious new projects as (partial list):

Terminal One
JFK International Airport
Jamaica, NY

Moscone Center
San Francisco, CA
Architect: Gensler

Federal Inspection Service/International Arrivals Building
Newark International Airport
Newark, NJ

Buffalo Federal Courthouse
Buffalo, NY
Architect: Kohn Pedersen Fox Associates

Children's Hospital of Philadelphia
South Campus
Philadelphia, PA
Architect: Ballinger

Cooper Union New Engineering Building
New York, NY
Architect: Morphosis Architects

Foley Square Federal Courthouse
New York, NY
Architect: HOK

Newark International Airport
International Arrivals Building
Port Authority of New York & New Jersey

Los Angeles Convention Center
Los Angeles, CA
Architect: Pei Cobb Freed & Partners/Gruen Associates

250 West 55th Street
New York, NY
Owner: Boston Properties

Monorail Remote Stations at Newark International Airport
Newark, NJ

Philip DeVita

Director, Air Quality

Experience

2008-Present, HMMH

1997-2008, Epsilon Associates, Inc.

1995-1997, GZA GeoEnvironmental, Inc.

1989-1995, ENSR Consulting and Engineering

Education

M.S., Environmental Studies, University of Massachusetts at Lowell, 1997

B.S., Meteorology, University of Lowell, 1989

Registrations and Certifications

Certified Consulting Meteorologist, (No. 611), 2002

40-Hour OSHA per 29 CFR 1910.120 1996

Affiliations

Air & Waste Management Association (National and New England Regional Section)

American Meteorological Society

Mr. DeVita leads HMMH's Air Quality practice. He is an American Meteorological Society Certified Consulting Meteorologist with over twenty years of experience in air quality permitting and modeling, wind turbine and solar evaluation, air emissions characterization, and meteorological monitoring. His expertise includes atmospheric dispersion modeling to support permitting and siting studies, indirect source analysis, feasibility studies, and consequence analyses for hazardous chemical releases. Mr. DeVita has conducted air quality impact assessments for a variety of transportation projects as well as analyses of power and industrial sources using AERMOD, EDMS, MOVES, MOBILE6.2, SGHAT, CAL3QHC and CALPUFF. He also has prepared greenhouse gas and sustainability analyses, emissions inventories, source registrations, and air plan applications for various industrial sources.

Mr. DeVita recently worked with the FAA on developing a solar guidance to help airports and FAA develop solar generating projects using photovoltaic (PV) cells and has conducted numerous solar reflectivity studies at airports to support a Part 77 determination from FAA.

Representative Projects

Aviation Projects

- "Renewable Energy as an Airport Revenue Source", Airport Cooperative Research Program, Washington, DC. (2013-Present), *Co-author*
- Environmental Assessment for Houston Optimization of Airspace and Procedures in the Metroplex, TX (2012-present), *Air Quality Technical Lead*
- Solar and Wind Feasibility Study, Reagan National Airport, Washington, DC (2013-2014), *Assistant Project Manager*
- "Guidebook for Energy Facilities Compatibility with Airports and Airspace," Airport Cooperative Research Program, Washington, DC (2012-2013), *Co-author*
- ACRP Synthesis study "Investigating Safety Impacts of Energy Technologies on Airports and Aviation", (2011), *Co-author, Assistant Project Manager*
- Solar Guidance Manual for Airports, Federal Aviation Administration, Washington, DC (2010), *Co-author, Assistant Project Manager*
- Air Quality Assessment for the Environmental Status and Planning Report (ESPR) for Massport's Hanscom Field (2013), *Air Quality Technical Lead*
- Environmental Assessment for "Greener Skies Over Seattle";

Proposed Arrival Procedures to Seattle-Tacoma International Airport, WA (2011-2012), *Air Quality Technical Lead*

- Newark Liberty International Airport, Reflectivity Study for a 3 MW Solar Project for Federal Express, Newark, NJ (2012), *Assistant Project Manager*
- Prepared Draft VALE Application for a 1 MW Solar Project at Sky Harbor International, Phoenix, AZ (2012), *Project Manager*
- Conducted Solar Glare and Communications Analysis for a proposed 2.5 MW solar project, Tucson International Airport, Tucson, AZ (2012), *Project Manager*
- Amendment of an Operations Specification at twelve airports for Hawaiian Airlines fleet replacement (2009), *Emission Analyst*
- Van Nuys Airport Stage 1 and Stage 2 Ban, Part 161, Van Nuys, CA (2009), *Emission Analyst*
- Van Nuys Airport Curfew Part 161, Van Nuys, CA (2009), *Emission Analyst*
- Environmental Assessment, Fort Lauderdale Executive Airport, Fort Lauderdale, FL (2008), *Emissions Analyst*
- Emissions Inventory for a proposed new terminal at the Barnstable County Airport in Hyannis, MA (2003), *Emissions Analyst*

Rail Projects

- Environmental Assessment, Chicago-Milwaukee High Speed Rail, Chicago Illinois (2009), *Emissions Analyst*
- Environmental Assessment, MN&S Rail Corridor Study, Minneapolis, MN (2011), *Emissions Analyst*
- Environmental Assessment, CSX Bascule Bridge, Broward County, FL (2010), *Emission Analyst*
- Particulate Dispersion Modeling Analysis, Empire State Newsprint, Rensselaer, NY (2004), *Emissions Analyst*

Highway Projects

- I-64 High Rise Bridge Corridor Study, CO Hot spot analysis and MSAT quantitative analysis using MOVES, City of Chesapeake, VA (2014), *Project Manager*
- Route 460 Reevaluation, CO Hot Spot Analysis using MOVES and qualitative mobile source air toxics analysis, City of Suffolk, VA (2014), *Project Manager*
- Air Quality Evaluation for I-66 Corridor Tier 1 Draft EIS, Fairfax and Prince William Counties, VA (2013-2014), *Project Manager* Dulles Airport Cargo Road, CO Hot Spot using MOVES and qualitative mobile source air toxics analysis, Loudoun County, VA (2013-2014), *Project Manager*

David Towers, P.E.

Noise & Vibration Lead

Experience

1986-present, HMMH

1974-1986, Bolt Beranek and Newman Inc,

1973-1974, Bechtel Power Corporation

Education

M.S., Mechanical Engineering, Purdue University, West Lafayette, IN, 1973

B.S., Mechanical Engineering, Columbia University, New York, NY, 1972

B.A., Queens College (CUNY), Flushing, NY, 1972

Affiliations

Registered Professional Engineer (Mechanical): CA, FL, MA and NY

Board-Certified Member, Institute of Noise Control Engineering, 1981-present

Vice President-Membership, Institute of Noise Control Engineering (2001-2004)

Director, Institute of Noise Control Engineering (2000-2002)

Member, American Society of Mechanical Engineers, 1973-present

Member, International Committee for International Workshop on Railway Noise (2010-present)

With over 40 years' experience as an acoustical consultant, David Towers works on a variety of projects at HMMH including environmental, industrial, and architectural noise and vibration control. He currently specializes in noise and vibration control for transportation systems and for construction projects. His activities in these areas have included field measurements, acoustical design and specification, environmental assessments, and noise and vibration control for facility construction and operation.

Mr. Towers has participated in a wide range of rail transportation projects in the U.S. and abroad including noise control designs of vehicles and facilities, compliance tests, environmental assessments, construction noise and vibration control and community measurement programs. In these activities, he has performed engineering consulting services for architects, engineers and planners, for railroads, for rapid transit properties, and for the government agencies. In the urban transit industry, he has worked on projects in Hong Kong, Taipei (Taiwan), Dallas, Los Angeles, Boston, New York, Houston, Philadelphia, Washington, Denver, Salt Lake City, Calgary (Canada), Miami, and Baltimore. His railroad projects have included work on the CSX, Norfolk Southern, Union Pacific, Burlington Northern Santa Fe, and Amtrak systems.

Representative Projects

Rail and Transit Projects

- NEC FUTURE Project, Noise and Vibration Assessment for FRA Tier 1 EIS, Washington, DC to Boston, MA (2012-present), *Project Manager*
- Colfax Corridor Transit Noise and Vibration Impact Assessment, Denver-Aurora, CO (2012-present), *Project Manager*
- MARTA East (Blue) Line Sycamore Street Noise and Vibration Study, Decatur, GA (2014), *Project Manager*
- Denver RTD Southeast Corridor Extension Noise and Vibration Impact Assessment, CO (2012-2013), *Project Manager*
- Dallas Area Rapid Transit South Oak Cliff-3 Blue Line Light Rail Extension Noise and Vibration Impact Assessment, TX (2012), *Project Manager*
- Pinellas Alternatives Analysis Noise and Vibration Impact Assessment, FL (2011-2012), *Project Manager*
- St. Louis Loop Trolley Noise and Vibration Impact Assessment, MO (2010), *Project Manager*
- Evaluation of the Ground-Borne Vibration Reduction Properties of Tire Derived Aggregate as Installed on the Denver RTD Southeast Corridor Light Rail Line, CO (2009), *Project Manager*

"Dave impressed us greatly with his superb technical knowledge and skillful application of such. We're delighted that he understood the client's objectives and requirements so well and executed his assignments in a manner that would be an envy to many professionals. Dave is a rare combination of sterling technical expert, master diplomat and seasoned project manager."

Richard Kin Yan Kwan, MTR, Hong Kong

"Mr. David Towers is an expert in acoustical measurements who possesses extensive professional experience and academic background in sound engineering. Mr. David Towers, HMMH, has provided excellent professional service. Mr. Towers has tried his best to accommodate our requirements."

Richard Wu, FAA

- Fort Worth Transportation Authority TEX Rail EIS Noise and Vibration Impact Assessment, TX (2007-2014), *Project Manager*
- Denton County Transportation Authority Regional Rail Project Noise and Vibration Assessment and Design, TX (2006-2009), *Project Manager*
- Long Island Railroad Main Line Improvements Project EIS Noise and Vibration Impact Assessment, NY (2005-2007), *Project Manager*
- Hong Kong Mass Transit Railway Kowloon Southern Link Extension Acoustical Design Review, MSR (2004-2010), *Project Manager*
- Colorado North I-25 and Denver RTD FasTracks (Northwest Rail, North Metro, Gold Line and I-225 Corridor) Passenger Rail Projects, Noise and Vibration Impact Analysis, CO (2004-2010), *Project Manager*
- Mid-Jordan and West Valley Corridor LRT Projects, noise and vibration impact assessment Salt Lake City, UT (2002-2007), *Project Manager*
- New York City Transit Authority Second Avenue Subway Project, noise and vibration design services, NY (2002-2004), *Project Manager*
- Dallas Area Rapid Transit System Southeast and Northwest Light Rail Transit Corridors Noise and Vibration Assessment and Design, TX (1999-2007), *Project Manager*
- Amtrak Hell Gate Bridge Direct Fixation Noise Study, NY (1998), *Principal Investigator*

Construction Projects

- VDOT Best Buy Ramp Project, construction noise control specification and monitoring, Charlottesville, VA (2014-present), *Project Manager*
- Massport Conley Terminal Improvements, construction noise monitoring, South Boston, MA (2014-present), *Project Manager*
- DC Water Cross-Town Tunnel Rehabilitation Project, construction noise and vibration control, Washington, DC (2010-2012), *Project Manager*
- Columbus South Innerbelt Construction Vibration Analysis, Columbus, OH (2009-2013), *Project Manager*
- Central Artery/Third Harbor Tunnel ("Big Dig") Project, construction noise and vibration control, Boston, MA (1992-2002), *Project Manager*
- Brooklyn-Queens Expressway Meeker Avenue Viaduct Rehabilitation Project, construction noise and vibration monitoring, Brooklyn, NY (1989-1994), *Project Manager*

Dain Devaux
Document Control

Interactive Elements Incorporated

Mr. Devaux brings 11 years of transit, cost, and financial analysis experience to his work at IEI. His work in Project Management Oversight since 2005 includes audits and reviews of all aspects of major capital projects, including New York region mega projects. He has the critical discipline to manage customer and supplier expectations and relationships, control risk and cost, and contribute to organizational effectiveness and success. Mr. Devaux is an experienced hands-on manager with a strong academic and practical project experience. As an expert in construction management, he has been responsible for directing and coordinating daily construction activities and managing multiple tasks in a pressured environment, including project scheduling, cost estimating, and contract administration. Mr. Devaux has more than six years of scheduling experience, with software interfaces including Primavera and Microsoft Project. His areas of expertise include creation of ad hoc project schedules as requested and maintenance and updates to integrated master schedules; maintenance of communications with management, contractor, and project teams regarding all scheduling issues; performance of schedule impact analyses for contractor change orders and resulting schedule negotiations; monitoring of contractors' schedule progress and reports to the project manager; performance of critical path and earned value analyses and provision of regularly scheduled and as-needed reports; tracking and monitoring of schedule-related project issues; proactively anticipating potential schedule issues; review of critical path, cost loading, schedule content, use of relationships and lag, constraints, and milestones; review, evaluation, and rejection or approval of contractor recovery schedules.

PROFESSIONAL EXPERIENCE

OFFICE ENGINEER/Contract Package Manager — Interactive Elements
2003-present — New York, NY

As part of IEI's FTA Project Management Oversight team for the Maryland Transit Administration (MTA), Mr. Devaux monitors the agency's multi-billion dollar transit capital program. New Starts projects for which he provides design and construction oversight include the 14.5-mile Red Line LRT, a $1.8 billion project in 2010 base year dollars and the 16-mile Purple Line LRT, $1.6 billion in 2010 base year dollars. Projects under these capital programs in design or construction for which he is currently part of a team conducting a pre-PE Risk Assessment Review for scope, cost, schedule, transit capacity and transit capability, range from a $129 million Mid-Life Overhaul of 35 LRVs, to the construction of a $100 million Silver Spring Transit Center that will replace the existing transit center and drive redevelopment of property adjacent to the WMATA Metrorail Station in downtown Silver Spring, MD, a $45 million railcar storage yard outside Union Station in Washington, DC, and a $6 million dollar project to design and implement eight safety and operational improvement projects for the MTA.

As part of the FTA Project Management Oversight team for the New Jersey Transit ARC tunnel project, Mr. Devaux reviewed documents, schedules, plans, and cost estimates. He participated in meetings with construction management staff to assure that the cost and schedule were consistent with FTA requirements and industry best practices. He also assisted the team in structuring document controls systems and interfacing with NJ Transit engineering and planning staff. He was responsible for reviewing documents and providing comments for maintenance and updating of procedures and the Project Management Plan to ensure compliance with FTA requirements and industry standards, including the scheduling and coordination of 26 contract packages.

Mr. Devaux also worked on the Port Authority of NY & NJ's World Trade Center Transportation Hub project as Assistant Construction Manager for the FTA PMO Team. He was responsible for ensuring that all on-site project activities were completed on schedule, within budget, and in accordance with engineering design and specifications. He monitored and reported internally on project progress meetings, reviewed the field activities, and reported performance and productivity internally.

For Lockheed Martin, Mr. Devaux was Office Engineer for the MTA CC project of design, development, furnishing, and installation of an integrated electronic security system (IESS) and security operations (C3) centers at various locations. He was also the Office Engineer, working directly with the resident engineer, inspectors, and owner (Metro-North), to assure that project work on three railroad bridges was performed in accordance with contract requirements and specifications. He prepared logs for and then monitored contractor submittals, RFIs, and change orders, and performed evaluations of the same subcontractor documents. He monitored all (CM) construction manager submittals, reviewed site specific safety plans, reviewed track outage requests by contractor, reviewed safety reports, attended tool box safety meetings, coordinated requests for movement of equipment with the railroad, and monitored coordination of force account work. In addition, he prepared monthly progress reports and assisted in the evaluation of payment requisitions.

ASSISTANT COST ENGINEER — Perini Corporation
2000-03 — New York, NY

Mr. Devaux conducted a variety of analyses on behalf of the Perini Corporation. He worked with State inspectors to analyze and quantify work proposed in contract drawing and job specifications with work completed in the field. He evaluated subcontractor requisitions for payment and equipment use on projects. In addition, he prepared EEO reports, Extended Overhead reports, Change Orders, and Erosion Control reports.

ASSISTANT TO FINANCIAL ANALYST — NEXTEL/Vanguard Temporaries
2000 — Elmsford, NY

Mr. Devaux worked with the Indirect Commissions Financial Analyst researching dealer queries using the company's Oracle database system. He made adjustments and reconciled trend reports. He prepared Microsoft Access and Excel databases to generate dealer statements.

ACCOUNT SUPERVISOR — SPC Services, Inc.
1989-2000 — J. Walter Thompson, NY

As account supervisor, Mr. Devaux acted as the liaison to management regarding meetings and conferences. He maintained account records, instructional manuals and reference manuals. He trained new personnel and assisted in the daily operations of the facilities management. As facilities coordinator, he worked with building management to resolve Facility complaints and disputes in billing or contract specifications.

EDUCATION

Baruch College, Bachelor of Business Administration – Operations Management, 1998
NYIT, Masters of Business Administration - Project Management, 2007, with courses in scheduling utilizing Primavera and Microsoft Project software
Pace University, Construction Management Certification, 2009
OSHA Safety Training (10-hour), 2009
OSHA Safety Training (30-hour), 2010

PROFESSIONAL AFFILIATIONS

Project Management Institute

Maxine Finkelstein
Public Outreach

Interactive Elements Incorporated

Maxine Finkelstein is a senior executive and business analyst with more than forty years of experience in planning and managing transportation and trade programs, analyzing financial and business policy in the public sector, developing capital planning and budgeting programs, and managing and motivating staff and business teams.

Ms. Finkelstein spent twenty-eight years at The Port Authority of New York and New Jersey, a bi-state public agency responsible for transportation, trade, and economic development projects in New York and New Jersey. Among its facilities are two bus terminals, the PATH transit system, three airports, six bridges and tunnels, marine terminals and freight facilities, and various economic development initiatives.

PROFESSIONAL EXPERIENCE

SENIOR TRANSIT SPECIALIST — Interactive Elements
2003-Present — New York, NY

Ms. Finkelstein was the Project Manager for the firm's FTA Program Management Oversight of NJT's Access to the Region's Core, an $8 billion project that includes a new trans-Hudson rail tunnel (the largest public transit project in the country). She is also a key member of the firm's FTA Triennial Review Team, assessing compliance of FTA grantees in 24 areas such as procurement, civil rights, financial, and maintenance, in transit agencies around the country. She participates in FTA Grant Management Seminars and Regional Workshops, and conducts risk assessments and other analyses for the firm's FTA PMO assignments. Other assignments include operations analyses for MTA Bridges and Tunnels and Metro North Railroad services, analysis of Project Labor Agreements for USDOL and planning projects for the New York Metropolitan Transportation Council, the regional planning organization.

DIRECTOR, CUSTOMER SERVICE CENTER — Port Authority of NY & NJ
Regional E-Z Pass Program — New York, NY
1996-1998

Ms. Finkelstein was responsible for establishing business requirements among the metropolitan area's highway and toll authorities for a region-wide customer service center, and developing the RFP for implementation of E-Z Pass (electronic toll collection) in the New York-New Jersey region.

MANAGER, PORT — Port Authority of NY & NJ
1988-1996 — New York, NY

As Manager of Marketing (1990-1995), Ms. Finkelstein, directing a staff of account executives, contributed to the growth of trade and commerce and enhanced the competitiveness of the Port of NY & NJ by creating partnerships with the diverse business constituencies of the Port, including terminal operators, steamship lines, rail carriers, labor, and local businesses. New Port Initiatives included introduction of new service routings for trade with Asia to compete with West Coast ports, enhanced rail

service at the marine terminals, more efficient truck access to cargo, and enhanced Port of NY message and relationships with trading partners around the world.

As Manager of Policy and Administration (1988-1989), Ms. Finkelstein managed policy areas, including relationships with the Board of Commissioners and Governors' offices staff, realigned organization and staffing to better serve business functions, and managed strategic and financial planning and budgeting for the $100 million Port business.

MANAGER, FINANCE — Port Authority of NY & NJ
1980-1988 — New York, NY

As Manager of Resource Planning, Ms. Finkelstein created and implemented an agency wide capital planning process. The process required line managers to develop project plans that included engineering and other capital costs; revenue and maintenance impacts; staffing and service implications; risk and contingency planning and economic impact on the region. Plans from all agency operations were consolidated and financing capacity examined, along with potential sources of funding from credit markets and other sources, to create a long range financial plan meeting all agency legal and policy objectives.

SUPERVISOR, ECONOMIC ANALYSIS — Port Authority of NY & NJ
Tunnels, Bridges, and Terminals — New York, NY
1970-1980

Ms. Finkelstein supervised all economic and traffic analyses and toll policy. She was responsible for all planning, which led to the first change in agency tolls in 1975, and defended the toll change before the FHWA Administrator in administrative proceedings. As project leader of a study of peak period/congestion pricing, mandated by the FHWA, she developed models to test various operational, environmental, economic, and revenue impacts, and was awarded the Executive Director's Unit Citation for the study.

OTHER PROFESSIONAL EXPERIENCE

Brooklyn College (1975), Lecturer in Economics
Battery Park City Authority (1987), Consultant: Created financial models for residential land use.

Women's Transportation Seminar: Leadership Development Program Founder and Chair (2001 to present), Scholarship Board Treasurer (2001-2008)
Transit Center, Board Member (2008 to present)
Non-Traditional Employment for Women (NEW), Board Member (2002 to present)

EDUCATION

Brooklyn College, BA, Economics and Mathematics
New York University, MBA
Executive Training programs at University of Michigan, Princeton University, and Port Authority Executive Development Training

Phillip Rosner
Project Reporting

Interactive Elements Incorporated

Mr. Rosner recently completed undergraduate training environmental policy, institutions, and behavior at Rutgers. While at Rutgers he regularly earned a place on the Dean's List. He has concentrated on and specialized in several areas, including National Resource Policy, Public Policy Formation, Environmental Science and Economics, and U.S. Environmental Law and History. Mr. Rosner is an integral part of IEI's FTA Triennial Review team and regularly plays an important role on the firm's proposal coordination and management initiatives.

PROFESSIONAL EXPERIENCE

ENVIRONMENTAL SPECIALIST — Interactive Elements Inc.
2013–Present — New York, NY

Mr. Rosner recently joined Interactive Elements as an Environmental Specialist, where he is focusing on transit-related environmental issues, the National Environmental Policy Act (NEPA), and associated Environmental Assessments (EAs) and Environmental Impact Statements (EISs). He has contributed to IEI's FTA Project Management Oversight of two new $2.5 billion light rail projects in Maryland and has worked on the firm's FTA Triennial Reviews, attended FTA Grants Management Workshops, and assisted in providing technical assistance to FTA grantees. Mr. Rosner recently began the substantial task of creating and maintaining a master schedule of the firm's Triennial reviews and linking the document to monthly progress reports required by the FTA.

INTERN — Environment New York
2012- 2013 — New York, NY

While completing his degree at Rutgers, Mr. Rosner led several initiatives at Environment New York, a statewide, citizen-based, environmental advocacy organization. He took on the lead role for several important projects including a number of outreach efforts, for which he was able to gather the support of multiple elected officials, and numerous highly-influential environmental organizations. He was also involved in building grassroots activism, reaching out to the public through canvassing and recruiting dozens of volunteers. He prepared and distributed information for media, elected officials, environmental organizations, and other stakeholders.

EDUCATION

BS, Environmental Policy, Institutions, and Behavior, with a focus on US Environmental Policy, Rutgers, 2013.

Rafael Torres, Jr.
QA/QC Inspector, System

Interactive Elements Incorporated

PROFESSIONAL EXPERIENCE

Mr. Torres has nearly 15 years of experience in the public transportation sector and has worked in a range of capacities and positions including Office Engineer and Quality Assurance Specialist. He has been trained by New York City Transit in the areas of shops and yards as well as in track safety. Mr. Torres is proficient in both English and Spanish communication and has completed courses in a broad variety of subjects including ARC welding, electricity, and refrigeration and air conditioning.

OFFICE ENGINEER — Interactive Elements, Inc.
2001-present — Yonkers, NY

Mr. Torres is a Quality Assurance Specialist as part of Interactive Elements's subcontract to the LTK Corporation, providing oversight services on the procurement of the new *R142A/R142S/R143/R160A/R160B/R188* subway cars for New York City Transit that are being assembled at the Kawasaki facility in Yonkers, NY. Areas of responsibility include:

- Managing inspection log & files
- Preparing and maintaining weekly reports of QA issues
- Maintaining database of inspection findings and recording all inspection issues
- Maintaining production & design drawings to current revision
- Maintaining test procedures to current revision
- Reviewing car history books
- Consolidating car history records
- Performing in-process and final quality inspections
- Witnessing all aspects of vehicle function testing
- Conducting pre-shipment inspections at various suppliers
- Assigning Engineers & QA Inspectors to Audits, FAI's & PSI's at various suppliers

As an office engineer, Mr. Torres also performs administrative functions, including:

- Preparation of the daily inspection schedule
- Compilation of weekly meeting minutes for the engineers and resident inspectors, and for the quality control meetings
- Compilation of weekly productivity reports to LTK
- Preparation of weekly progress reports to NYCT

Mr. Torres also performs clerical duties including the maintenance of the drawing files, and the ordering and maintenance of the office supply inventory. Mr. Torres' duties

place him in a position where he is in constant interaction with personnel from LTK, Kawasaki, NYCT, as well as independent auditors.

GRAPHIC ARTIST/TEXT PROCESSOR — TASCOR-SDI (IBM)
1997-2000 — White Plains, NY

Mr. Torres held several positions, progressively increasing in responsibility, initially starting out as a text processor, advancing to graphic artist and then to technical support for the Sales & Distribution Marketing Intelligence Group. His responsibilities included heavy text typing, scanning, proofreading, and editing. He compiled reports, manuals, spreadsheets, and presentations; prepared monthly reports; and corresponded and interacted with clients and customers. He was responsible for some staff and work assignments; as well as participating in the recruitment, training, and management of new hires.

YOUTH SUPERVISOR/COUNSELOR — St. Christopher-Jennie Clarkson
1996-1997 — Dobbs Ferry, NY

Mr. Torres provided counseling and guidance for challenged youths at this church/community facility. He was also responsible for clerical duties, such as compiling and filing reports, and maintaining accurate records.

EDUCATION

Westchester Community College, Valhalla, NY

Mr. Torres has completed a number of relevant classes, including:

- Quality Control and Inspection Methods
- Electricity (Levels I & II)
- Modern Refrigeration and Air Conditioning (Levels I, II, III & IV)
- ARC Welding

SPECIAL TRAINING

NYCT Shop & Yard Training
NYCT Track Safety Training

COMPUTER SKILLS

Proficient in MS Office, Excel, Lotus SmartSuite, Adobe PhotoShop, and Raisers Edge

SPECIAL SKILLS

Bilingual – English/Spanish

JCMS, Inc.
30 Years of Excellence

KEVIN MEEHAN LEAD COST ESTIMATOR

Total Experience:
15 years

Education:
BS - Civil & Environmental Engineering, Rutgers College of Engineering, New Brunswick, NJ, 1999

Training: *Track Certified – NJ Transit, 2014*

Skills: *E=MC² Estimating software, Timberline Estimating, OST (On-Screen Takeoff) Microsoft Office, Excel, Word, Sage, , InSite Sitework, Prolog, Endeavor, Paydirt, Roctek, HCSS HeavyBid.*

Mr. Meehan has over fifteen (15) years experience in the field of Construction Cost Estimating. His diverse experience comprises a wide variety of projects that includes estimation of Transit / Industrial / Commercial/ Institutional/ High-Rise / Educational etc. Mr. Meehan has been responsible for developing budgetary and final construction cost estimates, contract pricing and change orders, contract negotiations, interface and coordination with contractors, owners and A/E consultants on project issues, assisting owners on construction phasing and scheduling, coordinating with the A/E of record regarding change orders, interpretation of contract documents, submittal and approvals and related technical matters, review of contractors claims of disputed work, providing detailed takeoff and pricing for sitework, foundations and recommening appropriate action to owner.

PROJECT EXPERIENCE:

As Lead Estimator, currently working on Various PATH Task Orders:

PATH Task Order # 4 Replacement of Track, Third Rail and Appurtenances in Tunnel E & F at Exchange Place / New York, New York /PANYNJ

PATH Task Order # 12 Replacements of Auxiliary Power Equipment and Cables at Exchange Place / Jersey City, New Jersey / PANYNJ

PATH Task Order # 5 Replacement of Signal Cabling and Equipment at Tunnels E &F, New York, NY / PANYNJ

PATH Task Order # 8 Replacement of Blue Light Station, 480V Power Distribution and Tunnel Lighting at Tunnel E & F / New York, NY / PANYNJ

PATH Task Order # 6 Replacement of 27kV, 15kV, traction power and Inter-tripping cables at Tunnel E & F, Exchange Place & WTC / New York, NY / PANYNJ

PATH Task Order # 19 Exchange Place Station-Escalator Replacements / Jersey City, NJ / PANYNJ

Philadelphia Airport- Extension of Runway 27L and Associated Taxiways: Scope includes demolition of Existing Buildings, Site Developments and New construction of three independent Interim Rental Car Ready Return Facilities located at Philadelphia Airport. Each facility includes on grade Staging / Storage and Ready lots, QTA (Quick Turn Around area) and CSB including related structures such as guard booths etc. Responsible for reviewing rough order of magnitude estimate for three independent Interim Rental Car Ready Return Facilities at Philadelphia Airport. Mr. Meehan reviewing conceptual unit prices and quantities for major items and providing assessment of clarifications, qualifications and exclusions.

LIRR- Replacement of the Port Washington Yard Traction Power Substation, New York, NY: He is responsible for managing change order process and negotiations, for the construction of a new Traction Power Substation located within the LIRR yard in Port Washington, Nassau County, New York.

PANYNJ – Newark Aviation Fuel System Modification, Newark, NJ: The $90M Newark Liberty International Airport Fuel Systems Modifications project will install nearly 30,000 linear feet of underground double walled aviation fuel piping. The project will also add two new 47,600 bbl above ground tanks, two new truck fueling racks, a contact water treatment facility, fuel selection area manifold, modifications to four pump stations including new PLCs and controls. Mr. Meehan is responsible for providing cost estimating services.

NJ Transit- Sandy Recovery: Initial Flood Assessment, Newark, NJ: Estimate includes cost for Flood Mitigation, Backup Generator & Electrical hook-up-conduits-wire-transfer switch, Sump Pump, Trash Pump, On call implementation cost for contractor before and after storm for NJ Transit facility: Newark Penn Station, Secaucus junction, NLR Bloomfield Station, NLR Broad St. Station.

NJ Transit - Capital Asset Replacement Program (HBLR &SNLRT), NJ: The CARP program consists of projects including Resurfacing of the Plank Interlocking and the Lackawanna Curve, Harborside track replacement, Replacement of light fixtures, the UPS system and fire protection piping at the LRV Maintenance Facility, bollard replacement at the Newport Viaduct and replacement of various equipment and furniture. Mr. Meehan is responsible for providing capital cost estimates for NJ Transit's Hudson-Bergen Light Rail and River Line system infrastructure and facilities.

CATS Charlotte Area Transit System- Lynx Blue Line Extension, Charlotte, NC: The Charlotte Area Transit System Blue Line Extension is a $1 billion, 9.3 mile extension of the Charlotte, NC light rail system. The extension will service 11 new stations, including seven walk-up stations and four stations with park and ride facilities. His responsibility as the Cost Estimation Manager for the Project Management Oversight Contractor team is to perform a Risk Management and Contingency Review related to project cost.

Columbia Pike Streetcar, Arlington County, Virginia: Mr. Meehan was the Cost Estimating Manager for the Hill International Project Management Oversight Contractor contract, which provided a Readiness Review for Entry into Project Development. The Columbia Pike Streetcar project is a 4.93 mile electrically powered modern streetcar system that originates in the Pentagon City area of Arlingon County, VA and terminates in the Skyline area of Fairfax County, VA. $310 Million

LIRR - Station Master's Office Renovation, New York, NY: The renovation of Station Master's Office (SMO) on the concourse level of New York's Penn Station is a $2.5M project to update the nexus of the railroad's station monitoring and information network. Mr. Meehan provided preconstruction management and estimating services.

LIRR - Jamaica Stations Expansion Project, New York, NY: The "Jamaica Capacity Improvements – Phase I Design" (the subject of this RFQ), shall provide the Cross-Borough Scoot and the infrastructure improvements needed to increase capacity required for ESA operations. Provided estimating services at 30, 60, 90 and 100%.

MNR - Grand Central Terminal Leak Remediation, New York, NY: Grand Central Terminal in midtown Manhattan is planning a $20M Leak Remediation project to repair and prevent damage from water intrusion. Mr. Meehan provided preconstruction management and estimating services.

PANYNJ - National September 11th Memorial & Museum, New York, NY: Provide detailed cost estimates for bid packages relating to the $530 Million Museum/Memorial portion of the reconstruction of the World Trade Center site.Provided detailed takeoff and pricing for sitework, foundations, super-structure and architectural building elements.

MTA- Penn Station Visioning Study, New York, NY: The Penn Station Visioning Study is a "blank slate" planning study intended to optimize customer circulation and way finding, customer service amenities and station real estate utilization through 2035. Mr. Meehan's responsibilities include performing construction cost analyses to score the different concepts.

FTA –PMO -Blue Line Extension of the Charlotte Light Rail System, Raleigh, North Carolina: $1.1 billion, 9.3 mile extension of the Charlotte, NC light rail system.

andy Recovery and Long Term Flood Mitigation and Resiliency: The Secaucus Junction Platform Extensions project is a $1.5M effort to extend two island platforms an additional 120 feet each on the four tracks NJ Transit Main Line.

Employment History:

JCMS, Inc., Mercerville, NJ, Sr. Cost Estimator. 10/2011 – Present; URS Corporation, NY, Sr. Cost Estimator. 02/2009-10/2011; Gilbane Building Company, Lawrenceville, NJ, Sr. Cost Estimator. 01/ 2008–01/2009; Bovis Lend Lease, Inc., Princeton, NJ, Cost Estimator. 1/2000–12/2007

JCMS, Inc.
30 Years of Excellence

YADUNANDAN M LOKANATH SR. SCHEDULING ENGINEER

Experience Highlights:
Strong understanding of Project Management principles and CPM Scheduling technique

Education:
M.S. - Civil Engineering, New Jersey Institute of Technology, New Jersey

B.S. - Environmental Engineering, Visveswaraya Technological University, Mysore, India

Experience:
10 years

Skills:
Oracle Primavera P6v7, IBM Cognos, Net Point 4.1, AutoCAD, ArcGIS 9.3, On-Screen Take off 3, Primavera Expedition, Autodesk Revit, Tekla, Project solve, Prolog, MS Excel, Word, PowerPoint, Access, MS Project

Certifications & Awards:
University Top Rank holder, B.S. in Environmental Engineering

2008 Engineer of the Year Award, National Institute of Engineers, Mysore, India.

OSHA 40 Hour HAZWOPER
OSHA 40 Hour Outreach for the Construction Industry
MTA NYC Transit Track Safety Certification,
OSHA 8 Hour Lead Training

Memberships:
American Society of Civil Engineers (ASCE), American Academy of Environmental Engineers (AAEE), Project Management Institute (PMI)

Mr. Lokanath has background in Construction Management and Project Scheduling. He is a proficient Scheduler with keen understanding of Project Management principles. Mr. Lokanath is also a proficient user of Oracle/Primavera P6 software. He has experience in developing resource loaded baseline schedules and monitoring schedule progress on a periodic basis as well as preparing management reports. As a Project Manager, Mr. Lokanath proactively administered projects to achieve quality, schedule and budgetary goals. His experience includes Project Management, Contract Review and Negotiation, Construction Supervision, preparation of preliminary plans, detail drawings, specification and cost estimates. He has used various project management tools to track and record project performance in relation to schedule and document management.

TECHNICAL SUMMARY

- Develop and maintain detailed cost and resource loaded schedules for projects. Develop Work Breakdown Structure (WBS), Organizational Breakdown Structure (OBS), and cost control codes.
- Provide integrated cost-schedule analysis that enable monitoring budgeted costs, estimate cost at completion and their impact on schedule and resources.

PROJECT EXPERIENCE

As Project Controls/ Scheduling Engineer for the NYCT/CM team on the following two projects, Mr. Lokanath is responsible for reviewing the contractors' baseline schedule and monthly updates to ensure that they are realistic, accurate and in conformance with the specifications.

NYCT – South Ferry Terminal Station Complex Rehabilitation in the Borough of Manhattan $200M

The project includes removal and installation of new electrical equipment, communication, fiber optic equipment, HVAC system, ventilation system, pumping equipment, traction power system, signal work, track work, installation of seven elevators and two escalators, cleaning/replacement of architectural finishes of the station, chemical grouting, and painting.

NYCT- Construction of 2nd Avenue Subway – 96th Street, New York

Sr. Scheduling Engineer The project provides for the station finishes, installation of mechanical, electrical and plumbing systems in the station, installation of elevators and escalators, utility restoration, construction of the above ground structure of the entrances 1, 2, 3 and ancillary facilities 1, 2, remaining invert slab, street, sidewalk and tree restoration, and retrofit of the existing tunnel between 99th and 105th Streets and the base slab of the new bored tunnel from 87th to 92nd Streets. Mr. Lokanath served as the Project Controls/Scheduling Engineer for the project responsible for developing baseline schedule and performing monthly updates.

MNR - Grand Central Terminal Leak Remediation, Phase II New York, NY: Grand Central Terminal Leak Remediation project includes repair and prevent damage from water intrusion. Park Avenue Viaduct, Façade and Balustrade Repairs, Vanderbilt Avenue, 42nd Street Sidewalk and Curb Lane, Vanderbilt Avenue and 45th Street Traffic Signals and Pedestrian Ramps, and 45th Street Bridges. The project includes repairs and new waterproofing of the building façade as well as adjacent substructure, roadway, sidewalks, elevated roadways and bridges.

Sr. Project Controls Specialist at PANYNJ

Mr. Lokanath was responsible for managing and tracking project budgets and costs, monitoring the project schedule and compliance with the project baseline, coordinating/preparing budgetary documents, reviewing budget/contract expenditures, and collecting and reporting project performance metrics.

PANYNJ Security Project Management (SPM)

- Perform cost and schedule variance analysis for the Program Director and Program Managers;
- Assist assigned project managers in preparation of project proposals for projects, including assistance in the preparation of project budgets; updating project forecasts; Establishing, maintaining and closing account codes; and preparing monthly and ad-hoc project/program status and performance reports;
- Support Program Director in capital planning prioritization of the active portfolio of capital projects.
- Provide training and technical assistance to assigned project managers in understanding current and future Port Authority project control systems and enhancements;
- Coordinating the work of other project control specialists; mentoring lower level project control staff, as needed;
- Update schedules in Oracle Primavera project scheduling software on a monthly basis or as needed in concert with assigned project managers.
- Review project status with project managers including scope, schedule and costs;
- Maintaining proper project and activity codes in the Primavera system;

PANYNJ Tunnels, Bridges & Terminals (TB&T) & Priority Capital Projects

Programs:	Lincoln Tunnel Access Program (LTAP)	- $1.85B
	Bayonne Bridge Navigational Clearance Program (BBNCP)	- $1.29 B
	Goethals Bridge Modernization Program (GBMP)	- $512M
	Goethals Bridge Interchange Ramps Program	- $130M

- Assist Program Managers in the preparation of program budgets; updating program forecasts; Establishing, maintaining and closing account codes;
- Prepare monthly and ad-hoc program status and performance reports; Manage and track project budget and costs using IBM Cognos query studio and workspace advance;
- Create and maintain resource loaded master program schedules in Oracle primavera project scheduling software;
- Coordinate/prepare budgetary documents, review budget/contract expenditures, and collect and report program performance metrics.

PANYNJ PATH Signals Project w/ Invensys Rail Corporation ($321M): The signal project consists of replacing the signals throughout the PATH line's 43 track miles and 13 stations. Review project status with project managers including scope, schedule and costs;

- Update resource and cost loaded schedules in Oracle Primavera project scheduling software on a monthly basis or as needed in concert with assigned project managers;
- Organize WebEx meeting sessions with the field team in Newark and fabrication team in Louisville to capture/monitor progress;
- Coordinate with Siemens Transportation Systems of Berlin, Germany, and D/A Builders, LLC schedulers to capture/monitor progress;
- Maintain proper project and activity codes in the Primavera system;
- Perform Earned Value Analysis and report project performance metrics to the Program Director.

Employment History:

JCMS, Inc., 2011-Ongoing; RISA Management Corp, NY 01/2009- 2011; Sankalp Constructions, Mysore, India 02/2007-08/2008; Pathak Constructions, Mysore, India 06/2005-02/2007

EDUCATION

PhD/Structural Engineering, Drexel University, 1992
MS/Structural Engineering, George Washington University, 1982
BS/Civil Engineering, University of Aleppo, Syria, 1976

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Professional Engineer – NJ (#24GE03850300); NY (#073077); PA (#38445E); MD (#29638); CT (#24536) FL (#59852)
AREMA, Bridge Inspection Seminar, April 2014
FHWA-NHI Course No. 130053 – Bridge Inspection Refresher Course, April 2010
FHWA-NHI Course No. 130055 – Safety Inspection of In-Service Bridges, June 2005
FHWA-NHI Course 130078, Fracture Critical Inspection Techniques for Steel Bridges, 2013
Licensed Building Inspector: New Jersey (#7114)
LIRR Rail Safety Training, 2011
MNR Safety Training, 2011

PROFESSIONAL AFFILIATIONS

AREMA, Member of Committee 15 "Structural Steel" American Railway and Maintenance-of-Way Association Member American Society for Quality Member National Society of Professional Engineers

CHRONOLOGICAL HISTORY OF EMPLOYMENT

KS Engineers, P.C. (2012 – Present)
McLaren Engineering Group (1994 – 2012)
Boswell Engineering (1989 – 1993)

EXPERIENCE SUMMARY

Dr. Assis has provided project management and design services for more than 39 years. His experience includes in-depth inspection, preparation of inspection reports, conceptual and preliminary studies, and preliminary and final design documents (including cost estimates and specifications) for a multitude of bridge, highway, culvert, site/civil, buildings, and marine projects. Dr. Assis has served as Project Manager or Quality Control Engineer on many projects such as biennial underwater bridge inspection and design contracts for the NYSDOT, NYCDOT, NJDOT, ConnDOT, and the New York State Thruway Authority. In addition, work performed includes forensic investigations, expert witness testimony and value engineering.

The Port Authority of New York and New Jersey (PANYNJ), Profession Structural Engineering Services as Requested on a Call-In Basis during 2012, 2013, 2014, NY and NJ – Project Manager for structural engineering services on a call-in basis for PANYNJ facilities, including the region's major commercial airports, marine terminals and its interstate tunnels and bridges which are vital "Gateways to the Nation". Services performed generally consist of preparing structural engineering studies, condition surveys, designs, contract drawings, technical specifications, and construction cost estimates for new facility structures, and the renovation and rehabilitation of existing structures. Individual assignments under this contract included:

- Task 01 - Structural Design Services for Express Rail Port Jersey - Intermodal Container Transfer Facility (ICTF) at Greenville Yard
- Task 02 - Structural Design - Port Newark Expressrail Corbin Street Intermodal Rail

Support Facility Phase 2A PNCT Intermodal Yard Expansion

- Task 04 - Contract Preparation and Post-Award Duties for the Newark Liberty International Airport Switchhouses #1 and #3 under Contract No. EWR-934.001

PANYNJ, Profession Structural Engineering Services (MBE/WBE) as Requested on a Call-In Basis during 2012, 2013, 2014, NY and NJ – Project Manager for structural engineering services on a call-in basis for PANYNJ facilities, including the region's major commercial airports, marine terminals and its interstate tunnels and bridges which are vital "Gateways to the Nation". Services performed generally consist of preparing structural engineering studies, condition surveys, designs, contract drawings, technical specifications, and construction cost estimates for new facility structures, and the renovation and rehabilitation of existing structures. Individual assignments under this contract included:

- Task 08 - Repair of Sheet Pile Bulkhead at LaGuardia Airport
- Task 10 - George Washington Bridge (GWB) Bus Station – Concrete Topping Evaluation
- Task 12 - AutoCAD Drafting Services for EWR Priority Repairs of Bridges

PANYNJ, Rehabilitation of Leaky Decks at the Bayonne Bridge, Staten Island, NY – Project Manager rehabilitation of leaking decks at the Bayonne Bridge, as well as structural repairs to the abutments at the Goethals Bridge, two structures that connect Staten Island, NY, with New Jersey. The 5, 78- foot-long Bayonne Bridge is a steel arch bridge, and the 7,109-feet-long Goethals Bridge is a steel truss cantilever. The rehabilitation included repairs of concrete spalls, replacement of corroded reinforcement, and sealing joints at the New York Abutment of the Bayonne Bridge. Repairs at both abutments of the Goethals Bridges included expansion joint replacement and concrete spall repairs.

PANYNJ, Rehabilitation of Center Avenue Bridge and Lemoine Avenue Bridge, Fort Lee, NJ - Project Engineer for the inspection of the Center Avenue Bridge and reviewed the inspection report and recommendations. The project is currently in the final design phase for the replacement of the deck and rehabilitation of the piers and abutments. Construction staging plans including maintenance and protection of traffic will be prepared.

PANYNJ – LGA-934.016 – Bowery Bay Bulkhead and ILS Pier – Quality Control Manager for the repairs to the deteriorated steel bulkhead at LGA Airport and ILS Pier. The sheet piling along the east-west portion of the wall was in very poor condition, with heavy steel delaminating and large holes through the steel. Stone behind the bulkhead was previously lost through an opening around a drain pipe (2 to 3 feet in diameter) causing a sinkhole in the roadway. ILS Pier consists of steel beams supported on timber bents with timber piles. The steel beams were severely corroded. Contract drawings were prepared per PANYNJ standards. A cost estimate for the repairs was also prepared.

MTA Metro-North, Poughkeepsie Station Building Improvements - Poughkeepsie, NY – Project Manager for the crack and spall repairs at the north station wall, repairs to the deteriorated steel canopy, and extension of the concrete retaining wall north of the station. The work consisted of four distinct tasks: Data Collection and Site Investigation; Preparation of Preliminary Documents; Final Design and Preparation of Detailed Plans, Specifications, and Construction Cost Estimates; and Bidding and Construction Period Services. An in-depth inspection was performed to ascertain the condition of the elements at the site.

EDUCATION
MS/Transportation, Polytechnic University of Brooklyn, 1972
BS/Civil Engineering, Manhattan College, 1971

REGISTRATION AND
Professional Engineer – NY (#054989), NJ (#24GE02889600), PA (#PE041605R)
Project Management Professional, 2006

CHRONOLOGICAL HISTORY OF EMPLOYMENT
KS Engineers, P.C., Vice President & Civil Department Manager (2012 – Present)
Dewberry Engineers, Inc., Deputy Project Manager (2010 – 2012)
CMX (formerly Schoor DePalma, Inc.), Highway Department Manager (2000 – 2010)
TAMS Consultants Principal Engineer (1991 – 1999)
Schoor DePalma, Project Manager (1989 – 1991)
Clarke & Rapuano, Inc., Highway Department Manager (1981 – 1989)
Richard Brown Associates, Traffic Engineer (1978 – 1981)
NYC Department of City Planning, Engineer (1974 – 1978)
Tri-State Regional Planning Commission, Engineer (1972 – 1974)

SUMMARY OF EXPERIENCE
Mr. Frega has 41 years of experience in the planning, design, and rehabilitation of transportation infrastructure (highways, bridges, transit, and airports). His expertise includes project management, investigations and traffic studies, highway/civil design, preparation of contract documents, constructability reviews, traffic control during construction, QA/QC reviews, and construction services. The clients he has served include the New Jersey Department of Transportation, New Jersey Turnpike Authority-Parkway Division, South Jersey Transportation Authority, Port Authority of NY & NJ, and numerous private sector clients. Mr. Frega implements the requirements of the NJDOT *Procedures Manual*. His representative project experience includes:

The Port Authority of New York and New Jersey (PANYNJ), 30% Design for Terminal A at Newark-Liberty International Airport, Newark, NJ – Project Manager for this project, which involved landscape and irrigation design and developing the 3D model of the roadway and bridge network for the proposed Terminal A at EWR. The landscape plans included placement of appropriate plants and trees adjacent to the new terminal, construction details, and calculation of the quantities for the landscape items. As the design of the roadway system was modified, the landscape plans were revised and quantity estimates were updated. The irrigation plan included sizing the trunk and feeder lines, determining the number of zones required, placing the irrigation field controllers, locating sprinklers, determining tree bubbler zones, and potable water sources. A 3D model of the proposed roadways, bridges, AirTrain, and terminal was prepared to show potential conflicts and check the clearances between the roadway and the bottom of the bridges' girders. The model included seven (7) bridge structures, a digital terrain model (DTM); cross-sections; plans, sections, and construction details; creating surfaces for the airfield grading; incorporating landscape and hardscape designs; and modeling the water and sanitary sewer systems.

PANYNJ, Architectural and Engineering Services for the Replacement and Upgrade of the PATH Harrison Station, Harrison, NJ – Project Manager for the Civil Design of site improvements associated with the major development of the Harrison Station on the Port Authority Trans-Hudson rapid transit line. In response to the ongoing transformation of Harrison's former industrial district along the Passaic River with high-profile mixed-use residential, commercial, and recreational development projects such as Red Bulls Soccer Stadium, the Port Authority of NY & NJ is investing in the redevelopment of the existing transit station to increase its capacity, and establish the station as a central hub for the surrounding community. The station's redevelopment plan involves the creation of four distinct but unified plaza areas with signature head house buildings to define the geographic reaches of the station. For each plaza area, KSE is responsible for the Civil Design of the site utilities, grading and drainage including LEED/Sustainability, and access and egress for vehicles and pedestrians. In addition, KSE designed off-site improvements, including a major storm drainage line, to the adjacent Hudson County arterial serving the station area, Frank E. Rogers Boulevard, as well as maintenance and protection of traffic plans for vehicles and pedestrians during construction of the roadway improvements.

PANYNJ, Professional Civil Engineering Services on a "Call-In" Basis for 2011, 2012 and 2013 – Task 1: High Pressure Fire Protection System (FPS) - Valve Replacement of Valves H15 and H16, John F. Kennedy International Airport (JFK), Queens County, NY – Project Manager for Stage III and IV services for the design of the replacement of the JFK High Pressure Fire Protection System (FPS) valves H15 and H16 with resilient seated valves together with each valves adjacent pipe sections. This will eliminate leaking at the valves and their couplings to the FPS resulting from inadequate initial installation procedures.

PANYNJ, Professional Civil Engineering Services on a "Call-In" Basis for 2011, 2012 and 2013 – Task 2: Modification of Contract Documents for the Rehabilitation of Cargo Road and the Parking Area in the vicinity of the Reese Aviation FedEx Maintenance Facility at Stewart International Airport (SWF) – Project Manager for Stage III and IV design services for the modification of previously completed contract documents for the milling and resurfacing of Cargo Road and the design of a parking lot expansion in the vicinity of the FedEx Maintenance Hangar. The original construction contract was placed on-hold at the conclusion of design and in the interim, the Authority completed an in-house design for runway incursion mitigation immediately adjacent to the Cargo Road project. The intent of the modification design is to eliminate any potential conflicts between the roadway and runway projects.

PANYNJ, Professional Civil Engineering Services on a "Call-In" Basis for 2011, 2012 and 2013 – Task 4: Pavement Rehabilitation – North Boundary, Easton, and North Hangar Roads at JFK – Project Manager for Stage III and IV services for the civil design of milling and resurfacing of each roadway, and the replacement of asphalt surface courses at each of the intersections of the project roadways with Portland cement "white topping" surface courses. The intent is to eliminate pavement distresses along each project roadway, especially at key intersections which have experienced severe rutting from the turning movements of large vehicles.

EDUCATION

MS/Civil Engineering, Lamar University, Beaumont, Texas - December 2008
BS/Civil Engineering, Osmania University Hyderabad, India - May 2007

COMPUTER SKILLS

Design packages:	AutoCAD, STAAD pro, Flac 2D.
Microsoft Office Tools:	MS-Word, MS-Excel, MS-PowerPoint.
Operating Systems:	Windows-95/98/00/XP/VISTA/NT, MS-DOS**.**
Planning Software's:	MS Project.

CHRONOLOGICAL HISTORY OF EMPLOYMENT

KS Engineers, P.C. (2009 - Present)
Divya Shree Construction (2006 - 2008)

EXPERIENCE SUMMARY

The Port Authority of New York and New Jersey (PANYNJ), Call-In Facilities Condition Survey of Light Standards and Traffic Signal Structures - 2013; JFK International Airport, New York - Assistant Team Leader for the inspection and condition survey for approximately 3,000 light poles/traffic signals throughout JFK Airport which included 90% visual and 10% hands-on inspection. Assisted in preparing the weekly work schedule, MPT lane closures considering peak traffic times during the day and holiday work restrictions, coordinated with PA Facility personnel including Operations, Police and PA Tenants, Coordinated Escort service for the Air-side light pole inspection. Prepared in-depth condition reports, with GPS location for each light / traffic signal poles, which identified structural and non-structural deficiencies. Prepared immediate repair letters and identified safety and priority conditions. Updated the location maps for each light pole and traffic pole structures.

NJTA, OPS P3476 - 2014 NJ Turnpike Bridge Inspection Program, GSP Areas 1and 3 - 235 Bridges, NJ - Assistant Team Leader responsible for the NBIS in-depth inspection and report preparation for this project. The inspections included bridge appurtenances: bridge / fascia-mounted sign structures, right-of-way fencing, substructure protection, guide rail/barriers, utilities and supports attached to the structure, approaches, and safety features. In addition, he input the field notes into the online InspectTech software and obtained output for the reports, developed Individual Bridge Reports, updated the BPS Reports, made SI&A and PONTIS updates, and wrote Category A Deficiency Memos.

NJ Turnpike Authority (NJTA) – Parkway Division – Load Rating Engineer responsible for the performance of load rating analysis utilizing AASHTO Ware Virtis software. Project consists of over 130 bridges located in Area 2 on the Garden State Parkway. Structure types include simply supported and continuous spans that consist of steel rolled girders, welded plate girders, prestressed concrete box beams and prestressed concrete I-beams.

Monmouth County Dept. of Public Works, NBIS Inspection of 54 Bridges, NJ – **Assistant Team Leader** for condition surveys and reports for bridges in Monmouth County. This project included condition evaluation of all bridge elements such as abutments, piers, bearings, structural members, paint, deck, approach roadway, drainage and safety features.

NJDOT, Inspection of 39 On-System and 3 Off-System State Bridges, Group ST0R, NJ – Assistant Team Leader for in-depth inspection of 42 structures on various highways throughout northern New Jersey. The superstructure inspections included the examination of deck systems, parapets and barriers; fixed and expansion joints; drainage systems and structural members-steel and concrete. The substructure inspections included abutments, wingwalls and piers. Deficiencies were recorded and photographed. Also inspected the condition of the approach roadways as well as the bridge safety features.

NJ Transit, Undergrade Railroad Bridge Inspection and Diving Inspection for 52 NJ Transit Bridges (Group A), NJ – Assistant Team leader for in-depth inspection of 52 NJ Transit Undergrade Bridges located on the North Jersey Coast Line, Atlantic City Line and Princeton Branch. The bridge types include through girder, deck girder, concrete slab, brick arch, and stone arch structures. Most bridges have through girder or deck girder type construction.

Delaware River and Bay Authority, NBIS Inspection of Delaware River Bridges I and II (Twin Suspension Bridges) – Assistant Team Leader for the 2009 Annual Condition Inspection of the two "Twin" Delaware Memorial Bridges. Assisted with in-depth inspection of west girder spans including superstructures and substructures between Piers 1W5 to west abutment for Bridge, Inspection of cable suspender ropes and top of decks for both Bridges I & II, hands-on inspection of 24 span structures for variable message sign gantries & traffic signal gantries, including trusses, towers, bases, connections and sign panels, In-depth inspection of 49 ground mounted sign structures, and In-depth inspection of 46 High Mast Light Tower (between 100' to 120' height) for both Bridges.

NJDOT, Inspection of 119 Overhead and Cantilever Sign Structures – Group XS9B – **Assistant Team Leader** for in-depth inspection and report preparation of overhead and cantilever sign structures and associated appurtenances and roadway elements to determine the condition of the sign structures and the structure site.

NJDOT, Inventory, Inspection, and Rating of Minor Bridges in Middlesex County – Group 12L8 – Assistant Team Leader for preparation of complete inventory (Phase I) for all minor bridges (culverts under 20 ft. in length) that are under Middlesex County's jurisdiction.

Monmouth County Dept. of Public Works, Biennial Inspection of 51 Off-System Bridges, NJ – **Assistant Team Leader** for condition surveys and reports for Off-system Bridges in Monmouth County. This project included condition evaluation of all bridge elements such as abutments, piers, bearings, structural members, paint, deck, approach roadway, drainage and safety features.

EDUCATION

BS/Civil Engineering, Polytechnic University, Brooklyn, NY, January 1999
AAS, Civil Engineering Technology, New York City Technical College of CUNY, Brooklyn, NY, June 1996

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Professional Engineer - New York (#081978-1)
NHI Course No. 130055 - Safety Inspection of In-Service Bridges, 01/2012
NHI Course No. 130078 - Fracture Critical Techniques for Steel Bridges, 01/2013
NYSDOT Behavior, Failure, Mechanisms and Inspection of R/C and Prestressed Conc. Bridges, Course No. 20100201, 03/2010
NYSDOT Bridge Inspection Workshop, Course No. 20050034
NYSDOT Method of Bridge Inspection Prescribed by the Structures Design and Construction Division

CHRONOLOGICAL HISTORY OF EMPLOYMENT

KS Engineers, P.C. (2005 – Present)
B&H Engineers (2004 – 2005)
Gannett Fleming (2001 – 2003)
Vollmer Associates (2000 – 2001)
Mueser Rutledge (1992 – 2000

EXPERIENCE SUMMARY

Mr. Saul offers over 16 years of engineering experience performing structural integrity inspection of highway and railroad bridges, buildings, and other structures including all types of steel complex bridges and concrete long-span bridges in accordance with AASHTO, AREMA NYSDOT, NYCDOT, PONTIS Federal Coding Guide, and local requirements. His relevant experience has been gained while working for the Port Authority of New York and New Jersey, Triborough Bridge Tunnel Authority, New York State Department of Transportation and New Jersey Department of Transportation. His relevant experience includes:

The Port Authority of New York and New Jersey (PANYNJ), Facility Condition Survey Services As Requested on a "Call-In" Basis During 2006, 2007 and 2008 – Assignment # 3 – Condition Survey of High Mast Light Towers at Howland Hook Marine Terminal – Team Leader responsible for the condition survey of 43 high mast light towers at the Howland Hook Marine Terminal in New York. All high mast light towers received a 100% hands-on inspection including all structural framing and connections, luminaire assembles and connections, structural support systems, visible portions of the foundations, and other appurtenances attached to the light towers including floodlights and signs.

PANYNJ, 2005 Biennial Inspection of Lincoln Tunnel New Jersey Approach Roadways, NJ - Assistant Team Leader for inspection of bridges along the NJ Turnpike. Assisted in identifying the bridge components, defects, and quantification of the defects. Prepared the NJDOT Biennial Inspection Reports and the Port Authority Condition Survey Reports.

PANYNJ, JFK International Airport, Queens NY – **Assistant Team Leader** responsible for inspection of light poles, lighting structures, and radio communication towers at JFK International Airport. Inspection consisted of checking for defects such as cracked welds, holes at the base of the structures, dents and holes as a result of vehicular impact, exposed electrical cables,

using D-meters to determine section loss and any defect that might impair the functioning of the structure. He also prepared the Port Authority Condition Survey Report.

NJTA, OPS P3476 - 2014 NJ Turnpike Bridge Inspection Program, GSP Areas 1and 3 - 235 Bridges, NJ - Team Leader responsible for the NBIS in-depth inspection and report preparation. Inspection of bridges included bridge appurtenances: bridge/fascia-mounted sign structures, right-of-way fencing, substructure protection, guide rail/barriers, utilities and supports attached to the structure, approaches, and safety features. In addition, he generated and reviewed the InspectTech reports, Area Reports, BPS Report, SI&A and PONTIS updates, and Category A Deficiency Memos.

AMTRAK, Hell Gate and Bronx Kill Bridges - Special Detailed Inspection and Rating, Queens, NY - Team Leader for the inspection of the Hell Gate Arch Bridge and Bronx Kill Bridge. The project includes reporting indications of overload or failure in any part of the bridges; observation of the general behavior of the bridges during the passage of live load, where practical, noting excessive vibrations, deflection, side sway, and movement at pier supports; and close visual inspection of all truss pins at the top and bottom chords of the floorbeam hangers and the net section of eye bar heads (where accessible).

NJ Transit, Undergrade Railroad Bridge Inspection and Diving Inspection (Group A), NJ – Team Leader for the in-depth inspection, evaluation, load ratings and report preparation for NJ Transit undergrade railroad bridges.

MTA Bridges & Tunnels, 2013 Biennial Inspection and Design of Miscellaneous Structural Repairs at Bronx-Whitestone Bridge, NY (PSC - 12-2916B) - Team Leader responsible for hands-on inspection of all structural elements on the Bronx approach spans suspender ropes of main span. All inspection work was performed in accordance with NYSDOT requirements.

2012 Biennial Inspection – Verrazano Narrows Bridge – Main Span (PSC 11-2899C), MTA Bridges & Tunnels, New York, NY, Team Leader. Responsible for hands-on inspection of the sub-floorbeams, stringers, floorbeam trusses, stiffening trusses, vertical members, and sockets for the suspension ropes for the main spans. Also responsible for the hands-on inspection of the cells in the legs of vertical members of the stiffening trusses and floor trusses. The scope included the inspection of the top and underside of the deck, which involved the sounding of 100% of the concrete over the roadway. The lower-level superstructure elements, with sketches for flag locations, and review and update of the structure and paint ratings for all structural members was also included.

MTA Bridges & Tunnels, 2011 Special Inspection of RFK (Formerly Triborough) Bridge, NJ (PSC-09-2860) – Team Leader for the in-depth hands on inspection of main span of the RFK Bridge. In-depth inspection included sounding and documenting concrete identified as condition red or yellow.

MTA Bridges & Tunnels, 2011 Biennial Inspection of the Throgs Neck Bridge, NY (PSC-10-2881A) – Team Leader for the in-depth inspection at the Throgs Neck Bridge. Inspection included thorough examination of all approach structures, main spans and appurtenances.

JASON LARSON Site Survey

Academic Background
University of Florida, BS, Surveying and Mapping
Polk Community College, AA

Additional Studies
GPS: Theory, Practice and Applications
North American Vertical Datum
Public Land Surveys & Corner Restoration II
Project Management Training Course
Florida Minimum Technical Standards
FDOT Sitemenu & Electronic Delivery

Professional Licenses
Professional Surveyor and Mapper: Florida (inactive); New York (pending)

Employment History
Naik Consulting Group, PC (2006-Present)
B. Thayer Associates (2005-2006)
Volkert & Associates, Inc. (2003-2005)
Quinn & Associates, Inc. (1994-2003)
The Survey Crew (Envisors) (1992-1994)
Southern Land Surveyors (1989-1992)

PROFESSIONAL WORK EXPERIENCE

Mr. Larson has 25 years of experience in professional land surveying. His responsibilities include the management and direction of survey projects, as well as, the supervision of all 3D laser scanning operations. Other responsibilities included the management of GPS activities including network design, raw data processing, and network adjustment and delivery. He has supervised field crews, and overseen the management of crew personnel, scheduling, and allocation. Mr. Larson possesses extensive civil design knowledge of subdivision and commercial site development projects, and major roadway design and facilities projects. He has established and maintained CADD drafting standards and survey procedures. His project experience includes:

PANYNJ Holland/Lincoln Tunnels Ventilation Buildings, New York, NY: Project Surveyor/HDS Scanning Manager – Supervising/directing the surveying / mapping services (topographic and utility) for the ventilation buildings to provide as-built survey information for the Holland and Lincoln tunnels' vent buildings relative to flood mitigation. The raw data used to create this survey is being acquired through the use of 3D laser scanning equipment and techniques. We are also obtaining digital color photography utilizing a high-resolution Canon digital SLR camera coupled with the scanner. This digital imagery will be incorporated into the 3D scan placing color pixels on each scan point and allowing the point cloud to be visualized in true color as well as providing high resolution QuickTime VR files for easy review without specialized software.

PANYNJ Holland/Lincoln Tunnels Latent Damages Repair/Rehabilitation, New Jersey: Project Surveyor/HDS Scanning Manager – Supervising/directing the surveying services for the New Jersey portal of the Holland Tunnel for latent damages stemming from Superstorm Sandy. We are providing field survey observations at specified sites within the project limits. This work includes establishing horizontal and vertical control at the specific locations. Survey observations are being performed

utilizing a combination of 3D laser solution and conventional survey electronic total stations and on-board data collection. Survey observations are being downloaded directly into our in-house computer workstations. These observations will be processed yielding x, y, z coordinates.

PANYNJ Hoboken Station, Hoboken Stairs, NJ: Project Surveyor/HDS Scanning Manager – Supervising/directing the surveying services for the flood mitigation project of the Hoboken Station. Recovered and utilized the horizontal and vertical control network previously established by us in a prior survey and extended and or densified this network in sufficient numbers and in areas where additional topographic and utility information is required to complete the mapping efforts for this project. Utilized a Leica C-10 laser scanner to perform the topographic survey effort. This point cloud data is being registered and processed into planimetric and topographic information, including capture of surface utility hardware. We shall include the required data in accordance with PANYNJ standards.

PANYNJ Topographic/Boundary Survey Services on a Call-In Basis During Years 2007 – 2009; 2010 – 2012; 2013, 2014, Various Locations, New York and New Jersey: Project Surveyor/HDS Manager – As part of several continuous Authority call-in agreements responsible for providing topographic and boundary survey services for various projects throughout the Authority's airport, bridge, tunnel, harbor, and facilities complexes. Representative services include boundary surveys, topographic /grid surveys, structural surveys, drainage surveys, abstract request mapping, cross section and profile surveys, location surveys, control point monumentation, and photogrammetric control.

PANYNJ / Delta Airlines JFK Terminal 3 & 4 Redesign, Queens, NY: Project Surveyor/HDS Manager - Surveying and mapping for a complete topographic as-built survey of a large portion of tarmac and gate areas between Terminals 3 and 4 at JFK International Airport. The survey served to support the design of expansions to the Terminal 4 concourse, as well as a new pedestrian bridge connection to Terminal 3. The primary data collection method was HDS laser scanning. Final survey deliverable consisted of the topographic and utility survey.

PANYNJ PATH Tunnels A & B, PANYNJ, Jersey City, NJ - Manhattan, NY: Project Surveyor/HDS Manager – As-built survey of PATH tunnels from Jersey City, NJ to Christopher Street in Manhattan. Survey of tunnel section was 7500' long with two tubes. HDS scanning was the primary data collection source. Final survey deliverable consisted of the location of steel ring lining and lifting lugs every two feet for the length of the project and all utilities.

PANYNJ PATH Tunnels E & F, Jersey City, NJ - Manhattan, NY: Project Surveyor/HDS Manager - As-built survey of PATH tunnels from Jersey City, NJ to the World Trade Center in NYC. Survey of tunnel section was 3300' long with two tubes. HDS scanning was the primary data collection source. Final survey deliverable consisted of the location of steel ring lining and lifting lugs every two feet for the length of the project.

PANYNJ PATH Emergency Exit Laser Scanning, New York and New Jersey: Project Surveyor/HDS Manager - Surveying and mapping services to provide as-built survey information for PATH Emergency Exit Stairs in six exit shafts located at the Washington Street Shaft; Caisson #1; the 15th Street Shaft; the Morton Street Shafts (A&B); and the Newport (Pavonia) Station Shaft.

DAVID J. FULL, AICP

VICE PRESIDENT - AVIATION
ENVIRONMENTAL ASSESSMENT/ PERMITTING

Experience

With 32 years of experience, Mr. Full is an industry leader in aviation environmental issues. Mr. Full has prepared federal Environmental Impact Statements, Environmental Assessments and Documented Categorical Exclusions as well as state environmental documents for a variety of projects at major air carrier and general aviation airports throughout the United States. Mr. Full has prepared environmental documentation for runway extensions, taxiway improvements, new air passenger terminals, airport access facilities, air traffic control towers, access roadway improvements, consolidated rental car facilities, hangars, Aircraft Rescue and Fire Fighting facilities, and other landside and airfield improvements. Project experience includes:

- Environmental Impact Report, Los Angeles International Airport, Los Angeles, California--Project Manager. Prepared California Environmental Quality Act documentation for the development of a new 22-gate midfield satellite concourse west of the existing Tom Bradley international terminal at Los Angeles International Airport. The project included the identification of a number of enabling projects and included a central processing terminal and a people-mover system.

- Environmental Assessment, Louis Armstrong New Orleans International Airport, New Orleans, Louisiana--Project Manager. Managed the preparation of National Environmental Protection Act documentation for the implementation of the Long-Term Development Program, which included a variety of landside facilities such as a new terminal building, new parking facilities, new access roadways and new passenger access facilities.

- On-Call Contract for Environmental Consulting Services, Burbank-Glendale-Pasadena Airport Authority, Burbank, California--Project Manager. Projects for the Authority included environmental documentation for improvements to the terminal building to accommodate new passenger screening facilities, to develop a consolidated rental car facility, to construct new perimeter fencing, to finalize the development agreement between the Authority and the City of Burbank to permit the completion of Taxiway “D”, to acquire and develop public and valet parking, to relocate a long-term public parking lot, to install traffic signals on the terminal loop roadway and to develop a baggage inspection and make-up facility for Terminal “B”. In addition, a separate project that would result in the construction of a replacement terminal building with people-mover connections to existing rail stations is currently being prepared.

- Environmental Impact Statement, O’Hare International Airport, Chicago, Illinois--Senior Task Leader/ Quality Assurance/Quality Control Manager. The Environmental Impact Statement (EIS) addressed the $6 billion modernization program at O’Hare

International Airport. Responsibilities included overseeing the analyses for all environmental disciplines, serving on the EIS decision-making management team and participating in the public involvement effort. Among the improvements contemplated by the City of Chicago is the construction of four new east-west runways, expansion of terminal facilities, addition of new on-airport roadways, and extension of the people-mover system.

- Environmental Assessment, San Francisco International Airport, San Francisco, California--Task Leader. Analyzed impacts of the project on land use, cultural resources, socioeconomic and Section 4(f) resources. The proposed project consisted of construction of a new international terminal, boarding areas and aircraft gates, parking garage, ground transportation center and automated people-mover and roadway and circulation system improvements.

- Environmental Assessment, Tampa International Airport, Tampa, Florida--Quality Assurance/Quality Control Manager. Provided senior oversight to the Hillsborough County Aviation Authority on the NEPA documentation associated with the development of a North Terminal Complex. This project included the extension of the existing people-mover system in operation at the airport.

- Part 150 Study, Newark Liberty International and Teterboro Airports, Newark, New Jersey—Task Leader. Preparing the land use compatibility and National Environmental Policy Act (NEPA) strategy for the FAR Part 150 Study for the Port Authority of New York and New Jersey. The project will identify all incompatible land uses in the vicinity of both airports and provide strategies for working with local municipalities to reduce the number of people that are exposed to significant aircraft noise levels.

Professional Credentials

Master of Urban Planning, University of Washington, 1985
Bachelor of Arts in Urban Planning, University of Illinois at Urbana-Champaign, 1982
Certified Planner, American Institute of Certified Planners - AICP (No. 008828), 1991
Airports Council International-North America, Environmental Affairs Committee Steering Group
Airports Council International-North America, Land Use Subcommittee, Vice Chair
Airports Consultants Council - Sustainability Committee, Vice Chair
National Association of Environmental Professionals, Board Member

Employment History

RS&H, October 2006 to present
ESA, May 1987 to October 2006
URS, June 1984 to May 1987

David W. McGhee | Principal Consultant, Security Engineering/ Information Systems
Ross & Baruzzini, Inc.

Education:
BS, Architectural Engineering,
University of Kansas, 1990

Employment History:
2005 thru present
Ross & Baruzzini

2001 thru January 2005
Clark, Richardson and Biskup

June 2000 thru March 2001
The Benham Group

Summary of Expertise

David has over 23 years of engineering experience in airport systems and serves many airport and airline clients as a design engineer for their aviation facility design projects. His specializations include airport security planning and design including ACS, CCTV/DVMS, and DVA, Local Area Network (LAN) layout, Infrastructure layout, Public Address (PA) design and testing, display system design and layout including FIDS, BIDS, etc., Audio/Visual systems, distributed antenna systems, data center design, and GPS based tracking and announcement systems. David has been responsible for the design and preparation of construction documents on a variety of electrical and special systems projects for aviation, government, commercial, industrial, and health care facilities. Relevant project experience follows:

Key Project Experience

MTA, Throgs Neck Bridge Electronic Security and Communications Upgrade Program, New York, NY
Security Engineer for a $1.5 Million program to develop a threat and vulnerability analysis of critical bridge components and recommend and provide design services for mitigation strategies for the Throgs Neck bridge. Analysis includes identifying security gaps and security improvements and recommend and provide design drawings for recommendations, including security system enhancements and/or structural hardening mitigation. Project will also include potential improvements to existing access controls, intrusion detection systems, and CCTV surveillance upgrades.

Dallas-Ft. Worth International Airport, IT On-Call Terminal Telecommunications Room, Dallas, Texas
Project Engineer providing oversight and QA/QC for the enabling project to program and design forty (40) telecom rooms to support multi-year, multi-phased renovation of Terminals A, B, C, and E as part of the Terminal Development Program. Required extensive coordination across many design teams, the Information Technology Services organization and other designated stakeholders to meet aggressive seven month design schedule.

Dallas Ft. Worth International Airport, Terminal Renewal and Improvement Program (TRIP), Terminal A Phase One Design & Construction Support Services, Dallas, Texas
Project Engineer for the first segment of the within Terminal A. Design responsibilities include CCTV, automated access control, public address / voice evacuation, MATV, in-building radio, and UPS systems design. The

TRIP budget has been established at $1.74 billion and will be under construction until 2021.

Dallas Ft. Worth International Airport, Parking Control System Renovation, Dallas, Texas
Project Engineer for replacing both the North and South toll plazas along their center highway with automated lanes and improved technology. Design services included security and IT systems designs to support the toll operation. Additional coordination with the SKIDATA parking control system was included.

San Diego International Airport, Airport Wide Security Technology Enhancements Program, San Diego, California
Project Engineer for the creation of specifications for Closed Circuit Television System (CCTV)/Digital Video Management System (DVMS) and an overall integration Graphical User Interface (GUI) to provide overall situational and domain awareness.

Baltimore Washington International Airport, TSA CCTV Cameras
Baltimore, Maryland
Project Engineer for the first phase of the replacement of the Closed Circuit Television System (CCTV), and the implementation of a new Digital Video Management System (DVMS) that includes digital recording on a Storage Area Network (SAN). The project includes the design of IP based cameras for the TSA Security Screening Checkpoint and Baggage Screening Areas.The CCTV/DVMS will act as the basis for the expansion/replacement of the overall camera and recording system as part of the IASS project.

Baltimore Washington International Airport, Integrated Access Security System (IASS), Baltimore, Maryland
Project Engineer for Integrated Access Security System (IASS) which includes the replacement of the existing Access Control System, the expansion of the Closed Circuit Television System (CCTV)/Digital Video Management System (DVMS) that includes digital recording on a Storage Area Network (SAN) provided as part of the TSA CCTV Camera project. The project includes over seven hundred (700) Access Control Portals and the addition of over five hundred (500) cameras to the CCTV/DVMS system.

San Francisco International Airport, Technical Security System and Improvements Study, San Francisco, California
Project Engineer for the development of the concept of operations which assisted with the decision support associated with the Physical Security Information Management System (PSIM). At the core of the PSIM are CCTV, ACS, Video Analytics, Computer Aided Dispatch, Perimeter Intrusion Detection and Credentialing Management.

SIKORA WELLS APPEL
LANDSCAPE ARCHITECTURE

JOSEPH SIKORA, RLA, ASLA
President | Landscape Architecture Lead

As president of Sikora Wells Appel, Joe brings over 30 years of experience in planning, landscape architecture and urban design. He has been involved in an array of project types including campus planning for universities and corporations; airport facilities; public parks, greenways, and recreation facilities; public gardens, urban plazas, and streetscapes. His work strives for innovative and timeless solutions with a focus on creating socially and ecologically sustainable places. He has taught senior and graduate landscape architectural design studios at Temple University and Rutgers University.

Planning, Landscape Architecture and Urban Design Experience:

JFK Airport/AirTrain Beautification, Queens, NY
Newark International Airport C.T.A. Landscape Master Plan, Newark, NJ
Newark International Airport Terminal B Frontage, Newark, NJ
SARP, Newark International Airport, Newark, NJ
Newark International Airport Historic Administration Building, Newark, NJ
Newark International Airport, 911 Memorial, Newark, NJ
PATH Grove Street Station, PANYNJ, Jersey City, NJ
Stewart Airport Entrance Gateway, Newburgh, NY
Rockaway Boulevard, Rockaway, NY
Roosevelt Plaza Park, Camden, NJ
City of East Orange Parks Master Plan, East Orange, NJ
Capital Health Hospital and Medical Center, Hopewell, NJ
St. Elizabeth Hospital, Edgewood, KY
Einstein Medical Center, East Norriton, PA
Longwood Gardens, Kennett Square, PA
Green 2015- Parks for People, Philadelphia, PA
Navy Yard Town Center Master Plan, Philadelphia, PA
Main Street NB Town Center, North Brunswick, NJ
Merrill Lynch Southfields Campus, Hopewell, NJ
University of Pennsylvania, Locust Walk Improvements, Philadelphia, PA
Villanova University, Radnor Township, PA

The College of New Jersey Student Center, Ewing, NJ
William Paterson University, Wayne, NJ
Janssen Pharmaceutica Master Plan, Hopewell, NJ
Restore Corridors Philadelphia Program, Philadelphia, PA
University City Science Center Master Plan, Philadelphia, PA
West Point Visitors Center, West Point, NY
Indian River Medical Center, Vero Beach, FL
Kutztown University Alumni Plaza Renovation, Kutztown, PA
Tatnall School Master Plan, Wilmington, DE
Pencoyd Landing, Bala Cynwyd, PA

Professional Experience:

Sikora Wells Appel, 1990 – present
Robert Lamb Hart, 1987 - 1990
Thomas Balsley Associates, 1986 – 1987
RKR Hess, 1983 - 1986

Registrations:

Registered Landscape Architect
Registered NY, PA, NJ, DE, MD, KY

Awards:

2015 EDRA, Great Places Award, Roosevelt Plaza Park
2015 NJ APA Design Award, Roosevelt Plaza Park
2015 NJ ASLA Chapter/Honor Award, Roosevelt Plaza Park
2015 NJ ASLA Honor Award, Einstein Medical Center Healing Garden
2015 NJ ASLA Merit Award, William Dick Schoolyard
2014 AIA Award, Architectural Excellence for Village of the Arts
2013 NJ ASLA Design Merit Award, Capital Health Hospital & Medical Center
2011 PA/DE ASLA Merit Award, Longwood Gardens East Conservatory Plaza
2010 New Jersey ASLA Honor Award, Longwood Gardens East Conservatory Plaza

Education Experience:

SUNY College of Environmental Science and Forestry, Syracuse, NY
Bachelor of Landscape Architecture, Magna Cum Laude

Michael F. Monteleone, AICP, P.P.

Traffic Engineering

EDUCATION:

M.R.P., City and Regional Planning, University of North Carolina, Chapel Hill, 1990
B.A., Geography, State University of New York at Albany; 1985

REGISTRATIONS:

American Institute of Certified Planners (AICP)
Licensed Professional Planner (P.P.) State of New Jersey, License # 33LI00573000

EMPLOYMENT HISTORY:

3/2014 – 12/2014	Asst. Vice President, Traffic Planning, SIMCO Engineering, P.C.
2011-2014	Senior Project Manager, Sam Schwartz Engineering
2010-2011	Sr. Transportation Project Manager, URS Corporation
2000-2010	Manager of Transportation Planning, Louis Berger Group
1994-2000	Assistant Vice President SIMCO Engineering, P.C.
1992-1994	Senior Planner, New Jersey Transit Corporation
1990-1992	Transportation Planner, Ebasco Services Inc.
1987-1988	Project Planner, Norman Gerber Associates
1985-1987	Planner, RPPW Inc.

REPRESENTATIVE EXPERIENCE:

Newark International Airport Monorail Ridership Forecast, Newark, NJ (PANYNJ): Mr. Monteleone was the task manager that conducted a detailed capacity analysis as part of this study for each link within the system for existing and future conditions during average and peak operating conditions. Individual car and train capacities were developed based upon observed passenger loading characteristics including the average baggage carried per person and the utilization of smarte cartes. Level of service thresholds were developed based upon the relative passenger circulation allowable within each car. System capacity was calculated for each hour over a 24-hour period based upon vehicle headways. Several future airport demand/development scenarios were utilized to project future link passenger volumes. These links were analyzed to identify potential capacity constraints throughout the system and recommendations were developed to increase capacity.

Newark Liberty International Airport (EWR) AirTrain Study, Newark, NJ (PANYNJ): Mr. Monteleone was the project manager responsible for assessing the operation of the EWR AirTrain in terms of level of service (LOS) based upon current and future conditions in 2015 for the various growth scenarios. Future AirTrain volumes in 2015 for various scenarios were developed based upon projected development projects and future flight schedules. To effectively assess the AirTrains operation in both the current and future scenarios, a unique capacity analysis methodology based upon conditions specific to EWR was developed to account for the airport environment. This methodology took into account operational challenges related to EWR. The analyses results have enabled planners and designers working at EWR to determine where capacity constraints are

projected on the AirTrain in the future and what measures could be effective in ameliorating these problems as a means of extending the life span of the system to accommodate future development projects associated with the airport.

Newark Liberty International Airport Terminal A Modernization Program Environmental Assessment (EA), Newark, NJ (PANYNJ): Mr. Monteleone was the task manager responsible for the existing conditions for public transportation, vehicular traffic, intersection conditions, signal operations and parking components were developed for the EA. The existing conditions provided a baseline to analyze the effects of the No Action and Preferred Action Alternatives. For the existing transportation conditions, several key weaving sections, multilane roadway segments, and intersections were selected for capacity analysis. In addition, the existing car rental facilities, the AirTrain, and the various public transportation operations serving the study area were described and discussed in detail.

Newark Airport Redevelopment, Newark, NJ (PANYNJ): Mr. Monteleone was the planner that was a member of a construction management team responsible for developing a construction staging and traffic mitigation plan for the construction of the Airside and Landside foundations for an Automated People Mover at Newark Airport. Traffic mitigation analysis included bus route relocation, maintenance of parking lot circulation, the provision of access for construction vehicles and equipment to construction sites, and examination of possible truck haul routes for the removal of materials from construction zones.

Newark Liberty International Airport Employee Parking Supply and Demand Study, Newark, NJ (PANYNJ): Mr. Monteleone was the task manager that analyzed the existing supply and demand for employee parking both on and off of the airport property. Occupancy counts and employer survey data were utilized to determine the extent and locations of the current employee parking deficit at Newark Liberty Airport. Future parking needs were projected based upon air passenger and cargo growth at the airport. Parking deficits were quantified based upon a comparison of the projected parking supply with projected demand.

Newark International Airport Employee Parking Study, Newark, NJ (PANYNJ): Mr. Monteleone was the task manager that evaluated the feasibility of providing satellite park-and-ride lots at a distance of 15 miles or more from an airport was researched based upon the experiences of other airports throughout the country. The parking operations at over 100 airports nationwide were reviewed for relevance to the Newark Airport parking situation. Of the airports researched, it was determined that the satellite parking setup by Massport for Boston's Logan Airport could serve as a model. The Massport service was examined in great deal in order to establish a prototype service for Newark Airport.

Warren Michelsen, P.E., PTOE
Maintenance and Protection of Traffic

EDUCATION:
B.S., Civil Engineering, 2001, University of Delaware

AFFILIATIONS:
Institute of Transportation Engineers
American Society of Engineers
Municipal Engineers of New York

REGISTRATIONS:
Professional Engineer (P.E.): New York, New Jersey, and Connecticut
Professional Traffic Operations Engineer (PTOE) – Nationwide License

TRAINING:
Institute of Transportation Engineers – Local Road Safety Audits Seminar

EMPLOYMENT HISTORY:

4/2010 - Present	Principal and Project Manager, SIMCO Engineering, P.C.
9/2001- 3/2010	Project Manager, CMX Engineering, Manalapan, NJ

REPRESENTATIVE EXPERIENCE:

LaGuardia Airport Access Alternatives Study (NYCDOT): Involved in extensive survey coordination efforts. The scope of work included field surveys such as ATR, Turning Movement Counts, Classification Counts, Parking surveys, and truck origin-destination surveys. The data was summarized, and there was extensive QA/QC.

Brewster Road and Port Street Improvements at Newark Liberty International Airport (EWR), Newark, NJ (PANYNJ): The project increases the radius of the curve, adds super elevation, as well as provides new traffic signals. This project was a combined effort between New Jersey Marine Terminals (Port Commerce) and Newark Airport (Aviation) as it is being constructed at Newark Airport, but was necessary for PN/EPAMT traffic. Provided construction support services for the revisions of MOT signing plans, including overhead guide signing and guide sign design, pavement marking plans, guide rail design, concrete median barrier design, and impact attenuator design plans to reflect field conditions and changes and preparation of responses to Contractor RFIs including shop drawing review.

EWR Infrastructure Renewal/Aviation Fuel System Modifications (PANYNJ): The scope of work for this project consisted of preparation of final design and contract documents (Stage III) and performing post award services (Stage IV) for the construction of various improvements or modifications to the aviation fueling system at Newark Airport. Project elements included the relocation of an internal airport roadway as well as the corresponding reconfiguration of a parking lot due to the road relocation. MPT was

prepared along airport roadways for electrical work as well as the relocated fuel line. To accomplish this work, certain airport roadways needed to be closed for extended period of times to install the 40' sections of fuel line pipes. To ensure traffic was maintained, temporary traffic signals were used to allow for a one-lane "flagger-less" operation. All work utilized PANYNJ Standard Details and CADD standards.

LaGuardia Airport Parking Lot 10E Improvements (PANYNJ). This project included design of parking lot guide signs, aisle markers, pavement markings, and maintenance of traffic, as well as the design of aisle markers and guide signs conformed to the latest standard of PANYNJ and replacement of pavement markings. Field survey of existing guide signs, aisle markers, and existing pavement marking conditions were also conducted.

Ingraham's Mountain, LGA Staging Area Development (PANYNJ): Ingraham's Mountain, a former depository site for excavated material associated with the Lincoln Tunnel, is to be utilized as a contractor staging and parking area in support of ongoing projects at LaGuardia Airport. Managed the preparation Pavement Marking and Signing Plans, MPT Plans, Traffic Analysis, as well as coordination with the lead Civil discipline. The Traffic Analysis, built upon previous efforts by PANYNJ, was prepared in support of roadway improvements to New York City Roadways for review by NYCDOT. To this end, Traffic Signal Warrant Analyses, turning conflict analysis and Highway Capacity Manual Analysis were conducted to prove to NYCDOT the necessary improvements.

EWR Motorist Guide Signs (PANYNJ): This project included preparing contract plans for the replacement of approximately 50 guide signs at EWR and the MOT plans associated with the project to allow for removal and installation of the new guide signs at EWR.

Port Terminal Boulevard Reconfiguration (PANYNJ): Intersection improvements included converting a non-standard 'T' style intersection with a 30 degree alignment to a standard intersection with a 90 degree alignment. Required work included the preparation of Maintenance and Protection of Traffic Plans, and a Pavement Marking and Signing Plan. Detailed MPT plans were created to maintain full operation of the intersection and roadway throughout the work area.

ExpressRail – Elizabeth Lead Tracks and South Bay Avenue, Elizabeth, NJ (PANYNJ): Managed and designed the traffic elements of the project that relocated one rail track and installed a second track to access the on-dock intermodal yard at the Elizabeth Marine Terminal. A new roadway, South Bay Avenue, was constructed to minimize the conflict between vehicles and trains. The new roadway provided uninterrupted access to a truck chassis area for one of the major carriers at the port. The project consisted of two new traffic signals, the installation of new overhead cantilever guide signs, and new pavement markings and signing.

ROLE AND RESPONSIBILITY

Daniel Kreiss is an Associate of the firm who shall serve as a Senior Architect and be in charge of the Drawings and Specifications and ensure that preparation of all reports and presentations will utilize Port Authority's standard templates. He will submit all digital files and drawings on the medium and devices as stipulated by Port Authority.

EXPERIENCE AND QUALIFICATION

Daniel Kreiss is the Associate and Senior Designer at Ting + Li Architects. After joining the firm in 2006, his experience has been extensive in many of the new construction and renovation projects. He has taken multiple projects through all phases of design and construction, including school renovations and new apartment buildings. With more than 14 years of experience in the field, Daniel is an exceptionally qualified planner and designer.

DANIEL KREISS

Associate/Senior Architect

PROJECT EXPERIENCE

TRANSPORTATION

Port Authority (PA) Newark Airport, Newark NJ	Renovation
PA LaGuardia Airport E.F. Lighting Vault, Queens NY	New Construction
PA Newark Aiport Guard Booths, Newark NJ	New Construction
PA New York Bus Terminal, New York NY	Stair Replacement
PA Newark Penn Station Crew Room, Newark NJ	Renovation

EDUCATION

New York City School Construction Authority Projects

PS 6X The West Farms School, Bronx NY	Auditorium
PS 9X Ryer Avenue Elementary School, Bronx NY	Accessibility
PS 16K Leonard Dunkly Elementary School, Brooklyn NY	Cafeteria
PS 21Q Edward Hart Elementary School, Queens NY	Auditorium
PS 86K The Irvington School, Brooklyn NY	Dance Studio
IS 118X William W Niles Junior High, Bronx NY	Library
IS 443K New Voices Middle School, Brooklyn NY	Gym/Cafeteria Floor
PS 295K Studio School of Arts & Culture, Brooklyn NY	Flood Elimination
JHS 98X Herman Ridder Junior High, Bronx NY	CTF project
HS 415X Christopher Columbus High School, Bronx NY	Exterior Renovation
The High School of Fashion Industries, New York NY	Auditorium

RESIDENTIAL/HOSPITALITY

CIL South Country, Patchogue NY	New Construction
Creedmoor Building #74, Queens NY	Gut Renovation
DASNY/OPWDD W.119th St., New York NY	Gut Renovation
Marcus Gardens Apartments, Jamaica NY	New Construction

EDUCATION

California Polytechnic State University
Bachelor of Architecture

PROFESSIONAL EXPERIENCE

Ting + Li Architects, PC
New York City, NY
2006- present

Mark Thieme Architecture
Benicia, CA

TING+LI
ARCHITECTS, PC
CELEBRATING 25 YEARS

Images: Bradley International Airport
Terminal B Campus Transportation Program
(STV Facilities Group)

Section E - Specific Relevant Experience of Firm

E

CH2M Team members have delivered numerous airport people mover programs across the world, including the planning and preliminary design of the new airside people mover at LAX, the planned APM system at PHL, as well as the APM systems that currently serve JFK, EWR, Atlanta, and Tampa International Airports. This experience, combined with our extensive work with stakeholders such as Amtrak, NJ Transit, PATH, NJDOT, FAA, and United Airlines and other carriers, provides our team with relationships that can be leveraged and best practices to deliver the program.

Focused on System Delivery

The CH2M Team represents the world's best in APM systems, engineering, and facilities architecture, blended with a rich history and legacy of successful transit and transportation program delivery in the New York Metro area. Many of our team members worked together to successfully deliver the AirTrain systems at JFK, while others were involved with the successful completion of the existing EWR AirTrain. ***This focus on delivery and our team's ability to complete and successfully commission APM systems makes us unique among our competition.***

Trusted by Stakeholders and Regulators

Our area clients include the PANYNJ, NJTransit, NJ DOT, NJ Transportation Planning Authority, NYMTA, NYCT, New York DOT, as well as Amtrak, the Federal Railroad Administration, and numerous others. We have served the federal and state Environmental Protection Agency in Region 2 and worked closely with the FAA Airport Eastern Regional Office. The trust these agencies have in our ability to deliver quality program safely and relationships we have developed with these key stakeholders will enable us to ***facilitate coordination, secure regulatory approval, and keep the Replacement AirTrain program moving forward***.

Experience with Steel-Wheel Systems

Based on the planning study the CH2M Team reviewed, the Authority is contemplating steel-wheel technology for the Replacement AirTrain system. The CH2M Team has experience in planning, specifying, and procuring both rubber-tire and steel-wheel APM systems, from our work on both AirTrain systems, as well as extensive steel-wheel experience from numerous transit projects for clients including NYCT, MBTA, WMATA, BART, and PATH. Steel-wheel technology is much different than the rubber-tire systems used at most airports around the country. Unique challenges of steel-wheel systems include:

- **Road bed/Infrastructure**: Guideways for steel rail systems have a substantially larger footprint and clearance outline than the current EWR AirTrain System. Track geometry, curves, grades, and clearances require careful consideration against operating constraints of steel-wheel vehicles.
- **Vehicle Design and Integration**: Performance requirements must be tailored for steel-wheel vehicles. Structural requirements, shock and vibration criteria, and crashworthiness would be much different than for rubber tire APM vehicles. Winter weather conditions present unique ATC integration challenges for steel-wheel systems due to snow and ice conditions.

The CH2M Team has extensive experience with steel-wheel transit vehicle and APM procurements - ***enabling our team to more effectively deliver the Replacement AirTrain for EWR***.

Experience with Major Planning Projects

As part of a Joint Venture, STV leads the facilities planning and concept design component of Amtrak's Gateway Project. Gateway will include new tunneling beneath the Hudson River, leading into a new station zone south of Penn Station. Penn South will expand capacity by providing four additional platforms and associated tracks. The Gateway facilities design charge is to seamlessly integrate Penn South into existing Penn Station, addressing expanded capacity and circulation within Penn through a renovation that can be constructed and phased while enabling Penn to maintain operations. Our facilities planning expertise and local agency knowledge will enable us to ***work effectively with all stakeholders to develop an optimal design for the Replacement AirTrain program***.

Reference Projects

From this portfolio of delivery excellence, we have selected three featured projects from each of our team's member firms in Table E-1, each of which delineates information required by RFP Section III.E.

Table E-1: Relevant Project Experience

Client/ Project Title/ Client Reference	Other Entities Involved	Project Manager/ Key Personnel	Start and Completion Dates/ Cost	Project Statistics	Specific Services Provided
CH2M *(Prime)*					
PANYNJ, AirTrain JFK New York, NY Client Reference Steven Plate, Deputy Chief of Capital Planning Tel: (212) 435-5529	STV	Project Manager Victor Simuoli, PM David Strong, early PM/PIC Key Personnel Girish Ananthashankaran, System Lead; Janice Li, O&M Lead; Larry Scarcia, Vehicle Eng.; Nick Zeolla, Vehicle Eng.	1996–2006 Construction Cost $1.9B	**Length of System:** 8.4 miles **Number of Stations:** 8 **Fleet Size:** 32 vehicles **Technology Utilized:** Driverless steel wheel LRV with LIM propulsion **Vendor:** Bombardier **Contract Method:** DBOM (vehicle procurement included)	Helped accelerate the project by converting to a DBOM approach. Responsible for all Systems elements (vehicles, ATC, SCADA, communications, platform doors, and fare systems) and O&M. Developed System Technical and Performance Specifications and O&M requirements, tailored for a DBOM contract. Developed procurement contract documents, including O&M Contract, Management Provisions, Proposal Requirements and Evaluation Criteria. Evaluated proposals and assisted with contract negotiations. Provided comprehensive oversight during implementation including design review, First Article inspection, installation oversight, testing and commissioning, safety certification, and system acceptance.
PANYNJ, AirTrain EWR Newark, NJ Client Reference James Blackmore, Program Director, Goethals Bridge Modernization Program Tel: (973) 792-4774	PB	Project Manager David Strong, PIC Key Personnel David Strong, PIC; Janice Li, Fare Systems; Anip Parikh, Modeling, Testing & Commissioning	1997–2001 Construction cost $354M	**Length of System:** 3 miles **Number of Stations:** Ten (10) **Fleet Size:** 18 six-car trains **Technology Utilized:** Monorail with dual 3rd rails **Vendor:** Adtranz (Bombardier) **Contract Method:** DBOM (vehicle procurement included)	System Opening Support: Initially brought in as PANYNJ's Project Manager to complete testing and commissioning to achieve system opening in 1996. The CH2M Team analyzed system performance, prioritized technical problems, and managed a problem resolution process to help open the system. Newark AirTrain Extension to NEC: Defined operating concept, guideway configuration, and financing and procurement strategies for 1-mile extension. Prepared specifications, supported procurement, and oversaw implementation. Responsible for operations planning, system integration, vehicles, ATC, communications, fare systems, and wayside equipment. Oversaw safety certification, testing, commissioning, and O&M performance.
Mumbai International Airport Pvt. Ltd., Chhatrapati Shivaji International Airport Mumbai, India Client Reference Chanderbhan Manwani, VP, Mumbai International Airport Tel: +91-98-3340-3256	SOM, Larson & Toubro Ricondo & Associates, Landrum & Brown and Leigh Fisher Associates	Project Manager Sikander Jain, Project Manager Key Personnel Brian Edes, Terminal Operations Coordinator; David Stader, Rail Systems; Laura Holthus, Planning	2007–2013 Phase I & 2015-2018 Phase II Construction cost $2.2B USD (airport) $111M USD (est. rail extension)	**Length of System:** 20.5 miles (planned) **Number of Stations:** 3 airport stations (planned), 27 total stations (entire line) **Fleet Size:** N/A – connecting to existing system **Technology Utilized:** Metro Line 3 connection **Vendor:** TBD **Contract Method:** DBB (airport); PPP (rail line)	Providing program management services and airside improvements for 5-year expansion and modernization program. Services include construction logistics and planning for (1) interface of new underground Metro under Phase III of City Development plans for delivery by 2018 at both terminals; (2) elevated and ground level access roads and transit connections; (3) decommissioning and demolition of existing terminal while keeping terminal operations active; (4) a new passenger terminal link between two domestic terminal buildings; and (5) delivery of projects at the most constrained airport in the world.
STV *(Infrastructure/Facilities)*					
PANYNJ, AirTrain JFK New York, NY Client Reference Steven Plate, Deputy Chief of Capital Planning Tel: (212) 435-5529	CH2M Naik	Project Manager Jerry Gerletz, PE Key Personnel Anthony Bayer; Robert Davidson; Kishor Doshi; Ronald Lem, Scott McIntyre; Steven Scalici	04/1997–01/2004 Construction Cost $1.9B	Same as CH2M's entry	STV served as the lead designer under the AirRail Transit Consortium (ARTC) and provided complete architectural and engineering design and environmental services, as well as construction support services, including structural engineering, facilities design (stations and operations, maintenance, and storage facility), MEP engineering, civil and traffic engineering, utility relocation, and project controls management. STV led the extensive collaboration and design integration between the members of the ARTC team.
LAWA, LAX Airport Landside Access Modernization Program Los Angeles, CA Client Reference Diego Alvarez, PM, Tel: (424) 646-5179	N/A	Project Manager Tyler Bonstead, AICP Key Personnel Adrian Barrios; Robert Davidson; Martin Hartmann; Kristen Horvath	10/2013–10/2016 (est.) Construction Cost TBD	N/A	As part of the MapLAX Joint Venture, STV is responsible for the program management, project definition, conceptual design, program delivery schedule, and stakeholder engagement. The LAX Landside Access Modernization Program (LAMP) designed by STV will center on an on-airport APM system that connects all passenger services and amenities within the airport precinct.
PANYNJ, World Trade Center Transportation Hub New York, NY Client Reference Steven Plate, Deputy Chief of Capital Planning Tel: (212) 435-5529	Naik	Project Manager Scott McIntyre, PE Key Personnel Robert Davidson; Kishor Doshi; Kristen Horvath; David Kirk; Ronald Lem; Patrick O'Mara; Steven Scalici	09/2003–12/2015 (est.) Construction Cost $3.2B	N/A	STV, as part of a joint venture with Santiago Calatrava, provided final civil, structural, MEP engineering and architectural design services; transportation engineering; pedestrian flow analysis and modeling; and security consulting. STV is architect of record for the 2M sf, $3.2B hub, which will link 11 subway lines, as well as PATH trains and ferry service and serve 250,000 users per day. STV is also providing cost estimating and value engineering services and supporting construction staging plans.

Table E-1: Relevant Project Experience

Client/ Project Title/ Client Reference	Other Entities Involved	Project Manager/ Key Personnel	Start and Completion Dates/ Cost	Project Statistics	Specific Services Provided
Amman & Whitney (Structural Blast Analysis)					
MWAA, Main Terminal Aerotrain Station, Dulles International Airport Client Reference Richard Turner, PM, Tel: (703) 417-8185		Project Manager Joel Stahmer, PE Key Personnel James Gould, PE	2000-2010 Construction cost $388M	100,000 sf mezzanines 47,000 sf central station Main entrance to the 3.5 mile underground transportation system	Provided structural engineering design and construction administration services for the 10-year duration of this highly complex project. Analysis for effects of a suitcase-borne threat for the portions of the station adjacent to the baggage handling equipment and spaces was also provided.
MWAA, Concourse C Aerotrain Station, Dulles International Airport Client Reference Richard Turner, PM, Tel: (703) 417-8185		Project Manager Brian Eaton, PE Key Personnel Joel Stahmer, PE; Michael Urbach, PE	2006-2010 Construction cost $131M	320,000 sf below-grade multi-level station 450 ft-long cut-and-cover pedestrian tunnel	Provided structural engineering design and construction support services for the new Concourse C AeroTrain station through 1) sitework, excavation and support of excavation for the station; 2) design of a 320,000 sf below grade, multi-level station; and 3) design of a 450 ft-long cut-and-cover temporary pedestrian tunnel.
jetBlue Airways, jetBlue Terminal 5 New York, NY Client Reference Richard Smyth, VP, Tel: (718) 709-3099		Project Manager Joel Stahmer, PE Key Personnel James Gould, PE	2005-2015 Phases I & II Construction cost $675M	625,000 sf 26-gate terminal building 150,000 sf expansion Custom space for in-line baggage screening	Provided blast analysis and design, security design, structural engineering and construction administration. Designed on a fast-track, 15-month schedule, Phase I construction was completed in three years. The Phase 2 expansion (Terminal 5i) added four gates and a US Customs area.
Cambridge Systematics *(Ridership Modeling & Analysis)*					
PANYNJ, PATH to AirTrain EWR Program Newark, NJ Client Reference Timothy Pullen, PANYNJ, Tel: (212) 435-7000	HNTB Corporation (Prime) STV	Project Manager Nikhil Puri Key Personnel Jay Evans; Kazi Ullah; Anurag Komanduri	1/21/2015–ongoing (est. 12/31/2017) Fee: $22,701	N/A	Examining the extension of the PATH rail system to EWR. As a part of the program and project management team, Cambridge Systematics is providing advisory services related to ridership forecasting, FTA guidelines, and the New Starts process.
Memphis Area Transit Authority, Travel Demand Modeling Services Memphis, TN Client Reference John Lancaster, MATA, Tel: (901) 722-0307	Kimley-Horn and Associates (Prime)	Project Manager Thomas Rossi Key Personnel Anurag Komanduri; Kimon Proussaloglou; Cemal Ayvalik	8/25/2008–4/30/2011 Fee: $190,848	N/A	Enhanced the existing MPO model to finalize the Downtown-Airport Alternatives Analysis and select a locally preferred alternative. The model enhancement included ensuring compliance with the FTA's requirements for advancing projects through the New Starts Process, identifying survey deficiencies, evaluating the model using FTA's Summit Software, integrating previous models, and implementing a sub-model to analyze corridor travel markets.
Maricopa Association of Governments, Airport Model Recalibration Maricopa, AZ Client Reference Vladimir Livshits, PM, Tel: (602) 254-6300	N/A	Project Manager Arun Kuppam Key Personnel Rachel Copperman; Tarannum Rima; Jason Lemp; Martin Milkovits	3/8/2013 - 6/30/2013 Fee: $9,815	N/A	Updated the stand-alone airport travel demand model using a new set of socioeconomic data for a base year of 2011, after a 2010 base year development. That involved re-estimating the destination choice models, mode choice models, and model calibration and validation to match the weighted survey statistics, as well as observed traffic count data.
Domingo Gonzalez Associates *(Lighting Design)*					
PANYNJ, AirTrain JFK New York, NY Client Reference David Ziskind, STV, Tel: (212) 477-1900	STV	Key Personnel Domingo Gonzalez; Nelson Downend; Mario Merza	1997-2004 Construction Cost $1.6B	Same entry as CH2M	DGA's scope of work included the development of architectural lighting systems for interior and exterior lighting for 10 stations including platforms, connectors, lobbies, transfer nodes, and exterior canopies, as well as emergency lighting for the trackway.
MWAA, Dulles International Airport, Airport & APM Station Tier 2 Midfield Concourse Dulles, VA Client Reference Jennifer Taylor, KPF, Tel: (212) 977-6500	KPF	Key Personnel Domingo Gonzalez; C. Brooke Silber; Renee Chaykin; Kevin Condrack	2000-2012 Construction Cost $1B	**Length of System:** 1.9 miles **Number of Stations:** 3 **Contract Method:** Design Bid-Build	DGA's scope of work included the creation of alternative lighting solutions for departures concourse areas, hold rooms, vertical circulation cores, public facilities and underground APM station. The first stage of the project to be completed was the APM Station and related pedestrian public circulation spaces linking the Tier 2 structure to other terminals.
Hillsborough County Aviation Authority, TPA International Airport APM and ConRac Tampa, FL Client Reference Grant Clifford, Principal, GS&P, Tel: (904) 476 -3943	GS&P DWA	Key Personnel Domingo Gonzalez; AC Hickox; Sherry Lin; Phat Quach; Angela Ohman	2013-ongoing Construction Cost $384M	**Length of System:** 1.3 miles **Number of Stations:** 3 **Fleet Size:** 3 APM cars per train **Contract Method:** Design-Build	DGA is completing the design of three APMs and a Consolidated Rental Car Facility. This design-build effort has been both fast-paced and budget-driven. DGA's familiarity with relevant regional energy codes assists with selection of efficient approaches that nevertheless maintain a high visual quality.

Table E-1: Relevant Project Experience

Client/ Project Title/ Client Reference	Other Entities Involved	Project Manager/ Key Personnel	Start and Completion Dates/ Cost	Project Statistics	Specific Services Provided
Fortune Shepler Saling Consulting, Inc *(Vertical Transportation)*					
Raleigh Durham International Airport Terminal 2, Morrisville, NC Client Reference Fentress Architects	Fentress Architects	Project Manager Scott Shepler	2011 Construction Cost $350M	8 Moving Walks 10 Escalators 7 Elevators	FS2C provided vertical transportation design assistance, as well as construction oversight for the expansion of the Raleigh Durham Airport.
PANYNJ, Newark Airport Terminal C Newark, NJ Client Reference Skidmore, Owinings & Merrill, LLP	Skidmore, Owinings & Merrill, LLP	Project Manager John Saling	1999-2003 Construction Cost $1.4B	28 Elevators 22 Escalators 8 Moving Walks	FS2C oversaw the vertical transportation professional services for the Terminal C project including vertical transportation analysis, preparation of drawings and specifications and construction oversight including acceptance testing coordinated with PANYNJ inspectors.
Morgan US Post Office New York, NY Client Reference STV	STV	Project Manager John Saling	2004-2007 Construction Cost $4.5M	6 Elevators 12 Escalators	FS2C oversaw vertical transportation professional services for the modernization of 6 core elevators and the replacement of 12 stacked escalators within their original wellways.
Gordon H. Smith *(Exterior Wall)*					
PANYNJ, Jamaica Station Complex New York, NY Client Reference Robert Eisenstat, Chief Architect Tel: (212) 435-7000	N/A	Project Manager Gordon Smith Key Personnel Michael Snyder	2003	Same as CH2M' entry	Provided expert exterior wall and glazing consulting services on the design and detailing for the following: AirTrain/LIRR multipurpose facility, including AirTrain terminal, and LIRR Operations Control Center; AirTrain Portal structure and LIRR Westerly Bridge structure, parapet glazing, and skylights.
PANYNJ, AirTrain JFK Stations New York, NY Client Reference Robert Eisenstat, Chief Architect Tel: (212) 435-7000	N/A	Project Manager Gordon Smith Key Personnel Mitchell Stein Michael Snyder	2003	N/A	Provided expert exterior wall and glazing consulting services on the prototype station design and detailing.
PANYNJ, EWR International Arrivals Building – Federal Inspection Services Facilities Newark, NJ Client Reference Robert Eisenstat, Chief Architect Tel: (212) 435-7000	N/A	Project Manager Gordon Smith Key Personnel Mitchell Stein	1996	N/A	Provided expert exterior wall and glazing consulting services on the design and detailing for the following: FIS Hall glazing and skylights; and vertical core(s) skylights.
HMMH *(Air Quality/ Noise & Vibration)*					
PANYNJ, Part 150 Noise Compatibility Planning Studies at EWR and TEB Airports Newark and Teterboro, NJ Client Reference Ed Knoesel, Aviation Department Manager Tel: (212) 435-3747	N/A	Key Personnel Mary Ellen Eagan	2/2015–2/2018	N/A	Performing all facets of two separate Part 150 Noise Compatibility Planning Studies for EWR and TEB Airports. Involves close coordination with the FAA and an Aviation Community Roundtable for airport noise and related issues. The projects also include a robust public participation program. Of particular interest to the community (many of which are also affected by the EWR AirTrain) are the mitigation opportunities and other potential community benefits.
PANYNJ, AirTrain JFK International Terminals Station Vibration Study New York, NY	N/A	Key Personnel Dave Towers; Timothy Johnson	08/2000–03/2001	N/A	Provided vibration analysis for AirTrain JFK International Terminals Station. Determined effectiveness of floating slab track structure in reducing structure-borne noise radiation.
City of Phoenix, Phoenix Sky Harbor Airport Automated People Mover Client Reference Laura Newbrough, Gannett-Fleming Tel: (602) 553-8817	N/A	Key Personnel Dave Towers; Timothy Johnson	02/2004 –03/2010	**Length of System:** 2.7 miles **Number of Stations:** 3 **Fleet Size:** 18 **Technology Utilized:** Innovia APM 200 **Vendor:** Bombardier	• Preliminary vibration assessment for PHX APM in tunnel, including measurements of Denver International Airport APM • Vibration assessment for PHX Sky Train, including measurements of Dallas/Fort Worth International Airport APM. Assessed ground-borne vibration and structure-borne noise generated by APM.

Table E-1: Relevant Project Experience

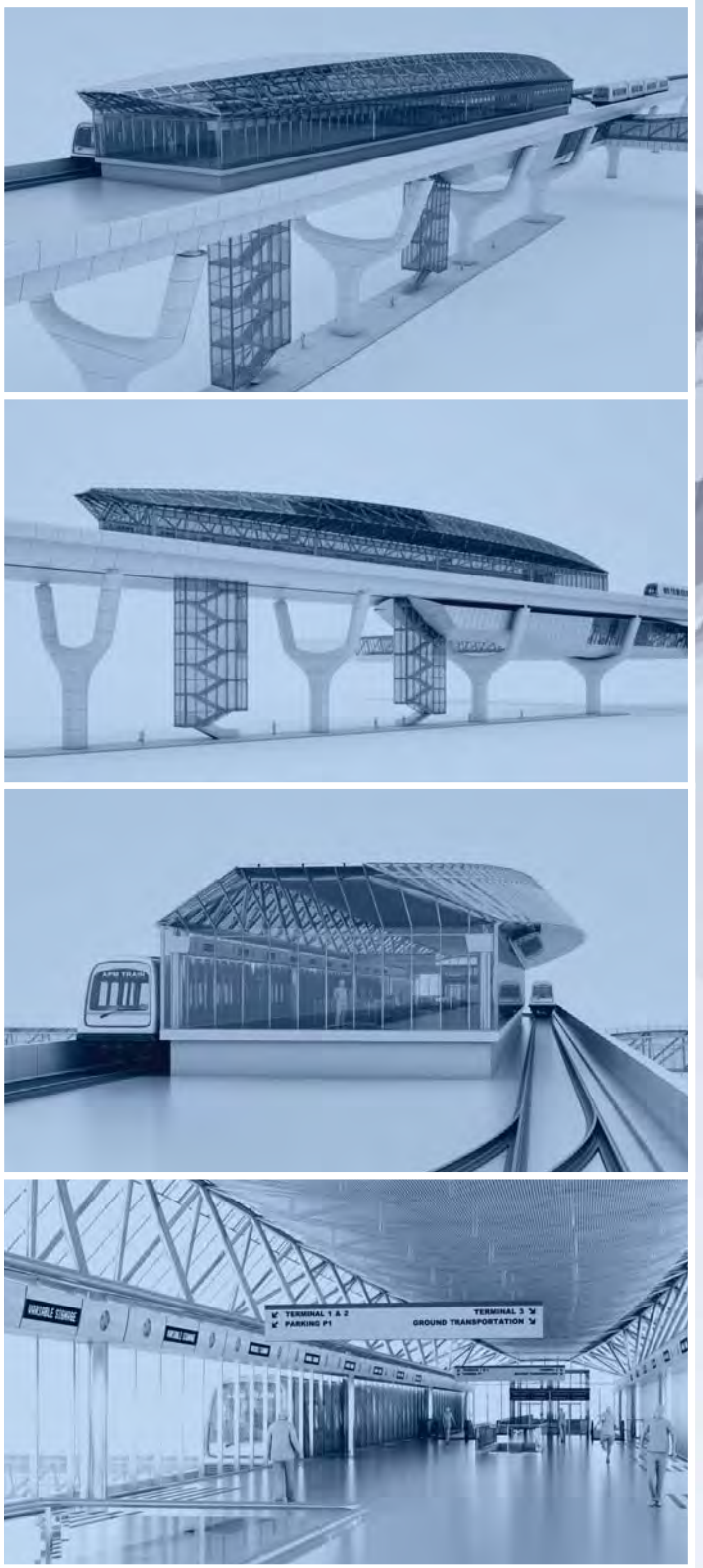
Client/ Project Title/ Client Reference	Other Entities Involved	Project Manager/ Key Personnel	Start and Completion Dates/ Cost	Project Statistics	Specific Services Provided
Interactive Elements *(Project Controls, Public Outreach, Inspection)*					
MTA NYCT, Oversight of Major Rail Vehicle Procurements New York, NY Client Reference: Bob Cerra, LTK (Prime), Tel: (718) 422-9922	LTK	Key Personnel Vitaly Mayzler; Rafael Torres	2003-Ongoing (est. 2019) Construction Cost $285M	**Length of System:** 656 miles **Number of Stations:** 468 **Fleet Size:** 6,384 cars **Technology Utilized:** Rapid Transit	IEI is providing engineering oversight of several NYCT multi-billion dollar rail car procurements, providing engineering, inspection, and project clerical staff. IEI personnel interface with manufacturers, including foreign vendors and NYCT engineering and procurement staff. Administrative duties include monitoring schedules, maintaining document control, and managing project closeout.
PANYNJ/ MTA, LGA Subway Access Study Queens, NY Client Reference Ira Quiat, URS, Tel: (212) 896-0160	Harris PTG URS	Key Personnel Helen Sears	1999-2001	N/A	This study examined alternatives for providing rail access to LGA, sponsored by a cooperative partnership of the Governor, the Mayor, the Queens Borough President, MTA, and the PANYNJ. IEI, as a subconsultant, provided rail operations alternatives evaluation and the public affairs/community outreach program.
NJ Transit, Hudson-Bergen LRT System Jersey City, NJ Client Reference Steve Santoro, Capital Planning & Programs, NJ Transit, Tel: (973) 491-8960	Raytheon (now Washington Group)	Key Personnel Michele Butchko; Ed Boni	1997-2004 Construction Cost $2.2B	**Length of System:** 17 miles **Number of Stations:** 24 **Fleet Size:** 52 cars **Technology Utilized:** Light Rail	IEI assisted in the preparation of the proposal; developing specifications and work plans; and implementing its portion of work in four critical areas: rail operations planning, system safety and safety training, inspection of track, and community outreach. The project was built by the 21st Century Rail Corporation, a consortium led by Raytheon (now Washington Group).
JCMS, Inc. *(Cost Estimating/Scheduling/Project Controls)*					
PANYNJ, EWR Fuel System Modification Newark, NJ Client Reference Kin Chow, PM, (HMM), Tel: (201) 499-1083	HMM	Key Personnel Kevin Meehan	2012-2013 Construction Cost $90M	N/A	JCMS provided scheduling and estimating services, which will install nearly 30,000 linear feet of underground double walled aviation fuel piping and add two new 47,600 bbl aboveground tanks, two new truck fueling racks, a contact water treatment facility, fuel selection area manifold, and modify four pump stations.
PANYNJ, EWR Program Management Control Services (On-Call) New York, NY Client Reference Owais Ahmed, Project Controls Manager Tel: (646) 285-1909	PANYNJ	Key Personnel Josephine Shivers	2009-Ongoing Construction Cost Various (see details)	N/A	JCMS provided scheduling and estimating services for the following tasks: Aircraft Parking and Taxiway Modifications ($35M); Rehabilitation of Brewster Road between Buildings No. 339 & 5 ($3.4M); Removal of existing entry and exit tollbooths at EWR; EWR-Building 42 and 46 Domestic Water control systems; NY Airport Access Capital Program for AirTrain JFK Terminal at Jamaica Station project; EWR Terminal B Expansion Plan.
PANYNJ, EWR Redevelopment Program Newark, NJ Client Reference Stephen Kelczewski, now with HDR, Inc.	URS	Key Personnel Bal Patel (No longer employed with JCMS)	2003-2005 Construction Cost: Various	N/A	JCMS provided scheduling and estimating services for the following EWR tasks: Southern Access Roadway Project Package No. 1; Central Terminal Area (CTA) Roadways and Bridge Project; AirTrain EWR NEC Connection Access Road; Terminal "A" and "B" Retail Improvements
KSE *(Site/Civil/Structural/Geotech Engineering, Inspection)*					
PANYNJ, Structural Engineering Services on a Call-In Basis NY and NJ Client Reference Robert Kumapley, Tel: (973) 792-4516	N/A	Key Personnel George Assis, Ph.D., P.E.	2011-2014 Fee: $831,000	N/A	KSE's services consisted of preparing structural engineering studies, condition surveys, designs, contract drawings, technical specifications, and construction cost estimates for new facility structures, and the renovation and rehabilitation of existing structures. The structures included buildings, bridges, tunnels, and waterfront structures.
PANYNJ, Civil Engineering Services on a "Call-In" Basis NY and NJ Client Reference Jaime Morales, Tel: (973) 792-4363	N/A	Key Personnel Frank Frega	2011-2013 Fee: $463,000	N/A	Prepared civil engineering designs, contract drawings, technical specifications, construction cost estimates for new projects, rehabilitation, site preparation, restoration, and resurfacing projects, such as: • High Pressure Fire Protection System (FPS) - Valve Replacement, JFK • CADD Drafting Services for Taxiways Reconstruction at LGA • Pavement Rehabilitation at JFK
PANYNJ, Topographic/Boundary Surveying Services on a Call-In Basis NY and NJ Client Reference Richard W. Carlson, Tel: (201) 595-4852	N/A	Key Personnel David Rupnarain	2010-2015 Fee: $3.4M (to date)	N/A	KSE provides topographic and boundary surveying services as requested on a call-in basis at various facilities in New York and New Jersey. To date KSE has provided various land surveying services for nearly 100 projects, including numerous surveys for PATH facilities, as well as several at JFK.

Table E-1: Relevant Project Experience

Client/ Project Title/ Client Reference	Other Entities Involved	Project Manager/ Key Personnel	Start and Completion Dates/ Cost	Project Statistics	Specific Services Provided
Naik *(Surveying)*					
PANYNJ, AirTrain JFK, Queens, NY Client Reference Scott McIntyre, STV, Tel: (212) 777-4400	CH2M STV	Key Personnel Jason Chaikin	1998 - 2002 Construction Cost $1.2B	Same as CH2M's entry	Civil / Utility Engineering Services - utility relocation design and utility coordination effort to drive over 2,000 piles for construction of the guideway columns. Provided civil engineering design associated with roadway and parking facilities included grading, drainage, pavement, and new/relocation utility design.
PANYNJ, EWR, Condition Survey of Miscellaneous Buildings QAD Inspection, Newark, NJ Client Reference Joseph Dietrich (Berger), Tel: (610) 280-4029	Naik	N/A	2010- 2013	N/A	Structural Inspections for 2 call-in Quality Assurance Division (QAD) contracts for various projects serving all 16 jurisdictions of the PANYNJ. Performed inspections of various building elements including roofs, walls, decks, foundations, utilities, stairwells, parking facilities, electrical, at LGA, JFK, EWR and Port Newark facilities.
PANYNJ, JFK Terminal 4 (Delta) Expansion & Terminal 3 Demolition New York, NY Client Reference Craig Covil, Arup, Tel: (646) 642-7286	Naik	Key Personnel William A. Easterbrook, Jr; Nicholas Watkins; Jason Larson; Jason Chaikin	2001 - 2002, 2013 - 2014 Construction Cost $1.6B	N/A	Civil engineering and surveying services for the 1.5-million sf, 16-gate expansion project involved existing Terminals 2, 3, and 4. Provided civil engineering services for the landside portions of the project. Naik included alignment design using Inroads, pavement design, fencing and barrier design for at grade and elevated roadways as well as loading docks. Conceptual design plans were developed from these studies.
Ross & Barruzini *(Information Systems)*					
PANYNJ, Identity Management & Credential Issuance New York, NY Client Reference Stewart Liberman, Tel: (212) 435-3739	N/A	Key Personnel David McGhee	2011-2012 Fee $175K	N/A	Provided a comprehensive Identity Management and Credential Issuance System to interface with the access control system deployed in PANYNJ facilities at JFK, LGA, and EWR (including tenant facilities). The system will be used to fulfill security vetting, credentialing control, and record keeping requirements of the TSA. The work involved the planning and concept design for the new system.
PANYNJ, AirTrain JFK, Wireless Infrastructure Replacement New York, NY Client Reference Vijay Revankar, Tel: (973) 792-4455		Key Personnel Jorge Kaufman	2003	Same as CH2M entry	Assisted the PANYNJ to replace the existing wireless infrastructure supporting the Passenger Assistance Phone system used on-board the car trains of the AirTrain JFK service.
PANYNJ, Threat and Risk Assessments for Aviation and Rail Facilities Client Reference Paul Pietropaolo, Tel: (212) 435-2107		Key Personnel Phil Santore	2003-Ongoing	N/A	DVS, a division of R&B, has performed Threat and Risk Assessments for PANYNJ for rail, as well as aviation locations. The assessments have included research for physical, operational and electronic security related elements and applied them to a Sandia Laboratories format for Threat and Risk Assessment evaluation. Some of the facilities include: Jamaica AirTrain Station, EWR Terminal 3, PATH stations and WTC site.
RS&H *(Environmental)*					
PANYNJ, EWR and Teterboro Airports – Part 150 Studies, Newark and Teterboro, NJ Client Reference Timothy Middleton, PM, Tel: (212) 435-3754	HMMH PTI	Key Personnel Dave Full	03/2015-ongoing (est. 10/2017)		Preparing the land use compatibility analysis and the NEPA implementation strategy for the FAR Part 150 Studies for the New Jersey airports owned and operated by the PANYNJ.
TPA – Environmental Documentation for North Terminal Complex and CONRAC Tampa, FL Client Reference Jeff Siddle, Tel: (813) 870-8700		Key Personnel Dave Alberts Dave Full	8/2008 – 3/2009 (for North Terminal Complex EA) 6/2013 – 11/2014 (for CONRAC EA)	**Length of System:** up to 2 miles **Number of Stations:** 2 stations for each project	Tampa International Airport: Prepared two separate environmental documents- first document analyzed impacts associated with a new North Terminal Complex that included a people-mover system to main passenger processing center. Second document analyzed impacts associated with a consolidated rental car (CONRAC) facility that included a people mover system between the main passenger processing center and the new rental car facility.
LAX – Environmental Documentation for Midfield Satellite Concourse Los Angeles, CA Client Reference Lisa Trifeletti, Tel: (424) 646-5186	Ricondo	Key Personnel Dave Full	8/2012 – 5/2014	**Length of System:** up to ½ mile **Number of Stations:** 2	Prepared environmental documentation for a new midfield satellite concourse at Los Angeles International Airport. The project includes a new 22-gate terminal with a people mover connection to the central passenger processing facility.

Table E-1: Relevant Project Experience

Client/ Project Title/ Client Reference	Other Entities Involved	Project Manager/ Key Personnel	Start and Completion Dates/ Cost	Project Statistics	Specific Services Provided
Sikora Wells Appel *(Landscape Architecture)*					
PANYNJ, JFK Airtrain Beautification Queens, NY Client Reference Ilonka Angalet, Tel: (201) 216-2661	N/A	Project Manager Joseph Sikora	1998-2000 Construction Cost $4M	3.5 Mile Corridor 6 Overpasses	Landscape architectural design/master plan services for site improvements along the Van Wyck Expressway in support of the elevated light rail system connecting Jamaica Station to JFK Airport.
Newark Liberty International Airport CTA and SARP Landscape Master Plan Newark, NJ Client Reference Ilonka Angalet, Tel: (201) 216-2661	N/A	Project Manager Joseph Sikora Key Personnel Dan Chieco	2000-2002 Construction Cost $3M	Terminals A, B and C 6,500 spaces Structured Parking 1 Mile Roadway Frontage	Landscape architectural design/master plan services for site improvements at Central Terminal Area, new HOV/LOV frontages, surface and structured parking and as well as 1 mile of access roadway approaches.
PATH Grove Street Station Phase I Study Jersey City, NJ Client Reference Ilonka Angalet, Tel: (201) 216-2661	N/A	Project Manager Joseph Sikora Key Personnel Dan Chieco	2009-2010	1.5 acre plaza	Landscape architectural/urban design services related to revitalization of PATH station including HC accessibility and plaza improvements.
Simco *(Traffic Engineering/Ridership)*					
PANYNJ, EWR Standard Lane Closures Newark, NJ Client Reference Jennifer Bates, PE, Tel: (212) 435-5771	N/A	Key Personnel Warren Michelsen	12/2011 – 03/2013 Fee: $79,900	N/A	Prepared the standard lane closures for all possible lane closures at EWR to create a library of MOT schemes and drawings to streamline any projects that required lane closures. All MOT for the lane closures were prepared utilizing the PANYNJ CADD standards and complied with the Manual on Uniform Traffic Control Devices (MUTCD).
NYCT/PANYNJ/LMDC, Lower Manhattan – Jamaica/JFK Access Study New York, NY Client Reference Nick Larocco, PE (PTG), Tel: (212) 266-8435	N/A	Key Personnel Walter Sim (now retired)	2005 - 2008 Fee: $108,330	N/A	Conducted a detailed traffic study of potential Bus Rapid Transit (BRT) alternative routes between Lower Manhattan and JFK Airport. Also conducted a limited traffic count survey to update traffic flow database at the selected critical intersections. Performed capacity analysis of critical intersections.
NYCDOT/URS, ESA for Trans. Planning, Trans. Engineering and Urban Design New York, NY Client Reference Ellen Zielinski, Director, Tel: (212) 839-6478	N/A	Key Personnel Walter Sim (now retired) Warren Michelsen	2008-2013 Fee: $600,000	N/A	As part of the STV team, this contract involved projects with extensive survey coordination efforts, field surveys including ATR, Turning Movement Counts, Classification Counts, parking surveys, and truck origin-destination surveys throughout NYC's five boroughs. The team summarized the data and was involved in extensive QA/QC.
Ting & Li *(Architecture)*					
ACMH, Marcus Gardens Jamaica, New York Client Reference Daniel Johansson, CEO, Tel: (212) 274-8558	Ysrael A. Seinuk, Edwards and Zuck	Project Manager Stephen Ting Key Personnel Daniel Kreiss	2008-2014 Construction Cost $12M	**Project Size:** 54,000 GSF	Lead discipline providing architectural/interior design services for a 68-unit residential building.
NYC SCA, School PS 9X Accessibility Upgrade New York, NY Reference Selim Ozalp, Design Manager Tel: (718) 472-8776	YAS, Kallen & Lemelson, LLP, Vertical Systems Analysis, VJ Associates	Project Manager Alisha Ting Key Personnel Daniel Kreiss, Bridgette Van Sloun	2010-2013 Construction Cost $6M	**Project Size:** Area of Work, 20,000 GSF	Lead discipline providing architectural/interior design services for a school renovation. Project consisted of a 4-story addition and complete gut/renovation of main building facilities. Circulation and wayfinding was provided to convert the existing school for full accessibility.
PANYNJ, LGA East Field Lighting Vault New York, NY Reference Michael DaCosta Tel: (212) 435-5767	N/A	Project Manager Stephen Ting Key Personnel Daniel Kreiss Stephanie Yeung	Design completed, Construction Started 2015 Construction Cost $790,000	**Project Size:** 4,500 GSF	Responsible for the design and detailing of a new building envelope enclosure for the addition of new electrical switchgear equipment at LGA.



Images: Automated People Mover Station Visioning (STV Facilities Group)

Section F - Technical Approach

F

The CH2M Team's technical approach comprehensively addresses every element of the scope of work and reflects best practices and lessons learned from similar airport people mover systems at EWR, JFK, and other APM systems across the globe. This experience and our careful analysis of the Phase 1 and Phase 2 services enable us to deliver the Replacement AirTrain ahead of the Authority's proposed Third Quarter 2022 goal.

Project Overview

The Monorail 'airport circulator' opened for service in 1996 to great success. A second phase extended the system out to New Jersey Transit and Amtrak service along the NEC in 2001, at which point the system was renamed AirTrain Newark. In 2012, the Authority awarded Bombardier Transportation with a new contract for a further 10 years of O&M service. The system is approaching the end of its service life – projected at 10 more years – and has been experiencing capacity issues throughout service life because of its undersized cars and has experienced significant maintenance issues that have twice interrupted service, costing money and impacting the passenger experience with buses employed to transport passengers around the airport and out to NEC to regional transit.

Replacing the EWR AirTrain System is a key element of an overarching EWR Redevelopment Program, including a dramatic reconfiguration of the terminal complex, airside, and landside that will be realized in phases over the coming decades. During that time, the existing AirTrain and Replacement AirTrain will be affected by increased ridership and service demand, the aforementioned changes to the terminal complex, and numerous interim phases, as well as the extension of PATH to EWR.

Project Understanding

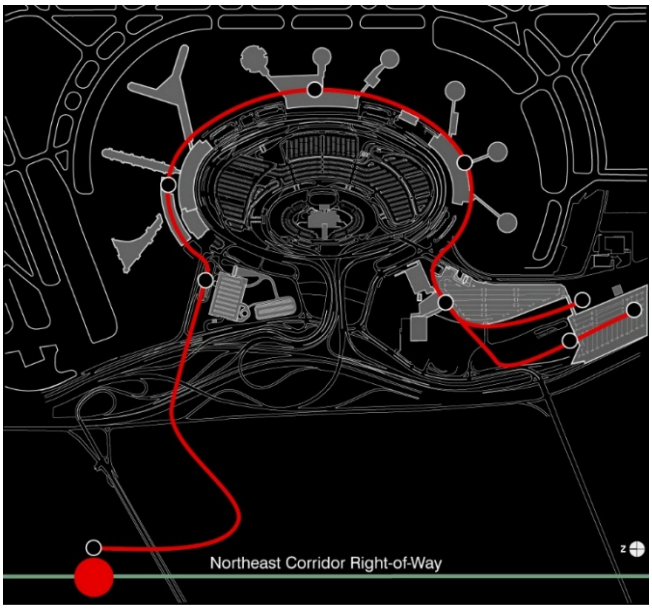
The program integration framework approach, with program objectives, priorities, constraints, and parameters to define the decision criteria, will guide future programmatic decisions and tradeoffs. Coordinating the phasing of existing and Replacement AirTrain systems, existing and possible new parking garages, rental car facilities, roadways, and existing and replacement terminals at each phase of development will require a significant cooperative effort from multiple design teams, as well as multidisciplinary coordination within each team.

Our CH2M Team has assembled senior leadership with extensive systems and facilities design experience who understand the nature of this type of multifaceted project because they have been responsible for every aspect of airport design – from terminals to landside access programs including curbsides, garages, APM systems, and airport gateway terminals.

Testing the feasibility of a given planning approach deemed to meet all functional, operational, and level of service (LOS) criteria will require coordination between planning, engineering, constructability, and cost estimating team members.

We view this Program as an integrated series of discreet projects linked by Replacement AirTrain: existing and new terminals; landside facilities, garages, car rental; the NEC airport terminal; and PATH extension. Our team is prepared to collaborate with PANYNJ technical staff and other teams working on the EWR future plan, as required, to coordinate with their efforts. We are confident this will result in an overall holistic airport plan that will enable EWR to thrive moving forward through the seamless integration of Replacement AirTrain into the new airport precinct. Our approach involves establishing a fully integrated team for each work element/project, having regular interdisciplinary meetings, and scheduling interdisciplinary review workshops to identify the cohesive path moving forward. Beyond the Authority and stakeholder teams, the CH2M Facilities Team will work in lockstep with the Systems Technology Team, Guideway Structures Team, and call upon specialty support consultants as required to execute the alignment plan.

Our CH2M Team will bring a clear, focused approach to a collaborative process that will entail coordination with teams working on other components of this ambitious redevelopment program – from AirTrain to terminal and landside development – as well as existing AirTrain Newark operations and the PATH Extension Program. This effort will be bolstered by CH2M Team leadership that was at the forefront of the previous EWR Redevelopment Program. Because of this experience, our team is prepared to produce from Day 1 in terms of planning Replacement AirTrain, as well as interfacing and complementing the other teams. The following are some of the key issues that must be reviewed and addressed for successful implementation of Replacement AirTrain.



EWR Site Map

Remote monorail station

KEY ISSUES

Impacts of the Broader EWR Redevelopment Program – EWR is surrounded by multilane highways and arteries. Within this physical constraint, the Authority is embarking on a complete reconfiguration of the terminal complex and landside facilities (roadway network, rental car facilities, parking garages, and AirTrain) to add a future north-south runway, thereby increasing capacity at EWR. Additionally, a secure airside APM is under consideration outside the scope of this project, which would add a new set of issues to the overall planning effort.

Construction Impact & Phasing – Replacement AirTrain has been aptly programmed to service the entire airport as it does today and in the ultimate configuration. Construction of Replacement AirTrain and redeveloping Terminal A and future terminals will impact associated facilities, including the existing AirTrain system alignment and terminal stations (while still operational), existing landside roadway networks, CTA/off-CTA parking garages, a network of underground utilities and other infrastructure, as well as car rental facilities and possibly the Air Traffic Control Tower and Marriott hotel operations as the airport reaches its full buildout. Coordinating the phasing of existing and Replacement AirTrain System will require a significant cooperative effort from multiple design teams, as well as multidisciplinary coordination within each team.

Terminal & Landside Facilities – Replacement AirTrain would need to interface with both the existing and future new terminals.

- Construction of B/C Terminal Stations, pedestrian connections, and guideway will be challenging because of the B/C three-level terminal configurations, associated roadways – including coming through the CTA 'throat' – and curbsides. Design and construction of the Terminal C Replacement AirTrain Station without physically affecting garage and curbside operations will be challenging because of tight proximity of the Terminal C garage and its pedestrian bridges to the terminal, roadway network, and curbsides. This condition will affect guideway/station elevation and location to fly over the pedestrian

Recent team experience developing a similar APM system for the LAX Landside Access Program (LAMP) ended up selecting an alignment that would least affect critical landside facilities in the airport's constrained CTA. Therefore, constructability within and through existing infrastructure, regarding walking distance to Terminals B and C – as well as at what elevation or grade crossing the passenger pathway will occur, will be critical for determining a realistic option.

bridges and stay away from curbsides, and will determine guideway elevation heading to the P4 Station and beyond to NEC. Terminal B, with surface parking, should be similar to certain AirTrain JFK CTA stations, where roadways and surface parking determined system/terminal offset; but will also be affected by Terminal C conditions relative to guideway/station elevation and guideway slope percentages.

- Replacement AirTrain alignment will follow the future Terminal B airside and roadway configuration, bypassing the decommissioned existing Terminal A. Coordinated construction staging and phasing analysis – even for future terminal work – may be critical to the overall airport program development.

Terminal B Aerial

Terminal C Aerial

Guideway Structure - Replacement AirTrain's guideway is a major structural challenge in terms of selecting the right structural system to address all criteria, including weather-related conditions. Its design is a sensitive visual issue, as well, because from an urban design perspective, it will become an architectural icon for the airport brand. Because of soil conditions (EWR was developed on artificial fill material over estuarine and salt marsh deposits), a major factor in selecting the guideway system will be to minimize overall weight and depth of construction and duration. Proposed system options will be evaluated for the adequacy resiliency to storms, wind, and driving rain, as well as snow removal.

Structural systems such as post-tensioned concrete segmental box girders, multi-steel stringers, steel box girders, and AASHTO girders clad with architectural concrete – possibly an open deck superstructure – will be investigated during Alignment Planning to determine an optimum approach going into 20-30% Design.

The design goal will be to find the most cost-effective, easily maintainable system, then merge the architectural expression into the Guideway form, columns and their interface with the Guideway, the parapet condition, as well as color depending on the system, i.e., concrete, steel or a hybrid, to produce a holistic overall concept.

Technology Option – The majority of APM system suppliers have more system integration experience with rubber-tire system than a steel-wheel system. If steel-wheel technology is determined to be the preferred approach for the Replacement AirTrain, there will be a smaller pool of vendors with demonstrated system integration experience, especially in light of Newark's winter climate conditions. The System Technical and Performance Specification and request for qualification documents will need well-defined criteria for selecting a contractor with the necessary system integration experience.

KEY ISSUES

Life Cycle Design Considerations – The design of the Replacement AirTrain should optimize the life-cycle cost, considering the initial capital cost and the long-term O&M cost. Some of the critical and high risk elements of the project are:

- **Rail/Running Surface Interface** - Identify key options to minimize the O&M cost and risk associated with wheel/rail interface (e.g., rail grinding) or running surface design (e.g., guideway heating), depending on the technology that is implemented.
- **Rolling Stock** - Identify key subsystem design and functionality options that can minimize the O&M cost and risk.
- **Maintenance Storage Facility** – Identify key facility design and functionality options that will have low impact to facility O&M cost while providing an efficient setup for the rolling stock.
- **Obsolescence and "Plug and Play" Strategies –** Identify opportunities to plan and design for efficient replacement of subsystem elements that are likely to wear out and become obsolete during the life of the system, such as computer systems, electronics, display screens, etc.

O&M Contract Effectiveness – To ensure each asset will perform at its defined performance until the end of its design life, it needs to have a comprehensive and effective regular routine maintenance plan and a compatible capital asset replacement program. The Authority will need performance criteria, payment incentive, and penalty mechanisms to optimize availability, reliability, and operating efficiency while minimizing the cost and risk of deferred routine maintenance.

Systems Integration – A project of this scope will require early and comprehensive integration of the vehicle subsystems, automatic train control, SCADA, communication, operations control center, power substation and distribution, platform screen door systems, and infrastructure of the new System with other elements of the AirTrain and Airport systems.

On the JFK AirTrain project, our team worked collaboratively with the contractor to solve several major integration challenges, including integrating the vehicle emergency communications system with the Authority Public Safety Department's radio system; and integrating the fare system with the MTA's Metro Card system.

JFK AirTrain

Innovative Thinking

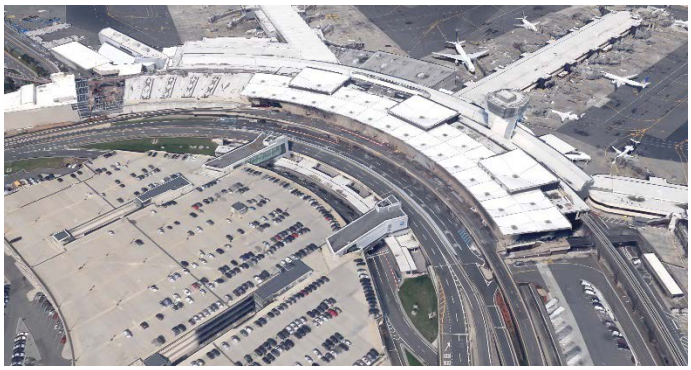
Considering that Replacement AirTrain will serve as a visible and integrating element for a dramatically evolving airport over the next several decades, this project offers opportunities to explore station options that may otherwise be cost prohibitive on their own. Following are two options that may be worthy of study.

Terminal C Station, Garage and Curbsides

For Alignment Option CLA 5B in the 2014 AirTrain Study, preliminary Google map location of the new Terminal C station and guideway appears to be over existing arrivals curbsides. This would be a major challenge to terminal operations and system constructability because of necessary guideway/ station tangents over the radial roadway network, with little or no available options for relocating curbside operations during construction.

Alternative Option for Study: Locate alignment and station over the garage east end – between the two pedestrian bridges. The dimension between bridges appears to be sufficient to accommodate station width and vertical core(s), as well as guideway tangents. This will place the system at an elevation above the bridges; however, this also provides an

opportunity to use the bridges as part of the passenger pathway into the terminal, thereby taking advantage of an existing condition, which should work well with the current operation. The extent of garage retrofitting after looking at constructability remains to be evaluated. Guideway/station elevation heading toward the P4 garage will also be evaluated.



Terminal C

P4 Station, Garage and Curbsides

For Alignment Option CLA 5B in the 2014 AirTrain Study, preliminary Google map location of the new P4 station and guideway appears to be north of the existing P4 station, adjacent to – and possibly encroaching on – the Terminal C airside. This has potential for creating significant constructability issues relative to airside operations, but more so to existing multimodal station and curbside operations.

Alternative Option for Study: Place the new P4 station and guideway south of the existing alignment, providing more station/guideway design and construction flexibility, while leaving the existing station operation and garage interface untouched. The garage could be expanded south, increasing parking capacity, providing a new elevator core on its southern side to work with the station while offsetting loss of adjacent surface parking replaced by the station footprint. The alignment heading toward the NEC from this new location appears to be feasible and would be studied as part of our CLA 5B Alignment Planning options analysis.

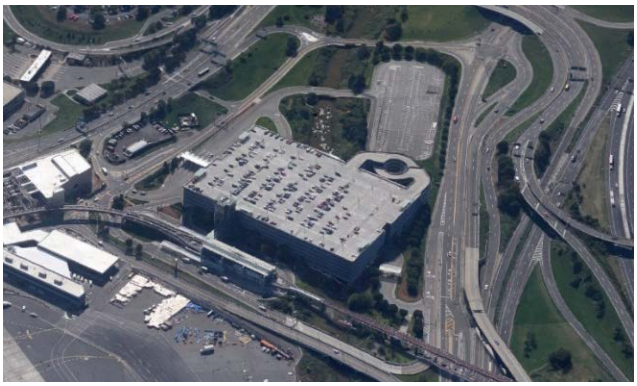
Summary

We look forward to discussing the Terminal C/P4 garage options during oral presentations, along with the PATH Extension option illustrated above.

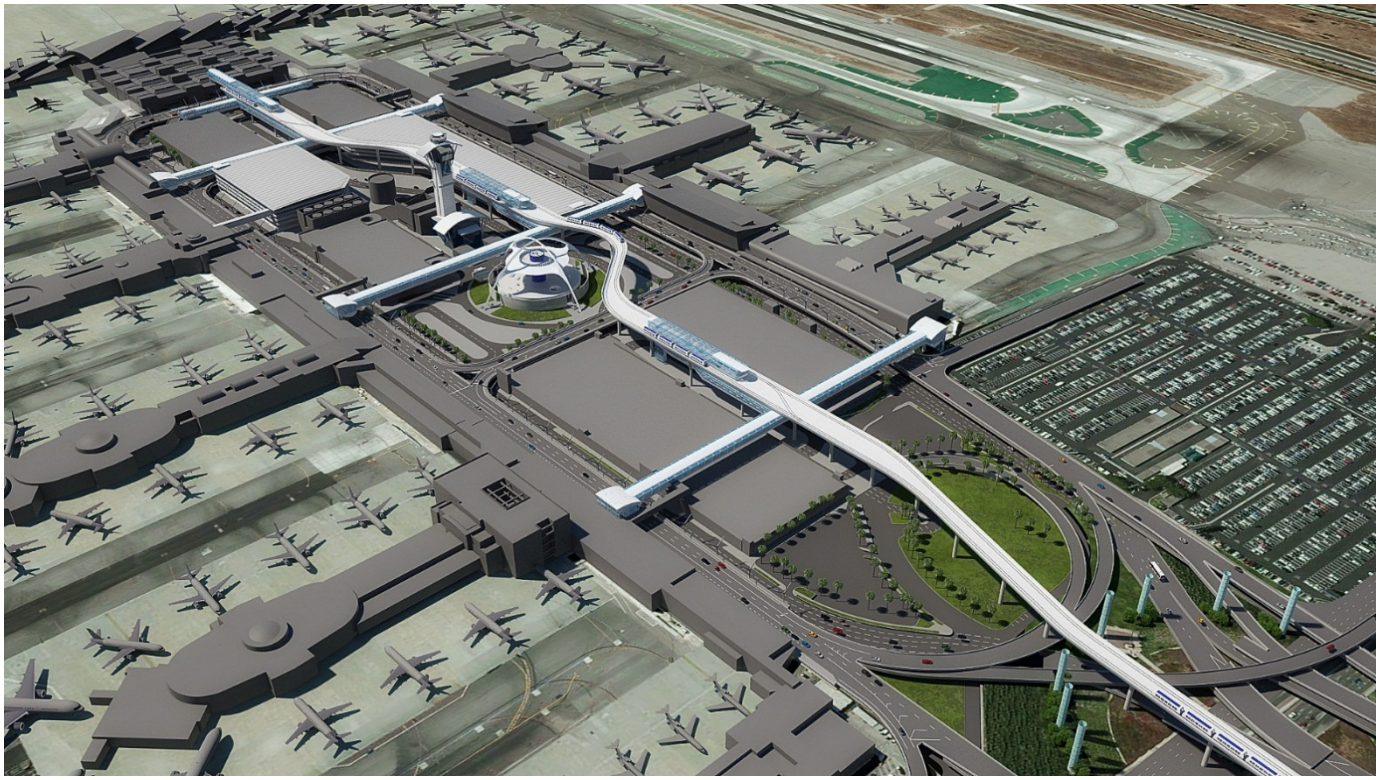
Most importantly, even with these components of the System intended to serve as an interim phase of the holistic airport program, reasonable investments in existing infrastructure to realize a constructible, passenger friendly program should be considered when compared to the overall Replacement AirTrain investment.

Our Team's firm and personal experience at EWR and JFK, including working with PANYNJ Priority Capital Programs, Engineering and Aviation staff to implement the EWR and JFK AirTrain Systems, and best practices we have collected from airport APMs around the world, will prove invaluable in addressing the challenges and innovative approaches noted above to successfully implement the Replacement AirTrain. The remaining subsections provide a discussion of our methodologies, strategies and tools to perform the scope of work outlined in the RFP.

Additionally, Exhibit F-1 outlines our general work process to complete Phase 1 and 2 tasks listed in the RFP and Exhibits F-2 and F-3 provided the schedule, deliverables and milestones for Phase 1 and 2, respectively.



P4 Station



Los Angeles International Airport Landside Access Modernization Program (LAMP)

Exhibit F-2 – Phase I Schedule, Deliverables, and Milestones

Legend: Task Duration | PA Review | Draft Submittal | Project Milestones

Month by Year: 2015 (Quarter 2–4; Month 4–12), 2016, 2017, 2018 (Quarter 1–4; Month 1–12)

Quarter by Year: 2019, 2020, 2021, 2022, 2023, 2024

ANTICIPATED PROGRAM MILESTONES (Based on RFP Attachment A)			
PHASE 1	Award Consultant Contract		*(Assumed NTP on Oct 1, 2015 for allowance of selection & award)*
PHASE 1	Release RFP for the Future AirTrain		
PHASE 1	Award Contract for Future AirTrain		
PHASE 2	Initial Testing & Commissioning of Future AirTrain		
PHASE 2	Initial Pax Service on Future AirTrain		
PHASE 2	Complete Close Out of Future AirTrain		*(Assumed 18-month after opening)*
CONSULTANT'S TASKS		Duration	**ANTICIPATED DELIVERABLES**
PHASE ONE			
	Constructability Review (Start in A.3)		Constructability Review Briefing
Task A - Planning (6 months)			
A.1	**Doc Review**	3 mo	a. Review of Studies & Reports
			b. Summary of Findings (Draft, Final)
A.2	**Ridership Demand & Performance Requirements**	4 mo	a. Ridership Report
			b. System Performance Requirements (Draft, Final)
			c. Design Criteria (Codes/Standards)
A.3	**Alignment Development**	6 mo	a. Alternative Alignment Report (Draft, Final)
			b. Airport Coordination Plan (A.1 scope per RFP)
			c. Train Operation Model
A.4	**Technology Assessment**	6 mo	a. Technology Alternative Review Report
			b. Life Cycle Cost Model
			c. Technology Assessment & Recommendation Report
A.5	**Procurement Strategy**	6 mo	a. Procurement Option Report
			b. Procurement Approach: Assessment, Recommendation & Process Plan (Draft, Final)
A.6	**Other Studies & Reports**	6 mo	Other Studies & Reports - TBD
Task B - Concept Design & Procurement Contract Document (12 months)			
B.1	**Develop Procurement Plan**	4 mo	a. Procurement Plan
B.2	**Finalize Performance & Operations Requirement**	4 mo	a. Updated Ridership Report
			b. System Capacity Requirement
			c. Circulation (pax movement, flow, queuing) Analysis
			d. Emergency Evacuation Analysis
			e. Failure Management Analysis
			f. Conceptual of Operation Report (Draft, Final)
B.3	**Propulsion Power System requirement**	4 mo	a. Power Load Estimate
			b. Power Distribution & Substation Location Analysis
			c. Propulsion Power System Report (Draft, Final)
B.4	**Infrastructure Design Criteria & Conceptual Design**	10 mo	
	a. Infrastructure Design Criteria (guideway criteria, main. Functional diagrams, control facility, system equip. rooms, station/guideway criteria)		a. Infrastructure Design Criteria Report (Draft, Final)
	b. Facility Planning/Conceptual design		b. 1. Performance Design Criteria (Draft, Final)
			2. Design Drawings (30%)
			3. Preliminary Design Calculations
			4. Cost Estimate & Schedule
B.5	**System Technical Performance Spec**	6 mo	a. System Technical & Performance Specifications (Draft, Final)
B.6	**Cost Estimating & Schedule Development**	6 mo	a. Capital & O&M Cost Estimates
			b. Phased Implementation Schedule
B.7	**Procurement Contract Document**	4 mo	a. RFP Instruction to Proposers
			b. General Requirements
			c. Performance Requirement & Tech Specification
			d. Reference Drawings
Task C - Procurement Support		15 mo	
C.1	**Support RFEI, RFQ, and RFP Development**		Miscellaneous
C.2	**Develop List of Candidate Suppliers**		List of Potential Suppliers
C.3	**Prepare Respond to Proposer Questions**		Response
C.4	**Assist with presentation to interested Proposers**		Miscellaneous briefing documents
C.5	**Assist Procurement Evaluation Criteria**		Miscellaneous proposal evaluation material
	Proposal Due to the Authority		
C.6	**Support Proposal Evaluation**		Miscellaneous
C.7	**Support Negotiations**		As needed submittals

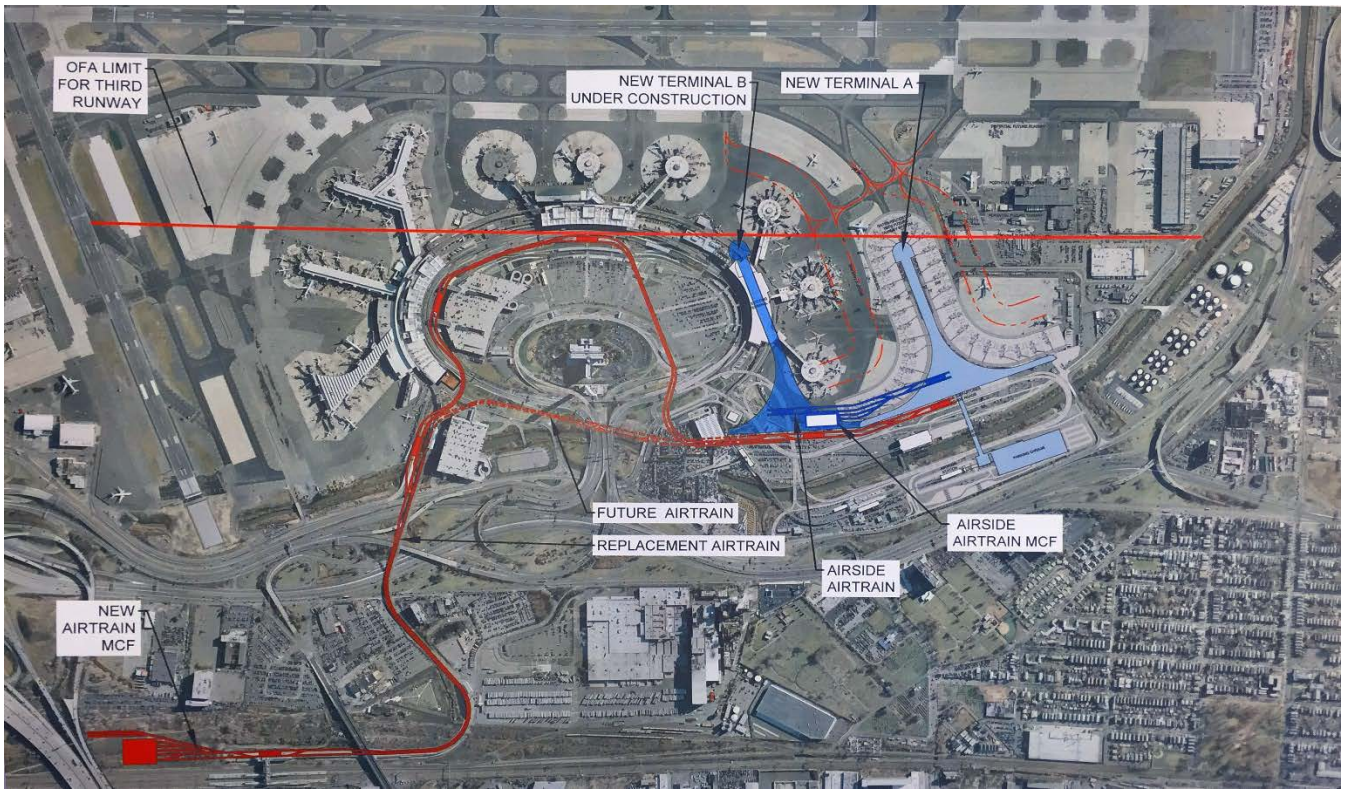
Exhibit F-3 – Phase II Schedule, Deliverables, and Milestones

Legend: Task Duration | PA Review | Draft Submittal | Project Milestones

Month by Year: 2015 (Q2–Q4), 2016, 2017, 2018 (Q1–Q4)
Quarter by Year: 2019, 2020, 2021, 2022, 2023, 2024

ANTICIPATED PROGRAM MILESTONES (Based on RFP Attachment A)		
PHASE 1	Award Consultant Contract	*(Assumed NTP on Oct 1, 2015 for allowance of selection & award)*
PHASE 1	Release RFP for the Future AirTrain	
PHASE 1	Award Contract for Future AirTrain	
PHASE 2	Initial Testing & Commissioning of Future AirTrain	
PHASE 2	Initial Pax Service on Future AirTrain	
PHASE 2	Complete Close Out of Future AirTrain	*(Assumed 18-month after opening)*

CONSULTANT'S TASKS	Duration	ANTICIPATED DELIVERABLES
PHASE TWO		
Task D - System Implementation Oversight		
D.1 **Support Design Oversight & Review**	24 mo	
a. System - Conceptual Design Review		Comments & Recommendations on submittals
b. System - Preliminary Design Review		Comments & Recommendations on submittals
c. System - Final Design Review		Comments & Recommendations on submittals
d. Infrastructure - 30% Design Review		Comments & Recommendations on submittals
e. Infrastructure - 60% Design review		Comments & Recommendations on submittals
f. Infrastructure - 00% Design Review		Comments & Recommendations on submittals
g. Infrastructure - Final Design Review		Comments & Recommendations on submittals
D.2 **Support Manufacturer Installation and Oversight**	39 mo	
a. System - Conduct FAI		Comments & Recommendations on test procedures & reports
b. System - Oversight of Production & Installation		Comments & Recommendations on test procedures & reports
c. Conduct Site Construction Oversight		Inspection report
D.3 **Support Acceptance Testing & Demonstration**	27 mo	
a. Factory Acceptance Testing (FAT)		Test Witnessing Report; Review Comments & Recommendations on Test Procedures & Reports
b. Site Acceptance Testing (SAT		Test Witnessing Report; Review Comments & Recommendations on Test Procedures & Reports
c. System Demonstration Testing		Test Witnessing Report; Review Comments & Recommendations on Test Procedures & Reports
d. Final Acceptance (6 month after opening)		Final Acceptance Report
D.4 **Oversee Warranty Administration**	12 mo	Warranty Oversight Report
D.5 **Support Contract Administration & Payments**	68 mo	
a. Contractor Invoices Review		Comments & Recommendations on Payments
b. Change Orders and Amendments Support		Miscellaneous



Detailed Plan View of Loop Alignment for CLA SB

Phase One

Task A. General Planning Services

A1. Document Review

Our approach to reviewing relevant documents and prior studies includes:

a) Participating in an initial kickoff meeting with the Authority to be briefed on the latest information on relevant studies and planning activities. Our team's experience, knowledge, and familiarity with EWR and its AirTrain will serve to expedite reviewing the studies and reports previously completed.

b) Being fully prepared to coordinate with redevelopment that may be undertaken by the Authority, including the Terminal A Redevelopment Program, Terminal B Expansion, Airport System Capacity Planning Study, and the PATH extension to EWR.

c) Documenting the findings and recommendations (Draft and Final Report) resulting from discussions with the Authority and our document review to establish a clear baseline and direction for further planning development.

A2. Initial Ridership Demands and Performance Requirements Definition

A2.A Initial Ridership Demand Analysis

The initial ridership demand analysis will collect available relevant ridership information, determine the modeling approach that will be used for the planning effort, and establish a high-level baseline estimate for use in establishing the System Performance Requirements. Our approach will include reviewing:

- Available model documentation
- Past reports related to AirTrain ridership projections
- Surveys and corresponding datasets of AirTrain passengers and airport employees
- Survey information to differentiate between transit users to EWR and AirTrain riders from the parking garages
- Air passenger forecasts and projections related to future enhancements such as

replacements of Terminal A, Terminal B, and Terminal C, and adding additional runway capacity

- Forecast impacts of related airport enhancements such as the PATH extension to EWR

We will produce a technical memorandum to document the baseline initial ridership estimate and information based on available data and ridership models. Based on project needs as discussed with the Authority, we will recommend an approach for further development of ridership estimates. These suggestions may include collecting new survey data, developing a new model, or updating existing models.

Our ridership analysis staff has extensive demand analysis experience developing and using travel demand forecasting models model tools such as such as the NJ Travel Demand Forecasting Model (NJTDFM), the NY Best Practice Model (NYBPM), and the Trans-Hudson Travel Demand Model (TH-TDM). Other tools we have extensive experience with include commercial packages such as CUBE and TransCAD, as well as statistical software packages such as SAS, SPSS.

A2.B System Performance Requirement Definition

Based on information gathered from the initial document review and ridership analysis, we will develop the System Performance Requirements document, which will include:

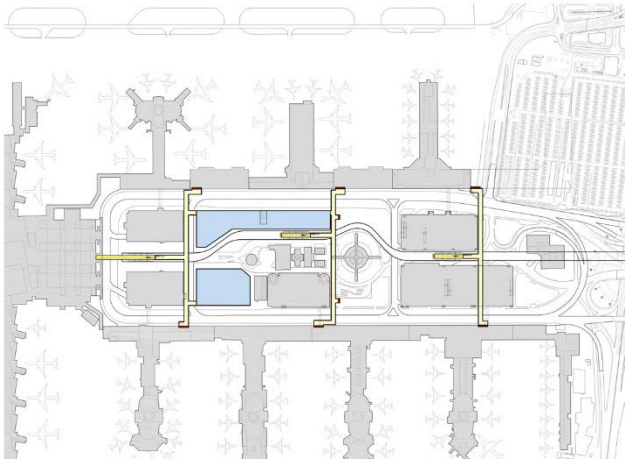
- Purpose of the System: Service type and connection to on- and off-airport establishments and connections
- Project constraints: physical space limitations, budget and schedule guidelines
- User profile: Pedestrian movements and travel patterns, rider characteristics
- APM LOS: Service headway, trip time, transfer point and time, seating capacity, and baggage, cart, and other amenity accommodations
- Environmental, safety/security compliance

A3. Alignment Development

The disposition of Replacement AirTrain regarding on-airport alignment, station locations, and pedestrian connections to garages, car rental facilities, terminals, and terminal interface will depend on the development of the Airport Master Plan. We anticipate the Authority's decision on EWR airside and landside development projects will only become apparent as the selected Replacement AirTrain team works through Phase 1, Task A with the Authority.

Our team's on-airport technical approach proposes to develop a series of options that respond to the airport's evolving holistic redevelopment plan. Selecting the final option will address an optimum design strategy for the location, terminal access, constructability, and roadway coordination of the interim stations for existing Terminals B, C, and the 'pinched loop' guideway.

LAX intermodal facility derived from the 3D airport model



LAX CTA plan study

A3.A Alternative Alignment Development

The following list outlines our CH2M Team's roadmap to the alternative alignment development for the new AirTrain system.

1) ***Workshops And Biweekly Meetings*** – We recommend intensive workshops with Authority staff, the consultant team developing Terminal A, and other stakeholders that may affect project planning. We recommend meeting regularly with a holistic airport team to update, coordinate, communicate, and 'test' preferred alignments and propose options.

2) ***3D Model*** – We would take the next step in developing and refining the alignment concept by building a comprehensive three-dimensional EWR model, including existing and new landside, terminal and airside facilities, roadways, NEC airport terminal, PATH extension sites, and underground utilities. This important step will enable the CH2M Team and stakeholders to engage in realistic dialogue regarding existing conditions, constraints, and, most importantly, evaluate issues in 3D. Considering this is an elevated system, being able to understand how the system will interface with existing and new site development requires viewing components in spatial terms.

3) ***2D Drawings*** – We would develop two-dimensional drawings demonstrating interfaces with existing and new facilities, including site/area/ station plans, site/ area/ station sections, site/area elevations and station elevations that document system planning and programming, as well as the station/guideway interface, i.e., guideway profile and depth, top of rail to platform, establishing station/guideway volumes and elevation from grade.

4) ***Station Criteria*** – Station criteria would incorporate the selected train technology options, detailed passenger capacity estimates and luggage/baggage cart requirements, leading to right-sizing based on platform width, length, and end-loaded vertical circulation equipment – escalators, stairs, and elevators.

5) ***Passenger Pathways*** - Carry right-sizing into determining path of travel, i.e., down or up from station platforms to pedestrian connectors– or grade level crossings– based on interface with existing and new terminals and landside facilities, which will affect guideway elevation; down from platforms implying higher guideway levation to achieve headroom under guideway.

6) ***Constructability Review*** – We will engage constructability, staging, and phasing experts to review alignment options during the planning and design phases of the project to address:
   - Can the option be built?
   - Can the option be phased while the airport operates around the construction?
   - Can the contractor be provided with a reasonable right-of-way?

   We envision construability reviews will be done incrementally during Task A to identify unworkable concepts and to identify key challenges to be solved.

7) ***Code/Life Safety*** - Develop NFPA and other related code and law (ADA) analysis to further right-size development.

8) ***Utility Space*** - Refine program station utility space to further understand station size and volume in 3D; elevation of guideway and station platforms will determine whether stations will be grounded as

Los Angeles International Airport Landside Access Modernization Program (LAMP) and Airport Metro Connector

existing AirTrain stations are, or elevated, including utility zones to address resiliency.

9) ***Guideway Structures*** – We will develop a preliminary guideway design that is compatible with station facilities design to establish the 'family of structures' approach; work to define an open guideway structure that addresses snow maintenance. AASHTO girder design, with architectural concrete panels might be worth studying here.

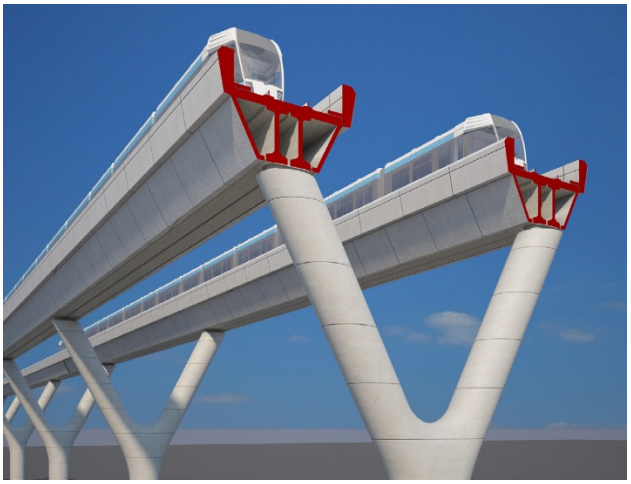
10) ***Facilities Interface*** - Explore alignment options in the 3D model relative to existing terminal and garage interfaces, new terminals regarding incorporation within terminal footprints or landside of terminals and roadway networks, and at NEC regarding the airport terminal and PATH extension site.

11) ***Maintenance and Control Facility (MCF)/Traction Power Substations*** - Develop program, develop core/shell footprint, and select site for MCF and storage yard; determine substation program, footprint, number, and site location in collaboration with the System Team.

12) ***Underground Utilities/Site Survey*** - Document and confirm underground utilities, and produce an aerial site survey to support 3D modeling and system elevation relationships to existing conditions.

13) ***Urban Design*** - Develop 'urban design standards' as an approach to station siting and guideway integration within the airport fabric, including but not limited to landscape, signage, lighting, and hardscape criteria.

14) ***Sustainability*** - Comply with the Authority's Sustainability Guidelines as they apply to this unique building and system type.

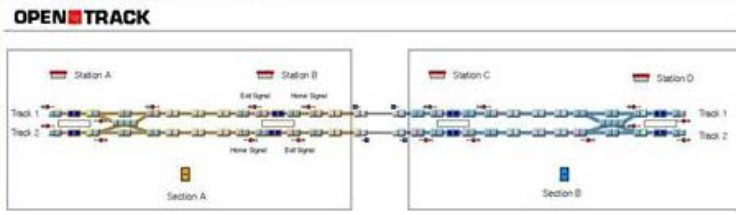


AASHTO girder design with architectural cladding

A3.B Train Operation Simulation Modeling

To assess and refine the alignment configuration and station and maintenance facility siting for selecting technology alternatives, our team will develop a computer dynamic simulation model of the preferred alignment using the OpenTrack software a train operations model. OpenTrack is simple to set up and provides detailed results to support system planning and design. The operations model will provide the information to:

- Define suitable track layout designs, turnaround switch locations, and lay-up tracks
- Evaluate the maximum capacity for a given infrastructure configuration
- Evaluate signaling systems performance and signal clearing analysis
- Evaluate system/network performance of different alternatives by comparing total or localized delays for each
- Determine station and line capacity



Sample OpenTrack Alignment Layout

The model can be used to develop operating plans for bringing cars in/out of service at the yard to assure the proposed track layout and associated signals can allow necessary train movements. Operation string charts and statistical outputs can be made to assess normal and failure scenarios.

A4. Technology Assessments and Recommendations

A4.A Perform an APM System Technology Alternatives Analysis

With the consolidation of the APM supplier industry and the withdrawal of others from the market entirely, the breadth of competition is not what it once was. However, the void left by former active participants has been recently filled by international suppliers offering reputable solutions, continuing to make for a competitive market in both green and brown-field projects. Further, technology choices once available from several companies are now available within the same company as a result of supplier consolidation. The three suppliers now most active in the North American market (Bombardier, Mitsubishi, and Doppelmayr) appear to have sustainable businesses and are well known, here. System technologies fit into one of two types: self-propelled or cable-propelled. The alternatives for consideration need to include rubber tire and steel wheel. Once ridership and alignment alternatives have been determined, suitability of available APM technologies can be readily narrowed to just a few. It is important that the conceptual design and alignment continue to maintain opportunities for a competitive APM supplier environment.

As part of the Technology Assessment Task, we recommend a program of industry outreach and workshops to get feedback, collect the latest information on available product offerings, and generate interest in the AirTrain project.

The capacity of each minimum size vehicle unit will be a fundamental part of the evaluation. The size of the unit is the key factor in the quantitative assessment of each technology, affecting the number of units, trains, required headway for a given throughput, and station platform length.

We will also compile information on relevant supplier project experience, evaluating performance history, lessons learned, and system dependability. We will include a review of forthcoming APM projects whose timing may have an impact on the AirTrain project, wherein the supplier's capacity to deliver may be affected.

A4.B Develop APM Alternatives Order of Magnitude Costing

Those technologies making the short list of suitable alternatives will be evaluated for cost, and the findings documented as part of the report. The cost effort will include system design, manufacturing, installation testing costs, and life-cycle cost elements including operations, maintenance, asset replacement, and obsolescence. The short list of suitable alternatives will be evaluated for distinguishing or unique construction complexities, cut-over and integration challenges, as well as the feasibility to construct within the construction schedule.

A4.C Prepare Alternatives Recommendations Report

The above technical and commercial evaluation will be mostly quantitative, with some qualitative assessment elements such as supplier capacity, integration, constructability, and schedule included. Soon after we begin the analysis task, a draft outline of the report's contents will be reviewed with the Authority to ensure the necessary elements are included. The next milestone will be delivering a draft version of the report for review amongst the stakeholders, which will include complete analyses and recommendations. Lastly, a Final APM Alternatives Analysis Report will be prepared and delivered. The final version will include all the elements analyzed, such as the complete review of the available APM system technologies, suitability determination and ranking, system costs, critical implementation considerations, technological risks, constructability, and the final recommendations.

A5. Procurement Strategy

A5.A Procurement Options Assessment

Our team brings experience working with the Authority to develop strategies for procuring an APM system. From our work on JFK AirTrain and the EWR NEC Extension project, we are well versed in identifying relevant legal and procurement policies and requirements that will need to be addressed in procuring the Replacement AirTrain for EWR. Our support for the JFK AirTrain procurement included:

- Assessing the feasibility of a DBOM contacting strategy
- Developing the overall DBOM procurement strategy, plan, and schedule
- Developing vendor qualification criteria
- Developing DBOM procurement documents, including technical provisions, O&M form of contract, proposal requirements, and management provisions

For Replacement AirTrain, several aspects of the procurement will need to be evaluated to determine the preferred approach. Some examples include:

- Should Civil and Facilities elements be purchased under a single contract together with Systems elements (similar to JFK AirTrain)?
- Should some Facilities elements be procured as part of a different project or program (e.g., elements of the EWR NEC station project or the new Jamaica Station)?
- Should all work be handled as part of a Design/Build contract? Or should some work be pulled out to be delivered by another mechanism (e.g., early action utility relocation)?
- Should all O&M services be procured with the initial system? Or will some functions be handled either by the Authority, or through another contract with a third party?
- If a DBOM approach is to be used, how should the O&M term be structured?

In our experience, appropriate industry engagement can be a very useful approach to identifying the pros and cons of various procurement options. Once a basic framework has been established, we would recommend conducting industry outreach to obtain feedback and help generate industry interest in the project.

A5.B Procurement Strategy Report Development

After evaluating the various procurement options described above, and incorporating industry feedback and guidance from the Authority, we will develop a summary report *(Draft and Final)* to document the recommended approach for procuring the Replacement AirTrain, including:

- Recommended approach (Design-Bid-Build; Design-Build; DBOM) for each major element of the system
- Recommended scope for each contract
- Analysis of pros and cons of alternative approaches, including cost impacts and project risk considerations
- Overall Program schedule for procuring each contract, and high level schedule for implementation, including contract linkages

A6. Other Studies and Reports

Our team is experienced in providing the types of analyses that may be required to support this project. On the JFK AirTrain project, we worked with the contractor in developing a threat and vulnerability analysis report for the system, and verified that the design and operational mitigations were in place before opening. Members of our team have been involved in providing engineering services for Hurricane Sandy-related resiliency projects and performing value engineering, risk analyses and assessments, and cost/benefit analyses of resiliency and mitigation measures. Our team is fully prepared to support environmental assessments, permitting, or planning may be required for the Program. Our environmental experience includes FAA, FRA, FTA, FHWA, and U.S. Army Corps of Engineers.

TASK B: CONCEPT DESIGN & PROCUREMENT CONTRACT DOCUMENTS

B1. Develop Procurement Plan

Under this task, we will expand on the Procurement Strategy Report to develop a detailed Procurement Plan describing the steps required to develop the procurement documents, along with timeframes and required approvals. The plan will detail the various steps in the procurement process. We will flesh out the plan for industry engagement and outreach, including Requests for Expressions of Interest (RFEI) if appropriate.

The Procurement Plan will include key Authority decision points and milestones in the procurement process, including critical input information and predecessor activities. Time tables for developing drawing packages and technical specifications will be factored into the Procurement Plan, along with the time necessary to develop the General Conditions, Management Provisions, and Special Provisions. The plan will identify stakeholders that must be included in reviewing these documents before issuance, as well as review-time constraints. Time will be allocated to account for revisions resulting from these reviews, along with the time needed for review by the Authority Legal and Procurement Departments. Periods will be established for contractor proposal preparation, proposal evaluation, BAFO, negotiations, and Board approval.

B2. Finalize Performance and Operation Requirements

B2.A Ridership Analysis

Building on the initial ridership forecast developed in Task A, for this task we will update and flesh out the ridership analysis to incorporate new information and provide a greater level of detail. Some specific analyses that may be appropriate at this stage include:

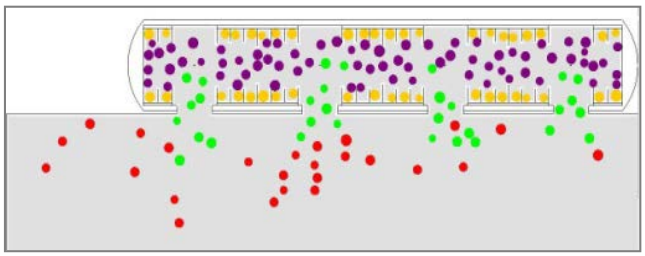
- Incorporating updated information from adjacent operations including Amtrak, NJ Transit, and PATH
- Refining out-year estimates to include the latest air passenger forecasts from airlines
- Incorporating the latest planning information for the long-term airport plan, including Terminal A redevelopment, and upgrades to Terminals B and C
- Conducting sensitivity analysis for critical inputs.
- Detailing the analysis for time of day and seasonal variations

We will review updated ridership estimates with Authority stakeholders to confirm broad agreement. The update to the ridership analysis will be the cornerstone of the System Performance Requirements and will be documented as part of the comprehensive Concept of Operations Report referenced below.

B2.B Passenger Capacity

Results of the updated ridership estimates will be fed into the OpenTrack simulation model to determine the required passenger capacity, train length, headways, and number of trains needed to meet peak demands. Peak loads and future peak loads will be identified under this subtask.

B2.C Analysis of Passenger Circulation



Screenshot of Rail Car Station Pax Flow and Dwell Time Analysis Using Legion

Analysis of passenger circulation will include movement, queuing, wayfinding, and interface of passenger with supporting assets in and around each station and between station and airport terminals during peak demand in two service conditions:

- Passenger flows (both vertical and horizontal moves) under normal operating conditions
- Pedestrian evacuation flows under emergency conditions, in accordance with National Fire Protection Association (NFPA) 130 guidelines

Location and potential reconfiguration of vertical and horizontal movements throughout each multilevel station is of critical consideration. Placement and orientation of vertical circulation elements must optimize traveler flows, while safe egress in emergencies as well as convenient access to and from the street must be provided. LOS considerations for system operations will be analyzed and considered in sizing and maximum load condition to be based on either forecasted ridership data or simulated train loads.

Depending on how in-depth the analyses proceeds, a mix of static and dynamic (2D or 3D) pedestrian modeling tools can be used for this study to establish criteria and perform evaluations for optimization of spatial configuration, circulation element location, and capacity. We offer 2D visualizations and appropriate 3D renditions of normal operation as well as degraded service conditions, including evacuation.

B2.D Passenger Circulation and Queueing Analysis

Modeling tools alone do not provide assurance that a design would function correctly. Unique spaces and areas, such as platform structure, platform ends and corridor crossflows that are not readily identifiable on plans may require further examination with other analytical tools. Some individual areas, such as stairwells and corridors, tend to use standard pedestrian analysis procedures. For platform waiting spaces, time-space procedures, the standard accepted methodology used to assess waiting and queuing areas, will be used. Throughout the design process, the Authority and other stakeholders, will be engaged in defining acceptable LOS.

B2.E Emergency Evacuation Analysis

In addition to stairwell queuing and platform/waiting area time-space analyses, we will evaluate compliance to NFPA 130 for the maximum evacuation time (passengers must be cleared from the most remote point on the platform in less than six minutes). With the Authority, we will define what constitutes “safe refuge” and use that definition to assess clearance times in meeting NFPA standards. Spreadsheet tools developed by CH2M Team member STV for other terminal designs including the new PATH Transit Hub and for all 10 stations in the JFK AirTrain system will be used along with a proprietary project model to determine if NFPA criteria are met in all planning scenarios. The model output also includes elapsing circulation times for individual travelers to check static analyses.

Our team’s experience with local fire officials informed us that NFPA analyses do not always provide the “level of information” for them to make informed decisions regarding acceptance of a terminal’s evacuation plan. During the pedestrian analyses for the WTC PATH Transportation Hub, the NYC Fire Department required a detailed analysis to determine the time required for the last person to leave the multilevel terminal. We developed a method within the STEPS software to simulate an emergency event in two ways. Our simulation files can now identify specific zones where people are injured and immobile, and a subarea further out where people are injured but would walk at slower speeds. Beyond these zones, normal walking speeds would prevail. The model then runs through its cycle to determine the elapsed time for the last person to leave the building. Our team offers this unique level of detail in examining pedestrian flow in each station if the Authority opts for this information.

B2.F Failure Management Analysis

Failure mode analysis should be undertaken as part of the alignment studies. The alignment development should include a sufficient number of crossovers to allow for efficient operations during normal and failure mode (degraded operations). The goal is to maintain maximum operational flexibility at a minimum of extra cost and complexity. Failure scenarios of key system elements (e.g., ATC, vehicles, traction power, Platform Screen Doors, etc.) will be evaluated. The OpenTrack System Operations Model can be used to evaluate each scenarios and analyze alternative track configurations. This analysis will be performed in conjunction with the alignment development

task and include a cost/benefit analysis of mitigation measures.

B2.G Concept of Operations Report

Results of Task B2 will be summarized in a Concept of Operations (ConOps) Report *(Draft and Final)*. The report will synthesize the findings of the ridership studies, passenger capacity analyses, passenger circulation and queuing analyses, emergency evacuation analyses, and failure management analyses. If needed (based on the findings of the aforementioned analyses), performance requirements developed in Task A will be updated.

B3. Propulsion Power System Requirements

We will develop a study to evaluate and document the requirements for the Replacement AirTrain power distribution system, including the range of power requirements from the sources of power, train propulsion requirements, and auxiliary systems. The study will include an estimate of the power demand and energy consumption for Replacement AirTrain, identify candidate locations and sizing for substations, and document the power system requirements, consistent with the selected procurement approach.

We will meet with Authority staff and collect relevant single-line drawings and other power distribution system information for the existing EWR infrastructure. We will meet with PSE&G to determine local sources of available power.

B3.A Power Load Estimate

To determine the estimate of power demand and energy consumption, our CH2M Team will perform load flow simulations for the propulsion power system using the Electric Traction System Analyzer (ETSA) software program. ETSA is a “dynamic” rail transit power system load flow simulator that has the capability to accurately and efficiently simulate the Replacement AirTrain traction power electrical network. We will use power demand characteristics of the anticipated “worst cast vehicle”, and model power demand based on the established system capacity requirements for train length, headway, passenger load, acceleration, and runtime. The analysis will consider propulsion power, station electrical loads, and guideway heating (if required).

The results of the ETSA simulations will provide us with instantaneous power demand at each point in the Replacement AirTrain power system and the energy consumed during a 24-hour period. The estimate will include a projected annualized consumption value and a peak operational load.

B3.B Substation Location

We will use the ETSA software to evaluate alternative substation quantities, locations, and capacities. We will use voltage plots to evaluate if each vehicle is receiving proper voltage to meet performance requirements. Our CH2M Team will evaluate equipment sizes, ratings, configurations, and locations to demonstrate the effects on performance and provide the Authority with several options for sizing and locating substations.

B3.C Propulsion Power System Report

We will prepare a Propulsion Power System Report (*Draft and Final*) that includes a comprehensive narrative and defines the options available for a power distribution system that meets design criteria. This report will also include concept-level drawings depicting proposed improvements to be constructed by PSE&G to provide an adequate supply of electrical power to meet Replacement AirTrain operational requirements and design criteria.

B4. Infrastructure Design Criteria and Conceptual Design

B4.A Infrastructure Design Criteria

Design requirements will be developed to work in tandem with 20-30% concept design documentation. Multidiscipline engineering narratives reflecting the ‘family of structures’ approach are envisioned to be applied to all elements of the AirTrain system. Design principles establishing station public spaces and support facilities will be developed with consistent visual form and functionality.

Passenger services and amenities, as well as materials, finishes, lighting, and wayfinding standards, will be documented to establish Replacement AirTrain's 'brand' recognition within the airport precinct, as well as connection to regional transit and PATH. Examples of narratives/design principles are Building Codes and Standards, Sustainability Urban Design, Branding/Wayfinding, and Infrastructure Design Criteria Report (*Draft and Final*).

This program definition document will provide a methodology for 'locking down' system scope moving into conceptual design and provide a structured Replacement AirTrain roadmap for proposing contractor/vendor teams to follow.

In addition to the above geographical/ facilities scope, the design criteria will be developed through an iterative process with the Authority and key stakeholders and will be recorded with drawings, diagrams, figure grounds, and aforementioned narratives defining critical requirements for functionality, passenger flow, clearances, and adjacencies among system components. The Infrastructure Design Criteria Report will determine specific requirements for performance of systems and selected materials as agreed with the Authority. Sustainable design criteria will comply with the PANYNJ Sustainability Guidelines as they apply to the unique conditions of this program.

Replacement AirTrain facilities and infrastructure will include stations, including pedestrian connections to terminals and landside facilities such as parking garages and car rental facilities; the NEC Newark airport terminal; proposed PATH to Newark extension facilities; maintenance and storage facility; central control facility; traction power substations; guideway structures; site/civil roadways, as required; and utilities.

The report also will include a description of key assumptions and criteria; assessment of short- and long-term airport development with respect to the Replacement AirTrain system; development of phasing of the existing replacement AirTrain systems; supporting drawings, diagrams, calculations to describe the system and its phased development over time; and other Stage 1 report elements as agreed with Authority staff.

B4.B Conceptual Design of AirTrain Facilities

This stage will include the following deliverables developed in Task B:

1) **Performance Design Criteria** - All discipline narratives, including sustainable design, safety and security, and performance specifications for building materials and systems.
2) **20-30% Design Drawings** - All disciplines as appropriate and required; site/area plans, sections, elevations, enlarged items are plans, and details; engineering single line diagrams and details; and additional specialty support discipline drawings. Key scope will include architecture, structures, mechanical, electrical, plumbing/fire protection, and site/civil and geotechnical. Documentation of the elements listed above will include the following requirements and criteria:
   - Stations and Pedestrian Connections - Exterior building frame and envelope; platform zone; vertical core; pedestrian connector, as required; emergency egress; utility spaces; and environmental control within station public spaces
   - Guideway Structures - Structural system; clearances relative to the vehicle dynamic envelope, dynamic and static alignment loads, station and alignment, train systems provisions, and snow removal criteria, as well as lighting, drainage, emergency access, and egress
   - Maintenance Facility and Yard - Functional plan definition of maintenance operations and storage yard, as required for the selected AirTrain vehicle fleet
   - Central Control Facility - Functional layout, size, location, and interface with other airport communications and control facilities possibly co-located in an overall coms and control facility developed as a component of the airport plan

3) **Preliminary Design Calculations** - Design criteria appendices including calculations and diagrams addressing the physical interfaces between the guideway, Replacement AirTrain system and stations, as well as other elements and characteristics of the alignment and facilities such as passenger flow models, egress analysis, code summary, structural loads and calculations, mechanical loads and calculations, etc.

4) **Construction Cost Estimate and Construction Schedules**

Construction Cost Estimating

Pre-Stage 1 Estimating and Cost Modeling

Using preliminary design information, we will develop the conceptual cost estimate to reflect the current alignment. Our CH2M Team will deconstruct each element of the project into a set of specific cost provisions based on our experience and knowledge as well as collaborative sessions with other team members associated with the project. We will use conceptual cost estimating techniques and the firm's historical cost information to accurately forecast the projected cost of the scope based on the established baseline design requirements.

After developing this conceptual cost estimate, it will be benchmarked against similar projects in total cost, by program components and by elemental systems using the CH2M Team's benchmarking library. This is the central repository of our team's cost estimating data developed from actual costs of delivered projects. As the design evolves, we will work with the designers to keep the design tracking within the cost model.

Stage 1 Cost Estimating

Based on the 20-30% Design (Stage 1) documentation, we will prepare cost estimates with an understanding of the scope and construction staging. At this early design stage, the estimate will include detailed quantities for architectural and structural items. Benchmark system quantities and costs will be used for the MEP disciplines, as design content will not have been developed.

Construction Scheduling

We understand the project schedule for design and construction will be thoroughly coordinated at the early stages of the project. Issues such as proposed phasing of the work, local approvals, separate prime contractor coordination or CM at risk must all be addressed to logically approach the execution of the Project.

Our CH2M Team will define the planning, work breakdown structure, and the schedule logic along with estimated durations for each activity. Then our scheduler will enter the data into the scheduling program and prepare the reports that show the shortest time in which the project can be completed, identify those activities which cannot be slipped, and show the potential slippage (float) available for those activities that are not critical. In cases where the resultant time requirement exceeds available time, the project manager and the design team must re-evaluate the entire program and take whatever action is required to meet time objectives.

B5. System Technical and Performance Specifications

We will begin by outlining the technical, design development, and managerial requirements. The tabular outline will be reviewed with the Authority to confirm we have addressed and included all the elements of the project requirements. The specifications will include the system design documentation, design review, and submittal requirements and the important reliability, availability, maintainability and safety requirements, as well as quality and safety certification obligations.

Performance requirements will be provided at the system level (e.g., system availability, passenger capacity, etc.) and for all key system elements, including vehicles, ATC, communications, fare systems, traction power and distribution system, platform screen doors,

and the control center. Requirements will be tailored to clearly define the required performance, while affording the contractor with appropriate ability to develop and deliver the most effective specific design solution.

Appropriate requirements will be established for incremental design submittals and design reviews to allow the Authority to evaluate and approved design details as they are developed. Requirements for System Support and System Assurance processes will also be developed, including: manuals, training, reliability, availability, system safety, and system maintainability. A key component of the performance specifications will be the O&M requirements. The performance requirements will be developed into a draft specification that will be circulated and presented for review with the Authority stakeholders. Comments will be reviewed and discussed with the stakeholders before creating the final documents.

B6. Cost Estimating and Schedule Development

B6.1 Cost Estimating

We will develop preliminary system capital cost and O&M costs. The cost estimate is crucial for assessing procurement options, evaluating cost proposals, securing the necessary long-term funding support, and identifying design options to optimize the long-term cost of system ownership and operation.

Capital Cost Estimate

Our estimators are experienced in all disciplines and have hands-on knowledge of current methodology and practices, and will develop preliminary capital costs for:

- System Elements (Vehicles, ATC, Communications, Fare Systems, Traction Power and Distribution System, Platform Screen Doors and the Control Center) – Our team will benchmark the costs with other similar systems and include relevant support costs in developing preliminary cost estimates. We have provided similar support for the JFK AirTrain System and other comparable transit systems and have historical cost data to aid in developing the systems cost estimate.
- Infrastructure Elements (guideway, stations, maintenance control facility) – Construction cost estimates will be developed based on the 20-30% design documents as discussed above in Task B4.B.

O&M Cost Estimate

The objective of developing the O&M cost is to assess major costs necessary for daily operations and asset renewal of the Replacement APM system with a 25- to 30-year lifespan. The estimate will be based on the proposed LOS, train headways, maintenance approach, and labor work rules. For areas where project specific information or cost details are not available (i.e., spare part/ materials, maintenance equipment, maintenance facility size, etc.), an estimate to be developed based on benchmarking other comparable systems.

B6.2 Implementation Schedule

Based on input from the Authority and project stakeholders, our team will develop a detailed implementation schedule, using Primavera software, for a construction and phased transition to the new Replacement AirTrain and decommissioning the existing AirTrain. Critical focus is developing a realistic and constructible schedule to account for the AirTrain system while maintaining operations for necessary passenger and airport services.

B7. Procurement Contract Documents

B7.A Bidding and Contract Documents

As per Task A, our CH2M Team brings experience in working with the Authority on procuring an APM system and is familiar with the types of forms that will be required in the bid/solicitation package. We will assist in developing specific forms for the proposers to complete, including but not limited to the technical data and pricing forms that are specific for an APM system, as well as specific clauses in the management and special provisions documents that will be needed for procuring this type of system. We will provide specific instructions on how to submit management, technical, and pricing items.

B7.B General Requirements

A key element of a successful procurement is developing a bid/solicitation package that is clear, consistent, biddable, and accurately conveys the owner's requirements. Procuring an APM system poses the additional challenge of procuring a system comprising two major elements, the Operating System (e.g., vehicles, train control systems, communications, and propulsion power) and fixed facilities (e.g., guideway infrastructure, equipment rooms, stations) that are integrated into a fully functional system. This will affect the payment schedule, for example. Payment schedules for the fixed facility work may be geared more toward progress payments, whereas payments for the Operating System portion may be more heavily weighted toward milestone payments. Similarly, submittal schedules and design reviews for the systems work may be structured differently than for the infrastructure components. All of this must be properly defined in the solicitations package. The requirements of building in an active airport must also be incorporated into the procurement package, which must address regulatory requirements, existing site and environmental conditions, and coordination requirements. Interfaces to existing airport structures and systems must be clearly defined. Most importantly, any construction restrictions must be clearly laid out.

B7.C Performance Requirements

Our CH2M Team will integrate the infrastructure design criteria and system specifications developed under Task B in this contract into the overall specifications for the AirTrain System and will develop an O&M agreement for the System.

B7.D Reference Drawings

The reference drawings will be derived from the 20-30% conceptual design documents. These documents, as well as the Design Criteria/Basis of Design Document, will become the basis for comparing selected contractor/ vendor submissions. Revisions or modifications to the reference drawings by the contractor/ vendor will be vetted through this material.

TASK C – AIRTRAIN PROCUREMENT SUPPORT

Several members of our CH2M Team participated in the JFK AirTrain procurement and bring invaluable firsthand experience to to support the procurement process. We assisted the Authority with procuring the JFK AirTrain system, providing the type of support requested in this RFP as follows:

- Formulated a plan/schedule for awarding the DBOM contract and developing vendor qualification criteria and the overall procurement strategy
- Assisted in preparing systems evaluation criteria and specific forms to be used in selecting the AirTrain proposer
- Assisted in preparing responses and correspondence to the questions raised by prospective proposers
- Assisted in evaluating proposals (technical and cost) and made presentations to the Authority regarding the relative merits of each submitted proposal
- Assisted the Authority during the BAFO process and the negotiations with the final proposer

We will provide the same type of support for this procurement.

Phase Two

TASK D – SYSTEM IMPLEMENTATION OVERSIGHT

D1. Design Oversight and Documentation Review

D1.A Perform Design and Quality Oversight Reviews

Effective design oversight requires a consistent and continuing line of communication between the Authority, CH2M Team, and contractor. We will facilitate that communication link, encourage an open dialog, and reinforce the specification requirements as part of the design review process. Auditing and oversight of the contractor's work early on at their facilities is critical to making an effective project start, and not losing valuable time early on in the project.

Our CH2M Team recognizes the importance that the Authority places on sustainable design; as such, design reviews will include verification of contractor compliance with the PANYNJ's Sustainable Design Project Manual and Sustainable Infrastructure Guidelines where appropriate.

D1.B Review Various Data and Documentation for Contract Conformance

Contract compliance will be enforced by developing a system compliance matrix, a database-driven tool that aligns the requirements to the final product, both in form and function. The tool carries compliance validation through to demonstration and safety certification, documenting that each and every requirement of the performance specification has been met.

For a new System such as this, the System Safety Program Plan and Safety and Security Certification Plan are key documents that have to be provided early in the project. Our experience has shown that the Safety Certification process has to be put in place at the beginning of a project to avoid delays toward the end of the project.

Our team will review monthly schedule updates by the Contractor and validate accuracy in coordination with our periodic site visits.

A crucial area that typically can cause problems are the interfaces between the infrastructure and the system elements. The Contractor should develop an Interface Management Plan and Interface Control Document to manage the interface issues. Our CH2M Team will periodically review the contractor's updates to the Interface Control Document.

D1.C Perform Design Review of Both Systems and Guideway

Complete and comprehensive systems and civil/structural review and approval of the designs as they are developed is crucial for timely completion of the project. Subject matter experts will perform the reviews where the contractor's design will be verified against the performance specifications and standards.

The minimum number of formal design reviews will be prescribed in the management section of the specification. For this project, we recommend four design reviews: System Design Review, Preliminary Design Review, Critical Design Review, and Final Design Review. As mentioned earlier, our goal is to expedite the design review process through continuing communication ("on-board reviews") with the Contractor.

D1.D Review QA Plan

The Contractor will be obligated to implement and maintain a System Assurance Program that includes a Quality Assurance Program Plan. The plan will be reviewed to ensure it includes as a minimum an acceptable organization and personnel, the requirements of the program, methods of implementation, detection and correcting non-conformance, reporting procedures, auditing, and software quality assurance. The Contractor's QA Plan must meet the requirements of the PANYNJ's Quality Department.

Our experience has shown that a comprehensive and rigorous QA Plan and the QA Program that it defines is essential in minimizing rework delays and helping to ensure the project is built as designed.

D1.E Review Contractor Testing Plans and Procedures

The testing requirements of the performance specification will include design validation production verification, factory acceptance, post installation, integration, performance verification, and system demonstration. The Test Program Plan submitted by the contractor will detail the full testing work and sequencing of all system, subsystems, equipment and materials, and the documentation of tests (procedures and reports) to ensure a complete and safety certified system. As stated above, our experience has shown that it is important to have a well thought out, comprehensive Test Program Plan developed early on to minimize delays during the testing stages of the project.

D2. Manufacturing/Installation/ Construction Oversight

D2.A Monitor Contractor's Manufacturing, Installation, and Construction Activities

We will implement an Oversight Management Plan, developed with the Authority, wherein the work will be described, methods and objectives of the oversight activities during the manufacturing, fabrication, construction, installation, inspection, and Post-Installation-Check-Out. The system and civil works will be included in a systematic structure of inspection, audits, witnessing, testing verification, records inspection, and certification oversight.

D2.B Prepare Progress and Weekly Reports

The progress of the work for both the systems and civil infrastructure development will be reported on with a format prepared in consultation with the Authority, ensuring your needs have been met. The civil work progress will be reported weekly documenting the construction efforts onsite.

D2.C Conduct In-Plant Quality Reviews

The oversight of the Contractor's QA Program Plan will require sufficient number of offsite and source inspection audits. Accompanied by the Contractor's QA staff, the effort, whether conducted in the factory, at the sub-assembler, at the component source location, or nearby precast facility, will involve reviewing the personnel, processes, documentation, and results. The effort will customarily involve onsite inspectors for limited periods. Plant inspection audits are typically more extensive than other systems for the rolling stock.

D2.D Conduct Periodic Site Visits and Attend Progress Meetings

Since we are local to the Authority, providing the requisite periodic site visits and attendance at progress meetings is straightforward. Periodic site visits will serve to validate progress reported at meetings, as well as the Contractor's adherence to its QA/QC Program.

D3. Acceptance Testing and Demonstrations

Acceptance testing and Demonstrated System Operation are critical activities in the implementation phase of the AirTrain system. We have learned from experience that a comprehensive Test Program Plan (TPP) developed early in the project is a key to successfully completing the acceptance testing and demonstrated operation of the system. Our CH2M Team will review the contractor's TPP to verify all applicable tests are addressed and appropriately scheduled throughout project implementation.

This type of system will require a significant amount of factory acceptance testing, particularly software factory acceptance testing. Having a comprehensive and acceptable factory acceptance testing plan will help to minimize problems and re-testing when equipment and software is installed on the site. We will send the appropriate experts to witness factory acceptance tests and report results to the Authority on a regular basis. Our CH2M Team will also review test reports produced by the Contractor. When issues are uncovered during the testing, our team will work with the Contractor and verify that the appropriate resources are being used to resolve the problems in a timely manner. We take a collaborative problem solving approach to test witnessing.

We will follow the same approach discussed above for site acceptance testing, integrated system testing; demonstrated system operation; and final acceptance activities, again with a goal of verifying the contractor is bringing the appropriate resources to bear in order to quickly resolve issues that are invariably uncovered during site testing and to minimize the amount of re-testing that may be required. Our experience has shown that problems that are difficult to pinpoint and resolve are frequently uncovered in these later stages of testing, which require the concentrated efforts of specialists in multiple disciplines to successfully resolve in a timely fashion. The testing and commissioning stage of

this type of project is typically a stage where significant schedule delay can occur.

As called for in the RFP, we will review all documents pertaining to acceptance testing, demonstrated system operation, safety certification, reliability and maintainability, and advise the Authority in a special report regarding the final acceptance of the AirTrain. We understand that final acceptance of the AirTrain shall follow 6 months of O&M oversight, including actual operation carrying passengers.

D4. Warranty Administration

Our CH2M Team will prepare the framework for verifying the Contractor is adequately identifying, recording, and correcting system deficiencies that are covered by the various warranties included in the Special Provisions of their contract during the first year of the O&M period after System opening. We will oversee the warranty administration by the contractor during that period.

D5. Contract Administration

Our CH2M Team will monitor project progress, and make recommendations to the Authority for Contractor payment retentions as authorized by Contract Provisions when necessary. We will review and process all Contractor invoices, and make payment recommendations based upon the supporting documentation attached to the invoices that substantiate the progress and milestones achieved for that payment request. We will provide assistance to the Authority in negotiating contract change orders and make recommendations for any required amendments to the Terms and Conditions of the contract.

Cost Proposal

CH2M has prepared our price proposal based on the instructions provided in the RFP for Replacement of AirTrain EWR. Detailed staffing analysis sheets and multiplier backup are included in the following pages.

Staffing Analysis Assumptions

We have completed the Price Sheets from the RFP based on the following assumptions:

1. **Project Duration:** Total 101 months from October 2015 to 1st Quarter 2024.
2. **Labor Hourly Rate:** Based on average rate for the project duration with an estimated annual escalation of 3%.
3. **Home/Field Multiplier:** For Phase 1, we have assumed that all our staff will remain based at our offices. However, if the Authority choses to provide office space and staff are engaged full time for a sufficient duration, then those staff could be billed at field rates.

   For Phase 2, we have assumed that selected members of the team would be assigned full time with Authority staff at the project site. These staff are proposed at field rates.
4. **Reimbursable Expenses:** We have included a general lump sum cost for reimbursable expenses (travel, printing, production, etc.) and all special services to be billed at cost.
5. **Implementation Oversight Support:** For Task D.2 (Manufacturing Installation and Construction Oversight), installation and construction oversight activities are based on periodic inspections by part time staff. Work progress will be evaluated on a monthly basis to support contractor invoice reviews.
6. **MWDBE Participation:** CH2MHill/STV expects that in the course of the project's development other support services (Task A.6) and Phase 2 may require significant additional participation by our M/WBE sub-contractors including but not limited to the following tasks:
   - Domingo Gonzalez Associates (MBE) – Roadway and site lighting design
   - JCMS, Inc. (MBE) – Cost estimating, scheduling and inspection
   - KS Engineers, P.C. (MBE) – Additional Phase Two engineering, inspection and field support
   - NAIK Consulting Group, P.C. (MBE) – Topographic and utility survey
   - SIMCO, Engineering, P.C. (MBE) – Additional Phase 2 engineering, inspection and field support
   - HMMH, Inc. (WBE) – Acoustic and vibration analysis and design
   - Interactive Elements, Inc. (WBE) – Additional Project Controls/Administrative, inspection support
   - Ting and Li Architects, P.C. (WBE) – Additional Phase 2 field support

   Other potentially significant areas where MWBE sub-contractors may participate include the geotechnical program and environmental sampling. Since these tasks are not defined in the RFP our fee does not currently address them. However, it is likely that some, if not all, of these will ultimately be required and will help fulfill the M/WBE goals.

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task A.1 Document Review		Task A.2 Initial Ridership Demands and Performance Requirements Definition		Task A.3 Alignment Development		Task A.4 Technology Assessments and Recommendations		Task A.5 Procurement Strategy		Task A.6 Other Support Services	
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
1.0	**Project Management**			**Subtotal**			362	$88,324	214	$ 51,508	554	$130,032	354	$ 89,635	184	$47,517	4	$ 975
1.1	David Strong	CH2M	Principal-in-Charge/ Procurement Support/Development	n/a	n/a	$ 277.25	8	$ 2,218	0	$ -	0	$ -	0	$ -	30	$ 8,317	0	$ -
1.2	Janice Li	CH2M	Project Manager	$ 92.38	2.61	$ -	130	$ 31,343	60	$ 14,466	130	$ 31,343	130	$ 31,343	60	$ 14,466	0	$ -
1.3	Janice Li	CH2M	Project Manager	$ 103.97	2.4	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
1.4	Tedd Snyder	CH2M	Systems and Technology Lead, Alignment Layout Design	$ 93.87	2.61	$ -	130	$ 31,849	60	$ 14,699	290	$ 71,047	160	$ 39,198	60	$ 14,699	0	$ -
1.5	Anip Parikh	CH2M	Operations Planning Lead/ Operations & Maintenance	$ 78.59	2.61	$ -	30	$ 6,154	60	$ 12,308	130	$ 26,667	0	$ -	0	$ -	0	$ -
1.6	Victor Simuoli	CH2M	Technical Support & System Integration Lead, Risk, Threat & Vulnerability Assessment	$ 115.70	2.61	$ -	30	$ 9,059	30	$ 9,059	0	$ -	60	$ 18,119	30	$ 9,059	0	$ -
1.7	Dinesh Damavarapu	CH2M	Project Controls Lead	$ 85.90	2.61	$ -	30	$ 6,726	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
1.8	Kelly O'Connor	CH2M	Health/Safety/Quality	$ 93.37	2.61	$ -	4	$ 975	4	$ 975	4	$ 975	4	$ 975	4	$ 975	4	$ 975
2.0	**Architecture**			**Subtotal**			76	$11,035	0	$ -	2770	$551,304	0	$ -	0	$0	0	$ -
2.1	Harry Orthos	CH2M	Building Codes	$ 56.84	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.2	Robert Davidson	STV	Principal	n/a	n/a	$ 277.25	0	$ -	0	$ -	340	$ 94,265	0	$ -	0	$ -	0	$ -
2.3	James Hemmerly	STV	Senior Architect	$ 91.65	2.7	$ -	8	$ 1,980	0	$ -	670	$ 165,790	0	$ -	0	$ -	0	$ -
2.4	Ronald Lem	STV	Senior Architect	$ 81.50	2.7	$ -	8	$ 1,761	0	$ -	670	$ 147,442	0	$ -	0	$ -	0	$ -
2.5	Ronald Lem	STV	Senior Architect (field)	$ 90.39	2.47	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.6	Jung Kim	STV	Architect	$ 46.31	2.7	$ -	30	$ 3,751	0	$ -	670	$ 83,778	0	$ -	0	$ -	0	$ -
2.7	Kris Horvath - Wayfinding	STV	Designer	$ 43.75	2.7	$ -	30	$ 3,544	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.8	Staff Architect	STV	Architect	$ 60.99	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.9	Designer	STV	Designer	$ 57.49	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.10	Adrian Barrios - Visualization	STV	Designer/Visualization	$ 52.94	2.7	$ -	0	$ -	0	$ -	420	$ 60,029	0	$ -	0	$ -	0	$ -
2.11	Gordon H. Smith	Gordon Smith	Principal	n/a	1	$ 376.12	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.12	Michael Snyder	Gordon Smith	Project Manager	$ 126.78	2.87	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.13	Mitchell Stein	Gordon Smith	Project Manager	$ 126.78	2.87	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.14	Alisha Ting/ Stephen Ting	Ting & Li Architects	Principal/ Project Manager	$ -	1	$ 194.07	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.15	Daniel Kreiss	Ting & Li Architects	Project Architect	$ 39.92	2.48	-	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.16	B. Van Sloun/ Stephanie Yeung	Ting & Li Architects	Architect/Interior Design	$ 31.05	2.48	-	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.0	**Landscaping**			**Subtotal**			0	$0	0	$ -	0	$0	0	$ -	0	$0	0	$ -
3.1	Joseph Sikora	Sikora Wells Appel	Principal	n/a	1	$ 206.82	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.2	Daniel Chieco	Sikora Wells Appel	Senior Associate	$ 43.35	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.3	Rosa Mannion	Sikora Wells Appel	Associate	$ 33.14	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.4	Amy Syverson	Sikora Wells Appel	Project Designer	$ 22.94	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.5	Stephen Panasci	Sikora Wells Appel	Project Designer	$ 20.40	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.0	**Civil**			**Subtotal**			38	$6,572	0	$ -	190	$35,485	390	$ 77,879	0	$0	0	$ -
4.1	Joseph Brownstein	CH2M	Site Planning/Utilities	$ 76.51	2.61	$ -	0	$ -	0	$ -	0	$ -	390	$ 77,879	0	$ -	0	$ -
4.2	Donald Yue	STV	Sr Civil Engineer	$ 117.12	2.7	$ -	8	$ 2,530	0	$ -	60	$ 18,974	0	$ -	0	$ -	0	$ -
4.3	Civil Engineer	STV	Civil Engineer	$ 49.90	2.7	$ -	30	$ 4,042	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.4	Civil - CADD	STV	Civil - CADD	$ 47.04	2.7	$ -	0	$ -	0	$ -	130	$ 16,511	0	$ -	0	$ -	0	$ -
4.5	Frank A. Frega	KS Engineers	Task Leader - Civil Engineering	$ 83.63	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.6	Rolston Saul	KS Engineers	Inspection Team Leader	$ 59.58	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.7	Santosh Kumar	KS Engineers	Inspection - Assitant Team Leader	$ 37.32	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.8	William Easterbrook	NAIK Consulting	Survey	$ 75.79	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.9	Jason Larson	NAIK Consulting	Survey	$ 61.41	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.10	Joe Messina	NAIK Consulting	Survey	$ 67.84	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.11	Jay Roberts	NAIK Consulting	Survey	$ 48.09	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.12	Mark Funk	NAIK Consulting	Survey	$ 54.36	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.13	Ken Oshiyemi	NAIK Consulting	Survey	$ 49.13	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.14	Marshall Brown	NAIK Consulting	Survey	$ 52.27	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task A.1 Document Review		Task A.2 Initial Ridership Demands and Performance Requirements Definition		Task A.3 Alignment Development		Task A.4 Technology Assessments and Recommendations		Task A.5 Procurement Strategy		Task A.6 Other Support Services	
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
5.0	**Structural**			**Subtotal**			40	$8,382	0	$ -	100	$35,198	0	$ -	0	$0	0	$ -
5.1	Kishor Doshi	STV	Sr Structural Engineer	$ 152.50	2.7	$ -	0	$ -	0	$ -	50	$ 20,587	0	$ -	0	$ -	0	$ -
5.2	Chris Cerino	STV	Chief Structural Eng	$ 108.23	2.7	$ -	0	$ -	0	$ -	50	$ 14,611	0	$ -	0	$ -	0	$ -
5.3	Structural Engineer	STV	Structural Engineer	$ 72.08	2.7	$ -	20	$ 3,893	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.4	Structural - CADD	STV	Structural - CADD	$ 49.90	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.5	Joel Stahmer, PE	Ammann & Whitney	Principal	n/a	1	$ 294.23	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.6	Tarek Kewaisy, PE, PhD	Ammann & Whitney	Protective Design Engineer	$ 67.10	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.7	James Gould, PE	Ammann & Whitney	Senior Engineer	$ 87.50	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.8	Blended Rates	Ammann & Whitney	Professional Engineer	$ 44.36	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.9	Goerge Assis	KS Engineers	Task Leader - Structural Engineering	$ 88.72	2.53	$ -	20	$ 4,489	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.10	Structural CADD Technician	KS Engineers	CADD Technician	$ 35.49	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
6.0	**Mechanical - HVAC**			**Subtotal**			28	$5,944	0	$ -	30	$7,693	0	$ -	0	$0	0	$ -
6.1	Anthony Bayer	STV	Sr Mech Engineer	$ 94.97	2.7	$ -	8	$ 2,051	0	$ -	30	$ 7,693	0	$ -	0	$ -	0	$ -
6.2	Mech Engineer	STV	Mech Engineer	$ 72.08	2.7	$ -	20	$ 3,893	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
6.3	Mechanical - CADD	STV	Mechanical - CADD	$ 49.90	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
7.0	**Mechanical - Plumbing/FP**			**Subtotal**			8	$2,515	0	$ -	20	$6,288	0	$ -	0	$0	0	$ -
7.1	James Perise	STV	Chief P/FP Engineer	$ 116.44	2.7	$ -	8	$ 2,515	0	$ -	20	$ 6,288	0	$ -	0	$ -	0	$ -
7.2	P/FP Engineer	STV	P/FP Engineer	$ 72.08	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
7.3	Plumibng/FP - CADD	STV	Plumbing/FP - CADD	$ 49.90	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
8.0	**Mechanical - Fueling**			**Subtotal**			0	$0	0	$ -	0	$0	0	$ -	0	$0	0	$ -
8.1								$ -		$ -		$ -		$ -		$ -		$ -
9.0	**Mechanical - General**			**Subtotal**			0	$0	0	$ -	0	$0	60	$ 13,781	0	$0	0	$ -
9.1	Marcin Taraszkiewicz	CH2M	Train - Mechanical	$ 88.00	2.61	$ -	0	$ -	0	$ -	0	$ -	60	$ 13,781	0	$ -	0	$ -
9.2	Nishant Nayan	CH2M	Fire Protection/Life Safety	$ 59.16	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.0	**Electrical**			**Subtotal**			168	$28,108	190	$ 15,702	560	$85,924	960	$ 113,732	0	$0	0	$ -
10.1	Muamer Dedovic	CH2M	Train - Electrical/ Testing & Commissioning	$ 55.44	2.61	$ -	0	$ -	0	$ -	100	$ 14,471	190	$ 27,495	0	$ -	0	$ -
10.2	Muamer Dedovic	CH2M	Train - Electrical/ Testing & Commissioning	$ 62.40	2.4	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.3	Larry Scarcia	CH2M	Train - Electrical/Platform Door	$ 88.58	2.61	$ -	0	$ -	0	$ -	0	$ -	60	$ 13,871	0	$ -	0	$ -
10.4	Peter Sokolow	CH2M	Traction Power Substation	$ 77.46	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.5	Brian Stein	CH2M	Fare System	$ 89.63	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.6	Keith Altamirano	CH2M	Project Engineer	$ 31.66	2.61	$ -	0	$ -	190	$ 15,702	290	$ 23,966	490	$ 40,494	0	$ -	0	$ -
10.7	Keith Altamirano	CH2M	Project Engineer	$ 35.64	2.4	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.8	Ky Fu	CH2M	Vehiicle Engineer	$ 52.50	2.61	$ -	60	$ 8,221	0	$ -	0	$ -	80	$ 10,962	0	$ -	0	$ -
10.9	Neil Glennie	CH2M	Vehicle ATC Engineer	$ 53.76	2.61	$ -	60	$ 8,419	0	$ -	0	$ -	80	$ 11,226	0	$ -	0	$ -
10.10	Kenneth Diemunsch	CH2M	ATC Engineer	$ 61.84	2.61	$ -	0	$ -	0	$ -	0	$ -	60	$ 9,684	0	$ -	0	$ -
10.11	Brandon Swartley	STV	Power Engineer	$ 116.44	2.7	$ -	0	$ -	0	$ -	110	$ 34,584	0	$ -	0	$ -	0	$ -
10.12	Fred Tamayo	STV	Chief Elec Engineer	$ 132.66	2.7	$ -	8	$ 2,865	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.13	Joel Ndreau	STV	Sr Elect Engineer	$ 79.65	2.7	$ -	40	$ 8,602	0	$ -	60	$ 12,903	0	$ -	0	$ -	0	$ -
10.14	Electrical - CADD	STV	Electrical - CADD	$ 49.90	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.15	Electrical - CADD	STV	Electrical - CADD	$ 47.04	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.16	David McGhee	Ross & Baruzzini	Security Engineer	$ 65.33	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.17	Ivan Pagacik	Ross & Baruzzini	Senior Electrical Engineer	$ 82.42	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
11.0	**Electrical - Lighting**			**Subtotal**			0	$0	0	$ -	0	$0	0	$ -	0	$0	0	$ -
11.1	Domingo Gonzalez	Domingo Gonzalez	Principal	n/a	1	$ 221.93	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
11.2	AC Kickox	Domingo Gonzalez	Senior Assoc./Senior Designer	$ 62.70	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
11.3	Nancy Lok	Domingo Gonzalez	Associate/Senior Designer	$ 48.46	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
11.4	Ilva Dodaj	Domingo Gonzalez	Designer	$ 36.51	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
11.5	Angela Ohman	Domingo Gonzalez	Junior Designer	$ 29.67	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task A.1 Document Review		Task A.2 Initial Ridership Demands and Performance Requirements Definition		Task A.3 Alignment Development		Task A.4 Technology Assessments and Recommendations		Task A.5 Procurement Strategy		Task A.6 Other Support Services	
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
11.6	Nick Stuchlak	Domingo Gonzalez	Junior Designer	$ 28.66	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
12.0	**Electronics**			**Subtotal**			0	$0	60	$ 5,903	0	$0	580	$ 71,093	0	$0	0	$ -
12.1	Girish Ananthashankaran	CH2M	Train Control	$ 101.48	2.61	$ -	0	$ -	0	$ -	0	$ -	60	$ 15,892	0	$ -	0	$ -
12.2	Stuart Landau	CH2M	Communication	$ 89.31	2.61	$ -	0	$ -	0	$ -	0	$ -	30	$ 6,993	0	$ -	0	$ -
12.3	Sahith Moturu	CH2M	System Assurance	$ 37.69	2.61	$ -	0	$ -	60	$ 5,903	0	$ -	490	$ 48,208	0	$ -	0	$ -
12.4	Sahith Moturu	CH2M	System Assurance	$ 42.43	2.4	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
12.5	Vitaly Mayzler	Interactive Elements	Rail Vehicle Engineer	$ 73.16	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
13.0	**Traffic**			**Subtotal**			0	$0	250	$ 65,487	60	$16,981	0	$ -	0	$0	0	$ -
13.1	Patrick O'Mara	STV	Traffic Engineer	$ 79.05	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
13.2	Steve Scalici	STV	Circulation Analysis	$ 104.82	2.7	$ -	0	$ -	190	$ 53,774	60	$ 16,981	0	$ -	0	$ -	0	$ -
13.3	Kelly Bird	STV	Jr Engineer	$ 43.97	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
13.4	Warren Michelsen	SIMCO Engineering	Project Manager	$ 78.40	2.49	$ -	0	$ -	60	$ 11,713	0	$ -	0	$ -	0	$ -	0	$ -
13.5	Cheng Xu	SIMCO Engineering	Senior Engineer	$ 45.47	2.49	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
13.6	Hassan Hashmi	SIMCO Engineering	Engineer	$ 36.06	2.49	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.0	**Geotechnical**			**Subtotal**			30	$4,209	0	$ -	0	$0	0	$ -	0	$0	0	$ -
14.1	Harald Leiendecker	CH2M	Geotech/Tunneling	$ 77.58	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.2	John Pizzi	STV	Geotechnical Engineer	$ 104.01	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.3	David Rupnarain	KS Engineers	Task Leader - Surveying	$ 75.41	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.4	Timothy O'Toole	KS Engineers	Project Surveyor	$ 52.12	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.5	Georgia Pierson	KS Engineers	Survey Party Chief	$ 38.81	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.6	Henry Fox	KS Engineers	Geotechnical Engineer	$ 55.45	2.53	$ -	30	$ 4,209	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.0	**Environmental**			**Subtotal**			0	$0	0	$ -	0	$0	0	$ -	0	$0	0	$ -
15.1	Molly MacQueen	STV	Environmental Assessments/Permitting	$ 105.54	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.2	Cade Hobbick	STV	Environmental Planner	$ 67.33	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.3	David Towers	HMMH	Principal Consultant II	$ 64.11	3.828	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.4	Timothy Johnson	HMMH	Senior Consultant II	$ 42.35	3.828	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.5	Philip DeVita	HMMH	Principal Consultant II	$ 62.41	3.828	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.6	Phillip Rosner	Interactive Elements	Environmental Specialist	$ 30.50	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.7	David Full	Reynolds, Smith & Hills	Environmental Task Leader	$ 95.49	3.11	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
16.0	**Sustainability**			**Subtotal**			0	$0	0	$ -	0	$0	0	$ -	0	$0	0	$ -
16.1	Adam Hosking	CH2M	Climate Resiliency	$ 58.92	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
16.2	Chirs M Sawyer	STV	Sustainability / Specifications	$ 82.60	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
17.0	**Scheduling**			**Subtotal**			0	$0	0	$ -	0	$0	80	$ 11,484	0	$0	0	$ -
17.1	M. Nambiar	JCMS, Inc.	Sr. Schedulier	$ 83.45	2.39	$ -	0	$ -	0	$ -	0	$ -	20	$ 3,989	0	$ -	0	$ -
17.2	Y. Lokanath	JCMS, Inc.	Scheduler	$ 52.27	2.39	$ -	0	$ -	0	$ -	0	$ -	60	$ 7,495	0	$ -	0	$ -
18.0	**Travel Demand & Forecasting**			**Subtotal**			0	$0	418	$ 79,606	0	$0	0	$ -	0	$0	0	$ -
18.1	Kimon Proussaloglou	Cambridge Systematics, Inc.	Principal-in-charge	n/a	1	$ 363.85	0	$ -	8	$ 2,911	0	$ -	0	$ -	0	$ -	0	$ -
18.2	Nikhil Puri	Cambridge Systematics, Inc.	Project Manager	$ 62.76	3.62	$ -	0	$ -	30	$ 6,816	0	$ -	0	$ -	0	$ -	0	$ -
18.3	Arun Kuppam	Cambridge Systematics, Inc.	Senior Advisor- Air Passenger Model Development and Application	$ 67.42	3.62	$ -	0	$ -	80	$ 19,525	0	$ -	0	$ -	0	$ -	0	$ -
18.4	Kazi Ullah	Cambridge Systematics, Inc.	Senior Modeler	$ 57.36	3.62	$ -	0	$ -	100	$ 20,766	0	$ -	0	$ -	0	$ -	0	$ -
18.5	Mobashwir Khan	Cambridge Systematics, Inc.	Modeler	$ 38.24	3.62	$ -	0	$ -	160	$ 22,150	0	$ -	0	$ -	0	$ -	0	$ -
18.6	Production	Cambridge Systematics, Inc.	Production	$ 27.57	3.62	$ -	0	$ -	20	$ 1,996	0	$ -	0	$ -	0	$ -	0	$ -
18.7	Keir Opie	Cambridge Systematics, Inc.	Traffic Modeling	$ 75.18	3.62	$ -	0	$ -	20	$ 5,443	0	$ -	0	$ -	0	$ -	0	$ -
19.0	**Vertical Transportation**			**Subtotal**			0	$0	0	$ -	0	$0	0	$ -	0	$0	0	$ -
19.1	Jim Fortune	Fortune Shepler Sailing Inc.	President/Principal	n/a	1	$ 249.52	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
19.2	John Saling	Fortune Shepler Sailing Inc.	Project Manager/Principal	n/a	1	$ 194.07	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
19.3	Jamie Fortune	Fortune Shepler Sailing Inc.	CADD/Designer	$ 37.71	2.26	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
20.0	**Administration Support**			**Subtotal**			$0	$0	0	$ -	0	$0	0	$ -	0	$0	580	$ 96,840
20.1	Dain Devaux	Interactive Elements	Document Control	$ 59.93	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	580	$ 96,840

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task A.1 Document Review		Task A.2 Initial Ridership Demands and Performance Requirements Definition		Task A.3 Alignment Development		Task A.4 Technology Assessments and Recommendations		Task A.5 Procurement Strategy		Task A.6 Other Support Services	
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
20.2	Stephanie Quoma	Interactive Elements	Administrative Support	$ 27.72	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
20.3	TBD	JCMS, Inc.	Project Adm	$ 28.98	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.0	**Other**			**Subtotal**			0	$0	50	$ 14,612	580	$121,437	160	$ 17,588	230	$55,658	0	$ -
21.1	Tim Brown	CH2M	Industry Expert/Airport Programming	$ 135.96	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	20	$ 7,097	0	$ -
21.2	Kirby King	CH2M	Agency & Stakeholder Coordination	$ 111.97	2.61	$ -	0	$ -	50	$ 14,612	60	$ 17,534	0	$ -	30	$ 8,767	0	$ -
21.3	Rick Newton	CH2M	Train Operation & Analysis	$ 50.09	2.61	$ -	0	$ -	0	$ -	260	$ 33,993	0	$ -	0	$ -	0	$ -
21.4	Victoria Carlin	CH2M	Passenger Flow & Queuing Modeling Analysis	$ 47.49	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.5	Eva Chan	CH2M	Life Cycle Cost Benefit Analysis	$ 74.32	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.6	Erin Gorrie	CH2M	Security	$ 70.70	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.7	Kevin George	CH2M	Computer Network	$ 30.39	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.8	Michael Bodek	CH2M	Site Safety/ Airport Operations Coordination	$ 64.86	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.9	Kevin Zsamba	CH2M	3rd Party Coordination	$ 76.11	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.10	Gopala Muthukrishnan	CH2M	System Safety/RAMS	$ 52.22	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.11	Danielle Hartman	CH2M	GIS/Mapping	$ 52.55	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.12	Josh Kish	CH2M	Project Delivery & Legal Support	$ 118.46	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.13	Christine Coughlan	CH2M	Procurement Support	$ 65.20	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	30	$ 5,105	0	$ -
21.14	Linda De Lotto	CH2M	Project Controls/Claims/ Contract/Warranty	$ 67.38	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	60	$ 10,552	0	$ -
21.15	Steve Pressler - Constructability	STV	PIP	n/a	n/a	$ 277.25	0	$ -	0	$ -	100	$ 27,725	0	$ -	30	$ 8,317	0	$ -
21.16	Joe Graziozi - Const. Mgmt..	STV	SPM	$ 108.06	2.44	$ -	0	$ -	0	$ -	160	$ 42,185	0	$ -	60	$ 15,819	0	$ -
21.17	PM - (1 Each)	STV	PM - (1 Each)(field)	$ 89.17	2.15	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.18	Supts/Insp - (1 Each)	STV	Supts/Insp - (1 Each)	$ 80.41	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.19	Supts/Insp - (1 Each)	STV	Supts/Insp - (1 Each)(field)	$ 89.17	2.15	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.20	Estimators (1 Ea)	STV	Estimators (1 Ea)	$ 73.17	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.21	Schedulers (1 Ea)	STV	Schedulers (1 Ea)	$ 79.45	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.22	Vincent Poon - BIM	STV	BIM Coordinator	$ 60.71	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.23	Tom Lentz - Security	STV	Security	$ 74.18	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.24	Scott McIntyre - Industry	STV	Industry	$ 139.57	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.25	Douglass Swann - Air Quality	STV	Air Quality	$ 80.41	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.26	Rafael Torrea	Interactive Elements	Inspection Manager	$ 44.28	2.597	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.27	James Chesson	Interactive Elements	Safety Engineer/Inspector	$ 46.68	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.28	Thomas Buffkin	Interactive Elements	Senior Planner	$ 69.31	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.29	Maxine Finkelstein	Interactive Elements	Public Outreach, Finance Specialist	$ 79.64	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.30	F. George	JCMS, Inc.	Chief Estimator	$ 79.18	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.31	K. Meehan	JCMS, Inc.	Sr. Estimator	$ 63.39	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.32	H. Shukla	JCMS, Inc.	MEP/Sys. Estimator	$ 62.72	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.33	K. Gandhi	JCMS, Inc.	Estimator	$ 45.99	2.39	$ -	0	$ -	0	$ -	0	$ -	160	$ 17,588	0	$ -	0	$ -
21.34	R. Sondur	JCMS, Inc.	Technician	$ 31.10	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Totals						750	$155,089	1182	$ 232,817	4864	$990,342	2584	$ 395,192	414	$103,175	584	$ 97,815

Reimbursable Expenses	
Task	**Amount**
Task A, B, C, D - Travel and miscellaneous other direct cost (ODC)	$250,000
Task A, B, D - Specialized Services at Cost	TBD

Notes:

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task B.1 Develop Procurement Plan		Task B.2 Finalize Performance and Operation Requirements		Task B.3 Propulsion Power System Requirements		Task B.4 Design Criteria		Task B.5 System Technical Performance Specifications		Task B.6 Cost Estimating and Schedule Development		Task B.7 Procurement Contract Documents		Task C AirTrain Vendor Procurement Support	
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
1.0	**Project Management**			**Subtotal**			214	$ 54,025	324	$ 76,475	124	$ 27,749	324	$ 78,633	444	$ 110,180	224	$ 54,134	124	$ 30,630	990	$ 246,321
1.1	David Strong	CH2M	Principal-in-Charge/ Procurement Support/Development	n/a	n/a	$ 277.25	30	$ 8,317	0	$ -	0	$ -	0	$ -	10	$ 2,772	0	$ -	20	$ 5,545	0	$ -
1.2	Janice Li	CH2M	Project Manager	$ 92.38	2.61	$ -	130	$ 31,343	130	$ 31,343	60	$ 14,466	190	$ 45,809	160	$ 38,576	190	$ 45,809	100	$ 24,110	490	$ 118,140
1.3	Janice Li	CH2M	Project Manager	$ 103.97	2.4	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
1.4	Tedd Snyder	CH2M	Systems and Technology Lead, Alignment Layout Design	$ 93.87	2.61	$ -	30	$ 7,350	130	$ 31,849	0	$ -	130	$ 31,849	240	$ 58,797	30	$ 7,350	0	$ -	390	$ 95,546
1.5	Anip Parikh	CH2M	Operations Planning Lead/ Operations & Maintenance	$ 78.59	2.61	$ -	0	$ -	60	$ 12,308	60	$ 12,308	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
1.6	Victor Simuoli	CH2M	Technical Support & System Integration Lead, Risk, Threat & Vulnerability Assessment	$ 115.70	2.61	$ -	20	$ 6,040	0	$ -	0	$ -	0	$ -	30	$ 9,059	0	$ -	0	$ -	100	$ 30,198
1.7	Dinesh Damavarapu	CH2M	Project Controls Lead	$ 85.90	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
1.8	Kelly O'Connor	CH2M	Health/Safety/Quality	$ 93.37	2.61	$ -	4	$ 975	4	$ 975	4	$ 975	4	$ 975	4	$ 975	4	$ 975	4	$ 975	10	$ 2,437
2.0	**Architecture**			**Subtotal**			0	$ -	0	$ -	0	$ -	9190	$ 1,543,675	510	$ 116,888	0	$ -	0	$ -	1590	$ 372,264
2.1	Harry Orthos	CH2M	Building Codes	$ 56.84	2.61	$ -	0	$ -	0	$ -	0	$ -	30	$ 4,450	0	$ -	0	$ -	0	$ -	0	$ -
2.2	Robert Davidson	STV	Principal	n/a	n/a	$ 277.25	0	$ -	0	$ -	0	$ -	460	$ 127,535	0	$ -	0	$ -	0	$ -	140	$ 38,815
2.3	James Hemmerly	STV	Senior Architect	$ 91.65	2.7	$ -	0	$ -	0	$ -	0	$ -	1410	$ 348,902	170	$ 42,066	0	$ -	0	$ -	1260	$ 311,785
2.4	Ronald Lem	STV	Senior Architect	$ 81.50	2.7	$ -	0	$ -	0	$ -	0	$ -	1410	$ 310,289	340	$ 74,821	0	$ -	0	$ -	0	$ -
2.5	Ronald Lem	STV	Senior Architect (field)	$ 90.39	2.47	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.6	Jung Kim	STV	Architect	$ 46.31	2.7	$ -	0	$ -	0	$ -	0	$ -	1410	$ 176,309	0	$ -	0	$ -	0	$ -	0	$ -
2.7	Kris Horvath - Wayfinding	STV	Designer	$ 43.75	2.7	$ -	0	$ -	0	$ -	0	$ -	1410	$ 166,546	0	$ -	0	$ -	0	$ -	0	$ -
2.8	Staff Architect	STV	Architect	$ 60.99	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.9	Designer	STV	Designer	$ 57.49	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.10	Adrian Barrios - Visualization	STV	Designer/Visualization	$ 52.94	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.11	Gordon H. Smith	Gordon Smith	Principal	n/a	1	$ 376.12	0	$ -	0	$ -	0	$ -	100	$ 37,612	0	$ -	0	$ -	0	$ -	0	$ -
2.12	Michael Snyder	Gordon Smith	Project Manager	$ 126.78	2.87	$ -	0	$ -	0	$ -	0	$ -	130	$ 47,302	0	$ -	0	$ -	0	$ -	0	$ -
2.13	Mitchell Stein	Gordon Smith	Project Manager	$ 126.78	2.87	$ -	0	$ -	0	$ -	0	$ -	130	$ 47,302	0	$ -	0	$ -	0	$ -	0	$ -
2.14	Alisha Ting/ Stephen Ting	Ting & Li Architects	Principal/ Project Manager	$ -	1	$ 194.07	0	$ -	0	$ -	0	$ -	340	$ 65,985	0	$ -	0	$ -	0	$ -	30	$ 5,822
2.15	Daniel Kreiss	Ting & Li Architects	Project Architect	$ 39.92	2.48	-	0	$ -	0	$ -	0	$ -	1350	$ 133,665	0	$ -	0	$ -	0	$ -	160	$ 15,842
2.16	B. Van Sloun/ Stephanie Yeung	Ting & Li Architects	Architect/Interior Design	$ 31.05	2.48	-	0	$ -	0	$ -	0	$ -	1010	$ 77,779	0	$ -	0	$ -	0	$ -	0	$ -
3.0	**Landscaping**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.1	Joseph Sikora	Sikora Wells Appel	Principal	n/a	1	$ 206.82	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.2	Daniel Chieco	Sikora Wells Appel	Senior Associate	$ 43.35	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.3	Rosa Mannion	Sikora Wells Appel	Associate	$ 33.14	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.4	Amy Syverson	Sikora Wells Appel	Project Designer	$ 22.94	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.5	Stephen Panasci	Sikora Wells Appel	Project Designer	$ 20.40	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.0	**Civil**			**Subtotal**			0	$ -	0	$ -	0	$ -	2050	$ 324,439	190	$ 36,490	0	$ -	0	$ -	310	$ 47,215
4.1	Joseph Brownstein	CH2M	Site Planning/Utilities	$ 76.51	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.2	Donald Yue	STV	Sr Civil Engineer	$ 117.12	2.7	$ -	0	$ -	0	$ -	0	$ -	310	$ 98,030	60	$ 18,974	0	$ -	0	$ -	30	$ 9,487
4.3	Civil Engineer	STV	Civil Engineer	$ 49.90	2.7	$ -	0	$ -	0	$ -	0	$ -	700	$ 94,320	130	$ 17,517	0	$ -	0	$ -	280	$ 37,728
4.4	Civil - CADD	STV	Civil - CADD	$ 47.04	2.7	$ -	0	$ -	0	$ -	0	$ -	1040	$ 132,089	0	$ -	0	$ -	0	$ -	0	$ -
4.5	Frank A. Frega	KS Engineers	Task Leader - Civil Engineering	$ 83.63	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.6	Rolston Saul	KS Engineers	Inspection Team Leader	$ 59.58	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.7	Santosh Kumar	KS Engineers	Inspection - Assitant Team Leader	$ 37.32	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.8	William Easterbrook	NAIK Consulting	Survey	$ 75.79	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.9	Jason Larson	NAIK Consulting	Survey	$ 61.41	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.10	Joe Messina	NAIK Consulting	Survey	$ 67.84	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.11	Jay Roberts	NAIK Consulting	Survey	$ 48.09	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.12	Mark Funk	NAIK Consulting	Survey	$ 54.36	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.13	Ken Oshiyemi	NAIK Consulting	Survey	$ 49.13	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
4.14	Marshall Brown	NAIK Consulting	Survey	$ 52.27	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task B.1 Develop Procurement Plan		Task B.2 Finalize Performance and Operation Requirements		Task B.3 Propulsion Power System Requirements		Task B.4 Design Criteria		Task B.5 System Technical Performance Specifications		Task B.6 Cost Estimating and Schedule Development		Task B.7 Procurement Contract Documents		Task C AirTrain Vendor Procurement Support	
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
5.0	**Structural**			**Subtotal**			0	$ -	0	$ -	0	$ -	4670	$ 851,860	310	$ 71,483	0	$ -	0	$ -	610	$ 104,990
5.1	Kishor Doshi	STV	Sr Structural Engineer	$ 152.50	2.7	$ -	0	$ -	0	$ -	0	$ -	280	$ 115,289	20	$ 8,235	0	$ -	0	$ -	20	$ 8,235
5.2	Chris Cerino	STV	Chief Structural Eng	$ 108.23	2.7	$ -	0	$ -	0	$ -	0	$ -	230	$ 67,209	30	$ 8,766	0	$ -	0	$ -	30	$ 8,766
5.3	Structural Engineer	STV	Structural Engineer	$ 72.08	2.7	$ -	0	$ -	0	$ -	0	$ -	1040	$ 202,414	130	$ 25,302	0	$ -	0	$ -	0	$ -
5.4	Structural - CADD	STV	Structural - CADD	$ 49.90	2.7	$ -	0	$ -	0	$ -	0	$ -	1040	$ 140,133	0	$ -	0	$ -	0	$ -	0	$ -
5.5	Joel Stahmer, PE	Ammann & Whitney	Principal	n/a	1	$ 294.23	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.6	Tarek Kewaisy, PE, PhD	Ammann & Whitney	Protective Design Engineer	$ 67.10	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.7	James Gould, PE	Ammann & Whitney	Senior Engineer	$ 87.50	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.8	Blended Rates	Ammann & Whitney	Professional Engineer	$ 44.36	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
5.9	Goerge Assis	KS Engineers	Task Leader - Structural Engineering	$ 88.72	2.53	$ -	0	$ -	0	$ -	0	$ -	1040	$ 233,439	130	$ 29,180	0	$ -	0	$ -	280	$ 62,849
5.10	Structural CADD Technician	KS Engineers	CADD Technician	$ 35.49	2.53	$ -	0	$ -	0	$ -	0	$ -	1040	$ 93,376	0	$ -	0	$ -	0	$ -	280	$ 25,140
6.0	**Mechanical - HVAC**			**Subtotal**			0	$ -	0	$ -	0	$ -	1530	$ 273,167	120	$ 27,064	0	$ -	0	$ -	310	$ 62,189
6.1	Anthony Bayer	STV	Sr Mech Engineer	$ 94.97	2.7	$ -	0	$ -	0	$ -	0	$ -	280	$ 71,801	60	$ 15,386	0	$ -	0	$ -	30	$ 7,693
6.2	Mech Engineer	STV	Mech Engineer	$ 72.08	2.7	$ -	0	$ -	0	$ -	0	$ -	550	$ 107,046	60	$ 11,678	0	$ -	0	$ -	280	$ 54,496
6.3	Mechanical - CADD	STV	Mechanical - CADD	$ 49.90	2.7	$ -	0	$ -	0	$ -	0	$ -	700	$ 94,320	0	$ -	0	$ -	0	$ -	0	$ -
7.0	**Mechanical - Plumbing/FP**			**Subtotal**			0	$ -	0	$ -	0	$ -	1150	$ 200,468	130	$ 28,895	0	$ -	0	$ -	260	$ 54,197
7.1	James Perise	STV	Chief P/FP Engineer	$ 116.44	2.7	$ -	0	$ -	0	$ -	0	$ -	140	$ 44,016	30	$ 9,432	0	$ -	0	$ -	30	$ 9,432
7.2	P/FP Engineer	STV	P/FP Engineer	$ 72.08	2.7	$ -	0	$ -	0	$ -	0	$ -	340	$ 66,174	100	$ 19,463	0	$ -	0	$ -	230	$ 44,765
7.3	Plumibng/FP - CADD	STV	PlumbIng/FP - CADD	$ 49.90	2.7	$ -	0	$ -	0	$ -	0	$ -	670	$ 90,278	0	$ -	0	$ -	0	$ -	0	$ -
8.0	**Mechanical - Fueling**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
8.1								$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
9.0	**Mechanical - General**			**Subtotal**			0	$ -	0	$ -	0	$ -	100	$ 22,968	130	$ 29,858	20	$ 4,594	0	$ -	160	$ 36,748
9.1	Marcin Taraszkiewicz	CH2M	Train - Mechanical	$ 88.00	2.61	$ -	0	$ -	0	$ -	0	$ -	100	$ 22,968	130	$ 29,858	20	$ 4,594	0	$ -	160	$ 36,748
9.2	Nishant Nayan	CH2M	Fire Protection/Life Safety	$ 59.16	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.0	**Electrical**			**Subtotal**			30	$ 4,341	510	$ 58,402	510	$ 134,937	2340	$ 358,826	1660	$ 236,396	130	$ 21,407	0	$ -	1650	$ 280,830
10.1	Muamer Dedovic	CH2M	Train - Electrical/ Testing & Commissioning	$ 55.44	2.61	$ -	30	$ 4,341	130	$ 18,812	0	$ -	60	$ 8,683	390	$ 56,437	100	$ 14,471	0	$ -	490	$ 70,908
10.2	Muamer Dedovic	CH2M	Train - Electrical/ Testing & Commissioning	$ 62.40	2.4	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.3	Larry Scarcia	CH2M	Train - Electrical/Platform Door	$ 88.58	2.61	$ -	0	$ -	0	$ -	130	$ 30,054	60	$ 13,871	130	$ 30,054	30	$ 6,935	0	$ -	190	$ 43,925
10.4	Peter Sokolow	CH2M	Traction Power Substation	$ 77.46	2.61	$ -	0	$ -	0	$ -	130	$ 26,283	0	$ -	0	$ -	0	$ -	0	$ -	100	$ 20,218
10.5	Brian Stein	CH2M	Fare System	$ 89.63	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	60	$ 14,036
10.6	Keith Altamirano	CH2M	Project Engineer	$ 31.66	2.61	$ -	0	$ -	260	$ 21,487	0	$ -	260	$ 21,487	730	$ 60,328	0	$ -	0	$ -	240	$ 19,834
10.7	Keith Altamirano	CH2M	Project Engineer	$ 35.64	2.4	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.8	Ky Fu	CH2M	Vehiicle Engineer	$ 52.50	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	60	$ 8,221	0	$ -	0	$ -	80	$ 10,962
10.9	Neil Glennie	CH2M	Vehicle ATC Engineer	$ 53.76	2.61	$ -	0	$ -	60	$ 8,419	0	$ -	60	$ 8,419	60	$ 8,419	0	$ -	0	$ -	80	$ 11,226
10.10	Kenneth Diemunsch	CH2M	ATC Engineer	$ 61.84	2.61	$ -	0	$ -	60	$ 9,684	0	$ -	0	$ -	60	$ 9,684	0	$ -	0	$ -	80	$ 12,912
10.11	Brandon Swartley	STV	Power Engineer	$ 116.44	2.7	$ -	0	$ -	0	$ -	250	$ 78,600	0	$ -	110	$ 34,584	0	$ -	0	$ -	30	$ 9,432
10.12	Fred Tamayo	STV	Chief Elec Engineer	$ 132.66	2.7	$ -	0	$ -	0	$ -	0	$ -	100	$ 35,818	20	$ 7,164	0	$ -	0	$ -	20	$ 7,164
10.13	Joel Ndreau	STV	Sr Elect Engineer	$ 79.65	2.7	$ -	0	$ -	0	$ -	0	$ -	340	$ 73,117	100	$ 21,505	0	$ -	0	$ -	280	$ 60,214
10.14	Electrical - CADD	STV	Electrical - CADD	$ 49.90	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
10.15	Electrical - CADD	STV	Electrical - CADD	$ 47.04	2.7	$ -	0	$ -	0	$ -	0	$ -	1260	$ 160,030	0	$ -	0	$ -	0	$ -	0	$ -
10.16	David McGhee	Ross & Baruzzini	Security Engineer	$ 65.33	2.72	$ -	0	$ -	0	$ -	0	$ -	160	$ 28,433	0	$ -	0	$ -	0	$ -	0	$ -
10.17	Ivan Pagacik	Ross & Baruzzini	Senior Electrical Engineer	$ 82.42	2.72	$ -	0	$ -	0	$ -	0	$ -	40	$ 8,968	0	$ -	0	$ -	0	$ -	0	$ -
11.0	**Electrical - Lighting**			**Subtotal**			0	$ -	0	$ -	0	$ -	130	$ 17,350	0	$ -	0	$ -	1660	$ 194,823	0	$ -
11.1	Domingo Gonzalez	Domingo Gonzalez	Principal	n/a	1	$ 221.93	0	$ -	0	$ -	0	$ -	20	$ 4,439	0	$ -	0	$ -	130	$ 28,851	0	$ -
11.2	AC Kickox	Domingo Gonzalez	Senior Assoc./Senior Designer	$ 62.70	2.72	$ -	0	$ -	0	$ -	0	$ -	30	$ 5,117	0	$ -	0	$ -	220	$ 37,521	0	$ -
11.3	Nancy Lok	Domingo Gonzalez	Associate/Senior Designer	$ 48.46	2.72	$ -	0	$ -	0	$ -	0	$ -	20	$ 2,636	0	$ -	0	$ -	310	$ 40,864	0	$ -
11.4	Ilva Dodaj	Domingo Gonzalez	Designer	$ 36.51	2.72	$ -	0	$ -	0	$ -	0	$ -	20	$ 1,986	0	$ -	0	$ -	400	$ 39,721	0	$ -
11.5	Angela Ohman	Domingo Gonzalez	Junior Designer	$ 29.67	2.72	$ -	0	$ -	0	$ -	0	$ -	20	$ 1,614	0	$ -	0	$ -	400	$ 32,276	0	$ -

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task B.1 Develop Procurement Plan		Task B.2 Finalize Performance and Operation Requirements		Task B.3 Propulsion Power System Requirements		Task B.4 Design Criteria		Task B.5 System Technical Performance Specifications		Task B.6 Cost Estimating and Schedule Development		Task B.7 Procurement Contract Documents		Task C AirTrain Vendor Procurement Support	
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
11.6	Nick Stuchlak	Domingo Gonzalez	Junior Designer	$ 28.66	2.72	$ -	0	$ -	0	$ -	0	$ -	20	$ 1,559	0	$ -	0	$ -	200	$ 15,589	0	$ -
12.0	**Electronics**			**Subtotal**			50	$ 4,919	190	$ 18,693	0	$ -	130	$ 12,790	930	$ 121,617	40	$ 9,959	0	$ -	440	$ 73,409
12.1	Girish Ananthashankaran	CH2M	Train Control	$ 101.48	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	100	$ 26,487	20	$ 5,297	0	$ -	100	$ 26,487
12.2	Stuart Landau	CH2M	Communication	$ 89.31	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	100	$ 23,309	20	$ 4,662	0	$ -	100	$ 23,309
12.3	Sahith Moturu	CH2M	System Assurance	$ 37.69	2.61	$ -	50	$ 4,919	190	$ 18,693	0	$ -	130	$ 12,790	730	$ 71,820	0	$ -	0	$ -	240	$ 23,612
12.4	Sahith Moturu	CH2M	System Assurance	$ 42.43	2.4	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
12.5	Vitaly Mayzler	Interactive Elements	Rail Vehicle Engineer	$ 73.16	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
13.0	**Traffic**			**Subtotal**			0	$ -	1330	$ 248,273	0	$ -	120	$ 33,962	0	$ -	0	$ -	0	$ -	0	$ -
13.1	Patrick O'Mara	STV	Traffic Engineer	$ 79.05	2.7	$ -	0	$ -	420	$ 89,642	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
13.2	Steve Scalici	STV	Circulation Analysis	$ 104.82	2.7	$ -	0	$ -	280	$ 79,246	0	$ -	120	$ 33,962	0	$ -	0	$ -	0	$ -	0	$ -
13.3	Kelly Bird	STV	Jr Engineer	$ 43.97	2.7	$ -	0	$ -	570	$ 67,672	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
13.4	Warren Michelsen	SIMCO Engineering	Project Manager	$ 78.40	2.49	$ -	0	$ -	60	$ 11,713	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
13.5	Cheng Xu	SIMCO Engineering	Senior Engineer	$ 45.47	2.49	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
13.6	Hassan Hashmi	SIMCO Engineering	Engineer	$ 36.06	2.49	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.0	**Geotechnical**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.1	Harald Leiendecker	CH2M	Geotech/Tunneling	$ 77.58	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.2	John Pizzi	STV	Geotechnical Engineer	$ 104.01	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.3	David Rupnarain	KS Engineers	Task Leader - Surveying	$ 75.41	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.4	Timothy O'Toole	KS Engineers	Project Surveyor	$ 52.12	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.5	Georgia Pierson	KS Engineers	Survey Party Chief	$ 38.81	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
14.6	Henry Fox	KS Engineers	Geotechnical Engineer	$ 55.45	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.0	**Environmental**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.1	Molly MacQueen	STV	Environmental Assessments/Permitting	$ 105.54	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.2	Cade Hobbick	STV	Environmental Planner	$ 67.33	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.3	David Towers	HMMH	Principal Consultant II	$ 64.11	3.828	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.4	Timothy Johnson	HMMH	Senior Consultant II	$ 42.35	3.828	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.5	Philip DeVita	HMMH	Principal Consultant II	$ 62.41	3.828	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.6	Phillip Rosner	Interactive Elements	Environmental Specialist	$ 30.50	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.7	David Full	Reynolds, Smith & Hills	Environmental Task Leader	$ 95.49	3.11	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
16.0	**Sustainability**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	340	$ 75,825	0	$ -	0	$ -	0	$ -
16.1	Adam Hosking	CH2M	Climate Resiliency	$ 58.92	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
16.2	Chirs M Sawyer	STV	Sustainability / Specifications	$ 82.60	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	340	$ 75,825	0	$ -	0	$ -	0	$ -
17.0	**Scheduling**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	690	$ 100,353	0	$ -	0	$ -
17.1	M. Nambiar	JCMS, Inc.	Sr. Schedulier	$ 83.45	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	190	$ 37,894	0	$ -	0	$ -
17.2	Y. Lokanath	JCMS, Inc.	Scheduler	$ 52.27	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	500	$ 62,459	0	$ -	0	$ -
18.0	**Travel Demand & Forecasting**			**Subtotal**			0	$ -	358	$ 64,963	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
18.1	Kimon Proussaloglou	Cambridge Systematics, Inc.	Principal-in-charge	n/a	1	$ 363.85	0	$ -	8	$ 2,911	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
18.2	Nikhil Puri	Cambridge Systematics, Inc.	Project Manager	$ 62.76	3.62	$ -	0	$ -	30	$ 6,816	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
18.3	Arun Kuppam	Cambridge Systematics, Inc.	Senior Advisor- Air Passenger Model Development and Application	$ 67.42	3.62	$ -	0	$ -	20	$ 4,881	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
18.4	Kazi Ullah	Cambridge Systematics, Inc.	Senior Modeler	$ 57.36	3.62	$ -	0	$ -	100	$ 20,766	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
18.5	Mobashwir Khan	Cambridge Systematics, Inc.	Modeler	$ 38.24	3.62	$ -	0	$ -	160	$ 22,150	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
18.6	Production	Cambridge Systematics, Inc.	Production	$ 27.57	3.62	$ -	0	$ -	20	$ 1,996	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
18.7	Keir Opie	Cambridge Systematics, Inc.	Traffic Modeling	$ 75.18	3.62	$ -	0	$ -	20	$ 5,443	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
19.0	**Vertical Transportation**			**Subtotal**			0	$ -	0	$ -	0	$ -	180	$ 31,729	180	$ 31,729	0	$ -	0	$ -	0	$ -
19.1	Jim Fortune	Fortune Shepler Sailing Inc.	President/Principal	n/a	1	$ 249.52	0	$ -	0	$ -	0	$ -	60	$ 14,971	60	$ 14,971	0	$ -	0	$ -	0	$ -
19.2	John Saling	Fortune Shepler Sailing Inc.	Project Manager/Principal	n/a	1	$ 194.07	0	$ -	0	$ -	0	$ -	60	$ 11,644	60	$ 11,644	0	$ -	0	$ -	0	$ -
19.3	Jamie Fortune	Fortune Shepler Sailing Inc.	CADD/Designer	$ 37.71	2.26	$ -	0	$ -	0	$ -	0	$ -	60	$ 5,113	60	$ 5,113	0	$ -	0	$ -	0	$ -
20.0	**Administration Support**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
20.1	Dain Devaux	Interactive Elements	Document Control	$ 59.93	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task B.1 Develop Procurement Plan		Task B.2 Finalize Performance and Operation Requirements		Task B.3 Propulsion Power System Requirements		Task B.4 Design Criteria		Task B.5 System Technical Performance Specifications		Task B.6 Cost Estimating and Schedule Development		Task B.7 Procurement Contract Documents		Task C AirTrain Vendor Procurement Support	
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
20.2	Stephanie Quoma	Interactive Elements	Administrative Support	$ 27.72	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
20.3	TBD	JCMS, Inc.	Project Adm	$ 28.98	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.0	**Other**			**Subtotal**			160	$ 40,918	140	$ 21,127	0	$ -	0	$ -	60	$ 8,178	3730	$ 675,148	1030	$ 212,326	1640	$ 396,765
21.1	Tim Brown	CH2M	Industry Expert/Airport Programming	$ 135.96	2.61	$ -	20	$ 7,097	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	20	$ 7,097	0	$ -
21.2	Kirby King	CH2M	Agency & Stakeholder Coordination	$ 111.97	2.61	$ -	30	$ 8,767	20	$ 5,845	0	$ -	0	$ -	0	$ -	0	$ -	60	$ 17,534	0	$ -
21.3	Rick Newton	CH2M	Train Operation & Analysis	$ 50.09	2.61	$ -	0	$ -	60	$ 7,845	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.4	Victoria Carlin	CH2M	Passenger Flow & Queuing Modeling Analysis	$ 47.49	2.61	$ -	0	$ -	60	$ 7,437	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.5	Eva Chan	CH2M	Life Cycle Cost Benefit Analysis	$ 74.32	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	200	$ 38,797	0	$ -	0	$ -
21.6	Erin Gorrie	CH2M	Security	$ 70.70	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.7	Kevin George	CH2M	Computer Network	$ 30.39	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.8	Michael Bodek	CH2M	Site Safety/ Airport Operations Coordination	$ 64.86	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.9	Kevin Zsamba	CH2M	3rd Party Coordination	$ 76.11	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.10	Gopala Muthukrishnan	CH2M	System Safety/RAMS	$ 52.22	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	60	$ 8,178	30	$ 4,089	0	$ -	130	$ 17,719
21.11	Danielle Hartman	CH2M	GIS/Mapping	$ 52.55	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.12	Josh Kish	CH2M	Project Delivery & Legal Support	$ 118.46	2.61	$ -	20	$ 6,184	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	30	$ 9,276	0	$ -
21.13	Christine Coughlan	CH2M	Procurement Support	$ 65.20	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	390	$ 66,365	30	$ 5,105
21.14	Linda De Lotto	CH2M	Project Controls/Claims/ Contract/Warranty	$ 67.38	2.61	$ -	60	$ 10,552	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	320	$ 56,278	190	$ 33,415
21.15	Steve Pressler - Constructability	STV	PIP	n/a	n/a	$ 277.25	30	$ 8,317	0	$ -	0	$ -	0	$ -	0	$ -	30	$ 8,317	30	$ 8,317	30	$ 8,317
21.16	Joe Graziozi - Const. Mgmt..	STV	SPM	$ 108.06	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	780	$ 205,653	180	$ 47,458	1260	$ 332,208
21.17	PM - (1 Each)	STV	PM - (1 Each)(field)	$ 89.17	2.15	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.18	Supts/Insp - (1 Each)	STV	Supts/Insp - (1 Each)	$ 80.41	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.19	Supts/Insp - (1 Each)	STV	Supts/Insp - (1 Each)(field)	$ 89.17	2.15	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.20	Estimators (1 Ea)	STV	Estimators (1 Ea)	$ 73.17	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	780	$ 139,264	0	$ -	0	$ -
21.21	Schedulers (1 Ea)	STV	Schedulers (1 Ea)	$ 79.45	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	390	$ 75,600	0	$ -	0	$ -
21.22	Vincent Poon - BIM	STV	BIM Coordinator	$ 60.71	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.23	Tom Lentz - Security	STV	Security	$ 74.18	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.24	Scott McIntyre - Industry	STV	Industry	$ 139.57	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.25	Douglass Swann - Air Quality	STV	Air Quality	$ 80.41	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.26	Rafael Torrea	Interactive Elements	Inspection Manager	$ 44.28	2.597	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.27	James Chesson	Interactive Elements	Safety Engineer/Inspector	$ 46.68	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.28	Thomas Buffkin	Interactive Elements	Senior Planner	$ 69.31	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.29	Maxine Finkelstein	Interactive Elements	Public Outreach, Finance Specialist	$ 79.64	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
21.30	F. George	JCMS, Inc.	Chief Estimator	$ 79.18	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	120	$ 22,710	0	$ -	0	$ -
21.31	K. Meehan	JCMS, Inc.	Sr. Estimator	$ 63.39	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	390	$ 59,085	0	$ -	0	$ -
21.32	H. Shukla	JCMS, Inc.	MEP/Sys. Estimator	$ 62.72	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	390	$ 58,461	0	$ -	0	$ -
21.33	K. Gandhi	JCMS, Inc.	Estimator	$ 45.99	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	480	$ 52,765	0	$ -	0	$ -
21.34	R. Sondur	JCMS, Inc.	Technician	$ 31.10	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	140	$ 10,406	0	$ -	0	$ -
	Totals						454	$ 104,203	2852	$ 487,932	634	$ 162,686	21914	$ 3,749,866	5004	$ 894,602	4834	$ 865,595	2814	$ 437,778	7960	$ 1,674,927

Reimbursable Expenses	
Task	**Amount**
Task A, B, C, D - Travel and miscellaneous other direct cost (ODC)	$250,000
Task A, B, D - Specialized Services at Cost	TBD

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments		Total Est. Hrs.	Total Cost
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT		
1.0	**Project Management**			**Subtotal**			6080	$ 1,517,530	3920	$ 969,577	4030	$ 1,011,126	330	$ 78,235	1770	$ 410,714	20,570	$ 5,073,318
1.1	David Strong	CH2M	Principal-in-Charge/ Procurement Support/Development	n/a	n/a	$ 277.25	80	$ 22,180	0	$ -	0	$ -	0	$ -	0	$ -	178	$ 49,350
1.2	Janice Li	CH2M	Project Manager	$ 92.38	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,960	$ 472,560
1.3	Janice Li	CH2M	Project Manager	$ 103.97	2.4	$ -	2590	$ 646,280	1300	$ 324,388	1300	$ 324,388	160	$ 39,925	540	$ 134,746	5,890	$ 1,469,725
1.4	Tedd Snyder	CH2M	Systems and Technology Lead, Alignment Layout Design	$ 93.87	2.61	$ -	1940	$ 475,279	1300	$ 318,486	1300	$ 318,486	0	$ -	0	$ -	6,190	$ 1,516,481
1.5	Anip Parikh	CH2M	Operations Planning Lead/ Operations & Maintenance	$ 78.59	2.61	$ -	190	$ 38,975	80	$ 16,411	0	$ -	0	$ -	0	$ -	610	$ 125,130
1.6	Victor Simuoli	CH2M	Technical Support & System Integration Lead, Risk, Threat & Vulnerability Assessment	$ 115.70	2.61	$ -	610	$ 184,209	410	$ 123,812	610	$ 184,209	0	$ -	0	$ -	1,930	$ 582,824
1.7	Dinesh Damavarapu	CH2M	Project Controls Lead	$ 85.90	2.61	$ -	650	$ 145,734	810	$ 181,607	810	$ 181,607	160	$ 35,873	1220	$ 273,532	3,680	$ 825,080
1.8	Kelly O'Connor	CH2M	Health/Safety/Quality	$ 93.37	2.61	$ -	20	$ 4,874	20	$ 4,874	10	$ 2,437	10	$ 2,437	10	$ 2,437	132	$ 32,167
2.0	**Architecture**			**Subtotal**			1770	$ 459,310	3200	$ 634,206	160	$ 35,722	0	$ -	0	$ -	19,266	$ 3,724,403
2.1	Harry Orthos	CH2M	Building Codes	$ 56.84	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	30	$ 4,450
2.2	Robert Davidson	STV	Principal	n/a	n/a	$ 277.25	320	$ 88,720	160	$ 44,360	0	$ -	0	$ -	0	$ -	1,420	$ 393,694
2.3	James Hemmerly	STV	Senior Architect	$ 91.65	2.7	$ -	320	$ 79,183	0	$ -	0	$ -	0	$ -	0	$ -	3,838	$ 949,706
2.4	Ronald Lem	STV	Senior Architect	$ 81.50	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,428	$ 534,313
2.5	Ronald Lem	STV	Senior Architect (field)	$ 90.39	2.47	$ -	650	$ 145,119	1620	$ 361,681	160	$ 35,722	0	$ -	0	$ -	2,430	$ 542,521
2.6	Jung Kim	STV	Architect	$ 46.31	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,110	$ 263,838
2.7	Kris Horvath - Wayfinding	STV	Designer	$ 43.75	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,440	$ 170,090
2.8	Staff Architect	STV	Architect	$ 60.99	2.7	$ -	0	$ -	1300	$ 214,092	0	$ -	0	$ -	0	$ -	1,300	$ 214,092
2.9	Designer	STV	Designer	$ 57.49	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
2.10	Adrian Barrios - Visualization	STV	Designer/Visualization	$ 52.94	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	420	$ 60,029
2.11	Gordon H. Smith	Gordon Smith	Principal	n/a	1	$ 376.12	100	$ 37,612	0	$ -	0	$ -	0	$ -	0	$ -	200	$ 75,223
2.12	Michael Snyder	Gordon Smith	Project Manager	$ 126.78	2.87	$ -	130	$ 47,302	0	$ -	0	$ -	0	$ -	0	$ -	260	$ 94,604
2.13	Mitchell Stein	Gordon Smith	Project Manager	$ 126.78	2.87	$ -	130	$ 47,302	0	$ -	0	$ -	0	$ -	0	$ -	260	$ 94,604
2.14	Alisha Ting/ Stephen Ting	Ting & Li Architects	Principal/ Project Manager	$ -	1	$ 194.07	30	$ 5,822	30	$ 5,822	0	$ -	0	$ -	0	$ -	430	$ 83,452
2.15	Daniel Kreiss	Ting & Li Architects	Project Architect	$ 39.92	2.48	-	60	$ 5,941	60	$ 5,941	0	$ -	0	$ -	0	$ -	1,630	$ 161,388
2.16	B. Van Sloun/ Stephanie Yeung	Ting & Li Architects	Architect/Interior Design	$ 31.05	2.48	-	30	$ 2,310	30	$ 2,310	0	$ -	0	$ -	0	$ -	1,070	$ 82,399
3.0	**Landscaping**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
3.1	Joseph Sikora	Sikora Wells Appel	Principal	n/a	1	$ 206.82	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
3.2	Daniel Chieco	Sikora Wells Appel	Senior Associate	$ 43.35	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
3.3	Rosa Mannion	Sikora Wells Appel	Associate	$ 33.14	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
3.4	Amy Syverson	Sikora Wells Appel	Project Designer	$ 22.94	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
3.5	Stephen Panasci	Sikora Wells Appel	Project Designer	$ 20.40	2.6	n/a	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.0	**Civil**			**Subtotal**			930	$ 176,127	0	$ -	0	$ -	0	$ -	0	$ -	4,098	$ 704,207
4.1	Joseph Brownstein	CH2M	Site Planning/Utilities	$ 76.51	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	390	$ 77,879
4.2	Donald Yue	STV	Sr Civil Engineer	$ 117.12	2.7	$ -	280	$ 88,544	0	$ -	0	$ -	0	$ -	0	$ -	748	$ 236,538
4.3	Civil Engineer	STV	Civil Engineer	$ 49.90	2.7	$ -	650	$ 87,583	0	$ -	0	$ -	0	$ -	0	$ -	1,790	$ 241,190
4.4	Civil - CADD	STV	Civil - CADD	$ 47.04	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,170	$ 148,600
4.5	Frank A. Frega	KS Engineers	Task Leader - Civil Engineering	$ 83.63	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.6	Rolston Saul	KS Engineers	Inspection Team Leader	$ 59.58	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.7	Santosh Kumar	KS Engineers	Inspection - Assitant Team Leader	$ 37.32	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.8	William Easterbrook	NAIK Consulting	Survey	$ 75.79	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.9	Jason Larson	NAIK Consulting	Survey	$ 61.41	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.10	Joe Messina	NAIK Consulting	Survey	$ 67.84	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.11	Jay Roberts	NAIK Consulting	Survey	$ 48.09	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.12	Mark Funk	NAIK Consulting	Survey	$ 54.36	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.13	Ken Oshiyemi	NAIK Consulting	Survey	$ 49.13	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
4.14	Marshall Brown	NAIK Consulting	Survey	$ 52.27	2.57	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments		Total Est. Hrs.	Total Cost
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT		
5.0	**Structural**			**Subtotal**			1470	$ 374,835	4130	$ 925,086	0	$ -	0	$ -	0	$ -	11,330	$ 2,371,833
5.1	Kishor Doshi	STV	Sr Structural Engineer	$ 152.50	2.7	$ -	220	$ 90,584	270	$ 111,171	0	$ -	0	$ -	0	$ -	860	$ 354,101
5.2	Chris Cerino	STV	Chief Structural Eng	$ 108.23	2.7	$ -	270	$ 78,897	340	$ 99,352	0	$ -	0	$ -	0	$ -	950	$ 277,602
5.3	Structural Engineer	STV	Structural Engineer	$ 72.08	2.7	$ -	490	$ 95,368	1780	$ 346,440	0	$ -	0	$ -	0	$ -	3,460	$ 673,416
5.4	Structural - CADD	STV	Structural - CADD	$ 49.90	2.7	$ -	0	$ -	100	$ 13,474	0	$ -	0	$ -	0	$ -	1,140	$ 153,607
5.5	Joel Stahmer, PE	Ammann & Whitney	Principal	n/a	1	$ 294.23	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
5.6	Tarek Kewaisy, PE, PhD	Ammann & Whitney	Protective Design Engineer	$ 67.10	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
5.7	James Gould, PE	Ammann & Whitney	Senior Engineer	$ 87.50	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
5.8	Blended Rates	Ammann & Whitney	Professional Engineer	$ 44.36	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
5.9	Goerge Assis	KS Engineers	Task Leader - Structural Engineering	$ 88.72	2.53	$ -	490	$ 109,986	1540	$ 345,670	0	$ -	0	$ -	0	$ -	3,500	$ 785,613
5.10	Structural CADD Technician	KS Engineers	CADD Technician	$ 35.49	2.53	$ -	0	$ -	100	$ 8,978	0	$ -	0	$ -	0	$ -	1,420	$ 127,494
6.0	**Mechanical - HVAC**			**Subtotal**			640	$ 144,339	2370	$ 535,625	0	$ -	0	$ -	0	$ -	5,028	$ 1,056,020
6.1	Anthony Bayer	STV	Sr Mech Engineer	$ 94.97	2.7	$ -	320	$ 82,058	1300	$ 333,360	0	$ -	0	$ -	0	$ -	2,028	$ 520,042
6.2	Mech Engineer	STV	Mech Engineer	$ 72.08	2.7	$ -	320	$ 62,281	970	$ 188,790	0	$ -	0	$ -	0	$ -	2,200	$ 428,184
6.3	Mechanical - CADD	STV	Mechanical - CADD	$ 49.90	2.7	$ -	0	$ -	100	$ 13,474	0	$ -	0	$ -	0	$ -	800	$ 107,794
7.0	**Mechanical - Plumbing/FP**			**Subtotal**			450	$ 112,735	870	$ 200,468	0	$ -	0	$ -	0	$ -	2,888	$ 605,565
7.1	James Perise	STV	Chief P/FP Engineer	$ 116.44	2.7	$ -	210	$ 66,024	290	$ 91,176	0	$ -	0	$ -	0	$ -	728	$ 228,884
7.2	P/FP Engineer	STV	P/FP Engineer	$ 72.08	2.7	$ -	240	$ 46,711	520	$ 101,207	0	$ -	0	$ -	0	$ -	1,430	$ 278,319
7.3	Plumibng/FP - CADD	STV	PlumbIng/FP - CADD	$ 49.90	2.7	$ -	0	$ -	60	$ 8,085	0	$ -	0	$ -	0	$ -	730	$ 98,362
8.0	**Mechanical - Fueling**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
8.1								$ -		$ -		$ -		$ -		$ -	0	$ -
9.0	**Mechanical - General**			**Subtotal**			410	$ 94,168	410	$ 94,168	410	$ 94,168	0	$ -	0	$ -	1,700	$ 390,451
9.1	Marcin Taraszkiewicz	CH2M	Train - Mechanical	$ 88.00	2.61	$ -	410	$ 94,168	410	$ 94,168	410	$ 94,168	0	$ -	0	$ -	1,700	$ 390,451
9.2	Nishant Nayan	CH2M	Fire Protection/Life Safety	$ 59.16	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
10.0	**Electrical**			**Subtotal**			8720	$ 1,300,031	13380	$ 2,052,495	6950	$ 1,109,707	580	$ 68,236	0	$ -	38,338	$ 5,869,074
10.1	Muamer Dedovic	CH2M	Train - Electrical/ Testing & Commissioning	$ 55.44	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,490	$ 215,619
10.2	Muamer Dedovic	CH2M	Train - Electrical/ Testing & Commissioning	$ 62.40	2.4	$ -	810	$ 121,312	3000	$ 449,304	1940	$ 290,550	290	$ 43,433	0	$ -	6,040	$ 904,600
10.3	Larry Scarcia	CH2M	Train - Electrical/Platform Door	$ 88.58	2.61	$ -	520	$ 120,215	320	$ 73,978	970	$ 224,247	0	$ -	0	$ -	2,410	$ 557,149
10.4	Peter Sokolow	CH2M	Traction Power Substation	$ 77.46	2.61	$ -	100	$ 20,218	100	$ 20,218	320	$ 64,697	0	$ -	0	$ -	750	$ 151,635
10.5	Brian Stein	CH2M	Fare System	$ 89.63	2.61	$ -	100	$ 23,393	100	$ 23,393	320	$ 74,858	0	$ -	0	$ -	580	$ 135,681
10.6	Keith Altamirano	CH2M	Project Engineer	$ 31.66	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,460	$ 203,297
10.7	Keith Altamirano	CH2M	Project Engineer	$ 35.64	2.4	$ -	2430	$ 207,836	3240	$ 277,115	650	$ 55,594	290	$ 24,804	0	$ -	6,610	$ 565,349
10.8	Ky Fu	CH2M	Vehiicle Engineer	$ 52.50	2.61	$ -	1300	$ 178,132	2030	$ 278,160	970	$ 132,914	0	$ -	0	$ -	4,580	$ 627,573
10.9	Neil Glennie	CH2M	Vehicle ATC Engineer	$ 53.76	2.61	$ -	1300	$ 182,422	2030	$ 284,859	970	$ 136,115	0	$ -	0	$ -	4,700	$ 659,525
10.10	Kenneth Diemunsch	CH2M	ATC Engineer	$ 61.84	2.61	$ -	1300	$ 209,815	810	$ 130,731	810	$ 130,731	0	$ -	0	$ -	3,180	$ 513,240
10.11	Brandon Swartley	STV	Power Engineer	$ 116.44	2.7	$ -	290	$ 91,176	860	$ 270,385	0	$ -	0	$ -	0	$ -	1,650	$ 518,761
10.12	Fred Tamayo	STV	Chief Elec Engineer	$ 132.66	2.7	$ -	250	$ 89,544	370	$ 132,526	0	$ -	0	$ -	0	$ -	768	$ 275,080
10.13	Joel Ndreau	STV	Sr Elect Engineer	$ 79.65	2.7	$ -	160	$ 34,408	520	$ 111,826	0	$ -	0	$ -	0	$ -	1,500	$ 322,575
10.14	Electrical - CADD	STV	Electrical - CADD	$ 49.90	2.7	$ -	160	$ 21,559	0	$ -	0	$ -	0	$ -	0	$ -	160	$ 21,559
10.15	Electrical - CADD	STV	Electrical - CADD	$ 47.04	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,260	$ 160,030
10.16	David McGhee	Ross & Baruzzini	Security Engineer	$ 65.33	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	160	$ 28,433
10.17	Ivan Pagacik	Ross & Baruzzini	Senior Electrical Engineer	$ 82.42	2.72	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	40	$ 8,968
11.0	**Electrical - Lighting**			**Subtotal**			0	$ -	290	$ 33,728	0	$ -	0	$ -	0	$ -	2,080	$ 245,901
11.1	Domingo Gonzalez	Domingo Gonzalez	Principal	n/a	1	$ 221.93	0	$ -	20	$ 4,439	0	$ -	0	$ -	0	$ -	170	$ 37,729
11.2	AC Kickox	Domingo Gonzalez	Senior Assoc./Senior Designer	$ 62.70	2.72	$ -	0	$ -	40	$ 6,822	0	$ -	0	$ -	0	$ -	290	$ 49,460
11.3	Nancy Lok	Domingo Gonzalez	Associate/Senior Designer	$ 48.46	2.72	$ -	0	$ -	50	$ 6,591	0	$ -	0	$ -	0	$ -	380	$ 50,092
11.4	Ilva Dodaj	Domingo Gonzalez	Designer	$ 36.51	2.72	$ -	0	$ -	80	$ 7,944	0	$ -	0	$ -	0	$ -	500	$ 49,651
11.5	Angela Ohman	Domingo Gonzalez	Junior Designer	$ 29.67	2.72	$ -	0	$ -	50	$ 4,035	0	$ -	0	$ -	0	$ -	470	$ 37,925

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments		Total Est. Hrs.	Total Cost
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT		
11.6	Nick Stuchlak	Domingo Gonzalez	Junior Designer	$ 28.66	2.72	$ -	0	$ -	50	$ 3,897	0	$ -	0	$ -	0	$ -	270	$ 21,045
12.0	**Electronics**			**Subtotal**			1330	$ 211,947	3560	$ 409,578	3140	$ 415,626	290	$ 29,528	0	$ -	10,740	$ 1,385,062
12.1	Girish Ananthashankaran	CH2M	Train Control	$ 101.48	2.61	$ -	260	$ 68,867	160	$ 42,380	260	$ 68,867	0	$ -	0	$ -	960	$ 254,279
12.2	Stuart Landau	CH2M	Communication	$ 89.31	2.61	$ -	260	$ 60,604	160	$ 37,295	260	$ 60,604	0	$ -	0	$ -	930	$ 216,776
12.3	Sahith Moturu	CH2M	System Assurance	$ 37.69	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,890	$ 185,945
12.4	Sahith Moturu	CH2M	System Assurance	$ 42.43	2.4	$ -	810	$ 82,476	3240	$ 329,903	2430	$ 247,428	290	$ 29,528	0	$ -	6,770	$ 689,335
12.5	Vitaly Mayzler	Interactive Elements	Rail Vehicle Engineer	$ 73.16	2.786	$ -	0	$ -	0	$ -	190	$ 38,727	0	$ -	0	$ -	190	$ 38,727
13.0	**Traffic**			**Subtotal**			440	$ 102,261	2610	$ 361,339	0	$ -	0	$ -	0	$ -	4,810	$ 828,304
13.1	Patrick O'Mara	STV	Traffic Engineer	$ 79.05	2.7	$ -	320	$ 68,299	260	$ 55,493	0	$ -	0	$ -	0	$ -	1,000	$ 213,433
13.2	Steve Scalici	STV	Circulation Analysis	$ 104.82	2.7	$ -	120	$ 33,962	250	$ 70,755	0	$ -	0	$ -	0	$ -	1,020	$ 288,681
13.3	Kelly Bird	STV	Jr Engineer	$ 43.97	2.7	$ -	0	$ -	130	$ 15,434	0	$ -	0	$ -	0	$ -	700	$ 83,107
13.4	Warren Michelsen	SIMCO Engineering	Project Manager	$ 78.40	2.49	$ -	0	$ -	190	$ 37,091	0	$ -	0	$ -	0	$ -	310	$ 60,517
13.5	Cheng Xu	SIMCO Engineering	Senior Engineer	$ 45.47	2.49	$ -	0	$ -	970	$ 109,829	0	$ -	0	$ -	0	$ -	970	$ 109,829
13.6	Hassan Hashmi	SIMCO Engineering	Engineer	$ 36.06	2.49	$ -	0	$ -	810	$ 72,738	0	$ -	0	$ -	0	$ -	810	$ 72,738
14.0	**Geotechnical**			**Subtotal**			30	$ 8,425	160	$ 22,446	0	$ -	0	$ -	0	$ -	220	$ 35,080
14.1	Harald Leiendecker	CH2M	Geotech/Tunneling	$ 77.58	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
14.2	John Pizzi	STV	Geotechnical Engineer	$ 104.01	2.7	$ -	30	$ 8,425	0	$ -	0	$ -	0	$ -	0	$ -	30	$ 8,425
14.3	David Rupnarain	KS Engineers	Task Leader - Surveying	$ 75.41	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
14.4	Timothy O'Toole	KS Engineers	Project Surveyor	$ 52.12	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
14.5	Georgia Pierson	KS Engineers	Survey Party Chief	$ 38.81	2.53	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
14.6	Henry Fox	KS Engineers	Geotechnical Engineer	$ 55.45	2.53	$ -	0	$ -	160	$ 22,446	0	$ -	0	$ -	0	$ -	190	$ 26,655
15.0	**Environmental**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
15.1	Molly MacQueen	STV	Environmental Assessments/Permitting	$ 105.54	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
15.2	Cade Hobbick	STV	Environmental Planner	$ 67.33	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
15.3	David Towers	HMMH	Principal Consultant II	$ 64.11	3.828	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
15.4	Timothy Johnson	HMMH	Senior Consultant II	$ 42.35	3.828	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
15.5	Philip DeVita	HMMH	Principal Consultant II	$ 62.41	3.828	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
15.6	Phillip Rosner	Interactive Elements	Environmental Specialist	$ 30.50	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
15.7	David Full	Reynolds, Smith & Hills	Environmental Task Leader	$ 95.49	3.11	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
16.0	**Sustainability**			**Subtotal**			0	$ -	130	$ 28,992	0	$ -	0	$ -	0	$ -	470	$ 104,817
16.1	Adam Hosking	CH2M	Climate Resiliency	$ 58.92	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
16.2	Chirs M Sawyer	STV	Sustainability / Specifications	$ 82.60	2.7	$ -	0	$ -	130	$ 28,992	0	$ -	0	$ -	0	$ -	470	$ 104,817
17.0	**Scheduling**			**Subtotal**			310	$ 38,724	290	$ 36,226	160	$ 19,987	0	$ -	0	$ -	1,530	$ 206,774
17.1	M. Nambiar	JCMS, Inc.	Sr. Schedulier	$ 83.45	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	210	$ 41,883
17.2	Y. Lokanath	JCMS, Inc.	Scheduler	$ 52.27	2.39	$ -	310	$ 38,724	290	$ 36,226	160	$ 19,987	0	$ -	0	$ -	1,320	$ 164,891
18.0	**Travel Demand & Forecasting**			**Subtotal**			0	$ -	30	$ 8,164	0	$ -	0	$ -	0	$ -	806	$ 152,734
18.1	Kimon Proussaloglou	Cambridge Systematics, Inc.	Principal-in-charge	n/a	1	$ 363.85	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	16	$ 5,822
18.2	Nikhil Puri	Cambridge Systematics, Inc.	Project Manager	$ 62.76	3.62	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	60	$ 13,631
18.3	Arun Kuppam	Cambridge Systematics, Inc.	Senior Advisor- Air Passenger Model Development and Application	$ 67.42	3.62	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	100	$ 24,406
18.4	Kazi Ullah	Cambridge Systematics, Inc.	Senior Modeler	$ 57.36	3.62	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	200	$ 41,532
18.5	Mobashwir Khan	Cambridge Systematics, Inc.	Modeler	$ 38.24	3.62	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	320	$ 44,300
18.6	Production	Cambridge Systematics, Inc.	Production	$ 27.57	3.62	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	40	$ 3,993
18.7	Keir Opie	Cambridge Systematics, Inc.	Traffic Modeling	$ 75.18	3.62	$ -	0	$ -	30	$ 8,164	0	$ -	0	$ -	0	$ -	70	$ 19,050
19.0	**Vertical Transportation**			**Subtotal**			320	$ 51,279	0	$ -	0	$ -	0	$ -	0	$ -	680	$ 114,737
19.1	Jim Fortune	Fortune Shepler Sailing Inc.	President/Principal	n/a	1	$ 249.52	60	$ 14,971	0	$ -	0	$ -	0	$ -	0	$ -	180	$ 44,914
19.2	John Saling	Fortune Shepler Sailing Inc.	Project Manager/Principal	n/a	1	$ 194.07	130	$ 25,230	0	$ -	0	$ -	0	$ -	0	$ -	250	$ 48,519
19.3	Jamie Fortune	Fortune Shepler Sailing Inc.	CADD/Designer	$ 37.71	2.26	$ -	130	$ 11,078	0	$ -	0	$ -	0	$ -	0	$ -	250	$ 21,304
20.0	**Administration Support**			**Subtotal**			0	$ -	0	$ -	0	$ -	0	$ -	11670	$ 1,188,390	12,250	$ 1,285,230
20.1	Dain Devaux	Interactive Elements	Document Control	$ 59.93	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	3890	$ 649,496	4,470	$ 746,336

STAFF AND COSTS ANALYSIS Date: 17-Jun-15

RFP NO 42022 - AirTrain Replacement Planning

COST DETAIL - STAFFING PLAN

	Staffing	Name of Firm	Title	Avg. Hourly Raw Rates	Multiplier	Avg. Billing Rate (Principal Only)	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments		Total Est. Hrs.	Total Cost
							EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT		
20.2	Stephanie Quoma	Interactive Elements	Administrative Support	$ 27.72	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
20.3	TBD	JCMS, Inc.	Project Adm	$ 28.98	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	7780	$ 538,894	7,780	$ 538,894
21.0	**Other**			**Subtotal**			1390	$ 247,971	4610	$ 639,386	600	$ 94,400	30	$ 5,079	3000	$ 558,065	17,410	$ 3,108,657
21.1	Tim Brown	CH2M	Industry Expert/Airport Programming	$ 135.96	2.61	$ -	30	$ 10,646	0	$ -	20	$ 7,097	0	$ -	0	$ -	110	$ 39,035
21.2	Kirby King	CH2M	Agency & Stakeholder Coordination	$ 111.97	2.61	$ -	160	$ 46,757	0	$ -	0	$ -	0	$ -	0	$ -	410	$ 119,815
21.3	Rick Newton	CH2M	Train Operation & Analysis	$ 50.09	2.61	$ -	130	$ 16,997	0	$ -	0	$ -	0	$ -	0	$ -	450	$ 58,835
21.4	Victoria Carlin	CH2M	Passenger Flow & Queuing Modeling Analysis	$ 47.49	2.61	$ -	130	$ 16,114	0	$ -	0	$ -	0	$ -	0	$ -	190	$ 23,552
21.5	Eva Chan	CH2M	Life Cycle Cost Benefit Analysis	$ 74.32	2.61	$ -	130	$ 25,218	0	$ -	0	$ -	0	$ -	0	$ -	330	$ 64,016
21.6	Erin Gorrie	CH2M	Security	$ 70.70	2.61	$ -	130	$ 23,988	0	$ -	130	$ 23,988	0	$ -	0	$ -	260	$ 47,976
21.7	Kevin George	CH2M	Computer Network	$ 30.39	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.8	Michael Bodek	CH2M	Site Safety/ Airport Operations Coordination	$ 64.86	2.61	$ -	160	$ 27,086	60	$ 10,157	60	$ 10,157	30	$ 5,079	430	$ 72,794	740	$ 125,273
21.9	Kevin Zsamba	CH2M	3rd Party Coordination	$ 76.11	2.61	$ -	0	$ -	1010	$ 200,624	0	$ -	0	$ -	0	$ -	1,010	$ 200,624
21.10	Gopala Muthukrishnan	CH2M	System Safety/RAMS	$ 52.22	2.61	$ -	260	$ 35,438	1010	$ 137,664	390	$ 53,157	0	$ -	0	$ -	1,880	$ 256,246
21.11	Danielle Hartman	CH2M	GIS/Mapping	$ 52.55	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.12	Josh Kish	CH2M	Project Delivery & Legal Support	$ 118.46	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	50	$ 15,459
21.13	Christine Coughlan	CH2M	Procurement Support	$ 65.20	2.61	$ -	0	$ -	0	$ -	0	$ -	0	$ -	30	$ 5,105	480	$ 81,680
21.14	Linda De Lotto	CH2M	Project Controls/Claims/ Contract/Warranty	$ 67.38	2.61	$ -	260	$ 45,726	0	$ -	0	$ -	0	$ -	430	$ 75,624	1,320	$ 232,147
21.15	Steve Pressler - Constructability	STV	PIP	n/a	n/a	$ 277.25	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	250	$ 69,312
21.16	Joe Graziozi - Const. Mgmt..	STV	SPM	$ 108.06	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,440	$ 643,324
21.17	PM - (1 Each)	STV	PM - (1 Each)(field)	$ 89.17	2.15	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2110	$ 404,542	2,110	$ 404,542
21.18	Supts/Insp - (1 Each)	STV	Supts/Insp - (1 Each)	$ 80.41	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.19	Supts/Insp - (1 Each)	STV	Supts/Insp - (1 Each)(field)	$ 89.17	2.15	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.20	Estimators (1 Ea)	STV	Estimators (1 Ea)	$ 73.17	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	780	$ 139,264
21.21	Schedulers (1 Ea)	STV	Schedulers (1 Ea)	$ 79.45	2.44	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	390	$ 75,600
21.22	Vincent Poon - BIM	STV	BIM Coordinator	$ 60.71	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.23	Tom Lentz - Security	STV	Security	$ 74.18	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.24	Scott McIntyre - Industry	STV	Industry	$ 139.57	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.25	Douglass Swann - Air Quality	STV	Air Quality	$ 80.41	2.7	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.26	Rafael Torrea	Interactive Elements	Inspection Manager	$ 44.28	2.597	$ -	0	$ -	2530	$ 290,941	0	$ -	0	$ -	0	$ -	2,530	$ 290,941
21.27	James Chesson	Interactive Elements	Safety Engineer/Inspector	$ 46.68	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.28	Thomas Buffkin	Interactive Elements	Senior Planner	$ 69.31	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.29	Maxine Finkelstein	Interactive Elements	Public Outreach, Finance Specialist	$ 79.64	2.786	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	TBD	TBD
21.30	F. George	JCMS, Inc.	Chief Estimator	$ 79.18	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	120	$ 22,710
21.31	K. Meehan	JCMS, Inc.	Sr. Estimator	$ 63.39	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	390	$ 59,085
21.32	H. Shukla	JCMS, Inc.	MEP/Sys. Estimator	$ 62.72	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	390	$ 58,461
21.33	K. Gandhi	JCMS, Inc.	Estimator	$ 45.99	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	640	$ 70,354
21.34	R. Sondur	JCMS, Inc.	Technician	$ 31.10	2.39	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	140	$ 10,406
	Totals						24290	$ 4,839,683	39960	$ 6,951,483	15450	$ 2,780,734	1230	$ 181,078	16440	$ 2,157,169	154,214	$ 27,262,167

Reimbursable Expenses	
Task	**Amount**
Task A, B, C, D - Travel and miscellaneous other direct cost (ODC)	$250,000
Task A, B, D - Specialized Services at Cost	TBD

Multipliers

CH2M

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.407
General and Administrative	0.962
FEE (10%)	0.237
TOTAL	2.61

Field

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.407
General and Administrative	0.775
FEE (10%)	0.218
TOTAL	2.40

STV

Home

Category	Multiplier
Raw Labor	1.00
Burden and Fringe	0.4262
Overhead	1.0287
FCCM	0.0026
Total burden, fringe, overhead and FCCM	1.4575
FEE (10%)	0.246
TOTAL	2.70

Field

Category	Multiplier
Raw Labor	1.00
Burden and Fringe	0.4262
Overhead	0.8152
FCCM	0.0007
Total burden, fringe, overhead and FCCM	1.2421
FEE (10%)	0.224
TOTAL	2.47

STV CM

CM Home

Category	Multiplier
Raw Labor	1.00
Burden and Fringe	0.3744
Overhead	0.8412
FCCM	0.0007
Total burden, fringe, overhead and FCCM	1.2163
FEE (10%)	0.221
TOTAL	2.44

CM Field

Category	Multiplier
Raw Labor	1.00
Burden and Fringe	0.3744
Overhead	0.5840
FCCM	0.0001
Total burden, fringe, overhead and FCCM	0.9585
FEE (10%)	0.195
TOTAL	2.15

Ammann & Whitney

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	1.08
General and Administrative	0.39
FEE (10%)	0.247
TOTAL	2.72

Field

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.50
General and Administrative	0.35
FEE (10%)	0.185
TOTAL	2.04

Cambridge Systematics

Home

Category	Multiplier
Raw Labor	1.0
Indirect	2.2911
General and Administrative	N/A
FEE (10%)	0.329%
TOTAL	3.62

Field

Category	Multiplier
Raw Labor	1.0
Indirect	1.8055
General and Administrative	N/A
FEE (10%)	0.281%
TOTAL	3.086

Domingo Gonzalez Associates

Home

Category	Multiplier
Raw Labor	1.00
Indirect	0.1287
General and Administrative	1.4603
FEE (10%)	0.259
TOTAL	2.85

Gordon H. Smith Corp.

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.17
General and Administrative	1.56
FEE (5%)	0.14
TOTAL	2.87

Fortune Shepler Saling Inc.

Home

Category	Multiplier
Raw Labor	1.36
Payroll Taxes and Fringes	0.34
General and Administrative	0.23
FEE (17.6%)	0.34
TOTAL	2.26

Field

Category	Multiplier
Raw Labor	1.28
Payroll Taxes and Fringes	0.32
General and Administrative	0.21
FEE (17.6%)	0.32
TOTAL	2.14

Harris Miller & Hanson Inc.

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.788
General and Administrative	1.63
FEE (12%)	0 .410
TOTAL	3.828

IEI

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	
Overhead	1.4982
FEE (10%)	0.25
TOTAL	2.748

Field

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	
Overhead	1.3612
FEE (10%)	0.236
TOTAL	2.597

*Please note: We include Payroll Taxes and Fringes in Overhead

JCMS, Inc.

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.50
General and Administrative	0.68
FEE (10%)	0.22
TOTAL	2.39

Field

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.50
General and Administrative	0.47
FEE (10%)	0.20
TOTAL	2.16

KS Engineers

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.44
General and Administrative	0.86
FEE (10%)	0.23
TOTAL	2.53

Field

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.444
General and Administrative	0.556
FEE (10%)	0.20
TOTAL	2.20

Naik Consulting Group

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.32
General and Administrative	1.02
FEE (10%)	0.23
TOTAL	2.57

Field

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.32
General and Administrative	0.88
FEE (10%)	0.22
TOTAL	2.42

Ross & Baruzzini

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.51
General and Administrative	0.96
FEE (10%)	0.25
TOTAL	2.72

Field

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.51
General and Administrative	0.44
FEE (10%)	0.20
TOTAL	2.15

RS&H

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.52
General and Administrative	1.26
FEE (12%)	0.33
TOTAL	3.11

Sikora Wells Appel

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.56
General and Administrative	0.90
FEE (5.7%)	0.14
TOTAL	2.60

SIMCO

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.50
General and Administrative	0.76
FEE (10%)	0.226
TOTAL	2.49

Field

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	0.50
General and Administrative	0.51
FEE (10%)	0.201
TOTAL	2.21

Ting & Li Architects, PC

Home

Category	Multiplier
Raw Labor	1.00
Payroll Taxes and Fringes	.28
General and Administrative	1.02
FEE (8%)	.18
TOTAL	2.48

Photos: AirTrain JFK and Howard Beach Station Gateway Terminal (CH2M Team)

Section G - Management Approach

G

Our management approach enables the CH2M Team to provide the Authority with the resources the Program requires, when they are required, and only as long as they are required. Our previous experience and our team's location next door to the Authority's offices will allow our team to respond with proven solutions at a moment's notice.

Management Plan

Our CH2M Team's project management approach is focused on delivering the AirTrain System to the Authority ***before its 2022 goal*** using highly qualified staff while meeting the Authority's schedule and budget needs. To achieve this goal, we commit to:

- Involve senior professionals in all work at the appropriate level
- Communicate with the Authority regularly – at all levels
- Make the primary technical staff available for each task assignment
- Provide appropriate functional specialists to meet specific or unique technical requirements
- Maintain the technical resources capacity within our team to provide support throughout the assignment duration

Our team comprises key staff members who are local and have experience working for the Authority on both the EWR and JFK AirTrain projects, as well as other projects at and around Newark International Airport. This knowledge and experience will prove an invaluable benefit to the Authority, as it will enable our team to successfully plan, procure, commission, and implement the new AirTrain System.

The organizational structure for our CH2M Team has been developed to comprehensively address the required scope of work for performing expert planning services for the Replacement AirTrain Program. Given that the services requested are for two separate phases of the Program—Phase 1 comprising tasks related to the planning, design, and procurement of a new AirTrain system and Phase 2 comprising tasks related to system implementation oversight—we have assembled a proven team with deep experience in the key areas required for both phases, as shown in the organization charts presented in Section D.

We have structured our team to optimize using available technical expertise while providing local responsive support and project knowledge to coordinate the experts and address project needs as they arise.

Our CH2M Team depicted in the project organization charts is an integrated team whose specific skills and capabilities will be used effectively and efficiently to the benefit of your project. When tasks are assigned to subcontractor staff, our CH2M Project Manager will contact the subcontractor staff and subcontractor management to ensure staff is committed to meet the required level of effort and schedule. Once assigned to the project, the staff will perform all activities as part of our CH2M Team; the internal team organization will be transparent to the Authority. To achieve this end, the requirements of the Replacement AirTrain Program will be included in the subcontractor agreements between CH2M and team members, and subcontractors will be required to perform all work in accordance with the CH2M Quality Assurance Manual.

> Our team's organizational approach gives the Authority the benefit of a local, focused core team, supplemented by the area's finest specialists to provide for cost-effective execution of the entire Scope of Work.

Our staff has expertise in the diverse areas necessary to execute this project, and our Project Manager Janice Li will ensure the most appropriate fit of staff is made available for the right functions for the task as the schedule demands. The Authority will get the people they need for the duration they are needed from a focused core team. A larger set of support resources from the firms comprising our CH2M Team, with approved staff in discipline areas, will be assigned to address their respective technical disciplines/areas.

Project Execution

Our CH2M Team Project Manager, Janice Li, will communicate regularly with the Authority's Project Manager (or designated staff) to maintain open lines of communications throughout the project so all project requirements are met. Janice will quickly identify and report all issues directly to the Authority and the Authority's assigned staff so necessary adjustments to the schedules, budgets, or the resources deployed on the tasks can be applied quickly and efficiently.

> The proximity of our CH2M Team will be critical to project success on a tight schedule where decisions must be made quickly and collaboratively. Our Project Manager and key staff are located at 22 Cortlandt Street across the street from the Authority's offices at 4 World Trade Center.

Our team's technical and QA/QC oversight function will provide immediate feedback to Janice and the Authority when concerns or important issues are identified. Janice will review the issues, find agreement on a solution, and implement corrective actions in a timely manner.

Our execution of the work will include the following elements:

- **Project Coordination –** A project of this nature will require interfacing and cooordinating with numerous departments within the Authority, including Quality Assurance and Materials; Construction Management; Public Safety; Airport Operations; public utilities; PATH and numerous otherAirport stakholders. Through our involvement in the EWR and JFK AirTrains, our CH2M Team has demonstrated its ability to obtain buy-in and coordinate stakeholder activities in a complex Airport environment. We know how the Authority operates and how to effectively manage a Program of this nature within this environment.
- **Frequent informal discussions with the PANYNJ technical and managerial staff –** During project execution, we expect that weekly or daily discussions will be conducted among the Authority and CH2M Team staff. Our task activities and results will be readily available and transparent.
- **Facilitate Decision Making –** Successful implementation of a project of this scope will require that key decisions be made in a timely fashion throughout the project. Our CH2M Team will prepare briefing notes on key issues and present recommendations for resolution to facilitate the decision-making process.
- **Monthly Progress Reports –** Monthly progress reports will include discussions of each task and Program-level issues. The reports will be formatted to facilitate ease of comprehension, following a concise layout agreed upon with the Authority.
- **Key Issue Reports –** If an issue occurs or appears imminent, we will notify and discuss it with Authority Management as soon as possible and follow up the discussion with a written report of the problem and proposed resolution.
- **Deliverable Submittals –** To the extent practical, we will present interim findings and conclusions as they are developed. Through an incremental development and review process, we will focus our efforts on areas that will provide the Authority with the most value. For each final deliverable, we will submit a complete draft for review and acceptance by the Authority according to the project schedule.

CH2M's Quality Assurance program has been instrumental in our delivery of critical transportation projects for the Authority, including PATH ATC Implementation Project.

- **Schedule Management –** We will define milestones and deliverable dates for each task. Progress toward reaching milestones in each task will be reported in the monthly progress reports.
- **Cost Management –** CH2M's internal accounting system is fully compliant with all Defense Contracts Audit Agency (DCAA) requirements. Project cost reports are produced by task number and program level each month.
- **Quality Management –** David Strong, our Principal-in-Charge, will work with Janice to ensure that the necessary resources are made available as they are required. Our Quality Manager, Kelly O'Connor, will serve as a final QA agent and ensure the Authority receives the highest quality service.

Quality Assurance

Our CH2M Team is committed to providing the highest quality technical, administrative, and managerial services to be successfully complete Replacement AirTrain ahead of schedule and within budget and achieve the Authority's goals. Our team is fully aware that quality requires commitment and a proactive approach throughout all aspects of the organization and all phases of the project.

As the prime consultant, CH2M will establish the Quality Assurance Program for the team. CH2M's Quality Assurance Plan and Quality Control Procedures will prescribe guidance for each activity we perform, including management of project staff, subcontractors, and work products, as well as the proper completion and close-out of tasks and deliverables. All team members will be required to be vigilant in identifying and initiating correction of conditions that are potentially adverse to good quality.

Our team Quality Manager, Kelly O'Connor, will be responsible for determining the project quality objectives are understood and implemented throughout the team organization. Specifically, to ensure quality is maintained, the scope of work of each task will be clearly defined before its initiation. Each of our proposed deliverables will undergo a rigorous internal review process to ensure appropriate quality before release. The CH2M Team approach to QA is designed to prevent problems that might compromise the team's ability to perform on time, within budget, or according to client's specifications.

MBE/WBE Requirements

CH2M is aware of the contract goal of 12% participation by qualified and certified MBEs, and 5% participation of qualified and certified WBEs. Toward that end, CH2M has teamed with MBE firms Domingo Gonzalez Associates; JCMS, Inc.; Naik Consulting Group; KS Engineers; Simco Engineering Inc.; as well as WBE-owned firms HMMH (certification pending); Interactive Elements, Inc.; and Ting & Li Architects, P.C. With the help of these qualified firms, CH2M commits to meeting the MBE/DBE goals on this contract.

Photos: AirTrain EWR and Gateway Terminal (CH2M Team)

Section H - Firm's Affiliates

H

Founded by Oregon State University civil engineering professor Fred Merryfield and three of his students: Holly Cornell, James Howland and Thomas Burke Hayes, CH2M HILL has grown to more than 25,000 employees around the world. But despite this growth, each CH2M employee remains focused on and attentive to our clients.

CH2M HILL New York, Inc, (Fed EIN 80-0078173) is a wholly owned subsidiary of CH2M HILL, Inc. (Fed EIN 59-0918189) which is a wholly owned subsidiary of CH2M HILL Companies, Ltd (Fed EIN 93-0549963).

Images: Los Angeles International Airport,
Ground Transportation Study and Airport Metro Connector
(STV Facilities Group)

Section I - Conflict of Interest

Honesty, integrity, and trust are the foundation of CH2M HILL's *Little Yellow Book*, which synthesizes these values and embeds them into our firmwide collective conscience.

CH2M is unaware of any conflict of interest for itself or the majority of our proposed subconsultants. One of our specialty partners, Amman & Whitney, has provided a disclosure attached herewith.

AMMANN & WHITNEY

96 Morton Street, New York, NY 10014
212.462.8500 Fax 212.929.5356
www.ammann-whitney.com

June 1, 2015

The Port Authority of New York and New Jersey
C/O CH2M
22 Cortlandt Street
New York, NY 10007

Attn: RFP Bid Custodian

Re: Request for Proposal #42022 – Certification Statement

With regard to the Certifications noted in the second paragraph of Section VI of the subject Request for Proposal, Ammann & Whitney Consulting Engineers, P.C. will be able to sign an agreement that includes such certifications.

In addition, attached for your information is a Disclosure Statement related to our affiliate, The Louis Berger Group, Inc., provided herein for full disclosure.

Very truly yours,

S. Weissman

Samuel Weissman, PE
Senior Vice President

Encl.

AMMANN & WHITNEY

96 Morton Street, New York, NY 10014-3309
212.462.8500 Fax 212.929.5356
www.ammann-whitney.com

Disclosure Statement
January 29, 2015

Ammann & Whitney is not and was not the subject of any investigation. However, in the interest of full disclosure, Ammann and Whitney is affiliated with The Louis Berger Group, Inc. through their common parent entity, Berger Group Holdings, Inc.

The Louis Berger Group ("LBG") was the subject of an investigation by the United States Attorney's Office in Newark, New Jersey for the over-allocation of overhead charges in connection with contracts performed for the United States Government overseas, primarily for The United States Agency for International Development ("USAID"). On November 5, 2010, LBG entered into a Deferred Prosecution Agreement ("DPA") with the United States Department of Justice and an Administrative Agreement ("AA") with USAID. LBG fully complied with the terms of the DPA, which expired in accordance with its terms on November 5, 2012, and the AA, which was successfully completed on November 5, 2013. All charges associated with this investigation have been dismissed. After entering the DPA and the AA in 2010, LBG remained in good standing and eligible for new contracts, and has not only continued to perform work and win major new contracts for USAID and other federal agencies, but LBG has also continued to perform and win work for the City University of New York ("CUNY"), the Port Authority of New York and New Jersey ("PANYNJ"), the Metropolitan Transportation Authority ("MTA") and various New York City and State entities.

In November 2010, two former LBG employees, Salvatore Pepe, LBG's former CFO, and Precy Pellettieri, LBG's former Controller, pled guilty to conspiring to defraud USAID. They are awaiting sentencing. Mr. Pepe and Ms. Pellettieri were separated from LBG in July 2010 and June 2009, respectively. In October 2011, Derish M. Wolff, LBG's former Chairman (who was separated from LBG in August 2010), was indicted by the United States Attorney's Office in Newark, New Jersey. In December 2014, Mr. Wolff pled guilty to a one count superseding Information. Mr. Wolff's sentencing is scheduled for March 2015. LBG has cooperated and continues to fully cooperate with the government in all aspects of this investigation.

Pursuant to its obligations under the DPA, LBG has implemented substantial and rigorous compliance and ethics measures and best practices, including the retention of an Independent Monitor; the appointment of an Independent Compliance Consultant; the appointment of a Corporate Compliance and Ethics Officer reporting to the Chair (an independent director with significant compliance experience) of the Audit Committee of the Board of Directors; and the adoption of a comprehensive Code of Ethics and other internal controls, specifically including a robust anti-corruption program. In addition, as part of a major restructuring that began prior to 2010, there has been an overhaul in ownership structure, which vastly broadened employee-equity participation while eliminating the ownership influence of former principals that were separated from the Company. This restructured and broadened ownership results in greater accountability and limits the potential for wrongdoing that otherwise existed when ownership and management control was concentrated in the hands of a few individuals. As a result of this major restructuring, LBG and LBG's subsidiaries do not manage or control the international business unit that was responsible for the conduct at issue with respect to the concluded investigation.

Pursuant to the express terms of the expired DPA, LBG (which had previously disclosed to the Department of Justice ("DOJ") and the United States Attorney's Office potential Foreign Corrupt Practices Act ("FCPA") violations) voluntarily undertook an internal investigation of alleged inappropriate payments to foreign government officials made in breach of company policy by former rogue personnel previously employed by LBG in certain of its foreign business locations during the period preceding the signing of the DPA in 2010. As required by the DPA, the investigation was conducted by a private law firm reporting directly to the Chair of the independent Audit Committee of the Board of Directors. The investigation, which has been completed,

involved potential FCPA violations as well as potential violations of the standards of conduct applicable to World Bank-financed projects. LBG and the company that is currently responsible for the management of the foreign business unit are in discussions with the DOJ to seek resolution of this matter.

The World Bank also reviewed the conduct of this unit with respect to World Bank-financed projects under the World Bank's internal standards of conduct, which apply to international development projects financed by the World Bank. The World Bank, as a public international organization, is not subject to U.S. domestic law nor is it a "governmental entity." In October 2014, the World Bank temporarily suspended LBG and its controlled affiliates during the pendency of administrative sanctions proceedings. Given LBG's voluntary restraint since 2011 with respect to new World Bank business, the temporary suspension has had no practical implications for that business.

As of January 29, 2015, the temporary suspension of LBG was replaced with a 12-month debarment, which relates to pre-2010 conduct in Vietnam, that expires January 28, 2016. Noting again that LBG and LBG's subsidiaries do not manage or control the international business unit that was responsible for the conduct at issue with respect to the conducted investigation, such debarment will only affect the eligibility of LBG for projects financed by the World Bank. It will not trigger cross-debarment by any other multilateral development bank. The termination of the debarment period will be subject to the satisfaction of certain conditions, as is typical in these types of cases. While the debarment will initially fall on LBG for historical reasons, because the projects in question are now under the ownership and management of an affiliated entity, LB Vietnam, which is part of the group that under the restructuring manages and controls the World Bank and multilateral development bank business formerly handled by LBG, we anticipate that, consistent with World Bank standards regarding succession, the sanction will ultimately be revised to apply to the proper entity.

LBG is pleased to be able to bring this matter, that involves former personnel and conduct preceding our 2010 DPA, to closure. We believe the World Bank outcome reflects the substantial work LBG and its parent have invested in compliance, as well as the extensive cooperation, remediation and restructuring that have taken place. We intend to continue to work cooperatively with the World Bank so that the sanction can be lifted at the earliest practicable date.

As noted above, since 2010, LBG has continued to be awarded and perform new work for USAID and many other federal agencies, CUNY, the PANYNJ, the MTA and various New York City entities. In addition, LBG has entered into integrity monitoring agreements with the PANYNJ, the New York City Department of Investigations and the MTA. The CUNY Contractor Certification requires LBG to sign a Certification of Compliance in connection with each CUNY contract or subcontract awarded while the Contractor Certification is in place, and other state entities in New York and New Jersey require filing copies of the integrity monitor reports. LBG has remained in compliance with the terms of its integrity monitoring agreements and its contractor certification and has been regularly complimented by monitoring agency representatives for its cooperation, transparency, management, modernization and reforms – with corroborating evidence of LBG's continued good standing being the numerous awards of new contracts and work from every one of the monitoring agencies.

Images: Los Angeles International Airport Metro Connector (STV Facilities Group)

Section J - Form of Agreement

CH2M
CH2M HILL New York, Inc.
22 Cortlandt Street
31st Floor
New York, NY 10007
O 212 608-3990
F 212-566-5059

The Port Authority of New York and New Jersey
4 World Trade Center
150 Greenwich Street, 21st Floor
New York, New York 10007
Attention: RFP Custodian

June 17, 2015

Subject: Request for Proposals for the Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an "As-Needed" Basis (RFP 42022)

Dear RFP Custodian:

Section III– Submission Requirements; Subsection J, calls to the proposer's attention the expectation to agree with the PANYNJ's standard agreement. It also allows the proposer to identify areas of concern or exceptions, which is the purpose of this letter. The following paragraphs express our concerns in connection with the standard agreement.

Upon review of the Port Authority of New York and New Jersey's Standard Agreement Terms and Conditions, CH2M offers the following clarifications, and proposed alternate language. These clarifications and proposed alternate language are consistent with the understanding we have successfully reached with the Port Authority on these points for previous contracts and proposals.

(1) Under Section VIII – Liability, Insurance and Worker's Compensation, we wish to establish the following clarifications and understanding;

Within the insurance section the following requirement appears:

Further, the certificate of insurance and the liability Policy (ies) shall be specifically endorsed that "The insurance carrier(s) shall not, without obtaining the express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority, or the provisions of any statues respecting suits against the Port Authority".

<u>Comment and Clarification</u>:

(a) Governmental Immunity Endorsement: In prior contracts we have provided the endorsement that appears below, which has been acceptable to our insurance carrier and the port authority. We propose to provide an identical endorsement to the attached to satisfy the above requirements.

"We will waive, both in the adjustment of claims and in the defense of "suits" against the insured, any governmental immunity of the insured, unless the insured request in writing that we do not do so.

Waiver of immunity as a defense will not subject us to liability for any portion of a claim or judgment in excess of the applicable limit of insurance."

(b) Commercial General and Auto Liability Coverage: Commercial General Liability coverage is a "per occurrence and in the aggregate" form, only the Auto liability coverage is provided in a "combined single limit" form.

(c) Railroad Protective Liability: Railroad Protective Liability coverage is not a component of the Commercial General and Auto Liability policies. A Railroad Protective Liability policy is stand-alone coverage not typically required of our services and would be considered a project expense if required.

(d) *Paragraph 3 - Professional Liability Certificates:* PL coverage is issued on a "claims made" basis. It is not industry practice to list endorsements or exclusions on a Certificate of Insurance form. We can separately agree in writing that our insurance policies shall include no endorsements or exclusions that would preclude coverage for the type of services provided under this agreement, as is customary.

(e) *Paragraph 3 c:* Under paragraph 3 c. the following requirement appears:
"Upon request of the Manager, Risk Management/Treasury, the Consultant shall furnish to the Authority a certified copy of each policy itself, including the provisions establishing premiums."

Comment and Clarification:

In prior contracts we have agreed to provide the Port Authority with access, upon request, to redacted copies of corporate insurance policy documents at our corporate offices for review. Our insurance policies are not off-the-shelf insurance products. As a major federal contractor and large global firm our policies contain confidential and proprietary terms and conditions, and references to sensitive federal DOD client projects bound by confidentiality agreements.

CH2M cannot under any circumstances provide copies of its corporate insurance policy documents to clients or other third parties due to the highly sensitive, business confidential and proprietary contents therein. We can, however, make available for client inspection redacted portions of such documents at our corporate offices, or mutually agreeable location, to the extent necessary for the client to verify compliance with the contractual requirements of the insurance coverages. We propose, as in prior contracts, that the Port Authority accept this reasonable compromise.

Please take note that insurance certificates are issued by our insurance broker "Marsh USA Inc.", not the individual insurance policy carriers.

(2) Other Points of Clarification

(a) *Standard of Care*
Industry custom standard of care governs the adequacy of professional services provide d by firms such as CH2M. Notwithstanding contractual liability provisions which may be in conflict, CH2M's professional liability coverage is limited to this standard. While the contract language is silent on this point, we propose the standard of care applicable to CH2M's engineering or related services performed pursuant to this Agreement will be the degree of skill and diligence normally employed by professional engineers or consultants performing the same or similar Services at the time said services are performed.

(b) *Services during Construction*
While the contract language is silent on this point, should the on-call services for any given task order include professional services during construction, additional language be considered. CH2M should not have any liability related to the construction aspects of the overall Program. Key aspects of construction disclaimer are site safety, scheduling, and contractor means/methods.

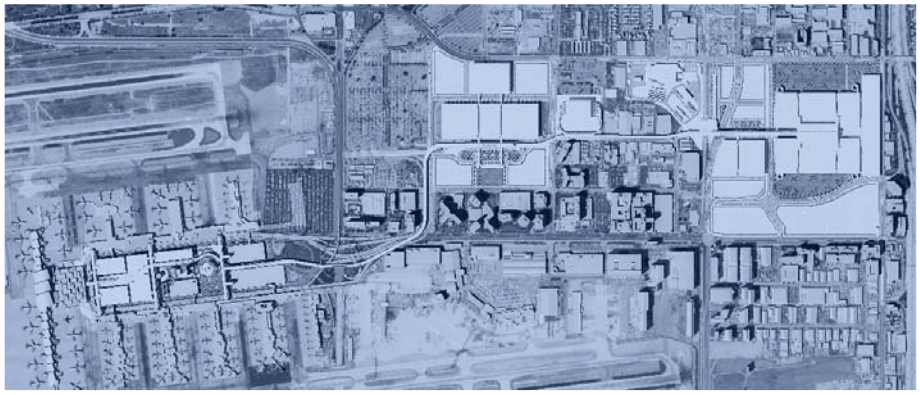
(c) *Reuse of Work Products*
While the contract language is silent on this point, it is customary that firms such as CH2M do not have any liability related to the unauthorized reuse of our work products.

Regards,

CH2M HILL New York, Inc.

J. David Strong, P.E.
Vice President, Principal-In-Charge

Photo: Los Angeles International Airport Landside Access Modernization Program (LAMP)

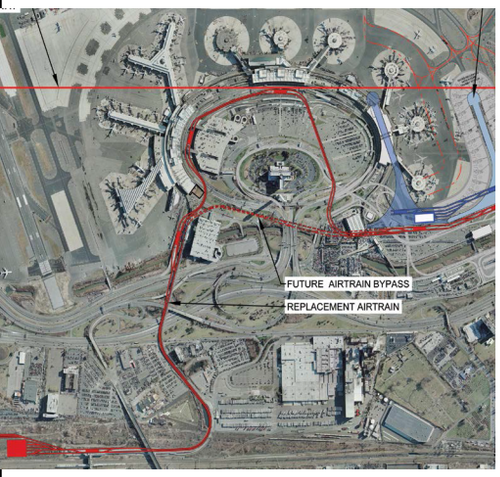


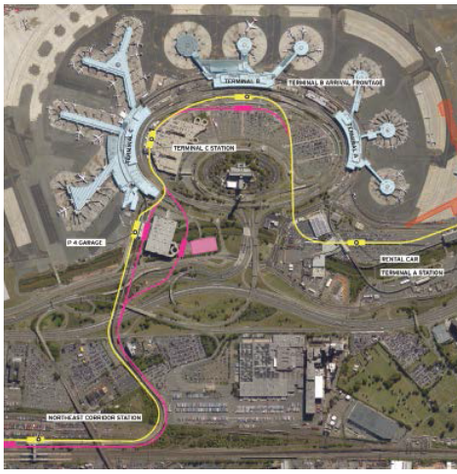
ch2m SM

22 Cortlandt St
New York, NY 10007
Tel. 212.608.3990
Fax. 212.566.5059
www.ch2m.com

TR051115101 5NYC

THE PORT AUTHORITY OF NY & NJ





Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an "As-Needed" Basis

RFP 42022

Submitted by :

LEA ELLIOTT

In association with :

HNTB Corporation | Kimley-Horn & Associates | Walter P Moore

DY Consultants | Radin Consulting | Stellar Services | AECOM

June 17, 2015

Table of Contents

A.	Attachment B - Agreement on Terms of Conditions	
B.	Attachment C - Company Profile	
C.	Transmittal Letter	
D.	Qualifications and Experience of Staff	1
E.	Specific Relevant Experience of Firm	6
F.	Technical Approach	21
G.	Management Approach	35
H.	Firm's Affiliates	37
I.	Conflict of Interest	38
J.	Form of Agreement	39

Appendices

Appendix A: Resumes

Appendix B: Attachment D - Staffing Analysis

SECTION A

ATTACHMENT B:
AGREEMENT ON TERMS OF DISCUSSION

LEA ELLIOTT

Attachment B

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Port Authority or entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with or after this Agreement on Terms of Discussion ("Agreement"), either orally or in writing, is not given in confidence. Such information may be used, or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this Agreement, whether made as part of or in connection with this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Port Authority rights to any matter, which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Port Authority revised Freedom of Information Policy adopted by the Port Authority's Board of Commissioners on October 22, 2014, or as may be amended, which may be found on the Port Authority website at: http://www.panynj.gov/corporate-information/pdf/board_minutes_102214.pdf, not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause injury to the competitive position of the enterprise, and which information is identified by the Proposer as proprietary, as more fully set forth in the FOI Policy, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a proposal.

Lea+Elliott, Inc.

(Company)

(Signature)

Exec. Vice President

(Title)

June 11, 2015

(Date)

ORIGINAL AND PHOTOCOPIES OF THIS PAGE ONLY.
DO NOT RETYPE.

SECTION B

ATTACHMENT C:
COMPANY PROFILE

LEA ELLIOTT

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):
Lea+Elliott, Inc.

2. Business Address (to receive mail for this RFP):
One Gateway Center, Suite 2600
Newark, New Jersey 07102

3. Business Telephone Number: (972) 890-9800

4. Business Fax Number: (972) 890-9801

5. Firm website: www.leaelliott.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: _____/_____/_____

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):
Lea Elliott Limited (Subsidiary) Incorporated in Hong Kong, 2010

9. Officer or Principal of Firm and Title:
David Casselman, Executive Vice President

10. Name, telephone number, and email address of contact for questions:
Russell Green
(703) 537-7408 / regreen@leaelliott.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☑ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

SECTION C

TRANSMITTAL LETTER

LEA ELLIOTT

LEA ELLIOTT

June 11, 2015 NCP-2235

The Port Authority of New York and New Jersey
Attn: Proposal Custodian
Procurement Department
150 Greenwich Street, 21st Floor
New York, NY 10007

SUBJECT: RFP 42022 – AirTrain at Newark Liberty International Airport

To whom it may concern:

On behalf of the Lea+Elliott team, I am pleased to submit our proposal to provide professional engineering services to the Port Authority of New York and New Jersey ("the Authority") in response to the subject Request for Proposal (RFP).

Lea+Elliott, Inc. is proposing as a single entity and will serve as Prime Consultant. We have assembled a remarkable team of transit industry leaders and local professionals that are known and respected by the Authority: HNTB Corporation, Kimley-Horn & Associates, Walter P. Moore, AECOM, DY Consultants, Radin Consulting, Inc., and Stellar Services.

Lea+Elliott has a long and successful history with the Authority. We began working for the Authority in 1984 on what is now the AirTrain JFK and have been working almost continuously on the AirTrain Newark from its inception in 1987 through today.

Listed below are responses to the Proposer Requirements in the RFP:

A. **Major Airport APM Project**
In the last decade, 9 airport APM systems have been successfully completed in the United States. Lea+Elliott led the planning, design, procurement and implementation of 8 of these system and on the other, we provided planning, design and procurement services. Of these recently opened systems, only two exceeded $1 billion in total cost:
- Dallas/Fort Worth Skylink opened in 2005 at a program cost of $1.2 billion
- Washington Dulles AeroTrain opened in 2010 at a program cost of $1.8 billion

Both of these airport APM programs were Lea+Elliott-led projects where our services carried the programs from initial planning through passenger service and beyond with O&M oversight roles. Over the last 20 years, 19 airport APM systems have opened in the US, with Lea+Elliott having the lead role on 15 and a planning role on all of them.

B. **Airport APM Projects**
Lea+Elliott was responsible for the concept development and specifications, as well as overseeing implementation for the following U.S. airport APM programs, which exceeded $400 million:

- PHX Sky Train®opened in 2013 with a program cost of $779 million
- Atlanta SkyTrain opened in 2010 with a program cost of $766 million
- BART to OAK opened in 2014 with a program cost of $496 million

C. **Major Airport APM Multiphase Construction Projects**
Many of the example systems listed above were designed and constructed to accommodate future expansions to meet the planned or actual airport growth and redevelopment. Recent Lea+Elliott projects that are examples of delivering future expansions and allowing for continued efficient operation of the airport throughout the entire construction, include:

- Houston TerminaLink Phases 1-3 (Phase 3 opened in 2010)
- PHX Sky Train® Stage 1 and Stage 1A (1A opened in 2014)
- Atlanta Airport Plane Train Extension (opened in 2012)

D. **Project Manager**
Mr. Russell Green, P.E., who has 25 years of experience in transit systems management and delivery, will serve as our Project Manager. Russell has direct program management experience in the successful delivery of three similar major airport APM systems:

- San Francisco Airport AirTrain
- Dulles Airport AeroTrain
- Atlanta Airport SkyTrain and Plane Train Extension

E. **Designated Leads**
Each of our task leaders has at least eight (8) years of experience in their designated disciplines with experience on at least two (2) similar major programs.

Task Leader	Task	Years Experience	Similar Program Experience
Russell E. Green, P.E.	Project Manager AirTrain Systems	25	IAD AeroTrain SFO AirTrain
David M. Casselman, AIA	Principal-in-Charge Planning & System Definition	38	DFW Skylink IAH TerminaLink
Lynda Tollner, P.E., PMP	Deputy Project Manager	31	Newark Airport Teterboro Airport
Darryl Jaquess	Maintenance & Storage Facility	24	PHX Sky Train® IAH TerminaLink

Task Leader	Task	Years Experience	Similar Program Experience
John Graddy, P.E.	AirTrain Facilities	34	PHX Sky Train® DFW Skylink
Robert Pappocchia, AIA	Stations	18	Crenshaw/LAX Transit Corridor PATH Extension to EWR
Blair Hanuschak, P.E.	Guideway	23	TPA CONRAC APM IAH TerminaLink
Nate Walnum, P.E.	Site/Civil/Utilities	19	AirTrain Newark PHX Sky Train®

The Lea+Elliott team is the best qualified team for the Airtrain Newark Replacement Program for the following reasons:

- The Lea+Elliott team knows Newark Airport and understands the AirTrain challenges – we led the predecessor study for this project.
- Lea+Elliott is a recognized leader in APM consulting in the transit industry. We have unparalleled expertise gained from Airport APM systems around the world.
- Our team brings proven management and technical leadership skills.
- Our proposed Project Manager has exceptional technical and management qualifications and specific Newark Airport experience.

We welcome the opportunity to continue serving the Authority to support the demands of the future growth and redevelopment of Newark Liberty International Airport.

Sincerely,

LEA+ELLIOTT, INC.

Jack Norton
President/CEO

Notifications of Presentations should be directed to:

Russell Green, P.E.
regreen@leaelliott.com

David Casselman, AIA
dcassel@leaelliott.com

SECTION D

QUALIFICATIONS AND EXPERIENCE OF STAFF

LEA ELLIOTT

D. QUALIFICATIONS AND EXPERIENCE OF STAFF

We are pleased to propose a uniquely qualified team that reflects many years of systems and infrastructure experience directly related to APM replacements and expansions. The Lea+Elliott team personnel were carefully selected to present the Port Authority of New York & New Jersey a group of unique specialists that understand all aspects of airport APM system planning, design, procurement and implementation oversight. In addition, our key team members have either direct experience working on the AirTrain Newark system or similar projects of this size and scope. We are energized at the prospect of continuing our work on AirTrain Newark, and are confident that we are the best at what we do.

To expedite and efficiently complete the tasks for the AirTrain replacement, we have chosen a team of experts who specialize in the key disciplines required for this project. All assignments will be led by our Project Manager, Russell Green, P.E. David Casselman, AIA, our Principal-in-Charge, will provide overall policy direction and assure that appropriate resources are made available, and verify that work is executed to the satisfaction of the Authority.

Team Structure

A task leader will be assigned to each major task in our Approach. Each task leader will report to the team project manager and will be supported by a depth of technical specialists in multiple disciplines as shown in the organization chart. Our specialists have collective expertise and experience with multiple APM technology suppliers and projects in complex, airport environments.

Full resumes for each of our task leaders and key personnel can be found in Appendix A.

Lea+Elliott Team Project Manager

Russell Green, P.E. | Lea+Elliott
Project Manager / Lead: AirTrain Systems

There is no one more suited for the role of Project Manager and Systems Lead for the AirTrain Newark Replacement project than Lea+Elliott Associate Principal Russell Green. From 2000 through start of passenger service in

"Lea+Elliott has provided tremendous leadership throughout all phases of the DFW APM project. Their leadership provided a highly competitive procurement saving millions for the airport and their oversight during implementation kept this enormous project on track. They are a team player and valuable member of the Airport Development Team."
Clay Paslay, Former Executive Vice President Airport Development, DFW Airport

2010, Russell managed a multi-disciplinary team responsible for the preliminary design, procurement, facility interfaces, design and implementation of the APM system that was the integral part of the overall $1.8 billion Washington Dulles International Airport AeroTrain Program. He served in a similar capacity as Project Manager for the SFO Airport AirTrain from 1995 through 2000 and was the Principal-in-Charge on the ATL Skytrain and numerous other domestic and international APM projects. Russell thoroughly understands the AirTrain Newark issues as he is currently Principal-in-Charge for Lea+Elliott's role on our AirTrain Newark Operations & Maintenance On-Call contracts.

Russell has over 25 years of experience in the management and oversight of transit vehicle and system procurement, design, manufacture, construction, testing, commissioning and contract compliance. With his experience in

systems engineering and implementation, Russell can address virtually all aspects of a project from a place of knowledge and experience.

Russell is a registered Professional Engineer in New Jersey and several other states.

Current Workload and Project Dedication

Russell contributes 10% of his time to corporate administrative obligations, and will commit 100% of his project availability to this project.

Task Leaders

The Lea+Elliott team task leaders understand all aspects of airport APM system and infrastructure planning, design, procurement and implementation. We have assembled short biographies of each of our task leaders that reflect previous, successful experience similar to those of the AirTrain Replacement project.

Our leaders are supported by a depth of engineers, planners and architects in multiple disciplines with collective expertise and experience with the delivery of APM systems in airport environments.

David Casselman, AIA | Lea+Elliott
Principal-in-Charge / Lead: Planning & System Definition

With nearly 40 years of experience, David Casselman has led the planning, design, and implementation of APMs, transit systems and rail access at 37 major airports, including 21 U.S. airports and 16 international projects. This experience has given him expert, first-hand knowledge of the issues involved in integrating APM and rail systems into operating airport and urban environments. His long history with Newark Airport includes planning, design and implementation of the original AirTrain system, and leading the 2011-2014 AirTrain study which developed and evaluated alternatives for replacement of the system.

Lynda Tollner, P.E., PMP | Lea+Elliott
Deputy Project Manager / AirTrain Facilities

With more than 30 years of experience, Lynda Tollner will serve as the Deputy Project Manager, supporting Russell Green in supervising professional engineering and construction teams, providing accountability for scope/schedule/budget, and coordinating design and construction efforts with internal and external staff and consultants. Formerly a Program Manager with the Authority, Lynda was responsible for the Newark Liberty and Teterboro Airport's Capital Major Works Programs, valued at $18 million annually. She also oversaw the utilities and infrastructure programs for the World Trade Center construction and the Newtown Creek Water Pollution Control Plant.

John Graddy, P.E. | Lea+Elliott
Lead: AirTrain Facilities

As one of Lea+Elliott's systems and infrastructure interface specialists and with over 30 years of experience, John Graddy will lead the AirTrain Facilities group and oversee activities related to fixed facility interface definition and design coordination and development. He has in-depth knowledge of the planning and construction of APM system guideways, most recently developing preliminary alignment geometries for the guideway extension to the new ConRAC station at Chicago O'Hare International Airport. Throughout his career, John has worked closely with facilities design teams to define and coordinate system requirements and integrate them with final facilities designs.

Robert Papocchia, AIA | HNTB
Lead: Stations

Robert Papocchia will work alongside John Graddy and lead the team's efforts in overseeing the design of the AirTrain stations. His 18 years of experience encompasses public transportation projects, including the coordination of facilities with multiple agencies having independent requirements and standards. Robert works with project designers to ensure technical solutions are consistent with project design goals, properly developed and produced.

Blair Hanuschak, P.E. | Walter P Moore
Lead: Guideway

Blair Hanuschak will utilize his 23 years of extensive APM and airport experience as the task leader for the AirTrain guideway. Blair has led large internal teams for airport projects up to $2 billion in construction value, contributing to over a dozen major projects totaling over $5 billion in construction. He will work closely to coordinate Walter P Moore's efforts with all of the external stakeholders and project team members, and will provide overall leadership of the APM guideway structural system.

Darryl Jaquess | Lea+Elliott
Lead: Maintenance & Storage Facility

Fresh off his role as Deputy Project Manager of the PHX Sky Train® project, Darryl Jaquess will be responsible for leading activities related to the maintenance and storage facility, including programming and laying out of maintenance facility alternatives, and defining physical and geometric interfaces between the APM system, buildings and environment. With over 24 years of transit experience in all phases of project management, planning and analysis, Darryl has personally provided expertise for over 60 transit projects worldwide ranging from conceptual planning to implementation.

Nate Walnum, P.E. | Kimley-Horn
Lead: Site/Civil/Utilities

With 19 years of engineering and management experience on multiple airport, roadway and transit projects with similar complexities as the AirTrain Newark Replacement project, Nate Walnum will lead the development of the AirTrain alignment and civil design of proposed AirTrain facilities, utility services and impacts to existing facilities. His airport planning and design experience includes multiple airside and landside projects for runway and taxiway improvements, apron re-construction projects and APMs, including the preparation of train alignments and plan/profile geometrics. Nate just completed a similar role leading the alignment and utilities for the PHX Sky Train® guideway.

Larry Coleman | Lea+Elliott
Planning & System Definition

Larry Coleman will work alongside David Casselman to lead the Planning & System Definition team while focusing on system definition of the AirTrain Replacement. He has more than 30 years of experience in planning–specializing in transportation systems and airports. He participated in the 2014 AirTrain Study, identifying various alignment and phasing alternatives for a replacement system that would be compatible with the phased redevelopment of the terminal area at Newark and identifying the feasibility and costs of each alternative.

Kiran Merchant | DY Consultants

Planning & System Definition / Task: Terminal & Airport Master Planning

Kiran Merchant has over 25 years experience in aviation planning, design and construction management in large-scale aviation projects. He will lead the terminal & airport master planning task. He is highly experienced in leading complex aviation capital projects from inception through completion, while balancing operational efficiency, level of service and business/financial viability of airport development projects. Kiran previously led the Aviation Planning Division at the Port Authority of New York & New Jersey.

Donald Fram, FAIA | HNTB

AirTrain Facilities

With 32 years of experience, Donald Fram will work closely with John Graddy supporting activities related to fixed facility interface definition and design coordination and development. Donald served as chief architect for the Authority, responsible for the design management of Newark Airport's Northeast Corridor AirTrain Terminal Station expansion. He also served as task leader responsible for preliminary design and planning for AirTrain Newark, including seven stations, a maintenance facility and approximately two miles of elevated guideway.

Jefferson Davis, P.E. | Lea+Elliott

AirTrain Systems

Jeff Davis will work alongside Russell Green to lead the AirTrain Systems team while focusing on train control and communications. He has 28 years of professional experience in the design, implementation, testing, maintenance and program management of airport APM systems and a full understanding of the requirements for operations, vehicle, power, safety, signaling, and controls. He is well versed in virtually all of the communications, automatic train control and other operating systems currently being offered on the worldwide market and is one of Lea+Elliott's most talented systems engineers.

Danny Cunha | Lea+Elliott

AirTrain Systems

Danny Cunha will work alongside Russell Green to lead the AirTrain Systems team where he will apply his 27 years of transit and railway experience. Working as the Bombardier Project Director of the SFO AirTrain, he gained an extensive background in project management, systems engineering, quality assurance, O&M management, system safety and security compliance and contract administration. He can greatly contribute to all areas of the Systems expertise including; automated train control technologies, signaling, communications, traction power, vehicle propulsion and electrical systems.

Chitra Radin, P.E. | Radin Consulting

AirTrain Facilities - Environmental

With more than 25 years of management experience in planning, design, and construction of transportation infrastructure Chitra Radin will provide her environmental expertise to the project. She has conducted environmental reviews on federal and state-funded projects. This includes the preparation review and management of federal (NEPA, EIS, EA, Categorical Exclusion) and state (EO 215) documents. Chitra is currently updating environmental documentation and preparation of the project management plan for the PATH extension to Newark Airport.

THE PORT AUTHORITY OF NY & NJ

AirTrain Project Manager
Russell Green, P.E. (L+E)
L. Tollner, P.E. (L+E)

Principal-in-Charge
David Casselman, AIA (L+E)

AirTrain Planning & System Definition
D. Casselman, AIA (L+E)
L. Coleman (L+E) K. Merchant (DYC)

System Definition
- L. Coleman (L+E)
- M. Ring, Ph.D. (L+E)

Terminal & Airport Master Planning
- K. Merchant (DYC)
- L. Dahan (DYC)
- D. Fram, FAIA (HNTB)

Simulation Modeling
- S. Lott, P.E. (KHA)
- J. Capelli, P.E. (KHA)
- M. Ring, Ph.D. (L+E)

Scheduling & Cost Estimates
- L. Coleman (L+E)
- J. Graddy, P.E. (L+E)

Procurement Strategy
- S. Shah, P.E., J.D. (L+E)
- L. Espinoza, P.E. (L+E)

Procurement Specifications
- T. Barker (L+E)

AirTrain Systems
R. Green, P.E. (L+E)
J. Davis, P.E (L+E) D. Cunha (L+E)

Facility Interface Definition
- M. Sturgell, P.E. (L+E)
- J. Graddy, P.E. (L+E)

AGT Technology Review / Selection
- R. Green, P.E. (L+E)
- M. Sturgell, P.E. (L+E)

Power Simulation
- J. Davis, P.E. (L+E)
- J. Wu, P. Eng. (L+E)

Train Control / Communications
- K. Kahn, P.E. (L+E)
- M. Incorvati (L+E)
- D. Hinish (L+E)

Safety / Security
- C. Sugimoto, P.E. (L+E)
- F. Candiano, P.E. (HNTB)
- J. Englot, P.E. (HNTB)

Document Control
- J. Assante (SS)

AirTrain Facilities
J. Graddy, P.E. (L+E)
D. Fram, FAIA (HNTB) L. Tollner, P.E. (L+E)

Stations
R. Papocchia, AIA (HNTB)
D. Fram, FAIA (HNTB)

Terminal Connectors
- L. Bridle, AIA (HNTB)

Structural
- M. Shelton P.E. (HNTB)

Electrical
- S. Ali, P.E. (HNTB)

Interfaces
- M. Venter, P.E. (HNTB)

Guideway
B. Hanuschak, P.E. (WPM)
J. Graddy, P.E. (L+E)

Guideway Concepts
- J. Graddy, P.E. (L+E)

Guideway Alignment
- N. Walnum, P.E. (HNTB)
- Z. Teague, P.E. (KHA)

Structural
- B. Busse, P.E. (WPM)
- T. Yost, P.E. (WPM)

Maintenance & Storage Facility
D. Jaquess (L+E)
J. Sass, AIA (HNTB)

Structural
- M. Shelton, P.E. (HNTB)

Electrical
- S. Ali, P.E. (HNTB)

Interfaces
- M. Venter, P.E. (HNTB)

Site/Civil/Utilities
N. Walnum, P.E. (KHA)
A. Gibson, P.E. (KHA)

GeoTech
- R. Sandiford, P.E. (HNTB)

Project Specialists

Estimating
- J. Kovac (HNTB)

Constructability
- T. Hatab, P.E. (HNTB)

NorthEast Corridor Interfaces
- W. Fellini, P.E. (HNTB)

Risk
- D. Norfleet, CCP (HNTB)

Environmental
- C. Radin (RCI)
- A. Lee, AICP (HNTB)

System Implementation Oversight - Phase 2

Construction Oversight
- M. Naughton, P.E. (AECOM)
- G. Rothauser (DYC)

Testing / Demonstration
- C. Cutts (L+E)
- W. Baijnath (L+E)

Implementation
- W. Wilmot (L+E)
- W. Baijnath (L+E)
- R. Parsons (L+E)

L+E: Lea+Elliott
One Gateway Center, Suite 2600 Newark, NJ 07102
44965 Aviation Drive, Suite 290, Dulles, VA 20166
2505 N. State HWY 360, Suite 750, Grand Prairie, TX 75050
5200 Blue Lagoon Drive, Suite 250, Miami, FL 33126
101 Montgomery Street, Suite 1750, San Francisco, CA 94104

AECOM
Two Gateway Plaza, 17th Floor, Newark, NJ 07102
30 Knightsbridge Rd, Piscataway, NJ 08854-3948

DY: DY Consultants (MBE)
401 Franklin Ave., Suite 318, Garden City, NY 11530

HNTB: HNTB Corporation
One Gateway Center, Suite 2400, Newark, NJ 07102
5 Penn Plaza, 6th Floor, New York, NJ 10001

KHA: Kimley-Horn & Associates
30 Broad Street, Suite 2201, New York, NY 10004
7740 N. 16th Street, Suite 300, Phoenix, AZ 85020
12012 Wickchester Lane, Suite 500, Houston, TX 77079
600 North Pine Island Road, Suite 450, Plantation, FL 33324
11400 Commerce Park Drive, Suite 400, Reston, VA 201091

RCI: Radin Consulting, Inc. (WBE)
One Gateway Center, Suite 960, Newark, NJ 07102

SS: Stellar Services (MBE)
70 West 36th Street, Suite 702, New York, NY 10018

WPM: Walter P Moore
1747 Pennsylvania Ave NW, Suite 1050, Washington, D.C. 20006

SECTION E

SPECIFIC RELEVANT EXPERIENCE OF FIRM

LEA ELLIOTT

E. SPECIFIC RELEVANT EXPERIENCE OF FIRM

"Your impact on transportation has been global. You have truly changed the world through your efforts. It has been a privilege to work with Lea+Elliott, not only on the DFW Skylink program but as well with the standards committee, industry conferences and ACRP projects. You have enriched me with your innovation and passion for the business."
Tomas Rivera, Assistant Vice President of Infrastructure Operations, DFW Airport

Lea+Elliott will lead a highly experienced and qualified team of engineers, planners and architects who have extensive experience in the planning and design of airport APM and systems facilities. This blended team includes HNTB, Kimley-Horn, Walter P Moore, and AECOM. Together these firms encompass extensive experience with the planning design and construction for airport redevelopment programs and automated airport light rail systems. Our team also includes three specialty M/WBE firms–DY Consultants, Radin Consulting and Stellar Services–who bring extensive experience with aviation planning, environmental planning and project controls to the project.

Lea+Elliott, Inc.

Lea+Elliott has over 40 years of experience providing a wide range of transit solutions, expertise and ideas for all modes of transit, including APM systems and rail transit for clients around the world. Our transit system experience has ranged from conducting technology assessments and feasibility studies to developing the schematic design of new APMs in support of transit owners' master plan and on to overseeing design, implementation and testing of new systems or existing system upgrade and expansions.

Our work has resulted in the successful implementation and operation of over 40 APM systems in accordance with public sector procurement regulations and standards. We have seen a steady increase in our work managing the refurbishment and overhaul of these existing systems. Lea+Elliott has remained at the forefront of efforts to upgrade, replace or expand many of the APM systems currently operating around the world.

Lea+Elliott stays abreast of the latest in transit technology advances and analyzes new technology offerings within the context of each client's mobility goals and budgetary requirements. We provide a broad spectrum of services to help clients cost-effectively and efficiently manage their transit systems and related facilities to serve their passengers. With a superior knowledge of train control, traction power, communications, and vehicles, our systems engineers have an unparalleled knowledge and understanding of meeting all regulations, codes and standards for implementing transit systems, all while dealing effectively with the authorities having jurisdiction.

For this must-ride APM system at Sea-Tac Airport, Lea+Elliott led the full replacement of the 30-year-old STS system while retaining operation of the existing vehicles and control system during implementation.

Having led the majority of APM implementations at airports, Lea+Elliott is keenly aware of the particular challenges of an operating airport and the unique aspects of construction at such a facility. Lea+Elliott's dominant role in planning, designing and implementing airport APMs is due in part to Lea+Elliott's choice to remain a closely-held company focused on APM systems and to only work for system owners–not suppliers. This unique vision allows us to remain agile, and ever-resourceful in identifying the individual needs and requirements of each of our clients and working with all parties towards the implementation of a successful transit system.

Lea+Elliott recognizes that the procurement approach will foster competition between suppliers such that bids received are competitive—this is essential in the automated transit market where there is a limited number of viable suppliers. We are proud to state that working closely with our clients, we have been successful in helping our clients receive competitive pricing within their budget.

This map shows our depth of project experience working on APM systems around the world

AUTOMATED PEOPLE MOVER CONSULTING SERVICES SIMILAR SERVICES PERFORMED FOR MEDIUM & LARGE AIRPORTS	General Planning Services	Document Review	Ridership Demands & Definition	Alignment Development	Technology Assessments & Recommendations	Procurement	Other Studies & Reports	Concept Design & Procurement Documents	Develop Procurement Plan	Finalize Performance & Operations	Propulsion Power System Requirements	Infrastructure Design Criteria & Concepts	System Technical & Performance Specifications	Cost Estimating & Schedule Development	Procurement Contract Documents	Procurement Support	System Implementation Oversight	Design Oversight & Documentation Review	Manufacturing, Install & Conceptual Oversight	Acceptance Testing & Demonstration	Warranty Administration	Contract Administration & Payments
Atlanta Int'l Airport SkyTrain		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Atlanta Int'l Airport Plane Train		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
BART to OAK (Oakland Int'l Airport)		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Chicago O'Hare Int'l Airport ATS		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Dallas/Fort Worth Int'l Airport Airtrans		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Dallas/Fort Worth Int'l Airport Skylink		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Denver Int'l Airport AGTS		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
George Bush Airport/Houston TerminaLink Ph 1		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
George Bush Airport/Houston TerminaLink Ph 2		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
George Bush Airport/Houston TerminaLink Ph 3		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Hamad Int'l Airport APM (Doha)		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Hong Kong Chek Lap Kok Int'l Airport APMs		■	■	■	■	■	■		■	■	■	■	■	■	■	□		□	□	□	□	□
Incheon Int'l Airport Intra Airport Transit		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Kuala Lumpur Int'l Airport Aerotrain		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Los Angeles Int'l Airport APM		■	■	■	■	■	■		■	■	■	■	■	■	□	□		□	□	□	□	□
Miami Int'l Airport Concourse E APM		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Miami Int'l Airport MIA Mover		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Miami Int'l Airport North Terminal Skytrain		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Minneapolis-St. Paul Int'l Airport Concourse Tram		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Minneapolis-St. Paul Int'l Airport Hub Tram		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Newark Liberty Int'l Airport AirTrain		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Orlando Int'l Airport APMs		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Phoenix Sky Harbor Int'l Airport PHX Sky Train®		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Sacramento Int'l Airport Gateway B Link		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
San Francisco Int'l Airport AirTrain		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Seattle-Tacoma Int'l Airport STS Refurbishment		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Singapore Changi Int'l Airport T3 People Mover		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Tampa Int'l Airport Parking Garage Monorail		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Tampa Int'l Airport Shuttles		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Washington Dulles Int'l Airport AeroTrain		■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	■	■	■
Dallas Love Field Airport APMs		■	■	■	■	■	■		■	■	■	■	■	■	■							
Detroit Metropolitan Airport Express Tram		■		■	■	■	■		■	■	■			■								
Dublin Airport City APM		■	■	■	■	■	■		■	■	■	■	■	■	■							
John F. Kennedy Int'l Airport AirTrain JFK		■	■	■	■	■	■		■	■	■	■	■	■	■							
Kansas City Int'l Airport Fixed Rail		■	■	■	■	■	■		■	■	■	■	■	■	■							
Las Vegas McCarran Int'l Airort ATS		■	■	■	■	■	■		■	■			■									
Rome Fiumicinio Int'l Airport APM		■	■	■	■	■	■		■	■	■	■	■	■		■						

■ Completed □ In Progress / To Be Completed

Lea+Elliott Team Members

A tremendous asset of the Lea+Elliott team is our prior collaborations on other projects. Our team was specifically assembled with the objective of providing the Authority a highly-skilled group of professionals that have previously worked together. The mutual understandings of skills, approach and personnel will enable our team to quickly and efficiently address the issues of the AirTrain Newark replacement.

An overview of our prior associations is provided at the end of this section. As can be seen, the associations are many.

HNTB Corporation

HNTB has extensive experience with the planning, design, construction and program management of airport parking, terminal and rail facilities, including APM, light-rail and aviation terminals throughout the New York/New Jersey region and the U.S. Through their extensive engineering and architecture practice, HNTB has been significantly involved in major Authority projects, such as the new Goethals Bridge replacement, LaGuardia International Airport Center Terminal Building Redevelopment program and most recently, the PATH Extension to Newark Liberty International Airport as program managers. Additionally, HNTB was directly involved with the final design of the Newark Liberty International Airport station concourses and platform enclosures. HNTB currently has on-call agreements with Authority departments, including Aviation, and Engineering departments and other regional transportation agencies, such as the MTA, New York City Transit and NJ TRANSIT. HNTB'S Architecture Department is fully responsible for the architectural design of four new stations for the LA Metro Crenshaw Light Rail System design-build contract.

Outside of the New York/New Jersey region, HNTB has been extensively involved with the planning, design and construction of light-rail projects at Honolulu, Tampa, Atlanta Hartsfield, Detroit Metro International, San Diego, Minneapolis-St. Paul and Washington Dulles Airports. HNTB's engineers and architects are vastly familiar with Newark Liberty International Airport facilities. Donald Fram, FAIA, Joseph Englot, P.E. and Ray Sandiford, P.E. have significant involvement in projects at the existing terminals, parking facilities, roadways and the existing AirTrain system. Joe Englot also brings extensive experience with the Authority

Prior Team Collaborations	Lea+Elliott	HNTB	Kimley-Horn	Walter P Moore	AECOM
Newark Liberty International Airport AirTrain Study	■		■		■
Dallas/Fort Worth International Airport Skylink	■	■			
George Bush Intercontinental Airport/Houston TerminaLink	■	■	■	■	
Miami International Airport MIA Mover	■	■	■		
Miami International Airport North Terminal Skytrain	■	■			
Orlando International Airport APMs & Rail Access	■		■	■	
Phoenix Sky Harbor International Airport PHX Sky Train®	■		■		■
Tampa International Airport APM Design/Construction	■	■	■	■	
Washington Dulles International Airport AeroTrain	■	■	■		■

security design requirements having provided these services for the Authority for the 10 years.

Kimley-Horn & Associates

Kimley-Horn & Associates is a full-service, multidisciplinary consulting firm with specialty practices in airport planning and design, landside and airside modeling, roadway design, transit system design, and APM systems. Over the past five years Kimley-Horn has provided professional planning and engineering consulting services at most of the 20 largest airports in the country, including: Newark, JFK and LaGuardia.

Their simulation modeling expertise allows clients to optimize everything from station platform sizes to vertical circulation systems, guideway alignment performance impacts, and the effect on station throughput capacity resulting from vehicle headways. Their civil design experience includes guideway alignment geometrics, structure design, site/civil/utility design for stations and maintenance facilities, parking, roadways and access control.

Walter P Moore

Walter P Moore is one of the leading structural engineering firms for airport APM guideway, terminals, and parking infrastructure design in the United States. Walter P Moore understands the challenges and issues of working at an operational airport. They understand all of the needs and goals of the stakeholders–airport staff; airlines; passengers; concessionaires; regulators; and federal, state, city and county governments. They also understand the phased-approach to projects that allow enabling projects to be designed and constructed in a logical sequence, in close coordination with the construction delivery method.

AECOM

AECOM is a global provider of professional technical and management support services to a broad range of markets, including transportation, facilities, environmental, energy, water, and government. AECOM helps clients deliver their projects on time and within budget, and excels at managing the entire construction process, from pre-design through occupancy. Their previous experience is demonstrated by many successful similar assignments they have performed for the Authority and other NY/NJ agencies/clients, including construction planning and oversight of terminal improvements at Newark and JFK airport.

DY Consultants

DY Consultants, a DBE/MBE firm, is a leading full-service aviation consultant firm that provides a broad spectrum of airport design, engineering and planning services ranging from airfield operations analyses, master planning to environmental management and construction management. Many DY employees developed their highly specialized skills through prior work at the FAA, the Authority, major consulting firms, airports and various governmental agencies.

Radin Consulting, Inc.

Radin Consulting, Inc., a DBE and M/WBE firm, provides planning and engineering consulting services to the transportation market. RCI has extensive experience in preparing, reviewing, and managing the federal (NEPA) and state environmental documentation processes. RCI is part of the Program Management team selected for the PATH Extension to Newark Liberty Airport project. RCI will oversee the environmental documentation and NEPA review process undertaken for this project.

Stellar Services

Stellar Services, a DBE/MBE firm, provides application management consulting services for program control solutions, business operations solutions and full service information technology support, including engineering/construction document management, engineering and construction project portfolio management, capital planning management, systems planning and operation support, enterprise content management systems, IT infrastructure support, application development and enhancement, and Livelink database implementation.

Relevant Project Experience

As detailed in the three major projects shown in the following tables, as well as our Project Experience Matrix, Lea+Elliott has a wealth of relevant project experience in the successful completion of airport APM projects similar to the AirTrain Newark Replacement project in scope and size.

AirTrain Newark Experience & Other Airport APM Experience

Most importantly, we know AirTrain Newark. Lea+Elliott has a long-standing relationship with the Authority and almost three decades of experience working on AirTrain Newark. We provided planning, design and procurement, and implementation oversight services for the original AirTrain Newark system and have since provided support on Operations & Maintenance (O&M) services, system expansion and overhaul, and long-term planning support on replacement/expansion of the system.

For the extension of AirTrain Newark, Lea+Elliott provided implementation oversight during design, construction, testing and commissioning. During design, Lea+Elliott provided key analyses of the basic physical and operational design, defined the procurement approach, investigated the impacts of a further extension beyond the Northeast Corridor (NEC), identified facilities interface issues, ridership estimation and passenger flow analyses, operational analysis, and coordination of the NEC Station design.

Lea+Elliott recently worked on the Newark AirTrain Study from 2011 to 2014. The study developed and evaluated alternatives for the replacement of the AirTrain Newark system by 2022. The study incorporated current planning work regarding new terminals as well as a possible third parallel runway.

We are currently providing O&M support services for AirTrain Newark, which includes all aspects of contractual, management and technical services as needed to support the Authority in ensuring the DBOM contractor is operating and maintaining the system and all its subsystems in compliance with the safety, operation and performance requirements. Lea+Elliott is also overseeing the design, installation and testing for the Capital Asset Replacement Program that includes the replacement and overhaul of all the major sub-systems on the AirTrain Newark system.

"Congratulations to Lea+Elliott for their significant professional contributions to the Monorail element of the EWR Redevelopment Program. They helped make this Program the unqualified success that it is today."
John M. Kelley, P.E., Former Program Director, EWR Airport

The following three projects–in table format–provide specific information for projects that Lea+Elliott led that are similar to the scope and size of the AirTrain Newark replacement project. These projects include one of the most recent airport APMs to open, Phoenix Sky Harbor Airport's PHX Sky Train®, and the **two $1+ billion projects:**

- Washington Dulles Airport AeroTrain
- Dallas/Fort Worth Airport Skylink

For all three of these APM projects, Lea+Elliott was the APM System Consultant overseeing planning all the way through to procurement and implementation. All three of these projects, under Lea+Elliott's leadership were completed on-time, under budget and were constructed with minimal disruption to airport operations.

Additional project experience that demonstrates our range of experience with new APM systems and APM system upgrade and expansions are provided along with a matrix that provides a broad view of our key roles on airport APM projects around the world.

1. Washington Dulles International Airport AeroTrain

"The AeroTrain is all about the future..."
James E. Bennett, President and Chief Executive of Metropolitan Washington Airports Authority

2. Other Entities	Lea+Elliott (Prime) HNTB (Tunnel Design)
3. Project Manager	Russell Green, P.E.
4. Key Personnel	David Casselman, AIA John Graddy, P.E. Jefferson Davis, P.E. Matthew Sturgell, P.E. Robert Parsons
5. Date Started	2003
6. Date Completed	2010
7. Construction Cost	$1.8 Billion (escalated to 2015 dollars)
8. Client	Metropolitan Washington Airports Authority (MWAA) Reference: Stephan Smith Deputy Vice President - Engineering MWAA T: (703) 572-0271 stephen.smith@mwaa.com

9. Services Provided - Lea+Elliott led the planning, procurement and implementation oversight activities for the AeroTrain APM at Washington Dulles International Airport. Services included:

- Preliminary system planning and conceptual studies
- Ridership estimation
- System definition
- Procurement
- Propulsion power system definition
- Facilities design criteria
- Design oversight and quality review
- Manufacturing and installation oversight
- Project administration and operations/maintenance oversight
- Final system design
- Acceptance testing

10. Project Statistics

System length:	5 miles
Stations:	4
Fleet size:	29 vehicles
Technology:	Crystal Mover APM
Vendor:	Mitsubishi Heavy Industries
Contract Method:	Design-Build-Operate-Maintain
System Vehicles Procured Separately:	No

1. Dallas/Fort Worth International Airport Skylink

"Lea+Elliott provided tremendous leadership throughout all phases of the DFW APM Project from initial planning through implementation. Their leadership provided a highly competitive procurement saving millions for the airport and their oversight during implementation kept this enormous project on track."
Clay Paslay, Former Executive Vice President Airport Development, DFW Airport

2. Other Entities	Lea+Elliott (Prime) HNTB (Terminal D Design)
3. Project Manager	David Casselman, AIA
4. Key Personnel	John Graddy, P.E. Jefferson Davis, P.E. Darryl Jaquess
5. Date Started	1997
6. Date Completed	2005
7. Construction Cost	$1.2 Billion (escalated to 2015 dollars)
8. Client	Dallas/Fort Worth International Airport Reference: Clay Paslay (former Executive Vice President at DFW Airport & Project Director for Skylink) T: 972-550-1062 cpaslay@pmglp.com

9. Services Provided - Skylink, the replacement system of the original airport train system, is the largest APM system in any airport in the world. Lea+Elliott developed the concept for Skylink and led DFW on all phases of the project. Service provided include:

- Preliminary system planning and conceptual studies
- Ridership estimation
- Propulsion power system definition
- Facilities design criteria
- Final system design
- Procurement
- Design oversight and quality review
- Manufacturing and installation oversight
- Acceptance testing
- Project administration and operations/maintenance oversight

10. Project Statistics

System length:	4.8 miles
Stations:	10
Fleet size:	64 vehicles (32-married pairs)
Technology:	Innovia APM 200
Vendor:	Bombardier
Contract Method:	Design-Build-Operate-Maintain
System Vehicles Procured Separately:	No

1. Phoenix Sky Harbor International Airport PHX Sky Train®

"The PHX Sky Train® is an integral part of Phoenix Sky Harbor Airport that enhances the overall efficiency of one of America's fastest-growing airports. Lea+Elliott was the APM System Designer for the PHX Sky Train® and provided outstanding leadership throughout all phases of the project–from planning through implementation. Under Lea+Elliott's guidance and expertise, the project was completed on-time and under budget."
James Kyle Kotchou, Deputy Aviation Director, City of Phoenix

2. Other Entities	Lea+Elliott (Prime) Kimley-Horn (Cost & Alignment)
3. Project Manager	David Casselman, AIA Darryl Jaquess
4. Key Personnel	Sanjeev Shah, P.E., J.D. John Graddy, P.E. Melinda Ring, Ph.D. Matthew Sturgell, P.E. Nate Walnum, P.E. Cynthia Sugimoto, P.E.
5. Date Started	2001
6. Date Completed	2015
7. Construction Cost	$780 Million
8. Client	City of Phoenix Aviation Department Reference: David Cavazos (former City of Phoenix Aviation Director for PHX Sky Train®) T: 714-647-5200 dcavazos@santa-ana.org

9. Service Provided - Lea+Elliott was the APM System Designer for the PHX Sky Train® Stage 1 and 1a systems. Services provided include:

- Preliminary system planning and conceptual studies
- Ridership estimation
- Propulsion power system definition
- Facilities design criteria
- Final system design
- Procurement
- Design oversight and quality review
- Manufacturing and oversight
- Acceptance testing
- Project administration and operations/maintenance oversight

10. Project Statistics

System length:	2.86 miles
Stations:	4
Fleet size:	18 vehicles
Technology:	Innovia APM 200
Vendor:	Bombardier
Contract Method:	Design-Build-Operate-Maintain
System Vehicles Procured Separately:	No

Landside Access Modernization Program (LAMP)

Los Angeles International Airport

Owner | Client

Los Angeles World Airports

Scope of Work

- ☒ Planning Services
- ☒ Document Review
- ☒ Ridership Demands & Performance Requirements
- ☒ Alignment Development
- ☒ Technology Assessment
- ☒ Procurement Strategy
- ☒ Concept Design & Procurement Contract Documents
- ☒ Procurement Plan
- ☒ Performance & Operations
- ☒ Propulsion Power System
- ☒ Infrastructure Design Criteria / Conceptual Design
- ☒ Specifications
- ☒ Cost Estimating / Scheduling
- ☒ Procurement Documents
- ☒ Procurement Support
- ☐ System Implementation Oversight
- ☐ Manufacturing, Installation & Construction Oversight
- ☐ Acceptance Testing & Demonstrations
- ☐ Warranty Administration
- ☐ Contract Administration

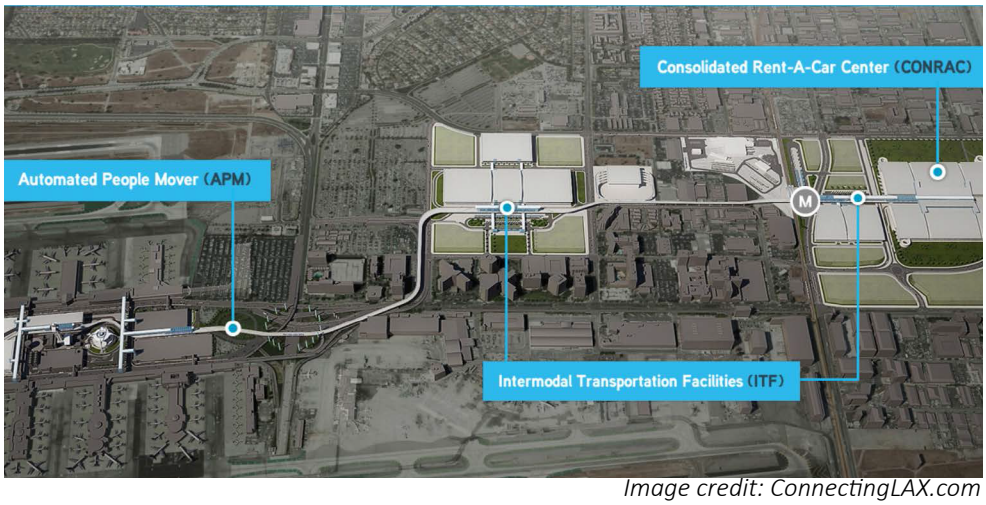


Image credit: ConnectingLAX.com

Lea+Elliott led initial efforts to define the long term needs in support of the forecast growth at LAX Airport. Work focused on the landside access system which was identified as the capacity constraint. Multiple options including consolidated busing, APM and regional rail were considered within the LAX physical plant in conjunction with impacts to airport operations, life cycle costs, and more importantly the return on investment, both tangible benefits as well as intangible benefits.

Lea+Elliott evaluated alternative approaches for addressing access/egress improvements to the LAX Central Terminal Area. Strategies include an Intermodal Transportation Facility, a Consolidated Rental Car Center and connectivity to the LA Metro system. Work efforts have included prioritization of various LAX facilities and operational needs, and their inter-relationship to and dependency on the ground conveyance system– which considers development of phasing plans tied to development/ improvement triggers and a cost/benefit evaluation tied to improvements to operations, access and phased return on investment evaluations. The work is focused on supporting LAWA in making appropriate decisions based on priorities, operational needs, and financial considerations to develop a comprehensive Ground Transportation Improvement Program that supports the overall airport improvement program. Lea+Elliott is also investigating strategic opportunities for LAWA consideration to implement these ground access improvements through associated development and various project structuring and financing options. In providing strategic advice, Lea+Elliott provided facts, options and implications in support of executive management's informed decision making, and presentation to the Board of Airport Commissioners. Through this process, the Airport identified the need for the LAMP.

Lea+Elliott continues working closely with LAWA and its legal counsel to develop project element packaging and procurement strategies for effective delivery.

Automated Transit System Replacement & Expansion

Chicago O'Hare International Airport

Owner | Client

City of Chicago, Department of Aviation

Scope of Work

- ☒ Planning Services
- ☒ Document Review
- ☒ Ridership Demands & Performance Requirements
- ☒ Alignment Development
- ☒ Technology Assessment
- ☒ Procurement Strategy
- ☒ Concept Design & Procurement Contract Documents
- ☒ Procurement Plan
- ☒ Performance & Operations
- ☒ Propulsion Power System
- ☒ Infrastructure Design Criteria / Conceptual Design
- ☒ Specifications
- ☒ Cost Estimating / Scheduling
- ☒ Procurement Documents
- ☒ Procurement Support
- ☒ System Implementation Oversight
- ☒ Manufacturing, Installation & Construction Oversight
- ☒ Acceptance Testing & Demonstrations
- ☒ Warranty Administration
- ☒ Contract Administration

The City of Chicago, Chicago Department of Aviation (CDA) is expanding the current airport people mover (Airport Transit System or ATS) system to connect to a new consolidated rental car facility and regional rail.

During planning, Lea+Elliott assisted the City of Chicago in the evaluation of ATS expansion options and developed system-related procurement documents to support expanding the existing ATS fleet and facility/system expansion/modifications to accommodate a station to serve the new terminal and a guideway extension to serve a new maintenance facility and future long-term parking station.

Lea+Elliott also assisted in the planning and design of the integration of the ATS expansion/ modifications with the new airport facilities/infrastructure.

During procurement, Lea+Elliott supported the Program Management Office (PMO) in the planning and development of procurement documents (including performance criteria and other technical requirements to solicit potential systems and vehicles suppliers), evaluation of proposals, and related procurement support.

Lea+Elliott will oversee design reviews and provide implementation oversight of the ATS replacement and expansion.

TerminaLink Phases 1, 2 and 3

George Bush Intercontinental Airport / Houston

Owner | Client

Continental Airlines, Inc.
(Phase 1)
Houston Airport System
(Phases 2,3)

Scope of Work

- ☒ Planning Services
- ☒ Document Review
- ☒ Ridership Demands & Performance Requirements
- ☒ Alignment Development
- ☒ Technology Assessment
- ☒ Procurement Strategy
- ☒ Concept Design & Procurement Contract Documents
- ☒ Procurement Plan
- ☒ Performance & Operations
- ☒ Propulsion Power System
- ☒ Infrastructure Design Criteria / Conceptual Design
- ☒ Specifications
- ☒ Cost Estimating / Scheduling
- ☒ Procurement Documents
- ☒ Procurement Support
- ☒ System Implementation Oversight
- ☒ Manufacturing, Installation & Construction Oversight
- ☒ Acceptance Testing & Demonstrations
- ☒ Warranty Administration
- ☒ Contract Administration

Lea+Elliott was the APM Consultant for all phases of the TerminaLink APM at George Bush Intercontinental Airport in Houston. Since its inception in 1996, we have led the planning, design, procurement and implementation.

Phase 1: Lea+Elliott led the procurement and implementation of the initial APM system, including conceptual planning, project definition, cost and schedule estimating, preliminary design, procurement planning, contract documents, and implementation oversight. This turnkey APM project was implemented under budget and approximately one month ahead of schedule.

Phase 2: The continued growth of the airport in general necessitated further expansion of facilities. Phase 2 included the planned conversion from shuttle to pinched-loop operation. Lea+Elliott led all aspects of this expansion, from conceptual planning through implementation and was responsible for all of the APM-related fixed facilities. The work elements included a new passenger station, an off-line maintenance facility, additional elevated guideway, a power distribution substation, an additional 10 vehicles, and all APM system-related work. The APM expansion was completed on schedule and opened for revenue service in coordination with the opening of the new Federal Inspection Services facility.

Phase 3: Lea+Elliott led the planning, design, procurement, and implementation of the Phase 3 extension to Terminal A. Meanwhile, the O&M contract for the Phase 2 APM system expired during Phase 3, so Lea+Elliott assisted with finalizing the procurement approach for re-competing the O&M contract. Lea+Elliott assisted with the development of the terms and conditions of the O&M contract to ensure a smooth transition to the completed Phase 3 expansion. The work was completed on-budget, and four months ahead of schedule.

BART to OAK

Oakland International Airport

Owner | Client

Bay Area Rapid Transit District

Scope of Work

- ☒ Planning Services
- ☒ Document Review
- ☒ Ridership Demands & Performance Requirements
- ☒ Alignment Development
- ☒ Technology Assessment
- ☒ Procurement Strategy
- ☒ Concept Design & Procurement Contract Documents
- ☒ Procurement Plan
- ☒ Performance & Operations
- ☒ Propulsion Power System
- ☒ Infrastructure Design Criteria / Conceptual Design
- ☒ Specifications
- ☒ Cost Estimating / Scheduling
- ☒ Procurement Documents
- ☒ Procurement Support
- ☒ System Implementation Oversight
- ☒ Manufacturing, Installation & Construction Oversight
- ☒ Acceptance Testing & Demonstrations
- ☒ Warranty Administration
- ☒ Contract Administration

Lea+Elliott was the General Engineering Consultant for the BART to Oakland Airport (BART to OAK) project. The BART to OAK links BART's Coliseum Station with Oakland International Airport. We led the planning, environmental review, procurement, and implementation oversight of this system.

Lea+Elliott supported the Environmental Impact Statement/ Review (EIS/EIR) and Major Investment Study (MIS) processes and performed preliminary engineering. Subsequently, we led the procurement process that included preparing DBOM/DBFO procurement documents; assisting in the selection of a contractor; providing a full range of design review and contract compliance services; and coordinating interfaces between the BART to OAK, BART's rapid transit system, and the Airport.

Lea+Elliott developed a Request for Qualifications (RFQ) to pre-qualify separate contracting teams that demonstrated the ability to successfully integrate all aspects of the project facilities and systems design and construction. Lea+Elliott then developed a complete Request for Proposals (RFP) for the full range of DBOM services for industry review by the pre-qualified contracting teams and a Peer Review team selected by BART.
Lea+Elliott also provided design support and value engineering for the revision of design concepts to cut costs.

Lea+Elliott subsequently led the procurement process after BART reverted to the DBOM approach following availability of federal stimulus funds.

Lea+Elliott led the design review and construction oversight management, overseeing and managing the DBOM Contractor's work for compliance with the contract. Activities included contract management and administration; design and submittal reviews; construction / manufacturing, installation, testing; and commissioning oversight.

MIA Mover
Miami International Airport

Owner | Client
Miami Dade Aviation Department

Scope of Work
- ☒ Planning Services
- ☒ Document Review
- ☒ Ridership Demands & Performance Requirements
- ☒ Alignment Development
- ☒ Technology Assessment
- ☒ Procurement Strategy
- ☒ Concept Design & Procurement Contract Documents
- ☒ Procurement Plan
- ☒ Performance & Operations
- ☒ Propulsion Power System
- ☒ Infrastructure Design Criteria / Conceptual Design
- ☒ Specifications
- ☒ Cost Estimating / Scheduling
- ☒ Procurement Documents
- ☒ Procurement Support
- ☒ System Implementation Oversight
- ☒ Manufacturing, Installation & Construction Oversight
- ☒ Acceptance Testing & Demonstrations
- ☒ Warranty Administration
- ☒ Contract Administration

Lea+Elliott was the APM Consultant for the MIA Mover APM at Miami International Airport (MIA). Lea+Elliott oversaw the planning, procurement and implementation of both system and facilities elements.

The MIA Mover connects the Airport to the Miami Intermodal Center—the largest intermodal facility in the United States.

During planning, Lea+Elliott addressed area-wide master planning for the MIA Capital Improvement Program, and other external agencies, while incorporating the requirements of project stakeholders.

Lea+Elliott led the development of alignment options (existing roadways, bridges, terminals, garages, utility conflicts and relocations, etc.), ridership characteristics, fleet size determination, development of maintenance and storage facility requirements and location, station locations and designs, and system performance simulations using our LEGENDS© train performance simulation program. Lea+Elliott also evaluated and integrated important failure management requirements.

Lea+Elliott recommended contracting strategies, and prepared the Design Criteria and APM procurement documents, and supported the evaluation of proposals and negotiations. The DBOM contract was awarded to a single contractor comprised of design A/E firms, civil contractors, and an operating system supplier.

As the Owner's Representative, Lea+Elliott oversaw the DBOM contractor's work and was responsible for program management, design review/ acceptance (infrastructure and systems), ensuring the system was delivered on time and under budget, and adhered to Lea+Elliott's performance specifications established in the RFP documents.

APM Systems and Rail Access

Orlando International Airport

Owner | Client

Greater Orlando Aviation Authority

Scope of Work

- ☒ Planning Services
- ☒ Document Review
- ☒ Ridership Demands & Performance Requirements
- ☒ Alignment Development
- ☒ Technology Assessment
- ☒ Procurement Strategy
- ☒ Concept Design & Procurement Contract Documents
- ☒ Procurement Plan
- ☒ Performance & Operations
- ☒ Propulsion Power System
- ☒ Infrastructure Design Criteria / Conceptual Design
- ☒ Specifications
- ☒ Cost Estimating / Scheduling
- ☒ Procurement Documents
- ☒ Procurement Support
- ☒ System Implementation Oversight
- ☒ Manufacturing, Installation & Construction Oversight
- ☒ Acceptance Testing & Demonstrations
- ☒ Warranty Administration
- ☒ Contract Administration

Image credit: MHI

As a part of Orlando International Airport's $1.1 billion expansion and renovation project, Lea+Elliott is assisting with the planning, procurement and design criteria package to extend the service life of the existing Airside 1 & 3 APM systems. In addition, we are leading the planning, design, procurement and implementation of a new APM system that will link the existing Airport's North Terminal with the future South Airport APM Complex.

The upgrade of the Airside 1 & 3 systems includes the replacement of all vehicles, running surface, APM central control equipment and all other subsystems (communications, train control, power distribution, etc.).

During planning of the new APM, Lea+Elliott led the assessment of differing/alternative technologies; preparation of performance specifications; development of procurement methodologies and contract documents, including soliciting and evaluating systems suppliers' qualifications, technical and cost proposals, proposals for operations and maintenance; and contract negotiation.

Lea+Elliott will lead the design oversight and technical review, technical monitoring and testing oversight during system construction and implementation; and all other related tasks including the extension or integration of APM and/or passenger rail systems into new and existing facilities and properties, including non-contiguous properties operated by the Airport, and the coordination of APM and/or passenger rail systems with other modes of ground transportation.

SECTION F

TECHNICAL APPROACH

LEA ELLIOTT

F. TECHNICAL APPROACH

Lea+Elliott has developed a fine-tuned systematic technical and management approach to the planning, design, procurement and implementation of APM systems. We created both a methodology and proprietary software tools specifically designed for APM projects. Since we have played a key role in the vast majority of APM systems in the world, we have had the opportunity to continually refine these methods and tools based on hands-on experience with many APM systems.

The Lea+Elliott team is composed of the top firms in their areas of expertise:

- APM stations
- Guideways
- Civil and utilities
- Airport and terminal planning
- Station design
- Simulation
- Environmental
- Security planning and design
- Program management and document control
- Construction oversight

Lea+Elliott and our team members have successfully performed ALL of the tasks described in Attachment A of the RFP for numerous airport APM projects of similar scope and complexity to the AirTrain Replacement project.

Project Understanding and Key Issues

We Understand the Project

Lea+Elliott and our team members have an unparalleled understanding of the project and key issues related to the replacement AirTrain System at Newark Airport.

As the lead firm, Lea+Elliott has experience in all aspects of the AirTrain Newark, from planning, design, procurement and implementation of the original AirTrain, engineering and O&M support throughout the life of the system including assisting the Authority with the extension of the AirTrain O&M agreement and CARP program, and through in-depth studies of the replacement AirTrain system.

Our team members were specifically selected based on their AirTrain Newark experience and other experience at Newark airport that complements Lea+Elliott's experience and expands the overall experience of the team.

- From 2011 to 2014 Lea+Elliott worked closely with the Authority to prepare an AirTrain Study specifically addressing the replacement of the current AirTrain Newark system. Our team members AECOM and Kimley-Horn provided guidance and input to this study. This study is referenced for review in the RFP, *Terminal A Redevelopment Program Stage 1 Task 2 Summary Report – AirTrain Study, January 2014*.
- In 2008 and 2009, Kimley-Horn led a study, *EWR AirTrain Analysis, September 2009*, also listed in the RFP as a document for review.
- Lea+Elliott's role on the ongoing O&M support and engineering support contracts (2009 - present) has provided invaluable experience and understanding of the day-to-day and year-by-year challenges of operating and maintaining the AirTrain system within the operating airport environment. Stellar is currently a subconsultant for this work.
- Lea+Elliott, AECOM and Kimley-Horn worked together on the Terminal A Redevelopment Program.
- HNTB recently completed a roadway peer review for the Terminal A Redevelopment project. The scope of the effort included review of the preliminary structural design for the new roadway bridges including constructability, roadway planning, and the conceptual options for the future roadway network.
- HNTB is currently leading the PATH Extension to EWR Program Management.

Together as a team, our combined experience and understanding of the project and key issues is perfectly suited to this work.

The challenges to planning, designing and implementing a replacement AirTrain system will be numerous. Our team's experience, working closely with the Authority and other stakeholders, will provide the skills and understanding needed to address these challenges and provide a successful project.

We Understand the Key Issues

To further demonstrate our understanding of the project, we have identified the following "Key Issues" which we believe are critical to the success of the project.

Meeting Current and Future Airport Needs

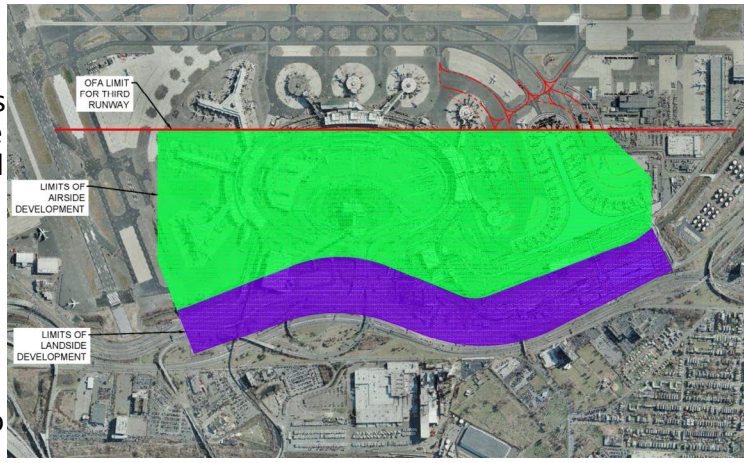
The replacement AirTrain must meet the Airport's needs both at the time of its opening and in the future. It must be planned to provide excellent service within the challenging confines of the existing facilities and infrastructure at the Airport, to serve both the existing terminals and facilities and the future redevelopment.

The future requirements of the airport and the future airfield, terminal and roadway configurations are not fully known. The configuration of the replacement AirTrain, including the alignment and station locations must be planned and designed with flexibility to accommodate the maximum range of future airport plans and alternatives, including:

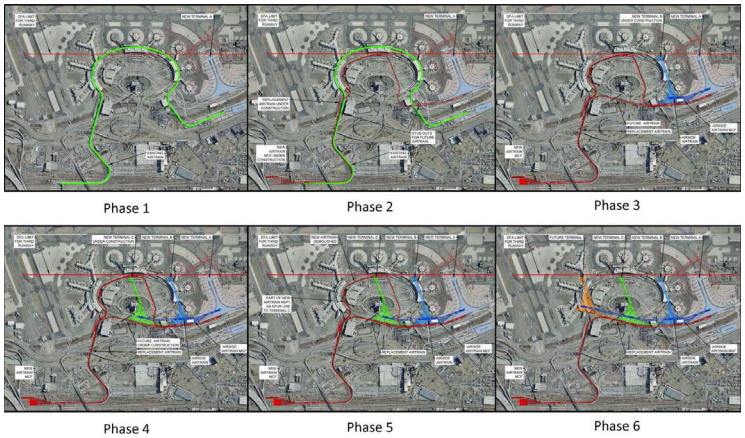
- Terminal A redevelopment
- A possible third parallel runway
- Future terminal expansion and redevelopment
- Future roadway configurations
- Future rental car locations or consolidated facility
- Future parking locations
- Continued service to the Rail Link station and interface with future PATH extension to EWR

The timeline of these future airport facilities is not known, however, it is likely that the redevelopment will occur in stages over many years. Based on our AirTrain studies, the replacement AirTrain configuration will be staged to correspond to the stages of redevelopment. It is critical for the replacement AirTrain to provide a high level of service in each stage of development, since the duration of each stage is unknown.

Our previous AirTrain Study identified possible extents of terminal airside and landside development and possible AirTrain configurations and staging.



Possible Airside and Landside Development Areas
EWR AirTrain Replacement Study - Task 1 Summary Report



Full replacement of AirTrain with improved service to Terminals B & C, Task 2 Summary Report - AirTran Study, January 2014

Maintaining AirTrain Service and other Airport Operations During Implementation

It is critical that the replacement AirTrain be planned, designed and implemented in a way that minimizes any operational impacts to airport operations. The future alignment and station locations will be evaluated based on a range of issues including level of service, terminal access, constructability and operational impacts amongst other factors to be determined.

The existing AirTrain service must be maintained during construction of the replacement AirTrain to avoid inconvenience to passengers and to prevent adding to curbside congestion. A high level of service must be provided to all passengers using the AirTrain during each phase of construction.

Other key areas where operational impacts must be minimized include the terminal access, roadways, parking, rental car areas, and the Rail Link Station.

AirTrain System Operational and Cost Efficiency

The replacement AirTrain system must have initial and ongoing efficiency in providing a high level of service while minimizing life cycle costs. Balancing efficient operations with initial and ongoing cost efficiency is of key importance. Initial cost savings do not always translate into lower life cycle costs.

It is critical to develop and implement a configuration that maximizes operational efficiency and provides a high level of service as measured in frequent trains, fast trip times, spacious capacity for passengers with baggage and carts, wide doors for fast boarding and de-boarding of vehicles, and a comfortable ride. Stations must be located to provide convenient access to the terminals, parking, rental car areas, and rail.

Maximizing competition in the selection of a DBOM contractor will be key to minimizing capital costs. Selection of a system technology and supplier that will operate efficiently and provide long-term product support will be key to controlling operating costs.

AirTrain Inclement Weather Operations

Maintaining operations in ice and snow conditions is a critical requirement for the replacement AirTrain. Solutions must be evaluated for operational continuity, as well as capital and operating costs.

Selection of technology will be a key aspect of this requirement. The System technical and performance specifications will detail the criteria, and the evaluation of proposals will highlight this requirement.

The design of the guideway, stations and maintenance facility must all take this requirement into account. Long-term maintainability of the infrastructure without maintenance disruptions is critical.

The following briefly describes our approach to each task.

Technical Approach for Each Task in Attachment A

Phase One

Task A: General Planning Services Approach:

1. Document Review Approach:

The Lea+Elliott team will review previous studies and report documents and the status of the other redevelopment efforts. Since our team members have been involved in several of the AirTrain Newark studies and redevelopment projects, we will focus on new developments and changes that have occurred since the studies were completed. As part of the document review task, it will be important to access existing condition technical drawings for various airport facilities including terminals, roadways, parking structures and other tenant facilities. These documents will become a critical part for the development of a project BIM database to provide key background documentation for alignment analysis and station planning.

2. Initial Ridership Demands and Performance Approach:

The Lea+Elliott team will use the ALPS™ analysis tool to combine both air passenger demand and ground transportation mode choices to develop the initial ridership demands for the AirTrain. The ALPS™ model has been applied to the AirTrain, terminals and roadways at Newark Airport for many years. This will allow us to efficiently address the ridership by making use of our prior work and experience. More information about the ALPS™ model is provided at the end of this section.

We will work closely with the Authority staff to determine:

- Baseline airline passenger demand
- Airport employee movements
- Current and future demands for feeder transit system

Transit considerations involve:

- New Jersey Transit
- Amtrak
- PATH
- PATH to EWR

We will also explore data related to courtesy van drop-offs, as well as parking demand for four parking areas to be served by AirTrain. A 24-hour average day of the peak month will be examined to determine the peak hour demand that AirTrain must satisfy.

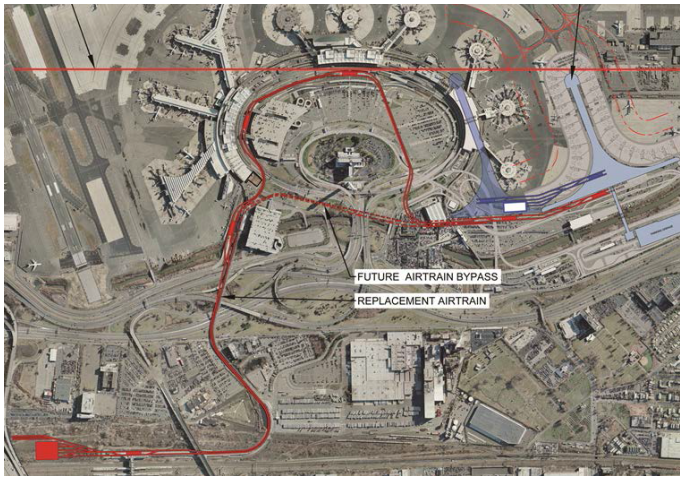
We will provide a System Performance Requirements document that defines criteria that must be met by the AirTrain system in terms of ridership, design and applicable codes.

3. Alignment Development Approach:

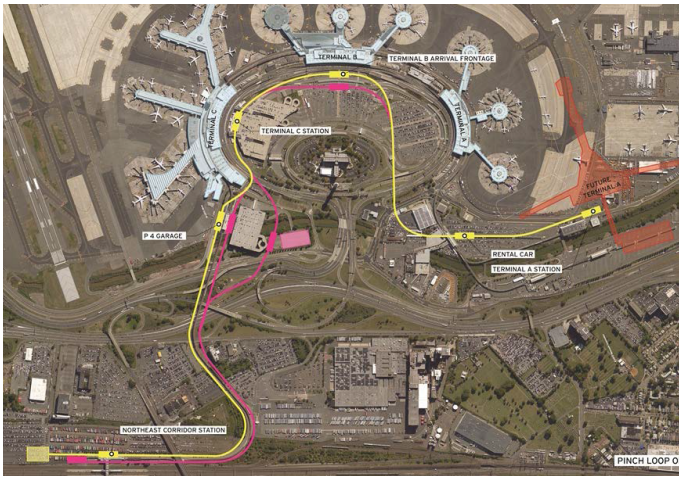
The Lea+Elliott team will develop alternative alignments to serve Terminals A (new), B and C as well as four parking areas to accommodate ridership demand while considering ongoing and future development at EWR. The alignments will identify the potential station locations and consider functional arrangement of the stations along with the location with respect to passenger access to terminals or other facilities. Our work will also consider access to the maintenance, storage and control facility.

Development of the final alignment and station facilities siting will include:

- Review of airport master plan, current projects and other airport improvement plans.
- Confirmation of facilities to be served and general locations such as stations at existing terminals, future terminals, Rail Link Station, parking, maintenance facility, ground transportation centers, and desire to accommodate future facilities like a ConRAC or system extensions.
- Coordination for station platform elevations and configurations, including the ultimate number of train vehicles to be planned for, which impacts the length of tangent sections of guideway before and after each station.
- Review of physical constraints and guideway clearances to existing or proposed facilities, including review of vehicle dynamic envelope.
- Determination of impact of construction of new stations and guideway on existing facilities, including costs and constructability of required strengthening or upgrading of existing facilities based on additional imposed loads from new construction.
- Review of underground utility services and foundations and conflicts that may impact the locations of station or guideway support columns.
- Refinement of alignment geometrics to improve system performance, travel time and ride comfort.
- Close coordination of guideway support column locations so that they have minimal impact on existing and future infrastructure such as roadways, ramps, sidewalks, bridges, terminals, stations, and garages.
- Optimization of guideway structural spans that finds the balance of using



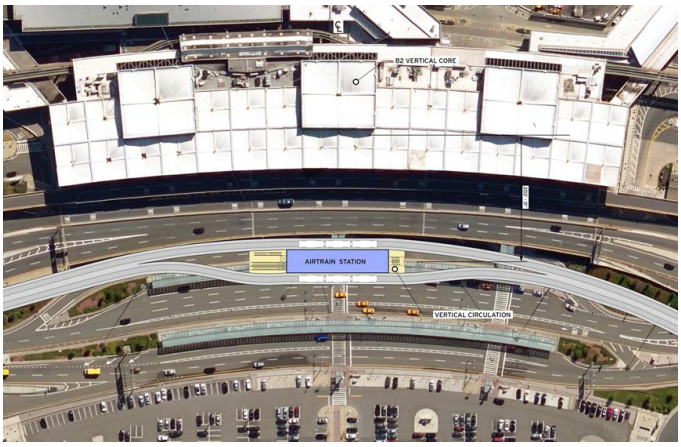
Alternative 5b from the Task 2 Summary Report - AirTrain Study, January 2014

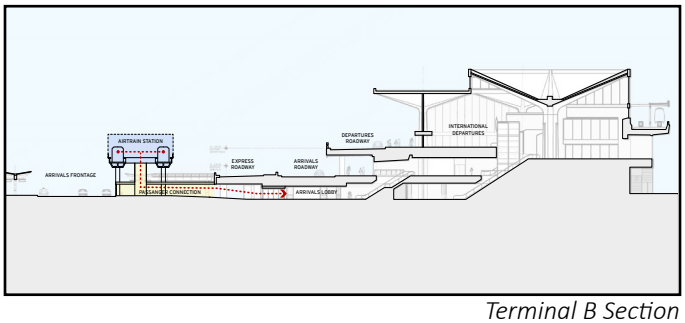


Alternative station location concepts

shorter more economical span lengths where possible and longer spans where needed to avoid existing infrastructure, while providing appropriate clearances.

- Selection of suitable station and guideway structural systems that consider long term maintenance and durability, structural efficiency and economy, constructability, and aesthetics.
- Follow-up meetings with the Authority staff and stakeholders for confirmation of preferred general alignment, with further refinements to follow.
- Alignment development is very much an iterative process in which changes to one area may have a ripple effect on another area, requiring changes to horizontal and vertical curves, spiral lengths and super elevation to achieve the desired system performance.
- Use of sophisticated building information modeling techniques and tools that allow for modifications and refinement of the alignment geometry that minimizes the amount of re-work.
- Other factors to consider in the alignment development may be locations of emergency walkways and egress points, propulsion power, lighting, security, locations of station and train system equipment, and the locations and configurations of crossovers for efficient failure management measures.
- Cost considerations need to be taken into account when developing the alignment. If there are sections of the guideway that can reasonably be provided on-grade rather than using an aerial guideway, the cost savings can be significant. These cost savings need to be balanced with the access limitations that an on-grade guideway would impose to vehicle and pedestrian access.
- Other cost savings may be achieved by maximizing the amount of dual-lane aerial guideway where possible, rather than having separate guideway structures for each direction of travel. Minimizing the height of the guideway structures can also reduce costs by reducing the size or number of support columns.
- Flexibility in locating the guideway and stations may have cost benefits, though savings need to be balanced with passenger service. For example, the best place for a station at a given terminal may be as close as possible to the ticketing area. But placing a guideway and station there could have significant impacts to roadways or other airport facilities. Conversely, the most economical location for the same station may be much farther away, requiring a much longer walk distance for passengers and resulting in a lower level of service. Balancing costs, passenger





Terminal B Section

service and system performance will yield an alignment best suited to meet the Authority's needs and passenger service.

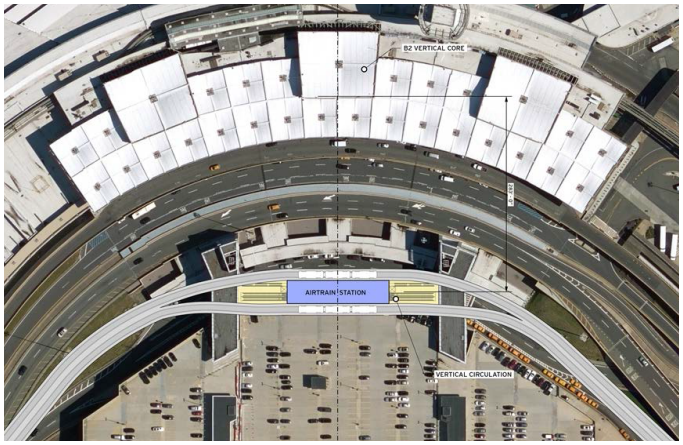
Terminal Station Sites

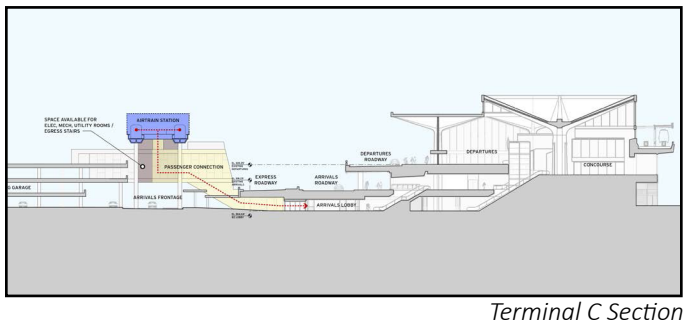
The team has explored some preliminary station concepts and locations for the terminal stations in order to understand some of the challenges at Terminal B and Terminal C stations present. The potential station locations present complex constructability and staging issues due to the peak hour traffic and pedestrian activity at the frontages and because of the existing structures such as the Terminal C garage, frontage canopies and pedestrian bridges. Several sites will be investigated thoroughly with respect to the pedestrian access route(s) to the terminals from the station. The sites will also be analyzed for the guideway alignment, switch locations, impacts to construction impacts and existing utilities, roadway frontage, guideway and station column locations and potential traffic modifications that may be required during construction.

A landside station for both Terminal C and B could be located within the arrivals roadway frontage zone or possibly at the end of each terminal within the courtyards. It is likely that the station at Terminal C will require a significant grade change for the train to access the this station in order to not impact the existing two level connector bridges from the garage.

Other potential station sites to be studied include a station located within the Terminal C garage or station(s) located at the "south" end of either Terminal B or C in the courtyard areas. These courtyard sites could provide direct access into the terminal to all terminal levels and minimize walking distances to the terminal. The courtyard sites might be easier to stage and have less impact to the terminal frontage roadways during construction.

Guideway dimensional data and civil constraints will be input into Lea+Elliott's proprietary LEGENDS© Train Performance Simulator (TPSim) Model, which will calculate the train performance within the selected alignment. The TPSim Model is the ideal tool for:





Terminal C Section

- Developing station-to-station travel time predictions,
- Estimating round-trip times,
- Calculating safe braking distances and train control attainable speeds, and
- Evaluating rolling stock alternatives.

More information about the LEGENDS© model is provided at the end of this section.

4. Technology Assessments and Recommendations Approach:

The Lea+Elliott team will use our extensive LEGENDS© database of available APM technologies to identify systems that are appropriate for the AirTrain replacement and to assess the attributes and deficiencies of each. The capacity of each representative technology class will be considered to best satisfy passenger demand while offering a high level of service. The results of this Technology Assessment will define a range of technologies that will be used to define the facilities requirements for the AirTrain. Special consideration will be given to inclement weather and performance and O&M issues related to freezing and snow conditions.

5. Procurement Strategy Approach:

Lea+Elliott has a proud heritage in the procurement of APM systems. In over 40 years of practice, we have developed procurement methodologies for a wide range of APM applications. We performed pioneering work in the use of performance-based contracting and Design-Build-Operate-Maintain (DBOM) methodologies that have become APM industry standards. As APM technologies are proprietary (and there are only a handful of qualified suppliers worldwide), the DBOM methodology provides for a competitive procurement environment and optimizes the life-cycle cost of the APM system.

In performing procurement tasks, our in-house experts will work with the Authority's procurement and legal counsel. Our experts understand the complex pulls between the legal, procurement and technical aspects of a project; they will identify inherent tensions and analyze the benefits/consequences of each issue. We will help the Authority make informed decisions that result in optimized solutions.

The Authority's procurement and legal counsel will provide guidance on applicable procurement and legal requirements. We anticipate early and regular meetings with procurement staff and legal counsel to vet the viability of potential procurement methodologies.
Important goals of the procurement strategy will be:

- To identify a procurement approach which offers the lowest risk to the Authority, and
- To package the work in a way that assigns risks to the parties best able to manage them

A range of procurement options including prequalification, one-step vs. two-step, and best value vs. low price will be addressed.

6. Other Studies and Reports Approach:

Our team members bring a wide range of experience and expertise to the table. If additional areas of expertise are needed, or additional reports required, we will work with the Authority to identify and add additional support.

Task B: Concept Design & Procurement Contract Documents Approach:

1. Develop Procurement Plan Approach:

Based on the results of Task A.5, the Lea+Elliott team will develop a Procurement Plan, including specific steps and timeline.

The scope of the AirTrain Newark replacement project and interfaces with other projects will be identified and summarized as criteria in a Work Breakdown Structure (WBS). The WBS is an important element in the procurement documents and a valued tool to manage the subsequent DBOM contract.

2. Finalize Performance & Operation Requirements Approach:

The Lea+Elliott team will refine both the ridership demand estimates and the AirTrain alignment based on information and input from the Authority. The LEGENDS© TPSim Model will generate round trip times as input to an Operations Analysis. That analysis will define the operational headway, train length, number of trains and overall system capacity required to satisfy the peak link passenger demand (based on vehicle capacity determined for a representative technology class in the Technology Assessment). We will identify peak loads and future peak loads dependent on airline movements.

We will use the ALPS™ model to analyze horizontal and vertical passengers movements, taking into account system service levels to determine passenger travel distances and times. ALPS™ will determine the level of service provided by existing vertical circulation elements and identify where additional capacity may be needed.

We will conduct passenger circulation and queuing analyses based on the defined train operation. We will use our LEGENDS© Platform Model to determine length and width of platforms, taking emergency egress into consideration. Our analyses will be based on the final estimates of ridership and concept configuration for AirTrain.

We will use the LEGENDS© TPSim Model to identify the optimal location of crossovers and hot standby storage locations to facilitate failure condition operations that provide the greatest levels of retained capacity during peak periods. We'll use our LEGENDS© Capital Cost Model to evaluate the costs of the system equipment associated with failure management facilities and systems.

Our analyses will be summarized in a Concept of Operations Report that will define all the system elements required to proceed with system design and procurement. The System Performance Requirements that were previously identified will be updated as necessary, based on the refined analyses.

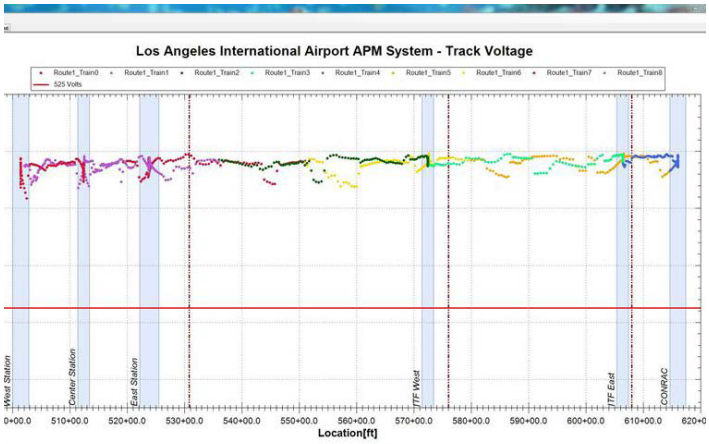
3. Propulsion Power System Requirements Approach:

Lea+Elliott's LEGENDS© Load Flow Model is a proprietary program that provides power load estimates based on train performance and power demand as defined by the TPSim Model. The Power Model or "PowerFlow" predicts peak power and energy consumption, which determines the optimal size of the power distribution system and simulates annual energy consumption. PowerFlow is a load flow analyzer, which simulates the electric load throughout the network and provides results, such as:

- Total power consumption
- Peak power loads
- Substation loads
- System losses
- Train voltages

It analyzes system electrical capacities, power demand, power costs, and effects of regenerative braking, and many other electric network issues on both DC and AC electrical networks. We will use these models to estimate power demand throughout the system and facilities and to develop peak and average power demands and annualized power consumption for the AirTrain Replacement project.

Using these results, the Lea+Elliott team will also review the capacity of the existing power sources, determine whether adequate capacity exists, and identify any needed improvements.



LEGENDS© Load Flow Simulation

4. Infrastructure Design Criteria & Conceptual Design Approach:

In Lea+Elliott's experience, a critical aspect of APM planning and design is the development of facilities criteria to define interfaces between the APM systems and related facilities. In a large, complex project like the AirTrain Replacement, all facilities are affected in some way by the APM system requirements. Consequently, detailed, quantitative information about the APM system is crucial to design activities throughout the project. To respond to the need for APM system interface and design information, Lea+Elliott developed a report that we call the APM Facilities Design Criteria document. It has proven highly beneficial to our clients for APM systems worldwide.

The Lea+Elliott team will also prepare an Infrastructure Design Criteria Report for the AirTrain project. It will define APM space requirements, clearances, adjacencies, functions, circulation requirements, and architectural, structural, electrical, and mechanical requirements for the APM system.

The Lea+Elliott team will develop a conceptual design for the AirTrain facilities, including the stations, guideway, maintenance and control facility, and any supporting propulsion power substations and equipment rooms. The preliminary design will provide guidance to the DBOM contractor and will become part of procurement contract documents in Task B.7. Conceptual design of civil facilities will include:

- Coordination with surveyors and utility locators to accurately pinpoint airport features both above and below ground. Typically, for a project that covers a large geographic area, it is best to start with an aerial topographic survey. Aerial surveys can be performed quickly, are ortho-rectified and are generally accurate to within 0.25 feet. The survey can then be supplemented with a hard survey to locate critical features or areas obscured from view in the aerial survey.
- Review of as-built documents to discover/locate underground utilities and foundations. In some cases, it may be necessary to perform vacuum excavation (soft-dig) to locate critical utilities that cannot be relocated. This research will allow the design team to adjust locations of guideway support columns.
- Conduct thorough geotechnical explorations of the subsurface conditions to provide needed information for design of station and guideway foundations.
- The survey information is used as the project base map that is referenced into the backgrounds of plan sheets for civil, architectural, structural and other disciplines that need to show improvements in their real work location.
- Conceptual designs will include site layout, grading, drainage and paving for the stations, maintenance facility and guideway features. The station conceptual design will include design guideline criteria for station architecture, vertical circulation and related station components such as finishes, location of passenger amenities, and door systems. Coordination of drainage improvements with the airport master drainage plan and permitting agencies will be required.
- Provide the train alignment plan and profile geometrics to be used by all design disciplines. Provide details of the relationship between the guideway surface and the profile grade line, which corresponds with the train vehicle floor and station platform elevations.
- Perform preliminary civil design of new or improved access roads and terminal curb front areas, parking access and parking lot reconfiguration, traffic control and traffic signals, utility relocations and services, site lighting, security and fencing, access control features, roadway and landscaping structures, etc.
- For each civil feature provide plans for demolition, project layout, grading and drainage, horizontal and vertical control, geometric layout, paving plan and profile, typical sections, details and other design components necessary to convey to the DBOM contractor what will be required.

- Utility impacts may require realignment or relocating of storm drains, sewers, water lines, gas lines, communications and electrical lines, etc. New utility services will be provided to the stations, maintenance facility, and other facilities such as propulsion power substations.
- Provide the ductbank alignment for the propulsion power and communications backbone. In some instances it may be beneficial to have the propulsion power and communications lines in conduits supported on or under the guideway structure. The cost of exposed conduit can be quite high, so where possible, it is generally cheaper and provides easier access to have these utilities underground near the guideway alignment. In this case, a detailed plan and profile of the ductbank is necessary to avoid conflicts and provide access manholes and hand holes at specific intervals and convenient locations.
- Coordination with the Authority staff and reviewers, local and state jurisdictions and permitting agencies, FAA, NEPA or other authorities having jurisdiction over the project improvements.
- Conformance with Port Authority Design and Sustainability Guidelines.
- Development of the station and guideway structural systems including foundation locations, types and sizes, column locations, types and sizes, and superstructure locations, types, and sizes to meet design criteria, long term maintenance and durability considerations, constructability, and aesthetics.
- Use of building information modeling techniques and tools that can be used for design, coordination, documentation, phasing and scheduling, constructability, and simulation purposes. Models can also be used downstream by successful DBOM proponents.

5. System Technical & Performance Specifications Approach:

We, at Lea+Elliott, consider the technical and performance specifications to be one of the most critical steps in a successful APM project. To that end, we have committed over 40 years and many thousands of hours to develop, maintain, and refine a proprietary Procurement Documents Guide. No changes may be made to the Guide without thorough vetting by the appropriate disciplines and experts. This provides a consistency and reliability for our clients. The Guide will be used internally by our staff as the basis for the technical and performance specifications for the AirTrain project.

6. Cost Estimating & Schedule Development Approach:

Lea+Elliott developed and maintains a proprietary LEGENDS© Capital Cost Model, as well as an O&M Cost Model, that includes accurate pricing data from numerous APM projects. System capital costs are derived from the Capital Cost Model. This model is validated frequently and benefits from Lea+Elliott's large, historical database of unit cost data for similar systems. Top-level capital cost estimates include: guideway, stations, maintenance and storage facility, power distribution substations, guideway equipment, vehicles, power distribution equipment, automatic train control equipment, communications equipment, station equipment, maintenance/storage facility equipment, supplier system and equipment design/engineering, supplier project management, and contingency.

Likewise, the O&M Cost Model accurately estimates all of the O&M cost elements from the bottom up. Costs include staffing requirements for administration, operation and maintenance; energy and utilities consumption; spare parts and consumables; administrative costs; bonds and insurance.

The Lea+Elliott team will use these models (along with local facilities' cost history data) to develop preliminary capital and O&M cost estimates for the AirTrain project.

We also maintain a database of scheduling information from a wide range of projects and technologies. This resource will help to develop a detailed and accurate AirTrain project schedule.

7. Procurement Contract Documents:

Lea+Elliott's Procurement Documents Guide, described in Task 5 above, also provides guidelines and material for:

- Bidding and contract documents
- General requirements
- Special provisions
- Technical provisions
- Operations & Maintenance provisions

The Lea+Elliott team will use these as the basis for developing your project's Procurement Contract Documents.

Task C: AirTrain Procurement Support Approach:

The Lea+Elliott team offers a wide range of resources to support the Authority during this critical task. We know that this process is crucial to successfully achieving the goals of the projects and the requirements of the technical and performance specifications.

Staff with hands-on experience in the full range of potential technologies will be available to the Authority to address specific proposals, as well as all facilities and infrastructure issues.

The primary goals will include identifying any technical, management or commercial deficiencies in the proposals; the Contractor that best meets the requirements of the contract documents; and avoiding any challenges to the selected Contractor award.

Phase Two

Task D: System Implementation Oversight

1. Design Oversight & Documentation Review Approach:

Design oversight and documentation reviews are keys to achieving conformance to the requirements in the technical and performance specifications. For that reason, Lea+Elliott developed a systematic process for managing these reviews.

The Contract Data Requirements List (CDRL), contained in the Special Provisions, will identify data and documentation that must be prepared by the APM Contractor and submitted for review and approval throughout the life of the project. Our team's experts will review each of these submittals for conformance with contract requirements. We will rely on our previous extensive experience in reviewing similar submittals for other projects. We believe that the CDRL procedure forces the APM Contractor to approach the project in an organized, systematic way. In addition, review by our experts will provide timely alerts to the APM Contractor if there are any areas where the project work is straying from the contract requirements, or is at risk of falling behind schedule. Overall, the review of contract submittals is a very effective and critical tool for attaining successful, timely completion of the project.

2. Manufacturing, Installation & Construction Oversight Approach:

Monitoring the manufacturing, installation and construction activities is critical to project success. Lea+Elliott has developed software called the LEGENDS© System Compliance Verification Matrix (SCVM). It provides a tool for monitoring compliance with the APM contract requirements throughout the manufacturing, installation, testing, and demonstration activities.

Presence in the manufacturing plant is critical and allows us to catch any problems prior to shipment. We know from experience that personally witnessing important tests allows us to identify issues that would have otherwise

been missed.

Lea+Elliott personnel will monitor on-site installation and construction activities and will report progress and document any work not in conformance with the Contract Documents. Day-to-day direction and supervision of personnel and subcontractors will be the responsibility of the APM Contractor.

3. Acceptance Testing & Demonstrations Approach:

We are pleased that the subtasks described in the RFP follow a process that Lea+Elliott developed and has utilized on numerous APM projects.
We will apply the systematic process that we developed, which begins with thoroughly defining the tests that will be required in the performance specifications as well as the criteria that will be used to measure success. The process is thoroughly recorded and documented.

4. Warranty Administration Approach:

During the first year of the Operations and Maintenance period, the Contractor will be responsible for correcting any system deficiencies that are covered by the Warranties included in the Special Provisions of the Contract. It is important that these corrective activities and costs not be paid by the Authority as part of the operations and maintenance services. Accordingly, the Lea+Elliott team will institute procedures to assure that warranty activities are separately accounted for, and paid for by the Contractor.

5. Contract Administration & Payments

The Lea+Elliott team will review and process all Contractor invoices for payment and recommend payments to be made by the Authority. We will monitor project progress and recommend payment retentions. When required, we will initiate, review and negotiate Contract change orders and amendments to the Contract contractual terms and conditions.

Additional Model Information

We will use progress tracking software tools that are linked to the WBS and payment schedule. These tools allow us to maintain a constant progress status for each payment item.

An added value is that the Lea+Elliott team will utilize Kimley-Horn's ALPS™ software and Lea+Elliott's LEGENDS© group of computer models to perform tasks. These tools assure that activities will be completed in the most time-efficient and cost-effective manner possible.

Lea+Elliott GENeral Dynamic Simulations (LEGENDS©)

Lea+Elliott's family of analytical computer models is known as LEGENDS© (Lea+Elliott GENeral Dynamic Simulations). These models address all aspects of transit system ridership, performance, power requirements, and cost. They allow Lea+Elliott specialists to quickly and economically analyze and predict relevant system characteristics, such as the alignment, travel time, and capital and O&M costs of systems under study.

The Advanced Land-Transportation Performance Simulation™ (ALPS™)

The Advanced Land-Transportation Performance Simulation™ (ALPS™) is an analysis tool that was originally created to study the multimodal environments that are common for airport landside ground transportation systems. The ALPS™ tools are-well proven and have been extensively applied to modeling of:

- Fixed guideway and bus transit performance and operations
- Roadway traffic and curb-front operations
- Pedestrian facilities and vertical circulation systems

The ALPS™ models have been applied at Newark Liberty International Airport over many years, beginning in the 1980s and continuing through multiple studies and design projects. During each progressive phase of ALPS™ modeling assignments for the Authority, the previous models were used and adapted to the needs of

the next segment of project work. In particular, the most recent ALPS™ models of the new Terminal A internal pedestrian processing and flows are available to be incorporated into the airport-wide AirTrain and Rail Link Sation model.

Schedule of Completion

We have developed a schedule for the completion of each task that corresponds to the overall program milestones in Attachment A. The completion milestones for each task are shown. Most tasks are interdependent with incremental results from tasks iteratively feeding other dependent tasks.

The schedule is aggressive but attainable. Timely decision making and approvals are critical, along with approval and availability of funding.

The results are summarized at a high-level in the Schedule of Tasks & Milestones on the following page.

Staffing Analysis

We have developed a staffing analysis for the performance of each task in Attachment A of the RFP based on our understanding and approach.

We look forward to detailed discussions with the Authority regarding the tasks, approach, and staffing so that we can mutually refine them to meet the immediate and ongoing needs of the Project.

Our staffing analysis is presented in the Staffing Analysis Summary table below, and detailed in Attachment D - Staffing Analysis, which is found in Appendix B.

Staffing Analysis Summary Table		
Phase One	Hours	Labor
Task A	48,663	$8,978,680
Task B	79,369	$14,389,042
Task C	7,110	$1,497,156
Phase One Total	135,142	**$24,864,878**

Subconsultant Terms Conditions and Technical Qualifications

The terms and conditions for the subconsultant compensation, including their multipliers and billing rates can be found in Attachment D – Staffing Analysis.

Our team members' M/WBE status and technical qualifications are found in Sections D and E of our submittal.

Schedule of Tasks and Milestones

Task	Description	Duration (mos)	2015	2016	2017	2018	2019	2020	2021	2022	2013
			1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Task A	**General Planning Services**	18	Award As-Needed Consultant Agreement								
Task A.1	Document Review	3									
Task A.2	Initial Ridership Demands & Performance Requirements	6									
Task A.3	Alignment Development	12									
Task A.4	Technology Assessments & Recommendations	4									
Task A.5	Procurement Strategy	18									
Task A.6	Other Support Services	18									
Task B	**Concept Design & Procurement Contract Documents**	18									
Task B.1	Develop Procurement Plan	6									
Task B.2	Finalize Performance & Operation Requirements	4									
Task B.3	Propulsion Power System Requirements	5									
Task B.4	Design Criteria	11									
Task B.5	System Technical Performance Specifications	13									
Task B.6	Cost Estimating & Schedule Development	13									
Task B.7	Procurement Contract Documents	13			Release RFP						
Task C	**AirTrain Vendor Procurement Support**	12				Award Supplier Contract					
Task D	**System Implementation Oversight**	63									
Task D.1	Design Oversight & Documentation Review	18									
Task D.2	Manufacturing, Installation & Construction Oversight	40									
Task D.3	Acceptance Testing & Demonstrations	12					Initiate Testing & Commissioning		Initiate Passenger Service		
Task D.4	Warranty Administration	12									
Task D.5	Contract Administration & Payments	63									

Section G

Management Approach

LEA ELLIOTT

G. MANAGEMENT APPROACH

Our Management Approach is proven and time-tested through successful application on numerous APM projects that are similar to the AirTrain Newark in scope and complexity.

Fundamental to our Management Approach are:

- Direct, primary point of contact through our **Project Manager – Russell Green, P.E.** Russell will report directly to the Authority's Project Manager and will direct the work of the functional and discipline leads and subconsultants. Russell is uniquely qualified for this role as demonstrated by both the technical and management qualifications in his resume, managing similar large and complex airport APM projects.
- Our **Principal-in-Charge – David M. Casselman, AIA** will also be available for direct contact by the Authority as needed. David will consistently review all project activities to validate conformity with the Authority's goals for the project. David has managed numerous large and complex APM projects.

The Management Approach described here and in the following sections will be applied to all tasks in Attachment A. The same management and team organization will be used for Phase One - Tasks A through C. As we approach the start of Phase Two - Task D, we will ramp up additional personnel to address the oversight of the manufacturing, installation, and construction. The Phase One team will continue to provide design oversight and documentation review.

Proposed Organizational Structure to be Responsive to Port Authority Needs

The proposed organizational structure shown in Section D is organized along functional lines and disciplines. In addition to the Project Manager and Principal-in-Charge described above, leaders are identified for each functional group.

The lead individuals and firms have been selected based on their prior experience and working relationships:

- Working with the Authority on projects at Newark Airport
- Working with the project stakeholders (airlines, rental car operators, rail agencies, etc.)
- Working with each other – all of the lead individuals and firms have worked together on similar APM projects.
- Working on related Port Authority programs (AirTrain, Terminal A Redevelopment, EWR Master Plan, End-Around Taxiway Project, and PATH to EWR.

The prior experience and working relationships will streamline the management of the project and ensure that the team is responsive to the Authority's needs.

Approach and Schedule for Project Status

Regular and continuous collaboration with the Authority to assure understanding of objectives, proactive identification of required policy decisions, review of identified alternatives, real-time feedback on options, and briefings – so that the informed decision-making process remains an integral part of our work activities.

To maintain coordination and control throughout the project, the Authority concurrence will be confirmed for key decisions and at critical milestones before moving to the next step.

Approach for Quality and Timeliness

Lea+Elliott will implement its established Quality Assurance/Quality Control (QA/QC) process on all its work activities as well as in all team member activities. The goal is to provide reliable, high quality work products that conform not only to the Authority's standards and criteria, but also to Lea+Elliott's standards. Lea+Elliott's QA Program requires that quality be achieved through checking, reviewing and surveillance of work activities by objective and qualified individuals who were not directly responsible for performing the initial work. All activities will be configuration controlled – all

decisions by the technical team will be reviewed by our project management team – to validate conformity to the objectives and to maintain continued integration between the different work activities. We will utilize the Livelink software – to be provided by the Authority and keep our progress/status up-to-date – the goal is to ensure continued positive progress within schedule and budgets, while keeping the Authority apprised of the status.

No correspondence with parties outside the project team or the Authority will be initiated without consultation with the Authority's project manager. All such correspondence will be logged and copies provided to the Authority – the goal is to remain real time informed on all matters pertaining to the project.

All contractual submittals will be timely provided. Pre-draft and in-progress findings will be proactively discussed with the Authority in an effort to obtain early comments and satisfactorily address them in the formal submittal. Our Project Management Approach assures that submittals will be a documentation of findings that have been already briefed to the Authority. No surprises.

Approach to Meeting M/WBE Goals

Lea+Elliott is committed to supporting the Port Authority's policy of enhanced supplier diversity for all of its contracting and purchasing. For this project, Lea+Elliott commits to meeting or exceeding the goals of 12% participation for MBE and 5% participation for WBE.

We have identified three firms that will not only allow us to meet these goals, but will also provide the best available professional services to the areas they are assigned.

- **DY Consultants** is an MBE firm and will provide terminal and airport planning and construction management services.
- **Radin Consulting, Inc.** is an MBE and WBE firm and will provide environmental consulting services.
- **Stellar Services** is an MBE firm and will provide document control services.

Lea+Elliott is proud of its legacy of meeting and exceeding M/WBE utilization goals on past projects.

Lea+Elliott Wins Award for M/WBE Leadership and Mentoring

DALLAS/FORT WORTH - DFW airport hosted its first "M/WBE Excellence in Diversity Awards" on September 8, 2005. This ceremony recognized the incredible efforts and talents of the many outstanding minority and women-owned businesses (M/WBE), as well as the majority-owned businesses, who participated in the airport's Capital Development Program. More than 200 guests gathered at DFW's new Grand Hyatt hotel.

Lea+Elliott was the winner of the "Leadership Award: Professional Services - Mentor" in recognition of its efforts in assisting M/WBE firms develop their skills and services on the Skylink project. Don O'Bannon, DFW's vice president, Small and Emerging Business Department, said, "Our desire was to recognize prime consultants who went the extra mile to assist, develop and mentor an M/WBE firm in such a specialized area. Lea+Elliott did just that while working on the Skylink people mover system. This award is our small way of saying thank you and that we acknowledge and appreciate your extra mile in truly embracing and sharing our commitment to provide opportunities to develop M/WBE consulting firms".

Lea+Elliott was the system designer for the new Skylink APM system at DFW. Lea+Elliott developed the concept for Skylink and consulted with and advised DFW on all phases of this project.

David M. Casselman, AIA, Lea+Elliott's executive vice president and principal-in-charge of the Skylink project, accepts the award.
From left to right: Clay Paslay (DFW), Don O'Bannon (DFW), and David Casselman.

Lea+Elliott is committed to the growth and success of DBE/MBE/WBE firms. Lea+Elliott has had the pleasure of assisting several DBE/MBE/WBE firms start and sustain their businesses.

In+Motion, Fall Issue Vol. 12 No 3

Section H

Firm's Affiliates

LEA ELLIOTT

H. FIRM'S AFFILIATES

Lea+Elliott Limited is a wholly-owned subsidiary of Lea+Elliott, Inc. Lea Elliott Limited was incorporated in Hong Kong in 2010.

Section I

Conflict of Interest

LEA ELLIOTT

I. CONFLICT OF INTEREST

Lea+Elliott is not aware of any conflict of interest for itself or any other proposed subconsultants.

SECTION J

FORM OF AGREEMENT

LEA ELLIOTT

J. FORM OF AGREEMENT

Lea+Elliott agrees with the Authority's contract terms and conditions as stated in its May 4, 2015 Request for Proposals (RFP 42022).

APPENDIX A

RESUMES

LEA ELLIOTT

APPENDIX A: RESUMES

LEA ELLIOTT

RUSSELL E. GREEN, P.E. | AirTrain Project Manager, Lead: AirTrain Systems Lea+Elliott, Inc. Associate Principal

EDUCATION
B.S., Civil Engineering,
Clemson University

HISTORY OF EMPLOYMENT:
Lea+Elliott, Inc.
1995-Present

Booz Allen Hamilton
1994-1995

ABB Traction, Inc.
1990-1993

LICENSES / CERTIFICATES:
Professional Engineer:
NJ, NY, WV, VA, CA

YEARS OF EXPERIENCE:
25

Mr. Russell Green has over 25 years of experience in transit vehicle and system procurement, design, manufacture, fabrication, testing, commissioning and contract compliance. Throughout his career, Mr. Green has worked for public transit and airport authorities in planning, procuring and implementing new and refurbished transit vehicles and systems, including APM, light rail transit, streetcar, rapid transit, commuter rail and locomotives. With over 20 years of experience in vehicle and systems engineering. Mr. Green can address virtually all aspects of a project from a place of knowledge and experience. Mr. Green recently oversaw Lea+Elliott's work on two of the larger APM projects-the APMs at San Francisco International Airport and at Washington Dulles International Airport. Currently, Mr. Green is the Principal-In-Charge and responsible for overseeing project delivery for Lea+Elliott's AirTrain Newark As-Needed O&M Service and On-Call Engineering contracts and is the vehicle engineer for Lea+Elliott's two major automated urban rail projects.

Washington Dulles International Airport AeroTrain | Project Manager

Mr. Green was the Project Manager of a multi-disciplinary team who provided technical and procurement assistance to the Washington Metropolitan Airports Authority (MWAA) for the planning, procurement, and implementation of an APM System at Dulles International Airport. He began his work during the preliminary design and development of the APM system definition and preliminary engineering tasks. Additionally, Mr. Green coordinated the interface activities with the APM fixed facility designers to insure the work was compatible and consistent with the requirements of the APM procurement documents and ultimate supplier. During the design and construction phases, Mr. Green managed the design review of the APM and related fixed facilities, interface management between the systems work and facility work, and provided oversight of the overall system construction and testing and demonstration.

Mr. Green is currently leading a multiyear assignment assisting MWAA in the administration and monitoring the O&M contractor's compliance with the contract requirements. This includes auditing scheduled maintenance and overhauls, management of spare parts, personnel training, analysis of equipment failures, system availability, and safety/security oversight.

AirTrain-Newark Operation and Maintenance Contract Oversight and On-Call Engineering | Principal-in-Charge

Mr. Green oversees the on-going operation and maintenance oversight support and on-call engineering contracts to the PANYNJ for the AirTrain Newark. Oversight support include: review of Engineering Investigation Reports, design/field change requests and other technical submittals; conduct performance, safety, requests and other

LEA+ELLIOTT

RUSSELL E. GREEN, P.E.
continued

quality, and contract compliance audits.

San Francisco International Airport AirTrain | Project Manager

Mr. Green was the lead Project Engineer and Project Manager of a multi-disciplinary engineering team responsible for preliminary engineering, system design, and site testing for the APM system at San Francisco International Airport. Among other tasks, Mr. Green was responsible for comprehensive planning, conceptual and preliminary engineering, systems integration, preparation of DBOM contract documents, bidding assistance, proposal evaluation, contract negotiations, and DBOM Contract Management. Construction responsibilities included managing the implementation of all APM interfaces with Airport landside operations and managing the design review and implementation of all APM interfaces with guideway, stations, utility, and maintenance facility contracts and managing the system site testing. The system opened for passenger service in March of 2003.

Honolulu Rail Transit | Vehicle Engineer

Lea+Elliott is a key member of the Program Management team for the City of County of Honolulu as they plan, procure and implement the first phase of a regional rapid transit system that is 20 miles long. During the design phase, Mr. Green served as the primary reviewer on the design submittals for the vehicles and is contributing on the integration efforts for the related wayside systems for this new the transit system.

Confidential Middle East Urban APM | Lead Vehicle Engineer

Mr. Green is the lead vehicle engineer on this confidential urban rail transit project and conducts monthly engineering reviews, manufacturing audits, and qualification testing at Ansaldo Breda's manufacturing facilities in Italy.

Hartsfield-Jackson Atlanta International Airport SkyTrain | Principal-in-Charge

Lea+Elliott provided APM systems expertise for the new APM that connects the terminal building to a new convention center and Consolidated Rental Car facility. Lea+Elliott conducted system planning and lead the preparation of a facilities design criteria manual. The team prepared performance specifications, contract documents, and reference drawings for the APM operating system, guideway structure, and maintenance facility and assisted with the preparation of the Request for Qualifications and the Request for Proposals. Lea+Elliott provided design review and oversight services during construction/implementation of the APM. It successfully began operation in December 2009. Mr. Green led Lea+Elliott's role in the construction management and engineering work for the SkyTrain and several other transit projects at the Airport.

LEA ELLIOTT

DAVID M. CASSELMAN, AIA | Principal-in-Charge, Lead: AirTrain Planning & System Definition Lea+Elliott, Inc. Principal

Education:
Bachelor of Architecture (5 year), Kansas State University

History of Employment:
Lea+Elliott, Inc.
1988-Present

Royal International Optical Corporation
1986-1988

Dallas/Fort Worth International Airport
1979-1986

Licenses / Certificates:
Registered Architect – AZ, KS, MN, OH, TX, UT, NCARB

Years of Experience:
38

Mr. David Casselman is widely recognized as one of the transportation industry's most experienced professionals, having 38 years of experience providing planning, design and program management services for APM and rail projects at airports and urban areas worldwide. He is a registered architect with expertise in the planning and design of APMs, transit systems and rail access for airports. Mr. Casselman has led the planning, design and implementation of APMs, transit systems and rail access at 37 major airports, including 21 U.S. and 16 international airports. He developed the original concept for the DFW Airport Skylink APM system, the world's largest airport APM system, and then served as Principal-in-Charge for the Skylink design, procurement, implementation, and commissioning.

Mr. Casselman worked on the original design and implementation of the AirTrain Newark from 1988 through the early 1990s, and most recently, he led Lea+Elliott's work on the AirTrain Study which developed and evaluated alternatives for the replacement of the current AirTrain Newark system.

Newark Liberty International Airport AirTrain Study | Principal-in-Charge

Lea+Elliott assisted the Port Authority of New York & New Jersey (PANYNJ) with the AirTrain Newark Study. The Study evaluated alternatives for the replacement of the current AirTrain system. Mr. Casselman led the Lea+Elliott team that developed and evaluated various options for replacing the existing AirTrain. The work included a condition assessment of the existing system, identifying various alignments and phasing alternatives for a replacement system that would be compatible with the phased redevelopment of the terminal area and identifying the feasibility and costs of each alternative.

Newark Liberty International Airport AirTrain | Project Manager

Mr. Casselman provided planning and facilities design and coordination for the original AirTrain Newark system, including station planning and design criteria, maintenance and control facility layout, station and guideway interface, guideway alignment criteria and configuration, system performance analyses, system cost analyses, and technology assessment. Mr. Casselman then assisted in the development of procurement documents for the AirTrain System and evaluation of supplier proposals and design submittals.

Phoenix Sky Harbor International Airport PHX Sky Train® | Principal-in-Charge

Phoenix Sky Harbor Airport implemented a new APM that connects parking, terminals and the regional light rail system, and will ultimately connect to the rental car facility. Lea+Elliott was selected to serve as the APM System Designer with a program management role that included oversight of the planning, design, procurement

LEA ELLIOTT

DAVID M. CASSELMAN, AIA
continued

and implementation phases of Stage 1 and 1A of the project. Mr. Casselman led the planning and conceptual design of the new PHX Sky Train® system. The work included alternatives analysis, alignment feasibility analysis, ridership forecasting, operational and level of service analysis, development of technical design criteria, and preliminary design.

Dallas/Fort Worth International Airport Skylink | Principal-in-Charge

DFW Airport's Skylink APM, the world's largest airport APM system, serves as the primary mode of secure transportation between the separated terminal buildings. This project required the construction of new infrastructure and fixed facilities as well as the purchase of 64 new cars configured as 32 married-pair vehicles and control equipment for operating the trains. Mr. Casselman oversaw the master planning, design, procurement document development, and implementation of the elevated Skylink APM. He developed the initial concept for the Skylink, allowing the transformation of the airport into a world class transferring hub, while retaining the convenience of an excellent origination/destination airport. He led the overall program for Lea+Elliott in our role as prime consultant for Skylink.

George Bush Intercontinental Airport TerminaLink | Principal-in-Charge

Lea+Elliott was involved with the Houston Airport's TerminaLink from its inception in the mid-1990s to its ultimate Phase 3 extension in 2010. Mr. Casselman oversaw Lea+Elliott's services for the planning, design, procurement, and implementation of the Phase 1 APM system, followed by the Phase 2 and Phase 3 extensions. He led the interaction between Continental Airlines, Houston Department of Aviation and other project team members. Phase 2 extended the APM to serve the new International Terminal Complex. His responsibilities included the formation of the APM team including Lea+Elliott staff and subconsultants to design the system, station, maintenance facility, and guideway for the APM. For Phase 3, Lea+Elliott provided system design, procurement and installation oversight of all system technology elements services.

Dallas Love Field Airport APM Feasibility Study | Principal-in-Charge

Mr. Casselman oversaw the feasibility study of a new APM at Dallas Love Field Airport. The study evaluated the most efficient method of conveying passengers from the adjacent DART light rail station into the airport terminal area. Tasks included the evaluation of potential alignments; transportation technology assessment; environmental impacts; station concept and interface planning; facilities design criteria; funding sources; procurement methods; tunneling methods and cost and schedule considerations. The culmination of these tasks formed the basis of the evaluation criteria to determine the feasibility of implementing an APM system as a means to convey passengers between the DART light rail station and Love Field terminal building.

LEA ELLIOTT

LYNDA TOLLNER, P.E., PMP | Deputy Project Manager

Lea+Elliott, Inc. Manager of Engineering Projects

Education:
Bachelor of Architectural Engineering, The Pennsylvania State University

History of Employment:
Michael Baker Engineering, Inc.
2012-Present

The Port Authority of New York & New Jersey
2002-2012

Maitra Associates, PC
1999-2002

Amman & Whitney
1997-1999

Edwards and Kelcey, Inc.
1993-1997

Licenses/Certificates:
Professional Engineer: NJ, NY

Project Management Professional

Years of Experience:
31

Ms. Lynda Tollner is a registered engineer and certified project management professional with more than 30 years of experience managing large capital programs and construction projects in the aviation and transportation industries. Her expertise includes supervising professional engineering and construction teams, providing accountability for scope/schedule/budget, and coordinating design and construction efforts with internal and external staff and consultants. Formerly a Program Manager with the PANYNJ, Ms. Tollner was responsible for the Newark Liberty and Teterboro Airport's Capital Major Works Programs, valued at $18 million annually.

Newark Liberty International and Teterboro Airports Capital Major Works Program | PANYNJ: Program Manager

Ms. Toller provided oversight and direction to project managers with responsibility for projects at Newark Liberty International and Teterboro Airports The project construction values ranged from $50,000 to $13 million. Her key activities entailed development and management of staffing and construction budgets, interfacing with staff and clients during project cycle, meeting project milestones and delivery dates, providing accurate reporting to client and upper management staff, and supervision and mentoring of project managers.

Newtown Creek Water Pollution Control Plant | Michael Baker Engineering: Construction Manager

Ms. Tollner is providing Construction Management Services for a joint venture, including Project Management and Resident Engineering Inspection services, in connection with NYCDEP Construction Contracts totaling over $1.2 Billion in construction costs. The plant is the largest of NYC's 14 wastewater treatment plants and is undergoing a major capital improvement and upgrade program to expand its intended capacity from 310 MGD to 700 MGD. Process improvements will result in dramatic reductions of biochemical oxygen demand (BOD), and will help bring NYC into compliance with the secondary treatment standards required under the Clean Water Act. Ms. Tollner is responsible for construction management services for four major projects comprised of 12 construction contracts involving new facilities, installation of process equipment, renovation of existing facilities, a new sludge loading dock and maintenance dredging of Newtown and Whale Creeks. She is directly responsible for up to 75 on-site construction management, resident engineer, construction inspection and safety staff.

One World Trade Center (The Freedom Tower) | PANYNJ: Program Director

Ms. Tollner provided project executive direction for the construction of the $3.1 billion tower standing 105 stories with 2.6 million square feet of office space. She reported to the Director of World

LEA ELLIOTT

LYNDA TOLLNER, P.E., PMP
continued

Trade Center Construction and provided oversight to 110 Tishman construction management staff, 18 Port Authority and consultant program management staff, 15 design consultant firms including SOM, JB&B and WSP Cantor Seinuk, 60 trade contracts with over a thousand subcontractors and vendors. She was responsible for all aspects of delivery of the project on schedule, scope and budget. She provided direction to project control staff for analysis and reporting of project risks, budgets and schedules. Interface with The Durst Organization, a part owner and future operator of One World Trade Center, to implement their requested design changes to various elements of the building as well as tenant change requests.

World Trade Center Construction – Site Infrastructure | PANYNJ: Deputy Program Director
Ms. Tollner provided oversight and direction to project managers with responsibility for $700 million Vehicle Security Center and $254 million Streets, Utilities and Infrastructure programs. Her key activities included management of in-house staff, consultants, budgets and project deliverables. Interface with large number of stakeholders for other WTC projects and various agencies including LMCCC, LMDC, City of New York, NYSDOT, BPCA, NYCDEP, and MTA.

LGA Aircraft Rescue and Fire Fighting Facility / LGA East End Roadways 102nd Street Bridge | PANYNJ: Engineering Project Manager
While working with the PANYNJ, Ms. Tollner was responsible for various projects at LaGuardia Airport including a new rescue and fire fighting facility, roadway modifications, bridge rehabilitation and various building modifications. She provided service to line department for assessment of needs, identification and resolution of problems and delivery of projects within budget and schedule. Ms. Tollner maintained client relationships, managed in-house and consultant design staff and coordinated with other city and state agencies.

Newark Airport Terminal B Structural Renovations | Maitra Associates: Project Manager
Ms. Toller was responsible for various multi-discipline projects running concurrently. Various Port Authority projects include new executive offices, new office space at the Lincoln Tunnel, and the Bus Terminal, steel repairs at the Outerbridge Crossing, various PATH repairs, a new vault building for PATH, and structural renovations at Newark Terminal B. Her responsibilities included supervising a multi-disciplined staff to complete projects within time and budget goals, providing point of contact for clients, coordinating with outside architects, evaluating scope and writing proposals for new work, and reporting to the company president.

LEA+ELLIOTT

JOHN C. GRADDY, P.E. | Lead: AirTrain Facilities

Lea+Elliott, Inc. Associate Principal

Education:
B.S., Civil Engineering, The University of Texas, Austin

M.S., Engineering, The University of Texas, Austin

History of Employment:
Lea+Elliott, Inc.
2000-Present

Charles F. Terry, Inc.
1981-1999

Licenses / Certificates:
Professional Engineer: TX, IL

Years of Experience:
34

As one of Lea+Elliott's systems and infrastructure interface specialists, Mr. John Graddy has over 30 years of hands-on experience integrating transit systems into airport and urban environments. Mr. Graddy leads activities related to fixed facility interface definition and design coordination and development of transit system guideway and alignment concepts and designs that satisfy technology-specific constraints. His experience also includes design of all types of bridge and building structures, construction and project management, interface coordination with adjacent projects and area master plans to ensure project compatibility with near-term and long-term goals. He has in-depth knowledge of the planning and construction of APM system guideways, with full understanding of the requirements for operations, vehicle, power, safety, signaling, and controls; and has supported development of initial and cutover plans for system expansions, modifications, and integration into new and built environments. Throughout his career, Mr. Graddy has worked closely with facilities design teams to define and coordinate system requirements and integrate them with final facilities designs.

Chicago O'Hare International Airport ATS Systems & Vehicle Procurement Support | Fixed Facilities Specialist
Chicago's Department of Aviation is expanding the current Airport Transit System (ATS) to a new consolidated rental car facility and connection to regional rail. The ATS expansion includes the procurement of systems and vehicles, including the replacement and expansion of the ATS vehicle fleet and maintenance and storage facility, guideway extension to a new ATS station, replacement of the ATC system, and other related work. Mr. Graddy developed preliminary alignment geometries for the guideway extension to the new station and coordinated with the facilities preliminary design teams and the PMO to define ATS interface and design requirements for the new ATS station, guideway and maintenance and storage facility expansion. He developed portions of the procurement documents and worked with the PMO to advance and refine facilities designs developed in the preliminary facilities design effort. He also evaluated aspects of the APM supplier's Technical Proposal and participated in negotiations with the APM supplier.

Confidential Middle East Urban APM | Project Manager
This project involved the planning, design, construction, and testing of an APM system in the Middle East. Mr. Graddy provided facilities design criteria for all APM-related facilities and coordinated with the facilities designer to develop conceptual designs suitable for tendering purposes. He managed the development of Procurement Documents and the review of Tenders submitted in response to the request for Tenders. He coordinated system interfaces and design requirements with the Operating System supplier and the facilities designers and managed the oversight of Operating System design and implementation work.

LEA ELLIOTT

JOHN C. GRADDY, P.E.
continued

Phoenix Sky Harbor International Airport Sky Train® | Fixed Facilities Specialist
Phoenix Sky Harbor International Airport implemented an APM that connects parking, terminals and the regional light rail system, and will ultimately connect to the rental car facility. Mr. Graddy reviewed proposed alignment and recommended refinements to optimize overall system performance, provided conceptual APM facilities design criteria and prepared the facilities design criteria used during facilities design development. He worked with facilities designers to integrate APM system requirements into designs for all APM facilities, including stations, guideways, tunnels, propulsion power substations, and the Maintenance and Storage Facility. He also worked with the APM contractor and facilities design team to resolve unique design and construction challenges.

George Bush Intercontinental Airport / Houston TerminaLink Phase 2 | Fixed Facilities Specialist
After being heavily involved in the infrastructure planning, design and implementation of the initial phase of the TerminaLink system, Mr. Graddy prepared guideway and facilities design criteria, interface requirements and other APM-related aspects of the International Services Expansion Program (ISEP) Criteria Document, which defined all aspects of the ISEP and was used as the design basis by all design teams working on the ISEP program. He assisted in the conceptual design development of the proposed off-line maintenance and storage facility and developed options for future uses of the existing on-line maintenance facility. Mr. Graddy assisted in the development of guideway, station and maintenance facility construction schedules and budgets and worked with the ISEP Team to define construction phasing requirements. He also evaluated aspects of the APM supplier's Technical Proposal and participated in negotiations with the APM supplier.

London Gatwick International Airport Terminal Transportation Study | Fixed Facilities Specialist
As part of a comprehensive evaluation of the Inter Terminal Transit System (ITTS), Mr. Graddy reviewed the existing condition of the ITTS guideways and related infrastructure, and reviewed historical structural inspection and assessment reports. He met with operations and maintenance personnel to discuss problems experienced with the existing system and their desires for the future of the ITTS; assessed the viability of adapting the existing guideway and station platform facilities to other APM system technologies; developed structural concepts and budgetary cost estimates to modify the existing guideway infrastructure to accommodate several APM technologies; and managed the preparation of Reference Drawings for the competitive APM procurement to upgrade and modernize the ITTS; and participated in a station design charrette to identify potential impacts to the airport and ITTS operations that would occur during implementation of ITTS modernization program.

LEA ELLIOTT

LARRY COLEMAN | AirTrain Planning & System Definition

Lea+Elliott, Inc. Senior Associate

Education
B.S., City Planning, University of Massachusetts, Amherst

M.S., City and Regional Planning, Rutgers University

History of Employment:
Lea+Elliott, Inc.
2006-Present

Leigh Fisher Assoc.
2001-2006

Bechtel Corporation
1993-2001

Boston Logan International
1980-1993

Central Transportation Planning Staff
1977-1980

Years of Experience:
38

Mr. Larry Coleman is a Senior Associate with Lea+Elliott and has more than 30 years of experience in transportation planning specializing in transportation systems and airports. During his 13 years at Boston Logan International Airport he served in various staff and management positions, finishing his tenure there as Assistant Director of Aviation with a focus on ground access, environmental assessment. During his 8 years at Bechtel, Mr. Coleman served at Miami International Airport as Project Planner for Roadway and Parking Improvements, Project Manager for Strategic Terminal Planning and Project Manager for a new landside APM that will link the main terminal with a new intermodal center. During his 5 years with Leigh Fisher Associates at rapidly growing Fort Lauderdale-Hollywood International Airport he managed the Master Plan Update and the 2020 Vision plan which includes an intermodal center and people mover connecting between the airport and nearby seaport. Since joining Lea+Elliott he has been involved with to people mover projects and studies at Miami International Airport, Atlanta Hartsfield-Jackson International Airport and the City of Pittsburgh.

Newark Liberty International Airport AirTrain Study | Project Planner
Mr. Coleman participated on the Lea+Elliott team that investigated various options for replacing the existing Airtrain system at EWR. The work included a condition assessment of the existing system, identifying various alignment and phasing alternatives for a replacement system that would be compatible with the phased redevelopment of the terminal area at Newark and identifying the feasibility and costs of each alternative. At the conclusion of the evaluation Lea+Elliott presented a recommended timetable for initiating the procurement of an APM replacement system.

MIA Mover | Project Manager
As Project Manager, Mr. Coleman led the technical coordination with multiple projects including tasks related to the scheduling, phasing, system-wide assessment of impact of selected alignment, evaluation of applicable technologies, development of guideway supports, fixed facility criteria, updates to the ridership analysis and interfaces to ensure compatibility of the fixed facilities with the system requirements. Bechtel Corporation: While with the Bechtel Corporation, Mr. Coleman served as Project Manager during the planning and conceptual design phases. System planning involved the preparation of ridership forecasts, assessment of the APM system technology and requirements, definition of the alignment for the APM guideway, station program requirements and interfaces between APM guideway and stations and the MIA roadway and terminal facilities and the preparation of conceptual plans and cost estimates for all system elements.

LEA+ELLIOTT

LARRY E. COLEMAN
continued

Fort Lauderdale-Hollywood International Airport / Port Everglades APM and Intermodal Center | Project Planner
Mr. Coleman provided technical support on Lea+Elliott's preparation of a Project Development and Environmental Study (PD&E) for a proposed Intermodal Center (IMC) and APM. The APM would link the terminals at Fort Lauderdale-Hollywood Airport with other regional transportation systems at the IMC and the cruise ship terminals at nearby Port Everglades. Lea+Elliott assessed alternative system alignments and facility interfaces, preparing ridership, cost and revenue projections and assessing the ability for the owner to financially support the project with locally generated funds versus Federal, State and other external sources. The locally preferred alternative included transit system configurations approximately 5 miles long that exceed $1.3 billion in capital costs and provide a connection between the Airport, the Seaport and to Regional Transit modes through the IMC.

LAX Landside Access Modernization Program | Project Manager
Mr. Coleman is leading the evaluation of alternative approaches for addressing access/egress improvements to the LAX Central Terminal Area (CTA); strategies include an Intermodal Transportation Facility, a Consolidated Rental Car Center and connectivity to the LA Metro system. Work efforts include prioritization of various LAX facilities and operational needs, and their inter-relationship to and dependency on the ground conveyance system – which considers development of phasing plans tied to development/improvement triggers and a cost/benefit evaluation tied to improvements to operations, access as well as phased return on investment evaluations. Mr. Coleman is also investigating strategic opportunities for LAWA consideration to implement these ground access improvements through associated development and various project structuring and financing options.

Tampa International Airport APMs | Project Manager
Mr. Coleman led the planning and feasibility assessment of a landside APM System that will connect the Main Terminal Building to the multi-use South Development Area that will include a ConRAC, remote parking garage, employee parking, intermodal transfer facility and related hotel/commercial activities. The resulting system plan features 1.3 miles of dual guideway, three passenger stations and an off-line maintenance and storage facility with provisions for future extensions to an air passenger terminal to the north and a regional intermodal center to the south. Lea+Eliott identified APM technologies that could connect these functions, evaluated a series of alignment alternatives and identified locations for passenger stations and a maintenance facility. For the preferred plan, Lea+Elliott then simulated system operations, identified fleet requirements to accommodate projected levels of ridership, defined interface requirements for guideway, prepared cost estimates for the APM operating system and lastly, identified various approaches for procuring the APM operating system under a DBOM arrangement.

Education:
Master of Urban Design and Planning, Pratt Institute

Bachelor of Architecture, L.S. Raheja School of Architecture, India

History of Employment:
Port Authority of NY & NJ (2008-2014)

Louis Berger Group (2003-2008)

Continental Airlines (1999-2003)

TWA Airlines (1992-1999)

Licenses / Certificates:
Registered Architect, Council of Architecture, India 1987

Years of Experience:
25

KIRAN MERCHANT | AirTrain Planning - Terminal & Airport Master Planning DY Consultants, CEO

Mr. Kiran Merchant has over 25 years experience in aviation planning, design and construction management in large-scale aviation projects. He is highly experienced in leading complex aviation capital projects from inception through completion, while balancing operational efficiency, level of service and business/financial viability of airport development projects. He has worked at more than 50 airports around the world, including several major airlines and leading aviation consulting firms. Prior to joining DY Consultants, Mr. Merchant led the Aviation Planning Division at the Port Authority of New York & New Jersey, one of the busiest airport systems in the world. In this role, he was responsible for planning all short-term and long-term development needs for each of the Port Authority airports. His ability to lead large, complex operations, achieve objectives, provide strategic and tactical solutions, while increasing efficiency and revenue has made him a trusted advisor to his peers.

Airport System Strategic Vision Plan | Port Authority of NY & NJ: Chief of Aviation Planning
Mr. Merchant led a study to develop a Strategic Vision Plan for each of the Port Authority's five airports, including a plan to identify "System-Wide Capacity Enhancement Alternatives" with combinations of airfield and airspace improvements at all five Port Authority airports. He reviewed existing system characteristics and constraints and performed an analysis to identify potential future capacity requirements and constraints. The study Identified and evaluated potential alternatives to meet the Authority's Goals and Objectives in consideration of existing constraints and current facility characteristics. He Reviewed and validated the use of other airport alternatives to shift demand from JFK, LGA, and/or EWR to outlying airports. At the conclusion of Phase 1 of the study, it was proposed two new runways (one each at JFK and EWR) for further development.

Airport Terminal Refurbish/Replacement Projects | Port Authority of NY & NJ: Chief of Aviation Planning
Mr. Merchant conducted major terminal planning studies to replace aging facilities at two of the nation's busiest airports. He led the LGA Redevelopment Team to develop a master plan, and conceptual terminal plans for replacement of Central Terminal Building which is a $3.7 billion Capital Project to improve airside operational efficiency and resolve passenger-processing challenges within the Terminal facility. The 2 billion Newark project included a proposed replacement of existing Terminal A with 45 new gates in a Next Gen Airport Terminal, and redevelopment of the south side of the airport to address balanced growth in airside, terminal and landside activities.

Central Terminal Area Redevelopment Plan | Port Authority of NY & NJ: Chief of Aviation Planning
A comprehensive redevelopment plan to complete CTA development

KIRAN MERCHANT
continued

to meet landside and terminal capacity

- Terminal 8/Parcel M Phase II development to accommodate "One World" airlines
- Terminal 5/6 development with FIS facilities to meet JetBlue domestic and international demand
- Terminal 4 expansion to accommodate Delta Airline growth and demolition of Terminal 3 to accommodate more Hardstand demand during peak operation. Airport Hotel Development as an Adaptive Reuse of the TWA – Eero Sarrinen Terminal.
- Terminal B Modernization Project | Port Authority of NY & NJ: Director of Terminal Planning and Development
- Developed and prepared a modernization program for Terminal B, to improve customer service and operational needs
- Design included a new domestic arrivals hall, new domestic departures area and an improved international ticketing lobby with new vertical circulation cores

Newark Liberty International Airport Global Gateway Project |
Continental Airlines: Senior Project Manager

Terminal A2 and C3 President's Club (Project Budget $50MM)

- One of highest-profile projects in the Global Gateway Program for the premium passengers.
- Coordinated design development and construction activities with a special care towards interior details and high-end finishes for this 20,000 square foot club (the largest in the system)

Terminal A Refurbishment Project (Project Budget $200MM)

- Redeveloped multi-tenant facility, managing every aspect of design and construction without compromising airport operations.
- Implemented Continental, Air Canada, US Airways, United Airlines and TWA's facilities requirements with a very aggressive schedule and a tight budget
- Managed Port Authority/Airlines Relifing program to improve both aesthetical appearance and the infrastructural needs of Terminal A.
- Optimize on and off airport land use to maximize revenue and enhance operational efficiencies

Terminal C Baggage Handling System (Project Budget $100MM)

- Managed design, phasing and implementation of the complete replacement of both inbound and outbound baggage handling systems with state-of-the-art technology
- Coordinated design and construction of TSA checked baggage screening

LEA ELLIOTT

JEFFERSON H. DAVIS, P.E. | AirTrain Systems

Lea+Elliott, Inc. Senior Associate

Education
B.S., Electrical Engineering, University of Texas, Arlington

History of Employment
Lea+Elliott, Inc.
1990-Present

Matra Transit, Inc. (now Siemens Transportation Group)
1988-1990

Dallas/Fort Worth International Airport
1982-1988

US Air Force
1979-1983

Registrations
Professional Engineer: TX, WA

Years of Experience:
33

Mr. Jeff Davis has 28 years of extensive professional experience in the design, installation, testing, maintenance and program management of transit systems. His area of expertise is power distribution including substations, equipment along the guideway such as power rails and heating equipment, and station housekeeping; vehicle electrical systems; electronic systems integration; audio and video communications; Automatic Train Control; system acceptance testing; Maintenance Management Information Systems; and Operations & Maintenance activities and procedures.

Newark Liberty International Airport AirTrain | Project Engineer
Mr. Davis participated in the system design reviews for ATC, power distribution control, supervisory, and communications subsystems. He provided technical expertise for the implementation of the automated monorail system supplied by Adtranz (now Bombardier). He was also involved in compliance verification, including test and acceptance activities leading to system startup and public service.

Washington Dulles International Airport AeroTrain | Senior Engineer
Mr. Davis served as a key participant in the production of the reference drawings for the entire APM system and alignment, which included stations, tunnels, and maintenance and storage facilities. He provided technical support during the design of the system and for the communications, traction power and train control subsystems during the construction phase. Mr. Davis has also been participating in the year-long testing and commissioning phase.

Dulles Corridor Metrorail Project - Silver Line | Project Engineer
Mr. Davis served as a key participant in this Design-Build (DB) project to extend the WMATA Metrorail system 23 miles from West Falls Church to Loudoun County. Mr. Davis served on the MWAA Program Management team as the technical lead for the review of all communications related specifications and designs, and provides ongoing support for the communications and power distribution specifications and designs.

George Bush Intercontinental Airport/Houston TerminaLink Phases 1 and 2 | Project Engineer
Mr. Davis provided technical support during the implementation phase of the George Bush Intercontinental Airport TerminaLink APM system supplied by ADtranz. He participated in the system planning, and supplier design reviews for the automatic train control, power distribution, supervisory, and communications subsystems. He also monitored system verification, and system acceptance testing activities. Mr. Davis served as a key participant in the system planning, and supplier design reviews for the communications and power distribution subsystems.

LEA ELLIOTT

JEFFERSON H. DAVIS, P.E.
continued

Confidential Middle East Urban APM | Engineering Manager
This project involves the planning, design, construction, and testing of a 7-mile, 14-station, multi-route Automated People Mover system in the Middle East. As an Operating System specialist, Mr. Davis performed reviews of the Power Distribution System, Telecommunications System, and SCADA System. As an engineering manager Mr. Davis reviewed, approved, and witnessed system tests conducted by the contractor. Mr. Davis conducted the weekly testing and commissioning coordination meetings.

Confidential Middle East Airport APM | Testing & Commissioning Manager
This project involves the planning, design, construction, and testing of a 1-mile, 2-station, APM at an airport in the Middle East. As an Operating System specialist, Mr. Davis performed reviews of the Power Distribution System, Telecommunications System, and SCADA System. As the testing and commissioning manager Mr. Davis reviews, approves, and witnesses system tests conducted by the contractor. Mr. Davis conducts the weekly testing and commissioning coordination meetings.

MIC-Earlington Heights Connector "AirportLink" | Project Engineer
Lea+Elliott led the systems engineering aspects for this 2.3-mile-long rapid transit system extension to Miami's new Intermodal Center. Mr. Davis was a key participant during the initial planning of the system, providing technical expertise in the areas of audio/video/data communications, power distribution, and supervisory subsystems. In this role, he developed the Technical Provisions for the supervisory and audio/video/data communications subsystems. He also wrote the specifications for the extensions to the existing communications systems and reviewed the specifications and designs for the power distribution system.

Sea-Tac International Airport Satellite Transit System (STS) Replacement/Refurbishment | Project Engineer
Mr. Davis participated as lead reviewer in the system design reviews for the Power Distribution System (PDS), supervisory, Control and Data Acquisition (SCADA), and communications (audio, video, and data) subsystems. Mr. Davis also participated as reviewer in the system design reviews for the ATC subsystem and provided technical expertise and design submittal reviews during the implementation phase.

LEA ELLIOTT

DANNY CUNHA | AirTrain Systems

Lea+Elliott, Inc. Manager of Engineering Projects

Education
B.S. Electrical Engineering Technology, Ryerson Polytechnical Institute

History of Employment:
Lea+Elliott, Inc.
2010 - Present

Bombardier Transportation, Inc.
2001-2009

GE Harris Harmon Railway Technology, LLC.
2000-2001

Alcatel Transport Automation, Inc. 1996-2000

MITS Hospitality Systems, Ltd. 1993-1996

Years of Experience:
27

Mr. Danny Cunha has 27 years of professional experience in the transit and railway industry in progressively responsible positions from engineering to management. He has significant expertise in various automated train control technologies, signalling, communications, traction power, vehicle propulsion and electrical systems, and rail transit systems. Mr. Cunha also has an extensive background in project management, systems integration-testing, RAMS analysis and MMIS process, installation oversight, design review, procurement strategies, systems engineering, quality assurance, O&M management, system safety and security compliance and contract administration. He demonstrated success in managing project activities to completion, on time and within specified budgets.

Toronto Metrolinx Program Management | Project Manager/Senior Systems Engineer
Mr. Cunha currently serving as Project Manager and Senior Systems Engineer providing technical oversight in systems engineering and support in project delivery (valued at $8.4B). Mr. Cunha's responsibilities include preliminary design development, design reviews, DBFOM/P3 procurement process, systems integration analysis, project and O&M cost estimates, operations and maintenance analysis, operating cost development, engineering deliverables compliance and system evaluation of the traction power and substations, LRV vehicles system, overhead catenary system, automated train control and signaling, communications and other mechanical and electrical elements of the program. He works to establish interface requirements between Systems elements, facilities design and vehicle systems during design process and Performance-Based Technical Specification development.

Washington Dulles International Airport AeroTrain | Project Engineer
This project consisted of the planning, design, construction, and testing of a self-propelled airside Automated Guideway Transit system linking current and future concourses with the main terminal. Mr. Cunha provided project engineering support in the review of the safety analysis and system safety certification for final acceptance for the Metropolitan Washington Airports Authority on the Dulles Automated People Mover (APM) System. Mr. Cunha served as the Safety/Security Oversight Consultant (SSOC) reviewing the Dulles APM system safety and security compliance to relevant policies, procedures, regulatory requirements and quality standards.

Confidential Middle East Urban APM | Project Engineer
This project involved the planning, design, construction, and testing of an APM system in the Middle East. Mr. Cunha participated in the evaluation of the Contract Data Requirements List (CDRL) submittals for the vehicle safety/hazard analysis and safety case, including the reliability, availability, maintainability and safety (RAMS) plan and MMIS process for a confidential 14-station, multi-route APM

LEA ELLIOTT

DANNY CUNHA
continued

system in the Middle East – supplied and installed by a consortium of AnsaldoSTS and AnsaldoBreda.

Sacramento International Airport Big Build | Project Engineer
The Sacramento International Airport $1B expansion project consisted of an APM system with two 2-car trains serving two stations on an elevated guideway (valued at $30M). Mr. Cunha served as Project Engineer providing technical assistance and evaluating CDRL submittals, documentation and test procedures related to the automated train control, communications, central control operations, passenger vehicle system, operations and maintenance plan, RAMS plan and power distribution system – supplied and installed by Bombardier Transportation.

San Francisco International Airport AirTrain | Bombardier: Project Manager
Mr. Cunha managed the project activities and provided technical/engineering support during the start-up and operations phase of the San Francisco International Airport (SFO) - AirTrain Operating System which offers a radio communication fiber-optic based automated train control (ATC) system with a 38-vehicle fleet serving nine stations along six miles of elevated guideway and a power distribution system. He was fully responsible for long-range planning, budgeting, cost projection and monitoring expenditures. Mr. Cunha's additional responsibilities included:

- Overseeing and leading a team of 70 union/non-union professionals to drive the overall day-to-day operations and maintenance requirements meeting safety, customer service, availability, and budget goals.
- Conducting system integration design, test engineering and design review for the radio distribution system interface, ATC communications, power distribution and passenger vehicle system to meet functional requirements and specifications.
- Instrumental in redesigning and implementing the radio communication system and revising schematic drawings and control circuit documents to reflect as-built configuration.
- Reviewing engineering test results by investigating and analyzing system failures, providing recommendations for performance improvement, utilizing RAMS analysis and MMIS process.
- Developing design changes, revisions to control circuit schematics and engineering tests for the ATC, traction power and vehicle system to improve equipment performance and ensure system expectations are met.
- Providing technical assistance in the systems development, together with systems integration, testing and commissioning of the automated transit system.

HNTB

DONALD FRAM, FAIA | AirTrain Facilities - Stations

HNTB, Aviation Architecture Studio Leader

Education:
BArch, Architecture, Pratt Institute
BA, Psychology, Hamilton College

History of Employment:
HNTB
2014 – Present

Port Authority of New York and New Jersey
1982 – 2013

Licenses / Certificates:
Registered Architect
NY, NJ, DE

Fellow, American Institute of Architects

National Council of Architectural Registration Boards
Certificate #49165

Years of Experience:
33

With 33 years of experience, Mr. Donald Fram has led a significant amount of projects throughout New York and New Jersey. A former chief architect at the Port Authority of New York and New Jersey, he was responsible for managing a staff of 50 design professionals and consultants delivering architectural, landscape and graphic design services for a wide range of transportation projects while promoting the importance of stewardship, design excellence and sustainable design within the public realm. His project experience includes:

Newark Liberty International Airport Northeast Corridor AirTrain Terminal | Assistant Chief Architect
Assistant chief architect responsible for design management of design team for station expansion, interior fit out, including finishes, passenger amenities, off-site baggage check-in terminal information and signage system, for gateway terminal is located 1.5 miles off airport along the northeast corridor rail right-of-way.

Newark Liberty International Airport AirTrain Newark | Project Task Leader
Project task leader responsible for preliminary design and planning for airport transit system, including seven stations, a maintenance facility and approximately two miles of elevated guideway.

PATH Extension to Newark Liberty International Airport Program Management | Architect/Senior Advisor
Architect/senior advisor responsible for the site planning/transit oriented development and station/facility design. HNTB is currently providing program management services to PATH for the addition of two miles of new track and tunnel through the City of Newark, extending the PATH train service from Newark Penn Station to Newark Liberty International Airport. As program manager, HNTB will guide the program through conceptual design (station design, track design, and platform improvements), railroad safety/security, transportation planning, environmental documentation, and alternatives analysis.

Jamaica Station AirTrain Terminal | Principal Architect
Principal architect responsible for design management of the PANYNJ engineering architectural design team, consultant coordination, post-award services for the $330 million multi-agency rail infrastructure project that serves as the primary rail gateway to JFK International Airport.

PATH Capital Program | Chief Architect
Chief architect responsible for directing planning, design and guideline development for $800 million station improvement program for PATH. He initiated and completed the development of stations design guidelines, the first guideline document created for PATH system to establish vision for public spaces for 100-year-old system.

- Harrison Station Redevelopment - Chief architect responsible

HNTB

DONALD FRAM, FAIA
continued

for Stage I and II Design for this project that involved planning and design for the new $240 million PATH station.

- Grove Street Station Modernization - Chief architect who oversaw the Stage I design for this $160 million station program to provide 10-car train service, new expanded entrances and ADA accessibility.

Newark Liberty International Airport Terminal B Modernization Program | Chief Architect
Chief architect responsible for program planning, Stage 1 and Stage II Design, architect of record lower level expansion and arrivals hall for $370 million terminal renovation and expansion. The program reutilized former under-utilized terminal space in innovative ways to vastly improve customer service, passenger security screening, airline operations, pedestrian flow, baggage screening and vertical circulation.

Newark Liberty International Airport Terminal B International Facility | Principal Architect
Principal architect responsible for design supervision of Port Authority architectural staff and consultants for 3,000 passenger-per-hour 250,000-square-foot Federal Inspection Facility. Donald was responsible for design coordination, and outreach with federal agency clients.

LaGuardia Redevelopment Program | Project Executive
Project executive for phase II planning and Stage I Design for 35 Gate 3.6 B Program. He was responsible for coordination of PANYNJ engineering services for terminal, airside and landside planning, technical design quality review, and consultant coordination.

Stewart International Airport Federal Inspection Service Terminal Expansion | Port Authority of New York and New Jersey | Chief Architect
Chief architect who supervised preliminary design for new international arrivals facility.

LaGuardia Airport Crisis Command and Airside Rescue Response Facility | Port Authority of New York and New Jersey |Chief Architect
Chief architect of record responsible for planning and design for new 52,000-square-foot airport police and fire fighting operations facility.

John F. Kennedy International Airport Red Garage | Port Authority of New York and New Jersey | Chief Architect
Chief architect of record responsible for the design of 2,000-space parking structure for Terminal 8/9 and located adjacent to the AirTrain Station.

HNTB

ROBERT PAPOCCHIA, AIA, NCARB | Lead: Stations

HNTB, Project Architect

Education:
BA, Architecture,
New York Institute of Technology

History of Employment:
HNTB
2010 - Present,
2005 - 2008

AECOM (DMJM Harris)
2009 - 2010

di Domenico + Partners
2002 - 2005

Brooklyn Architects Collective
2000 - 2002,
1997 - 1998

The Hillier Group
1999 – 2000

Integrated Building Arts
1998 - 1999

Licenses / Certificates:
Registered Architect:
NY, NJ, OH, CA, IL

Years of Experience:
18

As a project architect with HNTB, Mr. Robert Papocchia works with designers and principals to provide technical solutions are consistent with project design goals, and properly developed and produced. Robert's architecture experience has a focus on public transportation projects, including the coordination of facilities with multiple agencies having independent requirements and standards.

Crenshaw/LAX Transit Corridor | Principal Architect
Principal architect responsible for supervising the design, construction documentation and specifications for a $2 billion design-build contract, including an 8.5-mile extension with eight new stations. HNTB, as principal engineer and architect, is responsible for the design of four at grade, one elevated and three below ground stations.

PATH Extension to Newark Liberty International Airport Program Management | Station and Facility Design Architect
Station and facility design architect providing program management services to PATH for the addition of two miles of new track and tunnel through the City of Newark, extending the PATH train service from Newark Penn Station to Newark Liberty International Airport. As part of the program management team, Mr. Papocchia will guide the program through conceptual design (station design, track design, platform improvements), railroad safety/security, transportation planning, environmental documentation, and alternatives analysis.

Chicago Transit Authority Wilson Station | Lead Architect
Lead architect for the Chicago Transit Authority's rehabilitation of Wilson Station. This project includes realignment of the existing rail lines to bring purple line service to this station to provide a transfer point between the red and purple lines. In addition to two new high-level platforms and a large connected canopy, three new station entrances were provided. The main entrance is on the south side of Wilson Avenue, with an auxiliary entrance to the north of Wilson Avenue in the historic Gerber building and a third south entrance to address new and future development. The new entrances designed using glass and brick facades and are open to the track structure above taking full advantage of the space while providing natural lighting. BIM was used as a tool during conceptual design, through the end of the construction document process. Temporary facilities were designed to keep this station operational during construction.

MTA – New York City Transit Architectural and Engineering Design Services for Federally Funded Misc. Construction and Capital Security Projects | Lead Architect
Lead architect responsible for providing engineering design consulting services for various assignments under this Task Order contract. Such assignments included emergency response to Superstorm Sandy Recovery and Resiliency projects. Services included damage

ROBERT PAPOCCHIA, AIA, NCARB
continued

assessments, rehabilitation designs and flood mitigation projects. High-volume and quick turn around on proposals; immediate mobilization and fast-track design and construction are required by this program. Projects include the design for resiliency at six critical lower Manhattan locations. Feasibility and design services for near and long-term mitigation and resiliency measures are being conducted at Whitehall Street, Old South Ferry Loop, Bowling Green, Broad Street and Rector Street Stations. Projects also include the complete rehabilitation of and flood mitigation designs for all electrical systems in the three east river tubes and associated circuit breaker houses and substations.

Times Square and 53rd/Lexington Avenue Consequence Management | Project Architect
Project architect for a consequence management project for two major transportation complexes in New York City. Under this task order, Mr. Papocchia led a team of architects and engineers to study how these stations perform during emergency events. In addition, the team proposed and developed mitigations to improve the performance of these complexes from the points of view of egress and survivability. HNTB developed a site assessment report, TRVA, alternative mitigations report and a final design construction documents package.

NJ Transit Trenton Rail Station and Intermodal Plaza | Project Manager
Project manager for the Trenton Rail Station, leading a multi-disciplinary project team. The scope included design of new iconic station head house, ADA improvements, expansion, circulation improvements, finishes, HVAC and amenities including signage, graphics and information displays as well as developing phased approaches to construction while three agencies stayed operational over an active rail line.

Second Avenue Subway Phase 1 | Lead Architect

- 72nd Street Station - Lead architect responsible for the design detailing and production of Ancillary 1 (E. 69th Street), Ancillary 2/Entrance 2 (E. 72nd Street) and Entrance 3 (SEC of E. 72nd Street). Advanced details and implemented standardized design of the ancillary building typology developed with the Chief Architects of DHA JV and NYCT CPM Architecture.
- 86th Street Station - Lead architect responsible for reworking the design detail standards of the ancillary building details at 86th Street. This led to the standardization which applied to the rest of the SAS Phase 1 ancillary designs.

WALTER P MOORE

BLAIR HANUSCHAK, P.E. | Lead: Guideway

Walter P Moore, Principal

Education:
Bachelor of Science in Civil Engineering, Cum Laude, University of South Florida

History of Employment:
Walter P Moore
1992 – Present

Licenses / Certificates:
Licensed Professional Engineer:
Washington, DC Georgia

Years of Experience:
23

Mr. Blair Hanuschak is a principal with 23 years of structural engineering design and management experience, with an emphasis on airport projects. As the firm's Director of Airport Projects, Mr. Hanuschak contributes to many of the airport projects within the firm, and acts as the Principal in Charge and/or Project Manager on some of these efforts. His experience includes the design of APM infrastructure, terminal buildings, consolidated rental car facilities (ConRAC's), parking garages, and air traffic control towers.

Mr. Hanuschak is a past Chairman of the Terminal Committee within the Airport Consultants Council (ACC) and is an active participant in the aviation industry through the American Association of Airport Executives (AAAE), the Airports Council International (ACI), and the Airport Cooperative Research Program (ACRP). He recently served as a Panelist on the "Terminal Planning and Design Guidelines" for the ACRP. He has published over a dozen articles in various airport journals and trade publications and has been a speaker/moderator at aviation conferences.

He has been part of Walter P Moore teams that delivered over $5 Billion in airport infrastructure, over the past 20 years. Much of this work involved construction of new facilities in an operational airport environment, and he has spent over two years on-site at major expansions in Atlanta and Tampa, including a year of on-site construction administration.

Tampa International Airport ConRAC APM | APM Specialist & QA/QC
Mr. Hanuschak is providing APM project expertise as part of Walter P Moore's team providing structural and façade engineering services for the $400M+ ConRAC and APM projects for Tampa International Airport. The new APM system will connect the existing Landside Terminal Building to the new ConRAC facility. The system includes three APM stations, an APM maintenance facility, and 1.3 miles of APM guideway. Mr. Hanuschak worked closely with the team to locate bents and foundations to avoid conflicts with the existing roadway system and existing terminal infrastructure. He provided input into appropriate span lengths and construction types for the various sections of the guideway. His role on the project has continued through design by providing technical and management oversight in a QA/QC role on the project, due to his experience with APM systems, his experience at Tampa International Airport, and his experience with the Design-Builders on other similar airport projects.

Hartsfield-Jackson Atlanta International Airport Rental Car Center and APM Station | Deputy Project Manager (for Prime JV) & Structural Engineering Principal-in-Charge
Mr. Hanuschak was the Deputy Project Manager for the overall project, and led Walter P Moore's efforts, in providing overall project management, structural engineering, and parking consulting

WALTER P MOORE

BLAIR HANUSCHAK, P.E.
continued

services for the new Rental Car Center (RCC) at Hartsfield-Jackson Atlanta International Airport. Mr. Hanuschak led the design of the APM Station, and the coordination and interface of the APM Guideway and Maintenance Facility with the design of CONRAC facility, to ensure that the two separate packages were coordinated with each other. The CONRAC APM system was delivered using a Design-Build-Operate-Maintain (DBOM) contract, and the CONRAC was delivered using CMAR. During the early design phase, Mr. Hanuschak proposed an alternate APM guideway alignment that was accepted by the Airport, and resulted in a reduction in the length of the APM guideway. The revised alignment maximized the footprint of the available site for the CONRAC facility, which improved the functionality of the rental car facility roadways, garages, and QTA's. Mr. Hanuschak led the coordination of the APM Guideway superstructure elements within the boundaries of the CONRAC site, ensuring that the guideway bent locations did not adversely affect the design of the of the CONRAC facility. Walter P Moore worked with the APM designer to optimize the bent layout, locations, and spacing to avoid roadways, utilities, QTA's, and to work well within the APM Station that is directly above the Rental Car Customer Service Center. He also closely coordinated all of the APM supplier requirements for the platform, platform doors, emergency egress, and other space requirements within the APM Station.

George Bush Intercontinental Airport APM Phase 3 | Airport / APM Specialist & QA/QC
Mr. Hanuschak provided APM and airport project expertise to Walter P Moore's team that provided structural and traffic engineering services for this expansion of IAH's airside APM system. Mr. Hanuschak and Walter P Moore's team worked closely with the architect, construction manager and airport authorities to overcome the many obstacles that so often arise during the construction of such a complex project. At the conclusion of this project, the Walter P Moore team was presented with the IAH APM Leadership Award for our collective and individual efforts during the project, which was delivered under budget and ahead of schedule.

LEA ELLIOTT

DARRYL JAQUESS | Lead: Maintenance & Storage Facility

Lea+Elliott, Inc., Senior Associate

EDUCATION
B.S., East Central University, Architectural Construction and Design

HISTORY OF EMPLOYMENT
Lea+Elliott, Inc.
1990 – Present

YEARS OF EXPERIENCE:
25

Mr. Darryl Jaquess has over 24 years of transit experience in all phases of project management, planning and analysis. His special expertise is in APM facilities – programming and laying out of maintenance facility alternatives, and defining physical and geometric interfaces between the APM system, buildings and environment. Mr. Jaquess specializes in station platform sizing/sensitivity analysis, passenger flow characteristics, vertical circulation design and emergency egress code analysis. He has extensive experience with APM system performance, operations and fleet analyses. He is also skilled in calculating capital and O&M cost estimates for APM projects. Mr. Jaquess has a comprehensive knowledge of APM suppliers and technology characteristics and has conducted several technology assessments to identify qualified supplier candidates. Mr. Jaquess has personally provided expertise for over 60 transit projects worldwide ranging -- from conceptual planning to implementation.

Phoenix Sky Harbor International Airport PHX Sky Train® | Deputy Project Manager
Mr. Jaquess was responsible for assisting in the day-to-day management of the Stage 1 and Stage 1A project. Mr. Jaquess was responsible for the system and facilities interface coordination. He worked closely with the Facilities Designer on system facilities interface issues. In addition he works closely with the Owner to inform of any potential issues and to give progress updates. Mr. Jaquess was responsible for the installation and testing program, overseeing the day to day progress, coordinating staff and reviewing test procedures and reports. Mr. Jaquess began with planning on this extension and transitioned into design, construction, testing/implementation and ultimately provided operations and maintenance support the Aviation Department.

Washington Dulles International Airport AeroTrain | Planner
This project consisted of the planning, design, construction, and testing of a self-propelled airside Automated Guideway Transit system linking current and future concourses with the main terminal. Mr. Jaquess was responsible for the oversight and coordination of the reference drawing package for the new APM system. He developed conceptual layouts of the APM stations and conducted NFPA 130 egress analysis on proposed station design to check for code compliance. He developed the spatial program for the new maintenance facility using the criteria of the ultimate fleet and developed off-line maintenance facility layouts from the spatial program.

George Bush Intercontinental Airport/Houston TerminaLink Phases 1, and 3 | Project Engineer
Mr. Jaquess provided on-site support during the implementation phase of the airport's fully automated APM system. This included review and development of Test procedures and the witnessing of

LEA ELLIOTT

DARRYL JAQUESS
continued

verification activities to ensure contract compliance. Specific areas included vehicle, guideway, station, support facility inspection, graphics CDRL Review; and assistance in final verification of overall system performance requirements. He assisted in the geometric development of APM Route Alignments; and in the development/design of alternative bus routes. He conducted extensive assessment on various bus technologies, including contacting numerous bus suppliers to discuss vehicle specifications, characteristics and pricing. Conducted analyses as follows: (1) time/distance runtime analysis on APM alternatives; (2) sensitivity analysis to develop APM station platform parameters; (3) preliminary NFPA 130 analysis on proposed station platform design; and (4) vertical circulation analysis to determine the proper number of escalators that the APM station would need for the calculated APM ridership. He conducted extensive vertical circulation and NFPA 130 code analysis studying the possibility of reducing the number of escalators on the APM station platform and the impacts to system capacity and the station platform. He met with the client to discuss possible future airport/airline alternatives to conduct the analysis. The analysis was conducted using multiple future aircraft/gate scenarios. He conducted an on-site passenger survey of current commuter aircraft ridership and prepared a vertical circulation report highlighting the findings and recommendations.

Dallas/Fort Worth International Airport Skylink | Planner
Mr. Jaquess participated in the preliminary planning and conceptual design for the APM system. During this process Mr. Jaquess assisted in determining the optimal APM alignment concept. He conducted train performance analysis using the Lea+Elliott LEGENDS© train performance model to determine system performance and trip times. In addition, he conducted sensitivity analysis to determine station queue depths and circulation space for preliminary station sizing. Computer models were used to calculate vehicle/escalator queues and escalator flows.

Kimley»Horn

NATHAN C. WALNUM, P.E. | Lead: Site/Civil/Utilities

Kimley-Horn & Associates, Vice President

Education:
B.S., Civil Engineering,
Brigham Young University

History of Employment:
Kimley-Horn
2000 – Present

Versar, Inc.
1996-2000

Licenses / Certificates:
Registered Professional Engineer
AZ, FL, UT

Years of Experience:
19

Mr. Nate Walnum has 19 years of engineering and management experience on multiple airport, transit, rail, roadway and municipal projects. His airport design experience includes runway and taxiway improvements, apron re-construction projects and people movers, including the preparation of train alignments and plan/profile geometrics. Other projects include parking, ground transportation centers, roadway and terminal curb-front improvements, consolidated rental car facilities, communications, landside planning, and utility design. For the past 10 years Mr. Walnum has served as Kimley-Horn's project manager for the planning and design of the PHX Sky Train project at Phoenix Sky Harbor International Airport.

Newark Liberty International Airport AirTrain Study | Project Engineer
Kimley-Horn prepared alignment alternatives and rough order magnitude costs for the replacements of the existing AirTrain people mover system. The study assessed the existing system capacity to meet future passenger demands for planned terminal and airfield improvements. Activities included review of AirTrain alignments, station and maintenance facility locations, access to parking and public transportation, phasing alternatives, impacts to existing terminal buildings and roads, and preparation of cost estimates for a phased system replacement.

Phoenix Sky Harbor International Airport PHX SkyTrain® | Project Manager
Mr. Walnum was the lead Civil Engineer on the project and project manager for all Kimley-Horn services, including the preparation of alignments and plan/profile geometrics for the train guideway, planning and simulation modeling, on-grade guideway structures, roadway design, urban freeway re-design of SR-153, traffic control, parking/revenue control systems, East Economy Parking Lot reconfiguration and toll plaza relocation, grading, drainage and utility relocations, station electrical and propulsion power design, primary power ductbank geometry, structures and retaining walls, communications design, and civil layout for access roads and terminal curb-front areas. The train guideway design included and aerial crossing of Taxiway R and under-crossings of Taxiways S and T.

Miami Metromover Expansion Study | Project Engineer
The study was developed to assess the feasibility of expanding the Metromover APM to connect to new and under served urban centers in downtown Miami while maintaining an efficient operation. During this study, viable options for system expansion were conceptualized and evaluated to provide greater system accessibility and improve system efficiency. Major elements of the study included data collection, passenger surveys, preparation of the Metromover Expansion Master Plan, preparation of alignment alternatives, and identification of preferred short-term concepts. As part of the

Kimley»Horn

NATHAN C. WALNUM, P.E.
continued

refinement process estimated capital costs and operations and maintenance (O&M) costs for the project were developed, along with a high-level implementation plan and schedule.

Phoenix Sky Harbor International Airport Consolidated Rental Car Center | Project Engineer
Kimley-Horn was responsible for the design of all civil functions on and adjacent to the 142-acre site for the consolidated rental car facility. The civil team provided design and construction documents for all grading, drainage, access roads, infrastructure (new) and relocation of existing utilities. The site accommodates a parking garage designed for 8,500 cars, a Customer Service Building on top of the garage, and up to 10 auto service facilities in the area adjacent to the garage. Streets adjacent to the site were upgraded as necessary to accommodate the increased traffic volumes.

Santa Barbara Bowl People Mover Study | Project Manager
The Santa Barbara Bowl (SBB) is a 5,000 seat amphitheater nestled in the hills of Santa Barbara, CA that hosts outdoor concerts and events. Because of the hilltop setting and historic facilities it is difficult for ADA and less abled patrons to enjoy the venue. The SBB Foundation engaged Kimley-Horn to prepare a study to evaluate transportation alternatives for moving patrons around the site and to a hill-top vista area currently accessible only by stairs. As part of the study, transportation alternatives such as vans, buses, trams, moving walkways, elevators, escalators, funicular/inclined railways and aerial tramway systems were evaluated. Alignment and preliminary cost estimates were prepared for multiple roadway, funicular and aerial tramway alternatives.

San Antonio International Airport Runway & Taxiway Improvements | Project Engineer
As the prime consultant, Kimley-Horn is providing planning and engineering services for multiple runway and taxiway improvement projects at San Antonio International Airport (SAT). The five-year program includes reconstructing and rehabilitating multiple taxiways and portions of Runway 12R/30L, development of new taxiways, demolition and relocation of Taxiways E and N, development of an SMGCS plan as well as other engineering and planning support services. The initial phase of design work included heavy coordination with the FAA regional office and headquarters to implement the new design standards for taxiways included in the Airport Design Advisory Circular (150/5300-13A).

HNTB

JEREMY SASS, AIA, LEED | AirTrain Facilities- Maintenance & Storage Facility HNTB, Project Manager

EDUCATION:
Graduate Certificate, Sustainable Architecture, New Jersey Institute of Technology

BS, Architecture, New Jersey Institute of Technology

HISTORY OF EMPLOYMENT:
HNTB 2014 – present

NJ Transit 2001 – 2014

Lord & Taylor Construction Dept. 1999 – 2001

McCutcheon Assoc. Pa 1997 – 1998

LICENSES / CERTIFICATES:
Registered Architect: NY

Registered Building Inspector - Residential and Small Commercial Specialist: NJ

LEED Accredited Professional

YEARS OF EXPERIENCE:
16

Mr. Jeremy Sass has 16 years of experience in architectural design, construction administration and writing of technical specifications. His architectural background includes the design and construction of new rail stations, bus depots and operational support facilities, as well as rehabilitations and ADA accessibility upgrades at historic rail stations and existing bus facilities. He has an additional three years of construction experience working with steel erectors, elevator installation and maintenance firms and residential rehabilitation contractors.

Port Authority of New York and New Jersey On-Call Design and Technical Services for Security Capital Program | Project Manager
Project Manager who oversaw final installation of CCTV and access controls upgrades for six PATH stations throughout New York and New Jersey. He provided architectural and engineering design services, submittal review, attended progress meetings, prepared summaries of meetings and field surveys.

NJ Transit Elizabeth Train Station New Station & Platform Extensions | Project Architect/Lead Designer
Project architect/lead designer for the design of new rail facility, including two new stations, addition/renovation of elevator and stair towers, ticket offices, retail space, and the replacement and extension of both eastbound and westbound train platforms. He led design team in creation of plans and details, 3-D models, and coordination of bid drawing set. He coordinated design with Amtrak, in accordance with their design standards and prepared and delivered design progress presentations to multiple end user groups, including city officials, university presidents and NJ Transit executive leadership.

NJ Transit Hoboken Rail Terminal | Project Architect
Project architect for the reconstruction of the flood damaged ticket office after Superstorm Sandy. He led the design team through a condensed schedule design-build delivery process to make the facility operational in time for the 2013 Superbowl. The design included water proofing measures to resist damage from future storms, and specification of water resistant materials and finishes.

NJ Transit Reconstruction of the Hackensack Bus Terminal | Project Architect
Project architect for the complete reconstruction of an 800-square-foot bus terminal, including temporary passenger facilities for continued operations of the site during construction. The project involved the selective demolition of 90% of the existing building and structural repairs to the columns and foundations. The design included new restrooms, retail space, passenger waiting areas, and new passenger communications systems. Mr. Sass assisted in selection of commissioned works through “Arts in Transit” initiative. He worked with artists to design and install artwork into completed

HNTB

JEREMY SASS, AIA, LEED
continued

facility.

NJ Transit Reconstruction of the Hackensack Bus Terminal | Project Architect
Project architect for the complete reconstruction of an 800-square-foot bus terminal, including temporary passenger facilities for continued operations of the site during construction. The project involved the selective demolition of 90% of the existing building and structural repairs to the columns and foundations. The design included new restrooms, retail space, passenger waiting areas, and new passenger communications systems. Mr. Sass assisted in selection of commissioned works through "Arts in Transit" initiative. He worked with artists to design and install artwork into completed facility.

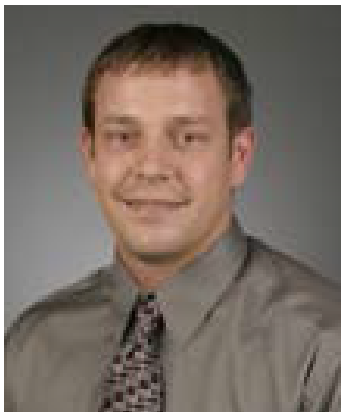
MTA - New York City Transit Consultant Support for Performance of Architectural and Engineering Feasibility Study and Design for Flood Mitigation/Resiliency at Six Critical Lower Manhattan Locations | Architectural Project Manager
Architectural project manager who was responsible for providing design services and feasibility studies for near- and long-term flood mitigation/resiliency measures at six critical lower Manhattan stations. In addition to providing a topographical survey and designing/installing two flood mitigation/resiliency measures at every opening in NYCT's system, we were tasked with rolling out a solution prior to the next storm system. This required our team to perform at an accelerated schedule, while maintaining a high level of quality and ingenuity. Our mechanical engineers developed a Coastal Surge Mechanical Closure Device that is being fabricated and installed in the A36934 package. This device has the potential to be installed in any ventilation bay throughout the NYCT system. We are also studying methodologies and designing devices for preventing water from entering facilities, including closing and/or modification of the following elements:

- Station/tunnel entrances and openings (stairs, escalators, elevators, access hatches, manholes and ventilation gratings).
- Fan plant kits.
- Signal rooms, EPRS, EDRS and COMMs rooms, including conduit entrances.
- Connections to New South Ferry.

Kimley»Horn

ADAM T. GIBSON, P.E. | AirTrain Facilities - Site/Civil/Utilities

Kimley-Horn & Associates, Associate



Education:
M.S., Civil Engineering, Clemson University

B.S., Civil Engineering, University of Tennessee, Martin

History of Employment:
Kimley-Horn
2005 – Present

Licenses / Certificates:
Professional Engineer NJ, FL, TX

Years of Experience:
11

Mr. Adam Gibson has 11 years of experience working on a wide range of transportation planning and traffic operations projects. His principal areas of practice include performing regional and local traffic impact analyses, corridor analyses, access management studies, trip generation calculations, trip distribution (using FSUTMS modeling software) and assignment, intersection and arterial analyses, and signal warrant analysis. Mr. Gibson has served as project manager for large, multi-disciplined projects and transportation engineer conducting various types of traffic studies.

Newark International Airport Terminal A Redevelopment | Project Engineer
Kimley-Horn was part of a team that provided the Stage I design for the redevelopment of Terminal A at Newark Liberty International Airport. This project includes a new 33-gate passenger terminal, associated Group V aircraft apron, new access roads, and multistory parking structure. Kimley-Horn's role included various tasks associated both with airside and landside portions of the project including the design of nine access road bridges, overall traffic engineering associated with the new access roads, and a new multistory parking structure. Mr. Gibson spent eight months as a call-in engineer for the Port Authority and was responsible for the design of three new traffic signals, pedestrian and roadway guide sign design using GuidSIGN and Gerber software packages, parking lot and parking garage layout, and implementing Americans with Disabilities Act (ADA) standards. The traffic signals, pedestrian guide signs, and roadway guides signs were designed using the most recent design standards developed by the Port Authority of New York and New Jersey (PANYNJ).

City of Hoboken Frank Sinatra Drive Complete Streets Redesign and Visioning Concept Plan | Project Manager
Kimley-Horn is leading the public participation process and the preparation of plans, specifications, and cost estimates for the complete streets redesign of Frank Sinatra Drive. Through the public participation process, Kimley-Horn will develop three conceptual alternatives for the redesign, which will incorporate complete street and green street elements. Mr. Gibson was the Project Manager for this project.

Sarasota County Traffic Engineering Study for Intermodal Transfer Station | Project Engineer
Kimley-Horn provided a traffic study and operational analysis of a future Sarasota County Area Transit transfer station located on the County's Cattlemen campus. As part of this analysis, Mr. Gibson evaluated existing and future traffic volumes as well as future bus volumes to determine Potential challenges associated with the proposed transit site. Mr. Gibson provided an engineering assessment of a preempted bus priority signal system to accommodate unimpeded bus movements from the County's site. The evaluation

Kimley»Horn

ADAM T. GIBSON, P.E.
continued

included a detailed circulation study and the identification of infrastructure improvements to accommodate the future site and an engineering feasibility assessment of the future construction cost associated with specific corridor improvements to maintain the County's level of service standard for the roadway segment.

Virginia DOT ADA Compliance Strategic Plan | Project Engineer
Kimley-Horn developed a Programmatic Overview of VDOT's Existing ADA Practice that included a high level review of VDOT's existing practices, procedures, and standards related to ADA to gain an understanding of the state of the practice. We then developed the VDOT ADA Compliance Strategic Plan, which documented a general approach and establishment of a plan for compliance of VDOT's right-of-way assets with the requirements of Title II of the ADA of 1990 and Section 504 of the Rehabilitation Act of 1973 (28 CFR 35.150). The Strategic Plan addressed the ADA Self-Assessment Requirements, the ADA Transition Plan Requirements, and the ADA Compliance Strategic Plan. At the onset, VDOT set an aggressive goal for completion; we delivered the complete ADA Compliance Strategic Plan within nine weeks, which included the incorporation of additional input and modifications into the Plan. Mr. Gibson was the analyst that helped prepare the Strategic Plan for this project.

Hillsborough County Intersection Improvements Program | Project Engineer
Kimley-Horn was selected to provide professional engineering services for the design of intersection improvements at nine locations in Hillsborough. To date, we have provided support for several different intersections, including Cedar Creek Boulevard at Henderson Road, Bullard Parkway at Sunnyside Road, Clayton Park at Vonderburg Drive, North US 301 at the Fairgrounds, Martin Luther King, Jr. Boulevard at Gallagher Road, and Valrico Road at Sydney Road. Kimley-Horn performed three traffic technical memorandums for submittal with the project development and environment (PD&E) studies. For each project, Mr. Gibson met with the stakeholders to gain an understanding of the issues at each intersection and the goal(s) they wanted to obtain through the study. For each analysis, Mr. Gibson developed and evaluated three to five alternatives at each study intersection. The alternatives developed included constructing additional turn lanes, installing a traffic signal, and adding/modifying signing and pavement markings.

LEA ELLIOTT

MELINDA RING, PH.D. | AirTrain Planning - System Definition, System Modeling Lea+Elliott, Inc., Manager of Planning Projects

EDUCATION:
B.S. Industrial Engineering, Purdue University

M.S. Industrial Engineering, Purdue University

Ph.D., King's College, Cambridge University

HISTORY OF EMPLOYMENT:
Lea+Elliott, Inc.
2000-Present

TransSolutions, LLC
1993-2000

YEARS OF EXPERIENCE:
22

Dr. Melinda Ring has been active in the transportation planning field for over 20 years. She is an expert in the simulation modeling and analysis of complex transportation systems in airport and urban environments. She has been a key participant in transportation systems planning, transit/facility interface studies, and APM feasibility studies for airport projects in Newark, Phoenix, Dallas/Fort Worth, Seattle, Kansas City, South Korea, and Dubai. Her airport master plan experience includes leading operations analyses and ridership tasks for transit system planning and providing analyses for future phases of an airport and/or transit system expansion.

Dr. Ring was the Project Manager for Lea+Elliott's work on the AirTrain Study which developed and evaluated alternatives for the replacement of the current AirTrain Newark system.

Newark Liberty International Airport AirTrain Study | Project Manager
Lea+Elliott assisted the Port Authority of New York & New Jersey (PANYNJ) with the AirTrain Newark Study. The Study evaluated alternatives for the replacement of the current AirTrain system. Dr. Ring led the development of conceptual alternatives for the replacement AirTrain, performed a comparative analysis of the alternatives, conducted the train performance analyses, and assisted in the development of systems cost estimates.

Chicago O'Hare International Airport ATS Systems & Vehicle Procurement Support | Senior Planner
Chicago's Department of Aviation is expanding the current Airport Transit System (ATS) to a new consolidated rental car facility and connection to regional rail. The ATS expansion includes the procurement of systems and vehicles needed to meet the projected demand including the replacement and expansion of the ATS vehicle fleet and maintenance and storage facility, extension of the guideway to a new station, replacement of the ATC system, and other related work. Dr. Ring was APM operational analysis task leader responsible for updating the APM System ridership estimates, system operation parameters, and fleet requirements. She assisted in developing the project procurement documents.

Phoenix Sky Harbor International Airport PHX Sky Train® | Senior Planner
Phoenix Sky Harbor International Airport has implemented a new APM that connects parking, terminals and the regional light rail system, and will ultimately connect to the rental car facility. Lea+Elliott was selected to serve as the APM System Designer with a program management role that included oversight of the planning, design, procurement and implementation phases of Stage 1 and 1A of the project. Dr. Ring was APM operational analysis task leader responsible for updating the APM System ridership estimates,

LEA ELLIOTT

MELINDA RING, PH.D.
continued

system operation parameters, and fleet requirements. She assisted in developing facilities design criteria and system definition summary report.

Dallas/Fort Worth International Airport Rail Planning & Implementation Major Investment Study | Project Manager
In a study for the North Central Texas Council of Governments (NCTCOG), DFW Airport, Dallas Area Rapid Transit (DART) and the Fort Worth Transportation Authority (The T), Dr. Ring was Project Manager for the Lea+Elliott team that participated as a member of a multi-disciplinary team tasked with developing new and innovative alternatives for connecting Dallas/Fort Worth International Airport to the regional rail system. Lea+Elliott's role was to provide input on all suitable passenger conveyance technologies and how they would interface with the airport's expansion program. The suitable passenger conveyance technologies included bus, bus rapid transit, automated people mover, light rail transit, commuter and high speed rail. The study included technology identification and assessment, passenger convenience analysis, and cost estimation. In addition, the study included a complete assessment of the existing on-airport bus circulator system, its routes and numerous options for future service changes.

Kansas City International Airport Fixed Rail Study | Senior Planner
Dr. Ring was a key participant in the planning of an APM system to connect the terminal area with a planned consolidated rental car facility. The system plan included future expansion capability to connect to other airport uses such as long-term parking as well as a possible connection to the planned regional light-rail system. The study includes alternatives analysis and evaluation, alignment and stations location feasibility analysis, operational and level of service analysis, and cost estimating.

George Bush Intercontinental Airport/Houston TerminaLink APM Phases 2 and 3 | Senior Planner
Lea+Elliott was involved with the Houston Airport's TerminaLink from its inception in the mid-1990s to its ultimate Phase 3 extension in 2010. During the Phase 2 extension of the TerminaLink, Dr. Ring led the development of ridership estimates for future year scenarios to determine system capacity requirements. Analysis included existing and future gating schemes to be served by an expansion of the existing automated train system.

Kimley»Horn

J. SAM LOTT, P.E. | AirTrain Planning - Simulation Modeling

Kimley-Horn & Associates, Senior Vice President / Senior Associate

Education:
M.S., Mechanical Engineering,
University of Houston

B.S., Mechanical Engineering,
University of Texas, El Paso

History of Employment:
Kimley-Horn
1997-Present

JKH Mobility Services,
a subsidiary of Kimley-Horn
1993-1997

JKH Mobility Services, Inc.
1979-1993

Licenses / Certificates:
Professional Engineer TX

Years of Experience:
35+

Mr. Sam Lott has more than 35 years of experience in the planning and engineering of a large spectrum of conventional- and advanced-technology transportation systems, as well as the associated intermodal terminals. His experience with fixed guideway transit includes system conceptual design and analysis, performance and operations analyses, cost estimating, system specifications, and design verification review and testing. A developing area of advanced technology for which Sam has established noted expertise is that of demand-responsive transit, such as automated transit networks (ATN), group rapid transit and certain applications of bus rapid transit. The full range of conventional and advanced transport technologies with which he has specific project experience includes monorail, maglev, APM, bus rapid transit (BRT), street trolley, light rail (LRT), personal rapid transit (PRT), group rapid transit (GRT), high-capacity rapid transit/metros, and commuter rail systems. In recent years, he has become known in the field of automated roadway vehicles specifically with respect to his insight into how this paradigm shift in robotic technology will impact the transit industry. In addition, Mr. Lott has extensive experience in the planning and design of major activity centers, airports and intermodal centers, with particular knowledge of pedestrian systems, elevator and escalator systems, and moving walkways. Through this diverse experience, Sam has led the development and application of the Advanced Land-Transportation Performance Simulation™ (ALPS™), an integrated suite of software that is considered to be one of the most advanced analysis tools in the transportation field for modeling complex, multimodal operating environments.

North East Corridor Newark Station Connector System Study | Project Manager

Mr. Lott led all aspects to perform a series of operational and cost analyses to assess alternative alignments and transit technologies that could be deployed to connect a commuter rail station in the North East Corridor (NEC) near Newark Liberty International Airport. The work involved the preparation of demand forecast data sets derived from the airport passenger activity forecast for 2020, and the processing of the demand data to derive specific transit connector ridership flows throughout the simulated study day. The analysis utilized Kimley-Horn's unique Advanced Land Transportation Performance Simulation™ (ALPS™) programs to model the pedestrian access to the stations, boarding and alighting activity, and the complete train operations for eight different case studies. Combinations of transits systems were tested to carry the passengers between the NEC station and the various terminals and landside facilities, including a demand responsive PRT transit technology that allows each person to select a transit vehicle bound directly to their desired destination. Other case studies analyzed variations of the AirTrain control system and vehicle configuration. As part of our Terminal A work, Kimley-Horn prepared alignment

Kimley»Horn

J. SAM LOTT, P.E.
continued

alternatives and rough order magnitude costs for the replacements of the existing AirTrain. System capacity to meet future passenger demands for planned terminal and airfield improvements was also assessed. Activities included reviewing AirTrain alignments, station and maintenance facility locations, access to parking and public transportation, phasing alternatives, impacts to existing terminal buildings and roads, and preparing cost estimates for a phased system replacement.

Fresno COG Regional Public Transportation Infrastructure Study, ATN/PRT Analysis | Task Manager
Mr. Lott was the task manager for the study of an advanced technology, demand-responsive automated transit system (frequently referred to as a PRT system). The hypothetical system was functionally configured as a circulator system which would serve the California State University – Fresno campus and the nearby commercial, hotel, and residential land uses. The work entailed simulation modeling of trip demands, transit ridership, and pedestrian elements, as well as the operational modeling of the demand responsive control system and fleet operations using Kimley-Horn's ALPS™ analysis tools. Alternatives to alignments, station locations, and operational parameters were performed. A shared-ride concept of service was included in the simulation-based analysis. A bus terminal/intermodal station that would be served by the campus circulation system was also an element of the study. The analytical studies of the campus area were used as reference in considering the operational benefits of a similar demand responsive ATN/PRT service in other urban districts, including downtown Fresno.

George Bush Intercontinental Airport/Houston Comprehensive Plans | APM Specialty Consultant
Kimley-Horn was the APM consultant responsible for planning level analysis of APM system applications for airport landside access and circulation systems and secure terminal circulation systems. Work directed by Mr. Lott included conceptual configuration studies, ridership analysis, performance and operations studies, and cost estimating for several major alternatives.

Kimley»Horn

JILL A. CAPELLI, P.E. | AirTrain Planning - Simulation Modeling

Kimley-Horn & Associates, Associate

EDUCATION:
M.S., Civil Engineering, University of Kentucky

B.S., Civil Engineering, U.S. Coast Guard Academy

HISTORY OF EMPLOYMENT:
Kimley-Horn
2000 – Present

Boundary and Mapping Associates, Inc., Summer 1998

LICENSES / CERTIFICATES:
Professional Engineer FL, TX

YEARS OF EXPERIENCE:
15

Ms. Jill Capelli is a transportation engineer with expertise in traffic engineering and transportation modeling/planning. Her current project experience includes computer modeling using multimodal simulation software, intersection analysis, training in multimodal simulation software at Phoenix Sky Harbor International Airport, signal and stop controlled warrant analysis. Key projects include pedestrian, transit, and vehicle modeling; surface transportation modeling of the on-airport systems at Chicago O'Hare international Airport; and on-airport transportation modeling at Los Angeles International Airport as part of the LAX Master Plan, which included modeling of a remote ground transportation center and intermodal center than handled all landside access.

Newark Liberty International Airport Terminal A | Project Engineer
Ms. Capelli served as a project engineer for the pedestrian simulation. Kimley-Horn is part of a team that is providing architectural and engineering services to redevelop Terminal A at Newark Liberty International Airport. Tasks included participation in the development of four new architectural concepts and in coordination with the project architect, the evaluation of the preferred terminal concept using ALPSTM, a pedestrian (passenger, employee, visitors) simulation model owned and developed by Kimley-Horn. The resulting analysis resulted in an improved terminal configuration substantially improving the distribution of passenger and visitor flows and the level of service in all areas of the new terminal. Additionally, Kimley-Horn is responsible for the planning and development of conceptual plans for the aircraft apron adjacent to the new passenger terminal, the conceptual design of 11 bridges of the new terminal access road and a new Intelligent Transportation System (ITS) that will guide vehicles to the new terminal and its new associated parking structure.

Phoenix Sky Harbor International Airport PHX SkyTrain® | Project Engineer
Ms. Capelli performed the ground transportation analysis of the existing and planned curbfronts at Phoenix Sky Harbor. More than 20 alternative curbfront operations were analyzed with up to three forecast years as part of the analysis. Planned alternatives included security control plazas, ground transportation center alternatives, and alternative roadway configurations. Detailed analyses were also completed for the Rental Car Center (RCC) at Phoenix Sky Harbor. These analyses included a simulation model of the RCC operations to identify/mitigate potential congestion issues associated with the RCC. In addition, Ms. Capelli analyzed the vertical circulation elements associated with the addition of an automated train at an existing terminal. As part of this analysis, a simulation model was developed that simulates pedestrian movements inside the terminal, at the vertical circulation elements, and at the automated train platforms.

Kimley»Horn

JILL A. CAPELLI, P.E.
continued

Hartsfield-Jackson Atlanta International Airport Comprehensive Development Plan | Project Engineer
Kimley-Horn updated the ALPS™ simulation model of the ATL terminal complex to study the Automated Guideway Transit System (AGTS) that serves the existing terminal complex and a proposed APM system to serve the proposed South Gate Complex airside concourse. The updated ALPS™ model included the addition of the under construction Maynard H. Jackson International Terminal, and corresponding extensions of the AGTS to future Concourses F & G, as well as the West Terminal Expansion to serve a future South Gate Complex. The ALPS™ model provided a means to provide synchronous simulations of all train operations and pedestrian movements, including vertical circulation elements, at the level of the AGTS/APM facilities and systems, to study the flow, density, and queuing of the respective ridership.

Metromover System Expansion Study (2015) | Project Manager
Ms. Capelli served as project manager for a study to assess the feasibility of expanding the Metromover APM System to connect the under served markets while maintaining an efficient operation. During this study, viable options for system expansion were conceptualized and evaluated to provide greater system accessibility to Metromover users and improve system efficiency within downtown Miami, Brickell, and the arts/entertainment areas. Major elements of the study included data collection, passenger survey, Metromover Expansion Master Plan, and identification of Preferred Short-Term Concept. Estimated capital costs and operations and maintenance (O&M) costs were developed along with a high-level implementation plan and schedule.

Hillsborough Area Regional Transit Authority (HART) Bus Rapid Transit (BRT) North-South MetroRapid Preliminary and Final Design Services | Project Engineer
Kimley-Horn led the team for the design of a 17.5-mile BRT project in the Tampa area. As task coordinator for systems design, Jill drafted the technical assessments and design reports for the advanced traveler information systems (ATIS), ticket vending machines (TVM), automated vehicle location (AVL), and automated passenger counter (APC) systems to identify the design elements and required integration for these systems. Kimley-Horn also evaluated HART's existing systems to ensure their integration with the BRT route and to provide HART's riders with additional user information. Tasks also included system block diagrams, specifications, and testing procedures for the various systems that were implemented as part of the BRT.

LEA ELLIOTT

SANJEEV SHAH, P.E., J.D. | AirTrain Planning - Procurement Strategy Lea+Elliott, Inc., Principal

Education
J.D., Law at Florida International University – College of Law

M.S., The University of Texas at Austin Engineering (Structural)

B.S., University of Miami, Civil/Architectural Engineering

Licenses / Certificates:
Professional Engineer:
CA, FL
Florida Bar

History of Employment
Lea+Elliott, Inc.
1998-Present
E.N. Bechamps & Assoc.
1996-1998
S.E. & Associates
1994-1996
Crouse Honderich Mosbat
1993-1994
Severud Associates
1989-1993

Years of Experience:
26

Mr. Sanjeev Shah has 26 years of experience in the transit industry, 16 of which he has been a leader in transportation systems program development, planning, programming, techno-economic viability, environmental processes, project structuring, procurement strategies, development of contract documents, and implementation program management and oversight of the Contractor leading to successful project delivery. He also led several aspects of projects that include risk evaluation/mitigation, contract changes, ridership projections, cost/benefit analyses and technology viability evaluations including for rail and APM. Mr. Shah is involved in developing innovative procurement opportunities related to automated and rail transit systems. These activities include project structuring and the establishment of procurement strategies for Public-Private Partnerships, Concessions, and Design-Build-Operate-Maintain projects. Mr. Shah's training and decades of experience in Engineering and integration of transit system requirements coupled with his Law degree and experience in the structuring and innovative financing of rail transit systems, gives him a unique perspective and valuable skills for any transit project/ program.

LAX Land Access Modernization Program | Principal-in-Charge
Mr. Shah is overseeing Lea+Elliott's evaluation of alternative approaches for addressing access/egress improvements to the LAX Central Terminal Area (CTA); strategies include an Intermodal Transportation Facility, a Consolidated Rental Car Center and connectivity to the LA Metro system. Work efforts include prioritization of various LAX facilities and operational needs, and their inter-relationship/dependency of the ground conveyance system – which considers consolidated busing and APM alternatives, development of phasing plans tied to development/improvement triggers and a cost/benefit evaluation tied to improvements to operations, access as well as phased return on investment evaluations. The work is focused on supporting LAWA management in making appropriate decisions based on priorities, operational needs, and investment prioritization to develop a comprehensive Ground Transportation Improvement program that supports the overall airport improvement program. Finally, Lea+Elliott is investigating strategic opportunities for LAWA consideration to implement these ground access improvements through opportunities for commercial/ joint development and higher value utilization, and supporting LAWA in coordinating with external transportation agencies and stakeholders, including LA Metro.

Orlando International Airport APM & Rail Services | Principal-in-Charge
Mr. Shah is overseeing the Lea+Elliott team in the development of the planning, procurement approach and design criteria package to solicit proposals to extend the service life of the existing Airside 1 & 3 APM Systems and to provide a new APM system to link the

LEA ELLIOTT

SANJEEV SHAH, P.E., J.D.
continued

existing North Terminal at Orlando International Airport with the future South Airport APM Complex – which will include access/ connectivity to regional and intercity rail service. Under Mr. Shah's leadership, the procurement strategies and procurement documents were developed, program budgets, schedules and interfaces with infrastructure projects were established. The program is currently under procurement and Mr. Shah is leading the team that is supporting the Owner in the solicitation process. As for the rail access, the Lea+Elliott team is evaluating and establishing right-of-way requirements within Airport property and appropriate interfaces – to provide for a coordinated program that avoid impacts to airport operations and efficiencies.

MIA Mover | Principal-in-Charge
The MIA Mover APM system connects Miami International Airport to the Miami Intermodal Center. Mr. Shah oversaw all APM System Program planning, programming, engineering, procurement, and Implementation. As part of his work efforts he developed and recommended contracting strategies, package and scope definitions as well as budgets and program schedules. He led coordination of MIA Capital Improvements Program and external agencies/work programs, and FAA requirements, and supported the business case evaluation for a value engineered program following the economic downturn in the aviation industry post September 2001; this resulted in an alternate turn-key project delivery approach and a cost-effective project program that provided the necessary improvements, while maintaining the commitments to TIFIA guarantees on the MIC Program. After Contract award, Mr. Shah led the program management team overseeing the project delivery that resulted in an under budget and on-time project delivery.

Fort Lauderdale-Hollywood International Airport / Port Everglades APM and Intermodal Center | Principal-in-Charge
Mr. Shah led the team to evaluate and assess the feasibility of the Intermodal Center (IMC) and People Mobility alternatives on various corridors as part of the federally mandated Project Development and Environment (PD&E) Study to ensure project eligibility for federal and state funding. Responsibilities included overall program management (technical and project), strategic policy issues and interface/ briefing with client/Owner (Broward County, including the Aviation Department and Port), Florida Department of Transportation, Federal Agencies, and other stakeholders including the cruise lines, airlines, ground transportation operators, and the public. The locally preferred alternative included transit system configurations approximately 5 miles long that exceed $1.3 billion in capital costs and provide a connection between the Airport, the Seaport and to Regional Transit modes through the Intermodal Center. Initially expected to require a full EIS, the efforts were successful in reducing the environmental requirements to an Environmental Assessment with a Finding of No Significant Impacts.

LEA ELLIOTT

LAURA ESPINOZA, P.E. | AirTrain Planning - Procurement Strategy Lea+Elliott, Inc., Senior Engineer

Education:
M.S./B.S., Industrial Engineering, University of Houston

History of Employment:
Lea+Elliott, Inc.
2009-Present

Licenses/Certificates:
Licensed Professional Engineer - TX

Years of Experience:
19

Ms. Laura Espinoza has nearly 20 years of planning, procurement, implementation, and operations experience on APM transit projects. She served as the project engineer for the design and implementation of the Phase 1, Phase 2 and Phase 3 TerminaLink APM system projects at George Bush Intercontinental Airport/Houston. Her specific expertise is in the system integration and implementation of APM technologies. Ms. Espinoza recently participated in the testing and commissioning of the new Phoenix Sky Harbor International Airport Sky Train®. Ms. Espinoza was a part of the team that prepared the procurement documents for the Chicago O'Hare International Airport ATS (Airport Transit System) Expansion and Modernization project.

Chicago O'Hare International Airport ATS Systems & Vehicle Procurement Support | Senior Engineer
Ms. Espinoza was instrumental in developing the procurement documents for this project. Ms. Espinoza coordinated with other team members, including airport and City of Chicago personnel to write the General Provisions and Special Provisions to be included as part of the procurement documents. Lea+Elliott developed performance-based procurement documents for this project to facilitate a competitive procurement for the expansion and modernization of the existing ATS.

Phoenix Sky Harbor International PHX Sky Train® | Senior Engineer
Ms. Espinoza supported this project by reviewing and approving the testing procedures that were used for the comprehensive testing program for Stage 1 of the project. Ms. Espinoza's participation in the testing and commissioning program included on-site test witnessing as well as factory test witnessing at the supplier's assembly plant. Ms. Espinoza was also part of the team that developed the specifications for the future system expansion. Lea+Elliott developed the performance-based procurement documents for this project to facilitate a competitive procurement for the Operating System.

George Bush Intercontinental Airport/Houston TerminaLink Phase 3 | Project Engineer
Ms. Espinoza participated in the implementation and oversight of the second expansion of the original aboveground automated transit system at Houston's George Bush Intercontinental Airport. This expansion extended the guideway and included a four vehicle fleet increase, building of a new power distribution substation, two additional ladder tracks at the Maintenance and Storage Facility, and six new switches. Ms. Espinoza's specific activities included creating, evaluating, and implementing an accelerated testing plan for the System. Testing of the new system components had to be planned around the normal operations of the Phase 2 transit system. Ms. Espinoza coordinated activities between the existing O&M contractor, the System expansion contractor, Houston Airport Systems (HAS), and Continental Airlines. Ms. Espinoza also witnessed the majority of the System integration tests on behalf of the HAS. The successful testing

LEA ELLIOTT

LAURA ESPINOZA, P.E.
continued

plan contributed to opening the System for revenue service 3 months ahead of the contractually-specified completion date.

George Bush Intercontinental Airport/Houston TerminaLink Phase 2
| Project Engineer
Ms. Espinoza provided project management oversight for all phases of Phase 2 transit system planning, installation, implementation, and commissioning. She evaluated the contractor's testing plan and actively participated in the system testing and commissioning. Ms. Espinoza inspected, tested, and evaluated the electrical and mechanical components of the system and addressed critical operational problems and issues, including coordinating the mitigation of system harmonics. She also reviewed and coordinated the work being done by the facilities architect, the facilities contractor, and the system manufacturer and coordinated with the client and the vehicle manufacturer to ensure that the client was getting a quality product that met the aesthetic, as well as the technical requirements. Ms. Espinoza participated in the CDRL review and acceptance program, developed a CDRL database and created a schedule for the intensive on-site testing program that led the project to an on-time completion. The comprehensive testing program included testing of the vehicles and the software both in Pittsburgh at Bombardier's facility and on-site in Houston.

George Bush Intercontinental Airport/Houston TerminaLink Phase 1
| Project Engineer
Ms. Espinoza provided project management oversight for all phases of Phase 1 transit system planning, installation, implementation, and commissioning. She evaluated the contractor's testing plan and actively participated in the system testing and commissioning. Ms. Espinoza inspected, tested, and evaluated the electrical and mechanical components of the system and addressed critical operational problems and issues, including coordinating the mitigation of system harmonics. She also reviewed and coordinated the work being done by the facilities architect, the facilities contractor, and the system manufacturer and coordinated with the client and the vehicle manufacturer to ensure that the client was getting a quality product that met the aesthetic, as well as the technical requirements. Ms. Espinoza participated in the CDRL review and acceptance program, developed a CDRL database and created a schedule for the intensive on-site testing program that led the project to an on-time completion. The comprehensive testing program included testing of the vehicles and the software both in Pittsburgh at Bombardier's facility and on-site in Houston.

LEA ELLIOTT

THEODORE C. BARKER | AirTrain Planning - Procurement Specifications Lea+Elliott, Inc., Associate Principal

Education:
Education:
B.S./M.S., Industrial Engineering, West Virginia University

History of Employment:
Lea+Elliott, Inc.
1989-Present

UTDC Corporation
1985-1989
1982-1984

British Columbia Rapid Transit Company, Ltd.
1984-1985

West Virginia University
1971-1982

Years of Experience:
44

Mr. Ted Barker has 44 years of systems engineering experience involving specification development and their application in design, construction, implementation and operations & maintenance related to automated transit systems. He has extensive experience in the planning, procurement, implementation and operations of transit system projects throughout Asia and North America.

Mr. Barker has been involved in the development of specifications and provided operations support to dozens of APM and rail transit systems; he has provided systems engineering experience, specifically in operations & maintenance, including the O&M start-up for two fully automated transport systems in Vancouver and Detroit. He started his career as the operations manager for the Morgantown, West Virginia Personal Rapid Transit (PRT) System, one of the first and most complex APM systems ever installed. Mr. Barker also directed the operations and maintenance organization for the Detroit Downtown People Mover. In addition, Mr. Barker was on the Seoul, South Korea Project Management Team for the Gangnam New Mode of Transit Project focusing on facility planning and fleet size estimating, system and subsystem performance and design requirements, and estimation of capital and O&M staff and cost.

Denver International Airport Automated Guideway Transit System Project | Project Manager
Mr. Barker developed bid documents for the acquisition/renewal of operations and maintenance services for DEN's automated people mover. He participated in the evaluations of bid submittals and proposers' presentations and interviews and negotiations. He also developed technical specifications and related contract documents and materials for the automated transit system, evaluated proposals and assisted in the negotiations. He participated in all design reviews, interface meetings and supported the City in supervising the design and implementation of the transit system. He evaluated CDRL submittals and test plans and procedures; participated in construction progress meetings and subsystem, integration and System-level tests comprising the test and acceptance program; and assisted in the verifying of satisfactory completion of all contract compliance items. Mr. Barker performed ridership, queuing and wait-time analysis in conjunction with operation of automated trains of increased length and capacity and performed analysis to assist in planning for airport growth and additional automated train operations. This involved evaluating current modes of operation and utilization of the maintenance facility and storage areas and generating a list and description of potential capital projects to be considered as train ridership increases.

LEA ELLIOTT

THEODORE C. BARKER
continued

George Bush Intercontinental Airport Houston TerminaLink APM Phase 1 | Project Manager
Lea+Elliott provided planning, design, and construction administration services for the above-ground APM System. Mr. Barker led the preparation of Technical and Special Provisions (in which all required specifications were referenced), review of Contractor submittals, observation and oversight of construction and equipment installation, interface coordination, review of test procedures and witnessing of test conduct, preparation of Operations and Maintenance Documents and verification of Contractor compliance with Contract Documents, including very high reliability performance to satisfy Final Acceptance requirements.

Phoenix Sky Harbor International Airport PHX Sky Train® | Senior Engineer
Mr. Barker performed Project Management and engineering functions in the planning, specification identification, and design of the PHX Sky Train®. This encompassed basic planning including oversight of ridership analysis, operations planning, passenger flow analysis, alignment evaluation, vehicle technology assessment, power distribution analysis, operations and maintenance cost analysis, fleet size analysis, station design, depot location and layout, and expansion considerations.

Honolulu Rail Transit | O&M Specialist
As O&M Specialist, Mr. Barker reviewed and commented on initial Maintenance Facility designs and later attended on-site Design Review meetings for the Maintenance Facility. Mr. Barker produced comprehensive operating plans; led the development of Operations inputs to the system design; addressed system-level integration and fixed facility interface and was the team's Vehicle Technology expert. When this project was first under consideration in the 1990's, Mr. Barker evaluated Honolulu Rapid Transit System proposals in the areas of operations and maintenance, automatic train control systems and communications. He also analyzed unit price data as part of the change proposal evaluation.

Gangnam New Mode of Transit Project | Project Manager
Mr. Barker performed System Engineering functions as Project Manager for the Lea+Elliott team. He coordinated the development of the Transit System Technical Document, fleet size estimates, power distribution needs and cost estimates. He met with potential subsystem suppliers and design engineers, and participated in project office discussions regarding transit system design, construction, testing and operations and maintenance.

LEA+ELLIOTT

MATTHEW STURGELL, P.E. | AirTrain Systems - Facility Interface Definition, Technology Review Lea+Elliott, Inc., Senior Associate

Education:
B.S., Civil Engineering, Michigan Technological University

History of Employment:
Lea+Elliott, Inc.
2001-Present

Barton Malow Company
2000-2001

Licenses / Certificates:
Professional Engineer
MD, WV, VA, CA

Years of Experience:
15

Since joining Lea+Elliott in 2001, Mr. Matt Sturgell has been responsible for project planning, operating system/fixed facility interface management, development of contract specifications, design submittal review and compliance verification, implementation oversight and inspection, and test witnessing and verification. He also performs train operation simulation and modeling including LEGENDS©, composes and compiles planning studies and technical documents, creates and updates project drawings and graphics, and prepares and updates capital and O&M cost estimates. He is presently involved with design reviews, project planning, system/facility interface management, and cost estimating for several current projects.

Washington Dulles International Airport AeroTrain | Project Engineer
This project consisted of the planning, design, construction, and testing of a self-propelled airside Automated Guideway Transit system linking current and future concourses with the main terminal. Mr. Sturgell's responsibilities included managing coordination between fixed facility and system contractors and reviewing fixed facility documents to ensure proper incorporation of system components. He evaluated contractor submittals, including design, construction, and testing documents, and verified contract compliance. Mr. Sturgell performed oversight and inspection of construction activities. He was also responsible for witnessing and compliance verification of vehicle, automatic train control, power distribution system, communication system and integration testing activities.

Phoenix Sky Harbor International Airport PHX Sky Train® | Project Engineer
This project consisted of the planning, design, construction, and testing of a self-propelled Automated Guideway Transit system linking the airport terminals with parking and the 44th Street light rail station. Mr. Sturgell performed witnessing and compliance verification of vehicle, automatic train control, power distribution system, communication system and integration testing activities. He was also responsible for reviewing test procedures and test reports to ensure contract compliance.

Philadelphia International Airport APM Planning & Design | Deputy Project Manager/Project Engineer
Mr. Sturgell's responsibilities include planning the alignment and station locations for a new APM serving airside and landside passengers at PHL. He is involved in all aspects of the planning work including terminal, consolidated rental car facility, and roadway coordination, analyzing APM operations scenarios, estimating costs of various alternatives, and developing project schedules.

LEA ELLIOTT

MATTHEW STURGELL, P.E.
continued

Singapore Changi Airport T5 APM Planning & Design | Deputy Project Manager/Project Engineer
Mr. Sturgell is responsible for coordinating the APM systems requirements with the terminal and tunneling consultants for the different alignment and station location options under consideration for two new APM systems serving the proposed T5 expansion. He studied the passenger experience parameters associated with each option including walk distances and connect times. His responsibilities also include APM operations analysis and failure management assessment, APM technology assessment, cost estimating, and project timeline development.

Honolulu Rail Transit | Senior Engineer
Mr. Sturgell is part of the Core Systems/Fixed Facilities interface team and lead coordination with the maintenance & storage facility design. His responsibilities include review of Fixed Facilities design submittals including the MSF, alignment, and trackwork, and assessment of how the system components will integrate with the Fixed Facilities designs. He is also responsible for evaluating and verifying contract compliance of systems contractor submittals including wayside, facility, vehicle, interface management, and other system elements.

Confidential Middle East Urban APM | Project Engineer
This project involved the planning, design, construction, and testing of a 14-station, multi-route, APM system in the Middle East. While onsite, Mr. Sturgell managed Lea+Elliott's work including interaction with the client, weekly progress meetings, and oversight of construction and implementation activities. His responsibilities also included evaluating contractor trackwork, vehicle, third rail, and other system submittals, including design, construction, and testing documents. Mr. Sturgell performed factory site inspections, factory acceptance test witnessing of vehicle and other system components, and witnessing and compliance verification of on-site testing.

San Jose International Airport (SJC) APM Planning | Project Engineer
This project involved the planning, environmental clearance, and design of an APM system linking the proposed consolidated terminal of the San José Airport with a Santa Clara VTA light rail line. Mr. Sturgell's responsibilities included project planning, system/facility interface coordination with the project team, composing and compiling planning studies and technical documents, creating and updating project drawings and graphics, and preparing and updating capital cost estimates. He analyzed alternatives for the link and possible extensions, including alignment, interfaces with existing and planned infrastructure, operations, LEGENDS©, fleet, and cost analysis. He worked on layout and sizing of the maintenance facility and evaluated safety and security information. Mr. Sturgell also reviewed the Power Distribution System analysis and simulation of APM system and stations and prepared public outreach materials related to the project.

Education:
Master of Science,
Civil Aviation Engineering
National School of Civil
Aviation, France (ENAC)

Master of Science,
Airport Management and
Development
Florida Institute of
Technology
Melbourne, FL

History of Employment:
DY Consultants
2012-Present

Louis Berger Group
2008-2010

Years of Experience:
8

LYOR DAHAN | AirTrain Planning - Terminal & Airport Master Planning DY Consultants, Manager of Engineering Planning

Mr. Lyor Dahan serves as DY Consultants' Aviation Planning Manager since joining the firm in 2012. He leads all major airport planning efforts and provides senior consultation, direction and input towards the day-to-day operations of the department as well as its growth and development.

Mr. Dahan has been involved in numerous projects in the Northeast ranging from small general aviation airports to major international hubs. The majority of his work during the past seven years has been related to Port Authority of New York and New Jersey (PANYNJ) projects. His expertise in airside and terminal planning and thorough understanding of FAA regulations allows him to provide a broad range of services to airport sponsors and regulatory agencies. Mr. Dahan is also knowledgeable in federal and state grants procurement process, administration and closeout. In 2012, Mr. Dahan was awarded "in recognition of his significant contributions to the planning for Runway 4L-22R at JFK International Airport, NY - Where America Meets the World".

Mr. Dahan created a Research and Development team within the department, which aims at developing tools and software for the use of the airport planning industry.

Newark Liberty International Airport, End-Around Taxiways | Airside/Airfield Planner

- Leading and overseeing the ongoing planning related tasks
- Provides senior consultation, direction and major input towards progress of the study
- Currently working closely with Bill Dunlay to ensure appropriate actions are applied through each stage of the project

Westchester County Airport Master Plan Study | Project Manager

- Leading the ongoing planning effort for the Master Plan Update Study at HPN
- Point of contact for the County
- Manages a team of sub-consultants
- Coordinates the project schedule, the project budget and the technical approach for achieving the project's milestones
- Includes an Aeronautical Survey in compliance with AGIS standards, a wetlands delineation survey, a pavement management study and a sustainability program
- Moderated the first public meeting and a stakeholders' visioning session

LYOR DAHAN
continued

John F. Kennedy International Airport Airfield Planning On-Call Services | Project Manager
Continuous planning services in support of the airfield improvement program at JFK Airport, including: benefit cost analysis, construction staging and phasing plans, liquidated damages, weather analysis, metering and SWAP analysis, taxiway and runway utilization using Aerobahn data, airspace analysis.

- Project Manager and point of contact studies
- Responsible for scoping, scheduling, cost estimating and delivering the final product

Newark Liberty International Airport Terminal A Redevelopment | Planner

- Conducted several planning studies which included an aircraft parking layout plan for the 45-gate proposed facility, a long-term plan to ensure the airport's cargo operations continue uninterrupted through the 7-year construction period and a construction phasing plan that would provide the required amount of hardstand positions to accommodate the traffic throughout and after construction.

John F. Kennedy International Airport Central Terminal Area Conceptual Planning and Capacity Analysis | Deputy Project Manager
The purpose of this project was to assist the Authority in reaching strategic decisions for to the redevelopment of the Central Terminal Area at JFK.

- Technical expert in airside capacity and operational efficiency
- Involved in the dialogue between the Port Authority and the different airlines/terminal operators contributing to defining the future of the airport.
- Tasks including terminal capacity assessment, aircraft parking layouts, airside maneuverability studies and line of sight analysis.

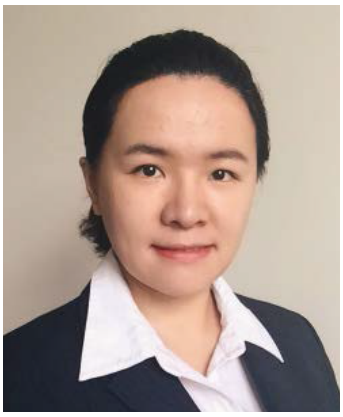
Saint John Airport, Canada Terminal Building Redevelopment Strategy | Project Manager

- Point of contact between the client and the firm, managing deliverables and project milestones
- Phase 1 of the study included a baseline condition assessment, a review of the forecast of traffic at the airport and a demand-capacity comparison
- Prepared some preliminary conceptual alternatives with NextGen considerations and provided information on the benefits and drawbacks of terminal renovation versus a new terminal building

LEA ELLIOTT

JUDY WU, P.ENG | AirTrain Systems - Power Simulation

Lea+Elliott, Inc., Senior Engineer



EDUCATION:
Bachelor of Eng., Electrical Engineering and Automation, Beijing University of Technology

M.Sc., Electrical Engineering and Computer Science, Concordia University, Canada

HISTORY OF EMPLOYMENT:
Lea+Elliott, Inc.
2014-Present

Bombardier Transportation
2009-2014

LICENSES/CERTIFICATES:
P.Eng. - Electrical Engineer (Ontario, Canada)

YEARS OF EXPERIENCE:
8

Ms. Judy Wu is a Senior Engineer with 8 years of experience in traction power system analysis and design (DC&AC load flow analysis, wayside equipment R&D design and sizing, energy consumption analysis etc.). She joins Lea+Elliott after over 5 years with Bombardier Transportation where she gained expertise in rail system electrification design, power system simulation and planning, developing technical documents including design documents, technical requirement documents, and test plan and procedures. At Lea+Elliott, Ms. Wu provides technical expertise related to power distribution systems for various projects.

Philadelphia International Airport APM Planning | Project Engineer
Lea+Elliott is supporting the Airport's Program Planning and Definition, and development of the airside APM elements. Ms. Wu has been assisting performing load flow analysis and power distribution evaluation for the APM system planning.

Honolulu Rail Transit Project | Project Engineer
Lea+Elliott is the Core Systems Support Services Consultant providing professional services during the design, fabrication, installation, testing, and commissioning and O&M start-up for this new 20-mile long automated rail system. Ms. Wu has been providing technical evaluation on traction electrification system design and witnessing factory acceptance tests. She has been also providing sizing analysis and preparing RFPs for traction power backup generators.

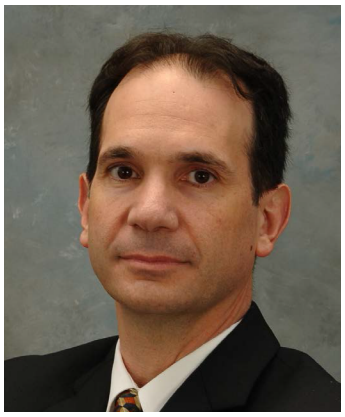
Hartsfield-Jackson Atlanta International Airport SkyTrain PDS System Upgrade | Project Engineer
Ms. Wu is evaluating engineering design and planning document and technical support the implementation phase for Hartsfield–Jackson Atlanta International Airport power distribution system (PDS) upgrade project.

Bombardier Transportation, System Division | PS&D Engineer
Ms. Wu performed DC & AC load flow analysis and simulation, TPSS and AARU sizing as well as energy consumption analysis for numerous bids and projects. She reviewed supplier documentation, client documentation and other Bombardier documentation and standard compliance.

Bombardier Transportation, System Division | R&D Engineer
Ms. Wu was the main designer of wayside energy storage product (EnerGstor) electrical and control systems. She performed railway power converter & inverter design and software programing & hardware implementation and served as the lead on the system integration, test planning, field testing and validation. She owns an US patent regarding railway power converter design. Ms. Wu also provided the efficiency, grounding and hazard analysis, O&M scoping and standard compliance evaluations.

LEA ELLIOTT

MARK INCORVATI | AirTrain Systems - Train Control/ Communications Lea+Elliott, Inc., Senior Associate



Education:
B.S. Electrical Engineering, Pennsylvania State University

M.B.A. International Business Management, Point Park University

History of Employment:
Lea+Elliott, Inc.
2012 - Present

Bombardier Transportation, Systems
1992-2012

Years of Experience:
23

Mr. Mark Incorvati has over 22 years of experience in the transit industry with experience in Automatic Train Control and integrated systems design as well as ATC Engineering Management, Project Engineering, and Project Management. Prior to joining Lea+Elliott, Mr. Incorvati worked for Bombardier Transportation as a Project Engineering Director responsible for designing, installing and testing for all Bombardier supplied electrical and mechanical equipment, including train control, communications, power, and vehicle systems. In addition to Fixed Block and Communication Based Train Control technologies, Mr. Incorvati has extensive experience in urban transit systems projects; in particular, those involving the retrofit of traditional Train Control with CBTC.

Honolulu Rail Transit | Train Control and Communications Design Specialist
This project involves the planning, procurement, construction, installation, testing, commissioning, and operation and maintenance of a new 20-mile rail transportation system in Honolulu, Hawaii. Mr. Incorvati is providing review and disposition of design documents and drawings to ensure technical compliance with contract requirements. While the scope of the design documentation has included all aspects of the project, the primary focus has been on the review of designs pertaining to the Automatic Train Control and Communications subsystems. In addition, Mr. Incorvati has participated in the review and acceptance of ATC RAMS documentation including Certifiable Items Lists and Hazard Analysis. Other activities have included the review and response to Technical Request for Information (RFI) regarding the clarification of contract requirements. In addition to technical reviews, Mr. Incorvati is providing commercial support, in particular with the generation of internal cost estimates pertaining to potential change orders (ranging from 1.5 to 66 MUSD) with the Core System Contractor

BART New Operation Control Center (OCC) | Project Manager
Mr. Incorvati oversaw the scope of work on this project, which examined the layout possibilities for the New OCC at the Lake Merritt Station Complex. As part of this effort, Lea+Elliott took part in a survey of the rail transit industry for recently implemented operation control center upgrades or replacements in order to identify any meaningful lessons learned for projects of this nature. The survey also investigated new available technologies for OCC facilities. The scope included an evaluation of the needs of the District for new systems equipment and software for expanding the capabilities of the OCC in support of the VTA extension. Lea+Elliott also reviewed the existing OCC systems equipment and software for functional requirements and research new state-of-the-art technologies for developing solutions to satisfy those functional requirements and BART's daily operational needs in a new facility. Finally, Lea+Elliott reviewed the New Transit Oriented Development (TOD) Project options at the Lake

LEA ELLIOTT

MARK INCORVATI
continued

Merritt BART Station Complex with regard to BART Operations.

Phoenix Sky Harbor International Airport PHX Sky Train® | Bombardier: Project Engineering Director
The Phoenix APM project scope includes 18 vehicles, 6 km of guideway, four passenger stations and four power substations. Mr. Incorvati was responsible for the design, installation and testing for all Bombardier supplied E&M equipment including vehicles, signaling, communication, power and maintenance equipment, while also being responsible and accountable for the coordinated management of multiple facets of the project, such as integration with project management processes and disciplines in the areas of schedule, quality, communications, human resources, cost, supplier management, risk, and change management.

Mucha Line Neihu Expansion | Bombardier: Technical Director
As Technical Director, Mr. Incorvati was responsible for the design, installation and testing for all Bombardier supplied E&M equipment including vehicles, signaling, communication, power and maintenance equipment. He coordinated design efforts of 100+ engineers from various Bombardier sites and ensured the engineering budget was met. Due to the size of the project and the number of resources, Mr. Incorvati worked side by side with the human resource managers and was responsible for the performance management processes (PMPs) of the resources. He also implemented cutover designs that streamlined the transition of 14 kilometers from the existing system to the newly installed ATC equipment, thereby eliminating cutover risks and accelerated the project schedule.

BART-SFO Signaling Extension | Bombardier (ADtranz): Project Engineering Manager
Responsibilities included coordinating and overseeing the Engineering effort for the BART-SFO Extension Project. The Signaling design scope consisted of both Wayside ATP and ATO components including Interlockings, Track Circuits, and Station Equipment. The project involved the integration of the ADtranz wayside equipment with the existing subsystems including the on-board ATC, OCC ATS system and the GRS wayside interlockings. Overall duties included interfacing various ADtranz disciplines including Design Engineering (hardware and software) Testing, Safety, and Manufacturing with Project management as well as with the customer and customer representatives.

LEA ELLIOTT

DENNIS HINISH | AirTrain Systems - Train Control/ Communications Lea+Elliott, Inc., Manager of Engineering Projects

Education:
B.S., Electrical Engineering,
University of Pittsburgh

History of Employment:
Lea+Elliott, Inc.
2014 - Present

Bombardier Transportation, Systems
2003-2014

Parsons – Transit Division
2003

Bombardier Transportation, Systems
1992-2003

Years of Experience:
31

Mr. Dennis Hinish has over 30 years of experience in the transportation (rail and ATS) industry, encompassing overall system design and integration, and specializing in the design, implementation, integration and commissioning of both communication based train control (CBTC) and fixed-block (FBTC) signaling systems. He has extensive expertise in System Engineering & System Integration, and led the development and implementation of processes for system engineering activities with his former employer, Bombardier Transportation. He previously worked as a Senior Engineering Consultant for Parsons and he is an active member of the INCOSE (International Council of System Engineering) Transportation Working Group.

People Mover Projects (Sacramento Airport, Las Vegas Airport, San Francisco Airport, Singapore 801, Miami DPM) | Bombardier: Project Engineer and Lead System Design & Integration Engineer
Mr. Hinish served as the primary technical point of contact with the customer. He was responsible for coordinating the design tasks of the assigned technical resources for all system design elements during the design, manufacturing, and start-up phases of the project. His duties included overseeing the design, integration and testing of the Signaling System, Communication Systems (i.e. RF, Public Address, CCTV, Telephones, and Station Signs), Station Doors, Traction Power Distribution System, and various trackwork. Mr. Hinish was responsible for overall system integration where he identified and documented all system/subsystem interfaces. He derived and documented the system level requirements from the customer specifications and developed a System Design Specification detailing the system design (specifically signaling design). He provided the technical interpretation of the customer specifications to various subsystem designers and allocated system requirements amongst the various subsystems. Mr. Hinish managed all changes to the system requirements and ensured the customer requirements were met through verification and validation activities.

Washington Metropolitan Area Transit Authority (WMATA) Silver Line Extension – Safety & Security Oversight | Project Engineer
Lea + Elliott is supporting the Metropolitan Washington Airports Authority (MWAA) in managing the 23.1-mile extension of WMATA's rapid transit system to and beyond Washington Dulles International Airport. We perform Safety & Security Certification Oversight in accordance with FTA Guidelines. Mr. Hinish's support includes the development and review of, design conformance, construction conformance, and test & integration verification checklists. Mr. Hinish is a member of the Owner's Safety/Security Working Group where he reviews and dispositions safety/security issues raised during the project execution.

LEA ELLIOTT

DENNIS HINISH
continued

Tampa International Airport ConRAC & APM | Senior Engineer
Lea+Elliott is on a team that will design and construct a new, landside APM that will connect the main terminal to a new consolidated rental car facility. Mr. Hinish is currently performing a review of Train Control, Communications, and System design related submittals. He also reviews and audits safety & security related submittals (i.e. PHA, SHA, Fault Tree Analysis, Hazard Logs, Safety Certification Reports, etc.). He is working to review the supplier's factory acceptance testing for system requirements compliance. As well as review of the supplier's field acceptance testing for system requirements compliance and review of the supplier's O&M Manuals.

Confidential International Airport Expansion | Senior Engineer
Bombardier is supplying its Innovia APM 300 system, including its CityFlo 650 CBTC signaling system. Lea+Elliott provides technical oversight responsibilities. Mr. Hinish's role includes the review and audit of all safety & security related submittals (i.e. PHA, SHA, Fault Tree Analysis, Safety Certification Reports, etc.). Mr. Hinish is responsible for auditing and verifying the supplier's factory acceptance testing for system requirements compliance. He also provides review of the supplier's field test procedures and Operation & Maintenance Manuals.

Mucha-Neihu (Taipei) MRT Project | Bombardier: Lead System Design & Integration Engineer
Mr. Hinish served as the primary technical point of contact with the customer. He was responsible for coordinating the design tasks of the assigned technical resources for all system design elements during the design, manufacturing, and start-up phases of a project. His duties included overseeing the design and testing of the Signaling System, Communication Systems (i.e. RF, Public Address, CCTV, Telephones, and Station Signs), Station Doors, Traction Power Distribution System, and various trackwork. Mr. Hinish led the effort to derive and document the system level requirements from the customer specifications and he provided the technical interpretation of the customer specifications to various subsystem designers. He allocated the system requirements amongst the various subsystems and managed changes to system requirements. Mr. Hinish managed all changes to the system requirements and ensured the customer requirements were met through verification and validation activities.

Monorail Projects (Sao Paulo/King Abdullah) | Bombardier: Lead Signaling System Engineer
Mr. Hinish was responsible for overall system integration where he identified and documented all system/subsystem interfaces. He derived and documented the system level requirements from the customer specifications and developed a System Design Specification detailing the signaling system design.

LEA ELLIOTT

KEITH KAHN, P.E. | AirTrain Systems - Train Control / Communications Lea+Elliott, Inc., Manager of Engineering Projects

Education:
B.S., Electrical Engineering, New Jersey Institute of Technology

M.S., Electrical Engineering, New Jersey Institute of Technology

History of Employment:
Lea+Elliott, Inc.
2012-Present

Siemens Transportation Systems
2009-2012
2007-2008

4D Security Solutions
2008-2009

Agere Systems
2001-2003

The Port Authority of New York & New Jersey
1985-1989

Licenses / Certificates:
Professional Engineer
NJ

Years of Experience:
25

Mr. Keith Kahn has 30 years of experience in project management, control and communications technology, design, construction, and systems deployment. His areas of expertise are Communications, Security and Control Systems including CCTV, Access Control, SCADA, and Public Address. He has also worked as a Hardware Engineer and a Software Developer. Mr. Kahn joined Lea+Elliott in 2012 after several years with Siemens Transportation Systems where he served as Manager of System Integration and as a Systems Engineering and Systems Integration Consultant on the New York City Subway PA/CIS (Public Address / Customer Information Screen) Project.

Newark Liberty International Airport AirTrain Newark Operation and Maintenance Contract Oversight | Lead Systems Engineer
Mr. Kahn is currently supporting all aspects of the Newark AirTrain Operation and Maintenance contract oversight. He is primarily responsible for the oversight of the deployment and ongoing operation of Electrical/Electronic Systems for AirTrain-Newark including CCTV, Emergency Communications, SCADA, Radio, Passenger Information Displays, Public Address, Power Distribution, and Fiber Optics Backbone. Oversight support includes: review of Engineering Investigation Reports, design/field change requests and other technical submittals; conducting performance, safety, quality, and contract compliance audits. Mr. Kahn also performed a Field survey to document all the CCTV cameras on the AirTrain system and developed a naming convention to identify each camera for the system. This naming convention will eventually be used for the entire Airport CCTV system.

Newark Liberty International Airport AirTrain Newark Overhaul Program on an As-Needed Basis | Lead Systems Engineer
Mr. Kahn is currently supporting the Capital Asset Replacement Program (CARP) which includes overhaul and replacement of various sub-systems on the AirTrain system. This is a five (5) year program which will rehabilitate all the major sub-systems. The existing DC propulsion system is being replaced with a modern AC drive system, redundant Data Communication System will be installed, all rotary switches overhauled, all Platform doors replaced and various guideway elements. He supports the communication subsystem Design Reviews for the Data Transmission System (DTS), Emergency Communication System (E-Call), Passenger Information Display System (PIDS), Public Address, Platform Doors, Vehicle HVAC, VOIP based Telecommunication system, and Audio Recording System.

Public Address/Customer Information Screen (PA/CIS) System for New York City Transit (NYCT) | Systems Engineering Consultant
The PA/CIS System for the New York City Subway integrates New York City Transit's (NYCT) SONET/ATM Fiber Optic communications system and Automatic Train Supervision (ATS) System to provide automated train arrival information via Public Address Systems and Customer

LEA ELLIOTT

KEITH KAHN, P.E.
continued

Information Screens. Mr. Kahn provided System Design Engineering and System Integration Consulting Services to Siemens Transportation Systems for NYCT's PA/CIS project. In addition he managed the implementation of the Central and Backup Control Centers as well as Test, Training, and Development facilities to support the PACIS System.

Public Address/Customer Information Screen (PA/CIS) System for New York City Transit (NYCT) | Integration and Field Test Manager
Mr. Kahn was responsible for the management of Integration and Field Testing and led the management of Software Commissioning, Field Testing, and Customer Acceptance of PA/CIS Systems at 156 passenger stations. He was also responsible for the Integration of 156 passenger stations with Central Servers located at NYCT's Rail Control Center and the integration of the PA/CIS System with NYCT's Automatic Train Supervision System and NYCTs SONET/ATM fiber optic network. Mr. Kahn architected the System Design for the Administration and Maintenance Functions of the PA/CIS System and he authored the System Design Description Document used by the Software Design and QA teams to develop and test System Administration and Maintenance Functionality.

Sound Transit Commuter Rail Extension | Communications Engineer
Mr. Kahn designed the 8 mile extension to the existing fiber optic backbone. The backbone is being used to carry the long and short haul signaling systems and also serves as the communications link for the passenger information systems.

Phoenix Metro Light Rail Transit System | Communications Engineer
Mr. Kahn designed the Communications Systems for the Northwest Extension to the Phoenix Light Rail Transit System. Communication Systems were designed for the Passenger Stations and Traction Power Substations. Systems included the Fiber Optic Backbone, Public Address, CCTV, Telecommunications, SCADA, Telephone, and Passenger Information Systems.

Albuquerque, New Mexico COA Modern Streetcar | Communications Engineer
Mr. Kahn designed the Communications Systems for the COA Modern Streetcar. Communications Systems were designed for the Passenger Stations, Traction Power Substations, Vehicles, and the Operations Control Center. Systems included a Fiber Optic Backbone, SCADA, Fare Collection, Public Address, Variable Message Signs, Telephone, CCTV, GPS Locator, WI-FI Internet Access, Radio, Access Control, Intrusion Detection, and Fire Alarm.

LEA ELLIOTT

CYNTHIA SUGIMOTO, P.E. | AirTrain Systems - System Safety / Security Lea+Elliott, Inc., Associate Principal

EDUCATION
B.S., Industrial & System Engineering, University of Southern California

HISTORY OF EMPLOYMENT
Lea+Elliott, Inc.
1993-Present

Parsons Brinkerhoff
1993

Pacific Planning & Engineering, Inc.
1989-1992

Navy
1983-2007

LICENSES / CERTIFICATES:
Professional Engineer
CA

YEARS OF EXPERIENCE:
26

Ms. Cindy Sugimoto has over 26 years of experience in transit system planning and engineering analysis at airports and in urban environments. She understands the issues of an operating airport and the unique aspects of construction at such a facility. Her project involvement begins at an airport master planning level and follows through to system operation, thereby giving her an in-depth perspective on how to plan for airport APMs and transit access. Her experience includes safety certification and oversight, project/construction management, transit planning and engineering/analysis, system cost estimation, system/facilities design interfaces, and transit system acceptance testing. Ms. Sugimoto is very familiar with FTA and various State Safety Oversight Agency safety-related practices, procedures and relevant issues. On various projects, she has participated in Fire Life Safety Committees, reviewed and revised System Safety Program Plans, assisted in the development of Safety and Security Certification Plans, and Safety and Security Management Plans.

Honolulu Rail Transit | Safety and Security
For this automated rail transit system, currently under construction in Honolulu, Ms. Sugimoto assisted with safety and security certification process and related submittals. Her current responsibilities during the design/build phase include the following areas: assisting in review of design submittals, including Safety & Security Submittal List, Critical Items Lists, System Safety Program Plan (SSPP), and other safety related design documents for various subsystems (Communications, ATC, etc.). She assisted in reviewing several Requests for Information (RFI) and Requests for Change Contractor (RFCC), and coordinated between HART's Core Systems Group and Safety Department, and with the Core Systems Contractor and their safety staff. She is participating in Fire/Life Safety Working Group and Safety & Security Certification Working Group, and supporting several other Safety & Security related committees.

Sacramento County Airport System Big Build | Safety and Security
This project involved providing design and construction management oversight services for the Sacramento Airport APM. Ms. Sugimoto reviewed and commented on the Contractor prepared System Safety Program Plan (SSPP) and drafted the Safety and Security Certification Plan (SSCP). She also supported the development of the Special Provisions section of the RFP.

Seattle Monorail Project | Safety and Security
As a Systems Engineer, Ms. Sugimoto supported the Fire Life Safety Committee (FLSC) and Safety Security Review Committee (SSRC), and updated the capital cost estimate. A key product of this effort was fourteen Letters of Concurrence (LOC) developed between the Seattle Monorail Project and various Authorities Having Jurisdiction (AHJ). The AHJs included the City of Seattle Department of Planning and

LEA ELLIOTT

CYNTHIA SUGIMOTO, P.E.
continued

Development, Seattle Fire Department, and the Seattle Department of Transportation. The LOCs identified code conflicts and provided the resolution to those conflicts with the intent of reducing the contractors bid price, minimizing design changes and review periods thus shortening the overall schedule.

San Francisco Municipal Railway ATCS Independent Safety Consultant | Project Manager
Ms. Sugimoto was the Project Manager for the independent safety review of an Advanced Train Control System (ATCS). The team reviewed the Safety Certification process, including Verification and Validation. Safety requirements were comprehensively determined, verified and validated through design review, analysis, test, and software V&V. She routinely coordinated with the client, contractor, State Safety Oversight Agency the California Public Utilities Commission (CPUC), the FTA and their PMOC. Other tasks included software regression package test certificate and safety case review, development and maintenance of a test monitoring plan database, assistance in review of system safety verification and validation reports, and participation in the project's Safety Advisory Board meetings and its drafting minutes.

Phoenix Sky Harbor International Airport PHX Sky Train® | Project Engineer
Phoenix Sky Harbor International Airport has implemented a new APM that connects parking, terminals and the regional light rail system, and will ultimately connect to the rental car facility. Lea+Elliott was selected to serve as the APM System Designer with a program management role that included oversight of the planning, design, procurement and implementation phases of Stage 1 and 1A of the project. During the procurement phase Ms. Sugimoto assisted with the review of several design documents and test procedures, and assisted in the development of a contract amendment for the Stage 1A extension. Ms. Sugimoto then assisted with the review of several design documents and test procedures (CDRL); and assisted in the development of a contract amendment for Stage 1A.

Sea-Tac International Airport Satellite Transit System (STS) Replacement/Refurbishment | Project Engineer
Ms. Sugimoto was a project engineer for the planning of the Seattle-Tacoma Airport STS Replacement/Refurbishment project. She estimated/analyzed the intra-airport transit system passenger queue size and wait-time during the refurbishment project's construction period; and evaluated the impact of a proposed temporary train operation scheme, which used the emergency walkway for passenger boarding/deboarding. She prepared a price comparison between the Adtranz (now Bombardier) Budgetary Estimate submitted on November 19th, 1998 and previous bid data from other systems. This data was used to assist the client in their negotiations with Adtranz.

HNTB

FRANK CANDIANO | AirTrain Systems - System Safety/Security

HNTB, Project Manager/Director/Infrastructure Safety & Security

Education:
BS, Business Management, Adelphi University

History of Employment:
HNTB
2011 - Present

SAIC
2002 - 2011

US ARMY & Army National Guard
1970 - 2002

Licenses / Certificates:
Homeland Security Exercise and Evaluation Program

DHS Certification

Training in Protected Critical Infrastructure Information

Years of Experience:
43

Mr. Frank Candiano has more than 43 years of experience in security management and force protection and 12 years with all aspects of critical infrastructure protection of structural, transit and rail security, including scope, schedules and budgets. He has technical subject matter expertise to lead, develop, review, direct or implement security plans and programs, policies, including emergency preparedness documents or programs in accordance with DHS/TSA, FTA and FRA guidelines, rules and regulations. He will perform security risk analysis for client facilities, including criticality and vulnerability assessments using approved DHS risk tools and HNTB risk models. He will also provide day-to-day guidance to project management relating to security activities and requirements.

Newark International Airport and LaGuardia Airports Central Terminal Building Design Basis Threat (DBT) Report | Senior Security Specialist
Senior security specialist assisting in the development of a comprehensive analysis and findings of all applicable threat locations and targeted asset elements as part of the DBT report. The analysis reflects targeted asset elements that require a mitigation strategy for building envelope failure, structural component failure, or propagation of collapse. This effort also includes protocols to assist in determining the threats, threat magnitudes and threat scenarios to be considered for each targeted asset element.

Port Authority of New York and New Jersey Course of Action Policy and Security Design | Senior Security Specialist
Senior security specialist who provided technical expertise to develop a Course of Action (COA) policy and protocol report for incorporating security planning and design into capital improvements that need to be investigated based upon risk-based threat and vulnerability assessment procedures. The COA balances levels of risk reduction that can be achieved against the cost of implementing the security improvements on a life-cycle cost basis. The project report in close coordination with Port Authority Office of Emergency Management (OEM) also identified feasible protective design options and recommended performance levels for each threat as a countermeasure or mitigation strategy.

Port Authority of New York and New Jersey Goethals Bridge Modernization Program | Senior Security Specialist
Senior analyst who developed concept of operations (CONOPS) and security surveillance and access control system performance criteria for the preliminary design RFP documents for the six-lane cable-stayed bridge.

MTA – Metro-North Railroad Security Emergency Preparedness | Senior Security Specialist
Senior security specialist responsible for the development and

HNTB

FRANK CANDIANO
continued

implementation of a comprehensive study and Threat Risk and Vulnerability Assessment (TRVA) and Consequence Management Plan for the Harlem River Lift Bridge (HRLB). The purpose of the TVRA is to identify threats, vulnerabilities and risks to the HRLB and concentrate on how it can be better secured with emphasis towards perimeter security, electronic security systems, surveillance, detection and fire suppression, as part of a layered security approach in support of "Defense in Depth." This effort also includes the development and implementation of a Consequence Management Plan, which addresses both pre-and post-event incident planning, operational readiness and response to terrorist attacks and WMD.

New York State Bridge Authority Security Operating Strategy and Plan | Security Team Project Lead
Security team project lead responsible for preparing an operating strategy and plan for the SOC so it can be relied upon on a 24/7 basis and allow a single operator to maintain situational awareness of any suspicious activities at its facilities, detect incidences that require the attention of the operator, and visually investigate an incident. This effort also required the development of a response plan that provides guidance and training to address various incidences and scenarios to either resolve routine incidents or to alert law enforcement and NYSSA operations to respond to an incident on an emergency basis when warranted. This included the development of a concept of operations (CONOPS) describing how the SOC can be operated to reduce security risks at the NYSSA facilities. He was also responsible for the development of an Incident Management Plan that is NIMS-compliant and includes NYSBA management and law enforcement in a joint decision making role.

Port Authority of New York and New Jersey Path Exchange Place Station Waterside Protection | Senior Security Specialist
Security specialist responsible for assessing potential security risks associated with proposed anti-swimmer and anti-ramming measures. He evaluated alternative security countermeasures in electronic surveillance, detection and deterrence technologies required to support the Exchange Place Waterside Protection Program for the installation of fixed anti-swimmer barriers restricting access and creating standoff to pier areas.

Massachusetts Bay Transportation Authority Greenline Extension | Director of Safety and Security Operations
Director of safety and security operations responsible for providing safety and security oversight during initial project development for seven new stations, a vehicle storage and maintenance facility as part of the extended MBTA Greenline light-rail service to the corridor which includes threat and Vulnerability Assessment (TVA) and a Preliminary Hazard Analysis (PHA) for the light rail system.

HNTB

JOSEPH ENGLOT, P.E. | AirTrain Systems - System Safety/Security

HNTB, Associate Vice President

Education:
MS, Civil Engineering, Polytechnic Institute of Brooklyn

BS, Civil Engineering, Polytechnic Institute of Brooklyn

History of Employment:
HNTB
2011 - present

Port Authority of New York and New Jersey
1972 - 2005

Licenses / Certificates:
Professional Engineer
NY

Years of Experience:
43

Mr. Joe Englot has 43 years of experience in the design of transportation facilities and the management of large projects. Joe oversees projects that reduce the vulnerability of transportation facilities to malevolent acts through the use of physical hardening, surveillance, and incident management, as well as, projects to rehabilitate and retrofit structures against the effects of natural hazards and general structural deterioration. He also has extensive experience in the structural design of light-rail systems for Newark Liberty International Airport and John F. Kennedy International Airport, as well as the design of their bridges. His project experience includes:

Newark Liberty International Airport Airtrain Guideway and Vehicles | Assistant Chief Structural Engineer
Assistant chief structural engineer who supervised design of EWR AirTrain stations and MCF, developed structural design criteria, and supervised technical review of structural design-build phase for monorail guideway structure and vehicles during design and construction phase. The monorail system connects the three main airline terminals with parking and rental car facilities and a maintenance control facility (MCF). Unique feature is the box-girder switches which horizontally flip 180 degrees on rotor pins to switch vehicles onto different guideway box-girder tracks.

John F. Kennedy International Airport Airtrain Guideway, Vehicles and Stations | Chief Structural Engineer
Chief structural engineer who supervised development of John F. Kennedy International Airport AirTrain program structural design criteria, structural design-build performance specifications and who supervised detailed technical review of the guideway structure, vehicle design, and stations during design and construction phase. Project value was $1.6 billion and unique features included isolation bearing design with continuous welded rail on three-to five-span continuous viaduct structure for the John F. Kennedy International Airport AirTrain Light-Rail System.

Newark Liberty International Airport AirTrain Extension to NEC Station and Technical Review for Airtrain Guideway Design and Construction | Chief Structural Engineer
Chief structural engineer who supervised structural design of project to extend the EWR AirTrain system one mile to the Northeast Corridor and construct a new AirTrain station there. Supervised 85% structural design of the guideway structure, structural design of the AirTrain NEC station, and technical review of design-build phase of guideway construction. The AirTrain Monorail station's elevated connector was launched across Amtrak and NJ Transit tracks without interfering with NEC rail operations.

HNTB

JOSEPH ENGLOT, P.E.
continued

PATH Extension to Newark Liberty International Airport Program Management | Safety and Security Task Lead
Safety and security task lead responsible for the overall safety and security aspects on this project. HNTB is currently providing program management services to PATH for the addition of two miles of new track and tunnel through the City of Newark, extending the PATH train service from Newark Penn Station to Newark Liberty International Airport. As program manager, HNTB will guide the program through conceptual design (station design, track design, platform improvements), railroad safety/security, transportation planning, environmental documentation, alternatives analysis. Additional scope of work items include ridership forecasting, MPT, operations analysis, quality assurance, systems integration, NEPA/environmental regulatory requirements and federal funding applications and guidelines, as well as provide overall coordination of program stakeholders and regulatory authorities.

Port Authority of New York and New Jersey 2008-2014 Security On-Call A/E Design Services | Project Manager
Project manager for the on-call design services agreement handling task orders for multiple security projects, including:

- Design Basis Threat Report for Newark Liberty International Airport Terminal A
- Project manager who led a project to prepare a Design Basis Threat (DBT) Report for the new airline terminal at Newark Liberty International Airport based upon a conceptual design for the redevelopment program. The DBT report identified all the potential threat scenarios, identified mitigation strategies, and established performance based security criteria to reduce the risk and mitigate the consequence of each scenario while allowing the terminal designer to optimize the related costs. The recommendations were incorporated into the preliminary terminal design.
- Design Basis Threat Report for LaGuardia Airport Central Terminal Building
- Project manager who led a project to prepare a DBT Report for the new Central Terminal Building at LaGuardia Airport based upon a conceptual design for the Modernization Program. The DBT report identified all the potential threat scenarios, identified mitigation strategies, and established performance based security criteria to reduce the risk and mitigate the consequence of each scenario while allowing the terminal designer to optimize the related costs. The recommendations were incorporated into the preliminary terminal design.
- Design Basis Threat Reports for Five Tunnels, Bridges, and Terminals Department Critical Infrastructure

STELLAR

JOSEPH ASSANTE | AirTrain Systems - Document Control

Stellar Services, Project Manager/IT Business Specialist

Education:
B.A. Economics, Rutgers University

History of Employment:
Stellar Services, Inc.
Project Manager
2010-Present

United States Federal Government
Business Management Analyst
2009-2010

Licenses / Certificates:
Secret Clearance: U.S. Department of Defense

Years of Experience:
6 years

Mr. Joseph Assante is a skilled project manager, and IT/Business Analyst. He has over 5 years of software and web application development experience and has demonstrated competency with application testing and implementation. He is an excellent time manager with the ability to perform under pressure. He is a highly motivated and focused with strong analytical skills and the ability to work with a high degree of accuracy and recall. He is an effective communicator with a high level of interpersonal skills, with willingness to learn from others and share knowledge.

Port Authority of NY/NJ (Newark Liberty International Airport) Project

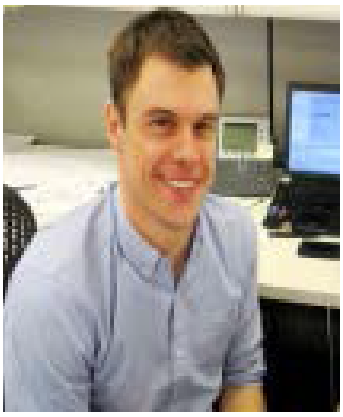
- Maintain logging and storing of documents in Livelink content management system.
- Work directly with the client to capture and facilitate improvements in the document management control process.
- Focus on application support and development while handling day-to-day support requests, as needed, and work on new Livelink projects as assigned.
- Help to identify and implement relevant enhancements in order to play a key role in implementing and configuring modules of new workflows and automated reports.

Picatinny Arsenal Project Management Support

- Manage and enhance the Portfolio Management application - Portfolio Management Dashboard (PMD).
- Effectively manage project resources and deliver agreed upon client deliverables based on contractual milestones.
- Serve as Project Lead/Owner of client facing Production System & QA (Quality Assurance) System of the PMD software to ensure stability and successful web application development and delivery.
- Responsible for Production, Quality Assurance, User Acceptance system deployments.
- Responsible for weekly and monthly reporting to the client, as well as reporting for the tracking of system releases, release planning, issues, and system upgrades.
- Maintain software applications that are used to measure and track the status of large portfolios of US Army programs and services that contain up to 200 active programs and a $1-2 B annual budget.

HNTB

LUKE BRIDLE, AIA, LEED AP BD+C, ENVISION SP | AirTrain Facilities - Terminal Connectors HNTB, Senior Project Architect



Education:
BArch, Architecture,
RMIT University

History of Employment:
HNTB
2013 – Present

AECOM
2007 – 2013

Legion Limited
2003 – 2006

Design Research Unit
2002 – 2003

David Watson Architect
2001 – 2002

Emery Vincent Design
2000 – 2001

Licenses / Certificates:
Registered Architect:
NY

LEED AP BD+C
Envision SP

Years of Experience:
14

Luke Bridle has 14 years of experience and has been responsible for the project management, planning, design and pedestrian flow analysis of transportation facilities nationwide. He has worked on more than 60 mass transit and rail stations throughout the US and Europe. In addition to his experience in architecture, he has developed a specialized niche in the pedestrian analysis and planning of complex spaces, where pedestrian movement is paramount to the success of the facility. He previously worked for Legion, providing consulting services to the World Trade Center Memorial, New York City Transit, Port Authority of New York and New Jersey, East River Development Company, Lower Manhattan Development Corporation, Transport for London, Madrid Metro, Americas Cup Management, Athens Olympics and London Olympic bid. His project experience includes:

World Trade Center Tour Bus Parking Facility | Project Architect
Project architect for underground tour bus parking facility and associated ramps connecting complex program spaces which include an intermodal train facility (PATH Hub), New York City Transit, Performing Arts complex, retail, and four high-rise office towers. Mr. Bridle aided in the coordination of the design development work of subconsultants and teams of architects, civil, structural, electrical, mechanical and geotechnical engineers.

Boston South Station Expansion | Project Architect
Project architect for the 30% design submission of the contemporary and innovative inter-modal facility. In addition to the transport enhancements, the project involves developing concepts for joint development opportunities applying transit oriented development principles to lay the infrastructure, building designs and planning policies for property development.

New York Penn Station Visioning Study | Lead Station Designer
Lead station designer responsible for analyzing pedestrian circulation and developing solutions to address the physical and operational internal capacity constraints of the station. This includes developing conceptual designs and simulations for short- and long-term capacity enhancements.

Amtrak Five Major Stations Modeling | Project Manager
Project manager for a Legion contract with Amtrak to model their five largest stations. These include New York Penn Station, Washington DC Union Station, Philadelphia 30th Street Station, Chicago Union Station and Los Angeles Union Station. This project involves creating models for the morning and evening commuter peak periods which incorporate all of the train activity in the stations as well as the retail components. The models will be turned over to Amtrak to be used for future station planning, security assessments, emergency egress assessments, timetable planning and major events planning.

HNTB

LUKE BRIDLE, AIA, LEED AP BD+C, ENVISION SP
continued

Massachusetts Department of Transportation Silver Line Phase III Stations Legion Pedestrian Study | Project Manager
Project manager responsible for assessing the pedestrian capacity and safety performance of the proposed stations at Chinatown and Boylston. Given that both stations are approximately 100 feet deep, particular attention was given to vertical circulation and station clearance times.

Young-Bloor Subway Station Capacity Improvement Study | Project Manager
Project manager responsible for developing sketch designs aimed at reducing congestion and increasing station capacity. The objective of the study was to test station operations and to propose station improvements that provide for the dwell time required to meet the future headways and to accommodate safe and efficient pedestrian circulation.

DC Union Station Redesign | Project Manager
Project manager responsible for analyzing pedestrian circulation within the north mezzanine area. The goals were to improve access to and from 1st Street, Union Station proper and improve congestion and vertical circulation.

DC Gallery Place Station | Project Manager
Project manager responsible for analyzing pedestrian circulation within the station. Mr. Bridle also provided recommendations for capital improvements to optimize pedestrian movement and alleviate congestion.

Pedestrian Study In Vicinity of Yankee Stadium Development | Project Manager
Project manager responsible for assessing the impact to pedestrians of the new Yankee Stadium and supporting infrastructure. The objective of this study was to provide the City team with key decision data pertaining to the movement and safety of 56,000 spectators and staff during and post construction.

USC Expo Park Pedestrian Analysis | Project Manager
Project manager for a study of the proposed light-rail line along Exposition Boulevard. This project focused on the station design and operations for the two LRT stations adjacent to the USC Coliseum, with a capacity nearing 90,000 fans. The study simulated pedestrian flow crossing the streets around the stadium and into the proposed LRT stations. From the analysis, the team recommended operational measures, such as pedestrian corrals, crossing times and areas for crowd management. This information was used to determine a game day operational plan.

HNTB

MICHAEL SHELTON, P.E. | AirTrain Facilities - Structural

HNTB, Associate Vice President

Education:
BS, Architectural Engineering, Kansas State University

History of Employment:
HNTB
1990 – present

SJCF
1983 – 1990

Licenses / Certificates:
Professional Engineer:
CO, KS, MD, MO, MI, FL, TX, TN, OH, GA, ME, VA

Years of Experience:
32

Mr. Michael Shelton has more than 32 years of structural engineering experience, and is currently the manager of HNTB's Building Structural Engineering Department. His project experience includes sports, convention, aviation, transportation, correctional, government, office, industrial, medical, educational facilities across the nation. His project experience includes:

West Falls Church Yard Service and Inspection Annex Sound Cover Box | Structural Engineer of Record
Structural engineer of record for the more than 900 feet of Sound Cover Box covering portions of three rail lines for the Dulles Phase I Rail Maintenance Facility for WMATA. Mike also served as the structural engineering supervisor and engineer of record for the structural steel framing design of the new steel and concrete framed rail maintenance building. The facility included drop pits, turntables and lift bays along with administrative support facilities for maintenance of trains for rail line.

Chicago Transit Authority Wilson Street Station | Structural Engineering Supervisor
Structural engineering supervisor this $203 million replacement of the existing elevated Wilson Station platform as well as the rehabilitation of the 90-year-old historic Wilson "Uptown Station" (the Gerber Building). Wilson Station serves as a major station on the Red Line, with nearly two million passengers per year. The project included the addition of two new auxiliary entrance buildings to the platform, and features a four-stage construction sequencing plan to maintain continuous uninterrupted service of the Red- and Purple-Lines at this station.

Tampa Bay to Florida - Florida High-Speed Rail | Structural Engineering Supervisor
Engineering supervisor for the station and building facility design for the USA's first high-speed rail line from Tampa Bay to Orlando. HNTB provided conceptual design and bridging documents for design/build procurement of design and construction of the project. The design included five signature stations along the rail corridor and maintenance facilities for the high-speed trains. The station locations include the Orlando and Tampa Airports, the Orlando Convention Center and a stop at Walt Disney World.

Chicago Union Station Rail Maintenance Yard | Supervisor
Supervisor for the design of this $70 million renovation and repair project for the maintenance yard near Union Station in Chicago, Illinois. The project included the addition or utility bridges, pedestrian bridges spanning multiple rail lines. New fall protection systems, mechanical system upgrades and other maintenance design.

MICHAEL SHELTON, P.E.
continued

AMTRAK AA/NEPA Transit Maintenance Facility | Structural Engineering Supervisor
Structural engineering supervisor for the schematic design of a new service and inspection facility for the AMTRAK Talgo line from Chicago to Milwaukee. The facility is more than 1,000 feet and incorporates service and inspection pits, drop pits, wheel trueing equipment and wash bays. The facility will also be designed for a future expansion bay.

Massachusetts Bay Transit Authority South Station Expansion | Structural Engineering and Planning Consultant
Structural engineering consultant and planning services for the ongoing development of concepts and preliminary design for a renovation and expansion of the historic MBTA South Station Terminal. The original terminal building was constructed in 1899 and has been expanded as a multimodal center, including the northern terminus for AMTRAK's Northeastern Corridor, as well as, a bus and commuter rail terminal for the MBTA. The new expansion project will upgrade the terminal and develop destination retail and commercial venues.

Portsmouth Memorial Bridge | Structural Engineering Supervisor
Structural engineering supervisor for the building structures portion of a new moveable bridge connecting Portsmouth, New Hampshire and Kittery, Maine. The new bridge is a replacement of a historic bridge that was recently condemned and raised. The buildings associated with the new bridge are a control house, machine rooms and gate-tender's houses. The bridge and the support buildings are designed to mimic the historic bridge being replaced.

Honolulu Rail Transit Guideway Maintenance Storage Facility | Structural Engineering Supervisor
Structural engineering supervisor for a new maintenance and storage facility for an elevated rail transit project serving the Honolulu area. The $195 million dollar facility will serve as the heart of the Honolulu High Capacity Transit corridor project. The facility is located on approximately 43 acres and consists of yard tracks, maintenance of way shop building, operations a servicing building, light metro vehicle wash and cleaning facilities and a wheel truing facility. The shop and the yard are designed to accommodate a fleet of approximately 124 light metro vehicles.

HNTB

SHOUKAT ALI, P.E. | AirTrain Facilities - Electrical

HNTB, Senior Project Manager

Education:
MS, Electrical Engineering, Drexel University

History of Employment:
HNTB
2014 – Present

Parsons Brinckerhoff
2012 – 2014

STV Incorporated
2008 – 2012

URS (Washington Group)
2000 – 2008

MTA-NYCT
1986 – 2000

Licenses/Certificates:
Professional Engineer
NY, NJ, PA, VA

Years of Experience:
28

Mr. Shoukat Ali has 28 years of hands-on experience in railroad traction power design, engineering, construction oversight and systems integration. He spent 15 years as project engineer/project manager and deputy director design with MTA – New York City Transit (NYCT). He is familiar with NYCT, MTA- Long Island Rail Road and Washington Metropolitan Area Transit Authority project and construction management procedures, design standards and operations protocols. His project experience includes:

MTA – New York City Transit Capital Improvement Projects | Project Manager
Project manager for capital improvement projects from concept to final implementation aggregating to about a billion dollars with full responsibility for staffing, budget, and schedule, with particular emphasis on systems integration of systems involving state-of-the-art technologies. As project manager for more than 12 years, Mr. Ali was responsible for construction administration of 20 system-wide substations renovation contracts involving major power, signal and communications renovations/modifications to bring the system up to date. This entailed total revamping or modifications of more than 70 related substations, 100 circuit breaker houses and 75 zone control rooms, and integration of equipment, hardware/software supplied by more than 100 manufacturers, suppliers and contractors. Close coordination with operating departments (power, communications and signals) was engineered to enable capital improvement while maintaining service around the clock through the years.

East Side Access | MTA – Long Island Rail Road | Senior Supervising Traction Power Engineer
Senior supervising traction power engineer providing services as part of the General Engineering Consultant tri-venture under contract to the MTA - Capital Construction for development of this $7 billion project to bring LIRR service to Grand Central Terminal (GCT), providing a direct connection to Manhattan's east side for current and future railroad customers. Mr. Ali was responsible for supervision, coordination and integration of traction power, facility power, communications, signals and lighting design of Mid-Day Storage Yard from 60% design to 100% design which would provide necessary storage and maintenance facility for the railroad system between Long Island and Grand Central Station in Manhattan.

MTA – Long Island Rail Road East Side Access | Deputy Tunnel Systems Manager
Deputy tunnel systems manager/supervising engineer traction power responsible for supervising the design of the projects' electrical and traction power system comprised of 15 facility power substations (2MVA to 10MVA range) and eight traction power substations (3MW to 12MW range). The traction power is a 750VDC third rail system feeding the entire length of the project. He was responsible for

HNTB

SHOUKAT ALI, P.E.
continued

the project traction power system, the tunnel lighting and signal power system, and the Queens portion of the facility power design. His work also involved interaction with the client, Long Island Rail Road, attending its monthly meetings. He interacted with the communications, signals, structural, civil, architectural, mechanical, HVAC leads to make sure that the interfacing issues were identified and addressed as early as possible. To monitor design progress, Mr. Ali held weekly meetings within the traction power and facility groups. He was also involved in preparing staffing budgets, requests for change orders, and coordinating cost estimating and scheduling groups.

Washington Metro Transit Authority | Traction Power Consultant
Traction power consultant who was responsible for reviewing and recommending modifications to the planned expansion as part of the system-wide Traction Power Modernization Program. Under this program, WMATA will gradually phase out the existing six-car trains and phase in eight-car trains at two-minute headways throughout its system. This entailed upgrading many existing substations ranging from 4 to 9 MW, replacing breakers, cables and conduits with higher capacity switchgear, cables and conduits. Further, he reviewed and commented on the planned extension of the WMATA system from Wiehle Ave the Dulles International Airport, Phase II of the $2.8 billion Dulles Railroad Corridor project. This extension has 10 Traction Power Substations ranging from 6 to 9MW units each fed at 34.5kV and six Tie breaker Stations powering the double track 11.4 miles long. He reviewed the simulation studies provided by other consultants. Based on the reviews, certain TPSS will have to be upgraded to 6 to 9 MW and some relocated along the alignment to meet the Design Criteria. As part of a multi-billion dollar Capital Improvement Program, he reviewed and commented on other Consultants' proposed modernization plans of medium voltage facilities substations for the operations and Administration Jackson Graham Building and the extensive Carmen Turner facilities for Buses Maintenance.

Dulles Corridor Rapid Transit | Manager/ Supervising Engineer of Traction Power
Manager/supervising engineer of traction power for this $2.2 billion design-build project which involved design of a traction power system and integration with communications, signals, railroad and non-railroad subsystems and facilities for approximately 23 miles of double-track commuter rail between East Falls Virginia and Route 772 via Dulles Airport. Mr. Ali was involved from conceptual stage through preliminary engineering and design for Phases I and II that were completed in 24 months. He also developed estimated cost of engineering for the traction power final design.

HNTB

MICHAEL VENTER, P.E. | AirTrain Facilities - Station Interfaces

HNTB, Rail Engineer

Education:
BS, Electrical Engineering, Rochester Institute of Technology

History of Employment:
HNTB
2014 - Present

AECOM
2007 - 2014

Booz Allen Hamilton
2006 – 2007

Hatch Mott MacDonald
2005 – 2006

Parametrix
2004 – 2005

Kimley-Horn and Associates
1991– 2004

Licenses / Certificates:
Professional Engineer: NY, FL, CO

Years of Experience:
27

Mr. Michael Venter brings 27 years of experience in rail transit systems, including design, planning, procurement, program management, installation, implementation and testing/commissioning. He has extensive experience managing multiple consultants on high-visibility projects requiring construction on active transit and railroad lines, interaction with stakeholders, and interfacing and integrating with work activities on other concurrent projects. Mr. Venter has extensive local and international experience with APM encompassing design, project controls, budget and schedule monitoring and management, configuration control and communications.

PATH Extension to Newark Liberty International Airport Program Management | Communications/SCADA Engineer
Communications/SCADA engineer for the addition of two miles of new track and tunnel through the City of Newark, extending the PATH train service from Newark Penn Station to Newark Liberty International Airport. As program manager, HNTB will guide the program through conceptual design (station design, track design, platform improvements), railroad safety/security, transportation planning, environmental documentation, alternatives analysis. Additional scope of work items include ridership forecasting, MPT, operations analysis, quality assurance, systems integration, NEPA/environmental regulatory requirements and federal funding applications and guidelines, as well as provide overall coordination of program stakeholders and regulatory authorities.

Lester B. Pearson International Airport Air Rail Link and APM System | Project Manager
Project manager and lead transit technology consultant for the DMU assessment and integration study. He developed the APM system and DMU technology definitions. In addition, technology reviews of various DMU technologies were performed and covered a full-range of options, including FRA compliant and those which were not. Right-of-way, dynamic envelopes, station interfaces, electrical and structural requirements were all part of the issues addressed as part of this assignment.

Houston George Bush Intercontinental Airport Above-Ground APM Rail System and Inter-Terminal Transit System | Project Manager
Project manager responsible for review and critique of APM design issues prepared. The major airline at the airport was implementing an APM system as part of the redevelopment of their terminal buildings. Mr. Venter's role was to act as the airport's technical representative and procurement expert overseeing the work being done for the airline.

HNTB

MICHAEL VENTER, P.E.
continued

Detroit Metropolitan/Wayne County International Airport Midfield Terminal APM | Project Manager
Project manager who looked beyond the APM system costs and considered the cost of the building housing the APM system, which was eventually implemented. Mr. Venter was directly involved with the design of the APM system including preparation of the procurement documents, and oversight of the contractor during system implementation. This project involved a DBOM delivery method. The team performed analysis and design functions that allowed for structural integration between the APM system guideway and the building structure. Mr. Venter and his team prepared all technical and maintenance specifications for passenger conveyance systems in the new terminal. This includes elevators, escalators, moving walks, and the APM system. The team also provided the owner with design review assistance, factory test and installation inspections, and witnessing verification/testing activities.

Cincinnati/Northern Kentucky International Airport Delta Air Lines APM System | Project Manager
Project manager who was the APM system consultant to Delta Air Lines during the planning, design, and implementation phases of the $315 million terminal expansion program. Mr. Venter served as the project manager during the system implementation phase of the project. This project was being installed in a tunnel connecting an operating concourse with a new concourse and terminal building. Mr. Venter participated in all design reviews of every aspect of the APM system. He was responsible for performing construction observation, witnessing factory tests, factory inspections, site inspections, and final acceptance testing. Mr. Venter managed the APM system supplier directly, including approval of all invoices and progress reports, and is proud of the results of this project where there were no Change Orders affecting project budgets or scope. In fact, there was only one change order due to poor weather, during the entire terminal expansion program. This project involved a DBOM delivery method.

San Diego International Airport Site Selection Program | Task Leader
Task leader for development of APM system plans, layouts, cost estimates and interfaces with other airport infrastructure. He also performed alignment reviews and cost estimates for the planned high-speed rail link from downtown San Diego to the planned new airport locations.

Kimley»Horn

ZACHARY TEAGUE P.E. | AirTrain Facilities - Guideway Alignment

Kimley-Horn & Associates, Associate

Education:
B.S., Civil Engineering,
Texas A&M University

History of Employment:
Kimley-Horn
2007 – Present

Infrastructure Group,
KBR
2004 –2007

Highway Design Group,
HNTB Corporation
2002 – 2004

Licenses / Certificates:
Professional Engineer VA,
Washington DC, TX, CT

Engineers Without
Borders

Years of Experience:
13

Mr. Zach Teague has more than 13 years of transit and transportation experience specializing in the preparation and development of preliminary and final design for transit and roadway projects. This experience has been used on heavy and light rail transit, commuter rail, freight rail, bus rapid transit, automated people movers, highway interchanges, grade separations, urban freeways, and urban and rural roadways. He has considerable experience in planning and design of rail transit systems operating in semi-exclusive and fully exclusive rights-of-way. Having been involved in transit design projects from a planning, design, construction, and program management perspective, Mr. Teague has significant experience in all phases of project design and implementation. Mr. Teague's track design as well as urban roadway and transit design experience provides him a broader view of the opportunities and constraints that must be considered when planning and designing transit facilities in differing operational and physical conditions.

Atlanta Hartsfield International Airport South Gate Complex Automated People Mover (APM) Analysis | Alignment Planning Analyst

Kimley-Horn provided APM consulting services as part of terminal expansion studies that have evaluated the interconnection of the existing terminal facilities with proposed new airside concourses in the area called the South Gate Complex. Kimley-Horn's work specifically involved the assessment of a new APM transit system to interconnect the existing and future proposed facilities. Mr. Teague performed construction cost comparisons for each APM alignment studied and performed alignment studies for the proposed new APM system which addressed alternative airside concourse station configurations, alternative terminal station configurations, and alternative alignments within the constraints of the existing airfield runway and taxiway perimeters. Key aspects of the work involved the deep tunnel implications of certain alignments that avoided existing landside facilities and roadways, and the trade off in construction methods and capital costs for the numerous alternatives.

Houston METRO Southeast-Downtown LRT Corridor | Project Engineer

The Southeast-Downtown Corridor runs through downtown Houston on one-way pairs Capitol Street and Rusk Street. Special design considerations were needed since trains will operate in mixed traffic as a streetcar in the downtown area. The three stations along Capitol and Rusk will be integrated into the curb and sidewalk and the station footprint and layout had to minimize impacts to adjacent buildings due to the sidewalk being raised to accommodate train loading and unloading. Mr. Teague was the lead engineer for all track related items including crossing/connecting to the existing Red Line and civil items including the demolition and street modification plans, typical sections, and design cross sections. His responsibilities also included

Kimley»Horn

ZACHARY TEAGUE, P.E.
continued

coordinating permanent traffic control plans, traffic signals, tree preservation plans, soil borings, and all systems related tasks.

Houston METRO East End LRT Corridor | Project Engineer
Kimley-Horn provided preliminary engineering services and produced final design plans for this 3.5 mile light rail extension of the Houston Metro system through the east side of Houston. The project consisted of design of semi-exclusive embedded light rail guideway, roadway reconstruction, utility relocation, the design of six stations, and a service and inspection yard and shop. Mr. Teague was the lead engineer for all track related items (track plan and profile drawings, track charts, trackwork details, and the service and inspection yard and shop) and civil items (demolition and street modification plans, typical sections, and ROW acquisition). His responsibilities also included coordinating permanent traffic control plans, traffic signals, soil borings, and all systems related tasks.

SANDAG/MTS Light Rail Transit Renewal Project Blue Line Stations | Project Engineer
The San Diego Association of Governments (SANDAG) and Metropolitan Transit System (MTS) are currently in the process of rehabilitating the MTS Blue Line corridor in preparation for low floor LRT operations. Kimley-Horn completed the construction documents for the implementation of improvements at 12 trolley stations along the MTS Blue Line corridor. Kimley-Horn was responsible for the civil, track way, systems, and urban design for the station reconstruction including the following elements: modifying the platforms from level (0”) to 8” above top of rail, sitework for drainage, revisions to pedestrian connections, landscaping, utilities, and urban design to include new station amenities, track and grade crossing replacement, and communication upgrades. Mr. Teague was the lead engineer for all track related improvements. This included track plan and profile drawings, grade crossing details including vehicular and pedestrian crossings, and trackwork related details.

Fresno COG Regional Public Transportation Infrastructure Study, PRT Analysis | Project Engineer
Kimley-Horn studied alternatives to alignments, station locations, and operational parameters of a PRT/GRT conceptual system being considered for the California State University – Fresno campus as part of a much larger multimodal transit assessment of the region. Mr. Teague performed alignment studies of a multi-level interchange for the aerial guideway system, evaluating trade-offs of grade transitions, configuration, and overall footprint of the structures as a baseline analysis of such an advanced technology system.

WALTER P MOORE

BRET BUSSE, P.E. | AirTrain Facilities - Guideway - Structural

Walter P Moore, Principal

Education:
M.S., Engineering Management, University of Kansas

B.S., Architectural Engineering, Kansas State University

History of Employment:
Walter P Moore
1989 – Present

Licenses / Certificates:
Professional Engineer in Puerto Rico and 20 States including:
New Jersey
Washington, DC
Virginia
Maryland

Years of Experience:
29

Mr. Bret Busse is a Principal and Senior Project Manager, and serves as the Operations Manager of the Washington D.C. office. He is responsible for the total execution of projects and the supervision of the engineering and drafting staff. He is directly involved in developing structural design solutions, coordinating contract documents, and overseeing quality control. He has 29 years of professional experience working on a wide range of project types. Because of Mr. Busse's strong facility design experience, he has a strong understanding of the building's complexities and can develop a structural design solution accordingly.

Louis Armstrong New Orleans International Airport North Terminal | Project Manager
Mr. Busse is the Project Manager on Walter P Moore's team providing structural and facade engineering for the new North Terminal of the Louis Armstrong New Orleans International Airport. The $650M, 647,000 SF terminal includes a three level main terminal and two 15-gate concourses. The terminal is scheduled to open in the spring of 2018.

Mr. Busse and his team are using parametric modeling to study the roof form and structural options, and are linking the analysis models with the Revit drawing models to ensure that the behavior of this complex building is properly designed and detailed. The terminal building will be a composite steel framed structure, utilizing a combination of braced frames and moment frames to resist lateral loads induced by high winds in this hurricane prone region.

Mr. Busse is leading the coordination and documentation efforts for Walter P Moore, providing intensive coordination between architecture, MEP systems, and baggage handling systems. He's also leading the coordination with the CM at risk.

Denver International Airport South Terminal Transit Center Peer Review | Project Manager
Mr. Busse led Walter P Moore's efforts in providing structural engineering peer review services for the design and detailing of the two signature steel diagrid canopies that are key components of the South Terminal Passenger Transit Center at Denver International Airport.

Buffalo Niagara Medical Campus Multi-Modal Transportation Structure | Project Manager
Mr. Busse led Walter P Moore's efforts as the prime for the design team in providing project management, structural engineering, structural diagnostic engineering and parking consulting services for this new 2,030 space parking structure on the Buffalo Niagara Medical Campus.

WALTER P MOORE

BRET BUSSE, P.E.
continued

The nine-level, cast-in-place structure consists of long span post-tensioned concrete beams and slabs, providing for column free drive aisles. The structural system utilizes moment frames for seismic and wind resistance, allowing for "open" floors for added visibility and security.

Mr. Busse worked closely with the Owner and Contractor to specify and select a structural scheme that provides enhanced durability for the harsh Buffalo climate. This is achieved through the use of a low water-cement ratio concrete mix design that includes silica fume and corrosion inhibitor admixtures, along with epoxy coated reinforcing steel, concrete sealers, and careful attention to detailing.

The project was delivered on a Design/Build basis, with an extremely fast track design and construction schedule. An early foundation package was delivered two months after the start of design, and an early structural frame package was delivered three months later. Walter P Moore utilized BIM in delivering the project, working closely with the design/build team.

WALTER P MOORE

TOM YOST, P.E. | AirTrain Facilities Guideway - Structural

Walter P Moore, Associate

Education:
Master of Architectural Engineering, Penn State University

Bachelor of Architectural Engineering, Penn State University

History of Employment:
Walter P Moore
6/2011 – Present

KL+A, Inc.
7/2008–6/2011

Licenses / Certificates:
Professional Engineer: Washington, DC

Years of Experience:
7

Mr. Tom Yost is an Associate at Walter P Moore. He has 7 years of progressive experience in structural engineering including design and construction administration roles on a large range of projects, including a significant amount of field experience.

Tampa International Airport ConRAC APM System | Project Engineer
Mr. Yost is a Project Engineer on Walter P Moore's team providing structural and façade engineering services for the $400M+ ConRAC and APM projects for Tampa International Airport in Tampa, Florida. The new APM system will connect the existing Landside Terminal Building to the new ConRAC facility. The system includes three APM stations, an APM maintenance facility, and 1.3 miles of APM guideway.

Walter P Moore is providing the structural design of the APM guideway superstructure which includes elevated and at grade portions. The elevated guideway will consist of cast-in-place concrete bents that support precast concrete girders for 60 to 90 foot spans, and structural steel girders for longer spans up to 200 feet in length and at curved sections of the guideway. Walter P Moore worked closely with the design team to locate bents and drilled caisson foundations to avoid conflicts with the existing roadway system and existing terminal infrastructure.

Louis Armstrong New Orleans International Airport North Terminal | Project Engineer
Mr. Yost is a Project Engineer on Walter P Moore's team providing structural and facade engineering for the new North Terminal of the Louis Armstrong New Orleans International Airport. The $650M, 647,000 SF terminal includes a three level main terminal and two 15-gate concourses. The main terminal features a long span roof and soaring ceilings in the ticketing hall, along with exterior curtain wall on all sides of the terminal.

Mr. Yost and his team are using parametric modeling to study the roof form and structural options, and are linking the analysis models with the Revit drawing models to ensure that the behavior of this complex building is properly designed and detailed. The terminal building will be a composite steel framed structure, utilizing a combination of braced frames and moment frames to resist lateral loads induced by high winds in this hurricane prone region. The terminal is scheduled to open in the spring of 2018.

Gaillard Performing Arts Center | Project Engineer
Mr. Yost was a Project Engineer on Walter P Moore's team that provided structural and façade engineering for this major renovation and expansion of the Gaillard Center. The $130 M project features include a new 1,800 seat performance hall, a renovated and expanded stage house, a renovated and expanded exhibit hall,

WALTER P MOORE

TOM YOST, P.E.
continued

and a new 90,000 square foot municipal office building for the City of Charleston. This challenging project included upgrading the existing building to conform to new building code requirements for significantly higher seismic and wind loads than the building was originally designed for.

Mr. Yost was involved in the project throughout design and construction, and took the lead role in providing construction administration for our structural engineering services on the project. In this role, he performed review of all of the structural submittals, resolved construction issues, and performed over two dozen site observations.

HNTB

RAY SANDIFORD, P.E., F.ASCE | AirTrain Facilities - Geotechnical

HNTB, Geotechnical and Foundation Practice Leader, Vice President

Education:
MS, Civil Engineering, Columbia University

BS, Earth Sciences, SUNY Stony Brook

History of Employment:
HNTB
2014 – Present

Port Authority of New York and New Jersey
1982 - 2014

Dravo Van Houten, Inc.
1980 - 1982

Stone & Webster Engineering Corp
1973 - 1980

Licenses / Certificates:
Professional Engineer
NY, NJ, MD

Years of Experience:
40

Mr. Ray Sandiford brings more than 40 years of program management, project management, design and construction experience in major complex transportation and infrastructure projects, including rail and transit, tunnels and shafts, bridges, complex underground projects, transit facilities, safety and security projects, highways, airports facilities, buildings, waterfront facilities, dredging and dredge disposals. During his extensive experience, Mr. Sandiford coordinated and interfaced with various public and private agencies and project stakeholders in the New York Metropolitan area establishing excellent working relationships with various agencies. In addition, Mr. Sandiford managed the Port Authority Geotechnical and Underground Engineering Department, various consultants, and contractors performing multi-billion dollar transportation and infrastructure projects for the Port Authority.

Newark International Airport Terminal Building Relocation Design | Chief Geotechnical Engineer
Chief geotechnical engineer who managed and directed the foundation design for the relocation of the historic Newark main terminal building. The project involved disassembling a very large building into three components and then transporting them across the airport and reassembling them on new foundations.

Newark International Airport Newark International Airport System Connection Geotechnical/Foundation Design | Chief Geotechnical Engineer
Chief geotechnical and tunnel engineer who managed and directed the geotechnical and foundation design for the Newark Airtrain system connection to the NEC Train Station. Significant interacting with NJT and Amtrak were required for the connection.

PATH Extension to Newark Liberty International Airport Program Management | Geotechnical and Tunnels Engineer
Geotechnical and tunnels engineer assisting in the assessment of structural foundations and tunneling options required to build this extension. HNTB is currently providing program management services to PATH for the addition of two miles of new track and tunnel through the City of Newark, extending the PATH train service from Newark Penn Station to Newark Liberty International Airport. As program manager, HNTB will guide the program through conceptual design (station design, track design, platform improvements), railroad safety/security, transportation planning, environmental documentation, alternatives analysis.

John F. Kennedy International Airport AirTrain Terminal Connection Geotechnical/Foundation Design | Chief Geotechnical Engineer
Chief geotechnical engineer who managed, directed and oversaw the geotechnical and foundation design of JFK AirTrain project connecting the various terminals in the airport and with LIRR's Jamaica Station,

HNTB

RAY SANDIFORD, P.E., F.ASCE
continued

and with NYCT's Howard Beach Station. Significant interfacing with the airlines, LIRR and NYCT, NYSDOT, NYCDOT, and various utility companies and stakeholders were required.

PATH Subway System Emergency Egress Improvements | **Chief Geotechnical Engineer**
Chief geotechnical engineer who managed and directed the design of four major emergency egress and ventilation shafts for the century old PATH subway system, including ventilation modification and fire-life safety improvements.

Temporary World Trade World Trade Center PATH Station Construction | Chief Geotechnical Engineer
Chief geotechnical engineer who managed and led the design and oversaw the construction of the Temporary PATH Station at the World Trade Center, as well as the new crossover tunnels at Exchange Place Station in New Jersey.

Trans Hudson Express | Program Manager
Program manager for the underground work involved in the Trans-Hudson Express (Access to the Regions Core) project. He represented the PANYNJ's oversight of the design of the Palisade tunnels, the Hudson River Tunnels, the 34th Street Station cavern and associated entrances and facilities. Extensive coordination and interfacing with NJT, FTA, Amtrak, LIRR, MTA and various public and private agencies and project stakeholders was required.

World Trade Center Subgrade Reconstruction | Project Design Executive
Project design executive for the WTC subgrade reconstruction responsible for the management and the implementation of the entire underground work of the WTC site redevelopment, including the reconstruction/modification of the bathtub, the 9/11 Memorial, the PATH Station, the Underground Garage, the Security Center, and World Trade Center 1.

Superstorm Sandy Recovery | Design Manager
Design manager for the PANYNJ's Superstorm Sandy recovery for tunnels and underground facilities including the PATH system, the Holland Tunnel, and the Lincoln Tunnel. Significant coordination and interfacing with the facilities operation and maintenance departments, with FEMA, and other agencies in the New York Metropolitan area was required.

Storm Surge Projection | Design Manager
Design manager for the PANYNJ's storm-surge protection program as a follow up on Superstorm Sandy and the recovery work. There was significant coordination and interfacing with various agencies in NY and NJ, and with FEMA.

HNTB

JOHN KOVAC, P.E. | Project Specialist - Estimating

HNTB, Project Controls Manager

Education:
BS, Construction Engineering Technology, Newark College of Engineering, NJIT

History of Employment:
HNTB
2013 - Present

AECOM Transportation
2005 – 2013

Greenman-Pedersen, Inc.
2001 - 2005

Kiewit Constructors, Inc.
2000 - 2001

Renda Roads
1994 - 2000

Licenses / Certificates:
Professional Engineer
NJ

Years of Experience:
20

Mr. John Kovac brings 20 years of experience in cost estimating, engineering, inspection, analysis and management of heavy highway/rail projects and underground utility construction. Mr. Kovac has been responsible for the development and preparation of comprehensive design and change order cost estimates from project conception through final design. He specializes in the review and analysis of all aspects of construction claims including entitlement, cost/damages and schedule from the project level to litigation. His project experience includes:

PATH Extension to Newark Liberty International Airport Program Management | Estimating/Constructability
Estimating/constructability responsible for minimizing costly changes and claims by anticipating and mitigating items with project impacts. HNTB is currently providing program management services to PATH for the addition of two miles of new track and tunnel through the City of Newark, extending the PATH train service from Newark Penn Station to Newark Liberty International Airport. As program manager, HNTB will guide the program through conceptual design (station design, track design, platform improvements), railroad safety/security, transportation planning, environmental documentation, alternatives analysis. Additional scope of work items include ridership forecasting, MPT, operations analysis, quality assurance, systems integration, NEPA/environmental regulatory requirements and federal funding applications and guidelines, as well as provide overall coordination of program stakeholders and regulatory authorities.

PATH Sandy Replacement of Civil Infrastructure in Tunnel E & F – Running Rail and Contract Rail Replacement | Scheduling/Cost Estimating Engineer
Scheduling/cost estimating engineer for the inspection of the contact rail and direct fixation track system in PATH tunnels E & F between Exchange Place Station and the World Trade Center Station to assess damage from contact with flood waters that were the result of Hurricane Sandy. The inspection included a detailed assessment of the running rail, restraining rail, all direct fixation plates and anchors in both tunnels. In addition to the inspection, recommendations were made as to how to best replace damaged components and provide a detailed cost estimate, construction schedule and staging plan that allowed for work to be done during limited weekend outages.

Goethals Bridge Replacement P3 Technical Advisor | Project Controls Manager
Project controls manager for the replacement of the Goethals Bridge. The Goethals Bridge links Staten Island and New Jersey and was deemed functionally obsolete necessitating a full replacement of the structure. The preferred alternative incorporates a new alignment to the south of the existing bridge and will provide ample traffic and shoulder lanes, a walkway/bikeway and a space for future mass

HNTB

JOHN KOVAC, P.E.
continued

transit options.

Metropolitan Council Central Corridor Light Rail Transit | Deputy Chief Estimator
Deputy chief estimator for this project that involved nine miles of at grade and elevated twin light rail system including the modification to and reconstruction of existing infrastructure. He prepared detailed cost estimates for preliminary design of new structures, utility systems and streetscape design.

MTA – New York City Transit Indefinite Quantity – Architectural and Engineering Design Services for Federally Funded Misc. Construction and Capital Security Projects | Cost Estimator
Cost estimator who provided Order of Magnitude construction cost estimates for alternative flood criteria designs at Tottenville Terminal Yard in Staten Island. Alternatives consisted of equipment elevation and construction of passive and deployable flood control measures.

Bayonne Bridge Risk Assessment of Navigational Clearance | Project Controls Manager
Project controls manager responsible for participating in risk workshops and creating point estimates for identified risks for the navigational clearance of the Bayonne Bridge. This bridge is the fourth longest steel-arch bridge in the world, and was the longest in the world at the time of its completion. It connects Bayonne, New Jersey, with Staten Island, New York, spanning the Kill Van Kull. Because the bridge is only 151 feet above the water, larger container ships often cannot navigate under to reach marine terminals in Port Newark, Elizabeth and Howland Hook in Staten Island. In December 2010, the Authority announced its decision to take action to "Raise the Roadway" of the Bayonne Bridge to 215 feet. The 64 feet of additional air draft under the bridge will allow the Authority to welcome larger, more efficient vessels to our ports, which will in turn result in cleaner air in our region. This project is currently under construction.

Replacement of Six Belt Parkway Bridges | Deputy Chief Estimator
Deputy Chief estimator for this project that involved complex foundations within sheeted cofferdams, pile foundations, soil improvement, sub-aqueous pipeline construction, complex staging to maintain traffic, all structures and pavements. He provided constructability review, quantity calculations and detailed cost estimate.

Route 139 Viaduct Reconstruction | Deputy Chief Estimator
Deputy chief estimator for this project that involved the rehabilitation and replacement of 70-year-old concrete encased steel structures with complex traffic patterns to maintain traffic, extensive night work, small and large steel replacement, foundation construction in heavily contaminated soil, and roadway surface replacement. He provided detailed estimate analysis for non-standard items and review of

HNTB

TAREK HATAB, P.E. | Project Specialist - Constructability

HNTB, Project Director

Education:
MS, Civil Engineering,
Columbia University

BS, Civil Engineering,
Alexandria University

History of Employment:
HNTB
2013 - Present

Metron, Inc
1999 - 2013

MTA-NYCT
1988 – 1999

Haram Contracting
1986 – 1988

Licenses / Certificates:
Professional Engineer NY

Years of Experience:
26

Mr. Tarek Hatab has more than 26 years of experience in program, project and construction management, with strong emphasis on transportation, transit and waterfront and marine projects. He has a proven track record on large and complex projects from planning to completion. Mr. Hatab brings excellent technical, strategic, organizational and management skills and has a strong background in contract interpretation and claim resolution. His project experience includes:

LaGuardia Airport Road Network | Project Manager
Project manager leading a team of 25 structural, bridge, civil, roadway and geotechnical engineers from around the country that devised a streamlined design of the $550 million roadway/bridge network at LaGuardia Airport. This design secured the viability of the entire LaGuardia redevelopment program and is expected to yield substantial savings in cost and schedule.

Peer Review of Roadway and Bridge Network in Connection with the Redevelopment of Terminal A at Newark International Airport | Project Manager
Project manager leading of team of civil, structural and geotechnical subject matter experts engaged to perform a thorough peer review of the preliminary design of the roadway and bridge network at the future Terminal A. The Team conducted a workshop and issued a report with suggested modifications to the preliminary engineering design.

Construction of Brooklyn Bridge | Construction Management Leader
Lead of the construction management team on this large and important project which converted 85 acres of the Brooklyn waterfront into a public park incorporating water, and land features. Tarek was responsible for all aspects of the construction of Pier 1, Pier 2, 6 and their uplands and Fulton. In addition, he was in charge of all civil and marine construction activities, including marine demolition, bulkhead sheet pile installation and restoration, revetments, pile repair and restoration, repairs to and upgrade of existing waterfront structures, barge fabrication and installation, earth moving and underground utilities. Mr. Hatab's involvement began at the design/constructability review phase and continued through bid/award, construction and turnover.

Reconstruction of Police District #23 | Project Manager
Project manager of this $14 million reconstruction responsible for managing the contractor so they did not default for lack of performance. He restarted the project and restored NYCT's trust and satisfaction. He was able to reverse delays and liquidated damages, and was also able to negotiate on behalf of the GC and recover additional monies due from NYCT.

HNTB

TAREK HATAB, P.E.
continued

Rehabilitation of St. George Ferry Terminal | Project Manager
Project manager/owner's representative on this highly visible $180 million rehabilitation project. His responsibilities included managing the design process to deliver coordination, timeliness, quality and cost efficiency. He made sure the requirements of the Users and Maintainers were included, accelerated the design schedule to start construction one-year ahead of the original schedule, and maintained the project within budget. He managed the effort during the construction phase; oversaw the performance of the construction manager; oversaw contractor compliance to contract requirements regarding quality; negotiated change orders; and reviewed contractor claims. He was instrumental in resolving several claims and lawsuits to the advantage of the Owner, thus saving substantial sums of money.

Atlantic Avenue Rehabilitation | Design Manager
Design manager for the highly-complex $180 million rehabilitation of a three-station complex at Atlantic Avenue. Upon evaluation of the preliminary design, he directed the designer to pursue an alternate design, which resulted in reducing disruptions both at the track level and on the street. He devised the construction phasing plan and duration, and he obtained NYCDOT's approval for the extensive and disruptive street-level work. He drafted contract general requirements and specifications. The project's initial schedule was 84 months. Through his effort of simplifying the design, the project was ultimately scheduled for 54 months and was built within schedule..

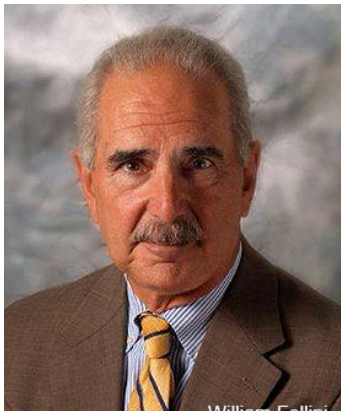
34th Street Station Rehabilitation, Eighth Avenue Line | Project Manager
Project manager for the $45 million rehabilitation of the 34th Street Station, Eighth Avenue Line. This station connects to Penn Station and the Farley Building – site of the future expansion of Pennsylvania Station. The project included major excavation and decking at one of the busiest intersections in New York City. Work progressed with minimal impact on the street level, and was completed ahead of schedule.

Broadway Line Stations Rehabilitation | Project Manager
Project manager for the $23 million rehabilitation of four stations on the Broadway Line. He was in charge of planning, design management and pre-construction activities. This project was an example of judicious planning through which plans for four individual projects were combined to take advantage of the track geometry of the four stations, which allowed the rehabilitation to proceed concurrently, thus minimizing disruption to normal train service and inconvenience to the ridging public, as well as reducing force account costs associated with track diversions.

HNTB

WILLIAM FELLINI, P.E. | Project Specialist - NEC Interfaces

HNTB, Associate Vice President



Education:
MBA, Executive Management, St. Johns University

BS, Electrical Engineering, Manhattan College

History of Employment:
HNTB
2014-Present

WMATA
2012-2014

Port Authority of New York and New Jersey/ PATH
1973 - 2012

Licenses / Certificates:
Professional Engineer NY

Years of Experience:
40

Mr. William Fellini brings nearly 40 years of experience working for the Port Authority and managing large complex programs. He served as assistant director for the PATH capital program and asset management, where he was responsible for developing and managing the PATH's 10-year, $4 billion capital program. In addition to his first-hand knowledge of PATH's operations, maintenance practices, labor relations, assets, processes and procedures, he also built strong working relationships with various key groups within the Port Authority, which will benefit any internal coordination involved with the PATH to Newark project. Further, he recently worked at the Washington Metropolitan Area Transit Authority (WMATA), where he led the Project Management Oversight Committee for their FTA-funded five-year $2.5 billion capital program. Monthly meetings were conducted with the FTA to discuss scope, schedule, budget, status and issues related to the capital program. He was also involved in the oversight of the WMATA New Starts Silver Line project, which involves extending the transit line approximately 22 miles in two phases to Dulles International Airport.

PATH to Newark Liberty International Airport Rail Station Program | Program Manager
Mr. Fellini was responsible for program management services for the addition of 2.4 miles of new track and tunnel through the City of Newark, extending the PATH train service from Newark Penn Station to Newark Liberty International Airport. An initiative of New Jersey Governor Christie, this project has been in the making since the early 2000s.

Port Authority of New York and New Jersey/PATH, NY/NJ | Assistant Director
Mr. Fellini was also responsible for the PATH capital program and asset management. He developed, directed and managed a large 10-year, $4 billion capital program that provided for security improvements, capacity enhancements, infrastructure renewal and state-of-good-repair projects. He managed the program using value engineering to prioritize projects. He led SEMAC, the Port Authority Construction Unit, through a significant downsizing, while increasing the yearly output of the unit. He initiated the Port Authority Office of Emergency Management Program and led the initial organization of the effort and participated in the first New York City-wide simulation of a Category III hurricane.

Under the Port Authority's capitol program, he also developed, directed and led negotiations for the PATH Signal Replacement Program and PATH Revenue Fleet Replacement, which were valued at more than $1 billion together. Over a six-month period, Bill planned and executed the movement of the Car Equipment Division to its new facilities, which included moving machinery from the old facility to the new one without disrupting passenger service or significant

HNTB

WILLIAM FELLINI, P.E.
continued

overtime.

PATH Signal Replacement Program | Program Manager
Mr. Fellini was responsible for the conceptual, final design and replacement of the entire PATH signal system from a fixed block to a communication-based train control system. Working with the Procurement Department, he was chairman of the selection committee that chose the successful contractor. Mr. Fellini was responsible for organizing and managing the project team that had to complete final design requirements, develop a replacement plan and structure replacement of the existing signal system on an active railroad. He coordinated design approvals with the FRA, which has oversight responsibility for the PATH system.

PATH Revenue Fleet Replacement (PA-5) | Program Manager
Mr. Fellini was responsible for the conceptual, final design and replacement of the entire PATH Revenue Fleet of railcars. The project also included the removal and demolition of the existing fleet of railcars. Working with the Procurement Department, he was chairman of the selection committee that chose the successful contractor. He was responsible for organizing and managing the project team that had to approve final design of the railcars and their multiple subsystems and acceptance of more than 12 vendors that provided those subsystems. The project team was responsible for approving all vendor supplied equipment, first article inspections and production schedules with the contractor. The project involved the replacement of 345 railcars. Mr. Fellini was responsible for coordinating the design with the FRA and acquiring their approval to allow the new railcars to run on PATH.

Washington Metropolitan Area Transit Authority, Silver Line Extension, Washington D.C. | Program Oversight
Mr. Fellini provided oversight for the delivery of the $3.14 billion Phase I for the Silver Line Extension. While Silver Line construction is being managed by the Metropolitan Washington Airports Authority, He was responsible for making sure the design and construction met WMATA specifications and standards. He was involved in the oversight of the scope, schedule, budget, status and issues related to the program. He worked with the consultant project managers to test the systems and oversaw correctional actions to successfully deliver an operational line. Mr. Fellini also developed contract documents for Phase II of the extension project.

Phase I of the Silver Line Extension involved five new stations, 11.7 miles of track, rail yard expansion at West Falls Church and a new railcar maintenance facility. With this new extension alone, Metro grew 10% larger, and an average of 25,000 daily riders are projected to use the new stations after the first year of service. Service became operational in July 2014.

HNTB

DAVID A. NORFLEET, CCP, CFCC, DRMP | Project Specialist - Risk

HNTB, Senior Risk and Contracts Specialist

EDUCATION:
B.S., Business Management, University of La Verne

HISTORY OF EMPLOYMENT:
HNTB
2013 – Present

Project Analytics Group
2012 –2013

Professional Investigative Engineers 2003 – 2012

Business Strategies & Analysis Group
1993 – 2003

LICENSES / CERTIFICATES:
CCP (Certified Cost Professional)

CFCC (Certified Forensics Claim Consultant)

DRMP (Decision and Risk Management Professional)

YEARS OF EXPERIENCE:
34

Mr. David Norfleet is a seasoned infrastructure professional and a certified risk management expert. He has nearly 35 years of experience in cost engineering and project management disciplines spanning transit, transportation, design, construction, environmental, manufacturing, aerospace, and government contracting industries. Mr. Norfleet has had key roles in multiple complex projects up to $10B in size ranging from conceptual planning through close-out. These roles involve risk management, estimating/budgeting, change order management, contract administration, and claims resolution.

Mr. Norfleet is in the forefront of risk management concepts having served on the Decision & Risk Management Professional certification development task force with some of the industry's most recognized experts. He currently drafts and updates recommended practices, peer-reviews papers, and grades examinations of others seeking certification. His research, training, and expertise make him a national resource within HNTB for both risk management training and implementation.

PANYNJ Goethals Bridge Replacement Project | Contracts & Risk Manager
Mr. Norfleet was the Manager for the design and construction phase risk management program for this $1.5 billion bridge replacement project procured under a Public-Private form of contract. As part of HNTB's owner's representative services, Mr. Norfleet's responsibilities include assessing risk allocation resulting from the executed Project Documents between the Authority and the Developer, reviewing procurement phase risk register and results of the FHWA Cost Estimate Review (CER), assisting in organizing guidance documents for subject matter expert workshops, assisting in facilitation of the risk identification workshops and developing final records and results of the overall risk assessment efforts. (2014-2015)

Van Ness Corridor Transit Improvement Project | Risk Manager
Mr. Norfleet is the Risk Manager for the San Francisco Municipal Transportation Authority and has conducted two risk workshops during design development, created a qualitative and quantitative risk register, and has drafted a Risk and Contingency Management Plan. These documents were developed in conformance with FTA guidance documents and have been reviewed by FTA's PMOC with only minor comments and/or revisions offered. (2014-2015)

Amtrak Baltimore and Potomac Tunnel Replacement Project | Risk Manager
Mr. Norfleet is responsible for developing and implementing a comprehensive Risk Management Program for all three phases of the project. This program is to be compliant with all relevant FRA requirements and guidance documents. Efforts are currently underway for a conceptual engineering (10% design) risk register

HNTB

DAVID A. NORFLEET, CCP, CFCC, DRMP
continued

development.

Kosciuszko Bridge, New York, New York | Design-Build Delivery Team Member
Mr. Norfleetwas responsible for contracts and risk management. Duties included reviewing the RFP contract terms and conditions, and conducting a pre-award risk management workshop to assess risks for contingency planning purposes as designer for this design-build project.

Miami Dade Expressway Authority (MDX) Connector Project | Risk Manager
Tasked with conducting a procurement phase risk assessment for the design and construction of SR 874 Ramp Connector to SW 128th Street and advise MDX regarding potential project risks after award.

Crenshaw/LAX Transit Corridor, Los Angeles, California | Deputy Project Manager, Contracts and Risk Management
Mr. Norfleet's duties include assistance with development of policies and procedures for various control systems including risk management, contract and subcontract administration, administration, change order management, and document control. He conducts risk management training, risk workshops, and develops the project risk register. Mr. Norfleet also provides guidance and oversight to the project team on contracts and risk management functions.

RTD FasTracks Eagle P3 Commuter Rail | Regional Transportation District Owner's Representative
Prior to joining HNTB, Mr. Norfleet was the District owners representative for the $1.3 billion commuter rail line serving downtown Denver to Denver International Airport. Mr. Norfleet's duties included review and revisions to the Project Risk Analysis prepared for the Federal Transit Administration, schedule review, schedule risk assessment of the design-builder's schedule, and advice on potential design-builder schedule claims.

Radin Consulting, Inc.
Transportation & Environmental Planning & Design
RCI

EDUCATION:
B.A. Political Science
Rutgers University

HISTORY OF EMPLOYMENT:
Radin Consulting, Inc.
1999 - Present

NJ TRANSIT
1984 - 1999

LICENSES / CERTIFICATES:
Certified Public Manager, 1986

Goldman Sachs, Certificate of Entrepreneurship

YEARS OF EXPERIENCE:
25+

CHITRA R. RADIN | Project Specialist - Environmental

Radin Consulting, Inc., President

Ms. Chitra Radin has more than 25 years of management experience in planning, design, and construction of transportation infrastructure. Her areas of expertise include the following:

- Manage large multi-discipline transportation projects
- Conduct environmental reviews on federal and state-funded projects. This includes the preparation review and management of federal (NEPA, EIS, EA, Categorical Exclusion) and state (EO 215) documents.
- Provide consultations to agencies on streamlining opportunities, exemptions on regulatory approvals, and action thresholds
- Conduct public outreach activities – public information meetings, public hearings, open forums, etc.
- Coordinate with regulatory agencies (USEPA, Federal Transit Administration, NJ Department of Environmental Protection, US Coast Guard, Army Corps of Engineers, State Historic Preservation Office) for permits and approvals.
- Ensure compliance to mitigation commitments during construction.

PATH Extension to EWR | Environmental Planning/Strategy
Ms. Radin will oversee the update of the environmental documentation and preparation of the project management plan for the project. Additionally, she will be involved in planning and facilitating public outreach activities.

Connecticut Department of Transportation FTA Project Management Oversight Consultant | Oversight Consultant
Ms. Radin provided PMOC services to ConnDOT. As part of this project, Ms. Radin oversaw several capitally-funded projects on behalf of ConnDOT, including the construction of a new rail facility in New Haven, catenary improvements on the New Haven Line, and the construction of five new wayside substations. Ms. Radin has worked with the FTA for over two decades and is knowledgeable about their review/management/ oversight issues and regulations.

WMATA Program Management Services for the Capital Improvement Program | Project Support
Ms. Radin functioned as Project Support and oversaw the preparation of the Project Management Plan (PMP) for WMATA's Bus Maintenance Facility Rehabilitation Contract and the Orange-Blue Line Rail Contract. Ms. Radin also assisted in the preparation of the Environmental Assessment section of WMATA's Rail and Bus Facility Assessment. The project entails accelerating WMATA's Infrastructure Renewal Program while bringing WMATA's assets into a state of good repair.

Radin Consulting, Inc.
Transportation & Environmental Planning & Design
RCI

CHITRA R. RADIN
continued

High-Speed Rail Improvement Project (HSIPR) – Northeast Corridor | Environmental Lead
This project includes the development of a high speed operating segment on a 25-mile portion of the Northeast Corridor (NEC) between New Brunswick and Trenton, New Jersey. Ms. Radin is oversaw the preparation of a CE document, in compliance with the National Environmental Policy Act (NEPA), for this project. As part of the document preparation she was involved in the assessment of potential primary, secondary, short, and long term impacts of the proposed project.

NJ TRANSIT Access to the Region's Core Environmental Impact Statement (EIS)/THE Tunnel Project | Client's Environmental Lead
Ms. Radin functioned as an extension of staff to NJ TRANSIT and oversaw the preparation and review of the Environmental Impact Statement. She was involved in the DEIS, SDEIS and the FEIS phases of this project. Ms. Radin consulted on technical issues, coordinated with the Federal Transit Administration on process and strategy, reviewed all documents and participated in all public outreach activities.

NJ TRANSIT/AMTRAK Portal Bridge Environmental Impact Statement (EIS) | Environmental Task Leader
Ms. Radin was assigned in the preparation of various analytical sections of the EIS document: Land Use, Zoning, Property Acquisition/ Displacement, and Environmental Justice. Assistance in the areas of GIS mapping and developing geotechnical data base for past work was also part of this effort.

MTA/NYCT Fulton Street Transit Center EIS and Design | Client's Environmental Lead
The project entails the construction of an $1.2 billion transit facility in Lower Manhattan and the rehabilitation of the subway stations within the Fulton Street Complex. Ms. Radin functioned as an extension of staff to MTA—Capital Construction and oversaw the preparation and review of the Environmental Impact Statement. She was involved in the DEIS and the FEIS phases of this project. Ms. Radin consulted on technical issues, coordinated with the Federal Transit Administration on process and strategy, reviewed all documents and participated in all public outreach activities. Subsequent to the completion of the FEIS and the receipt of Record of Decision, Ms. Radin conducted multiple environmental analyses to assess the potential for environmental impacts associated with design modifications.

HNTB

ANTHONY LEE, AICP | Project Specialist - Environmental

HNTB, Senior Risk and Contracts Specialist

Education:
MA, Regional Planning, Community and Economic Development, University of North Carolina at Chapel Hill

BS, Urban and Regional Studies, Cornell University

History of Employment:
HNTB
2014 – Present
Systra Consulting
2013 – 2014
Lee Planning Solutions
2012 - 2013
Federal Transit Administration
2011 - 2012
Parsons 2005 - 2011
Louis Berger Group
2003 - 2005
Dewberry-Goodkind
2001 - 2003
Saccardi & Schiff
1999 - 2001

Licenses / Certificates:
American Institute of Certified Planners

Years of Experience:
25

Mr. Tony Lee has 25 years of experience in managing transportation planning and environmental groups, successfully delivering linear projects (rail, road, highway and bridges), including complex National Environmental Policy Act (NEPA)/E.O. 215 process reviews, Environmental Impact Statements (EIS) and obtainment of NEPA Records of Decision (RODs). Mr. Lee is well-versed in various planning areas, including transportation (rail, aviation, road, highway, plans), environmental (Phase 1 assessments, ROW, noise and air studies), public participation/outreach, transit-oriented development and land-use. He has formulated and led public participation strategies and activities, including workshop facilitation, group presentations, elected officials and community group coordination, website presence, and media handling.

Crenshaw/LAX Transit Corridor FEIS/FEIR and ROD | FTA Environmental Protection Specialist
FTA environmental protection specialist responsible for obtaining NEPA/CEQR compliance. He was brought on to manage the project halfway through a stalled process consisting of a DEIS and SDEIS. He was responsible for completing FEIS/R accounting for new alternatives and a Record of Decision in less than 12 months. He directly managed LACMTA's consultant and directed specific analysis and coordination efforts with other agencies, including FAA, as well as writing sections of the FEIS/R. He conducted project management with frequent trips from New York City as home base.

PATH Extension to Newark Liberty International Airport Program Management | Planning and Communications/Outreach Task Lead
Planning and communications/outreach task lead responsible for the internal and external communications on this project. Tony is playing a key role in providing written deliverables, interfacing with federal agencies, and developing and implementing the Public Outreach Plan. HNTB is currently providing program management services to PATH for the addition of two miles of new track and tunnel through the City of Newark, extending the PATH train service from Newark Penn Station to Newark Liberty International Airport. As program manager, HNTB will guide the program through conceptual design (station design, track design, platform improvements), railroad safety/security, transportation planning, environmental documentation, alternatives analysis. Additional scope of work items include ridership forecasting, MPT, operations analysis, quality assurance, systems integration, NEPA/environmental regulatory requirements and federal funding applications and guidelines, as well as provide overall coordination of program stakeholders and regulatory authorities.

HNTB

ANTHONY LEE, AICP
continued

Northern Branch Corridor Light-Rail Transit Draft Environmental Impact Statement | FTA Environmental Specialist
FTA environmental protection specialist who was responsible for overseeing NEPA clearance actions by NJ Transit, including completion of a draft EIS for an at-grade light-rail project. He provided hands-on advice and review of NEPA documentation and actions.

MTA – Long Island Rail Road East Side Access Readiness | FTA Environmental Protection Specialist
FTA environmental protection specialist who managed the NEPA process for various ESA readiness projects, including the Colonial Road Bridge (Great Neck) Environmental Assessment (EA), the Massapequa Pocket Track EA, and Mid-Suffolk Electric Rail Yard Alternatives Analysis. Colonial Road Bridge required extensive coordination with FHWA and NYSDOT. The Colonial Road Bridge project required providing NEPA technical assistance, as well as training to LIRR staff on NEPA requirements. For Mid-Suffolk Electric Yard, he provided NEPA guidance and advice to LIRR on project development, approach and environmental screening. All projects required expert technical knowledge of environmental review processes in project development for transportation related projects; Section 106 of the National Historic Preservation Act; Endangered Species Act; Clean Water Act; Section 4(f) of the Department of Transportation Act; Noise and Vibration Assessment; NEPA; Title 23 of the U.S. Code; Clean Air Act; and Environmental and Historic Preservation litigation.

Richmondtown Roadway Improvement Preliminary Design and EIS | Project Manager
Project manager responsible for the preliminary design and CEQR-compliant EIS. This high profile, highly controversial project included very extensive public outreach and coordination with local stakeholders, property owners, elected officials and city and state agencies. His role included formulating and implementing public participation plan and leading many workshops and presentations. The EIS included extensive right-of-way and ownership investigations, parkland takings, visual impacts, noise impacts and navigating through New York City's ULURP and Parkland Alienation issues. NYCDOT specifically requested Mr. Lee's involvement again for 2013 to 2014 even though he was with another firm.

Fulton Street Transit Center EIS | Quality Assurance Manager
Quality assurance manager who supervised construction and cumulative effects analysis for the environmental impact statement and supporting documentation for the construction of the proposed transportation hub in Lower Manhattan.

AECOM

MICHAEL J. NAUGHTON, P.E. | Construction Oversight

AECOM, Associate Vice President

Education:
MS, Transportation Planning, New Jersey Institute of Technology

BS, Civil Engineering, Manhattan College

History of Employment:
AECOM
2003-Present

Parsons Corporation
2000-2003

NJ Transit
1995-2000

Licenses / Certificates:
Professional Engineer, New Jersey, New York

Certified Construction Manager (CMAA), CCM #A1992,151930

Years of Experience:
20

Mr. Mike Naughton is skilled in the design and construction management of railroads and bridges, through his experience working with many transit agencies in the New York and New Jersey area, including PATH, Amtrak, NJ TRANSIT, New York City MTA, and Long Island Rail Road. His construction management experience includes managing multiple construction contracts for new light rail systems in downtown urban central business districts, and rehabilitating a century-old ventilation facility for tunnels for such clients as Amtrak and New York City Transit. His planning experience includes managing and making recommendations to the scheduling of major capital projects under the Port Authority Trans Hudson (PATH) system.

Mr. Naughton is knowledgeable of state, federal, and industry codes, as well as local city and municipal regulations. His construction management experience includes schedule management, costs management, quality assurance, shop drawing review, change management, inspection, coordination, work plan preparation, railroad force account coordination, railroad track requests, safety, administration, and other aspects of client support.

Among Mr. Naughton's accomplishments are several award-winning construction projects, including NYCT's Montague Tunnel Rehabilitation and NJ TRANSIT's Newark Elizabeth Light Rail project.

Newark Light Rail Extension | Resident Engineer
Resident engineer for the $200M project to extend the light rail system from Newark Penn Station to Newark Broad Street Station. This project included a deep cut and cover cast-in-place tunnel under Mulberry Street, at- grade segment with 4 new stations, multiple electrical substations, and a new emergency ventilation system for the tunnel. Responsibilities include managing team of inspectors and schedulers; performing quality assurance audits; preparing independent construction cost estimates; chairing bi-weekly contractor meetings; negotiating contractor change orders; reviewing shop submittals; approving contractor invoicing; coordinating with public utilities and neighboring property owners; and contract closeout.

Honolulu Authority for Rapid Transit (HART) Airport Guideway | Constructability Review Engineer
Constructability reviewer for the design of the 3rd segment (Airport Guideway), and the 4th segment (City Center). The design of the two segments is based on a aerial guideway of precast segmental post tensioned box girders, on concrete piers. Constructability review included the following disciplines: structural, civil, track alignment, MPT, and utilities.

AECOM

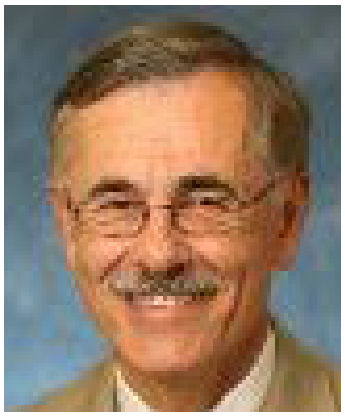
MICHAEL J. NAUGHTON, P.E.
continued

Recovery & Resiliency Repairs – 53rd Street Tunnel, Roosevelt Island Substation, Rockaway Park Yard Rehabilitation Projects | Construction Manager
Project manager for the construction management of the three rehabilitation projects with total project cost of over $150M. Scope includes the replacement of traction power cable, substation, track rails and plates, communication, and resiliency improvements.

Recovery & Resiliency Repairs – Montague Tunnel Project | Construction Manager
Project manager for the construction management of the emergency contract to rehabilitate the NYCT Montague Tunnel carrying the R line between lower Manhattan and Brooklyn Heights. The $250M program included a 24/7 construction schedule of 20 months. NYCT for the first time in its history suspended service for the critical Superstorm Sandy repairs. Scope included replacement of the trackwork and switches, third rail, signal system, communications, new pump system, new traction power cables, new tunnel ductbanks, and structural tunnel repairs. The project was completed one month ahead of schedule and under budget.

Dallas Area Rapid Transit SOC-3 Blue Line LRT Extension | General Contractor Contract RFP Document Writer
Responsible for preparing the DART Light Rail Transit Scope of Services and Special Contract Provisions for the SOC-3 Blue Line Extension. This contract is for a CM/GC contract, including monetary incentives and disincentives. The project includes a 2.6 mile extension from the existing terminus station to the University of North Texas campus.

NJ TRANSIT Portal Bridge Replacement | Project Manager/Chief RE
Chief resident engineer for the estimated $780 million construction project to replace the existing 100 year old “Portal” swing bridge on the Amtrak Northeast Corridor, with a new fixed span bridge over the Hackensack River connecting Kearny and Secaucus NJ. This project includes infrastructure improvements and new structures for the north and south approaches to the two bridges. Responsibilities included reviewing contracts, cost estimates, constructability, schedule, budget, contract packaging, preparation of the Project Work Plan, Health & Safety Plan, and the Quality Assurance/Quality Control Plan.



Education:
MBA, Baruch College

BS, Electrical Engineering, City College of New York

History of Employment:
DY Consultants
2015 – Present

New York University – Operations
2005-2015

Hanscomb Faithful & Gould
1998-2004

Moody's Investor Services
1986-1998

Years of Experience:
32

GABE ROTHAUSER | Construction Management

DY Consultants, Senior Project Manager

Mr. Gabe Rothauser is an innovative, experienced Facilities and Construction Executive with significant expertise in Project Management. He is also a keen knowledge of residential, laboratory, office and other construction and design issues, with an ability to coordinate between end-users, architects, engineers and contractors. He is also capable of maximizing available resources for large and small projects while keeping track of important details.

Continental Global Gateway Project | Senior Project Manager
$80 million modernization program at Liberty Newark International Airport, Terminal A. Work includes the renovation of old and the addition of new office space as well as a 3000 sq. ft. Pres dents Club for Continental Airlines, two new Bag Rooms and associated Baggage Handling Systems and Ticketing Counters, Mechanical Equipment and Security Checkpoints. New Hydrant Fueling Lines are being installed as well to conform with the addition of an extra gate at Terminal A. Overall construction also included a total Relifing of the terminal passenger areas, including, but not limited to, new wall treatment, vestibules, mechanical equipment and lighting. His responsibilities include all coordination, budgeting, scheduling and closeout.

Korean Air Cargo Facility | Senior Project Manager
Project consisted of construction of a 250,000 sf air cargo facility at JFK International Airport. The state-of-the art cargo facility included all new utility services, landscaping, a nine-acre aircraft ramp, loading docks and roadside parking. Part of the work also included the coordination of a High Tech, material storage and retrieval system. Total cost of the project was $100M. Mr. Rothauser coordinated all work with contractors, engineers, architects and the Port Authority

New York University | Senior Project Manager

- Managing various projects from funding through completion including a retrofit of a $275M condominium into student dormitories, $6.5M renovation of 40 high end apartments for faculty

New York University | Consultant/Senior Project Manager

- Manage twelve simultaneous renovation projects for New York University, totaling $1.3M from design through move in. Interface with senior level teaching staff to assure budget compliance and client satisfaction

Hanscomb Faithful & Gould | Senior Project Manager

- Managed $80M/ 1M square ft. renovations and new construction work at Newark Airport's Terminal "A" as on site owner's representative for Continental Airlines, part of the Global Gateway Project. Oversee all construction, budgeting and coordination with tenant airlines and the Port Authority.

GABE ROTHAUSER
continued

Consecutively run multiple projects including a high-end President's Club for Continental.

- Coordinated all phases of a $100M construction project including structural, core and shell, interior fit out, site utilities and landscaping, to complete a new 250,000 sq. ft. Cargo Terminal for Korean Air at JFK International Airport. Acted as on site owner's representative for complete project.
- Managed and coordinated $15M renovation of Pratt Institute's School of Architecture, Higgins Hall. Worked with General Contractor and various other independent contractors to refurbish classrooms, laboratories and mechanical spaces.
- Managed Facilities projects for Paine Webber (now UBS) at their Weehawken New Jersey Facility.
- Principal advisor for the Department of State to build out six floors/ $10M project office space for the U.S. Mission to the UN, relocate existing personnel in advance of new building construction.

Moody's Investor Service | Vice President, Realty

- Financial Services Subsidiary of Dun & Bradstreet
- Oversaw design and construction of new office space at Corporate Headquarters, a $20M capital project. Direct day-to-day and long-term space planning. Manage capital improvements including all aspects of budgeting. Serve as in-house technical expert for all code, construction, MEP, security and design issues.
- Selected and managed the installation of a new Heating, Ventilating and Air Conditioning Plant for Corporate Headquarters, providing cost savings by installing new "off peak" cooling capacity.
- Drove designs for energy efficiency. Received $1.2M in rebates from Con Edison by installing energy efficient lighting, lighting controls and low energy motors.
- Served as Corporate Real Estate officer for Moody's space search in the United States and in Europe.
- Coordinated leasing with corporate office, and local and international Real Estate groups in
- Paris, Frankfurt, Madrid and Tokyo. Responsibilities included search for space, budgeting, construction, furnishings and moves.
- Served on numerous in house committees and groups including the President's Multicultural

LEA ELLIOTT

CHANDLER CUTTS | Testing / Demonstration

Lea+Elliott, Inc., Project Engineer

Education:
Physics, Engineering, Moorehouse College

Computer Science, Atlanta Metropolitan College

History of Employment:
Lea+Elliott, Inc.
2011-Present

Jacobs Engineering
2008-2011

DLR Distributors, Inc.
2006 - 2007

AMTRAK
2005-2006

Primus Industries
2002-2005

Bombardier Transportation Systems
1981 - 2002

Years of Experience:
35

Mr. Chandler Cutts has over 30 years of experience in substantial rail transport to include managing APM operations, performing design reviews, managing installation programs, developing operational procedures, administering project testing and commissioning. Mr. Cutts has successfully applied OSHA safety procedures, hazard recognition, and risk assessment. Managed quality control and assurance processes to ensure compliance with contract requirements, provided fiduciary management, performed staff supervision, and executed schedule supervision. Developed, implemented and modified maintenance procedures, schedules and practices to improve system reliability. Proven experience working with AC and DC propulsion systems, light rail, heavy rail, and automated people mover systems. Managed construction of passenger train stations, elevated guideway, and train maintenance facilities.

Hartsfield Jackson International Airport CONRAC, Planning and Development | Jacobs Engineering: Assistant Resident Engineer
Mr. Cutts was the assistant resident engineer, on the Consolidated Rental Agency Complex (CONRAC) program at the Hartsfield-Jackson Atlanta International Airport. The APM System is approximately 1.5 miles long, with a dual lane elevated guideway; it is a pinched-loop system that will have an initial capacity of 2,700 people per hour per direction (pphpd); with an ultimate capacity of 5,170 pphpd to include two passenger stations and APM maintenance facility. The system has approximately 10 minute round trip times and approximately 2.5-minute wait time at stations. Mr. Cutts was directly responsible for supervising project controls, progress reporting, supervised Quality Assurance and Quality Control staff, evaluated contractor's work for contract compliance, performed field inspections, supervised project safety, carried out claims avoidance and mitigation measures.

Dulles Corridor Metrorail Project – Silver Line | Senior Systems Inspector
Mr. Cutts is a Senior Systems Inspector, on the PMSS team on Phase 1 of the DCMP. His primary focus is communications systems, including supervisory control and data acquisition (SCADA), kiosk and emergency telephones, closed circuit television (CCTV), passenger information displays (PIDS). public address (PA), and fire and intrusion alarms (FIA). In addition, he supports activities related to train control and traction power. He has supports systems installation efforts related to the K-N Line Junction where the DCMP Project connects to the existing Metrorail Orange Line.

San Francisco International Airport AirTrain System | Primus Industries: Operations and Maintenance Shift Manager
Mr. Cutts was a principal member of the startup team at San Francisco Int'l Airport (SFO).

LEA ELLIOTT

CHANDLER CUTTS
continued

- Developed, implemented and modified maintenance procedures, schedules and practices to improve reliability of the airport train system including, 34 C100i trains, 9 terminal stations, 11 (15K Feed) PDS/UPS substations, 39 guideway switches, 10.6 miles of 3 phase 240vac rail, and all support equipment.
- Managed and provided technical assistance to a 38 (electro/mechanical technicians) to build and maintain a safe, efficient, and effective work team.
- Evaluated major system failures and investigations.
- Implemented and supported computer based Maintenance Information Management Systems (MIMS).

Bombardier Transportation | Senior Field Services Engineer

- AirTrain System, San Francisco International Airport
- Start-up Team Leader responsible for installation, vehicle retrofits, and conformance testing for all vehicle and wayside equipment.
- Provided comprehensive maintenance, repair, and system recovery training to SFO AirTrain technical staff and engineers.
- Kuala Lumpur International Airport C100 People Mover System
- Provided system start-up installation and training to a multicultural technical and engineering staff.
- Instituted preventive maintenance, developed standard operating and recovery procedures for the C100 vehicle, rail, and station equipment.
- Prepared detailed system inspection briefings to senior management.
- Atlanta Hartsfield/Jackson International Airport C100 People Mover System
- Provided system engineering and start-up support in 1980 and the 1994 expansion.
- Managed staff of technicians and engineers employing effective team building techniques.
- Generated maintenance schedules, work orders, and engineering reports using computer based Site Information Management System (SIMS) to facilitate engineering change requirements.
- Coordinated system failure recoveries, investigated, and reported major system failures.

LEA ELLIOTT

WINSTON BAIJNATH | Testing / Demonstration, Implementation

Lea+Elliott, Inc., Project Engineer

Education:
B.S., Electrical Engineering, New Jersey Institute of Technology

History of Employment:
Lea+Elliott, Inc.
2008-Present

Booz Allen Hamilton
2003-2008

Bombardier Transportation System (formerly AEG, Adtranz)
1993 - 2003

Tri-Tech Service
1995- 1997

Licenses / Certificates:
Certified Software Test Professional

HVAC Certification: Type I & II

Years of Experience:
22

Mr. Winston Baijnath has 22 years of experience in design, implementation, testing and commissioning and operation and maintenance of transit systems. His expertise focused on electrical systems in particular in the area of automatic train control, communication, supervisory control and data acquisition (SCADA), power distribution system (PDS), door system interface, propulsion, and lighting. For the Newark AirTrain System, Mr. Baijnath has been involved in the operation, maintenance and engineering aspects since the testing and commissioning phase of the base system and all through the construction of the NEC Extension. Mr. Baijnath continues to play a key role in addressing technical issues and providing engineering improvement during the current Operation and Maintenance stage. Prior to joining Lea+Elliott, Mr. Baijnath also played a key role in supporting the testing and commissioning of the JFK AirTrain System and NYCT Canarsie Line Communication Based Train Control (CBTC) project.

Newark Liberty International Airport AirTrain Newark Operation and Maintenance Contract Oversight | Project Manager
Mr. Baijnath is currently supporting all aspects of the Newark AirTrain Operation and Maintenance contract oversight. He is primarily responsible for the Automatic Train Control, Vehicle Electrical and Propulsion systems, guideway switch and other electrical systems. Oversight supports include: review of Engineering Investigation Reports, design/field change requests and other technical submittals; conduct performance, safety, quality, and contract compliance audits. Mr. Baijnath is the technical lead for the ATC system, Wayside Communication system and all Train electrical/electronic subsystems. As part of this contract, Mr. Baijnath was responsible for providing technical advice and cost estimate to the Port Authority during the CARP negotiation.

Newark Liberty International Airport AirTrain Newark Overhaul Program on an As-Needed Basis | Project Manager
Mr. Baijnath currently oversees the upgrade of the Automated Train Supervision (ATS) from OS/2 to Windows Operating System. The upgrade includes design review, testing and commissioning of new central control equipment, new ATS simulator and new availability tool. Mr. Baijnath is also supporting the testing of SCADA system upgrade. As part of this work, Mr. Baijnath provided assistance to the PANYNJ to negotiate a contract for the refurbishment of the ATC and Communication equipment. Mr. Baijnath was responsible for reviewing the contractor cost estimate and obtaining third party cost estimate for price comparison. Mr. Baijnath is leading the team for the Capital Asset Replacement Program (CARP) which includes overhaul and replacement on various subsystems on the AirTrain system. This is a five (5) year program which will rehabilitate all the major sub-systems. The existing DC propulsion system is being replaced with a modern AC drive system, redundant Data Communication System

LEA ELLIOTT

WINSTON BAIJNATH
continued

will be installed, all rotary switches overhauled, all Platform doors replaced and various guideway elements. Mr. Baijnath is responsible for coordinating all the design, installation and testing for this project.

Newark Liberty International Airport AirTrain Newark System, Base System | Field Site Engineer
Mr. Baijnath was involved with the installation, testing and troubleshooting of the Automatic Train Control and SCADA system in the start-up and worked closely with the vendor's engineers to identify and resolve technical issues in the field. Mr. Baijnath eventually spent most of his time in Central Control where he was involved with the testing and commissioning of the ATC, SCADA and PDS systems. After the system went into revenue service, Mr. Baijnath was advanced to be the Field Site Engineer responsible for the maintenance and reliability of the train control system, vehicle propulsion system and platform door system. In 2000, he joined Bombardier's NEC team where he was responsible for Design, Installation, Commissioning and Testing of the ATC system.

Canarsie Communication Base Train Control System, New York City Transit (NYCT) | Project Engineer
While with another consulting firm, Mr. Baijnath provided management oversight for the testing and commissioning of the communication based train control system for NYCT on the Canarsie Line. He was responsible for reviewing test procedures, supporting field test witnessing, and managing testing, and maintaining a safety compliance database for the project.

Miami Monorail (Zoo) Structural Evaluation | Project Engineer
Mr. Baijnath performed engineering analysis of the Monorail Power Distribution System (PDS) and developed recommendations for converting the current grounded C-phase Delta configuration to a 3 phase neutral grounded system. Mr. Baijnath was also responsible for authoring a report to address all components that may be affected and developing engineering cost estimate for each alternative.

John F. Kennedy International Airport JFK Airport Light Rail System | Project Engineer
While with another consulting firm, Mr. Baijnath provided engineering support and management oversight on the automatic train control system for the JFK Airport Light Rail System. This work included testing and commissioning of the train control and associated subsystems. Mr. Baijnath also managed the testing and commissioning of the Wayside Intrusion Detection System (WIDS), SCADA system and the public information display system for the project. Mr. Baijnath participated in the review of the System Safety Certification Program, hazard analyses, and system compliance matrix as per the requirements in the technical and management provision.

LEA ELLIOTT

WILLIAM WILMOT | Implementation

Lea+Elliott, Inc., Manager of Transportation Projects

Education:
Diploma of Public Sector Management, University of Victoria

History of Employment:
SNCLavalin
2013-Present

Lea+Elliott, Inc.
2010-2013

WTS Transit Services
2006-2009

Booz Allen Hamilton
1999 - 2005

BC Rapid Transit Corp
1985- 1998

Years of Experience:
30

Mr. Bill Wilmot has more than 30 years of rail transit experience with a focus on driverless controlled systems. Integral part of management teams overseeing the Testing & Commissioning (T&C) phase of start-ups in Vancouver, Ankara, San Francisco, Newark (EWR), New York City (JFK), Las Vegas, Riyadh, Calgary, Edmonton and Evergreen Line. He holds an in-depth technical understanding of all operating systems that make-up an integrated transit system and appreciation of the risks involved while performing T&C concurrently with construction activities. Approximately half of his transit experience has been in the Operations and Maintenance (O&M) environment of transit operators, while the remainder has been in the T&C environment.

Vancouver Canada Line | SNC Lavalin: On-site Testing and Commissioning (T&C) Manager
Mr. Wilmot managed Vancouver's Canada Line, a $1.7 B transit project, which opened four months early. He was responsible for all SAT, SIT system testing, T&C training, and system maintenance until O&M began.

Confidential Middle East Urban APM | Project Engineer
Mr. Wilmot provided operating system installation support and Testing & Commissioning oversight of an urban APM in the Middle East. The APM consists of more than 6.5 miles of dual-lane revenue guideway and 17 side-platform stations. Four, overlapping routes were defined to satisfy design criteria. He coordinated interfaces and design requirements with the Operating System supplier and the facilities designers and he managed the oversight of Operating System design and implementation work.

Las Vegas Monorail | Booz Allen Hamilton: Consulting and Management Oversight
Mr. Wilmot provided services for the T&C phase and six-month operational analysis after start of service. His responsibilities included project schedule analysis, T&C oversight, systems installation and integration, and service availability analysis after opening.

JFK Airport Airtrain | Booz, Allen, Hamilton: Consulting and Management Oversight
Mr. Wilmot managed the vehicle qualification test program at the Bombardier production and test facility in Kingston, Ontario. By special request of the Port Authority of NY & NJ after a fatal accident during T&C in September 2002, developed and enforced a safety program.

Washington, D.C. Metro | Booz, Allen, Hamilton: Consulting and Management Oversight
Mr. Wilmot managed a team of engineers for acceptance of 192 rail cars from Spanish car builder CAF which involved creating and maintaining a plan to provide site engineering support at two

LEA ELLIOTT

WILLIAM WILMOT
continued

production facilities as well the T&C program.

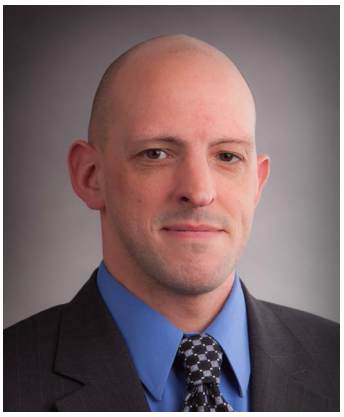
Newark Airport Monorail | Booz, Allen, Hamilton: Consulting and Management Oversight
Mr. Wilmot provided services for the extension of the Monorail to connect the airport to the North East Corridor train station while the initial system remained in service.

San Francisco Municipal Railway | Booz, Allen, Hamilton: Consulting and Management Oversight
Mr. Wilmot created and delivered the CRO certification program for the SELTrac train control system.

LEA+ELLIOTT

ROBERT PARSONS | Implementation

Lea+Elliott, Inc., Project Engineer



Education:
B.S., Mechanical Engineering, University of Rhode Island

History of Employment:
Lea+Elliott, Inc.
2004 - Present

Years of Experience:
11

Mr. Rob Parsons is a Project Engineer with Lea+Elliott. Prior to his graduation from the University of Rhode Island in 2004, Mr. Parsons gained valuable experience through two engineering internships at Resource Dynamics Corporation and Vibco. Mr. Parsons joined Lea+Elliott in 2004 after earning a degree in Mechanical Engineering. His extensive software knowledge is of great value to the firm and our clients. Mr. Parsons is proficient in Solidworks, Matlab, Visual Basic, Autocad, Maple, Simulink, and Ansys software. Since joining Lea+Elliott, he was assigned to the Washington Dulles International Airport APM project and more recently to the Dulles Metrorail Extension Program Management Team.

Washington Dulles International Airport AeroTrain | Project Engineer
Mr. Parsons was a project engineer supporting Lea+Elliott's contract with the Metropolitan Washington Airports Authority to provide Construction Administration services for a new airside automated people mover system. For this assignment, Mr. Parsons was based on the construction site and oversaw day-to-day progress of the $200 Million APM rolling stock and system contract. In this role, Mr. Parsons provided test witnessing and system contract compliance verification for vehicles, power distribution systems, automatic train control, and communication systems. He performed inspection and verification of construction work. Mr. Parsons evaluated contractor submittals for design documents, testing procedures, construction changes, and fixed facility interface for contract compliance. His project responsibilities also included oversight of system contractor and fixed facility contractor coordination. Mr. Parsons coordinated the incorporation of system requirements into fixed facility design documents.

Dulles Corridor Metrorail Project - Silver Line | Project Engineer
As a project engineer for Lea+Elliott on the Program Management Team, Mr. Parsons is supporting the Systems Engineering group as it oversees the rolling stock, traction power, signalling, communications, track work, safety, and related issues for this 23 mile extension of the WMATA rapid transit system. This $5 billion project is being implemented by the Metropolitan Washington Airports Authority (MWAA) and will extend the rapid transit system from the existing West Falls Church Metro Station to and beyond Washington Dulles International Airport. In his current responsibilities, Mr. Parsons provides access to the WMATA rapid transit system for the project team as it conducts field surveys and begins the Final Design phase of the project. Mr. Parsons is responsible for the safe conduct of the project team as it conducts these inspections on WMATA right-of-way and property that includes active tracks, stations, yards and maintenance facilities.

APPENDIX B

ATTACHMENT D:
STAFFING ANALYSIS

LEA ELLIOTT

APPENDIX B:
ATTACHMENT D - STAFFING ANALYSIS

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

		Phase 1								Phase 2		Phase 1&2	
	Name of Firm	Task A		Task B		Task C		Subtotal		Task D		Total	
		EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
	Lea+Elliott, Inc.	13,050	$ 2,884,249	24,650	$ 5,796,921	3,540	$ 986,025	41,240	$ 9,667,195	75,150	$ 17,322,378	116,390	$ 26,989,573
	HNTB Corporation	6,963	$ 1,513,278	16,986	$ 2,973,491	306	$ 64,642	24,255	$ 4,551,411	10,780	$ 2,116,919	35,035	$ 6,668,331
	Kimley-Horn of NY, P.C.	7,954	$ 1,239,323	14,996	$ 2,210,648	240	$ 51,011	23,190	$ 3,500,982	2,400	$ 414,350	25,590	$ 3,915,332
	Walter P. Moore	4,232	$ 728,358	11,048	$ 1,851,029	608	$ 132,973	15,888	$ 2,712,360	9,188	$ 1,693,351	25,076	$ 4,405,711
	AECOM	612	$ 85,311	252	$ 39,667	496	$ 77,523	1,360	$ 202,502	53,196	$ 8,320,573	54,556	$ 8,523,074
	DY Consultants	6,690	$ 1,188,542	6,720	$ 886,951	0	$ -	13,410	$ 2,075,493	8,985	$ 2,007,926	22,395	$ 4,083,419
	Stellar Services	2,800	$ 336,292	3,442	$ 389,392	1,920	$ 184,981	8,162	$ 910,665	18,290	$ 2,311,586	26,452	$ 3,222,252
	Radin Consulting	6,362	$ 1,003,327	1,275	$ 240,942	0	$ -	7,637	$ 1,244,269	12,625	$ 1,799,458	20,262	$ 3,043,727
	Totals	48,663	$ 8,978,680	79,369	$ 14,389,042	7,110	$ 1,497,156	135,142	$ 24,864,878	190,614	$ 35,986,540	325,756	$ 60,851,418

Reimbursable Expenses	
Task	Amount
Task A	$263,925
Task B	$455,785
Task C	$40,711
Phase 1 Subtotal	$760,421
Task D	$533,854
Phase 1&2 Total	$1,294,274

Task	Hours	Total
Phase 1 Total (Tasks A,B&C)	**135,142**	**$25,625,298**
Phase 1&2 Total (Tasks A,B,C&D)	**325,756**	**$62,145,692**

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task A.1 Document Review		Task A.2 Initial Ridership Demands and Performance Requirements Definition		Task A.3 Alignment Development		Task A.4 Technology Assessments and Recommendations		Task A.5 Procurement and Financing Strategy		Task A.6 Other Support Services	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Lea+Elliott, Inc.			**Subtotal**		1140	$ 250,116.90	3020	$ 586,363.96	3900	$ 774,059.99	850	$ 185,043.63	2200	$ 609,051.94	1940	$ 479,612.20
Casselman, David	Lea+Elliott, Inc.	Principal in Charge	$290.00	2.842	60	$ 17,399.82	220	$ 63,799.34	240	$ 70,643.27	80	$ 23,721.76	360	$ 106,486.90	10	$ 2,986.97
Green, Russell	Lea+Elliott, Inc.	Project Manager, Associate Princ	$275.00	2.842	120	$ 33,000.28	120	$ 33,000.28	320	$ 88,000.74	150	$ 42,157.85	360	$ 100,980.85	530	$ 148,143.74
Shah, Sanjeev	Lea+Elliott, Inc.	Principal	$290.00	2.842	0	$ -	0	$ -	0	$ -	0	$ -	720	$ 212,975.89	0	$ -
Sugimoto, Cynthia	Lea+Elliott, Inc.	Associate Principal	$275.00	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Graddy, John	Lea+Elliott, Inc.	Associate Principal	$260.00	2.842	120	$ 31,199.89	0	$ -	820	$ 215,851.24	0	$ -	0	$ -	0	$ -
Espinoza, Laura	Lea+Elliott, Inc.	Senior Engineer	$147.22	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Wiles, Don	Lea+Elliott, Inc.	Senior Associate	$233.80	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	360	$ 85,851.46
Davis, Jefferson	Lea+Elliott, Inc.	Senior Associate	$228.20	2.842	120	$ 27,384.30	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Coleman, Larry	Lea+Elliott, Inc.	Senior Associate	$220.16	2.842	120	$ 26,419.32	480	$ 105,677.27	360	$ 81,635.69	0	$ -	0	$ -	720	$ 162,478.80
Sturgell, Matthew	Lea+Elliott, Inc.	Senior Associate	$164.86	2.842	60	$ 9,891.90	480	$ 79,135.20	480	$ 80,322.22	160	$ 26,971.91	0	$ -	0	$ -
Tollner, Lynda	Lea+Elliott, Inc.	Deputy Project Manager	$243.18	2.842	240	$ 58,362.55	360	$ 87,543.82	240	$ 59,237.99	140	$ 34,920.26	760	$ 188,608.30	320	$ 80,151.23
Cuhna, Danny	Lea+Elliott, Inc.	Mgr of Engineering Projects	$205.16	2.842	0	$ -	240	$ 49,237.86	0	$ -	0	$ -	0	$ -	0	$ -
Ring, Melinda	Lea+Elliott, Inc.	Mgr of Engineering Projects	$183.25	2.842	120	$ 21,989.95	720	$ 131,939.73	480	$ 90,598.61	0	$ -	0	$ -	0	$ -
Kahn, Keith A.	Lea+Elliott, Inc.	Mgr of Engineering Projects	$221.81	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Wilmot, William	Lea+Elliott, Inc.	Mgr of Transportation Projects	$204.93	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Baijnath, Winston	Lea+Elliott, Inc.	Mgr of Engineering Projects	$194.64	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Wu, Di Judy	Lea+Elliott, Inc.	Senior Engineer	$139.35	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Parsons, Rob	Lea+Elliott, Inc.	Project Engineer	$110.48	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
McElroy, Kevin	Lea+Elliott, Inc.	Project Engineer	$103.49	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Cutts, Chandler	Lea+Elliott, Inc.	Project Engineer	$125.37	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Sipes, Scott	Lea+Elliott, Inc.	Mgr of Engineering Projects	$175.69	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Incorvati, Mark	Lea+Elliott, Inc.	Senior Associate	$241.19	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Hinish, Dennis	Lea+Elliott, Inc.	Mgr of Engineering Projects	$227.66	2.842	60	$ 13,659.75	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Barker, Theodore	Lea+Elliott, Inc.	Associate Principal	$260.00	2.842	0	$ -	0	$ -	0	$ -	160	$ 42,535.38	0	$ -	0	$ -
Draper, Dougles	Lea+Elliott, Inc.	Project Support / CAD	$90.08	2.842	120	$ 10,809.14	400	$ 36,030.47	960	$ 87,770.23	160	$ 14,736.46	0	$ -	0	$ -

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task B.1 Develop Procurement Plan		Task B.2 Finalize Performance and Operation Requirements		Task B.3 Propulsion Power System Requirements		Task B.4 Design Criteria		Task B.5 System Technical Performance Specifications		Task B.6 Cost Estimating and Schedule Development		Task B.7 Procurement Contract Documents		Task C AirTrain Vendor Procurement Support	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Lea+Elliott, Inc.			**Subtotal**		3720	$ 949,876.44	1150	$ 274,322.55	650	$ 118,583.76	3760	$ 829,341.59	6150	$ 1,471,274.48	2170	$ 495,967.99	7050	$ 1,657,554.50	3540	$ 986,024.62
Casselman, David	Lea+Elliott, Inc.	Principal in Charge	$290.00	2.842	600	$ 181,368.77	30	$ 8,960.91	0	$ -	20	$ 5,973.94	140	$ 42,624.05	60	$ 18,459.47	130	$ 39,368.25	120	$ 37,195.83
Green, Russell	Lea+Elliott, Inc.	Project Manager, Associate Princ	$275.00	2.842	420	$ 121,005.41	160	$ 45,320.38	50	$ 14,162.62	220	$ 62,315.52	520	$ 149,330.65	380	$ 109,675.32	720	$ 205,981.13	1,720	$ 506,536.26
Shah, Sanjeev	Lea+Elliott, Inc.	Principal	$290.00	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Sugimoto, Cynthia	Lea+Elliott, Inc.	Associate Principal	$275.00	2.842	0	$ -	0	$ -	0	$ -	440	$ 124,631.04	0	$ -	0	$ -	0	$ -	0	$ -
Graddy, John	Lea+Elliott, Inc.	Associate Principal	$260.00	2.842	880	$ 238,555.40	160	$ 42,847.85	0	$ -	220	$ 58,915.79	520	$ 141,183.66	260	$ 70,591.83	720	$ 194,743.47	0	$ -
Espinoza, Laura	Lea+Elliott, Inc.	Senior Engineer	$147.22	2.842	0	$ -	0	$ -	0	$ -	220	$ 33,359.86	0	$ -	0	$ -	0	$ -	0	$ -
Wiles, Don	Lea+Elliott, Inc.	Senior Associate	$233.80	2.842	300	$ 73,111.21	160	$ 38,530.28	0	$ -	440	$ 105,958.28	0	$ -	0	$ -	0	$ -	0	$ -
Davis, Jefferson	Lea+Elliott, Inc.	Senior Associate	$228.20	2.842	0	$ -	160	$ 37,607.77	200	$ 47,009.71	400	$ 94,019.42	900	$ 214,928.39	0	$ -	1,340	$ 318,349.75	0	$ -
Coleman, Larry	Lea+Elliott, Inc.	Senior Associate	$220.16	2.842	0	$ -	0	$ -	0	$ -	0	$ -	480	$ 112,113.01	0	$ -	0	$ -	0	$ -
Sturgell, Matthew	Lea+Elliott, Inc.	Senior Associate	$164.86	2.842	0	$ -	160	$ 27,169.75	0	$ -	340	$ 57,735.72	880	$ 152,490.22	520	$ 89,524.33	720	$ 123,486.52	0	$ -
Tollner, Lynda	Lea+Elliott, Inc.	Deputy Project Manager	$243.18	2.842	600	$ 152,086.96	160	$ 40,075.62	0	$ -	440	$ 110,207.94	240	$ 61,916.83	300	$ 77,396.03	0	$ -	1,700	$ 442,292.53
Cuhna, Danny	Lea+Elliott, Inc.	Mgr of Engineering Projects	$205.16	2.842	320	$ 69,141.44	160	$ 33,810.00	0	$ -	440	$ 92,977.49	520	$ 111,403.94	520	$ 111,403.94	540	$ 115,630.19	0	$ -
Ring, Melinda	Lea+Elliott, Inc.	Mgr of Engineering Projects	$183.25	2.842	600	$ 114,607.25	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Kahn, Keith A.	Lea+Elliott, Inc.	Mgr of Engineering Projects	$221.81	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	720	$ 166,138.53	0	$ -
Wilmot, William	Lea+Elliott, Inc.	Mgr of Transportation Projects	$204.93	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Baijnath, Winston	Lea+Elliott, Inc.	Mgr of Engineering Projects	$194.64	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Wu, Di Judy	Lea+Elliott, Inc.	Senior Engineer	$139.35	2.842	0	$ -	0	$ -	400	$ 57,411.43	580	$ 83,246.58	130	$ 18,917.07	130	$ 18,917.07	720	$ 104,373.99	0	$ -
Parsons, Rob	Lea+Elliott, Inc.	Project Engineer	$110.48	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
McElroy, Kevin	Lea+Elliott, Inc.	Project Engineer	$103.49	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Cutts, Chandler	Lea+Elliott, Inc.	Project Engineer	$125.37	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Sipes, Scott	Lea+Elliott, Inc.	Mgr of Engineering Projects	$175.69	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Incorvati, Mark	Lea+Elliott, Inc.	Senior Associate	$241.19	2.842	0	$ -	0	$ -	0	$ -	0	$ -	520	$ 130,969.06	0	$ -	0	$ -	0	$ -
Hinish, Dennis	Lea+Elliott, Inc.	Mgr of Engineering Projects	$227.66	2.842	0	$ -	0	$ -	0	$ -	0	$ -	520	$ 123,624.42	0	$ -	0	$ -	0	$ -
Barker, Theodore	Lea+Elliott, Inc.	Associate Principal	$260.00	2.842	0	$ -	0	$ -	0	$ -	0	$ -	780	$ 211,773.18	0	$ -	1,440	$ 389,482.69	0	$ -
Draper, Dougles	Lea+Elliott, Inc.	Project Support / CAD	$90.08	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments		Total Est. Hrs.	Total Cost
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT		
Lea+Elliott, Inc.			**Subtotal**		11570	$ 3,018,250.83	49740	$10,731,698.40	7300	$ 1,837,683.78	3700	$ 870,606.58	2840	$ 864,138.69	116,390	$ 26,989,573
Casselman, David	Lea+Elliott, Inc.	Principal in Charge	$290.00	2.842	190	$ 61,159.30	1,640	$ 559,212.67	100	$ 35,250.45	120	$ 43,441.16	0	$ -	4,120	$ 1,318,053
Green, Russell	Lea+Elliott, Inc.	Project Manager, Associate Princ	$275.00	2.842	1,960	$ 595,295.34	5,080	$ 1,632,604.92	1,000	$ 334,277.74	480	$ 164,779.88	1,260	$ 406,671.61	15,570	$ 4,793,241
Shah, Sanjeev	Lea+Elliott, Inc.	Principal	$290.00	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	720	$ 212,976
Sugimoto, Cynthia	Lea+Elliott, Inc.	Associate Principal	$275.00	2.842	1,520	$ 463,975.77	0	$ -	800	$ 267,422.19	0	$ -	0	$ -	2,760	$ 856,029
Graddy, John	Lea+Elliott, Inc.	Associate Principal	$260.00	2.842	760	$ 219,331.39	820	$ 250,683.24	0	$ -	0	$ -	0	$ -	5,280	$ 1,463,904
Espinoza, Laura	Lea+Elliott, Inc.	Senior Engineer	$147.22	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	220	$ 33,360
Wiles, Don	Lea+Elliott, Inc.	Senior Associate	$233.80	2.842	380	$ 98,615.23	820	$ 225,423.14	0	$ -	0	$ -	0	$ -	2,460	$ 627,490
Davis, Jefferson	Lea+Elliott, Inc.	Senior Associate	$228.20	2.842	1,520	$ 385,016.47	3,940	$ 1,046,780.64	800	$ 221,912.34	0	$ -	0	$ -	9,380	$ 2,393,009
Coleman, Larry	Lea+Elliott, Inc.	Senior Associate	$220.16	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,160	$ 488,324
Sturgell, Matthew	Lea+Elliott, Inc.	Senior Associate	$164.86	2.842	760	$ 139,077.67	0	$ -	0	$ -	0	$ -	0	$ -	4,560	$ 785,805
Tollner, Lynda	Lea+Elliott, Inc.	Deputy Project Manager	$243.18	2.842	2,200	$ 592,091.52	4,560	$ 1,295,952.27	1,000	$ 295,592.99	1,500	$ 455,076.15	1,580	$ 457,467.09	16,340	$ 4,488,980
Cuhna, Danny	Lea+Elliott, Inc.	Mgr of Engineering Projects	$205.16	2.842	1,520	$ 346,136.09	0	$ -	0	$ -	0	$ -	0	$ -	4,260	$ 929,741
Ring, Melinda	Lea+Elliott, Inc.	Mgr of Engineering Projects	$183.25	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,920	$ 359,136
Kahn, Keith A.	Lea+Elliott, Inc.	Mgr of Engineering Projects	$221.81	2.842	0	$ -	1,640	$ 427,723.15	200	$ 53,923.79	0	$ -	0	$ -	2,560	$ 647,785
Wilmot, William	Lea+Elliott, Inc.	Mgr of Transportation Projects	$204.93	2.842	0	$ -	5,360	$ 1,281,779.05	1,200	$ 298,922.64	0	$ -	0	$ -	6,560	$ 1,580,702
Baijnath, Winston	Lea+Elliott, Inc.	Mgr of Engineering Projects	$194.64	2.842	0	$ -	820	$ 187,669.97	200	$ 47,319.75	0	$ -	0	$ -	1,020	$ 234,990
Wu, Di Judy	Lea+Elliott, Inc.	Senior Engineer	$139.35	2.842	760	$ 117,552.04	820	$ 134,355.26	0	$ -	0	$ -	0	$ -	3,540	$ 534,773
Parsons, Rob	Lea+Elliott, Inc.	Project Engineer	$110.48	2.842	0	$ -	5,360	$ 691,009.00	1,200	$ 161,149.64	0	$ -	0	$ -	6,560	$ 852,159
McElroy, Kevin	Lea+Elliott, Inc.	Project Engineer	$103.49	2.842	0	$ -	6,560	$ 798,241.20	0	$ -	1,600	$ 207,309.40	0	$ -	8,160	$ 1,005,551
Cutts, Chandler	Lea+Elliott, Inc.	Project Engineer	$125.37	2.842	0	$ -	5,760	$ 845,094.94	800	$ 121,912.25	0	$ -	0	$ -	6,560	$ 967,007
Sipes, Scott	Lea+Elliott, Inc.	Mgr of Engineering Projects	$175.69	2.842	0	$ -	6,560	$ 1,355,168.96	0	$ -	0	$ -	0	$ -	6,560	$ 1,355,169
Incorvati, Mark	Lea+Elliott, Inc.	Senior Associate	$241.19	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	520	$ 130,969
Hinish, Dennis	Lea+Elliott, Inc.	Mgr of Engineering Projects	$227.66	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	580	$ 137,284
Barker, Theodore	Lea+Elliott, Inc.	Associate Principal	$260.00	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,380	$ 643,791
Draper, Dougles	Lea+Elliott, Inc.	Project Support / CAD	$90.08	2.842	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,640	$ 149,346

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

	Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task A.1 Document Review		Task A.2 Initial Ridership Demands and Performance Requirements Definition		Task A.3 Alignment Development		Task A.4 Technology Assessments and Recommendations		Task A.5 Procurement and Financing Strategy		Task A.6 Other Support Services	
						EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
	HNTB Corporation			**Subtotal**		2062	$ 420,530.92	0	$ -	2861	$ 636,151.05	520	$ 130,229.76	160	$ 41,840.93	1360	$ 284,525.40
	Donald Fram	HNTB Corporation	Airtrain Facilities Architecture Lea	$264.13	2.667	120	$ 31,695.61	0	$ -	240	$ 64,532.26	120	$ 32,075.96	0	$ -	68	$ 18,309.50
	Frank Candiano	HNTB Corporation	Safety & Security	$231.27	2.667	120	$ 27,752.86	0	$ -	192	$ 45,403.68	0	$ -	0	$ -	96	$ 22,701.84
	Joe Englot	HNTB Corporation	Safety & Security	$262.00	2.667	120	$ 31,439.59	0	$ -	192	$ 51,435.16	0	$ -	0	$ -	96	$ 25,717.58
	Anthony Lee	HNTB Corporation	Envirnmental Planning Lead	$215.49	2.667	120	$ 25,858.29	0	$ -	192	$ 42,304.16	0	$ -	0	$ -	240	$ 52,880.21
	Sean Cassidy	HNTB Corporation	CFD Analysis/Station Venitlation	$227.01	2.667	72	$ 16,344.49	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Shoukat Ali	HNTB Corporation	Traction Power Lead	$231.06	2.667	100	$ 23,106.05	0	$ -	320	$ 75,602.99	200	$ 46,766.64	0	$ -	0	$ -
	Mike Venter	HNTB Corporation	Systems Interface	$253.89	2.667	120	$ 30,466.70	0	$ -	320	$ 83,072.53	200	$ 51,387.17	160	$ 41,840.93	72	$ 18,645.62
	Vandana Gogate	HNTB Corporation	Electrical Lead	$160.01	2.667	100	$ 16,001.42	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Ray Sandiford	HNTB Corporation	Geotech Lead	$291.65	2.667	120	$ 34,998.30	0	$ -	320	$ 95,428.70	0	$ -	0	$ -	0	$ -
	John Kovac	HNTB Corporation	Estimating Lead	$227.86	2.667	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	144	$ 33,468.11
	David Norfleet	HNTB Corporation	Risk Management	$218.05	2.667	120	$ 26,165.52	0	$ -	0	$ -	0	$ -	0	$ -	152	$ 33,927.96
	Tarek Hatab	HNTB Corporation	Constructability	$308.51	2.667	120	$ 37,020.88	0	$ -	320	$ 100,943.60	0	$ -	0	$ -	120	$ 37,835.34
	Jeremy Sass	HNTB Corporation	Project Architect Maint Bldg.	$134.84	2.667	60	$ 8,090.32	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Robert Papocchia	HNTB Corporation	Transit Architecture Leader	$247.06	2.667	30	$ 7,411.86	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Jong Baek	HNTB Corporation	Arch Design Director	$193.72	2.667	60	$ 11,623.43	0	$ -	80	$ 15,776.87	0	$ -	0	$ -	36	$ 7,113.54
	Luke Bridle	HNTB Corporation	Senior Project Architect	$166.84	2.667	60	$ 10,010.49	0	$ -	0	$ -	0	$ -	0	$ -	72	$ 12,252.84
	Kiseok Jeon	HNTB Corporation	Arch III	$102.62	2.667	60	$ 6,157.35	0	$ -	80	$ 8,357.57	0	$ -	0	$ -	72	$ 7,536.59
	Jennifer Gottlieb	HNTB Corporation	Arch II	$71.47	2.667	120	$ 8,576.76	0	$ -	205	$ 14,954.30	0	$ -	0	$ -	96	$ 7,015.79
	Luis Alarcon	HNTB Corporation	Arch II	$72.54	2.667	120	$ 8,704.77	0	$ -	160	$ 11,815.28	0	$ -	0	$ -	96	$ 7,120.50
	Jose Santos	HNTB Corporation	Electrical Engineer II	$132.07	2.667	40	$ 5,282.60	0	$ -	120	$ 15,847.80	0	$ -	0	$ -	0	$ -
	Gerry Ng	HNTB Corporation	Electrical EngineerI I	$88.97	2.667	40	$ 3,558.72	0	$ -	120	$ 10,676.15	0	$ -	0	$ -	0	$ -
	Jim Thomas	HNTB Corporation	Structural Project Engineer	$138.68	2.667	24	$ 3,328.29	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Robert Pinghero	HNTB Corporation	Structural Department Manager	$266.69	2.667	72	$ 19,201.70	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Ed Boroumand	HNTB Corporation	Senior Structural Engineer	$194.68	2.667	72	$ 14,017.24	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Savanti Jane	HNTB Corporation	Senior Mechanical Engineer	$190.52	2.667	72	$ 13,717.70	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

	Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task B.1		Task B.2		Task B.3		Task B.4		Task B.5		Task B.6		Task B.7		Task C	
						Develop Procurement Plan		Finalize Performance and Operation Requirements		Propulsion Power System Requirements		Design Criteria		System Technical Performance Specifications		Cost Estimating and Schedule Development		Procurement Contract Documents		AirTrain Vendor Procurement Support	
						EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
	HNTB Corporation			**Subtotal**		136	$ 34,594.37	64	$ 16,861.90	800	$ 126,094.16	13324	$ 2,239,421.09	400	$ 75,726.99	1438	$ 335,505.63	824	$ 145,286.87	306	$ 64,642.35
	Donald Fram	HNTB Corporation	Airtrain Facilities Architecture Lea	$264.13	2.667	48	$ 13,058.59	0	$ -	0	$ -	488	$ 134,068.20	0	$ -	0	$ -	80	$ 21,960.20	36	$ 10,213.86
	Frank Candiano	HNTB Corporation	Safety & Security	$231.27	2.667	0	$ -	0	$ -	0	$ -	140	$ 33,778.47	60	$ 14,507.11	20	$ 4,835.70	0	$ -	0	$ -
	Joe Englot	HNTB Corporation	Safety & Security	$262.00	2.667	0	$ -	0	$ -	0	$ -	140	$ 38,265.64	60	$ 16,434.26	20	$ 5,478.09	0	$ -	0	$ -
	Anthony Lee	HNTB Corporation	Envirnmental Planning Lead	$215.49	2.667	0	$ -	0	$ -	0	$ -	360	$ 80,701.14	0	$ -	0	$ -	0	$ -	0	$ -
	Sean Cassidy	HNTB Corporation	CFD Analysis/Station Venitlation	$227.01	2.667	0	$ -	0	$ -	0	$ -	256	$ 60,306.08	0	$ -	0	$ -	0	$ -	0	$ -
	Shoukat Ali	HNTB Corporation	Traction Power Lead	$231.06	2.667	0	$ -	0	$ -	200	$ 47,598.46	160	$ 38,078.77	40	$ 9,519.69	40	$ 9,519.69	40	$ 9,519.69	0	$ -
	Mike Venter	HNTB Corporation	Systems Interface	$253.89	2.667	48	$ 12,552.28	64	$ 16,861.90	0	$ -	144	$ 38,033.41	40	$ 10,460.23	32	$ 8,493.71	24	$ 6,464.42	20	$ 5,508.23
	Vandana Gogate	HNTB Corporation	Electrical Lead	$160.01	2.667	0	$ -	0	$ -	200	$ 32,962.92	160	$ 26,370.34	40	$ 6,592.58	40	$ 6,592.58	40	$ 6,592.58	0	$ -
	Ray Sandiford	HNTB Corporation	Geotech Lead	$291.65	2.667	0	$ -	0	$ -	0	$ -	220	$ 66,629.18	0	$ -	50	$ 15,200.35	40	$ 12,286.45	20	$ 6,327.52
	John Kovac	HNTB Corporation	Estimating Lead	$227.86	2.667	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	360	$ 85,335.46	0	$ -	120	$ 29,225.99
	David Norfleet	HNTB Corporation	Risk Management	$218.05	2.667	40	$ 8,983.49	0	$ -	0	$ -	320	$ 74,024.00	0	$ -	60	$ 13,609.99	40	$ 9,253.00	0	$ -
	Tarek Hatab	HNTB Corporation	Constructability	$308.51	2.667	0	$ -	0	$ -	0	$ -	432	$ 138,646.16	0	$ -	288	$ 92,430.77	104	$ 33,809.94	0	$ -
	Jeremy Sass	HNTB Corporation	Project Architect Maint Bldg.	$134.84	2.667	0	$ -	0	$ -	0	$ -	720	$ 100,996.28	0	$ -	48	$ 6,799.75	24	$ 3,433.21	0	$ -
	Robert Papocchia	HNTB Corporation	Transit Architecture Leader	$247.06	2.667	0	$ -	0	$ -	0	$ -	720	$ 185,053.31	0	$ -	48	$ 12,459.03	24	$ 6,290.59	20	$ 5,360.11
	Jong Baek	HNTB Corporation	Arch Design Director	$193.72	2.667	0	$ -	0	$ -	0	$ -	720	$ 145,102.25	0	$ -	16	$ 3,192.57	0	$ -	0	$ -
	Luke Bridle	HNTB Corporation	Senior Project Architect	$166.84	2.667	0	$ -	0	$ -	0	$ -	720	$ 124,966.92	0	$ -	32	$ 5,581.58	0	$ -	0	$ -
	Kiseok Jeon	HNTB Corporation	Arch III	$102.62	2.667	0	$ -	0	$ -	0	$ -	1,440	$ 153,731.68	0	$ -	0	$ -	48	$ 5,225.86	30	$ 3,331.49
	Jennifer Gottlieb	HNTB Corporation	Arch II	$71.47	2.667	0	$ -	0	$ -	0	$ -	1,440	$ 107,068.84	0	$ -	32	$ 2,391.09	180	$ 13,648.63	30	$ 2,320.27
	Luis Alarcon	HNTB Corporation	Arch II	$72.54	2.667	0	$ -	0	$ -	0	$ -	1,440	$ 108,666.88	0	$ -	0	$ -	100	$ 7,695.74	30	$ 2,354.90
	Jose Santos	HNTB Corporation	Electrical Engineer II	$132.07	2.667	0	$ -	0	$ -	200	$ 27,205.40	160	$ 21,764.32	80	$ 10,882.16	40	$ 5,441.08	40	$ 5,441.08	0	$ -
	Gerry Ng	HNTB Corporation	Electrical EngineerI I	$88.97	2.667	0	$ -	0	$ -	200	$ 18,327.38	160	$ 14,661.91	80	$ 7,330.95	40	$ 3,665.48	40	$ 3,665.48	0	$ -
	Jim Thomas	HNTB Corporation	Structural Project Engineer	$138.68	2.667	0	$ -	0	$ -	0	$ -	1,280	$ 184,891.22	0	$ -	48	$ 6,993.41	0	$ -	0	$ -
	Robert Pinghero	HNTB Corporation	Structural Department Manager	$266.69	2.667	0	$ -	0	$ -	0	$ -	288	$ 79,902.12	0	$ -	24	$ 6,658.51	0	$ -	0	$ -
	Ed Boroumand	HNTB Corporation	Senior Structural Engineer	$194.68	2.667	0	$ -	0	$ -	0	$ -	696	$ 141,008.78	0	$ -	200	$ 40,826.78	0	$ -	0	$ -
	Savanti Jane	HNTB Corporation	Senior Mechanical Engineer	$190.52	2.667	0	$ -	0	$ -	0	$ -	720	$ 142,705.19	0	$ -	0	$ -	0	$ -	0	$ -

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

	Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments		Total Est. Hrs.	Total Cost
						EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT		
	HNTB Corporation			**Subtotal**		6512	$ 1,207,506.51	4268	$ 909,412.59	0	$ -	0	$ -	0	$ -	35,035	$ 6,668,331
	Donald Fram	HNTB Corporation	Airtrain Facilities Architecture Lea	$264.13	2.667	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,200	$ 325,914
	Frank Candiano	HNTB Corporation	Safety & Security	$231.27	2.667	84	$ 22,673.63	0	$ -	0	$ -	0	$ -	0	$ -	712	$ 171,653
	Joe Englot	HNTB Corporation	Safety & Security	$262.00	2.667	84	$ 25,685.62	0	$ -	0	$ -	0	$ -	0	$ -	712	$ 194,456
	Anthony Lee	HNTB Corporation	Envirnmental Planning Lead	$215.49	2.667	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	912	$ 201,744
	Sean Cassidy	HNTB Corporation	CFD Analysis/Station Venitlation	$227.01	2.667	120	$ 31,943.65	0	$ -	0	$ -	0	$ -	0	$ -	448	$ 108,594
	Shoukat Ali	HNTB Corporation	Traction Power Lead	$231.06	2.667	504	$ 136,676.29	504	$ 136,676.29	0	$ -	0	$ -	0	$ -	2,108	$ 533,065
	Mike Venter	HNTB Corporation	Systems Interface	$253.89	2.667	252	$ 75,089.93	252	$ 75,089.93	0	$ -	0	$ -	0	$ -	1,748	$ 473,967
	Vandana Gogate	HNTB Corporation	Electrical Lead	$160.01	2.667	504	$ 94,651.17	504	$ 94,651.17	0	$ -	0	$ -	0	$ -	1,588	$ 284,415
	Ray Sandiford	HNTB Corporation	Geotech Lead	$291.65	2.667	252	$ 86,258.76	0	$ -	0	$ -	0	$ -	0	$ -	1,022	$ 317,129
	John Kovac	HNTB Corporation	Estimating Lead	$227.86	2.667	0	$ -	784	$ 205,985.83	0	$ -	0	$ -	0	$ -	1,408	$ 354,015
	David Norfleet	HNTB Corporation	Risk Management	$218.05	2.667	0	$ -	784	$ 197,113.79	0	$ -	0	$ -	0	$ -	1,516	$ 363,078
	Tarek Hatab	HNTB Corporation	Constructability	$308.51	2.667	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,384	$ 440,687
	Jeremy Sass	HNTB Corporation	Project Architect Maint Bldg.	$134.84	2.667	504	$ 79,759.38	432	$ 69,150.77	0	$ -	0	$ -	0	$ -	1,788	$ 268,230
	Robert Papocchia	HNTB Corporation	Transit Architecture Leader	$247.06	2.667	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	842	$ 216,575
	Jong Baek	HNTB Corporation	Arch Design Director	$193.72	2.667	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	912	$ 182,809
	Luke Bridle	HNTB Corporation	Senior Project Architect	$166.84	2.667	504	$ 98,689.62	0	$ -	0	$ -	0	$ -	0	$ -	1,388	$ 251,501
	Kiseok Jeon	HNTB Corporation	Arch III	$102.62	2.667	504	$ 60,702.95	0	$ -	0	$ -	0	$ -	0	$ -	2,234	$ 245,043
	Jennifer Gottlieb	HNTB Corporation	Arch II	$71.47	2.667	504	$ 42,277.52	0	$ -	0	$ -	0	$ -	0	$ -	2,607	$ 198,253
	Luis Alarcon	HNTB Corporation	Arch II	$72.54	2.667	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,946	$ 146,358
	Jose Santos	HNTB Corporation	Electrical Engineer II	$132.07	2.667	630	$ 97,648.45	504	$ 78,118.76	0	$ -	0	$ -	0	$ -	1,814	$ 267,632
	Gerry Ng	HNTB Corporation	Electrical EngineerI I	$88.97	2.667	630	$ 65,782.56	504	$ 52,626.05	0	$ -	0	$ -	0	$ -	1,814	$ 180,295
	Jim Thomas	HNTB Corporation	Structural Project Engineer	$138.68	2.667	480	$ 74,011.28	0	$ -	0	$ -	0	$ -	0	$ -	1,832	$ 269,224
	Robert Pinghero	HNTB Corporation	Structural Department Manager	$266.69	2.667	96	$ 28,465.88	0	$ -	0	$ -	0	$ -	0	$ -	480	$ 134,228
	Ed Boroumand	HNTB Corporation	Senior Structural Engineer	$194.68	2.667	432	$ 95,058.21	0	$ -	0	$ -	0	$ -	0	$ -	1,400	$ 290,911
	Savanti Jane	HNTB Corporation	Senior Mechanical Engineer	$190.52	2.667	428	$ 92,131.61	0	$ -	0	$ -	0	$ -	0	$ -	1,220	$ 248,554

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

	Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task A.1 Document Review		Task A.2 Initial Ridership Demands and Performance Requirements Definition		Task A.3 Alignment Development		Task A.4 Technology Assessments and Recommendations		Task A.5 Procurement and Financing Strategy		Task A.6 Other Support Services	
						EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
	Kimley-Horn of NY, P.C.			**Subtotal**		1356	$ 203,131.70	2648	$ 430,493.03	3230	$ 497,357.57	0	$ -	0	$ -	720	$ 108,340.68
	Nate Walnum	Kimley-Horn of NY, P.C.	Project Manager	$178.12	3.221	200	$ 35,880.98	96	$ 17,356.25	880	$ 157,816.45	0	$ -	0	$ -	72	$ 13,081.31
	Sam Lott	Kimley-Horn of NY, P.C.	Sr. Project Manager	$235.39	3.221	92	$ 21,656.08	404	$ 95,945.84	118	$ 28,454.20	0	$ -	0	$ -	0	$ -
	Jill Capelli	Kimley-Horn of NY, P.C.	Sr. Engineer	$176.58	3.221	92	$ 16,245.02	544	$ 97,328.87	132	$ 23,986.13	0	$ -	0	$ -	144	$ 25,935.53
	Adam Gibson	Kimley-Horn of NY, P.C.	Sr. Engineer	$157.96	3.221	248	$ 39,628.71	32	$ 5,092.59	144	$ 22,897.71	0	$ -	0	$ -	144	$ 23,200.99
	Zach Teague	Kimley-Horn of NY, P.C.	Sr. Engineer	$175.03	3.221	104	$ 18,203.14	0	$ -	364	$ 64,467.13	0	$ -	0	$ -	0	$ -
	Atif Wasti	Kimley-Horn of NY, P.C.	Sr. Designer	$105.33	3.221	272	$ 28,952.38	0	$ -	144	$ 15,268.25	0	$ -	0	$ -	144	$ 15,470.48
	Brian Gall	Kimley-Horn of NY, P.C.	Sr. Designer	$119.24	3.221	168	$ 20,204.39	0	$ -	740	$ 88,811.56	0	$ -	0	$ -	0	$ -
	Fred Stauffer	Kimley-Horn of NY, P.C.	Sr. Designer	$133.22	3.221	144	$ 19,375.72	0	$ -	316	$ 42,481.64	0	$ -	0	$ -	72	$ 9,783.78
	Jarrett Moore	Kimley-Horn of NY, P.C.	Project Engineer	$99.14	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Brandon Robinson	Kimley-Horn of NY, P.C.	Analyst/EIT	$91.41	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Doug Gettman	Kimley-Horn of NY, P.C.	Sr. Engineer	$202.86	3.221	0	$ -	448	$ 91,757.56	100	$ 20,870.22	0	$ -	0	$ -	72	$ 14,898.03
	Cathryn Born	Kimley-Horn of NY, P.C.	Analyst/EIT	$91.41	3.221	0	$ -	740	$ 68,577.69	196	$ 18,443.40	0	$ -	0	$ -	0	$ -
	Pete Syntax	Kimley-Horn of NY, P.C.	Electrical Engineer	$158.02	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Jon Chambers	Kimley-Horn of NY, P.C.	Sr. Electrical Engineer	$192.04	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Steve Reeder	Kimley-Horn of NY, P.C.	Sr. Engineer	$193.58	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Kevin Kimm	Kimley-Horn of NY, P.C.	Sr. Engineer	$175.03	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Anush Nejad	Kimley-Horn of NY, P.C.	Principal	$288.86	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Jorge Gonzalez	Kimley-Horn of NY, P.C.	Sr. Project Manager	$269.47	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Carlos Maeda	Kimley-Horn of NY, P.C.	Principal	$288.02	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Andy Bell	Kimley-Horn of NY, P.C.	Sr. Project Manager	$244.67	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Andrew Hacker	Kimley-Horn of NY, P.C.	Project Accountant	$81.30	3.221	36	$ 2,985.28	0	$ -	0	$ -	0	$ -	0	$ -	72	$ 5,970.57
	David Tai	Kimley-Horn of NY, P.C.	Project Engineer	$140.18	3.221	0	$ -	384	$ 54,434.23	96	$ 13,860.88	0	$ -	0	$ -	0	$ -
	Walter P. Moore			**Subtotal**		1672	$ 289,875.46	0	$ -	1640	$ 275,226.68	0	$ -	0	$ -	920	$ 163,256.22
	Blair Hanuschak	Walter P. Moore	Principal	$249.91	2.808	240	$ 59,978.88	0	$ -	216	$ 54,700.74	0	$ -	0	$ -	200	$ 50,762.13
	Bret Busse	Walter P. Moore	Principal	$249.91	2.808	96	$ 23,991.55	0	$ -	144	$ 36,707.07	0	$ -	0	$ -	0	$ -
	Ryan Seckinger	Walter P. Moore	Principal	$249.91	2.808	48	$ 11,995.78	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Richard Temple	Walter P. Moore	Principal	$249.91	2.808	48	$ 11,995.78	0	$ -	96	$ 24,351.43	0	$ -	0	$ -	0	$ -
	Aaron White	Walter P. Moore	Principal	$249.91	2.808	96	$ 23,991.55	0	$ -	96	$ 23,991.55	0	$ -	0	$ -	0	$ -
	Steve Bentz	Walter P. Moore	Senior PM	$210.60	2.808	96	$ 20,217.60	0	$ -	48	$ 10,108.80	0	$ -	0	$ -	0	$ -
	Rob Field	Walter P. Moore	Senior PM	$182.52	2.808	96	$ 17,521.92	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Lloyd Wolf	Walter P. Moore	Senior PM	$168.48	2.808	96	$ 16,174.08	0	$ -	160	$ 26,956.80	0	$ -	0	$ -	0	$ -
	Kevin Anderson	Walter P. Moore	Senior PM	$154.44	2.808	240	$ 37,065.60	0	$ -	48	$ 7,413.12	0	$ -	0	$ -	720	$ 112,494.10
	Tom Yost	Walter P. Moore	Project Engineer	$117.94	2.808	240	$ 28,304.64	0	$ -	240	$ 28,304.64	0	$ -	0	$ -	0	$ -
	Greg Stevenson	Walter P. Moore	Project Engineer	$101.09	2.808	80	$ 8,087.04	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Robert Wilkins	Walter P. Moore	Senior CAD Technician	$112.32	2.808	120	$ 13,478.40	0	$ -	240	$ 26,956.80	0	$ -	0	$ -	0	$ -
	Jeff Shaver	Walter P. Moore	Senior CAD Technician	$112.32	2.808	80	$ 8,985.60	0	$ -	208	$ 23,362.56	0	$ -	0	$ -	0	$ -
	Beth Forsythe	Walter P. Moore	Administrative	$84.24	2.808	96	$ 8,087.04	0	$ -	144	$ 12,373.17	0	$ -	0	$ -	0	$ -

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

	Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task B.1		Task B.2		Task B.3		Task B.4		Task B.5		Task B.6		Task B.7		Task C	
						Develop Procurement Plan		Finalize Performance and Operation Requirements		Propulsion Power System Requirements		Design Criteria		System Technical Performance Specifications		Cost Estimating and Schedule Development		Procurement Contract Documents		AirTrain Vendor Procurement Support	
						EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
	Kimley-Horn of NY, P.C.			**Subtotal**		720	$ 121,343.90	1440	$ 230,171.26	1160	$ 211,073.15	10236	$ 1,401,550.25	360	$ 72,619.13	720	$ 103,944.27	360	$ 69,945.97	240	$ 51,010.86
	Nate Walnum	Kimley-Horn of NY, P.C.	Project Manager	$178.12	3.221	144	$ 26,683.31	72	$ 13,341.65	0	$ -	1,380	$ 254,944.46	72	$ 13,341.65	144	$ 26,683.31	36	$ 6,670.83	96	$ 18,277.18
	Sam Lott	Kimley-Horn of NY, P.C.	Sr. Project Manager	$235.39	3.221	144	$ 35,262.50	144	$ 35,262.50	0	$ -	0	$ -	72	$ 17,631.25	0	$ -	72	$ 17,631.25	48	$ 12,076.82
	Jill Capelli	Kimley-Horn of NY, P.C.	Sr. Engineer	$176.58	3.221	0	$ -	288	$ 52,903.39	0	$ -	0	$ -	144	$ 26,451.70	0	$ -	0	$ -	0	$ -
	Adam Gibson	Kimley-Horn of NY, P.C.	Sr. Engineer	$157.96	3.221	144	$ 23,662.74	0	$ -	0	$ -	1,060	$ 174,216.57	0	$ -	144	$ 23,662.74	72	$ 11,831.37	48	$ 8,104.10
	Zach Teague	Kimley-Horn of NY, P.C.	Sr. Engineer	$175.03	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Atif Wasti	Kimley-Horn of NY, P.C.	Sr. Designer	$105.33	3.221	144	$ 15,778.37	0	$ -	0	$ -	1,420	$ 155,548.91	0	$ -	144	$ 15,778.37	72	$ 7,889.19	0	$ -
	Brian Gall	Kimley-Horn of NY, P.C.	Sr. Designer	$119.24	3.221	0	$ -	0	$ -	0	$ -	1,840	$ 227,903.73	0	$ -	144	$ 17,862.86	0	$ -	0	$ -
	Fred Stauffer	Kimley-Horn of NY, P.C.	Sr. Designer	$133.22	3.221	144	$ 19,956.99	0	$ -	0	$ -	1,440	$ 199,569.90	0	$ -	144	$ 19,956.99	0	$ -	0	$ -
	Jarrett Moore	Kimley-Horn of NY, P.C.	Project Engineer	$99.14	3.221	0	$ -	0	$ -	0	$ -	1,168	$ 120,498.40	0	$ -	0	$ -	0	$ -	0	$ -
	Brandon Robinson	Kimley-Horn of NY, P.C.	Analyst/EIT	$91.41	3.221	0	$ -	0	$ -	0	$ -	1,148	$ 109,163.22	0	$ -	0	$ -	0	$ -	0	$ -
	Doug Gettman	Kimley-Horn of NY, P.C.	Sr. Engineer	$202.86	3.221	0	$ -	216	$ 45,583.58	0	$ -	0	$ -	72	$ 15,194.53	0	$ -	36	$ 7,597.26	0	$ -
	Cathryn Born	Kimley-Horn of NY, P.C.	Analyst/EIT	$91.41	3.221	0	$ -	432	$ 41,081.68	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Pete Syntax	Kimley-Horn of NY, P.C.	Electrical Engineer	$158.02	3.221	0	$ -	0	$ -	580	$ 95,282.01	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Jon Chambers	Kimley-Horn of NY, P.C.	Sr. Electrical Engineer	$192.04	3.221	0	$ -	0	$ -	580	$ 115,791.14	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Steve Reeder	Kimley-Horn of NY, P.C.	Sr. Engineer	$193.58	3.221	0	$ -	0	$ -	0	$ -	204	$ 41,082.48	0	$ -	0	$ -	0	$ -	0	$ -
	Kevin Kimm	Kimley-Horn of NY, P.C.	Sr. Engineer	$175.03	3.221	0	$ -	0	$ -	0	$ -	288	$ 52,418.54	0	$ -	0	$ -	0	$ -	0	$ -
	Anush Nejad	Kimley-Horn of NY, P.C.	Principal	$288.86	3.221	0	$ -	0	$ -	0	$ -	36	$ 10,818.08	0	$ -	0	$ -	0	$ -	0	$ -
	Jorge Gonzalez	Kimley-Horn of NY, P.C.	Sr. Project Manager	$269.47	3.221	0	$ -	0	$ -	0	$ -	72	$ 20,183.77	0	$ -	0	$ -	0	$ -	0	$ -
	Carlos Maeda	Kimley-Horn of NY, P.C.	Principal	$288.02	3.221	0	$ -	0	$ -	0	$ -	36	$ 10,786.71	0	$ -	0	$ -	0	$ -	0	$ -
	Andy Bell	Kimley-Horn of NY, P.C.	Sr. Project Manager	$244.67	3.221	0	$ -	0	$ -	0	$ -	72	$ 18,326.08	0	$ -	0	$ -	72	$ 18,326.08	48	$ 12,552.76
	Andrew Hacker	Kimley-Horn of NY, P.C.	Project Accountant	$81.30	3.221	0	$ -	0	$ -	0	$ -	72	$ 6,089.39	0	$ -	0	$ -	0	$ -	0	$ -
	David Tai	Kimley-Horn of NY, P.C.	Project Engineer	$140.18	3.221	0	$ -	288	$ 41,998.46	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Walter P. Moore			**Subtotal**		144	$ 37,437.62	0	$ -	0	$ -	7972	$ 1,305,652.46	172	$ 35,850.82	456	$ 79,011.60	2304	$ 393,076.24	608	$ 132,973.35
	Blair Hanuschak	Walter P. Moore	Principal	$249.91	2.808	72	$ 18,718.81	0	$ -	0	$ -	1,440	$ 374,376.17	108	$ 28,047.32	84	$ 21,838.61	440	$ 114,804.57	192	$ 51,287.06
	Bret Busse	Walter P. Moore	Principal	$249.91	2.808	72	$ 18,718.81	0	$ -	0	$ -	720	$ 187,188.09	0	$ -	84	$ 21,838.61	360	$ 93,594.04	192	$ 51,287.06
	Ryan Seckinger	Walter P. Moore	Principal	$249.91	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Richard Temple	Walter P. Moore	Principal	$249.91	2.808	0	$ -	0	$ -	0	$ -	48	$ 12,355.65	0	$ -	0	$ -	0	$ -	0	$ -
	Aaron White	Walter P. Moore	Principal	$249.91	2.808	0	$ -	0	$ -	0	$ -	208	$ 53,911.82	0	$ -	0	$ -	0	$ -	0	$ -
	Steve Bentz	Walter P. Moore	Senior PM	$210.60	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Rob Field	Walter P. Moore	Senior PM	$182.52	2.808	0	$ -	0	$ -	0	$ -	288	$ 54,684.16	0	$ -	0	$ -	64	$ 12,212.19	32	$ 6,196.33
	Lloyd Wolf	Walter P. Moore	Senior PM	$168.48	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Kevin Anderson	Walter P. Moore	Senior PM	$154.44	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Tom Yost	Walter P. Moore	Project Engineer	$117.94	2.808	0	$ -	0	$ -	0	$ -	2,160	$ 265,007.85	64	$ 7,803.49	288	$ 35,334.38	720	$ 88,335.95	192	$ 24,202.88
	Greg Stevenson	Walter P. Moore	Project Engineer	$101.09	2.808	0	$ -	0	$ -	0	$ -	400	$ 41,898.15	0	$ -	0	$ -	0	$ -	0	$ -
	Robert Wilkins	Walter P. Moore	Senior CAD Technician	$112.32	2.808	0	$ -	0	$ -	0	$ -	2,308	$ 269,677.09	0	$ -	0	$ -	720	$ 84,129.48	0	$ -
	Jeff Shaver	Walter P. Moore	Senior CAD Technician	$112.32	2.808	0	$ -	0	$ -	0	$ -	400	$ 46,553.50	0	$ -	0	$ -	0	$ -	0	$ -
	Beth Forsythe	Walter P. Moore	Administrative	$84.24	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

	Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments		Total Est. Hrs.	Total Cost
						EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT		
	Kimley-Horn of NY, P.C.			**Subtotal**		1600	$ 272,726.88	800	$ 141,622.88	0	$ -	0	$ -	0	$ -	25,590	$ 3,915,332
	Nate Walnum	Kimley-Horn of NY, P.C.	Project Manager	$178.12	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	3,192	$ 584,077
	Sam Lott	Kimley-Horn of NY, P.C.	Sr. Project Manager	$235.39	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,094	$ 263,920
	Jill Capelli	Kimley-Horn of NY, P.C.	Sr. Engineer	$176.58	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,344	$ 242,851
	Adam Gibson	Kimley-Horn of NY, P.C.	Sr. Engineer	$157.96	3.221	480	$ 86,454.60	320	$ 57,636.40	0	$ -	0	$ -	0	$ -	2,836	$ 476,389
	Zach Teague	Kimley-Horn of NY, P.C.	Sr. Engineer	$175.03	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	468	$ 82,670
	Atif Wasti	Kimley-Horn of NY, P.C.	Sr. Designer	$105.33	3.221	640	$ 76,864.20	160	$ 19,216.05	0	$ -	0	$ -	0	$ -	3,140	$ 350,766
	Brian Gall	Kimley-Horn of NY, P.C.	Sr. Designer	$119.24	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,892	$ 354,783
	Fred Stauffer	Kimley-Horn of NY, P.C.	Sr. Designer	$133.22	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,260	$ 311,125
	Jarrett Moore	Kimley-Horn of NY, P.C.	Project Engineer	$99.14	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,168	$ 120,498
	Brandon Robinson	Kimley-Horn of NY, P.C.	Analyst/EIT	$91.41	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,148	$ 109,163
	Doug Gettman	Kimley-Horn of NY, P.C.	Sr. Engineer	$202.86	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	944	$ 195,901
	Cathryn Born	Kimley-Horn of NY, P.C.	Analyst/EIT	$91.41	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,368	$ 128,103
	Pete Syntax	Kimley-Horn of NY, P.C.	Electrical Engineer	$158.02	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	580	$ 95,282
	Jon Chambers	Kimley-Horn of NY, P.C.	Sr. Electrical Engineer	$192.04	3.221	160	$ 35,035.50	160	$ 35,035.50	0	$ -	0	$ -	0	$ -	900	$ 185,862
	Steve Reeder	Kimley-Horn of NY, P.C.	Sr. Engineer	$193.58	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	204	$ 41,082
	Kevin Kimm	Kimley-Horn of NY, P.C.	Sr. Engineer	$175.03	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	288	$ 52,419
	Anush Nejad	Kimley-Horn of NY, P.C.	Principal	$288.86	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	36	$ 10,818
	Jorge Gonzalez	Kimley-Horn of NY, P.C.	Sr. Project Manager	$269.47	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	72	$ 20,184
	Carlos Maeda	Kimley-Horn of NY, P.C.	Principal	$288.02	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	36	$ 10,787
	Andy Bell	Kimley-Horn of NY, P.C.	Sr. Project Manager	$244.67	3.221	240	$ 66,956.48	80	$ 22,318.83	0	$ -	0	$ -	0	$ -	512	$ 138,480
	Andrew Hacker	Kimley-Horn of NY, P.C.	Project Accountant	$81.30	3.221	80	$ 7,416.10	80	$ 7,416.10	0	$ -	0	$ -	0	$ -	340	$ 29,877
	David Tai	Kimley-Horn of NY, P.C.	Project Engineer	$140.18	3.221	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	768	$ 110,294
	Walter P. Moore			**Subtotal**		7172	$ 1,102,041.48	2016	$ 591,309.16	0	$ -	0	$ -	0	$ -	25,076	$ 4,405,711
	Blair Hanuschak	Walter P. Moore	Principal	$249.91	2.808	332	$ 96,120.97	1,008	$ 295,654.58	0	$ -	0	$ -	0	$ -	4,332	$ 1,166,290
	Bret Busse	Walter P. Moore	Principal	$249.91	2.808	500	$ 146,560.97	1,008	$ 295,654.58	0	$ -	0	$ -	0	$ -	3,176	$ 875,541
	Ryan Seckinger	Walter P. Moore	Principal	$249.91	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	48	$ 11,996
	Richard Temple	Walter P. Moore	Principal	$249.91	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	192	$ 48,703
	Aaron White	Walter P. Moore	Principal	$249.91	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	400	$ 101,895
	Steve Bentz	Walter P. Moore	Senior PM	$210.60	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	144	$ 30,326
	Rob Field	Walter P. Moore	Senior PM	$182.52	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	480	$ 90,615
	Lloyd Wolf	Walter P. Moore	Senior PM	$168.48	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	256	$ 43,131
	Kevin Anderson	Walter P. Moore	Senior PM	$154.44	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,008	$ 156,973
	Tom Yost	Walter P. Moore	Project Engineer	$117.94	2.808	6,340	$ 859,359.55	0	$ -	0	$ -	0	$ -	0	$ -	10,244	$ 1,336,653
	Greg Stevenson	Walter P. Moore	Project Engineer	$101.09	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	480	$ 49,985
	Robert Wilkins	Walter P. Moore	Senior CAD Technician	$112.32	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	3,388	$ 394,242
	Jeff Shaver	Walter P. Moore	Senior CAD Technician	$112.32	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	688	$ 78,902
	Beth Forsythe	Walter P. Moore	Administrative	$84.24	2.808	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	240	$ 20,460

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

	Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task A.1		Task A.2		Task A.3		Task A.4		Task A.5		Task A.6	
						Document Review		Initial Ridership Demands and Performance Requirements Definition		Alignment Development		Technology Assessments and Recommendations		Procurement and Financing Strategy		Other Support Services	
						EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
	AECOM			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	612	$ 85,310.93
	Principal - John Azzaro, PE	AECOM	Project Advisor	$280.00	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	36	$ 10,281.60
	Mike Naughton	AECOM	Lead CM	$198.14	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	John Volpe	AECOM	Resident Engineer	$149.04	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Nizar Alkhatib	AECOM	Utilities Inspector	$116.37	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Anthony Carrelli	AECOM	Mechancial/Electrical Inspector	$127.10	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Juan Melendez	AECOM	Civil/Structural Inspector	$94.63	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Don Faser	AECOM	Rail Systems Inspector	$157.06	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	James Kim	AECOM	Scheduler	$150.35	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	360	$ 55,207.25
	Phoebe Fu	AECOM	Office Engineer	$116.32	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	72	$ 8,542.84
	Maria Herrera	AECOM	Project Admin	$76.79	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	144	$ 11,279.24
	DY Consultants			**Subtotal**		400	$ 75,490.50	960	$ 176,583.27	2520	$ 458,702.60	200	$ 37,485.08	360	$ 67,019.13	2250	$ 373,261.62
	Kiran Merchant	DY Consultants	Principal Planner	$275.00	2.740	120	$ 32,999.63	240	$ 65,999.25	480	$ 133,978.48	40	$ 11,247.37	0	$ -	480	$ 133,978.48
	Dennis Yap	DY Consultants	Principal Engineer	$275.00	2.740	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Denis Verdier	DY Consultants	Senior Terminal Planner	$140.01	2.740	120	$ 16,801.48	480	$ 67,205.94	960	$ 136,428.05	80	$ 11,453.01	0	$ -	720	$ 102,825.08
	Lyor Dahan	DY Consultants	Senior Airport Master Planner	$180.74	2.740	120	$ 21,689.04	240	$ 43,378.08	960	$ 176,114.99	80	$ 14,784.69	360	$ 67,019.13	0	$ -
	Christopher Rufo	DY Consultants	Senior Airport Engineer	$140.01	2.740	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	720	$ 102,825.08
	Ombretta Russo	DY Consultants	Planner/CAD	$100.01	2.740	0	$ -	0	$ -	120	$ 12,181.08	0	$ -	0	$ -	0	$ -
	Marina Aleksanyan	DY Consultants	Engineer/CAD	$100.01	2.740	40	$ 4,000.35	0	$ -	0	$ -	0	$ -	0	$ -	330	$ 33,632.97
	Gabe Rothauser	DY Consultants	Director of Program Management	$189.99	2.740	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Stellar Services			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,800	$ 336,292.24
	Arthur Huang	Stellar Services	Solution Architect	$143.16	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	200	$ 28,803.78
	Ke Tang	Stellar Services	Senior Developer	$143.16	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	320	$ 45,982.97
	Steve Rovell	Stellar Services	Project Manager	$151.11	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	840	$ 129,111.18
	Joseph Assante	Stellar Services	Document Control Specialist	$90.14	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,440	$ 132,394.31
	Dihan Lu	Stellar Services	Document Control Manager	$119.30	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Radin Consulting			**Subtotal**		460	$ 76,795.96	0	$ -	1,225	$ 168,444.76	0	$ -	0	$ -	4,677	$ 758,086.19
	Chitra Radin	Radin Consulting	Environmental Director	$280.69	2.807	20	$ 5,613.74	0	$ -	25	$ 7,101.38	0	$ -	0	$ -	425	$ 122,323.39
	Project Manager Position	Radin Consulting	Environmental Project Manager	$196.48	2.807	280	$ 55,014.65	0	$ -	400	$ 79,535.47	0	$ -	0	$ -	1,992	$ 401,575.52
	Trupti Kalbag	Radin Consulting	Senior Environmental Planner	$101.05	2.807	80	$ 8,083.79	0	$ -	400	$ 40,903.96	0	$ -	0	$ -	1,130	$ 117,093.63
	Jane Darcy	Radin Consulting	Senior Environmental Planner	$101.05	2.807	80	$ 8,083.79	0	$ -	400	$ 40,903.96	0	$ -	0	$ -	1,130	$ 117,093.63
	Project Site Engineer	Radin Consulting	Site Engineer	$101.05	2.807	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Totals					7,090.00	$ 1,315,941.44	6,628.00	$ 1,193,440.25	15,376.00	$ 2,809,942.66	1,570.00	$ 352,758.47	2,720.00	$ 717,912.00	15,279.00	$ 2,588,685.48

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

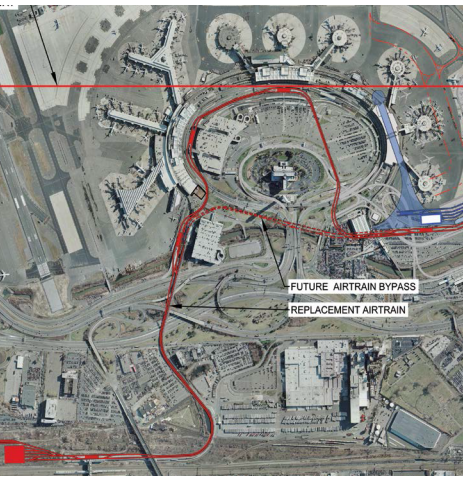
	Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task B.1		Task B.2		Task B.3		Task B.4		Task B.5		Task B.6		Task B.7		Task C	
						Develop Procurement Plan		Finalize Performance and Operation Requirements		Propulsion Power System Requirements		Design Criteria		System Technical Performance Specifications		Cost Estimating and Schedule Development		Procurement Contract Documents		AirTrain Vendor Procurement Support	
						EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
	AECOM			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	252	$ 39,667.29	0	$ -	496	$ 77,523.30
	Principal - John Azzaro, PE	AECOM	Project Advisor	$280.00	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	12	$ 3,564.62	0	$ -	12	$ 3,582.45
	Mike Naughton	AECOM	Lead CM	$198.14	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	48	$ 10,090.04	0	$ -	100	$ 21,525.42
	John Volpe	AECOM	Resident Engineer	$149.04	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Nizar Alkhatib	AECOM	Utilities Inspector	$116.37	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Anthony Carrelli	AECOM	Mechancial/Electrical Inspector	$127.10	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Juan Melendez	AECOM	Civil/Structural Inspector	$94.63	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Don Faser	AECOM	Rail Systems Inspector	$157.06	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	James Kim	AECOM	Scheduler	$150.35	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	120	$ 19,140.32	0	$ -	240	$ 38,567.74
	Phoebe Fu	AECOM	Office Engineer	$116.32	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	24	$ 2,961.80	0	$ -	48	$ 5,968.02
	Maria Herrera	AECOM	Project Admin	$76.79	2.416	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	48	$ 3,910.51	0	$ -	96	$ 7,879.67
	DY Consultants			**Subtotal**		0	$ -	150	$ 29,599.98	0	$ -	1370	$ 210,392.98	0	$ -	880	$ 137,582.39	4320	$ 509,375.86	0	$ -
	Kiran Merchant	DY Consultants	Principal Planner	$275.00	2.740	0	$ -	60	$ 17,504.65	0	$ -	60	$ 16,994.81	0	$ -	20	$ 5,834.88	0	$ -	0	$ -
	Dennis Yap	DY Consultants	Principal Engineer	$275.00	2.740	0	$ -	0	$ -	0	$ -	50	$ 14,162.34	0	$ -	40	$ 11,329.87	0	$ -	0	$ -
	Denis Verdier	DY Consultants	Senior Terminal Planner	$140.01	2.740	0	$ -	30	$ 4,456.17	0	$ -	240	$ 34,611.06	0	$ -	20	$ 2,970.78	0	$ -	0	$ -
	Lyor Dahan	DY Consultants	Senior Airport Master Planner	$180.74	2.740	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Christopher Rufo	DY Consultants	Senior Airport Engineer	$140.01	2.740	0	$ -	30	$ 4,456.17	0	$ -	960	$ 138,444.23	0	$ -	800	$ 117,446.85	1,440	$ 209,743.00	0	$ -
	Ombretta Russo	DY Consultants	Planner/CAD	$100.01	2.740	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,440	$ 149,816.43	0	$ -
	Marina Aleksanyan	DY Consultants	Engineer/CAD	$100.01	2.740	0	$ -	30	$ 3,182.98	0	$ -	60	$ 6,180.55	0	$ -	0	$ -	1,440	$ 149,816.43	0	$ -
	Gabe Rothauser	DY Consultants	Director of Program Management	$189.99	2.740	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Stellar Services			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	3,442	$ 389,391.92	1,920	$ 184,981.12
	Arthur Huang	Stellar Services	Solution Architect	$143.16	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	40	$ 5,898.19	0	$ -
	Ke Tang	Stellar Services	Senior Developer	$143.16	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Steve Rovell	Stellar Services	Project Manager	$151.11	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	680	$ 106,960.39	0	$ -
	Joseph Assante	Stellar Services	Document Control Specialist	$90.14	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,040	$ 191,402.80	1,920	$ 184,981.12
	Dihan Lu	Stellar Services	Document Control Manager	$119.30	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	682	$ 85,130.54	0	$ -
	Radin Consulting			**Subtotal**		0	$ -	0	$ -	0	$ -	1,175	$ 218,970.10	0	$ -	0	$ -	100	$ 21,972.18	0	$ -
	Chitra Radin	Radin Consulting	Environmental Director	$280.69	2.807	0	$ -	0	$ -	0	$ -	55	$ 15,900.92	0	$ -	0	$ -	20	$ 5,782.15	0	$ -
	Project Manager Position	Radin Consulting	Environmental Project Manager	$196.48	2.807	0	$ -	0	$ -	0	$ -	880	$ 178,090.29	0	$ -	0	$ -	80	$ 16,190.03	0	$ -
	Trupti Kalbag	Radin Consulting	Senior Environmental Planner	$101.05	2.807	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Jane Darcy	Radin Consulting	Senior Environmental Planner	$101.05	2.807	0	$ -	0	$ -	0	$ -	240	$ 24,978.90	0	$ -	0	$ -	0	$ -	0	$ -
	Project Site Engineer	Radin Consulting	Site Engineer	$101.05	2.807	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
	Totals					4,720.00	$ 1,143,252.33	2,804.00	$ 550,955.69	2,610.00	$ 455,751.07	37,837.00	$ 6,205,328.47	7,082.00	$ 1,655,471.42	5,916.00	$ 1,191,679.16	18,400.00	$ 3,186,603.54	7,110.00	$ 1,497,155.60

ATTACHMENT D - STAFF AND COSTS ANALYSIS
RFP NO 42022 - AirTrain Replacement Planning
COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates.

	Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments		Total Est. Hrs.	Total Cost
						EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT		
	AECOM			**Subtotal**		0	$ -	53196	$ 8,320,572.63	0	$ -	0	$ -	0	$ -	54,556	$ 8,523,074
	Principal - John Azzaro, PE	AECOM	Project Advisor	$280.00	2.416	0	$ -	228	$ 74,361.72	0	$ -	0	$ -	0	$ -	288	$ 91,790
	Mike Naughton	AECOM	Lead CM	$198.14	2.416	0	$ -	8,512	$ 1,955,319.33	0	$ -	0	$ -	0	$ -	8,660	$ 1,986,935
	John Volpe	AECOM	Resident Engineer	$149.04	2.416	0	$ -	8,680	$ 1,524,832.61	0	$ -	0	$ -	0	$ -	8,680	$ 1,524,833
	Nizar Alkhatib	AECOM	Utilities Inspector	$116.37	2.416	0	$ -	2,392	$ 328,235.30	0	$ -	0	$ -	0	$ -	2,392	$ 328,235
	Anthony Carrelli	AECOM	Mechancial/Electrical Inspector	$127.10	2.416	0	$ -	4,944	$ 732,353.81	0	$ -	0	$ -	0	$ -	4,944	$ 732,354
	Juan Melendez	AECOM	Civil/Structural Inspector	$94.63	2.416	0	$ -	6,720	$ 729,764.41	0	$ -	0	$ -	0	$ -	6,720	$ 729,764
	Don Faser	AECOM	Rail Systems Inspector	$157.06	2.416	0	$ -	7,520	$ 1,402,337.79	0	$ -	0	$ -	0	$ -	7,520	$ 1,402,338
	James Kim	AECOM	Scheduler	$150.35	2.416	0	$ -	2,320	$ 406,572.06	0	$ -	0	$ -	0	$ -	3,040	$ 519,487
	Phoebe Fu	AECOM	Office Engineer	$116.32	2.416	0	$ -	2,200	$ 297,227.98	0	$ -	0	$ -	0	$ -	2,344	$ 314,701
	Maria Herrera	AECOM	Project Admin	$76.79	2.416	0	$ -	9,680	$ 869,567.63	0	$ -	0	$ -	0	$ -	9,968	$ 892,637
	DY Consultants			**Subtotal**		585	$ 142,322.97	8400	$ 1,865,602.75	0	$ -	0	$ -	0	$ -	22,395	$ 4,083,419
	Kiran Merchant	DY Consultants	Principal Planner	$275.00	2.740	120	$ 38,006.18	0	$ -	0	$ -	0	$ -	0	$ -	1,620	$ 456,544
	Dennis Yap	DY Consultants	Principal Engineer	$275.00	2.740	135	$ 42,788.13	0	$ -	0	$ -	0	$ -	0	$ -	225	$ 68,280
	Denis Verdier	DY Consultants	Senior Terminal Planner	$140.01	2.740	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	2,650	$ 376,752
	Lyor Dahan	DY Consultants	Senior Airport Master Planner	$180.74	2.740	150	$ 33,155.07	0	$ -	0	$ -	0	$ -	0	$ -	1,910	$ 356,141
	Christopher Rufo	DY Consultants	Senior Airport Engineer	$140.01	2.740	180	$ 28,373.59	0	$ -	0	$ -	0	$ -	0	$ -	4,130	$ 601,289
	Ombretta Russo	DY Consultants	Planner/CAD	$100.01	2.740	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,560	$ 161,998
	Marina Aleksanyan	DY Consultants	Engineer/CAD	$100.01	2.740	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,900	$ 196,813
	Gabe Rothauser	DY Consultants	Director of Program Management	$189.99	2.740	0	$ -	8,400	$ 1,865,602.75	0	$ -	0	$ -	0	$ -	8,400	$ 1,865,603
	Stellar Services			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	18,290	$ 2,311,586.32	26,452	$ 3,222,251.60
	Arthur Huang	Stellar Services	Solution Architect	$143.16	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	240	$ 34,702
	Ke Tang	Stellar Services	Senior Developer	$143.16	2.651	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	320	$ 45,983
	Steve Rovell	Stellar Services	Project Manager	$151.11	2.651	0	$ -	0	$ -	0	$ -	0	$ -	2,520	$ 446,930.63	4,040	$ 683,002
	Joseph Assante	Stellar Services	Document Control Specialist	$90.14	2.651	0	$ -	0	$ -	0	$ -	0	$ -	10,080	$ 1,066,360.79	15,480	$ 1,575,139
	Dihan Lu	Stellar Services	Document Control Manager	$119.30	2.651	0	$ -	0	$ -	0	$ -	0	$ -	5,690	$ 798,294.90	6,372	$ 883,425
	Radin Consulting			**Subtotal**		10,755	$ 1,370,857.24	1,870	$ 428,600.70	0	$ -	0	$ -	0	$ -	20,262	$ 3,043,727.14
	Chitra Radin	Radin Consulting	Environmental Director	$280.69	2.807	75	$ 24,351.33	110	$ 35,131.21	0	$ -	0	$ -	0	$ -	730	$ 216,204
	Project Manager Position	Radin Consulting	Environmental Project Manager	$196.48	2.807	820	$ 179,241.82	1,760	$ 393,469.50	0	$ -	0	$ -	0	$ -	6,212	$ 1,303,117
	Trupti Kalbag	Radin Consulting	Senior Environmental Planner	$101.05	2.807	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,610	$ 166,081
	Jane Darcy	Radin Consulting	Senior Environmental Planner	$101.05	2.807	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,850	$ 191,060
	Project Site Engineer	Radin Consulting	Site Engineer	$101.05	2.807	9,860	$ 1,167,264.09	0	$ -	0	$ -	0	$ -	0	$ -	9,860	$ 1,167,264
	Totals					38,194.00	$ 7,113,705.91	120,290.00	$22,988,819.12	7,300.00	$ 1,837,683.78	3,700.00	$ 870,606.58	21,130.00	$ 3,175,725.01	325,756.00	$ 60,851,417.98

Reimbursable Expenses			
Task			Amount
Task A.1			$23,421.50
Task A.2			$32,127.00
Task A.3			$106,830.50
Task A.4			$15,520.00
Task A.5			$36,900.00
Task A.6			$49,126.25
Task B.1			$30,750.00
Task B.2			$15,520.00
Task B.3			$30,457.50
Task B.4			$208,337.00
Task B.5			$50,440.00
Task B.6			$50,440.00
Task B.7			$69,840.00
Task C.1			$40,710.90
Task D.1			$76,086.25
Task D.2			$169,398.58
Task D.3			$33,925.75
Task D.4			$40,710.90
Task D.5			$213,732.23

Notes: **Hourly Rates listed in Attachment D are 2015 Burdened Hourly Rates.**



LEA ELLIOTT

One Gateway Center, Suite 2600 | Newark, New Jersey 07102

leaelliott.com

Attachment B

AGREEMENT ON TERMS OF DISCUSSION

The Port Authority's receipt or discussion of any information (including information contained in any proposal, vendor qualification, ideas, models, drawings, or other material communicated or exhibited by us or on our behalf) shall not impose any obligations whatsoever on the Port Authority or entitle us to any compensation therefor (except to the extent specifically provided in such written agreement, if any, as may be entered into between the Port Authority and us). Any such information given to the Port Authority before, with or after this Agreement on Terms of Discussion ("Agreement"), either orally or in writing, is not given in confidence. Such information may be used, or disclosed to others, for any purpose at any time without obligation or compensation and without liability of any kind whatsoever. Any statement which is inconsistent with this Agreement, whether made as part of or in connection with this Agreement, shall be void and of no effect. This Agreement is not intended, however, to grant to the Port Authority rights to any matter, which is the subject of valid existing or potential letters patent. The foregoing applies to any information, whether or not given at the invitation of the Authority.

Notwithstanding the above, and without assuming any legal obligation, the Port Authority will employ reasonable efforts, subject to the provisions of the Port Authority revised Freedom of Information Policy adopted by the Port Authority's Board of Commissioners on October 22, 2014, or as may be amended, which may be found on the Port Authority website at: http://www.panynj.gov/corporate-information/pdf/board_minutes_102214.pdf, not to disclose to any competitor of the undersigned, information submitted which are trade secrets or is maintained for the regulation or supervision of commercial enterprise which, if disclosed, would cause injury to the competitive position of the enterprise, and which information is identified by the Proposer as proprietary, as more fully set forth in the FOI Policy, which may be disclosed by the undersigned to the Port Authority as part of or in connection with the submission of a proposal.

Parsons Transportation Group of New York, Inc.
(Company)

Jane Charalambous
(Signature) Jane Charalambous, PE

Vice President
(Title)

June 15, 2015
(Date)

ORIGINAL AND PHOTOCOPIES OF THIS PAGE ONLY.
DO NOT RETYPE.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

Parsons Transportation Group of New York, Inc.

2. Business Address (to receive mail for this RFP):

100 Broadway, 18th Floor

New York, NY 10005

3. Business Telephone Number: 212-266-8300

4. Business Fax Number: 212-571-6825

5. Firm website: www.parsons.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 10 / 15 / 1932

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

Please refer to section H of this proposal.

9. Officer or Principal of Firm and Title:

Jane Charalambous, PE - Vice President

10. Name, telephone number, and email address of contact for questions:

Monica Barrow, Program Director - Planning

212-266-8417, monica.barrow@parsons.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):
   Frasca & Associates, LLC

2. Business Address (to receive mail for this RFP):
   521 Madison Avenue, 7th Floor
   New York, NY 10022

3. Business Telephone Number: 212-355-4050

4. Business Fax Number: 212-355-3756

5. Firm website: www.frascallc.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 09 / 24 / 1997

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

9. Officer or Principal of Firm and Title:
   Ken Cushine, Principal

10. Name, telephone number, and email address of contact for questions:
    Ken Cushine, Principal
    212-355-4050x2, kcushine@frascallc.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☒ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Patrick J. Foye
Executive Director

Office of Business Diversity and Civil Rights

PA ID Number - 20796

Frasca & Associates, LLC

is certified as a ***Woman-owned*** **Business Enterprise** and has met the criteria for ownership and control as established by the Port Authority.

This certification will remain in effect for five years from the date of this notice and may be extended only upon your submission and the Port Authority's acceptance of a recertification package attesting that the ownership and control of the business, on which this certification is granted, has not changed. Please reference the above number on all correspondence.

Lash Green
Director
Certified: 5/30/2012

Roger J. Hsu
Manager, Certification
Scheduled Re-evaluation: 5/29/2017

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):
InGroup, Inc.

2. Business Address (to receive mail for this RFP):
340 W. Passaic St. 1st Fl.
Rochelle Park, NJ 07662

3. Business Telephone Number: 201 612 1230

4. Business Fax Number: 201 612 1232

5. Firm website: www.ingroupinc.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 07/25/95

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):
NA

9. Officer or Principal of Firm and Title:
Marlene B. Pissott

10. Name, telephone number, and email address of contact for questions:
Marlene B. Pissott (201) 612 1230 x 11
marlene@ingroupinc.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☑ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

Anthony R. Coscia
Chairman

Christopher O. Ward
Executive Director

Certified

by

Office of Business & Job Opportunity

Ingroup Networking, Inc.

Certificate 24085

This certificate acknowledges that the above named firm is certified as a **Small Business Enterprise and Women-owned Business Enterprise.** This company has met the criteria for ownership and control as established by the Port Authority Policy for Revised Minority, Woman and Small Business Enterprise (M/W/SBE) Programs, dated June 10, 1993.

This certification will remain in effect for five years from the date of notice and may be extended only upon submission by you, and acceptance by the Port Authority of a recertification application attesting that the ownership and control of the business, on which this certificate is granted, has not changed. This office must be notified within 30 days of any material changes in the business that affects ownership and control. Failure to do so may result in the revocation of this certification and/or imposition of other sanctions.

Lash Green
Director
Certified: April 12, 2010

Rosemary Jenkins-Varela
Manager, Certification
Scheduled Re-evaluation: April 11, 2015

Form: 6/10/93

Ann Weber

From: PANYNJ Diversity Management Program <panynj@diversitysoftware.com>
Sent: Sunday, April 19, 2015 7:42 AM
To: ann@ingroupinc.com
Subject: RE: InGroup, Inc. WBE / SBE Certification Renewal

RE: InGroup, Inc. WBE / SBE Certification Renewal

Ms. Weber:

We have received your WBE & SBE recertification applications and it has been submitted for document review. The review will take at least 90 days.

An increase in the number of projects in our capital budget has led to an increase in certification applications. Please be patient.

Applications for certification are being processed in the order in which they have been received. Once your file has been assigned to a certification analyst, they will be in touch with you directly.

Please also remember that your certifications do not expire and remain in good standing while we are reviewing your applications and rendering a decision.

Thank you again for your patience,

Quinton Bailey

Certification Documentation Specialist

THE PORT AUTHORITY OF NY & NJ
Office of Business Diversity and Civil Rights

> Good afternoon,
>
>
>
> I submitted the certification renewal application on March 24, 2015
> and I was hoping to get an update. Please confirm that you have
> received everything that you need to process our renewal.
>
>
>
> Owner: Marlene Pissott
>
>

> Kind Regards,
>

> Ann Weber
>
> InGroup Inc. | Webswagger.com
> 201.612.1230 x23 | FX 201.612.1232 | <http://www.ingroupinc.com/>
> www.ingroupinc.com | <http://www.webswagger.com/> www.webswagger.com
>
>
>
> Please note for immediate attention email
> <mailto:careteam@ingroupinc.com> careteam@ingroupinc.com.
>
>
> Inspire. Inform. Interact
>
> Follow us on Twitter: @ingroupinc | @webswagger
>
>
>

Customer Support
https://panynj.diversitysoftware.com/
The Port Authority of New York & New Jersey Diversity Management Program

Ticket Number: 1345728
#%#1345728%$%

This message was sent to: ann@ingroupinc.com Sent on: 4/19/2015 6:42:01 AM System ReferenceID: 25797006

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

   JCMS, Inc.

2. Business Address (to receive mail for this RFP):

   1741 Whitehorse-Mercerville Rd

   Mercerville, NJ 08619

3. Business Telephone Number: 609-631-0700
4. Business Fax Number: 609-631-0808
5. Firm website: www.jcms.com
6. Federal Employer Identification Number (EIN): [redacted]
7. Date (MM/DD/YYYY) Firm was Established: 06 / 09 / 1985
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   N/A

9. Officer or Principal of Firm and Title:

   Umesh K. Jois, President

10. Name, telephone number, and email address of contact for questions:

    Jayanta Dutta, Executive Vice President

    609-631-0700 Ext 117 / jdutta@jcms.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☒ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Christopher O. Ward
Executive Director

Office of Business Diversity and Civil Rights

Certificate PA-19889

JCMS, Inc.

is certified as a **Minority Business Enterprise** and has met the criteria for ownership and control as established by the Port Authority.

This certification will remain in effect for five years from the date of notice and may be extended only upon your submission and the Port Authority's acceptance of a recertification package attesting that the ownership and control of the business, on which this certification is granted, has not changed. Please reference the above number on all correspondence.

Lash Green
Director
Certified: October 5, 2011

Roger J. Hsu
Manager, Certification
Scheduled Re-evaluation: October 5, 2016

Form: 6/10/93

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

Mary E. Peters Consulting Group, LLC

2. Business Address (to receive mail for this RFP):

8323 W. Via Montoya Drive

Peoria, AZ 85383-2019

3. Business Telephone Number: 623.825.4492

4. Business Fax Number: 623.825.4492

5. Firm website: marypetersconsulting.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 03 / 09 / 2009

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

N/A

9. Officer or Principal of Firm and Title:

Mary E. Peters, President

10. Name, telephone number, and email address of contact for questions:

Mary E. Peters, 623.825.4492, mary@marypetersconsulting.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? No

If yes, please attach a copy of your Port Authority certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – **http://www.panynj.gov/business-opportunities/supplier-diversity.html**, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

Matrix New World Engineering, Inc.

2. Business Address (to receive mail for this RFP):

26 Columbia Turnpike

Florham Park, NJ 07932

3. Business Telephone Number: 973-240-1800

4. Business Fax Number: 973-240-1818

5. Firm website: www.matrixneworld.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 8 / 20 / 1990

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

BluePath Telecommunications Engineering, LLC, 292 Lafayette Street, Newark, NJ 07105

9. Officer or Principal of Firm and Title:

Jayne Warne, PE - President

10. Name, telephone number, and email address of contact for questions:

Clare Sullivan, CHMM, CSP, Vice President, csullivan@matrixneworld.com

973-240-1800 ext. 1070

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☒ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Patrick J. Foye
Executive Director

Matrix Environmental and Geotechnical Services, Inc. dba Matrix New World Engineering, Inc.

PA ID Number – 13393

This certificate acknowledges that the above-named firm is certified as a Woman-owned Business Enterprise.

Lash Green, Director
Office of Business Diversity and Civil Rights

Certification Date: April 26, 2013
Re-Evaluation Date: April 25, 2018

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

Mueser Rutledge Consulting Engineers

2. Business Address (to receive mail for this RFP):

14 Penn Plaza, 225 West 34th Street, New York, NY 10122

3. Business Telephone Number: 917-339-9300

4. Business Fax Number: 917-339-9400

5. Firm website: MRCE.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 05 / 01 / 1910

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

NA

9. Officer or Principal of Firm and Title:

Francis J. Arland, Partner

10. Name, telephone number, and email address of contact for questions:

Francis J. Arland, 917-339-9300 x318 , farland@mrce.com

Walter E. Kaeck, 917-39-9300 x328, wkaeck@mrce.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR QUALIFICATIONS FOR PERFORMANCE OF EXPERT PROFESSIONAL SERVICES – PREPARATION OF STRATEGIC VISION PLANS FOR AIRPORTS OPERATED BY THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY (RFQ #36807)

1. Company Name (print or type):
   Ricondo & Associates, Inc.

2. Business Address (to receive mail for this RFP):

   515 King Street, Suite 500

   Alexandria, Virginia 22314

3. Business Telephone Number: 703-519-2181, extension 240

4. Business Fax Number: 703-519-2184

5. Firm website: www.ricondo.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 08 / 31 / 1989

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

   Not applicable

9. Officer or Principal of Firm and Title:
   Joseph M. Chang, RA, Vice President

10. Name, telephone number, and email address of contact for questions:
    Joseph M. Chang, 703-519-2181, extension 240; j_chang@ricondo.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☒ Yes ☐ No

    If yes, please attach **Port Authority** certification as a part of this profile.

    If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Christopher O. Ward
Executive Director

Office of Business Diversity and Civil Rights

PA ID Number-13987

Ricondo & Associates, Inc.

is certified as a **Minority-owned Business Enterprise** and has met the criteria for ownership and control as established by the Port Authority.

This certification will remain in effect for five years from the date of this notice and may be extended only upon your submission and the Port Authority's acceptance of a recertification package attesting that the ownership and control of the business, on which this certification is granted, has not changed. Please reference the above number on all correspondence.

Lash Green
Director
Certified: 10/25/2011

Roger Hsu
Manager, Certification
Scheduled Re-evaluation: 10/25/2016

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):
   Stoughton Consulting LLC
2. Business Address (to receive mail for this RFP):
   5 Seely Place
   Scarsdale, NY 10583
3. Business Telephone Number: 914-722-2173
4. Business Fax Number: 914-722-2173
5. Firm website: _____
6. Federal Employer Identification Number (EIN): [redacted]
7. Date (MM/DD/YYYY) Firm was Established: 01/22/14
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):
   _____
   _____
9. Officer or Principal of Firm and Title:
   Gerald B Stoughton, Principal
10. Name, telephone number, and email address of contact for questions:
    Gerald Stoughton 914-722-2173
    gbstoughton@stoughtonconsulting.com
11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

Techno Consult, Inc.

2. Business Address (to receive mail for this RFP):

5 Independence Way, Suite 150

Princeton, NJ 08540

3. Business Telephone Number: (609) 720-1200

4. Business Fax Number: (609) 720-1210

5. Firm website: http://www.techno-eng.com/

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 09 / 18 / 1998

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

Techno Consult Engineering, PC, 14 Penn Plaza, Suite 1000, New York, NY 10122

EIN: [redacted]

9. Officer or Principal of Firm and Title:

Khalid Mallick, PE - President

10. Name, telephone number, and email address of contact for questions:

Khalid Mallick, (609) 720-1200, KMallick@Techno-Eng.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☒ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

Anthony R. Coscia
Chairman

Christopher O. Ward
Executive Director

Certified

By

Office of Business & Job Opportunity

Techno Consult, Inc.

Certificate PA-20443

This certificate acknowledges that the above named firm is certified as a **Minority Business Enterprise**. This company has met the criteria for ownership and control as established by the Port Authority Policy for Revised Minority, Woman and Small Business Enterprise (M/W/SBE) Programs, dated June 10, 1993.

This certification will remain in effect for five years from the date of notice and may be extended only upon submission by you, and acceptance by the Port Authority of a recertification application attesting that the ownership and control of the business, on which this certificate is granted, has not changed. This office must be notified within 30 days of any material changes in the business which affect ownership and control. Failure to do so may result in the revocation of this certification and/or imposition of other sanctions.

Lash Green
Director
Certified: April 12, 2010

Rosemary Jenkins-Varela
Manager, Certification
Scheduled Re-evaluation: April 12, 2015

Form: 6/10/93

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

VHB Engineering, Surveying and Landscape Architecture, P.C.

2. Business Address (to receive mail for this RFP):

Two Penn Plaza, Suite 2602, New York, New York 10121

3. Business Telephone Number: 212.857.7350

4. Business Fax Number: 212.971.7239

5. Firm website: www.vhb.com

6. Federal Employer Identification Number (EIN): [redacted]

7. Date (MM/DD/YYYY) Firm was Established: 2 / 24 / 1999

8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

9. Officer or Principal of Firm and Title:

Peter Byrne, CM, Principal

10. Name, telephone number, and email address of contact for questions:

Lisa DiTaranti, PE, 212.857.7311, LDitaranti@vhb.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☐ Yes ☒ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

ATTACHMENT C

COMPANY PROFILE

REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

1. Company Name (print or type):

   Barbara Thayer, P.E., Arch., Landscape Architecture, L.S., D.P.C. d/b/a "B. Thayer Associates"

2. Business Address (to receive mail for this RFP):

   100 Crossways Park Drive West, Suite 104, Woodbury, NY 11797

3. Business Telephone Number: 516.364.0660
4. Business Fax Number: 516.364.0668
5. Firm website: www.bthayerassociates.com
6. Federal Employer Identification Number (EIN): [redacted]
7. Date (MM/DD/YYYY) Firm was Established: 11 / 09 / 1990
8. Name, Address and EIN of Affiliates or Subsidiaries (use a separate sheet if necessary):

9. Officer or Principal of Firm and Title:

   Barbara Thayer, President

10. Name, telephone number, and email address of contact for questions:

    Robert Browne, RA - 516.364.0660 x 105 - rbrowne@bthayerassociates.com

11. Is your firm certified by the Authority as a Minority-owned, Woman-owned or Small Business Enterprise (M/W/SBE)? ☒ Yes ☐ No

If yes, please attach a copy of your **Port Authority** certification as a part of this profile.

If your firm is an M/WBE not currently certified by the Authority, see the Authority's web site – http://www.panynj.gov/business-opportunities/supplier-diversity.html, to receive information and apply for certification.

THE PORT AUTHORITY OF NY & NJ

David Samson
Chairman

Patrick J. Foye
Executive Director

Barbara Thayer, P.E., Arch., Landscape Architecture, L.S., P.C.

PA ID Number – 13953

This certificate acknowledges that the above-named firm is certified as a Women-owned Business Enterprise.

Lash Green

Lash Green, Director
Office of Business Diversity and Civil Rights

Certification Date: March 26, 2014
Re-Evaluation Date: March 26, 2019

PARSONS

100 Broadway, 18th Floor, New York, NY 10005 • (212) 266-8300 • Fax: (212) 571-6825 • www.parsons.com

June 17, 2015

The Port Authority of NY & NJ
150 Greenwich Street, 21st Floor
New York, NY 10007
Attention: Proposal Custodian Procurement Department

Re: Performance of Expert Professional Planning Services or the Replacement of Airtrain at Newark Liberty International Airport on an "As-Needed" Basis (RFP 42022)

To Whom it May Concern:

Parsons Transportation Group of New York, Inc. (Parsons), appreciates the opportunity to present our qualifications to perform expert professional planning services for the replacement of AirTrain at Newark Liberty International Airport (EWR) on an "as-needed" basis. Your program to plan, procure, and implement a new on-airport transit system requires a multidisciplinary, integrated team led by a firm that meets very specific proposer requirements. Parsons is that leader. Our experience includes planning, design, construction oversight, and program management for airport circulator and automated people mover (APM) projects in the following metropolitan areas: San Francisco; Seattle; Denver; St. Louis; Chicago; New York; Baltimore; Washington, D.C.; Atlanta; Miami; Mexico City; and Doha, Qatar. Our project manager, subject matter leads, and supporting personnel reflect that experience, as well as industry best practices applied on a variety of transportation projects. Below, we address each proposer requirement.

Requirement A: Successful completion of at least one major APM project.

- ✔ Design, planning, and technical functions, as well as oversight of the construction
- ✔ Work on both the systems and infrastructure
- ✔ Minimum constructed value of $1 billion
- ✔ Completed within the past 10 years

Between 1988 and 2015, Parsons was the managing partner of a joint venture (JV), Parsons Management Consultants, under contract to the Metropolitan Washington Airports Authority to provide program management for the capital construction program at Washington Dulles International (IAD) and Ronald Reagan Washington National (DCA) airports. The constructed value of the program was $6.9 billion. Parsons' scope included program, design, and construction management; program planning; project controls; and commissioning.

- ✔ The single largest component of the IAD expansion program was the $1.2 billion AeroTrain System, an APM system that includes 29 vehicles, four stations, a maintenance facility, and almost 4 miles of trackway.
- ✔ Parsons managed the planning, design, and construction of the AeroTrain system project, which began service in January 2010.
- ✔ Program management services included vehicle acquisition and procurement support, environmental planning and permitting, financial plan support, public information and communications, stakeholder coordination, commissioning, system startup and integration testing, operator staffing and work plans maintenance and fleet management plan, inventory control, and safety and security plan.

Requirement B: Successful completion of a minimum of two automated people mover project concept development and specification with minimum values of $400 million.

The AeroTrain system at IAD, described above, meets this requirement.

Additionally, Parsons has the following experience:

- ✔ Parsons, as the managing partner of the SFO Associates JV and as the program manager, managed the design and construction of a $400 million APM system at San Francisco International Airport (SFO), including elevated guideway, seven stations, and a central control/maintenance facility. The work included bid document preparation for fixed facilities, operating system, and the operations and maintenance (O&M) operating scope.
- ✔ Parsons was part of the prime contractor joint venture that designed and constructed the $372 million, 3.2-mile-long APM system between Bay Area Rapid Transit Coliseum Station and Oakland International Airport (OAK). Parsons designed the project's fixed facilities and managed design subcontractors. The scope included the design of the APM system, including the guideway, two passenger stations and related spaces, operating equipment, combined maintenance and central control facility, power distribution substation rooms, and wayside equipment ooms.

Parsons was a partner in the Program Management LLC that planned, designed, and constructed the $4.7 billion program of improvements at Hartsfield-Jackson Atlanta International Airport (ATL) between 1999 and 2015. The 15-year program included an elevated APM between the new consolidated rental car facility and main terminal, including three APM stations, including the integration of the station at the ground transportation center at the main terminal and an elevated maintenance facility, an extension to the existing underground APM system; an international terminal; a new runway; and many other airside and landside improvements.

- ✔ Parsons' work included the extension of the underground APM system connecting to the new international terminal complex, including underground guideway, operating systems, and stations.
- ✔ Parsons' scope in the ATL program also included program development, sequencing and scheduling, design management, cost control, public outreach, financial analysis, and the oversight of disadvantaged business enterprise (DBE) compliance.

Requirement C: Successful experience in developing staging of large multiphase construction projects in at least two major airport projects within the last ten years, which allowed for the continued efficient operation of the airport through the entire construction.

The programs at IAD and DCA, described earlier, required careful staging to preserve efficient airport operations, as did the program at ATL, described above. Because a large part of the construction footprint was centered near or within the operational areas of the terminal, concourses, and airside apron/taxilanes, Parsons focused on detailed planning and coordination efforts to mitigate and avoid operational impacts. An example of this is the Airport Construction Operations Plan (ACOP) system developed to coordinate the overlap between construction and airport/airline operations in real time.

Additionally, in 2012, Parsons completed the MIA Mover, an APM that shuttles travelers and airport workers to and from Miami International Airport (MIA), parking, rental car facilities, and regional public transportation services. Parsons was the managing partner in the design, build, operate, and maintain (DBOM) JV—jointly and individually liable for all design and construction. MIA Mover was delivered on time (36 months), $5 million below the owner's budget. Substantial completion was achieved with an outstanding safety and quality record, with no claims. Parsons successfully managed the challenges associated with performing complex construction works in the dense airport transportation corridor. Much of the alignment of the APM system was within or adjacent to roadways within MIA. These roadways carry more than 60,000 vehicles per day, with many operated by drivers who are potentially distracted by trying to find appropriate

terminal or parking locations. Parsons worked closely with airport landside operations to develop lane closure and detour plans that minimized traffic impacts and maximized traffic safety. Much of the construction was performed during nighttime hours, when traffic was reduced. The airport station was tightly situated between two multilevel parking garages, which remain open throughout construction. Work in this area required close coordination with the Aviation Department to safely maintain vehicle and pedestrian access to and from the airport terminal.

Requirement D: Project Manager shall have a minimum of twenty years experience and multi-discipline technical expertise performing planning and implementation of automated people mover systems. The Project Manager shall have professional experience on at least three similar automated people mover programs.

Our ***Project Manager, David Leverenz,*** is licensed to practice professional engineering services in New Jersey and New York and has more than 40 years of professional experience in the planning, program management, design, and construction of transportation projects, including leadership roles on several APM projects. His transit experience includes soft-ground tunnels and at-grade and aerial transit systems, including heavy rail, light rail, high-speed rail, and APM systems. David was program manager for the Miami International Airport MIA Mover project, which won the 2012 ENR Southeast awards for Best Project and Best Safety Project and earned the top safety recognition in the United States: VPP Star status from the Occupational Safety and Health Administration (OSHA). The $259 million, 1.25-mile APM system connecting the MIA main terminal to the Miami Intermodal Center, the Rental Car Center, and the Miami Central Station was delivered under a design-build-operate-maintain method, with Parsons serving as the managing partner. The contract included the construction of the guideway and stations, as well as installation of the full turnkey operation system and eight state-of-the-art APM vehicles.

In addition to his work on the MIA Mover APM, David was the Project Manager on the Downtown People Mover for the Detroit Transportation Corporation (DTC). He oversaw design through the construction of the 2.9-mile, elevated, driverless people mover system with 13 stations (including two stations constructed inside existing buildings), a central maintenance facility, and several traction power substations. David was a resident engineer on Phase 1A of the Automated Skyway Express for the Jacksonville (Florida) Transportation Authority (JTA). The first phase constituted a 0.7-mile APM starter line that included three stations and a maintenance facility. David was responsible for construction management, quality assurance, and served as the primary contact between the construction management team and owner.

David's APM-related presentations include "Re-entrant Corner Cracking on Bulb Tees on the Miami Airport MIA Mover APM System Project," presented in 2011 at the 13th International Conference on Automated People Movers and Transit Systems, in Paris, France, and "Practical Construction Tolerances for Aerial Guideways," presented in 1989 at the Second International Conference on Automated People Movers, in Miami, Florida.

In addition to his APM projects, David served as systems manager for the Authority's World Trade Center Port Authority Trans Hudson (PATH) Transportation Hub, which required extensive collaboration with Authority engineering staff. David was responsible for the full final design of the systems package, which included communications, fire alarm, closed-circuit television (CCTV), access control, customer information, and radio frequency systems, and cellular and WiFi service. He also managed all project disciplines' input to a comprehensive basis of design report, which defined the project's scope and design criteria. His additional responsibilities included the management of extremely complex interfaces between the transportation hub and adjacent projects. David's multidisciplinary transit experience spans all phases of the project life cycle, from planning, environmental clearance, and preliminary engineering through final design and construction.

Requirement E: The designated leads for subject matter shall have a minimum of eight years professional experience in his/her specific expertise and professional experience on at least two similar major programs.

The following table highlights the individuals that are designated subject matter leads. The enclosed proposal contains resumes for these individuals and additional information about their roles in the AirTrain EWR program.

Parsons' APM Experts

	Name	Designated Leads	Years of Experience	Related Programs
	David Leverenz	Program Manager	41	• MIA Mover APM • Downtown People Mover • JTA Automated Skyway • Kuala Lumpur Projek Monorel
	Monica Barrow	Planning	30	• Lower Manhattan-Jamaica/JFK • Northeast Corridor Master Plan
	Aaron Singer	Procurement Strategy	16	• Arlington-Fairfax Streetcar Program Management Services • Goethals Bridge Replacement Project P3
	Jane Charalambous, PE	Conceptual Design	31	• MIA Mover APM • Permanent PATH WTC Hub
	Peter Harrison, PMP	Vehicles	38	• EWR Monorail Extension • PATH Railcar and Signal Program Phase II
	Jorge Estevez, RA	Construction Management	30	• Denver International Airport South Terminal Redevelopment Program • Metro Gold Line Eastside Extension Design-Build

The projects and personnel described above demonstrate that Parsons fully complies with the proposer requirements established for the AirTrain EWR program. We are eager to support the Authority on this endeavor that is so critical to future growth and redevelopment of EWR.

Parsons submits this proposal as a single entity. We do propose, however, to augment our own resources with subconsultants selected for project relevance, past performance for Parsons and the Authority, and ability to meet the goals that have been set for participation by woman-owned and minority-owned business enterprises (W/MBEs). Additionally, because this is an "as-needed" contract, we offer a team that is prepared not only for the tasks outlined in the Request for Proposals, but also for tasks that may become necessary as the program scope evolves. The following table lists the subconsultants and their expected contributions. Additional information about the firms is included in the enclosed proposal.

Subconsultant Team

Firm	Role	WBE/ MBE
B. Thayer & Associates	Architecture	WBE
Frasca & Associates, LLC	Financial Analysis (as needed)	WBE
InGroup, Inc.	Stakeholder Facilitation	WBE
JCMS, Inc.	Cost Estimating	MBE
Mary E. Peters Consulting Group, LLC	Procurement Strategy	N/A
Matrix New World Engineering, Inc.	Survey	WBE
Mueser Rutledge Consulting Engineering	Geotechnical Engineering	N/A
Ricondo & Associates, Inc.	Aviation Planning	MBE
Stoughton Consulting LLC	Procurement Strategy	N/A
Techno Consult, Inc.	Scheduling; Document Control	MBE
VHB	APM & Pedestrian Modeling; Traffic; Environmental Review	N/A

In conclusion, Parsons offers the Authority a team with significant, related airport circulator and APM experience, familiarity with Authority requirements and design standards, and the availability and bench strength to get started quickly and support the program through completion in 2022. We look forward to your next steps. Please do not hesitate to contact me at (917) 340-0001 or by email jane.y.charalambous@parsons.com.

Sincerely,

Jane Charalambous

Jane Charalambous, PE
Vice President

D. Qualifications & Experience of Staff

Parsons Transportation Group of New York, Inc. (Parsons), is uniquely qualified to assist The Port Authority of New York and New Jersey (the Authority) in its endeavor to replace the existing AirTrain at Newark Liberty International Airport (EWR) with an on-airport transit system that will accommodate future growth and redevelopment of the airport. Key personnel proposed for the project have extensive related experience, starting with our proposed Program Manager, David Leverenz, PE, who has worked on four automated people mover (APM) projects and is licensed to practice engineering services in both the State of New Jersey and the State of New York.

The Core Project Team

DAVID LEVERENZ, PE
Program Manager
41 Years Experience

Experience on Similar APM Programs

- MIA Mover
- Downtown People Mover
- JTA Automated Skyway
- Kuala Lumpur Projek Monorel

The APM projects on which our Program Manager, ***David Leverenz, PE,*** worked (described in the transmittal letter to this proposal), have shaped his management approach to each major project he has managed over the past five years. From 2008 through 2012, David served as project executive for the Miami International Airport (MIA) MIA Mover project, a $259 million, 1.25-mile APM system that connects the MIA main terminal to the Miami Intermodal Center (MIC), the Rental Car Center, and the Miami Central Station. As project executive, David had full responsibility for implementation, from preliminary engineering through final design, construction, testing, and commissioning. He had day-to-day responsibility for all administrative, technical, and project controls functions and interfaced daily with Miami-Dade Aviation Department (MDAD) staff, management, and consultants. The MIA Mover system was delivered under a design-build-operate-maintain (DBOM) contract, with Parsons serving as the managing partner.

The VALUE of Parsons

Program Manager David Leverenz led the MIA Mover APM to an on-time, on-budget completion with zero claims.

The contract included the construction of the guideway and stations, as well as the installation of the full operating system and eight APM vehicles. Included in the construction was a 32,500-square-foot elevated APM maintenance facility located below the Airport Station, Dade County's first LEED-certified building. The project was the recipient of the 2012 ENR Southeast awards for Best Project and Best Safety Project and earned the top safety recognition in the United States: VPP Star status from the Occupational Safety and Health Administration (OSHA).

Between 2011 and 2013, David was the project manager for Parsons' engineering and planning work on the billion-dollar San Jose-to-Merced section of the California High-Speed Rail (CHSR) program. He was responsible for the development of preliminary engineering documents, which became part of the procurement package for a design-build contract. The work also included the preparation of an environmental impact report (EIR)/ environmental impact statement (EIS) document and right-of-way preservation and acquisition services.

Since January 2014, David has been the rail systems manager for the $10.1 billion Metropolitan Transportation Authority (MTA) East Side Access project. David is responsible for design and support during the construction of the massive rail systems modifications in the Harold Interlocking, in Queens, required for the project. Harold Interlocking is the busiest passenger train interlocking in the United States. The scope of work for which David is responsible includes railroad signals, track, third-rail traction power, overhead catenary systems, and communications modifications being implemented under force account by the Long Island Rail Road (LIRR) and Amtrak.

David will be committed full-time to the project. He will be supported by a talented group of individuals, each bringing specialized expertise to this project. The organization chart on the next page illustrates the project's reporting relationships and lines of responsibility. Resumes are included at the end of this section.

Principal-in-
Nicholas La

Quality Mar
Richard Eitland,

Project Development
Monica Barrow*

Ridership Estimates
Gregory Gaides, PE

Simulation Modeling
Terry Byrne (VHB)
William Jensen (R&A)

FAA Coordination
Peter Byrne (VHB)

Stakeholder Facilitation
Marlene Pissot (IG)

Environmental Review
Elizabeth Hynes, AICP CTP, LEED BD+C
Jennifer Hogan (VHB)

PATH to Newark Coordination
Lisa DiTaranti, PE (VHB)

Construction Management
Jorge Estevez, RA*

Construction Oversight
John Postorino

Document Control
Samuel Morales (TCI)

Configuration Management
Christine Terril, PE

DESIGNATED LEADS & OFFICE LOCATIONS

Monica Barrow – *New York, NY*
Aaron Singer – *New York, NY*
Jane Charalambous, PE – *New York, NY*
Peter Harrison, PMP – *Newark, NJ*
Jorge Estevez, RA – *New York, NY*

)
ıg
e, P.C.
(MBE)
Group, LLC

SC – *Stoughton Consulting LLC*
BTA – *B. Thayer & Associates (WBE)*
Matrix – *Matrix New World Engineering, Inc. (WBE)*
MRCE – *Mueser Rutledge Consulting Engineering*
JCMS – *JCMS, Inc. (MBE)*
***– Designated Lead**

MONICA BARROW
Project Development Lead
30 Years Experience

Experience on Similar Programs

- Lower Manhattan-Jamaica/JFK Transportation Project
- Northeast Corridor Infrastructure Master Plan

Monica Barrow has 30 years of experience in transportation planning and project management, including significant experience in capital planning for rail and transit programs. In the first half of her career, Monica was responsible for capital program development and oversight (including federal grant management) at the MTA and the LIRR. As a consultant, Monica has led teams of engineers and planners in the analysis of new and modified rail service. Her multimodal experience has typically involved alignment planning, conceptual development of stations and other facilities, service planning, rail operations analysis and simulation, economic and environmental impacts, stakeholder engagement, and assessment of the effects of new infrastructure or new service on operating performance, cost, and travel demand.

- Monica was deputy project manager for the Lower Manhattan-Jamaica/JFK Transportation Project, an analysis of alternative transit options for commuters and airport passengers between Long Island, JFK International Airport, and lower Manhattan. The study was conducted for a four-agency partnership of the MTA, Lower Manhattan Development Corporation, the Authority, and City of New York Economic Development Corporation. Monica managed the simulation of several alternative operating plans for subway, commuter rail, and AirTrain JFK service and the development of travel demand forecasting models to estimate commuter and airport passenger ridership.
- Monica was the project manager for the consultant team that produced the Northeast Corridor (NEC) Infrastructure Master Plan, working closely with Amtrak and the Northeast Corridor (NEC) railroads and states. The project featured quantitative analysis of the baseline operating capacity of the corridor, the development of a consolidated service plan for the future, and the estimation of the ability of the corridor to support the future levels of service using simulation tools. Ridership projections and capital improvements were also documented in the NEC Infrastructure Master Plan, which became a foundation document for several subsequent efforts by Amtrak, the NEC Commission, and the Federal Railroad Administration (FRA). The project received the Amtrak President's Service and Safety Award for Project Excellence.

AARON SINGER
Procurement Strategy Lead
16 Years Experience

Experience on Similar Programs

- Arlington-Fairfax Streetcar Program Management Services
- Goethals Bridge Replacement Project P3

Aaron Singer joined Parsons Enterprises as Bid Director, to facilitate Parsons participating as developer in Alternative Project Delivery (APD) and Public-Private-Partnerships (PPP). Parsons Enterprises provides analytical and financial resources to deliver key infrastructure projects to clients under alternative procurement models to optimize risk transfer, available financing sources, and the timing of available public sources of funding. Aaron spent nine years with the Authority evaluating the viability of alternative project delivery and innovative financing models to accelerate delivery of critical large-scale authority capital projects. During her tenure, she evaluated the feasibility of alternative financing structures to accelerate and justify investment in major capital projects, including the Goethals Bridge Replacement Project, the PATH Railcar Replacement Program, among other projects. Aaron held both corporate and business unit positions, working on aviation, transit, bridge and tunnel, port, and real estate projects, and worked with executive management to identify capital priorities in developing annual capital plans.

- Managing a team of technical, financial, and procurement specialists, Aaron led an evaluation of procurement strategies to deliver a $575

million streetcar program crossing Arlington and Fairfax Counties in support of the larger program management contract for the streetcar program. The delivery model evaluation team conducted both a qualitative and quantitative analysis, identifying opportunities and constraints relative to the two Counties' frameworks as well as the goals and objectives of the Program.

- Working with Authority consultants, Aaron completed a value-for-money and feasibility analysis comparing multiple project delivery models. The results of the analysis identified a PPP in the form of a DBOM contract as the best procurement strategy to accelerate the replacement of the Goethals Bridge. Aaron managed the commercial aspects of the Goethals Bridge Replacement PPP procurement, from working with advisors in developing procurement documents, reviewing statements of qualifications and interim proposals, ensuring compliance with federal regulations and securing access to TIFIA and PABs by developing the applications, conducting a project-based risk analysis, and securing an indicative rating for the project.

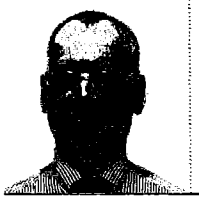
JANE CHARALAMBOUS, PE
Conceptual Design Lead
31 Years Experience

Experience on Similar Programs

- MIA Mover APM
- Permanent PATH WTC Hub

Jane Charalambous, PE, has more than 30 years of experience in project management, conceptual design, final design, codes and standards, estimating and scheduling, and construction staging for the most complex transit projects in the Northeast. Jane has experience in all phases of procurement, specification, design, and construction support services. She has managed the design for several large, complex transportation projects, including LIRR East Side Access and those described below.

- As Engineering Design Manager of the MIA Mover APM, Jane was responsible for managing and overseeing the design team responsible for final design of the track and elevated guideway, approximately 40 feet above grade and supported on concrete piers spaced at approximately 120-foot centers. Additionally, Jane managed the design packages for stations and support structures, which included the APM Airport station, the first LEED-certified building in Miami-Dade County.
- Jane was the Design Manager for the Permanent World Trade Center PATH Terminal for the Authority. She managed all design staff on the project for the final design of the 650,000 square foot terminal building. Jane also led the infrastructure, security, and constructability group, coordinated with third parties and adjacent stakeholders, and supervised construction and managed construction support services for the PATH terminal. Jane directly managed the completion of the NYCT 1 Line Subway and Cortland Street Station underpinning and the completion of the West Side Highway Underpass.



PETER HARRISON, PMP
APM Systems Lead
38 Years Experience

Experience on Similar Programs

- PATH Railcar and Signal Program Phase II
- Newark Liberty Airport Monorail Extension

Peter Harrison, PMP, has more than 35 years of experience involving transit engineering and project management, focusing on rail system integration and rail vehicles. He has also led engineering teams on vehicle procurement and engineering development projects, including negotiations for the supply of rail vehicle systems. Peter has worked with a wide range of rail transit vehicles, including APM systems, electric multiple units (EMUs) for mass transit and commuter rail applications, and light rail vehicles. Throughout his career, Peter has worked with suppliers, agencies, and consultants on new builds and overhaul vehicle projects around the world involving steel wheel rail and rubber-tired vehicles. Some of Peter's recent work includes the installation of communications-based train control (CBTC) for NYCT on three transit lines.

Peter was the lead vehicle engineer on the JFK AirTrain project, connecting JFK with rental car facilities, long-term parking, and two separate New York City Subway stations over 8.1 miles of track. Peter outlined specifications for 32 light rail vehicles to be operated in the system and oversaw the supply of all vehicles for the system.

- Peter was systems engineer for Phase II of the PATH Railcar and Signal Program for the Authority. Peter was responsible for both procuring an entire new fleet of railcars, the 340 PA-5 heavy rail vehicles, and designing and installing a new signal system using CBTC technology to improve the capacity, headway, and reliability of PATH revenue service operations. Signal upgrades were completed with limited disruption in PATH service, and the new railcars have improved PATH performance, reducing breakdowns and helping to meet capacity demands.
- Peter was the project engineer for the EWR AirTrain Extension, which connected the existing airport circulator to the newly constructed RailLink Station on the Northeast Corridor, providing connections to NJ Transit and Amtrak. Peter performed project engineering for the procurement of vehicles and control, SCADA, and power distribution systems on the EWR AirTrain extension.

JORGE ESTEVEZ, RA
Construction Management Lead
30 Years Experience

Experience on Similar Programs

- DIA South Terminal Redevelopment Program
- Metro Gold Line Eastside Extension Design-Build

Jorge Estevez, RA, has 30 years of experience in program, design, and construction management (CM) of major state and federal infrastructure and transportation projects. Jorge has provided clients a broad range of services for facilities valued in excess of $1.5 billion. He has led the efforts from procurement through closeout, including planning, bidding, CM, contracting, and contract administration for projects from Cost Plus, DBOM to Lump Sum, on multiple successful transportation projects:

- Jorge was Parsons' project manager for the Denver International Airport's (DIA's) Hotel and Transit Center, where Parsons provides program management support for the multimodal mass transportation facility, which includes an extension to an operating APM, a Regional Transportation District Commuter Rail Station, a 519-room Westin Hotel and Conference Center, and an expansion to the existing DIA Jeppesen Terminal's security screening and public transportation facility. Jorge's primary role during the initial phases of the program was to manage the construction of the site preparation projects (excavation, utilities, and temporary terminal roof support system), manage multiple design and construction firms, and coordinate with local state and federal regulatory agencies, airport operations, planning, and security. During the next phase of the program, his responsibilities also included the daily coordination and program management of DIAs' CM and general contractors and the Regional Transportation District contractors.
- Jorge managed the design and construction of eight light rail transit stations (six at-grade stations and two underground stations) for the Los Angeles County Metro Transit Authority, which included twin 2-mile-long bored tunnels and the direct oversight of up to 80 design professionals, self-perform construction crews, and 16 construction subconsultants. Eight design packages with more than 4,000 drawings, specifications, technical reports, code analysis reports, and calculations were developed and approved without any resubmittals. Jorge developed design presentations to gain public approval on concepts at required public meetings and coordinated the emergency tunnel ventilation design, agency interface, and mechanical implementation.

Subject Matter Expertise

The core team will be supported by the subject matter experts indicated on organization chart, plus other resources as needed. Parsons' team members offer strong multiple-project experience in elevated transit engineering, oversight of both rail systems and infrastructure design and construction, and program management for every aspect of APM projects.

RESUMES

David G. Leverenz, PE

PROGRAM MANAGER

EXPERIENCE PROFILE

David Leverenz has more than 40 years of professional experience in the planning, design, and construction of transportation projects, including leadership roles on several automated people mover (APM) projects. His transit experience includes managing three APM projects and transit systems, including heavy rail, light rail, high-speed rail. David's most recent APM work was as program manager for the Miami International Airport MIA Mover project, which won the 2012 ENR Southeast awards for Best Project and Best Safety Project and earned the top safety recognition in the United States: VPP Star status from the Occupational Safety and Health Administration (OSHA). David's multidisciplinary transit experience spans all phases of the project life cycle, from planning, environmental clearance, and preliminary engineering through final design and construction. His APM-related presentations include "Re-entrant Corner Cracking on Bulb Tees on the Miami Airport MIA Mover APM System Project," presented in 2011 at the 13th International Conference on Automated People Movers and Transit Systems in Paris, France, and "Practical Construction Tolerances for Aerial Guideways," presented in 1989 at the Second International Conference on Automated People Movers in Miami, FL.

RELEVANT PROJECT EXPERIENCE

MDAD MIA Automated People Mover System, Miami, FL – Program Manager. As program manager for the design-build contractor, David had full executive responsibility for the management of this project from preliminary engineering through final design, construction, testing, and commissioning. He had day-to-day responsibility for all administrative, technical, and project controls functions and interfaced daily with Miami-Dade Aviation Department (MDAD) staff, management, and consultants. He managed staff and trade contractors to achieve all safety, quality, schedule, and financial goals successfully. The Miami International Airport (MIA) APM system was delivered under a design-build-operate-maintain method, with Parsons serving as the managing partner for the $259 million, 1.25-mile APM system that connects the MIA main terminal to the Miami Intermodal Center (MIC), the Rental Car Center, and the Miami Central Station, where connections can be made to Metrorail, Amtrak, Tri-Rail, buses, and taxicabs. The contract included construction of the guideway and stations, as well as installation of the full turnkey operation system and eight state-of-the-art APM vehicles. The elevated guideway is approximately 40 feet above grade and is supported on concrete piers spaced at approximately 120-foot centers. Included in the construction was a 32,500-square-foot elevated APM maintenance facility located below the Airport Station. The Airport Station/ Maintenance Facility was Dade County's first LEED-certified building.

DTC Downtown People Mover, Detroit, Michigan – Project Manager. David was responsible for managing the design during construction of this project for the Detroit Transportation Corporation (DTC). In managing the design support effort, he was also responsible for shop drawing reviews, design changes, responses to design-related questions during construction, and providing design input to construction-related issues. This project constructed

Firm

Parsons

Years of Experience

41

Education

Master of Science, Civil Engineering, University of Illinois at Urbana-Champaign, 1974

Bachelor of Science in Civil Engineering, Civil Engineering, Purdue University, 1972

Registrations

Professional Engineer: NJ, NY, FL, MI, CA

Certifications

Envision Sustainability Professional (ENV SP), Institute for Sustainable Infrastructure

Employment History

Parsons: 2008-Date

DMJM Harris: 2001-2008

Wilbur Smith Associates: 1997-2001

Gannett Fleming, Inc.: 1974-1997

Nicholas C. LaRocco

PRINCIPAL-IN-CHARGE

EXPERIENCE PROFILE

Nicholas (Nick) LaRocco has more than 40 years of experience involving program, project, and construction management; strategic planning; security; and rail operations in all facets of the transit industry. He has developed the long-range strategic plans and capital program for a major commuter rail system. Nick has also managed the design and construction of major projects. In addition, he has experience involving the security of transit systems, environmental impact statement (EIS) development, and intermodal facility design. He has also been involved in planning, design, and program management for multibillion-dollar projects. Nick served as program director for the planning and construction of the JFK AirTrain station at the Long Island Rail Road's (LIRR's) Jamaica Station, a $1 billion project.

RELEVANT PROJECT EXPERIENCE

PANYNJ/MTA/LMDC Lower Manhattan-Jamaica/JFK Transportation Project, New York, NY – Program Manager. Nick managed the team performing the conceptual design, operating plans, extensive outreach and developing the costs for, as well as evaluating the environmental impacts of constructing the new rail tunnel, providing new rail service and making numerous changes to the existing transportation infrastructure of the MTA and PANYNJ. Parsons, in cooperation with the PANYNJ, Metropolitan Transportation Authority (MTA), the Lower Manhattan Development Corporation (LMDC), and with the support of the New York City Economic Development Corporation (NYCEDC), prepared an alternatives analysis. In anticipation of an environmental impact statement, alternatives were evaluated that provided improved commuter and airport access by connecting lower Manhattan with Long Island Rail Road's Jamaica Station, in Queens, and with JFK International Airport. In this study, "commuter" refers to the market between Long Island/Jamaica and lower Manhattan, and "airport" refers to the market between JFK International Airport and lower Manhattan. The alternatives developed fall into three service/market categories: (1) commuter and airport one-seat ride, (2) commuter one-seat ride and airport transfer and Jamaica, and (3) airport only. Rail, bus, bus rapid transit, and ferry modes were represented.

Brookfield Properties Developers LLC 9th Avenue & 31st Street Development, New York, NY – Program Manager. Nick was responsible for performing program management and constructability reviews for a $2.5 billion, 4.5 million square feet commercial development over Amtrak/LIRR/NJ Transit operating railroads in the vicinity of Penn Station. He worked with the railroads to develop strategies for the performance of the work. The area in which the construction is to take place has more than 1,000 trains per day operating through it. Nick was responsible for managing the interface with operational railroads where commercial space interfaces with rail operations. He is also responsible for developing plans to perform caisson, column, and platform construction while maintaining train operations. Parsons provided program management and constructability reviews for Manhattan West, a 5.4

Firm

Parsons

Years of Experience

43

Education

Master of Business Administration, Business Administration, New York Institute of Technology, 1986

Bachelor of Science, Civil Engineering, Clarkson University, 1972

Employment History

Parsons: 2001-Date

LIRR: 1972-2001

Richard Eitland, CQM/OE

QUALITY MANAGER

EXPERIENCE PROFILE

Richard (Rich) Eitland has extensive experience as a seasoned quality assurance/quality control (QA/QC) engineer. He has led multiple high-integrity projects/programs throughout the development life cycle. Rich has extensive background within a range of domestic and international transportation, positive train control, and utility projects. His expertise is in auditing and audit planning, inspection, surveillance, process/requirements development, configuration management, testing, non-conformance, and corrective action management on procurement, engineering, and construction projects.

RELEVANT PROJECT EXPERIENCE

NJ Transit Positive Train Control System, Newark, NJ – QA Manager. Rich is providing on-going support of NJ Transit's QA/QC program including refinement of processes and procedures, QA training, internal and external audit performance, requirements, configuration and construction management as well as overall vehicle, radio and wayside inspection planning. Parsons has been selected by NJ Transit as the design-builder to provide a turnkey system to develop, install, and integrate an interoperable FRA-certified positive train control (PTC) system on NJ Transit's 400-plus-mile regional commuter rail system by December 31, 2015. This significant contract represents the first-of-its-kind interoperable PTC system-wide implementation to be awarded in the Northeast Corridor, which needs to be interoperable with Amtrak. Parsons manages the overall program and provide design, installation, documentation, testing, integration, commissioning services, and warranty.

PANYNJ Goethals Bridge Replacement, Staten Island, NY and Elizabeth, NJ – QA Manager. Richard provided Design Quality support, including overall planning and development of QA/QC plans and procedures, contract requirement coverage, scheduling, and auditing.

PCJPB Caltrain CBOSS PTC, San Francisco, CA – QA Manager. Richard provided auditing support for key sub-suppliers, including audit planning, implementation, reporting, and follow-up. This project for the Peninsula Corridor Joint Powers Board (PCJPB) includes the design and deployment of specifications, procurement, manufacturing, installation, and testing, and the placing in service of wayside equipment on all Caltrain right-of-way; onboard Computer systems on all necessary vehicles; central office equipment at the rail operations center and backup central control facility; and a complete data communication system that includes fiber-optic cable, base stations, and radios. Also included is the training of Caltrain personnel and the update of documentation and software, as needed.

General Electric Hudson River Environmental Remediation Project, New York – QA Manager. Rich provided interim QA management support, including improvements to overall QA/QC implementation, training, subcontractor oversight, inspection and audit planning, and nonconformance report and corrective action/preventive action process development.

Firm

Parsons

Years of Experience

32

Education

Bachelor of Science, Electronic Technology, Thomas A. Edison College, 1998

Certifications

Certified Manager of Quality/Organizational Excellence (CMQ/OE)

Employment History

Parsons: 2012-Date

Invensys: 2010-2012

Shaw/Westinghouse: 2004-2008

Proton Energy Systems: 2003-2004

Westinghouse, Inc.: 2002-2003

JDS Uniphase Corporation: 2000-2003

United Technologies Corp.: 1998-2000

Accent Color Sciences: 1996-1998

Los Alamos national Laboratory: 1993-1995

Naval Air Warfare Center: 1989-1993

Lumonics: 1983-1989

Kenneth D. Sundberg

SAFETY MANAGER

EXPERIENCE PROFILE

Kenneth Sundberg is a rail transit professional whose 30 years of experience has focused on the safe execution of infrastructure projects while maintaining railroad operations. Kenneth began his career as a Long Island Rail Road (LIRR) signal inspector, responsible for the daily maintenance and testing of the signal system and responding to any failures or accidents. He later held positions of increasing responsibility in the System Safety Department, where his duties included ensuring safe construction practices while maintaining continuous railroad operations for projects such as the Jamaica Expansion/AirTrain JFK/ Jamaica Central Control and East Side Access. Kenneth's understanding of the operating perspectives of a railroad's engineering, transportation, safety, and public affairs departments is derived from customer-focused responsibilities in project management, construction safety management, safe work plan development, problem solving, service recovery strategies, consensus building, investigations, and presentations.

RELEVANT PROJECT EXPERIENCE

Bombardier Transportation JFK AirTrain and Newark AirTrain, New York and New Jersey – Area Systems Safety Manager. Kenneth was responsible for the development and integration of comprehensive System Safety Program Plans for JFK and Newark sites. He introduced industry related best practices for proactive operational safety programs inclusive of Hazard Analysis, Incident Investigation and Mitigation Strategies, On-Track Safety Programs, Electrical Safety, and similar risk based protocols associated with Operations and Maintenance for service delivery sites within the Americas region. Kenneth served Corporate health, safety, environment (HSE) Liaison to APTA and FTA - MAP 21, developing implementation programs for final legislation. He was responsible for developing model and coaching industry leading safety culture applications within the region.

NJ Transit Positive Train Control System, Newark, NJ – Safety Manager. Parsons is the design-builder providing a turnkey system to develop, install, and integrate an interoperable Federal Railroad Administration (FRA) certified positive train control (PTC) system on NJ Transit's 300+-mile regional commuter rail system by December 31, 2015. Kenneth is responsible for establishing, managing, and monitoring site safety and contractor compliance with corporate safety protocols, Roadway Worker Standards and Occupational Safety and Health Administration/Federal Railroad Administration/NJ Transit mandates. He develops activity hazard analyses, guides and approves the development of site specific work and safety plans. Kenneth ensures project related activities are performed safely, in regulatory compliance, and with minimal impact to NJ Transit operations. He is reviews and develops the approach and application of strategies to ensure adjustments to work practices based on leading indicators, field observations, and lessons learned. This significant contract represents the first of its kind interoperable PTC systemwide implementation to be awarded in the Northeast Corridor area, which needs to be

Firm

Parsons

Years of Experience

30

Education

Bachelor of Science, Professional and Liberal Studies, Dowling College, New York, 1999

Associate, Engineering Science, State University of New York at Farmingdale, 1985

Employment History

Parsons: 2012-Date

WMATA: 2010-2011

MTA LIRR: 1985-2010

Thomas Gallagher

PROJECT CONTROLS

EXPERIENCE PROFILE

Thomas (Tom) Gallagher is a cost engineering specialist. For the Port Authority Trans Hudson (PATH) World Trade Center Transportation (WTC) Hub project, he managed and coordinated deliverables for the design team's cost estimating and risk management group. He developed the project cost estimating database and estimating structure used for all construction cost estimates prepared by the design team. Tom also worked with the New York City Department of Design and Construction on the plans for the Total Design for Reconstruction of Houston Street. Thomas was responsible for preparing reports on subsurface structures in order to coordinate the construction contract duration and staging. The project involved coordination with the Landmarks Commission, local community boards, and other city and state agencies.

RELEVANT PROJECT EXPERIENCE

PANYNJ Permanent World Trade Center PATH Transportation Hub, New York, NY – Principal Project Controls Engineer/Specialist. Tom is managing the development of construction bid estimates for a federally funded (Federal Transit Administration) project supporting the World Trade Center Redevelopment Program. To date, the design team's cost estimating group has provided key cost support services for the project owner, the PANYNJ, to award the multi billion dollar in construction contracts for a world-class intermodal transportation facility with a unique architectural design. He is also managing the preparation and delivery of independent check estimates for all major design-based contract change orders. He provides the client/construction management negotiating team with change order support services, including contractor proposal review, the preparation of independent check estimates, the delivery of the variance analysis report, and the provision of negotiating tools and notes.

PANYNJ Permanent World Trade Center PATH Transportation Hub, New York, NY – Engineering Coordinator (Risk Management and Cost Estimating Consultant). Tom coordinated all cost estimating and risk management deliverables on the WTC Transportation Hub project for the joint venture design consultant, including preliminary engineering and final design milestone estimates, as well as bid support for the engineer's estimates. This effort addressed construction cost estimates and cost and schedule risk analyses for multi billion dollar in total project costs. He prepared cost variance analyses at each major design milestone, providing significant detail to project management and the project owner regarding the impact of design updates and the identification of sources contributing to major project cost shifts. Tom also created and maintained a cost model used to track current estimates and/or bid award data for more than 50 separate contract packages, providing project management and the project owner with instant estimate-to-completion forecasts and variance comparisons with initial budgets. Tom developed the project cost estimating database and estimating structure used for all construction cost estimates prepared by the design team. He was responsible

Firm

Parsons

Years of Experience

13

Education

Bachelor of Arts, Communications, Hofstra University, New York, 2001

Employment History

Parsons: 2002-Date

Shadab Mahmood

SCHEDULER

EXPERIENCE PROFILE

Shadab Mahmood has more than five years of professional experience in scheduling, planning, tracking, and using various tracking and financial/project software applications and databases. Shadab has served as an office engineer scheduler on projects worldwide. On the Hunts Point Wastewater Treatment Plant (WWTP), he was responsible for preparing schedule analysis reports (SARs), conducting critical path method (CPM) meetings every month, and proactively responding to any concerns from the New York City Department of Environmental Protection (NYCDEP) Engineer's Audit Office (EAO). On the Wards Island WWTP, Shadab served as office engineer/scheduler, managing all reports, schedules, and change orders and negotiating change orders. He assisted the resident engineer with all tasks, including making sure that the contractors were compliant with all NYCDEP, New York State, and federal policies and regulations.

RELEVANT PROJECT EXPERIENCE

NYCDEP Hunts Point Wastewater Treatment Plant Phase 4 Carbon Addition, Bronx, NY – Senior Scheduler. During the construction of the $8 million Carbon Addition Facility located within the Hunts Point 24-7 operational WWTP, Shadab took on various duties. The purpose of this facility is to add a supplemental carbon source, glycerol, to the waste water flow to enhance de-nitrification, as required under the Biological Nutrient Removal (BNR) Consent Order. Shadab prepared schedule analysis reports for NYCDEP, conducted CPM meetings every month, and scheduled replies to the contractor every month. Other duties included negotiating pencil payment with the contractor, preparing a partial payment package, and partial payment backup for engineer's audit. Shadab's additional responsibilities were answering any EAO NYCDEP's concerns as and when they arrived, providing additional backups from the contractor by following up, and replying to any questions from the U.S. Census Bureau on the monthly partial payments. Shadab also prepared the progress meeting agenda and minutes of the meeting, maintaining knowledge of the project schedule. He helped the resident engineer prepare the monthly I&T progress report, ensuring that all the current and potential project issues were addressed in the monthly report. Shadab guided the project team in drafting email responses to critical questions regarding the construction phases of the plant. Shadab also handled aspects of each I&T meeting, including the creation of slides and discussion with the project team beforehand. Additional responsibilities included helping the project team send out the scope of the change order, negotiating the change order with the contractor, and sending the final package to the NYCDEP.

NYCDEP Wards Island Water Pollution Control Plant, New York, NY – Office Engineer/Scheduler. Shadab was responsible for technical and administrative duties pursuant to the office engineer's scope of work, including the preparation of monthly schedule updates. The scope of construction work under this contract included the upgrading of chemical bulk storage tanks and

Firm

Techno Consult

Years of Experience

8

Education

Master of Science, Construction Management (Project Management), Heriot-Watt University, Edinburgh, UK, 2005

Bachelor of Science, Civil Engineering, Aligarh University, Aligarh, India, 2003

Employment History

Techno Consult: 2010-Date

ETA M&E: 2007-2010

Al Bunyan Engineering & Contracting: 2006-2007

Certifications

Primavera P6 Certificate, CATALYST, NYC

Graduate Member of Institution of Civil Engineers United Kingdom (Membership Number: 63251081) with option for eventual progression to Member (Chartered Engineer)

CITB certificate course in Advanced Surveying & Setting-out from National Construction College, Kings Lynn, United Kingdom

Spill Prevention and Response Training Certificate from New York City Department of Environmental Protection (DEP)

Occupational Safety and Health Administration (OSHA) - Construction Industry Outreach Certificate

Elaine Galbraith-Donaty, PE

COST CONTROL

EXPERIENCE PROFILE

Elaine Galbraith-Donaty is a project controls professional with more than 25 years of experience on engineering and construction projects. She is a licensed professional engineer, certified as both a Parsons project controls manager and Parsons project manager. Over the course of her career, Elaine has served in various roles, including as a design engineer, construction inspector, scheduler, estimator, project manager, and project controls manager. As a project controls manager, Elaine has performed extensive development, cost control, earned value management, deviation control, subconsultant administration, and invoicing for large-scale projects.

RELEVANT PROJECT EXPERIENCE

MTA East Side Access General Engineering Consultants, New York, NY – Deputy Project Controls Manager. Elaine is responsible for cost, schedule, and performance measurement. Her duties include overseeing the development of monthly updates for contract package design schedules and monthly progress updates for deliverables associated with each contract package for the determination of earned value. Elaine is also responsible for cost reporting, including costs incurred by three joint venture firms, as well as 20 subconsultants; overseeing management of the project's web-based project controls site, which posts costs, schedules, and earned value information for each design package; and monthly progress reporting, including the analysis of earned value and cost and schedule performance indices. Parsons is providing all design services required to provide a fully functional, 4-mile underground extension of the Long Island Rail Road (LIRR) into Grand Central Terminal (GCT), including all mitigating measures identified in the final environmental impact statement (FEIS). Parsons' primary role includes preliminary engineering, final design, and design support services for construction of the railroad and facility systems elements of the project. The project work includes all signaling, communications, traction power, overhead catenary, track work, and third rail systems, as well as all auxiliary power, station ventilation, fire suppression, fire alarm, and security systems.

MTA East Side Access Tunnel Engineering Consultant Team, New York, NY – Lead Scheduler/Estimator. Elaine served as lead scheduler for the tunnel engineering consultant, responsible for the maintenance of a resource and cost-loaded Phase I preliminary design schedule, monthly progress reporting, earned value reporting, evaluations against baselines; and assisting with the development of the proposed construction schedule. Her estimating responsibilities included assisting with the development of the draft environmental impact statement estimate using G2 software. The multibillion dollar project involves an extension of the LIRR, connecting it with GCT in Manhattan. As the primary consultant for project systems design services, the tunnel engineer provided conceptual, preliminary, and final design engineering,

Firm

Parsons

Years of Experience

26

Education

Bachelor of Science, Civil Engineering, Bucknell University, Pennsylvania, 1988

Licences

Professional Engineer: NJ

Employment History

Parsons: 2001-Date

STV Incorporated: 1999-2001

NJ Transit: 1997-1999

Goodkind & O'Dea: 1988-1997

Hans Hoppe, PMP

RISK ANALYST

EXPERIENCE PROFILE

Hans Hoppe is an accomplished risk manager with extensive project management, project controls, systems engineering, and subcontract management experience in the engineering and construction and aerospace and defense industries. He has more than 15 years of project execution experience, including large program risk management, planning, and mobilization, as well as 12 years of experience as a systems engineer designing and implementing integrated project controls, risk, and document management solutions. Hans is responsible for project risk management within Parsons, including policies, standardized procedures and systems, staffing, marketing, and training. He strives for ISO 31000:2009 compliance on all Parsons' projects. As director of program management systems, Operations Shared Services, Hans has mobilized large programs upon notice of award, including the establishment of work breakdown structure (WBS), schedule, cost/contract, risk management, document management, and design/construction management procedures. He has assisted contract managers with appropriate contract flow-down clauses to correspond with written procedures; implemented and configured systems and technology to automate appropriate aspects of the program procedures; and trained and ensured a smooth transition with permanent program staff. He was also responsible for architecting and proposing appropriate program procedures and systems to satisfy the performance and reporting requirements of various programs and projects, including large ($20 billion+) capital improvement programs. Hans has produced approved corporate procedures for best project controls, risk management, and document management practices, as well associated systems to support these best practices, and created the concept of a systems decision support matrix to assist and educate proposal managers and other senior leaders in determining the best corporate standard system to satisfy various request for proposal (RFP) requirements.

RELEVANT PROJECT EXPERIENCE

Riyadh Metro, Riyadh, Saudi Arabia and Doha Metro Doha, Qatar – Mobilization Risk Manager. Christine is working with the NJ Transit project team to establish industry best Hans was mobilization risk manager for mega rail programs in a program management consultant services (PMCS) role, including the $22 billion Riyadh Metro and the $8 billion Doha Metro. He coordinated with the client, program management officer (PMO), and design-build contractors to establish a risk management strategy/plan and procedures and implement appropriate collaboration technology. Hans planned and facilitated a series of risk workshops to identify and assess risk items, developed a comprehensive risk register, and transitioned tasks to permanent staff.

New Mexico City Airport, Mexico City, Mexico – Mobilization Risk Manager. Hans served as mobilization risk manager for the $14.8 billion New Mexico City Airport program in a PMO role. He established risk governance and a corresponding risk management framework for the entire program and coordinated with the client, program leadership team, and subcontractor to

Firm

Parsons

Years of Experience

17

Education

Executive MBA, University of Iowa, Iowa City, Iowa, 2008

Degree: Bachelor of Science, Mechanical Engineering (Minor: Public Affairs for Engineers), Colorado School of Miles, Golden, Colorado, 1992

Certifications

Earned Value Management

Project Management Professional

Employment History

Parsons : 2010-Date

Rockwell Collins: 2006-2010

Perot Systems Corporation : 1998-2006

Monica Barrow

PROJECT DEVELOPMENT LEAD

EXPERIENCE PROFILE

Monica Barrow has 30 years of experience in transportation planning and project management, including significant experience in capital planning for rail and transit programs. Monica has been responsible for capital program development and oversight (including federal grant management) at the Metropolitan Transportation Authority (New York) and the Long Island Rail Road. As a consultant, Monica has led teams of engineers and planners in the analysis of new and modified rail service. Her multimodal experience has typically involved alignment planning; conceptual development of stations and other facilities; service planning; rail operations analysis and simulation; economic and environmental impacts; stakeholder engagement; and assessment of the effects of new infrastructure or new service on operating performance, cost, and travel demand.

RELEVANT PROJECT EXPERIENCE

MTA Lower Manhattan-Jamaica/JFK Transportation Project, New York, NY – Deputy Director. As part of a joint venture, Parsons performed an analysis of alternatives for improving transit connections for commuters and airport passengers between Long Island, JFK International Airport, and lower Manhattan. Hundreds of alternative combinations of subway, commuter rail, bus rapid transit, and light rail service were evaluated. Monica developed the tiered evaluation process for evaluating alternatives and screening to two preferred alternatives. She directed service and route development, operating plan development and simulation, travel demand forecasting, environmental analysis, and stakeholder outreach. The work required an understanding of the JFK AirTrain timetable, operations, and airport passenger ground access preferences. Monica also staffed a client steering committee representing four primary agencies and subsidiary operators.

Amtrak NEC Infrastructure Master Plan, Boston, MA, to Washington, D.C. – Project Manager. Monica led the development of long-term infrastructure needs for the Northeast Corridor (NEC). She also led a working group comprising railroads that provide intercity, commuter, and freight services between Boston, Massachusetts, and Richmond, Virginia; the individual NEC states; and consultant planners, operations analysts, and engineers. Monica directed the collection and analysis of baseline and future information about ridership, service plans, network capacity constraints, capital improvements, environmental and economic benefits, and costs. She also wrote or edited every section of the NEC Infrastructure Master Plan. The project produced the first rail infrastructure plan for the NEC to incorporate a regional, corridor-wide perspective of the NEC main line from Boston, Massachusetts, to Washington, D.C., and branch lines (Albany, Harrisburg, and Richmond). The project featured quantitative analysis of the baseline operating capacity of the corridor, the development of a consolidated service plan for the future, and the estimation of the corridor's ability to support the future levels using simulation tools. The work was documented in the NEC Infrastructure Master

Firm

Parsons

Years of Experience

30

Education

Master of Business Administration, Management, New York University, 1992

Bachelor of Science, Public Policy/English, Carnegie Mellon University, 1985

Employment History

Parsons: 2012-Date

SYSTRA: 1999-2011

MTA: 1992-1998

LIRR: 1985-1992

Gregory T. Gaides, PE

RIDERSHIP ESTIMATES

EXPERIENCE PROFILE

Gregory (Greg) Gaides is a travel demand modeler and transportation planner/engineer with more than 20 years of experience in travel demand model development and forecasting, corridor and system planning studies, transit planning, and traffic engineering. He has proven experience guiding projects through the under Federal Transit Administration (FTA) New Starts/Small Starts project development process. Greg primarily focuses on the transportation planning and travel demand forecasting aspects of transit projects seeking FTA funding. His representative projects span commuter rail, light rail transit (LRT), bus rapid transit (BRT), and automated people mover (APM) modes. He has also participated in past FTA-sponsored New Starts workshops for travel demand forecasting.

RELEVANT PROJECT EXPERIENCE

PANYNJ PATH Expert Professional Planning Project Management and Related Services on a Call-In Basis, New York, NY – Travel Demand Forecasting. Greg estimated ridership impacts to temporary level of service changes that would result from construction-related service restrictions. He developed hourly origin-destination trip tables from station boarding and alighting data for evaluation. Under a task-order contract, Parsons is providing planning and coordination services to assist Port Authority Trans-Hudson (PATH) and project management staff to determine the potential impacts to their work as they identify and incorporate the logistics involved in project delivery, as well as in advancing initiatives aimed at improving the overall delivery of the PATH Capital Program. Parsons studied the service restrictions that would result from weekend construction activities in the uptown tunnels. The study developed service options for PATH weekend operations. The service options were based on criteria such as technical feasibility, acceptable levels of service and safety, costs, and passenger perception of PATH service. Greg estimated ridership impacts to temporary level of service changes that would result from construction-related service restrictions. He developed hourly origin-destination trip tables from station boarding and alighting data for evaluation.

Dallas County Utility and Reclamation District Las Colinas APT System AA/EA, Irving, TX – Travel Demand Forecasting. Greg served as the task manager for travel surveys and travel demand forecasting. The travel demand forecasting element is not typical of most projects, as ridership and user benefits accrue at a level of detail below that of a typical regional model. Thus, a methodology was developed that was grounded in data-driven analytical techniques, a procedure encouraged by FTA under the right circumstances. Five different travel surveys were developed and conducted to assess the travel market for the APM, and both ridership and user-benefit estimation procedures were developed that are fully compliant with FTA procedures and directives. This was an alternatives analysis and environmental assessment (AA/EA) project under the FTA's New Starts (Small Starts category) program for the expansion and improvement of the Las Colinas Area Personal Transit (APT) System elevated people mover. The scope of work included the development

Firm

Parsons

Years of Experience

21

Education

Master of Science, Civil Engineering, University of Tennessee, Knoxville, 1994

Bachelor of Science, Civil Engineering, University of North Dakota, 1992

Registrations

Professional Engineer: MN

Employment History

Parsons: 1994-Date

Terry Byrne

SIMULATION MODELING

EXPERIENCE PROFILE

Terry Byrne has provided design services for major railroads and transit agencies throughout the United States and is a nationally recognized specialist in rail operations and systems. His combined experience and significant RTC simulation capabilities means that he can find cost-efficient solutions to complex infrastructure and operational issues. Using modeling simulations, Terry helps clients explore a variety of operations planning and analysis tasks, including developing operating plans, evaluating capital improvement projects, and assessing the impact of adding service to existing operations. With each simulation model, Terry helps to produce various outputs, such as animation, time-distance diagrams (stringlines), TPC profiles, track occupancy charts, timetables, and operating statistics down to the individual train level. His depth of experience is unsurpassed, having worked for over two decades for railroads ranging from freight to commuter rail and high-speed passenger rail (Northeast Corridors). Terry's path in the industry has also provided him with a wealth of field and office experience in rail signaling and communication systems and how they relate to all of the components that make up a successful transportation system.

Firm

VHB

Years of Experience

40

Education

N/A

Employment History

VHB: 2006-Date

URS: 2005-2006

SYSTRA: 1996-2005

Metro-North Railroad: 1983-1996

RELEVANT PROJECT EXPERIENCE

Metro-North Railroad Grand Central Terminal, New York, NY – Senior Signal Engineer. Terry, as Senior Signal Engineer for Metro-North Railroad prior to joining VHB, supported operational personnel on defining new track layout for future Metro-North Railroad operations within Grand Central Terminal. This included developing detailed cut over staging and phasing plans so that work could be completed while maintaining operations during this transformation. Work also included developing microprocessor test procedures and working with signal vendors and computer programmers to assist in the first major consolidation of Metro-North Railroad operations into a new control center.

MBTA Blue Line Airport Station, Boston, MA – Project Manager. Terry was Project Manager for the signal relocation required to construct new Airport Station on the MBTA Blue Line. This includes the final detailed design of a wayside signal with tripper based speed enforcement system. The design included the installation of two emergency turn back hand-thrown crossovers controlled by electric locking mechanisms and a Pantograph Detection System. This task also included; detailed cutover procedures, field and in-service testing, supervision of electrical contractors, and the development of the as-in-service signal plans.

MBTA Orange Line "Haymarket-North Extension" Signal System, Boston, MA – Lead Signal Engineer. Terry was lead signal engineer for a Joint Venture. This project will replace the existing Orange Line signal system with an operable on-board train control system. Additionally this project will add equipment to the existing unit substations that will allow the Power Dispatchers to remotely control power to the third rail system.

William Jensen

SIMULATION MODELING

EXPERIENCE PROFILE

William Jensen has worked on a wide range of airport terminal projects, from initial planning and site selection to construction administration. He has nearly 15 years of experience planning, developing, analyzing, and executing successful solutions for airports ranging in size from the world's busiest airports serving as international gateways to smaller regional airports. William is an industry leader for integrating terminal modeling into the planning process. Computer modeling allows for analysis of the terminal complex in ways beyond the traditional planning processes, such as total time spent in the terminal, including waiting, processing, and walking distances. The terminal simulation uses the nonproprietary Comprehensive Airport Simulation Technology (CAST™) software. This dynamic 3D tool has aided in the planning process and in achieving results quickly because of enhanced client understanding and simplified graphic representation.

RELEVANT PROJECT EXPERIENCE

Los Angeles International Airport- Terminal Development, Los Angeles, CA – Terminal Planner. William is developing interface of the landside APM with the existing terminal Including the sizing of the vertical cores and relationship Of the APM with the existing terminal and garages.

Orlando International Airport APM Contingency Plan – Terminal Planner. William lead team to simulation APM operations impact during long term replacement projects. The impacts of irregular operations on vertical circulation, headway variations, wait time and platform occupancy.

Washington Dulles International Airport Strategic Terminal Planning and Demand Capacity Analysis – Terminal Planner. William worked in various tasks related to the implementation of a Aerotrain system. These tasks included, planning a vertical circulation and configuration at international arrivals facility for dedicated the APM System, contingency planning including demand generation for shuttle service prior to opening of the system and validation of vertical circulation capacity at stations.

Hartsfield Jackson International Airport Central Terminal Development, Atlanta, GA – Terminal Planner. William worked on the development of the CONRAC APM station at the main terminal. This included schematic design of the terminal station including station placement, initial sizing and future expansion, vertical circulation configuration and connection to the existing terminal building.

Firm

Ricondo & Associates

Years of Experience

15

Education

Bachelor of Architecture,
Texas Tech University, 2000

Employment History

Ricondo and Associates: 2009-Date

HNTB: 2004-2009

Creelman and Associates: 2003-2004

Corgan: 2000-2003

Peter Byrne

FAA COORDINATION

EXPERIENCE PROFILE

Peter Byrne is a principal and aviation services director with considerable experience in facility planning, financial consulting, and National Environmental Policy Act (NEPA) environmental analysis for airports across the nation. He is a certified member of the American Association of Airport Executives and brings unique experience related to aircraft maintenance and operations, military base conversions, and capital development funding strategies. Peter works closely with local, state, and federal agencies, including the Federal Aviation Administration.

RELEVANT PROJECT EXPERIENCE

PANYNJ Airport System Capacity Planning Study, New York and New Jersey – Task Manager. Peter is reviewing existing system characteristics and constraints, analyzing future capacity requirements and constraints, identifying and evaluating potential alternatives, and assessing alternatives in terms of their practicality and the potential environmental implications of a series of alternatives for the Port Authority's airport system capacity planning study for LaGuardia, JFK, Newark Liberty, Stewart, and Teterboro Airports.

PANYNJ Newark Airport AirTrain Passenger Facility Charge Type A Amendment, Newark, NJ – Project Manager. Peter was responsible, prior to joining VHB, for completion of the Type A Amendment to PANYNJ's 1997 Passenger Facility Charge application for construction of the AirTrain light rail system at Newark Liberty International Airport. The amendment would extend collection authority to the Port Authority for additional costs related to construction modifications during the course of construction and would allow the Port Authority to collect up to $35 million in PFC funds over a seven-year period to cover financing costs related to the additional construction costs. A major challenge on this project was the loss of nearly all documents related to the additional costs in the 9/11 attacks. In order for the FAA to grant the amendment, Peter attended meetings with staff in the FAA's Finance Branch in Washington, DC, in an effort to determine the required documentation given this unusual situation. Over the course of a series of meetings, Peter proposed a method of providing the FAA with a package of documents associated with the additional construction costs and a draft letter from the Port Authority that attested to the validity of the costs. Shortly after receiving the package the FAA granted collection authority for the Type A.

PANYNJ Newark Airport Airfield and Landside Capacity Assessment, Newark, NJ – Project Manager. Peter was Project Manager for the performance of a gap analysis that compared airfield capacity with airport landside capacity at Newark Liberty International Airport prior to joining VHB. The purpose of this analysis was to identify the capacity constraint of the airport and determine conceptual actions to alleviate the constraint on both airside and landside facilities. This project determined that airside capacity

Firm

VHB

Years of Experience

21

Education

BS, Civil Engineering, Villanova University, 1985

Certifications

Certified Member, American Association of Airport Executives

Employment History

VHB: 2006-Date

Louis Berger Group: 2001-2006

Sacramento County Airport System: 1994-2001

Marlene Pissott

STAKEHOLDER FACILITATION

EXPERIENCE PROFILE

Marlene Pissott is a marketing and outreach communications professional with more than 25 years of experience providing marketing, communications, public relations, and community outreach services to clients in the New York/New Jersey metropolitan area, including major transportation agencies. She has conducted extensive outreach efforts for complex transportation projects, such as the extension and development of light and commuter rail lines. A seasoned outreach professional, Marlene develops and implements outreach strategies that engage and inform the local communities affected by her projects, including developing public involvement plans, coordinating public involvement activities, and creating digital and print support materials.

RELEVANT PROJECT EXPERIENCE

PANYNJ/FHWA Cross Harbor Freight Program, New York and New Jersey – Stakeholder Facilitation. The Federal Highway Administration (FHWA) and PANYNJ are proposing to prepare Tier I of the Environmental Impact Statement (EIS) to evaluate alternatives to enhance the movement of freight across New York Harbor. Marlene is responsible for stakeholder identification, public involvement plan strategic development and other public outreach and involvement services relating to the Technical Advisory Committee (TAC), Stakeholder Committee (SAC) and SAFETEA-LU Committee, scoping, and public hearings in New York and surrounding region. Stakeholder relations and outreach strategy. She was also responsible for the development of informational materials, elected official correspondence, graphics, and the procurement of translation services. Marlene adhered to NEPA-compliant outreach standards. Outreach support and coordination of public hearings logistics included registration, meeting notes, signage, and facilitation during environmental review phase. Provided hearing moderation services. Support continues during construction phase for meeting facilitation with impacted communities and related meeting coordination in Staten Island, NY and Bayonne, NJ.

NJ Transit Hudson Bergen Light Rail Route 440 Extension Alternatives Analysis and Environmental Assessment, Hudson County, NJ – Public Involvement. Marlene crafted the public involvement plan, supported the development of public information tools such as fact sheets and project website. She facilitated stakeholder identification including the notification of affected residents. Adhered to NEPA-compliant outreach standards.

Hudson County/City of Bayonne/Jersey City in conjunction with NJPTA Bayonne Greenville Journal Square Bus Rapid Transit Feasibility Study, Bayonne and Jersey City, NJ – Public Involvement. Marlene provided public involvement strategy outline as well as plans for public meetings. She supported the development of public information tools such as community flyers, project website, social media Campaigns,

Firm

InGroup

Years of Experience

27

Education

Bachelor of Arts, Social and Behavioral Science, Felician College

Associate of Arts, Felician College

Employment History

InGroup Networking, Inc.: 1995-Date

Dowden Health Media: 1991-1994

Jack Georges, Inc.: 1991-1992

Lufthansa German Airlines: 1988- 1991

Elizabeth Hynes, AICP CTP, LEED BD+C

ENVIRONMENTAL REVIEW

EXPERIENCE PROFILE

Elizabeth Hynes is a principal planner with experience in transit and highway planning studies throughout the United States. Her experience includes a wide range of environmental assessments (EAs), environmental impact studies (EISs), alternatives analyses (AAs), and other planning studies for transit and highway projects. She is currently the deputy environmental lead and EIS document manager for the Washington, D.C., to Richmond Southeast High Speed Rail Project, which involves a Tier II EIS, a service development plan (SDP), and conceptual and preliminary engineering to improve intercity passenger rail service along the 123-mile corridor. Her automated people mover (APM) planning experience includes an AA/EA project for the expansion and improvement of the Las Colinas Area Personal Transit (APT) System elevated people mover, in Irving, Texas.

RELEVANT PROJECT EXPERIENCE

MTA Lower Manhattan–Jamaica/JFK Transportation Project, New York, NY – Transportation Planner. Elizabeth was responsible for compiling the AA Summary Report that documented the technical work performed during the AA phase of the project and the process used to evaluate the more than 300 alternatives reviewed for the potential connection of the Long Island Rail Road (LIRR) and JFK AirTrain service to Lower Manhattan. Alternatives were developed and evaluated based on engineering feasibility, operations analysis, ridership forecasts, and capital cost estimates. The Summary Report was developed to document the alternatives analysis to a level sufficient enough that future planning studies can move forward based on the work completed during this phase of the study, without repeating a full AA.

Dallas County Utility and Reclamation District Las Colinas APT System AA/EA, Irving, TX – Environmental Lead. This was an AA/EA project under FTA's New Starts (Small Starts category) program for the expansion and improvement of the Las Colinas Area Personal Transit (APT) System elevated people mover. Elizabeth led the EA effort and directed the subconsultants and Parsons' staff in the analysis and documentation of the environmental and community impacts of the proposed APT system improvements. She also managed the development of the AA report and other deliverables required to meet Federal Transit Administration (FTA) Small Starts requirements. The alternatives considered included upgrading the existing APT system, the addition of up to two in-fill stations, and the construction of an extension and new station to the Entertainment Venue/Convention Center.

IDOT Chicago Region Environmental Transportation Efficiency (CREATE) Grand Crossing Rail Project and CREATE Project WA7, Chicago, IL – Deputy Environmental Lead/Public Involvement Manager. Parsons is providing planning and engineering services for two

Firm

Parsons

Years of Experience

Education

Master of Regional Planning, City and Regional Planning, University of North Carolina, Chapel Hill, 2001

Bachelor of Arts, Art History, Rutgers University, 1996

Certifications

Leadership in Energy and Environmental Design Accredited Professional - Building Design + Construction (LEED AP BD+C), Green Business Certification Inc.

Certified Transportation Planner (CTP), American Institute of Certified Planners

Employment History

Parsons: 2001-Date

Town of Chapel Hill Planning Department: 2000-2001

Jennifer Hogan

ENVIRONMENTAL REVIEW

EXPERIENCE PROFILE

Jennifer Hogan is a project manager and senior airport and environmental planner with experience in the preparation of environmental assessments, environmental impact statements, and other environmental planning in compliance with local, state, and federal regulations. She has worked extensively with the Port Authority of New York and New Jersey on airport system capacity planning, Passenger Facility Charge applications, and other technical studies and consulting services. Jennifer has coordinated with the Federal Aviation Administration on a wide range of airport environmental studies.

RELEVANT PROJECT EXPERIENCE

PANYNJ JFK Airport and LaGuardia Airport Part 150 Noise Compatibility Studies, Queens, NY – Task Leader. Jennifer is Regulatory Compliance and Procedures Task Leader for the performance of FAR Part 150 noise compatibility studies for JFK International Airport and LaGuardia Airport in Queens, New York. The scope of work includes developing a study protocol with the PANYNJ; preparing noise exposure area maps; identifying and evaluating remedial and preventive land use strategies for the communities surrounding each airport; identifying and evaluating noise abatement measures to mitigate existing and future aircraft noise impacts to each airport and its surrounding resources; and developing a noise compatibility plan to identify actions, responsible parties, costs, and potential revenue sources needed to implement the program.

PANYNJ Airport System Capacity Planning Study, NY/NJ – Task Manager. Jennifer is Task Manager for a PANYNJ planning study to develop sufficient information to define the needed improvements at its airports to accommodate unconstrained air travel demand. She is responsible for managing work related to the Alternatives Screening Process for the study's environmental criteria, as well as specific technical work related to Section 4(f) resources, noise, air quality, and social and economic resources (e.g., land use, environmental justice and surrounding communities, etc.). The study will identify potential future capacity requirements and constraints; identify and evaluate potential alternatives to meet the Port Authority's objectives; and assess the operational, constructability, and economic feasibility of these alternatives. The project includes a review of potential environmental consequences related to the alternatives evaluated.

PANYNJ LaGuardia Airport Runway Safety Area Enhancements Environmental Assessment, Queens, NY – Senior Technical Reviewer. Jennifer was a Senior Technical Reviewer for preparation of the Environmental Assessment for the construction of runway safety area enhancements at LaGuardia Airport in Queens on behalf of the PANYNJ. She reviewed and incorporated revisions to the Draft Environmental Assessment based on Federal Aviation Administration comments of the draft document to ensure consistency and accuracy related to federal guidance.

Firm

VHB

Years of Experience

15

Education

Master of Science, Environmental Studies, Brown University, 2000

Bachelor of Science, Agricultural & Biological Engineering, emphasis in Environmental Systems Technology, Cornell University, 1998

Certifications

National Charrette Institute Charrette System™ Certificate

Employment History

VHB: 2005-Date

SWCA Inc.: 2000-2005

Lisa DiTaranti, PE

PATH TO NEWARK COORDINATION

EXPERIENCE PROFILE

Lisa DiTaranti, VHB's transit & rail practice leader in New York and New Jersey, is a registered professional civil engineer with extensive experience in the management and technical preparation of transit and transportation planning studies. She has worked on large-scale transportation studies in New York, New Jersey, Maine, Massachusetts, Florida, Vermont, and Pennsylvania, and her experience includes the preparation of National Environmental Policy Act (NEPA)-compliant environmental documentation, alternatives analyses, bus and bus rapid transit route development, rail operations analysis and simulation, site impact analysis, station planning and access, project evaluation and prioritization, cost-effectiveness analysis, public participation, travel demand model development and demand estimation, and cost estimation.

RELEVANT PROJECT EXPERIENCE

PANYNJ Port Newark Grade Crossing Improvement Project, Newark, NJ – Task Leader. Lisa is leading a preliminary and final design project to upgrade a critical at-grade rail crossing in Port Newark, NJ. The Corbin Street grade crossing provides access to Port business sidings for Conrail freight trains. Corbin Street is a heavily traveled two-three lane arterial. During Superstorm Sandy, the grade crossing sustained damage to its signal warning device systems. The team is providing design services, in conjunction with roadway improvements being prepared by others, for drainage, track, and signal/warning system improvements for improved grade-crossing system reliability and resiliency. In addition to final design plans, cost estimates and specifications, Lisa is overseeing personnel providing support during contractor bidding and construction.

MTA Lower Manhattan to Jamaica/JFK Alternatives Analysis and EIS, New York, NY – Planning Leader. Lisa served as Planning Leader, prior to joining VHB, for a complex Alternatives Analysis project focused on providing improved access to Lower Manhattan for commuters and JFK Airport travelers via the Long Island Rail Road Atlantic Branch while supporting post-9/11 redevelopment of Lower Manhattan. Multimodal alternatives using varied operating equipment and infrastructure were developed, including commuter rail, heavy rail, and bus rapid transit. Lisa managed the operations analyses for this effort and also provided coordination among engineering, planning, environmental, demand estimation, and operations efforts. She led the development of all aspects of the Alternatives Analysis document.

Princeton University Arts and Transit Neighborhood Enabling Project, Princeton, NJ – Rail Design Team Leader. Lisa served as Rail Design Team Leader responsible for the development of preliminary and final design plans, profiles, and cost estimates for relocation of the Princeton Branch rail line (a.k.a. the "Dinky") and development of a new Princeton commuter rail station and an adjacent transit plaza. The design included a high-level platform, a new station canopy and amenities, track relocation, relocated traction power systems, and modification of one at-grade railroad crossing. Lisa coordinated a

Firm

VHB

Years of Experience

29

Education

Bachelor of Science, Civil Engineering, Villanova University, 1985

Registrations

Professional Engineer: NJ, NY

Employment History

VHB: 2011-Date

SYSTRA: 1994-2011

Ebasco: 1985-1994

Aaron Singer

PROCUREMENT STRATEGY LEAD

EXPERIENCE PROFILE

In 2012, Aaron Singer joined Parsons Enterprises, the strategic equity investing arm of Parsons Corporation, as a bid director to facilitate Parsons participating as a developer in alternative project delivery and public private partnerships (P3s). Parsons Enterprises provides analytical and financial resources to deliver key infrastructure projects to clients under alternative procurement models to optimize risk transfer, available financing sources, and the timing of available public sources of funding. Aaron has assisted public agencies in formulating effective project delivery and procurement strategies, including the Arlington-Fairfax County Streetcar Program. Before Parsons, Aaron's experience with the Port Authority of New York and New Jersey focused on evaluating the viability of alternative project delivery and innovative financing models to accelerate the delivery of critical large-scale capital projects. Her work included managing the commercial aspects of the Goethals Bridge Replacement P3. Aaron held both corporate and business unit positions in the aviation, transit, bridge and tunnel, port, and real estate divisions and worked with executive management to identify capital priorities in developing annual capital plans. Her experience includes successfully delivering alternative procurement strategies within the Port Authority framework from the owner's perspective, as well as negotiating and bidding alternative delivery projects as a developer.

RELEVANT PROJECT EXPERIENCE

Parsons Enterprises, Inc. As bid director, Aaron is responsible for P3 bid proposal development for projects in North America. She has been involved in negotiating commercial and legal documentation with clients, subcontractors, and advisors; securing fully committed project financing solutions; developing commercial, risk management and insurance strategies; evaluating long-term life-cycle exposure; and executing transactions through to close. In addition, Aaron assists with deal origination and project sourcing. Aaron's bidding experience includes Waterloo Light Rail P3 (Ontario), Regina Bypass Highway P3 (Saskatchewan), Portsmouth Bypass Highway P3 (Ohio), and Pennsylvania Bridges Accelerated Bridge Delivery P3.

- **Arlington-Fairfax Streetcar Program Management Services – Procurement Strategy Evaluation Lead.** Aaron led a team of technical, financial, and procurement specialists that evaluated procurement strategies to deliver a $575 million streetcar program crossing Arlington and Fairfax Counties in support of the larger program management contract for the streetcar program. The delivery model evaluation team conducted both a qualitative and quantitative analysis, identifying opportunities and constraints relative to the two Counties' frameworks as well as the goals and objectives of the Program.

Port Authority of New York and New Jersey (PANYNJ). Aaron spent eight years with the PANYNJ, serving in a variety of roles, including the following:

Firm

Parsons

Years of Experience

16

Education

Master of Finance, Simon School of Business, University of Rochester, 2013

Master of Public Admin, Public Administration and Policy, Columbia University, 2004

Bachelor of Science, Culture and Politics and Latin American Studies, Georgetown University, 1999

Employment History

Parsons: 2012-Date

PANYNJ: 2004-2012

Export Import Bank of The United States: 2003

Political and Economic Link Consulting: 2002

The Urban Institute: 1999-2002

Gerald B. Stoughton

PROCUREMENT STRATEGY

EXPERIENCE PROFILE

Gerald Stoughton has more than 30 years of public sector experience, mostly at the Port Authority of New York and New Jersey (PANYNJ), in the planning, development, and financing of transportation projects. He also has experience in the procurement of services associated with project delivery. This experience covers aviation, marine, rail, and roadway projects, several in excess of $1 billion. Gerry has experience in strategic planning, budgeting, capital plan development and reporting, economic and financial analysis, as well as long-range financial forecasting. He has worked on long-term leases and lease extensions with both facility tenants and public municipalities. He has also participated on numerous request for qualifications (RFQ) and request for proposal (RFP) review committees as the lead financial member and also as a voting member on selection committees. Having served for several years as the CFO's lead financial analyst for Newark Airport, he has extensive experience with that facility's operating, capital, leasing, and cost recovery matters.

RELEVANT PROJECT EXPERIENCE

PANYNJ Goethals Bridge Replacement – Director of Financial Analysis & Selection Committee Member. Gerry directed PA financial staff in advancing this $1.5 billion project through the PA procurement process, interacting with agency staff from many departments and at many levels along the way. He managed the procurement of financial advisors to undertake the initial evaluation of alternative project delivery approaches for the Goethals Bridge Replacement. As a result, this project advanced using a public-private-partnership (P3) model – a design, build, finance, and maintain (DBFM) structure. He oversaw PA financial staff and project financial advisors in developing both the RFQ and RFP for the project, serving on both evaluation and selection committees. Gerry also directed PA and consultant staff in the comparison of the P3 approach to a more traditional PA project delivery model. He presented the results of this analysis to senior PA executive staff and the Board of Commissioners. He also managed financial staff in the development and submission of a USDOT TIFIA loan application and a private-activity-bonds (PABs) allocation request for the project. Each was approved and together provided the majority of the project's funding. Gerry oversaw staff and consultants in the development of financial analysis materials to support the project's Board authorization and its successful financial close.

PANYNJ JFK Airtrain (Airport Access) Project – PA Financial Analysis Lead & Selection Committee Member. Gerry served as the agency's financial lead on the procurement of this $1.8 billion project, which utilized a design, build, operate, and maintain (DBOM) structure. He worked on the development of the financing plan for the project, including the PA's application to the FAA to collect and use passenger facility charges (PFCs) to fund a portion of the constructions costs. He also managed the financial support team in the review of RFPs during project procurement and served

Firm

Stoughton Consulting

Years of Experience

33

Education

Advanced Professional Certificate in Finance, NYU Business School, 1988

Masters, City and Regional Planning, Harvard Kennedy School of Government, 1981

Bachelors of Arts, Economics, Columbia College, 1979

Registrations

Registered Municipal Advisor with SEC and MSRB

Employment History

Stoughton Consulting: 2014-Date

PANYNJ: 1981-2014

Jerrold Dinkels, PE

PROCUREMENT STRATEGY

EXPERIENCE PROFILE

Jerrold Dinkels has more than 40 years of professional experience in the planning, design, and construction of major facility and transportation infrastructure projects for major government agencies in the New York/New Jersey region. During his nearly 20-year career with the Port Authority of New York and New Jersey (PANYNJ), Jerrold was involved with several of the region's foremost infrastructure redevelopments, such as the World Trade Center, the New York Airport Access Program, and the JFK Redevelopment Program. Following the tragic events of 9/11, as the engineering program manager, he was in charge of engineering for the Downtown Restoration Program. In 2011, Jerrold assumed the position of senior vice president at Techno Consult for the firm's New York and New Jersey operations. Given his extensive industry experience, his advisory and quality management services are often sought out by both clients and consultant project teams.

RELEVANT PROJECT EXPERIENCE

NJ Transit Access to the Region's Core Tunnel – Corporate Lead/ Senior Project Advisor. Supervised the multidisciplinary team responsible for the preliminary and final engineering effort for the $8.7 billion Access to the Region's Core (ARC) tunnel. The major undertaking for NJ Transit would have created the second Hudson River rail tunnel connecting New Jersey with New York City, and would have augmented the capacity of the existing 100-year-old tunnel by providing up to 30 additional trains during peak hours. Mr. Dinkels participated in the supervision of the entire consultant team, reviewed preliminary and final engineering documents, and provided procurement support and services during construction. He also directed third-party coordination, performed constructability analyses, and performed risk management and quality assurance reviews. In addition, Mr. Dinkels managed real estate acquisition support, environmental analysis, and contract specifications.

PANYNJ Jet Blue Yellow Parking Garage Design-Build – Principal-in-Charge. Provided project management and executive oversight of the design-build team responsible for the design and construction of an approximately $100 million, 1,500-space, 6-level parking garage at JFK International Airport in Queens, NY. The garage connects to an existing AirTrain Station via a skywalk connection. Mr. Dinkels supervised the project manager and coordinated all activities between the contractors, the client, and the PANYNJ.

PANYNJ APM Terminals Container Terminal Maintenance Building and Fueling Facilities – Project Manager. Managed the design of a new maintenance building and fueling station for this port facility in Elizabeth, NJ. Under his direction, the firm prepared construction documents and verified code compliance. Mr. Dinkels' team also obtained necessary approvals of the Tenant Alteration Application (TAA) from PANYNJ.

Massport Logan International Airport Wayfinding Program – Principal-in-Charge. Supervised the preliminary and final phases of the

Firm

Techno Consult

Years of Experience

44

Education

Bachelor of Science, Civil Engineering, The City College of New York, NY, 1969

Registrations

Professional Engineer: NY, NJ

Employment History

Techno Consult: 2011-Date
STV Incorporated: 2005-2011
PANYNJ: 1987-2005

Mary E. Peters

PROCUREMENT STRATEGY

EXPERIENCE PROFILE

Mary Peters is the principal of Mary Peters Consulting Group, LLC (MPCG), an organization dedicating to finding new and better ways to finance and build American infrastructure. Mary is the former U.S. Secretary of Transportation, serving in that role from 2006 to 2009. She is currently providing executive-level consulting services to clients regarding the planning, funding, development, and operation of infrastructure. Mary serves as a senior advisor to public and private organizations and corporations seeking to align services to current market conditions.

During her tenure as secretary, Mary led efforts to improve the safety and performance of the U.S. transportation system, incorporating market-based solutions, such as congestion pricing. She developed reform proposals for surface and aviation programs to provide taxpayers a strong return on investment for their tax dollars and to institute private-sector investment discipline into decision-making at the U.S. Department of Transportation.

Mary has a long history of leading organizational change initiatives leading to more client-based outcomes. As Federal Highway Administrator at the US DOT from 2001 to 2005, she improved financial, safety, and operational performance of the Federal-Aid Highway Program by instituting performance metrics and organizational accountability.

Mary similarly led efforts at the Arizona Department of Transportation, where she served as director of that agency from 1998 to 2001. In that position, she led efforts to implement outcome-based performance measures and organizational alignment to accomplish those objectives, providing accountability to the governor, state legislature, and public.

RELEVANT PROJECT EXPERIENCE

Arizona Department of Transportation, Public-Private Partnership Program – Senior Policy Advisor. Advise senior leadership at the Arizona Department of Transportation in developing and implementing a program to attract private investment and expertise to advance critical projects as part of the 5-Year Highway Construction Program. Lead ADOT's P-3 Advisory Group, and brief ADOT Steering Committee, key stakeholder groups, members of the State Legislature regarding those efforts. Advise the Department in developing procurement process to obtain proposals for identified candidate projects.

Virginia Department of Rail and Public Transportation Southeast High Speed Rail Tier II Environmental Impact Statement-Richmond Area to Potomac Segment (DC2RVA). Guide stakeholder outreach leveraging federal experience to provide coordination with federal agencies, Amtrak, Virginia Railway Express and CSX Railroad. Help bring consensus among key stakeholders in developing successful solutions to the complex issues in the corridor.

Firm

MPCG

Years of Experience

31

Education

Bachelor of Arts, Management, University of Phoenix, 1994

Harvard University, John F. Kennedy School of Government – State and Local Executive Program

Employment History

MPCG: 2009-Date

U.S. Department of Transportation: 2006-2009

HDR Engineering, Inc.:2005-2006

U.S. Department of Transportation: 2001-2005

Arizona Department of Transportation: 1984-2001

Richard Louis, PE

PROCUREMENT STRATEGY

EXPERIENCE PROFILE

Richard Louis is a civil engineer and former aviation executive and manager at the Port Authority of New York and New Jersey (PANYNJ) with more than three decades of experience in engineering and airport management, airport operations and maintenance, airport certification, capital project planning and implementation, terminal redevelopment, and airport security.

RELEVANT PROJECT EXPERIENCE

PANYNJ Senior Technical Advisory Services, New York and New Jersey – Senior Technical Advisor. Richard is a Senior Technical Advisor providing technical advisory and review services related to the support of the long-term redevelopment strategies for JFK, Newark Liberty, and LaGuardia Airports. He participates in airport planning meetings with individual airport staff and multi-airport coordination meetings; prepares talking points and agendas regarding landside planning and operations, security, cost estimates, project programming; and provides comments on airport planning documents related to the terminal, airfield, and roadway designs at the airports.

Port Authority of New York and New Jersey. The projects below represent Richard's experience while at the Port Authority.

- **JFK Airport Deputy General Manager, Queens, NY – Deputy General Manager:** Richard served as Deputy General Manager for the Port Authority of New York and New Jersey at JFK International Airport in Queens. He was responsible with the General Manager for all airport operations, maintenance, and capital planning. He helped supervise a staff of 350 employees and was responsible for oversight of major service contracts for security, operations, and other services.
- **JFK Airport Redevelopment Program Director, Queens, NY – Program Director:** Richard was responsible for overall planning of a multi-year terminal redevelopment program and for working with private terminal operators in design and construction of new terminal facilities at JFK International Airport in Queens. He was the senior Port Authority executive in negotiation, planning, and implementation of an $850 million redevelopment of Terminal 5 with JetBlue and planned the $1 billion expansion of Terminal 4 for Delta Airline's international operations. He also oversaw the expansion of Terminal 8.
- **JFK Airport Operations Manager, Queens, NY – Senior Manager:** Richard served as Senior Manager directly responsible for all airfield, terminal, landside, and civilian security operations at JFK International Airport.
- **JFK Airport Manager of Plant, Structures, and Capital Programs, Queens, NY – Manager:** Richard was responsible for planning and project management of capital planning for JFK International Airport airfield, landside, and utility infrastructure facilities. Annual capital expenditures were approximately $100 million.

Firm

VHB

Years of Experience

38

Education

Master of Business Administration, Long Island University, 1990

Bachelor of Science, Engineering Science, Hofstra University, 1976

Certifications

Professional Engineer: NY

Employment History

VHB: 2013-Date

PANYNJ: 1977-2013

Jane Charalambous, PE

CONCEPTUAL DESIGN/DESIGN OVERSIGHT LEAD

EXPERIENCE PROFILE

Jane Charalambous is a vice president and project manager with more than 30 years of experience in the design of mega transportation and infrastructure projects. Her responsibilities include management, large-scale staff supervision, stakeholder coordination, constructability reviews, and extensive subconsultant coordination. Jane has experience in all phases of conceptual, preliminary, final design, and construction support services. She has been responsible for designs for several large, complex transportation projects, such as East Side Access, the Miami International Airport MIA Mover automated people mover (APM) project, and the permanent Port Authority Trans Hudson (PATH) World Trade Center (WTC) station. Jane was infrastructure design manager for the final design of the permanent PATH WTC station. She managed several early design packages for the WTC project, including the New York City Transit (NYCT) 1 Line and Cortland Street Station underpinning, the West Side Highway Underpass, the Fulton Street East/West Connector. In the last two years, Jane has focused on the delivery of design and construction phase services under three task-order contracts with Metropolitan Transportation Authority (MTA) NYCT and the PANYNJ.

RELEVANT PROJECT EXPERIENCE

PANYNJ Permanent WTC PATH Transportation Hub, New York, NY – Project Manager. Parsons is a prominent member of the downtown design partnership for the multibillion-dollar WTC PATH Terminal. Jane was Parsons' project manager and infrastructure design manager for the final design of the WTC PATH Terminal project. She managed the design staff on the project; led the infrastructure, security, and constructability group; and coordinated with third parties and adjacent stakeholders. Jane also supervised construction for the PATH Terminal. She managed construction support services and coordinated with the main contractor, subcontractors, PATH, and stakeholders on the site.

Some of the early packages that Jane managed included the following:

- NYCT 1 Line Subway and Cortland Street Station underpinning, including supporting the entire 1 Line Subway within the WTC side and Cortland Street Station on piles, allowing construction of the PATH Terminal underneath while maintaining NYCT service. Work also included the support of excavation at Vesey and Liberty Streets, utility relocations, and the maintenance of duct banks.
- Fulton Street on E/W Connector: Design of a connector/mezzanine structure between the WTC Terminal, Tower 1, and the West Side Highway Underpass with vertical circulation elements, emergency and egress exits, and utility coordination around an active railroad.
- West Side Highway Underpass: Temporary support of excavation/second pile wall, jet grouting and ground freezing, utility relocation, and design of a tunnel connecting the WTC PATH Terminal to the World Financial Center. Work included the design of a tunnel supported on piles, connections

Firm

Parsons

Years of Experience

31

Education

Master of Engineering, Structural Engineering, Polytechnic Institute of New York University, 1984

Bachelor of Engineering, Civil Engineering, Polytechnic Institute of New York University, 1983

Employment History

Parsons: 1992-Date

Storch Associates: 1984-1992

Phil Q. Nguyen, PE

ALIGNMENT/TRACK

EXPERIENCE PROFILE

Phil Nguyen has nearly 20 years of experience in major rail and transportation projects in the United States. His primary experience includes freight and commuter rail. Phil has led numerous track designs, as well as engineering, project management, agency and internal discipline review (IDR) coordination, and construction inspection for transportation projects. He was the track lead for the design of 120 route miles (720 track miles of alternatives) for the California High-Speed Rail project and 55 route miles (330 track miles of alternatives) for the Las Vegas (XpressWest) High-Speed Rail Extension project. Furthermore, Phil led the track design for the Union Pacific Railroad (UPRR) auto facility expansion in Mira Loma, California. Currently, he is a track team lead for the alternative track alignments development for the Baltimore and Potomac Tunnel project with Amtrak.

RELEVANT PROJECT EXPERIENCE

CHSRA San Jose to Merced High-Speed Rail Preliminary Engineering and EIR/EIR, San Jose to Merced, CA – Engineering Manager. The California High-Speed Rail Authority (CHSRA) has proposed to construct, operate, and maintain an electric-powered, steel-wheel-on-steel-rail high-speed train (HST) system to link California cities, the Central Valley, Sacramento, and the Bay Area. Phil managed the San Jose to Merced segment of the CHRR project where he assisted the project manager in the management of stakeholders' needs and expectations, budgets, resources, and schedules. He coordinated with local agencies and also conducted public outreach. Phil assisted in identifying project risks, drafted monthly project reports, interfaced with the IDR process, and provided exhibits for board meetings. Phil was also the track lead for designing of 120 route miles (720 track miles of alternatives). The HST system will be approximately 800 miles long and capable of operating at speeds of 220 mph on mostly dedicated, fully grade-separated tracks with state-of-the-art safety, signaling, and automated train control systems. Parsons is providing engineering and planning services for the San Jose to Merced section, which includes developing preliminary engineering, planning, and environmental data; preparing a project-specific Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) document; and providing right-of-way preservation and acquisition services. The EIR/EIS will entail engineering and environmental impact analyses for the HST line and facilities, station development, and connections with other modes of transportation. The EIR/EIS process will include involvement from the public; interested groups; and local, state, and federal agencies with approval or permit responsibilities.

Amtrak Baltimore and Potomac Tunnel Replacement Preliminary Engineering Services (Phase I), Baltimore, MD – Deputy Project Manager. In a joint venture, Parsons is providing preliminary engineering services associated with the 140-year-old Baltimore and Potomac (B&P) Tunnel. Phil is currently assisting the project manager in managing the project and coordinating with the National Environmental Protection Act (NEPA) team

Firm

Parsons

Years of Experience

19

Education

Master of Business Administration, Business Administration, Saint Mary's College of California, 2010

Bachelor of Science, Civil Engineering, Virginia Polytechnic Institute and State University, 1995

Registrations

Professional Engineer: CA

Certifications

Project Management Professional (PMP), Project Management Institute

Employment History

Parsons: 2012-Date

RSE Inc.: 2008-2011

HDR, Inc.: 2007-2008; 2002-2004

Caltrans: 1999-2002

FHWA: 1996-1999

Peter D. Mauritz, PE

STRUCTURAL ENGINEER

EXPERIENCE PROFILE

Peter Mauritz has more than 30 years of extensive experience in the transportation-related structural engineering field, including significant participation in bridge, building, and underground work for a wide variety of transit, airport, and highway projects. In his role as design lead and engineer-of-record, he has demonstrated the ability to manage diverse teams of professionals to success in a variety of high-profile, technically complex, large-scale projects. He has participated in all facets of design, including preliminary and final design, preparation of plans and specifications, inspection work, and construction supervision for tunnels, as well as bridges. His project experience demonstrates an impressive track record of completing highly technical projects on time and within budget.

RELEVANT PROJECT EXPERIENCE

PANYNJ PATH Terminal at the World Trade Center, New York, NY – Structural Project Engineer. This $2 billion project includes the design for the PATH Terminal at the World Trade Center site in Lower Manhattan. Peter was the lead structural project engineer for the "West Bathtub" design of the World Trade Center Transit Hall as part of the Downtown Design Partnership/Santiago Calatrava design team. He supervised an engineering/CADD group of more than 35 structural engineers and CADD personnel for the production of more than 500 contract drawings for the Transit Hall and associated back-of-house space. The design incorporates such measures as blast-protective construction, CCTV systems, physical intrusion protection, and chemical, biological, and radiological security to protect against and mitigate threat scenarios. The building structure occupies a footprint of approximately three acres, between the at-grade plaza at elevation 312 to the PATH train five-track/four-platform crossing at elevation 246. The project includes platform and under-platform concrete construction, a mezzanine level structure consisting of longitudinal framed V-shaped girders supporting precast smoke ducts and cast-in-place slabs, a steel and concrete framed concourse level, and the signature Santiago Calatrava designed exposed steel rib roof structure. All construction was staged while maintaining the station and train traffic. Peter worked closely with PANYNJ personnel and adjacent party stakeholders to satisfy project milestones and deadlines.

Massport Logan International Airport Modernization Program, Boston, MA – Structural Design Coordinator. Peter was responsible for design coordination and preliminary planning of the automated people mover guide way, stations, and pedestrian bridges, as well as the project-wide interface coordination of all Logan Modernization projects, including elevated roadways, parking structures, and terminal modifications. Design tasks for people mover included preliminary determination of transverse cross section, layout of people mover including pier placement in and around existing terminal A, B, C and E, as well as the determination of design criteria including evaluation of vehicle loadings. Design tasks for the pedestrian bridges included layout of bridges from existing and new parking garages to Terminals A, C and E including foundation placement, tie-ins to existing structures and relations to existing and proposed

Firm

Parsons

Years of Experience

33

Education

Bachelor of Science, Civil Engineering, Bucknell University, 1981

Registrations

Professional Engineer: NY, MA

Employment History

Parsons: 2013-Date

AECOM: 1992-2013

SEA Consultants: 1990-1992

Wilbur Smith Associates: 1990

Bradford Engineering Company: 1989-1990

Louis Berger & Associates: 1983-1990

Modjeski & Masters: 1981-1983

Jeffrey H. Abrams, PE

STRUCTURAL ENGINEER

EXPERIENCE PROFILE

Jeffrey (Jeff) Abrams is a project manager and structural engineer with more than 35 years of experience involving the management, planning, design supervision, design coordination, inspection, and design of public transportation and systems facilities. He has worked as a project manager or design manager for subway, railroad, highway, and transportation facility projects. Jeff has also managed CADD and specifications departments; furnished the design and inspection of numerous bridge, highway, building, subway, and tunnel structures; and completed a variety of security programs, both assessing and mitigating risk. He has delivered projects using both design-bid-build and design-build procurements.

RELEVANT PROJECT EXPERIENCE

MTA Lower Manhattan-Jamaica/JFK Transportation Project, New York, NY – Engineering Manager. Jeff was responsible for the development of the program functional requirements and station and terminal conceptual designs, construction cost estimating, and construction scheduling associated with the evaluation of transit alternatives to provide direct service between JFK International Airport and lower Manhattan for airport passengers and improved service between Long Island and Lower Manhattan for commuters. Alternatives considered included commuter rail, transit, AirTrain, bus rapid transit, and other transportation modes and included both adaptation of existing infrastructure and new stations, tunnels, and elevated structures to support each.

Amtrak Baltimore and Potomac Tunnel Replacement Preliminary Engineering Services (Phase I), Baltimore, MD – Project & Design Manager. Jeff was Parsons' project manager and deputy project manager for the joint venture. Jeff managed the gamut of technical activities, including railroad operations analysis; track design; civil, structural, fire/life safety, ventilation, drainage, electrical, communications, signals, security, and utility engineering; cost estimating; risk analysis; and scheduling. In a joint venture, Parsons provided preliminary engineering services associated with the 140-year-old Baltimore and Potomac Tunnel.

NJ Transit Access to the Region's Core Tunnel, Newark, NJ – Program Construction Manager. Jeff was the stations/facilities program/construction manager involved in the addition of a new pair of Hudson River crossing tunnels leading to a new six-track rock cavern terminal station in 34th Street in Manhattan, expansion of the Northeast Corridor infrastructure through the Secaucus Station, and creation of new loop track, yard and maintenance facilities. Parsons provided project controls and construction management services for the Access to the Region's Core (ARC) Tunnel/Trans-Hudson Express Tunnel project, including design and constructability reviews and cost validation, until it was cancelled.

MTA East Side Access Grand Central Connection (Phase II), New York, NY – Facilities Design Manager. Jeff was responsible for design of

Firm

Parsons

Years of Experience

36

Education

Master of Business Administration, Business Administration, University of Pittsburgh, 1983

Master of Science, Structural Engineering, Cornell University, 1979

Bachelor of Science, Civil Engineering, Cornell University, 1977

Registrations

Professional Engineer: NY, PA, MD, FL

Employment History

Parsons: 1987-Date

Parsons, Brinckerhoff, Quade & Douglas, Inc.: 1979-1987

Peter Smoluchowski, AIA, LEED AP

ARCHITECT - STATIONS

EXPERIENCE PROFILE

Peter Smoluchowski has primarily been involved with the planning and design of rail transit systems. He provides project management services, as well as architectural and urban design task leadership. Peter has more than 35 years of experience involving station design (subway, aerial, and at-grade), station area planning, joint development planning, alignment analyses, and environmental impact analyses for rail transit projects. He has extensive experience involving feasibility studies, alternative analyses, environmental reviews, preliminary and final designs, and construction assistance. Peter managed the Newark-Elizabeth Rail Link project from the preliminary engineering and environmental impact statement stages through final design and construction. He has also participated in design-build projects and general engineering consulting for large-scale rail transit projects. As an architect, Peter has experience involving station design services. Additionally, he has developed urban design plans for transit-related projects.

RELEVANT PROJECT EXPERIENCE

MTA Lower Manhattan-Jamaica/JFK Transportation Project, New York, NY – Project Manager. Peter was responsible for the development and screening of alternative alignments and station locations for a proposed transit connection between Lower Manhattan, Jamaica Station, and JFK International Airport. Alternative technologies include light rail, rapid rail transit, and commuter rail. Potential station locations are elevated, at-grade, and underground. Parsons, in cooperation with the PANYNJ, the Metropolitan Transportation Authority (MTA), the Lower Manhattan Development Corporation (LMDC), and with the support of the New York City Economic Development Corporation (NYCEDC), prepared an alternatives analysis. In anticipation of an environmental impact statement, alternatives were evaluated that provided improved commuter and airport access by connecting lower Manhattan with Long Island Rail Road's Jamaica Station, in Queens, and with JFK International Airport. In this study, "commuter" refers to the market between Long Island/ Jamaica and lower Manhattan, and "airport" refers to the market between JFK International Airport and lower Manhattan. The alternatives developed fall into three service/market categories: (1) commuter and airport one-seat ride, (2) commuter one-seat ride and airport transfer and Jamaica, and (3) airport only. Rail, bus, bus rapid transit, and ferry modes were represented.

Regional Public Transportation Authority ValTrans, Phoenix, AZ – Architect. The project entailed providing planning and designs for an automatic guided transit system for Maricopa County, and proposed a Maricopa County bus system for Maricopa County and 103 miles of elevated an Automated People Mover (APM) system for the entire Valley. Peter was the Chief Architect responsible for station planning and design. The proposed stations were elevated. A unique feature of the stations was that they included a passive temperature adjusting system know as a "cool tower" that used evaporative cooling. The proposed APM system was similar to the Vancouver's SkyTrain would have been served by a feeder bus system.

Firm

Parsons

Years of Experience

37

Education

Master of City Planning, Urban Planning, City College of New York, 1979

Master of Architecture, Architecture, Carnegie Mellon University, Pennsylvania, 1978

Bachelor of Arts, Fine Arts, Hampshire College, Massachusetts, 1975

Registrations

Registered Architect: NJ, NY, FL, CA

Certifications

Leadership in Energy and Environmental Design Accredited Professional (LEED AP), Green Business Certification Inc.

NCARB Certificate, National Council of Architectural Registration Boards

Employment History

Parsons: 2004-Date

URS/BRW: 1989-2004

ICF Kaiser Engineers: 1988-1989

Harry Weese & Associates: 1983-1988

Georgia Wilson Associates: 1981-1983

Cambridge Community Development Department: 1979-1981

Johnson/Burgee Architects: 1978-1979

Joseph Chang, RA

ARCHITECT - STATIONS

EXPERIENCE PROFILE

Joseph Chang is a registered U.S. architect who has practiced architecture and planning for nearly 40 years, with the past 24 years concentrated on airport facilities. He has broad, in-depth experience providing both planning and design phase services for a diverse range of airport facilities, including passenger terminals, concourses, international arrivals facilities, baggage handling facilities, central plants, parking garages, ground transportation centers, automated people mover stations and maintenance facilities, flight kitchens, cargo buildings, and ground service equipment maintenance facilities. He has been closely involved in airport master plans that have integrated airport circulator trains and regional rail transit as key elements for delivering a high-quality experience for the airport user.

RELEVANT PROJECT EXPERIENCE

Reagan Washington National Airport (DCA) – Terminal B/C. Mr. Chang directed an architect/engineering team consisting of 23 specialty subconsultants for the design and construction of Terminal B/C at Reagan Washington National Airport. The design of the terminal emphasized convenience for passengers using Metro to access and depart from DCA. DCA passenger Metro ridership ranks among the highest among US airports for rail transit use.

Minneapolis-St. Paul International Airport (MSP) Long Term Comprehensive Plan Update. Mr. Chang is managing the terminal elements of the 20-year comprehensive plan. Concepts to extend various terminal functions to the multiple circulator trains and Light Rail Transit (LRT) stations are key to increasing convenience for using alternative transit modes to the airport and as a result to reduce environmental impacts and congestion on roadways.

Manchester Airport (MAN) Transformation Program, United Kingdom. Mr. Chang has been leading the terminal planning efforts to define the 10 year capital program that will allow the airport to support over 30 million annual passengers. The on-airport intermodal station (The Station) provides airport users convenient access to local and regional trains as well as buses and remains a centerpiece of the landside master plan. The landside master plan has evolved to greatly improve convenience for airport passengers using rail transit to/from the airport, and contribute to enhancing the desirability of Manchester Airport City development.

Washington Dulles International Airport, (IAD), Strategic Land Use Planning. Mr. Chang participated in the task force composed of Ricondo senior planners and senior staff from the Metropolitan Washington Airports Authority (MWAA) that conducted a top-down/bottom-up planning exercise to re-envision a landside land use and development plan that would not only improve convenience for users of the planned airport Silver Line rail station, but increase desirability for nonaeronautical land development around the station.

Firm

Ricondo & Associates

Years of Experience

40

Education

Bachelor of Engineering, Master of Architecture, Urban Design, Catholic University, 1979

Bachelor of Science, Architecture, Georgia Institute of Technology, 1976

Registrations

Registered Architect: VA

Employment History

Ricondo & Associates, Inc.: 2008-Date

HNTB: 2001-2008

Leo A. Daly: 1991-2000

The Benham Group: 1981-1990

Richard Stauffer & Associates: 1975-1980

Robert W. Browne, RA

ARCHITECT

EXPERIENCE PROFILE

Robert Browne recently joined B. Thayer Associates as director of architecture and is responsible for the firm's Architecture Group. Robert is charged with guiding the firm to greater heights of design excellence through a commitment to aesthetics, innovation, sustainability, and cost effectiveness. Robert embraces leadership, creative problem solving, and design expertise in the preparation of precise, comprehensive, coordinated, cost-effective, buildable, and bidable contract drawings and specifications. Robert has 30 years of design, management, and construction experience. Before joining B. Thayer Associates, Robert served as director of design for capital projects and development at the New York City Housing Authority (NYCHA). He was responsible for a staff of 110 design professionals administering NYCHA's capital plan, project design, facility needs assessment, and planning standards. He also served as sole practitioner, providing architectural design, project management, construction administration, and signage design services. Additionally, Robert served as sr. project architect and senior project manager on several prominent design staffs and has planned, programmed, designed, and managed numerous academic, public housing, hospitality, municipal, residential, retail, and community center projects and signage programs. He has a thorough understanding of building codes, sustainable/green design requirements, construction detailing, CSI specifications, contracts, building materials, building systems, construction procedures, budgets, and schedules.

RELEVANT PROJECT EXPERIENCE

NYCHA Whitman Ingersol Apartments, Brooklyn, NY, New York City Housing Authority. As Design Director, Mr. Browne oversaw the design and renovation of (900) apartments.

NYCHA Linden Community Center, Brooklyn, NY, New York City Housing Authority. As Design Director, Robert oversaw the design of the newly proposed 17,900 square foot community center facility.

PANYNJ PATH Train Platform Renovations, Port Authority of New York & New Jersey. Mr. Browne served as project manager during the renovation of PATH Train Platforms.

PANYNJ JFK International Airport & LaGuardia Airport – Parking Garage, Queens, NY. Mr. Browne engineered the fabrication and installation of large format flex-face parking garage wallscape(s).

Islandia Corporate Plaza, Islandia, NY. Complex of (4) new 10,000 sf Office Buildings – Robert served as Lead Designer and Project Architect.

Incorporated Village of Lindenhurst Main Firehouse, Lindenhurst, NY, . Mr. Browne performed value engineering and construction management services for the Incorporated Village of Lindenhurst during the construction of a new 18,000 square foot fire station and department headquarters.

Firm

B. Thayer Associates

Years of Experience

30

Education

Bachelor of Architecture, New York Institute of Technology, 1990

Harvard University Graduate School of Design: 1995-1999 Professional Development Studies in School Design, Housing Design, Theatre Design, and Sustainable/ Green Design

Certifications

Envision Sustainability Professional (ENV SP), Institute for Sustainable Infrastructure

Employment History

B. Thayer Associates: 2015-Date

RWB Architecture & Design (RWB): 2010-2015

NYCHA: 2005 - 2009

RWB: 2004-2005

Spector Group, Architects: 1999 - 2004

Thomas Associates, Engineers & Architects: 1997 - 1998

RWB: 1995-1996

Newark BOE Office of Design & Construction: 1992 - 1994

Lawrence L. Smith Associates, Architects: 1987 - 1992

Mignone Associates, Architects: 1984 - 1987

Curtis F. Velsor, RLA, ISA

LANDSCAPE ARCHITECT

EXPERIENCE PROFILE

Curtis Velsor has 40 years of experience as a landscape architect, certified arborist, and environmental planner. He has been approved as an arborist for the New York City Department of Parks and Recreation Capital Projects Group. Curtis has proven experience and demonstrated leadership in landscape architecture and also in site planning, drainage design, site engineering, sports field design, playground design, project management, and the construction of all types of public and private projects. His extensive experience includes site analysis, planning, and development; wetlands and urban site restoration; structural bikeway design; parks and recreation planning and design; the preparation of working drawings; cost estimating and bidding; planting design and construction inspection; negotiations and permitting for new construction, including sanitary and drainage design; grading and stormwater management for residential, institutional, and public projects; environmental assessments and environmental impact statements; federal, state, and local permitting; remedial investigation/feasibility studies (RIFSs); brownfields, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Superfund projects; public participation and outreach programs; and project funding grants. In addition, he has proven experience with municipal, public agency and private sector clients throughout the Northeast.

RELEVANT PROJECT EXPERIENCE

PANYNJ Expert Professional Design & Technical Services for Security Capital Programs as Requested on a "Call-In" Basis. Mr. Velsor served as Project Manager, provided design and technical services from 2003-2007, on a call-in contract which has been extended to 2015. His work encompassed site visits with all disciplines involved, to produce architectural background drawings and schematics for conduit connections at various locations. Design Services During Construction included shop drawing and submittal review, construction inspection, punch list assessment, and final approval. Two specific projects included:

PANYNJ Journal Square Transportation Center Security Hardening, Phase II, Jersey City, NJ. Mr. Velsor serves as Principal Landscape Architect and Project Manager for the design of the plaza area at the main entrance to the Transportation Center. Tasks included field visits to measure and sketch existing conditions to create a set of base drawings to overlay design schemes. The main objective for the project was to provide security for this important transportation hub. Design features include security bollards as well as updated pavement designs. The main challenge was the age and lack of information regarding the support structures below. Through extensive coordination with the Port Authority, the project proceeded through preliminary design to final design. Mr. Velsor is currently completing the Construction Document Set including details and specifications.

PANYNJ George Washington Bridge Security Landscape, New York, NY. Mr. Velsor served as Principal Landscape Architect. The project site

Firm

B. Thayer Associates

Years of Experience

40

Education

Master of Landscape Architecture, University of Pennsylvania, Graduate School of Fine Arts, 1975

Bachelor of Arts, Political Science and Public Administration, Widener University (Pennsylvania Military College), 1967

Landscape Architecture, Rhode Island School of Design, 1972

Employment History

B. Thayer Associates: 2005-Date

Twin Industries: 2005

Schoor DePalma Inc.: 2002-2004

Dvirka & Bartilucci, Eng.: 1998-2001

Camp Dresser & McKee Eng.: 1980-1997

KZF Architects & Engineers: 1976-1979

Ragan & Stein Architects & Engineers: 1975-1976

County Planning Commission: 1971-1974

Irving Trust Company: 1969-1970

Roland J. Genick, RA, AICP

VEHICLE MAINTENANCE/STORAGE FACILITIES

EXPERIENCE PROFILE

Roland Genick has 25 years of experience involving the design and further development of a wide range of projects. He has managed the design of large-scale commercial and mixed-use projects, transportation corridors, and transit facilities through all phases of design, from schematic design concepts through design development and construction documents. He has also managed the construction administration of a number of these facilities. Roland currently serves as the chief architect for Parsons' Rail and Transit Systems Division. In this role, he directs the station architecture and urban design activities of the division. Among Roland's current projects are the hotel and transit center at Denver International Airport, where he is the lead for the public transit components of the project, and the Foothill Extension Phase 2A Light Rail project, where he is the facilities design manager responsible for architecture and urban design. His areas of expertise include project management, design management, urban and transportation design, design-build, and station area planning.

RELEVANT PROJECT EXPERIENCE

City and County of Denver DIA Hotel and Transit Center Program, Denver, CO – Designer. Roland manages the design for the Terminal Station and its integration into the overall STRP. He is responsible for managing a complex team of consultants and facilitates the coordination with the local transit agency. Under a seven-year contract, Parsons is providing program management, design, and construction support services for Denver International Airport (DIA)'s $544 million Hotel and Transit Center (HTC). The expansion is a landside redevelopment which includes a public plaza, a 519-room hotel, a public transit center, a FasTracks commuter rail station, provisions for a future security checkpoint, roadway improvements, and extensions of the automated people mover (APM). As an integrated program manager, Parsons oversees all visioning, planning, architecture, and engineering, including program administration; quality assurance; stakeholder coordination; master planning; design and planning management; establishment of programmatic basis of design for sustainability, accessibility, and security; oversight of master architect services; program controls; cost and document control; and a communications and stakeholder outreach program. The project is anticipated to receive Leadership in Energy and Environmental Design (LEED) Gold Certification.

MWAA Dulles Corridor Metrorail Project (Phase 2) Package A Design-Build, Fairfax and Loudon Counties, VA – Facilities Design Manager. Roland is one of two facilities design managers for the project. He particularly focuses on the Dulles Airport Segment that includes a signature station at the main terminal – one of the most significant architectural buildings of the 21st Century. He provides design direction, manages a team of in-house designers and subconsultants, coordinates the facilities design efforts with all other disciplines, and oversees the coordination with other station design teams. Parsons is the lead designer on the design-build team, responsible for the design and construction of Phase 2 of the Washington Metropolitan Area

Firm

Parsons

Years of Experience

25

Education

Bachelor of Science, Architecture, Technische Universitat, Dortmund, Germany, 1993

Registrations

Registered Architect: CA

Certifications

Certified Planner, American Institute of Certified Planners (AICP)

Employment History

Parsons: 2008-Date

Gruen Associates: 1997-2008

Nigel P. Newton, PE

CIVIL ENGINEER - ROADWAY/UTILITIES

EXPERIENCE PROFILE

Nigel Newton is an accomplished civil engineer with more than 20 years of experience in transportation design. Nigel's engineering experience includes alignment design, drainage design, stormwater and environmental permitting, at-grade rail crossing design, electrical design, signal design, maintenance and protection of traffic, utility protection and relocation design, design exception reports, earthworks, striping, and signing. He possesses a broad range of experience within the highway design arena, from complex interchange design through signalized intersection improvements design for the PANYNJ, the New Jersey Department of Transportation (NJDOT), the New Jersey Turnpike Authority (NJTA), and local counties. His experience includes geometric design, roadway and roadside design, pavement design , highway access permits, right-of-way, and railroad and utility accommodations. He has specialized knowledge of urban design principles, including walkable communities and multimodal transportation design. He has successfully managed community input on diverse engineering projects and possesses the skills to present to technical and non-technical audiences. Nigel has also has experience with traditional design-bid-build and private-public partnership (P3) contract delivery methods.

RELEVANT PROJECT EXPERIENCE

PANYNJ Goethals Bridge Public-Private Partnership, Elizabeth, NJ and Staten Island, NY – Lead Civil Engineer. The $934 million design-build-finance-maintain project will replace the existing 1.2-mile toll bridge over the Arthur Kill Waterway between the City of Elizabeth, New Jersey, and Staten Island, New York. Nigel leads a multidisciplinary group in the design effort for all civil items. This includes alignment design, grading, roadway design, roadside design, drainage and stormwater quality design, retaining wall design, striping and signing design, ancillary structures design, intelligent transportation system (ITS) design, electrical design, utility protection, and relocation design. When completed, it will provide a critical link between the New Jersey Turnpike Routes 1 and 9 to the west and the Staten Island Expressway, Brooklyn, and Long Island to the east. The proposed bridge features twin 6,600-foot structures with 900-foot cable-stayed main spans, and it will be designed to accommodate future transit loading. Parsons is the lead designer for the design-build team.

NJ Transit Architectural/Engineering Task Orders, Newark, NJ – Civil Engineer-of-Record. Parsons has performed a diverse set of tasks for NJ Transit as part of a multi-year, task-order contract. These tasks have included designing an engineered fill in former wetlands and drainage improvements for the Frank R. Lautenberg Intermodal Facility. Nigel designed site improvements in anticipation of the future construction of the Frank R. Lautenberg Intermodal Facility, which had to be operational in time for the 2014 Super Bowl in the nearby new Meadowlands Stadium. The work included geotechnical investigation and evaluation of the site (a designated wetland); the design of dynamic compaction and surcharge fill; significant temporary and permanent drainage design, including the extension of an existing 96-inch-diameter pipe; and staging and maintenance-of-traffic design, all of which was completed within an extremely

Firm

Parsons

Years of Experience

24

Education

Bachelor of Engineering, Civil Engineering, University of Southampton, United Kingdom, 1991

Registrations

Professional Engineer: NJ

Employment History

Parsons: 2011-Date

AECOM: 2008-2011

Dewberry: 2006-2008

Orth-Rodgers & Associates, Inc.: 2001-2006

Site-Blauvelt Engineers, Inc.: 2000-2001

Aspen Associates (England): 1999

Medway And Kent County Councils (England): 1991-1999

Babu Veeregowda, PE, PTOE, AVS

MAINTENANCE OF TRAFFIC

EXPERIENCE PROFILE

Babu Veeregowda is a principal with considerable experience managing traffic engineering and analysis for site development and transportation improvement programs. He is proficient in a range of traffic engineering software, including HCS, Synchro/SimTraffic, VISSIM, and CORSIM, and he serves as technical director of the firm's largest traffic studies in New York City. Babu is a frequent speaker and presenter on contemporary traffic engineering issues, and he is an associate value specialist for value engineering studies.

RELEVANT PROJECT EXPERIENCE

PANYNJ JFK Airport AirTrain Light Rail System, Queens, NY – Senior Traffic Analyst. Babu was Senior Traffic Analyst for the design and construction of an award-winning, 8-mile light rail system serving JFK International Airport in Queens. He performed traffic analyses and helped develop construction-phase traffic management plans at critical locations along the Van Wyck Expressway corridor on behalf of the PANYNJ. He was also involved in developing traffic mitigation strategies and assessing maintenance and protection of traffic plans for each construction stage; providing recommendations for lane closure hours on the Van Wyck Expressway; and analyzing potential impacts of traffic diversions on adjacent service roads. The $1.3 billion system has been in operation since 2003, and links airport terminals and parking facilities with Metropolitan Transportation Authority commuter rail and subway stations in Queens.

PANYNJ Newark Airport Construction Traffic Management Services, Newark, NJ – Traffic Analyst. Babu was a traffic analyst for the preparation of a comprehensive traffic simulation for the landside roadway network and access and egress to the surrounding external roadways on behalf of the PANYNJ at Newark Liberty International Airport. The simulation assessed options to develop haul routes for trucks, truck restrictions, vertical and lateral clearances, turning radii, on-site staging plans, and the placement of traffic signs and detour plans to minimize disruptions during construction.

NJ Transit Newark Light Rail EIS and Preliminary Engineering, Newark, NJ – Traffic Analyst. Babu conducted traffic impact analyses for environmental review and preliminary engineering for the Newark-Elizabeth Rail Link project on behalf of NJ Transit. The project encompassed a proposed 8.8-mile light rail transit system that will, upon completion, connect the downtown areas of Newark and Elizabeth with Newark Liberty International Airport. Babu was responsible for identifying traffic impacts associated with the implementation of a rail link from Broad Street Station in downtown Newark to Newark Penn Station as the first Minimum Operable Segment. Over 90 intersections were analyzed in downtown Newark and across the entire proposed alignment.

NJ TRANSIT Hudson-Bergen Light Rail System, Bayonne to Edgewater, NJ – Traffic Analyst. Babu performed traffic analyses for the planning and conceptual design of a NJ TRANSIT light rail system to serve

Firm

VHB

Years of Experience

28

Education

MS, Transportation Engineering, Villanova University, 1986

BS, Civil Engineering, Bangalore University, 1984

Employment History

VHB: 1993-Date

Vollmer: 1987-1991

Registrations

Professional Engineer: NJ, NY

Certifications

Professional Traffic Operations Engineer (PTO)

Associate Value Specialist (AVS)

William H. Alexander Jr., CPP

THREAT/VULNERABILITY ANALYSIS

EXPERIENCE PROFILE

William (Rocky) Alexander has 40 years of experience designing, installing, and operating complex, state-of-the-art electronic security systems that protect critical transportation resources. He has successfully directed multimillion-dollar security construction projects as both a government end-user and government contractor. Rocky provides expert consulting services to multiple Parsons clients across many business units. He served as the principal security consultant for the New York Metropolitan Transportation Authority on multiple projects, including the East Side Access Program; New York City Transit bus depots throughout the five boroughs of New York City; and New York City Transit's integrated electronic security system protecting subway stations, commuter rail terminals, and underwater tunnels throughout New York City. Rocky has led multidisciplinary teams of engineers, security specialists, information technology professionals, and administrative staff to complete all aspects of project design, construction management, installation, testing, cost control, and scheduling.

RELEVANT PROJECT EXPERIENCE

MTA East Side Access Tunnel Engineering and Systems Engineering Consultant, New York, NY – Security Lead. Rocky developed new security design criteria, including the completion of all design activities to protect facilities, operations, employees, and passengers; coordinated requirements with other disciplines; developed plans and procedures for certifying security requirements in accordance with federal regulations; and served as principal security consultant to the design team and Metropolitan Transportation Authority (MTA) Capital Construction staff. Parsons is providing all design services required to provide a fully functional 4-mile underground extension of the Long Island Rail Road into Grand Central Terminal, including all mitigating measures identified in the Final Environmental Impact Statement. Parsons' primary role includes preliminary engineering, final design, and design support services for construction of the railroad and elements of the facility systems. The project work includes all signaling, communications, traction power, overhead catenary, track work, and third-rail systems, as well as all auxiliary power, station ventilation, fire suppression, fire alarm, and security systems.

Brookfield Properties Developers LLC 9th Avenue & 31st Street Development, New York, NY – Security Consultant. Parsons provided program management and constructability reviews for Manhattan West, a 5.4 million-square-foot development between 9th Avenue and 33rd Street. Manhattan West is built over the Long Island Rail Road, Amtrak, and NJ Transit operating railroads and is in the vicinity of Penn Station. The development area has more than 1,200 trains operating through it on a daily basis. Parsons advanced the design and interfaced with the railroads to develop strategies for the performance of the work. Rocky provided security consulting and electronic security system design services to protect MTA and AMTRAK rail operations impacted by the client's construction project.

Firm

Parsons

Years of Experience

40

Education

Master of Business Administration/Bachelor of Arts, Columbus University, 2001

Associate of Science, Criminal Justice, Community College of the Air Force, 1988

Certifications

Certified Protection Professional (CPP), American Society for Industrial Security

Employment History

Parsons: 2007-Date

Advanced Security Engineering Corporation: 2003-2007

Mantech Security Technologies Corporation: 2002-2003

Mc Dean, Inc: 2000-2001

Radian, Inc.: 1998-2000

U.S. Air Force: 1975-1995

Michael A. McDonald, PE, LEED AP

ELECTRICAL ENGINEER

EXPERIENCE PROFILE

Michael McDonald has more than 40 years of experience involving electrical and marine engineering design and management, with an emphasis on the rehabilitation and replacement of movable structures. Michael has provided medium-voltage electrical distribution system designs for critical facilities, including medium-voltage standby generator backup power arrangements. He has also provided significant preliminary designs for tunnel design-build proposals.

RELEVANT PROJECT EXPERIENCE

PANYNJ Permanent World Trade Center PATH Transportation Hub, New York, NY – Chief Electrical Engineer. Michael was responsible for all design aspects for an electrical drive and position controls for the Oculus opening skylight system. The $3.2 billion permanent World Trade Center (WTC), Port Authority Trans-Hudson (PATH) Terminal, a world-class transportation facility approximately 650,000 feet in size, involves designing the main concourse; PATH train station (five tracks, four platforms, mezzanine, vertical circulation elements); connections to seven New York City subways, including the 1 Line; the east-west/north-south connectors to WTC towers 1, 2, 3, and 4; and the West Side Highway underpass. The terminal will replace a temporary station at the WTC site that restored service to Lower Manhattan from New Jersey after the events of September 11, 2001, coordinate with the existing and future transportation infrastructure and WTC development, and enhance facilities that existed at the WTC complex prior to September 11, 2001

PANYNJ Newark Liberty International Airport, Taxiway B & P Centerline and Edge Lights, Newark, NJ – Project Manager. Michael provided a Stage I study and Stage III design and cost estimates. The project entailed replacement of the taxiway centerline and edge lighting required by the repaving of taxiways B and P.

MTA East Side Access, Grand Central Connection (Phase II), New York, NY – Chief Electrical Engineer. The project involved a multi-billion extension of the Long Island Rail Road to connect it with Grand Central Station in Manhattan. Michael coordinated the electrical design of third-rail, motor-operated sectionalizing disconnect switches for a complex ladder track system. As a primary consultant for project systems design services, Parsons provided conceptual, preliminary, and final design engineering, as well as construction phase and coordination services for the systems and terminal improvements under the direction of a program manager. Phase I entailed the overall contract services, and Phase II involved the final design segment.

PANYNJ George Washington Bridge Lower Level Rehabilitation, New York, NY – Chief Electrical Engineer. The PANYNJ has selected Parsons to provide engineering and design services for the short- and long-term rehabilitation of the lower level of the George Washington Bridge. Michael was responsible for the design of the electrical power and control system for the

Firm

Parsons

Years of Experience

41

Education

Bachelor of Engineering, Marine Engineering, Royal Naval Engineering College, Manadon, Plymouth, UK, 1987

Registrations

Professional Engineer: NY

Certifications

Leadership in Energy and Environmental Design Accredited Professional (LEED AP), Green Business Certification Inc.

Employment History

Parsons: 2000-Date

Bergmann Associates: 1993-2000

Ministry Of Defense, Royal Navy, Great Britain: 1983-1993

Daby McKee (Britain): 1974-1983

John J. Lewanowski, PE

MECHANICAL ENGINEER

EXPERIENCE PROFILE

John Lewandowski has more than 25 years of experience in the design of underground mechanical systems associated with transit and transportation systems, including life-cycle analysis, to make recommendations for durability and maintainability. He is currently serving as tunnel systems and facilities design manager for MTA Long Island Rail Road (LIRR) East Side Access, for which he is responsible for mechanical systems design in the underground portion of the project, including pumps; track drainage; vent shafts; emergency generators; and fire alarm, detection, and suppression. John was a senior mechanical engineer on the Hurricane Sandy emergency pump station recovery and repairs for New York City Department of Environmental Protection (NYCDEP) in various locations throughout New York City, conducting assessments of damage to pump stations. He also served as the facilities lead for the New York City Transit project to restore the South Ferry Station to pre-Superstorm Sandy condition and improve resilience to future storms. His experience as a project leader has given him insight into project methodology, design quality, and technical quality.

RELEVANT PROJECT EXPERIENCE

British Airways Terminal 7, JFK International Airport, Queens, NY – Associate Principal/Project Manager. John was responsible for the infrastructure fit-out and renovation for 500,000 terminal area. This includes the addition of 150,000 square feet of building structure to accommodate additional communications rooms and retail/vendor areas. The coordination of communications, FIDS, baggage handling, security, structures and MEP were most challenging to keep the airport terminal operating on a 7 x 24 basis. This included the rerouting of passengers, cars and baggage to keep already tight schedules intact. A 10,000 square foot flagship luxury Concorde lounge was commissioned and a 25,000 square foot First Class lounge was constructed on the upper deck to accommodate sleeper service and first class passengers.

PANYNJ International Arrivals Building Terminal 4, JFK International Airport, Queens, NY – Lead Mechanical Engineer. John served as lead mechanical engineer for the redevelopment of a new 1.5 million square foot, 16-gate, world-class airport passenger terminal that will handle international and domestic flights for more than 40 airline operators. The project replaces the ageing International Arrivals Building and incorporates a balanced landside and airside redevelopment around the new terminal building including apron rehabilitation, new parking facilities and approach roads.

MTA East Side Access, Tunnel Engineering and Systems Engineering Consultant, New York, NY – Tunnel Systems and Facilities Design Manager. Parsons is providing all design services required to provide a fully functional 4-mile underground extension of the LIRR into Grand Central Terminal, including all mitigating measures identified in the Final Environmental Impact Statement. John is responsible for managing and coordinating the design for all systems in the underground portion of this system, including the tunnel, associated

Firm

Parsons

Years of Experience

26

Education

Bachelor of Engineering, Mechanical Engineering, Manhattan College, 1987

Registrations

Professional Engineer: NY

Employment History

Parsons: 2009-Date

Arup: 1997-2009

Syska & Hennessey: 1992-1997

Flack & Kurtz: 1989-1992

James D. Sens, PLS, PP

SURVEYOR

EXPERIENCE PROFILE

James Sens has 30 years of experience in a wide variety of land surveying applications, as well as experience in the site development field. He is a licensed professional land surveyor in New Jersey, New York, Pennsylvania, Delaware, and Maryland and is a licensed professional planner in New Jersey. His experiences includes boundary surveys, topographic surveys, boundary line agreements, riparian surveys, environmental surveys, railroad surveys, and parcel mapping for railroad and transportation projects, major and minor subdivisions, as-built plans, construction lay-out, aerial mapping control, GPS control, deformation monitoring, control network surveys, and ALTA/ACSM surveys. Additional experience includes road and easement calculations, road plans and profiles, and the creation of documents and descriptions for land conveyance and condemnation. James is an expert in network geometry and least squares analysis. He has also provided expert witness testimony for boundary disputes and litigation. James is a renowned expert on the legal aspects of boundaries and boundary line analysis and the statutes and codes of New Jersey as they pertain to land surveying.

RELEVANT PROJECT EXPERIENCE

Col-East Punxsutawney Airport, PA – Senior Surveyor. Managed field and office staff for GPS geodetic control network for mapping of a 43 square mile area surrounding the airfield for glide path mapping, GPS flight navigation and GIS data management for airport development. GPS network included over 75 points. The network was post processed using Leica software and NGS OPUS service. Control report was prepared including statistical analysis of point quality and recovery data.

US Dept. of Defense McGuire Air Force Base, Burlington County, NJ – Senior Surveyor. Mr. Sens managed field personnel during the preparation of base map of 1,700 acre military base for environmental studies and compliance planning. Project included mapping environmentally sensitive areas along two rivers for 15 miles each.

FSB Joint Base McGuire/Dix/Lakehurst, Lakehurst, NJ – Senior Surveyor. Mr. Sens managed field and office personnel during the preparation of topographic existing conditions survey of approximately 50 acres for the Communications-Electronics Research Development and Engineering Center (CERDEC) Flight Activity Facility. This project for Frankfort-Short-Bruza (FSB) includes establishment of control network utilizing base system and GPS, and the layout of soil borings and test pits for geotechnical engineering studies.

NJ Transit North Jersey Coast Line, Sandy Hardening – Senior Surveyor. Mr. Sens was responsible for managing survey field and office staff for existing conditions survey of approximately 17,000 LF of existing conditions/ topographic surveying for the design of storm hardening systems. The survey was prepared utilizing several different methods and technologies including robotic instruments, real time kinematic GNSS/GPS, high definition laser scanning and aerial photogrammetric mapping.

Firm

Matrix

Years of Experience

30

Education

BS, Surveying Engineering Technology, New Jersey Institute of Technology (Magna cum Laude)

AAS, Forest Technology, University of New Hampshire

Registrations

Professional Land Surveyor: NJ, NY, DE, PA, MD, DE

Professional Planner: NJ

Certifications

Transportation Worker Identification Card (TWIC)

40-Hour OSHA Hazardous Waste Safety and Health Operations

10-Hour OSHA Construction Safety and Health

Employment History

Matrix: 2011-Date

Borbas Surveying & Mapping, LLC: 1999-2011

James W. Walsey: 1989 - 1991

Jaman Engineering: 1985 - 1989

Francis J. Arland, PE

GEOTECHNICAL ENGINEER

EXPERIENCE PROFILE

Francis Arland is a geotechnical engineer who has been with Mueser Rutledge Consulting Engineers (MRCE) since 1984. He specializes in foundations, heavy construction, and waterfront projects. Francis's engineering responsibilities include field investigations; soil testing and instrumentation; design analyses; and the preparation of reports, contract drawings, specifications, and cost estimates. He has directed a wide variety of projects, including foundations for buildings and bridges, underpinning, support of excavation, embankments, dams, tunnels, bulkhead and wharf structures, and outfalls. Francis's geotechnical engineering experience includes stability, seepage, and settlement analyses; the evaluation of pile capacity for both driven and drilled pile types; the design of rock face and rock mass stability measures; tie down anchors, rock bolts, and tiebacks; the determination of allowable bearing capacity on both soil and rock; lateral earth pressures, and construction monitoring and instrumentation. He has been retained as an expert on projects that have included differing site condition claims for both soil and rock and claims pertaining to building damage, pile installation, support of excavation, retaining wall and marine bulkhead instability, and marine outfalls. As partner-in-charge or project manager, Francis has experience in planning geotechnical investigations for a variety of structures supported on soil and rock and in evaluating field data collected from those investigations, including the recovery of undisturbed samples for laboratory testing, cone penetration tests, pressuremeter tests, water pressure testing, cross hole logging, seismic reflection, and refraction. He also has expertise in evaluating alternatives for soil improvement and foundation grouting, including compaction and permeation grouting and grouting fractures in rock.

RELEVANT PROJECT EXPERIENCE

PANYNJ PATH Tunnels E&F Condition Survey Exchange Place to World Trade Center, New York, NY – Partner-in-Charge. Responsible for directing the condition survey of PATH Tunnels E&F as part of an On Call Services contract. The project includes performing a visual and hands-on inspection of the tunnels and developing repair recommendations including preparation of a condition survey report in Port Authority format.

LIRR East Side Access, New York, NY – Partner In Charge. From 1999 to present, MRCE has performed geotechnical and foundation design engineering services on several projects involved in the construction the Long Island Rail Road (LIRR) new commuter rail service line into Grand Central Station. Mr. Arland directed MRCE engineering teams for the following tasks: new concourse at Grand Central Terminal; Sunnyside Yard new passenger station and train car wash; Arch Street Yard new MOE Shop, ESB Building, EIC Platform, and EIC Support Building; and 44th and 50th Street Vent Plants - SOE for new entrances and vent buildings.

PANYNJ World Trade Center Tower One Steam Main Support Brackets, New York, NY – Partner-in-Charge. The redevelopment of the World Trade Center (WTC) site includes the construction of several tall

Firm

MRCE

Years of Experience

35

Education

Master of Science, Civil Engineering, Drexel University, 1984

Bachelor of Science, Civil Engineering, U.S. Coast Guard Academy, 1972

Registrations

Professional Engineer: NY

Certifications

40-Hour Health and Safety for Hazardous Waste Site Operations (29 CFR 1910.120(e))

10-Hour Health and Safety in Construction (29 CFR 1926.2)

Employment History

MRCE: 1984-Date

Paul B. Soleyn, PE

TRACTION POWER LEAD

EXPERIENCE PROFILE

Paul Soleyn is an engineering manager with more than 30 years of experience involving the planning, design, construction, and maintenance of various electrical facilities, including railroad and rapid transit facilities and utility and buildings power distribution. He has been responsible for conceptual planning, system studies, feasibility investigations, the preparation of final design documents, and construction phase support for projects as diverse as the Metropolitan Transit Authority Seven Line and Second Avenue Expansion projects, the East Side Access project in New York City, and many other New York City Transit (NYCT) traction power projects to support communication based train control (CBTC).

RELEVANT PROJECT EXPERIENCE

MTA East Side Access Tunnel Engineering and Systems Engineering Consultant, New York, NY – Work Package Manager. Parsons is providing all design services required to provide a fully functional 4-mile underground extension of the Long Island Rail Road into Grand Central Terminal, including all mitigating measures identified in the final environmental impact statement. Paul is managing engineering construction phase services for traction power package. Parsons' primary role includes preliminary engineering, final design, and design support services for the construction of the railroad and elements of the facility systems. The project work includes all signaling, communications, traction power, overhead catenary, trackwork, and third-rail systems, as well as all auxiliary power, station ventilation, fire suppression, fire alarm, and security systems.

New York City Transit (NYCT) – Principal Engineer/ Project Engineer/Engineer 3/Engineer 2. As principal engineer on NYCT staff, Paul's responsibilities included senior engineering management of traction power design; the identification of traction power system growth and improvement requirements; the management of construction phase services for all capital traction power projects; the provision of traction power technical support to maintenance, estimating, and budget departments; the management of the traction power group staff; the development and revision of design guidelines, standard drawings, and specifications for traction power; and the provision of traction power engineering support to all NYCT program areas.

Paul directed and managed the traction power work of many projects, including the following:

- Steinway Tube Power Distribution Design and Construction Phase Services
- Montague Tube Design and Submittal Review
- No. 7 Line Extension – Submittal Review and Con Edison Coordination
- Second Avenue Subway – Submittal Review and Con Edison Coordination
- 207th Train Maintenance Shop Rehabilitation

Firm

Parsons

Years of Experience

33

Education

Bachelor's Degree, Electrical Engineering, University of the West Indies at St. Augustine, Trinidad, 1981

Registrations

Professional Engineer: NY

Employment History

Parsons: 2015-Date

MTA NYCT: 2001-2015

CSO Architects Engineers & Interiors: 1999-2000

Consolidated Edison: 1998-1999

Saint Vincent Electricity Services (West Indies): 1988-1997

Shawinigan Engineering (Canada): 1986-1988

David D. Penrose Jr.

TRACTION POWER ENGINEER

EXPERIENCE PROFILE

David Penrose has more than 15 years of experience, including serving as the lead traction electrification engineer on design-build projects, such as Dallas Area Rapid Transit's Dallas/Irving (I-1/I-2/I-3). He is proficient in substation site designs and simulations and in the utilization of ETAP software for the electrical design of substation ground grids and AC distribution networks, as well as TrackPac software for DC traction power load flow studies. David's duties also include supporting electrical design and review for AC distribution systems. He has participated in the procurement, design, and contract management of heavy and light rail transit systems. In addition, David has designed lightning protection systems for buildings and elevated rail systems. David is responsible for overseeing all aspects of traction power designs, including coordinating with utility providers, architects, civil designers, and other rail systems disciplines.

RELEVANT PROJECT EXPERIENCE

MDAD Miami International Airport Automated People Mover System (MIA Mover), Miami, FL – Senior Electrical Engineer. The Miami International Airport (MIA) automated people mover (APM) system was delivered under a design-build-operate-maintain method for the Miami-Dade Aviation Department (MDAD). David was responsible for designing the lightning protection system for the elevated system. He was also responsible for reviewing and modifying the ground grid design for the substation. The work included coordinating the design with the structural designers and ensuring the design was coordinated with UL. Parsons served as the managing partner for the $259 million, 1.27-mile APM system that connects the Miami Intermodal Center (MIC) to the MIA main terminal. The contract included construction of the guideway and stations, as well as installation of the full turnkey operation system and eight state-of-the-art APM vehicles.

CTA Wilson/Red Line Station Design and Construction, Chicago, IL – Traction Power Systems Engineer. The project involved conceptual, preliminary, and final design plans and follow-on construction phase services for the renovation of a major Chicago Transit Authority (CTA) elevated station in Chicago's uptown neighborhood. David's responsibilities included designing sectioning diagrams for the modification of the existing traction power contact rail system for eight stages of construction while allowing the system to operate without shutdowns. The work had to be coordinated with both the track and signals designers. The renovated Wilson Station includes the historic restoration of a 1923 Classical Revival station house, which serves as an anchor for the renewal of the surrounding commercial and residential areas. The project also included track realignment, elimination of curves, platforms and canopies, construction of new platforms to accommodate eight-car trains, integration of elevators and escalators, ADA compliance, and all architectural designs.

DART Dallas/Irving (I-1/I-2) Design-Build, Irving, TX – Lead Traction Power Systems Engineer. This $436 million design-build project developed a 9.2-mile light rail extension for Dallas Area Rapid Transit Authority (DART) and featured eight bridges, 58,000 track feet of ballasted track, 24,700 track feet of direct fix track, and 14,600 track feet of embedded track. David was responsible for

Firm

Parsons

Years of Experience

17

Education

Bachelor of Science, Electrical Engineering, University of Pittsburgh, Pennsylvania, 2000

Employment History

Parsons: 2000-Date

Kuchera Defense Systems: 1999-2000

Raymond C. Paice

TRAIN CONTROL

EXPERIENCE PROFILE

Raymond (Ray) Paice has more than 35 years of experience involving heavy and light rail transit projects. He has expertise involving project and system management, systems activation, safety certification, signal system design (relay and microprocessor), installation, operational control systems, operations, automatic train protection (ATP) systems (wayside and vehicle), integrated and dynamic testing, specification and report writing, training, contract documentation, and testing. Ray also has supervisory experience with major urban transit systems. He has extensive experience involving signaling system designs for a variety of signaling systems, development of engineers' cost estimates, and test procedure preparation and implementation. He has participated in low bid projects, negotiated procurements, and design-build contracts.

RELEVANT PROJECT EXPERIENCE

SRTD Downtown Natomas Airport Rail Project MOS-1 Segment EIR and Preliminary Engineering, Sacramento, CA – Principal Signaling Engineer. The project involved the first mile extension of the existing light rail system that is part of a longer extension, which ultimately ended at the Sacramento International Airport. Ray was responsible for development of signaling system design criteria, the single line track plan, and cost estimating. The work for the Sacramento Regional Transit District (SRTD) included extensive load flow analysis of the downtown area to determine its ability to operate with the new extension. Special signaling design and coordination with Union Pacific Railroad was required for design of an at-grade crossing of an industrial lead track. In addition to preliminary engineering supporting the Environmental Impact Report (EIR), bid documents were also prepared to procurement of a design-build contractor.

Metro Gold Line Foothill Extension Phase 2A, Los Angeles, CA – Lead Signaling & Train Control Engineer. The $486 million project will design and construct the Metro Gold Line Foothill extension from Pasadena to Azusa. Ray is responsible for developing the signaling system engineering documents. The work for the Metro Gold Line Foothill Extension Construction Authority includes engineering documents that are approved for construction, such as specifications, block design, block design report, mainline double line diagrams, mainline route, aspect charts, Maintenance and Operations (M&O) yard double line diagrams, M&O yard route and aspect charts, and interface with the existing line. The project includes final design and construction of 11.5 miles of track, utilities, crossings, and systems; six passenger stations; 12 new light rail and three new freight railroad bridges; and a 25-acre light rail maintenance facility that will include a storage yard and a full maintenance and repair shop. The facilities design includes a 120,000-sf M&O Facility, which will be one of the first facilities of its kind in the country to achieve U.S. Green Building Council (USGBC) LEED Silver status. Parsons is providing all engineering services and construction support services.

Firm

Parsons

Years of Experience

36

Education

Associate of Science, Electronics, Pennsylvania Technical Institute, 1979

Employment History

Parsons: 1990-Date

PATH: 1989-1990

Maryland Transit Administration: 1985-1989

Massachusetts Bay Transportation Authority (MBTA): 1984-1985

Union Switch & Signal Division: 1979-1984

Philip B. Scharff, PE

COMMUNICATIONS ENGINEER

EXPERIENCE PROFILE

Philip Scharff is a senior communications engineer with more than 15 years of experience in the design, integration, and construction of communications, automation, and control systems for transit organizations, municipalities, military installations, original equipment manufacturers, industrial end-users, and system integration companies. He is an expert with SCADA, security, fiber optics, wireless, programmable logic controllers, human-machine interfaces, networks, variable frequency drives, motion control, telemetry, sensors, installation design, code compliance, and field startup.

RELEVANT PROJECT EXPERIENCE

PANYNJ Newark Liberty International Airport Terminal A Vertical Circulation Improvements, Newark, NJ – Electronics Engineer. This project developed the conceptual design for the addition of two new elevators. Philip designed the access-control and alarm-monitoring system for the proposed elevators. The design consisted of interfacing with elevator controls to provide alarm status for each elevator and providing for electronic and physical security of all associated machine room spaces. The design took into consideration numerous relevant codes and standards, including American Society of Mechanical Engineers (ASME) elevator safety code, Transportation Security Administration (TSA) security guidelines, RTCA standards for airport access control, and the National Electric Code. An additional project task developed functional specifications, integration, and connectivity for ADA-compliant emergency elevator intercoms.

PANYNJ Newark Liberty International Airport 800-MHz Trunked Radio Communication System Simulcast Site Base Station, Newark, NJ – Fiber-Optic Engineer. This project designed an additional simulcast site for an 800-MHz trunked radio system. Philip supported the construction effort for the fiber-optic network for wireless backhaul. The network linked the radio simulcast location to a microwave system for communication to the system control point.

PANYNJ JFK International Airport – Central Taxi Hold Improvements, Queens, NY – Engineer-of-Record. Philip completed the final design and provided construction phase services. This project consisted of a license plate recognition (LPR) system for detecting taxicabs entering and exiting the facility. It included an interface to remote VMS via 900-MHz radio links. It also provided video surveillance and recording.

PANYNJ LaGuardia Airport 800-MHz Trunked Radio Communications System Simulcast Site Base Station, Queens, NY – Fiber-Optic Engineer. This project designed an additional simulcast site for an 800-MHz trunked radio system. Philip supported the construction effort for the fiber-optic network for wireless backhaul. The network linked the radio simulcast location to a microwave system for communication to the system control point.

Firm

Parsons

Years of Experience

17

Education

Master of Engineering, Mechanical Engineering, Rensselaer Polytech, 1997

Bachelor of Science, Physics, SUNY at Albany, 1994

Registrations

Professional Engineer: NJ, NY

Certifications

Certified Automation Professional (CAP), International Society of Automation (ISA)

Employment History

Parsons: 2012-Date

SYSTRA: 2007-2012

GC Fabrication, Inc.: 2000-2007

Ozonia North America: 1999-1999

Lenze Power Transmission: 1997-1999

University of Michigan, Physics Department, Ann Arbor: 1993-1993

Daniel H. Beebe

COMMUNICATIONS ENGINEER

EXPERIENCE PROFILE

As a senior communications engineer, Daniel Beebe has led several communications design efforts for intercity, subway, and light rail transit systems, including conduit duct banks and infrastructure design, fiber-optic cabling and transmission systems, audio-visual public address (AVPA) systems, local area networks (LANs), wide area networks (WANs), wireless networks (WLANs), closed-circuit television (CCTV) camera systems, and systems integration. His responsibilities have included conducting field surveys, designing communications systems with a broad spectrum of components, preparing project deliverables in full compliance with Parsons' quality assurance/quality control processes, and fostering client relations. Daniel has also performed as the deputy project manager on a $59 million positive train control (PTC) project.

RELEVANT PROJECT EXPERIENCE

Amtrak Positive Train Control System Integrator Interoperable Electronic Train Management System, Philadelphia, PA – Deputy Project Manager. Parsons was awarded a design, furnish, and test contract to provide a positive train control (PTC) system for the Northeast Corridor (NEC) from Newark, New Jersey, to Washington, D.C. Daniel is responsible for overseeing and managing the overall performance and progress of the project, coordinating and submitting the technical deliverables, and performing all duties as prescribed by the project manager. He is also the primary point-of-contact with the Amtrak project manager and is responsible for all negotiations of scope, schedule, and budget issues alongside the project manager. This $60 million project includes detailed design, equipment supply, and commissioning services to Amtrak Force Account installers that will allow freight train and certain passenger operation that will meet the requirements of the Rail Safety Improvement Act of 2008 mandating PTC on all passenger and certain freight lines in the United States. Included in the design is RF studies performed in conjunction with PTC 220 LLC that provides for base station radios locations for the entire project, a complete Back Office Server to interpret mandatory directives for trains, a complete ITCM server for network messaging from all devices in the system, and complete system integration. Parsons is the prime contractor on this project.

DART Dallas/Irving (I-1/I-2) Design-Build, Irving, TX – Communications Engineer. This $436 million design-build project developed a 9.2-mile light rail extension for Dallas Area Rapid Transit Authority (DART) and featured eight bridges, 58,000 track feet of ballasted track, 24,700 track feet of direct fix track, and 14,600 track feet of embedded track. Daniel provided communications design support during the 95 percent and 100 percent design submittals. He created and modified numerous installation and typical drawings for the design team in Dallas. Daniel was also actively involved in the quality assurance and quality control processes throughout both the 95 percent and 100 percent design packages. The project extended the Orange Line through Irving, Texas, to Dallas-Fort Worth International Airport (DFW). This

Firm

Parsons

Years of Experience

12

Education

Bachelor of Science, Computer Engineering, Drexel University, 2007

Employment History

Parsons: 2003-Date

Alain J. Kouassi

SYSTEMS INTEGRATION/STARTUP

EXPERIENCE PROFILE

As a senior systems integrator, Alain Kouassi has extensive experience in all phases of project life cycles, including business case and concept definitions, requirements definition and management, design development, integration and testing, verification and validation, safety and security certification, and operations and maintenance. He has participated in design-build-operate-maintain turnkey projects, as well as design-build and design-bid-build rail projects. Alain's systems integration and activation expertise includes developing operations concepts and system architectures; managing interface control programs; establishing and monitoring interface control databases; verification and validation; managing contractors' reliability, maintainability, and availability programs; and test programs. He has reviewed and approved test procedures and reports for several systems elements, including vehicles, signaling, communications, control centers, yards and shops, overhead catenary systems, traction power substations, tunnel ventilation fans, intrusion detection systems, supervisory control and data acquisition systems, traffic control, and highway-at-grade crossings.

RELEVANT PROJECT EXPERIENCE

PANYNJ Newark Airport Monorail Extension to the Northeast Corridor, Newark, NJ – Systems Interface/ Operations Engineer. The project involved the procurement of 12 new vehicles, as well as the design, construction, and commissioning of a one-mile extension of the Newark Airport Monorail system. Alain was responsible for civil engineering interfaces and overseeing the design-build-operate-maintain contractor's system interface, power distribution system, facility construction, and guideway design efforts. Duties also included vehicle, automatic train control, and control center test witnessing; managing three subcontractors; and authoring several project documents, including a station and communications operation plan and operations and maintenance cost report.

MWAA Dulles Metrorail Phase II Engineering Services for Design and Construction, Reston to Loudoun County, VA – Systems Integration Manager. Parsons is the lead designer for the design-build team selected to design and construct Phase 2 of the Silver Line Extension by the Metropolitan Washington Airports Authority (MWAA). Alain was responsible for overall inter-disciplinary coordination and management of the project's internal and external interfaces. He established the systems integration program to be used by the Design-Build team, including the development of a systems integration software package to track, monitor, and document the resolution of design and construction interfaces. Integration elements include communications, automatic train control, ductbank systems, traction power substations, dry and wet utilities, bridge structures, trackwork, civil works, and six new rail stations. He serves as a member of the Project Leadership team as part of the partnering effort between the Design-Build team, MWAA the project sponsor, and WMATA the operator. The project includes the design and construction of an 11.4-mile segment of double track and systems, 6 transit stations, and roadway improvements running from Reston, VA, through

Firm

Parsons

Years of Experience

25

Education

Master of Science, Civil Engineering, Georgia Institute of Technology, 1994

Master of Business Administration, Business Administration, University of West Georgia, 1992

Employment History

Parsons: 2006-Date

Booz Allen Hamilton:1997-2006

Manuel Padron & Associates: 1994-1997

Metropolitan Atlanta Rapid Transit Authority (MARTA): 1993-1994

Bouygues France/Setao Ivory Coast: 1987-1990

Kevin Meehan

COST ESTIMATOR

EXPERIENCE PROFILE

Kevin has 15 years of experience in the field of construction cost estimating. His diverse experience comprises a wide variety of projects, including the estimation of transit/industrial/commercial/institutional/high-rise/educational, etc., projects. Kevin has been responsible for developing budgetary and final construction cost estimates; contract pricing and change orders; contract negotiations; interface and coordination with contractors, owners, and A/E consultants on project issues; assisting owners on construction phasing and scheduling; and coordinating with the A/E of record regarding change orders, interpretation of contract documents, submittals and approvals, and related technical matters.

RELEVANT PROJECT EXPERIENCE

PANYNJ PATH Various Task Orders, New York, NY – Lead Estimator. Kevin is responsible for providing estimating services on Various PATH Task Orders including Replacement of Track, Third Rail, Appurtenances, Auxiliary Power Equipment, Cables, Signal Cabling, traction power, Inter-tripping cables, Power Distribution and Tunnel Lighting on Tunnel E and F at Exchange Place and WTC.

Philadelphia Airport Extension of Runway 27L and Associated Taxiways, Philadelphia, PA – Lead Estimator. Kevin is reviewing conceptual unit prices and quantities for major items and providing assessment of clarifications, qualifications and exclusions. Scope includes demolition of Existing Buildings, Site Developments and New construction of three independent Interim Rental Car Ready Return Facilities located at Philadelphia Airport. Each facility includes on grade staging/storage and ready lots, QTA and CSB including related structures such as guard booths etc. Responsible for reviewing rough order of magnitude estimate for three independent Interim Rental Car Ready Return Facilities at Philadelphia Airport.

PANYNJ Newark Aviation Fuel System Modification, Newark, NJ – Estimator. Kevin is responsible for providing cost estimating services. The $90 million Newark Liberty International Airport Fuel Systems Modifications project will install nearly 30,000 linear feet of underground double walled aviation fuel piping. The project will also add two new 47,600 bbl above ground tanks, two new truck fueling racks, a contact water treatment facility, fuel selection area manifold, modifications to four pump stations including new PLCs and controls.

NJ Transit Sandy Recovery Initial Flood Assessment, Newark, NJ – Senior Cost Estimator. Estimate includes cost for Flood Mitigation, Backup Generator and Electrical hook-up-conduits-wire-transfer switch, Sump Pump, Trash Pump, On call implementation cost for contractor before and after storm for NJ Transit facility: Newark Penn Station, Secaucus junction, NLR Bloomfield Station, NLR Broad St. Station.

NJ Transit Capital Asset Replacement Program (HBLR &SNLRT), NJ – Senior Cost Estimator. Kevin is responsible for providing capital cost

Firm

JCMS

Years of Experience

15

Education

Bachelor of Science, Civil and Environmental Engineering, Rutgers College of Engineering, 1999

Certifications

Track Certified – NJ Transit, 2014

Employment History

JCMS, Inc.: 2011-Date

URS Corporation: 2009-2011

Gilbane Building Company: 2008-2009

Bovis Lend Lease, Inc.: 2000-2007

Anthony M. Fleres, PE

PROCUREMENT DOCUMENTS

EXPERIENCE PROFILE

Anthony Fleres is a project manager and structural engineer with nearly 40 years of experience involving the management of, preparation of procurement documents for, and design of transit and systems facilities throughout New York and New Jersey. He has worked as project manager and design manager for subway, railroad, highway, and transportation facility projects. Anthony has been responsible for the preparation of final design documents and construction management services for all major New York City area rail properties. He was the deputy assistant chief engineer in Metro-North's Structure and Facilities maintenance department, responsible for the inspection and capital maintenance of the railroad's fixed and movable bridges, stations, shops, and other buildings. He was also responsible for the supervision of company bridge inspectors and for review of inspection reports, the development of annual bridge repair programs, station maintenance programs, the design of repairs, and direct supervision of the railroad's field construction forces.

RELEVANT PROJECT EXPERIENCE

PANYNJ PATH Super Storm Sandy Related Repair and Resiliency Projects, New York, NY – Deputy Project Manager. Under a task order contract, Parsons is providing expert architectural and engineering service for the design of federally funded Hurricane Sandy-related repair and resiliency projects. In addition to managing three design task orders, Anthony is leading the team that, in coordination with the PANYNJ and Port Authority Trans Hudson (PATH), is combining the designs of several additional task orders into a unified procurement package that will be bid as a single construction contract. This bundling effort involves the coordination of contract drawings and specifications and the development of an overall construction schedule. Specific task orders include replacement of signal cabling and equipment, traction power cables and equipment, and the corrosion control system in the Hudson River tunnels between Jersey City and World Trade Center, in New York City.

PATH Radio Communications System, New York, NY – Project Manager. Anthony served as project manager for the design of a radio communications system consisting of a tunnel and open-air antenna system, along with associated base stations for PATH and Authority use from for both on-train and right-of-way locations. The construction was split into three procurement packages: (1) an early material procurement, (2) right-of-way construction for the in-tunnel cables, and (3) the base station and electronics installation.

NJ Transit Newark Light Rail Broad Street Extension, Newark, NJ – Deputy Project Manager. The project included the construction of an 800-foot, double-track tunnel and more than 4,000 feet of surface-running trackage. Anthony served as deputy project manager for the final design phase, with direct responsibility for the design of the surface portion of the project and for contractor procurement phases. He also was overall project manager during the construction phase. Construction was performed under three separate

Firm

Parsons

Years of Experience

39

Education

Master of Business Administration, Business Administration, University of Connecticut, 1980

Bachelor of Engineering, Civil Engineering, City College of New York, CUNY, 1976

Registrations

Professional Engineer: NJ, NY

Employment History

Parsons: 2014-Date

URS Corporation: 2001-2014

Daniel Frankfurt, PC: 1996-2001

MTA Metro-North Railroad: 1983-1996

Conrail Corporation: 1976-1982

John P. Christodoulakis

PROCUREMENT DOCUMENTS

EXPERIENCE PROFILE

John Christodoulakis is a widely recognized procurement and contracting expert with more than 40 years of diversified experience. His expertise includes cradle-to-grave activities for construction and engineering contracting, and he played a vital role in the advancement of procurement best practices. John also has considerable knowledge and experience involving the procurement of goods and services, as well as extensive involving engineering and construction contracting, including alternative project delivery methods, such as design-build and construction management at-risk. John was responsible for the successful development and implementation of the Washington Metropolitan Area Transit Authority's (WMATA's) billion-dollar rail line extension program. He served as the chief procurement officer for the D.C. Water and Sewer Authority, responsible for all good and services purchases. John also developed procurement regulations, policies, and procedures.

RELEVANT PROJECT EXPERIENCE

Parsons, Department of Contracts, Washington, D.C. – Senior Procurement Manager: Responsible for contract management of large projects which are determined in the post-award phase to require contracting expertise in the resolution of contract issues. Representative tasks are as follows:

- Interpreted contractual requirements, and developed the contractual basis of numerous unresolved issues, including large affirmative and defense claims at the East Side Access multi-billion rail project in New York. As a result, the parties reached a settlement at a fair and reasonable price.
- Prepared procurement and contracting plans for the Arlington Streetcar project in Virginia.
- Provided expert contracting advice and guidance to the Client, as part of a program management consultancy, for the Down-Town/ Mid-Town Tunnels in Portsmouth, Virginia.
- Developed Procurement Policies and Procedures, at the request of the Client, for the Houston Rapid Transit (HRT) project.
- Provides expert "on-call" contracting advice and guidance for the resolution of issues before they become items of disputes.

DC Water and Sewer Authority, Washington, D.C. – Director of Procurement: Responsible for all contracting activities. Served as the principal contracting advisor for the Authority. Planned and implemented procurement strategies.

- Advised the General Manager/Chief Executive Officer on sensitive and complex procurement and contracting matters.

Firm

Parsons

Years of Experience

42

Education

Bachelor of Science, Civil Engineering, Catholic University of America, Washington, D.C., 1972

Certifications

Certification Professional Contract Manager, National Contract Management Association

Employment History

Parsons: 2009-Date

D.C. Water And Sewer Authority: 2007-2009

WMATA:1985-2007

U.S. Army Corps of Engineers:1972-1985

Peter Harrison, PMP

APM SYSTEMS LEAD

EXPERIENCE PROFILE

Peter Harrison has more than 35 years of experience involving project management and transit engineering, focusing on rail systems and rail vehicles. Peter has worked with a wide range of rail transit vehicles, including electric multiple units (EMUs) for mass transit and commuter rail applications; diesel multiple units (DMUs); locomotives for heavy rail applications, including high-speed and freight; and light rail vehicles for both light rail transit (LRT) and automated people mover (APM) systems. His experience also includes all aspects of project implementation, including initial concept development, specification production, engineering and design, manufacturing support, system testing, and maintenance. He also leads engineering teams on vehicle procurement and engineering development projects, including negotiations for the supply of rail vehicle systems. Peter's extensive experience with power electronic and power conversion equipment includes working with vehicle propulsion systems, including alternating current drives, onboard auxiliary static power supply, and battery charger systems. Throughout his career, Peter has worked with suppliers, agencies, and consultants on new-build and overhaul vehicle projects around the world involving steel-wheel rail and rubber-tired vehicles. He is also experienced with communications-based train control (CBTC) systems and their interface with vehicle electrical systems, as well as passenger information systems and train controls. In addition, he has managed and overseen the integration of various rail systems, including vehicle, train control, communications, supervisory control and data acquisition (SCADA), power distribution, platform screen door, and traffic control systems.

RELEVANT PROJECT EXPERIENCE

PANYNJ Newark Liberty Airport Monorail Extension, Newark, NJ – Project Engineer. Peter performed project engineering for the procurement of the systems. The project involved procuring vehicles and control, SCADA, platform screen door, and power distribution systems for the Newark Airport Monorail extension to link with the North East Corridor.

PANYNJ JFK AirTrain, Queens, NY – Lead Vehicle Engineer. Peter oversaw the supply of 32 light rail vehicles for the system. The project involved supplying 32 light rail vehicles for this JFK Airport access project.

PANYNJ PATH Railcar and Signal Program Phase II, New York and New Jersey – Systems Engineer. Peter supported the procurement of CBTC systems. His role included the review and modification of technical specifications and the review and evaluation of proposals principally for the car-mounted equipment. The Port Authority Trans-Hudson (PATH) Railcar and Signal Program includes procuring a new fleet of railcars, including 340 PA-5 heavy rail vehicles, and designing and installing a new signal system CBTC technology to improve capacity, headway, and reliability of PATH revenue service operations.

Firm

Parsons

Years of Experience

38

Education

Master of Business Administration, Loughborough University, England, 1989

Bachelor of Science, Electrical and Electronic Engineering, University of Manchester Institute of Science and Technology, 1977

Certifications

Chartered Engineer, The Engineering Council

Project Management Professional (PMP), Project Management Institute

PRINCE2 Registered Practitioner, APM Group

Employment History

Parsons: 2007-Date

Booz Allen Hamilton: 1999-2007

The Land Transport Authority (Singapore): 1996-1999

Hartgain Limited (UK): 1994-1996

Thorn Automation Limited (UK): 1992-1994

Brush Traction Limited (UK): 1988-1992

Brush Electrical Machines Limited (UK): 1984-1988

GEC Industrial Controls Ltd. (UK): 1983-1984

Thorn EMI Automation Ltd. (UK): 1981-1983

Chloride Legg Ltd. (UK): 1979-1981

GEC Traction Ltd. (UK): 1977-1979

DOUGLAS T. BAIRD

PERFORMANCE REQUIREMENTS

EXPERIENCE PROFILE

Douglas (Doug) Baird has more than 30 years of experience, including 14 years of extensive experience with automated people mover (APM) systems, serving in numerous capacities from field startup to manager of operations and maintenance. He began his career with AEG Transportation, formerly Westinghouse, was with the firm through seven company name changes up to Bombardier Transportation, and worked to start up design-build-operate-maintain APMs at various locations throughout the world. Doug's expertise has expanded to include project oversight, coordinating testing and commissioning, leading and overseeing operations and maintenance, creating field test procedures and standard operating procedures, and mentoring. His experience includes projects at Denver International Airport, George Bush Intercontinental Airport, Hartsfield-Jackson Atlanta International Airport, Kuala Lumpur International Airport, and Adolfo Suárez Madrid-Barajas Airport and the Singapore Bukit Panjang Project.

RELEVANT PROJECT EXPERIENCE

City and County of Denver DIA Automated People Mover, Denver, CO – Project Manager/Contract Administrator. Doug was responsible for the successful operations and maintenance for Denver International Airport (DIA)'s AMP system, ensuring the selected contractor performed its duties and responsibilities appropriately to minimize possible system downtime. As contract manager, his responsibilities included reviewing contractors' qualifications and their bids for continued operations and maintenance services of the APM, assisting with the selection of the contract award, and successfully negotiating the terms of the contract. Doug continually monitored the preventive and corrective maintenance of the APM, the operations and maintenance service provider, ensuring diligent and forthright services. He requested bids for additional services or work necessary to improve the operations of the system; provided backup technical expertise when necessary to keep operations running smoothly; and administered the contract, ensuring work billed to the City was in-fact performed and verified. DIA is one of the nation's and the world's busiest airports, and the APM is a must ride system for 85 percent of the passengers at the airport. Its successful operation is vital to the nation's airline traffic flow.

IAH Airport Management IAH Automated People Mover Operations and Maintenance, Houston, TX – Director/Senior Customer Business Manager. The project involved providing operations and maintenance support for the George Bush Intercontinental Airport (IAH)'s automated people mover system. Doug was brought in to stabilize the system and provide staff augmentation, scheduling, and training.

Bombardier Transportation, Pittsburgh, PA – Lead Field Engineer/ Project Manager. Doug served in various roles (lead technician, lead engineer, lead startup engineer, deputy manager, and project manager) for design-build-operate-maintain APM system projects worldwide. The projects included the Denver International Airport Startup and Operations and Maintenance,

Firm

Parsons

Years of Experience

32

Education

Bachelor of Science, Business Management, University of Phoenix, 2002

Employment History

Parsons: 2010-Date

B&C Transit Consultants: 2008-2009

Johnson Controls Inc.: 2006-2007

City and County of Denver, Denver International Airport: 2005-2006

Bombardier Transportation: 1993-2005

David A. Bernosky, PE

TECHNOLOGY ASSESSMENT

EXPERIENCE PROFILE

David Bernosky has more than 25 years of experience in installation and startup activities in the transportation industry. He has been responsible for the operations and maintenance of an automated people mover (APM) system at a major United States airport. David's professional experience includes managing projects valued up to $50 million for an industry leader in automated transportation systems. He provided witness testing and commissioning, and ensured compliance with APM standards. David offers strong transferable leadership, analytical, organizational, administrative, and planning abilities. He is able to lead diverse, cross-functional teams to achieve goals. David has developed operational plans, created budgets, maintained profit and loss financial statements, analyzed data in support of millions of dollars in inventory control and procurement process, and tracked key performance indicators (KPI) for site operations.

RELEVANT PROJECT EXPERIENCE

Incheon Airport Authority Intra Airport Transit System for the Incheon International Airport Phase II, Incheon, South Korea – Project Manager. David's responsibilities included consulting program management support for the implementation of the Intra Airport Transit System for the Incheon International Airport Phase II construction project. He reviewed the design submittals from suppliers and preliminary to construction document specifications. David inspected and supervised the construction and ensured that the work was conducted in accordance with the approved design and complied with the requirements of the contract documents. He observed testing and commissioning and ensured compliance with APM standards. The supplier of transit vehicles was Mitsubishi.

City and County of Denver, Denver International Airport Automated People Mover System, Denver, CO – Director Operations and Maintenance. David oversaw all aspects of the management and technical support of the operations and maintenance contract for an automated guideway transit system (AGTS). He was responsible for managing this project of up to $50 million and led a team of more than 50 employees, including a direct staff of 12. David developed operational plans, created budgets, maintained profit and loss financial statements, analyzed data in support of millions of dollars in inventory control and procurement process, and tracked key performance indicators for site operations. He analyzed and improved profit margins for seven consecutive years and established procedures for operation and maintenance activities to ensure that system performance remained within commercial contractual requirements. Under his leadership, the company exceeded contractual availability requirements for seven consecutive years. David provided successful coordination and planning of AGTS system maintenance facilities expansion, including five additional CX-100 transit vehicles and the installation and testing and commissioning, and he consistently exceeded customer service expectations through sound managerial skills.

Firm

Parsons

Years of Experience

29

Employment History

Parsons: 2011-Date

Logplan, LLC: 2010-2011

Bombardier Transportation: 2008-2009

Logplan, LLC: 2006-2008

Bombardier Transportation/ ABB Daimler-Benz Transportation: 1992-2006

Jeffrey C. Pringle

VEHICLE ENGINEERING/INSPECTIONS

EXPERIENCE PROFILE

Jeffrey (Jeff) Pringle has more than 40 years of broad-based operations experience in rail vehicle procurement, manufacturing engineering, and schedule integration, with a focus on program management. He has developed numerous successful large-scale program teams for industry-leading vehicle manufacturers and transit authorities. Jeff has experience with rail programs in excess of $1.2 billion for the second largest transit authority in the United States. His experience includes procurement strategies, program management, operations management, budget development/achievement, strategic planning, Americans with Disabilities Act (ADA) and Buy America compliance, contract negotiations, and employee relations in union and non-union environments. Jeff has prepared source selection plans for transit agencies, directed the procurement of numerous new and rehabilitation vehicles, and successfully delivered, accepted, and commissioned commuter and light rail vehicles. As a senior program manager, Jeff has experience directing and managing vehicle design, new and rehabilitation vehicle procurement of all railcar rolling stock for the Washington Metropolitan Area Transit Authority (WMATA), and ensuring quality-driven acquisitions of high-value vehicles. He has extensive rail industry technical knowledge of leading manufacturers; and operations, engineering, and maintenance suppliers; vehicle procurement; the manufacturing process; tooling; facility industrialization; and vehicle commissioning. Jeff's program knowledge includes advanced integrated project team partnering and negotiation skills during both program selection and closeout phases.

RELEVANT PROJECT EXPERIENCE

Houston METRO Light Rail Expansion Project Facility Provider, Houston, TX – Technical Director. As the facility provider for the light rail transit expansion, Jeff and his team have complete technical oversight for the procurement of 76 light rail vehicles (LRVs) that are 70 percent low-floor. This new fleet of low-floor vehicles will meet Buy-America Guidelines and be procured from two leading LRV manufactures in the U.S. market in a concurrent manner. Jeff is responsible for providing the facility provider the necessary project oversight, including technical direction, manufacturing guidance, specification compliance, vehicle integration, and gap analysis. Parsons is the overall facility provider responsible under the Texas Hybrid Project Delivery program for design and construction of 15 miles of new light rail transit lines, acquisition of 76 light rail vehicles, and testing and commissioning. Parsons is responsible for engineering, procurement, and construction of the system. The program also includes a substantial small business enterprise mentoring program and a community outreach program responsible for responding to all construction issues within 48 hours.

WMATA 7000 Series Rail Vehicle Specification, Washington, DC – Senior Program Manager. Jeff directed his team towards the new vision for WMATA vehicles that was a clear departure from traditional designs from a number of perspectives. The new fleet would utilize a structure built using stainless steel the elimination of redundant cabs and the latest technology

Firm

Parsons

Years of Experience

41

Education

Bachelor of Art, Science, Temple University, 1977

Employment History

Parsons: 2008-Date

Washington Metropolitan Area Transit Authority (WMATA): 2001-2008

A.A.I. Corporation: 1995-2001

American Track Systems: 1994-1995

Knorr Brake Corporation: 1987-1994

Kevin C. Jones

SYSTEM SAFETY CERTIFICATION REVIEW

EXPERIENCE PROFILE

Kevin Jones has more than 15 years of experience as an agency transit safety and security specialist. For six years, he served as a senior rail and safety specialist, responsible for overseeing safety and assisting with security for a light rail system with more than 80 light rail vehicles and more than 30 miles of track. Kevin also served as a safety and security specialist for a bus fleet of nearly 900 vehicles. He currently serves as an associate staff instructor for the Transportation Safety Institute (TSI). He travels with TSI to transit agencies across the country providing instruction on emergency management principals. During Kevin's time with Parsons, he has worked on numerous design-build rail projects. His primary role during these projects has been to develop and oversee the entire safety and security certification effort. Included in this effort are control document development, hazard and threat analysis, design and construction conformance, and fire/life safety activities.

RELEVANT PROJECT EXPERIENCE

Miami-Dade Aviation Department MIA Airport Automated People Mover System (MIA Mover), Miami, FL – Safety & Security Certification/Fire & Life Safety. Parsons served as the managing partner for the $259 million, 1.27-mile APM system that connects the Miami Intermodal Center (MIC) to the MIA main terminal. Kevin conducted reviews of program documents related to system safety and security. He also assisted with the safety and security certification process. The Miami International Airport (MIA) automated people mover (APM) system was delivered under a design-build-operate-maintain method. The contract included construction of the guideway and stations, as well as installation of the full turnkey operation system and eight state-of-the-art APM vehicles.

DART Dallas/Irving (I-1/I-2) Design-Build, Irving, TX – Safety & Security Certification/Fire & Life Safety. This $436 million design-build project developed a 9.2-mile light rail extension for Dallas Area Rapid Transit Authority (DART). Kevin was responsible for assisting with tracking and reviewing the safety and security certification process, as well as participating with the Safety and Security Certification Review Committee and Fire/Life Safety Committee. He assisted with all design-build matters relating to system and fire safety and security. Kevin was also responsible for reviewing and tracking project hazard analyses. The project featured eight bridges, 58,000 track feet of ballasted track, 24,700 track feet of direct fixation track, and 14,600 track feet of embedded track. The project extended the Orange Line through Irving, Texas, to Dallas-Fort Worth International Airport (DFW). This full turnkey project was the first design-build project awarded by DART and included 2.3 miles of elevated track, five stations with parking lots, and six traction power substations. Parsons served as the lead designer and joint venture member and ensured all design packages were delivered on time.

Firm

Parsons

Years of Experience

16

Education

Bachelor of Science, Safety and Environmental Management, Slippery Rock University of Pennsylvania, 1996

Employment History

Parsons: 2009-Date

Port Authority of Allegheny County: 1999-2009

Jorge L. Estevez, RA

CONSTRUCTION MANAGEMENT LEAD

EXPERIENCE PROFILE

Jorge Estevez possesses a strong architectural and civil engineering background, with nearly 30 years of progressively responsible experience in the design, program management, construction, construction management, program management, and field supervision of state and federal infrastructure and building facility projects valued from $250,000 to $1.5 billion. He has hard money experience in estimating, bidding, contract negotiation, and contract administration. Jorge has led efforts for bidding, negotiating, contracting, and contract administration on projects with multiple delivery systems, including cost plus, design-bid-build, design-build-operate-maintain (DBOM), and lump sum. The projects have included the construction of at-grade and underground light rail and commuter rail stations, rail bridges, vehicular bridges, bored and cut-and-cover tunnels, and utilities installation. He is experienced in managing teams of professionals and handling interagency issues on behalf of owners.

RELEVANT PROJECT EXPERIENCE

City and County of Denver DIA South Terminal Redevelopment Program, Denver, CO – Project Manager. Under a seven-year contract, Parsons is providing program management, construction management, civil and structural design, and design and construction support services for the Denver International Airport's (DIA's) $650 million Hotel and Transit Center (HTC). Jorge's primary role during the initial phases of the program was to manage the construction of site preparation projects, such as excavation, utilities, the design and construction of the temporary terminal roof support system, and the design and construction of six terminal approach bridges while maintaining full airport operations. He also managed multiple design and construction firms. During the next phases of the program, his responsibilities also included daily coordination and management of the HTC's construction manager general contractors (CMGCs) and the Regional Transportation District and its contractors. He coordinated among multiple design teams; local, state, and federal regulatory agencies; and airport operations and security at DIA. The HTC expansion is a landside redevelopment that includes a public plaza, a 519-room hotel, a public transit center, a commuter rail station, an expansion of the security checkpoint, roadway improvements, major drainage improvements, extensions of the baggage handling system (BHS), and automated people mover (APM) expansion. The APM extension increases its efficiency by 20 percent, extending the life expectancy of the system. As an integrated program manager, Parsons oversees all visioning, planning, architecture, and engineering, including program administration; quality assurance; stakeholder coordination; master planning; design and planning management; the establishment of programmatic basis of design for sustainability, accessibility, and security; the oversight of master architect services; program controls; cost and document control; and a communications and stakeholder outreach program.

Years of Experience

30

Education

Bachelor of Architecture, Dual Degree Major; Architecture/ Civil Engineering, University of Miami, 1989

Registrations

Registered Architect: NJ

Certifications

Board of Certified Safety Professionals: Safety Trained Supervisor (STS)

Employment History

Parsons: 2009-Date

URS: 2007-2009

Washington Group International: 1999-2007

RAM Group, Inc.: 1997-1999

Kenmar Construction, Inc.: 1995-1997

G.P. Construction Company Inc.: 1986-1988, 1989-1994

Armstrong, Jordan, Pease Architects P.A.: 1988

John A. Postorino

CONSTRUCTION OVERSIGHT

EXPERIENCE PROFILE

John has more than 30 years of experience, including 18 years of experience involving the construction and maintenance of Long Island Rail Road's (LIRR's) assets, ranging from the track infrastructure maintenance programs to state-of-good-repair component programs for grade crossings, switches, drainage, rail, surfacing, and track ties. He implemented and managed the LIRR's first concrete tie installation in a complex, four-track, high-million gross ton corridor between Jamaica and Penn stations using a track laying machine. John's remaining years of experience include directing and supervising the project management staff responsible for supporting a $900 million infrastructure capital program with detailed project scopes and Primavera schedules, estimates, and budget. His experience includes developing and managing engineering infrastructure strategies consisting of track, signal, communications, and structures, as well as programming individual strategies into five-, 10-, and 20-year programs. John also has experience incorporating the five-year annual track outages for engineering and capital programs infrastructure programs in coordination with service planning and transportation departments while interfacing with oversight agencies, including the Metropolitan Transportation Authority, Federal Transportation Agency, and the U.S. Department of Transportation.

RELEVANT PROJECT EXPERIENCE

The Related Companies Hudson Yards Development, New York, NY – Senior Construction Manager. John is responsible for managing the program management and field oversight prior to commencing the 800-foot-long tunnel segment between 10th and 11th avenues. Utility relocations and existing structures were required to be demolished. John's program management tasks include interfacing between the client (the Related Companies) and the design-builder; monitoring the progress of the Gateway Tunnel; and reviewing conformance with the project schedules and budgets and advising the developer of any deviations from the established schedules and budgets to ensure there are no impacts to the start of various Stage 2 activities. He is responsible for reviewing and advising the developer on the merits of any claims for change orders, reviewing invoice payments and recommending payments, attending progress meetings with the project team, and representing the client to ensure there are no schedule impacts. He also holds weekly update meetings for the client's senior staff. In addition, Parsons is providing oversight and review of field services to the Amtrak Gateway Tunnel project. Daily summary field reports are required to ensure general construction practices were adhered to along with reporting of safety issues. Parsons is providing program management, field coordination, and design services to the Related Companies in support of their new development in the heart of Manhattan. The development includes a $16 billion high-rise complex over the LIRR yard. The project necessitates the construction of an overbuild platform over the site to allow the continued operations of the LIRR within Hudson Yards and its use as a storage facility. An Amtrak rail tunnel segment will also be built underneath the site, this 700-foot tunnel segment was recently added to the project under an agreement with Amtrak to preserve the ability to increase future Northeast Corridor capacity under the Hudson River

Firm

Parsons

Years of Experience

33

Education

Bachelor of Science, Civil Engineering, Fairleigh Dickinson University, 1983

Employment History

Parsons: 2009-Date

MTA LIRR: 1983-2009

Samuel Morales

DOCUMENT CONTROL SPECIALIST

EXPERIENCE PROFILE

Samuel Morales has more than 18 years of experience as a hands-on user of Expedition. As document control specialist, he has been responsible for performing a variety of document control functions on major infrastructure projects. This includes various administrative duties, such as implementing procedures for recording, distributing, and tracking incoming and outgoing correspondence, shop drawings, transmittals, submittals, requests for information (RFIs), etc. Other responsibilities have included creating procedures for recording drawings, specifications, calculations, entry of project information, distribution of documents to technical reviewers, maintaining project files, and preparing monthly and quarterly status reports.

RELEVANT PROJECT EXPERIENCE

New Jersey Schools Development Authority, Elizabeth Academic High School, Elizabeth, NJ – Document Control Manager, 2013-Present. Samuel performed construction management services for the construction of the new $60 million Elizabeth Academic High School, a four-story, 183,822-square-foot facility designed to educate 1,091 students from grades nine to 12. As the on-site document control manager for a team of three, Samuel reviewed contract documents and was responsible for monthly reports at construction progress meetings. He submitted and managed all correspondences with the NJ Department of Community Affairs (DCA). Other responsibilities included maintaining a set of contract documents, logs of all RFIs, CCRs, and COs, as well as maintaining an electronic photo journal.

PANYNJ Division of Engineering Program Management, NJ Airports, Newark, NJ, Aviation Departments for Newark Airport projects – Expedition Specialist. Samuel processed all submittals for the Aviation Department for Newark Airport projects. He managed submittals with outside consultants and Port Authority of New York and New Jersey (PANYNJ) internal reviewers, assisted the contractor with the procedures of the PANYNJ submittal process and document control. Samuel also prepared reports for Expedition and assisted with RFIs. The projects under this contract included various capital constructions, as well as the operation and maintenance of New York airports, including JFK and LaGuardia. Samuel's duties included tracking issues and correspondences, submittals/approvals, RFIs, change orders, and subcontracts; maintaining meeting minutes; requisitions; and monitoring the status of punch list items.

- **Division of Engineering Program Management, NJ Airports, Newark, NJ.** Samuel was responsible for performing a variety of Expedition specialist functions, including implementing procedures for recording and distributing incoming and outgoing correspondence and shop drawings, transmittals, and RFIs. He implemented an electronic document control tracking system utilizing Expedition.

Firm

Techno Consult

Years of Experience

18

Education

Architectural Drafting & Technology, Lyons Institute

Middlesex Vocational Technical School

Employment History

Techno Consult: Will be available upon commencement of the project

Jois Construction Management System: 2002-2015

PANYNJ: 1989-2002

Christine F. Terril, PE

CONFIGURATION MANAGEMENT

EXPERIENCE PROFILE

Christine Terril is Parsons' Engineering and Compliance Department manager, responsible for design, implementation, and compliance with configuration management (CM) and industry standard processes. She has more than 15 years of experience as a rail and transit configuration manager, with primary experience in positive train control (PTC), driverless systems, and resignaling replacement projects. Christine has managed the development and implementation of asset management databases for project use in IBM-Rational ClearQuest. She utilized the following tools for CM and asset management implementations: IBM-Rational DOORs, Multi-Site, ClearQuest, ClearQuest Designer, ClearCase UCM, C/C++, Perl, Visual Basic, Prolog, ADA, UNIX, MS Visio Professional, MS Excel, MSWord, PrimaVera, Version One, SharePoint, ProjectWise, SQL, MSAccess, and ProjectWise.

RELEVANT PROJECT EXPERIENCE

NJ Transit Positive Train Control System, Newark, NJ – Configuration Manager. Christine is working with the NJ Transit project team to establish industry best practice CM at the systems level, including CM requirements allocation, CI identification, configuration control throughout project life cycle, CM audits, forms automation, and status accounting. She is also working to develop a CM solution for the project's design inputs; to design and implement a parts catalogue and asset management database for PTC assets; to manage the initial data imports into the asset management CMDB, including spares management, the RMA process, and site inventory; and to ensure Federal Railroad Administration (FRA) compliance for CM requirements. Parsons is the design-builder providing a turnkey system to develop, install, and integrate an interoperable FRA-certified PTC system on NJ Transit's 300-plus-mile regional commuter rail system by December 31, 2015. This significant interoperable PTC systemwide implementation contract represents the first of its kind to be awarded in the Northeast Corridor area, which needs to be interoperable with Amtrak. Parsons will manage the overall program and will provide design, installation, documentation, testing, integration, commissioning services, and warrantee. In addition, Parsons will lead the overall radio frequency infrastructure development, manage the development of the network management system, and provide an interface to the dispatching system. The PTC system will be fully interoperable with the Amtrak, Norfolk Southern, and CSX's PTC systems. NJ Transit's PTC systemwide implementation program will consist of two PTC back-office systems; PTC onboard computers, speed display units, crash-hardened event recorders (CHERs), and radios on more than 400 cab cars and locomotives; a stop enforcement system; and a systemwide communication network to link the wayside signals, trains, and the centralized dispatch office using the Advanced Civil Speed Enforcement System (ACSES) II-compliant 220 MHz radio system and NJ Transit's backhaul communication infrastructure.

Firm

Parsons

Years of Experience

16

Education

Bachelor of Science, Computer Science, University of Pittsburgh, 1998

Certifications

Certified Scrum Master, Scrum Alliance

Configuration Management II Certification, Institute of Configuration Management

Certified International Configuration Manager, International Society of Configuration Management

Employment History

Parsons: 2013-Date

Ansaldo STS: 1999-2012

E. Qualifications & Experience of Firms

The Parsons team offers the range of professional services and depth of resources needed to provide the Port Authority of New York and New Jersey (the Authority) with the right team and expertise to plan, procure, and support the construction of the Newark AirTrain replacement. Parsons is one of the foremost designers of automated people movers (APMs) for airport circulation worldwide. We and our partners offer extensive experience providing expert design and planning services for the Authority across all of its business lines, and we have extensive experience and knowledge of the operations and conditions at Newark Liberty International Airport (EWR). We have selected a team of experienced subconsultants to offer the Authority the most skilled and cost-effective team. Our team is well positioned to meet the milestones for procuring and initiating new AirTrain service at Newark by 2022. The roles of each firm on our team are described in the table on page 3.

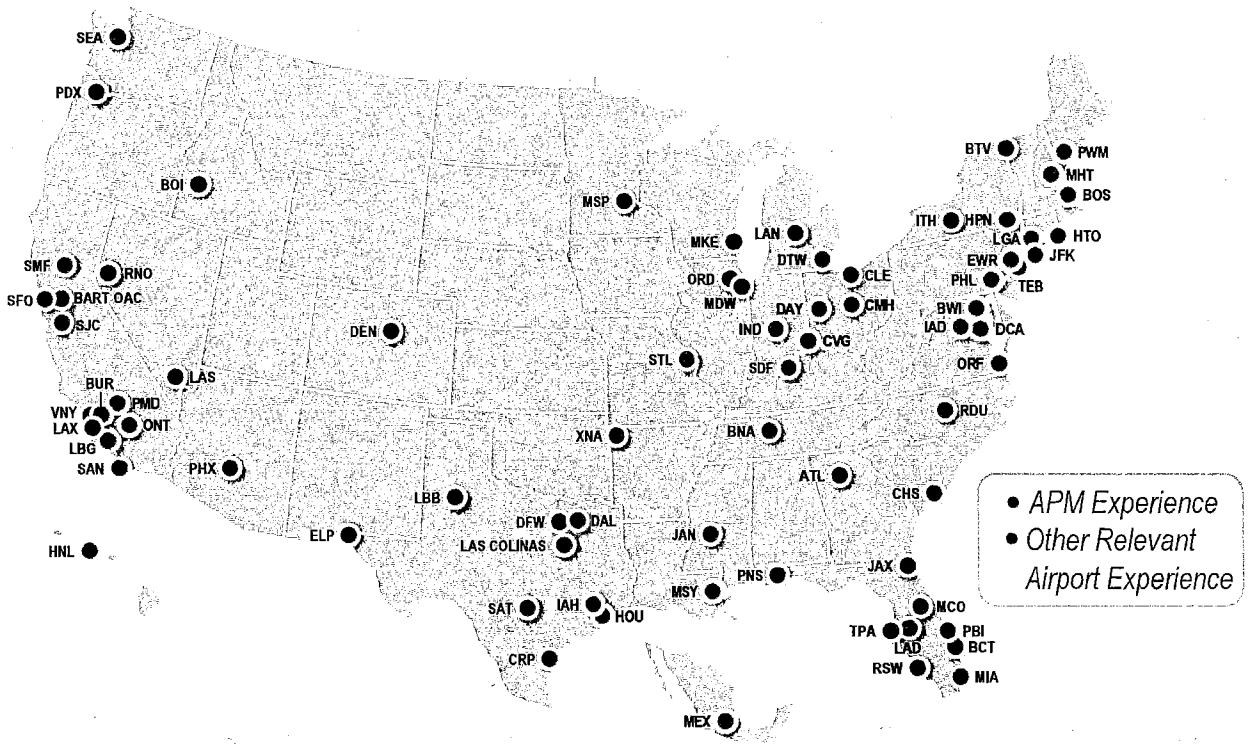
The map below depicts the Parsons team's experience on APM and other relevant projects across the United States.

Introduction to the Team

Parsons Transportation Group (Parsons), founded in 1919, has a worldwide reputation as a premier engineering, program management, systems, and construction company — one synonymous with quality and the latest in technology. Parsons' continuing legacy is seen in the program design, planning, engineering, construction, and program/construction management of some of the world's most complex infrastructure and systems. Since its founding, Parsons has served more than 2,400 clients and has worked in all 50 states and 80 countries worldwide. Headquartered in Pasadena, California, Parsons employs more than 16,000 employees.

Parsons has been ranked among the top design firms in the industry every year by *Engineering News-Record* (ENR) since 1965. In 2015, Parsons ranked number 5 in the Top 20 Design Firms in Transportation list. These achievements are a result of focusing on Parsons' core values: safety, quality, integrity, diversity, innovation, and sustainability. Parsons maintains a strong, permanent presence in the New York metropolitan area from our offices in Manhattan and

Parsons Team Aviation Experience

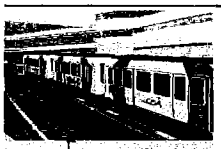
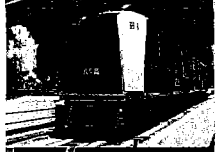
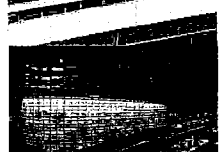


Newark. Currently, Parsons has more than 250 engineers, planners, technicians, and administrative staff based in the New York area.

Parsons has extensive experience working with the Authority, delivering projects for all of its business lines. The firm has been involved as project manager and lead designer for both the temporary and permanent World Trade Center PATH Transportation Hubs. Parsons led the restoration of PATH service after the events of September 11th, 2001, by building new traction power substations and new third-rail systems. The firm was the infrastructure design group manager for the preliminary design of the permanent transportation hub and was the lead designer for several of the 19 final design packages. Parsons is also providing the design for the public-private-partnership replacement of the Goethals Bridge. We have also completed numerous designs and engineering services for the Authority under "call-in" contracts, including the current contract for federally funded Hurricane Sandy repair.

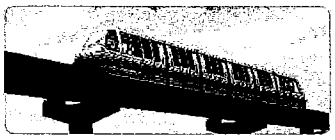
Parsons offers significant successful experience in the planning, design, and construction support of new and improved airport facilities and airport circulators nationwide and internationally. In the last 15 years, Parsons has delivered several terminal expansion, traffic circulation improvement, airside capacity improvement, and airport circulator projects. The table below presents eight of our most recent APM projects.

Parsons APM Experience

	Project	Role	Contribution	Equipment	Total Value	Date Completed
	**O'Hare Automated People Mover**	Design-Build Contractor, Designer	Innovative Design, Technology Evaluations	Bombardier Transportation	$310 M	Ongoing
	BART - Oakland Airport Connector	Design-Build Contractor, Designer	Final Design, Construction Management Technology Procurement Vehicle Procurement	Doppelmayr Cable Car	$372 M	2014
	**Miami - MIA Mover Rental Car Connector**	Design-Build Contractor, Designer	Final Design, Construction Management, Vehicle Procurement	Mitsubishi Heavy Industries	$259 M	2011
	Doha Airport PM and APM Implementation	PM/CM	Program Management, Design Adherence, Factory Inspections, Construction Management	Doppelmayr Cable Car	$218 M	Ongoing
	Washington Dulles AeroTrain	PM/CM	Program Management, Planning, Final Design, Environmental/NEPA, Construction Management	Mitsubishi Heavy Industries	$1.2 B	2009
	Hartsfield Atlanta SkyTrain Rental Car Connector	PM/CM	Program Management, Design Management, Sequencing, Cost Control Financial Analysis	Mitsubishi Heavy Industries	$642 M	2010
	**SeaTac Terminal Connector**	PM/CM	Cost/Schedule Control, Testing/Inspection, Construction Management	Bombardier Transportation	$140 M	2004
	San Francisco Terminal and Rental Car Connector	PM	Program Management, Contract Administration, Planning Support	Bombardier Transportation	$400 M	2002

The Parsons Project Team

PARSONS
Program Management, Project Development Procurement Strategy and Support, Conceptual Design/Design Oversight, APM Systems, Construction Management, Project Controls

VHB APM & Pedestrian Modeling, Traffic, Environmental Review	InGroup (WBE) Stakeholder Facilitation	Ricondo & Associates (MBE) Aviation Planning	B. Thayer & Associates (WBE) Architecture
Matrix (WBE) Survey	Techno Consult (MBE) Schedule, Document Control	JCMS (MBE) Cost Estimating	Gerald Stoughton Procurement Strategy
Mary Peters Procurement Strategy	Mueser Rutledge Geotechnical Engineering	Frasca & Associates (WBE) Financial Analysis (as needed)	

VHB is an experienced engineering, planning, design, and environmental firm that has partnered extensively with public- and private-sector clients to provide the best technical skills through a seamless, integrated team approach to collaboration. Additionally, the firm is a frequent recipient of project awards for planning, engineering, and environmental excellence.

VHB has provided planning, engineering, and environmental services at more than 60 airports in the United States and has served as a call-in consultant for the Authority's airports since 1990. VHB and the Authority's staff have collaborated on major projects at EWR, having recently completed landside traffic engineering for the conceptual design of the Terminal A redevelopment program at EWR, and previously completed pedestrian capacity analysis at Terminal C, authored a cargo operations and security study, and helped develop applications and plans for Passenger Facility Charge (PFC) fees. VHB is presently involved in the Authority's Airport System Capacity Planning Study, conducting airport-wide inventories of environmental and transportation resources at all the Authority airports. VHB also offers an impressive portfolio of work on airport planning and environmental studies, including the LaGuardia Airport (LGA) Runway Safety Area Environmental Assessment and other studies for Westchester County Airport, East Hampton Airport, and Philadelphia International Airport.

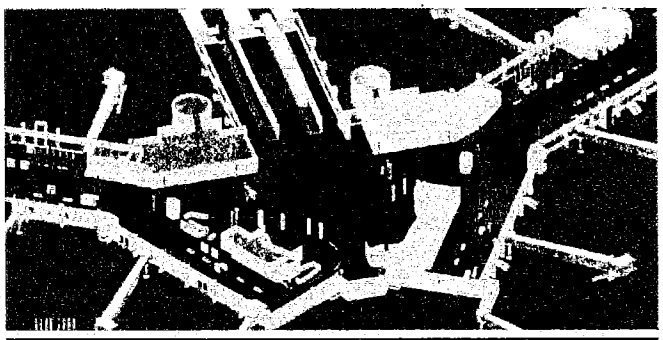
VHB has a specialized Transit & Rail team providing integrated services for all transit systems that also has experience delivering airport circulator systems, including APMs. The firm has extensive experience with Federal Railroad Administration (FRA) and Federal Transit Administration (FTA) environmental documentation, planning, cost-estimation, FTA grant program submittals, demand estimation, and operations analysis and simulation. VHB managed the Newark Airport AirTrain Station Usage Survey in 2013, 2006, 2004, and 2002, recently pioneered the use of Google Nexus tablets, and developed customized apps for passenger counts, origin-destination surveys, and headway and dwell time observations. VHB also served as traffic operations consultant for design-build of the JFK Airport AirTrain, among the most complex airport infrastructure projects in the last 20 years.

VHB provided traffic engineering services on the 8-mile light rail system linking JFK Airport terminals and parking facilities with MTA rail and subway stations in Queens.

InGroup, Inc. (InGroup), is a qualified and certified women-owned business enterprise (WBE) specializing in developing, managing, and executing communication strategies for transportation and infrastructure projects throughout the New York metropolitan area. InGroup brings extensive experience providing comprehensive communications and meeting facilitation expertise and serves as a valuable project resource that can be utilized as the project scope and requirements evolve. The firm has successfully completed communications strategies for the Authority and likely stakeholders on the EWR AirTrain replacement, including NJ Transit. InGroup has been involved in the following projects for the Authority:

- Bayonne Bridge Navigational Clearance Program Environmental Assessment public outreach and construction-phase community meetings
- Cross Harbor Freight Program Tier I EIS agency coordination and public involvement outreach
- Access the Region's Core public outreach

Ricondo & Associates, Inc (R&A), is a certified minority-owned business enterprise (MBE) and a full-service aviation consultancy specializing in airport planning and business management services in support of airport owners and operators, airlines, and federal and state agencies. R&A's experience includes strategic planning, operations research, airfield analysis, and landside planning. The firm is the industry-leading user of Comprehensive Airport Simulation Technology (CAST™) in the United States, the best in class for modeling terminal subsystems including APM stations.



CAST software was used to evaluate impacts on passenger movement between the airside concourses and the landside terminal during planned replacement of the people mover trains at Orlando International Airport (MCO).

R&A has been closely involved in airport master plans that have integrated airport circulator trains and regional rail transit as key elements for delivering a high-quality experience for the airport user. These include the planning and integration of the O'Hare International Airport (ORD) Airport Transit System with current and planned airport developments and the landside planning efforts for the Los Angeles International Airport (LAX) Transportation Infrastructure Development Program, which devised an alignment for a new APM system connecting the terminal area with a consolidated rent-a-car center and Los Angeles Metro Light Rail.

B. Thayer Associates (BTA) is a multidisciplinary consulting firm certified by the Authority as a WBE, providing architectural, civil engineering, structural engineering, landscape architecture, and land surveying services with extensive experience on transportation infrastructure projects. BTA provides architectural services, including planning, design, and construction phase services for new facilities, as well as upgrades and expansions of existing facilities. Its architects have significant experience with site and building investigation and evaluation, as well as zoning and code reviews, for compliance with local, state, and federal requirements and the Americans with Disabilities Act (ADA).

BTA has worked extensively for the Authority across all business lines while under contract for Professional Design and Technical Services for Security Capital Programs on a "Call-in" basis between 2004 and 2013. These include the Journal Square Transportation Center Security Hardening, the Holland Tunnel administration building improvements, the Permanent World Trade Center PATH Transportation Hub station design and evacuation study, and the development of parking facilities at Ingraham's Mountain with access roads to LGA. The firm is well-versed with the Authority's standard practices and procedures. BTA's design team is very familiar with the Authority's latest CADD design standards and has successfully coordinated Authority standardized specifications, cost estimating, security information protocols and procedures (SIPP), and information access control guidelines.

Matrix New World Engineering, Inc. (Matrix), is a WBE that provides land surveying, environmental consulting and engineering, civil engineering, and geotechnical services for public agencies (federal, state, and county), architects, engineering firms, and commercial and residential developers.

Matrix has significant experience with public agencies in New York and New Jersey, including the Authority. As part of Stage I studies for the PATH Federally Funded Superstorm Sandy Related Repair and Resiliency Projects, Matrix was responsible for land surveys and field surveys to help identify appropriate flood protection level design criteria at PATH facilities vulnerable to flooding. Matrix performed land survey, wetland evaluation, and environmental permitting on the Corbin Street Bridge project at Port Newark. In addition to its land survey work, Matrix has provided engineering and geotechnical services at numerous Authority facilities, including all Authority airports, the World Trade Center Transportation Hub, the George Washington Bridge Bus Terminal, the approaches to the Lincoln Tunnel, and the Bayonne Bridge main span replacement.

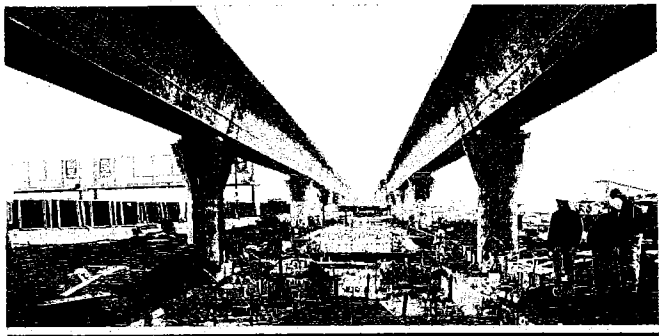
Techno Consult, Inc. (Techno), is a certified MBE providing construction management (CM) services with proven accomplishments in mass transit, transportation, and infrastructure projects for public agencies and private clients. In its construction management role, Techno has provided contract document preparation and procurement support, project controls, document control, and schedule and cost control. Much of the firm's recent work in rail, transit, and mass transportation includes work for the Authority. This experience includes the construction management services for the LaGuardia Airport Redevelopment Program, construction oversight on the installation of CCTV for terminals A and C at EWR, and managing the construction schedule for the removal and restoration of the P6 toll plaza at EWR.

JCMS, Inc. (JCMS), an MBE firm, has provided cost-estimating services on a large number of infrastructure projects ranging in size from $1 million to more than $1 billion. For more than 30 years, JCMS has been providing these services on a variety of transportation and infrastructure projects, which include new rail lines, elevated trackwork, signal, communications, and shops and yards. With substantial experience in mass transit construction as it relates to the procurement of special materials, productivity, and outages, JCMS can develop accurate cost estimates that are critical to developing realistic plans for projects.

JCMS is currently providing cost-estimating services for the Philadelphia Airport's $6.4 billion capacity enhancement program, which includes an APM. JCMS has worked with various mass transit agencies in the New York metropolitan area, including Long Island Rail Road (LIRR), Metro-North, New York City Transit (NYCT), Amtrak, NJ Transit, and the Authority. These include participation in recent on-call contracts for the Authority, as well as work on the World Trade Center Transportation Hub; PATH Signals and Communications; and fuel systems modification, facility improvement, roadway access improvements and terminal renovations at EWR.

Mary E. Peters Consulting Group, LLC, is a firm dedicated to exploring and advancing new and better ways to plan, finance, build, operate, and maintain America's infrastructure. Former U.S. Secretary of Transportation Mary Peters provides executive-level consulting services to clients to align services to current markets in the infrastructure arena, both nationally and internationally. She also assists public-sector clients in advancing their programs and projects in an era of declining public funding and in an increasingly regulatory environment. Mary assists clients in developing innovative finance options, using her experience with federal programs such as TIFIA and PABS to fund projects.

Meuser Rutledge Consulting Engineers (MRCE) is a leading geotechnical specialist in the New York/New Jersey area. MRCE has more than 105 years of experience in the field of foundation engineering, with more than 12,500 projects completed in the United States and around the world. MRCE has worked on more than 250 projects for the Authority, on all types of facilities, including airports, bridges, buildings, tunnels, stations, ports, the PATH system, and light rail. MRCE was the geotechnical and foundation engineer of record for the JFK AirTrain project. MRCE has excellent working relations with the Authority and has performed services directly for the Authority or as a subconsultant on teams. MRCE is familiar with the Authority's engineering and inspection standards and understands construction methodology commonly used by local contractors.



MRCE served as the geotechnical and foundation engineering design consultant during the design-build project to construct the JFK AirTrain.

MRCE has unique experience with the geotechnical aspects present at EWR. MRCE has performed several projects at the site, dating back to the 1949 studies of the hydraulic fill that the airport is built on. This site is challenging both geotechnically and in terms of seismic design. MRCE has in-house geo-seismic services that are uniquely focused on the New York City metro area and has seismic data for the airport.

Gerald Stoughton of **Stoughton Consulting** brings more than 30 years of public-sector experience in the planning, development, and financing of transportation projects. He also has experience in the procurement of services associated with project delivery. This experience covers all business lines of the Authority: aviation, marine, rail, and roadway projects. Having served for several years as the CFO's lead financial analyst for EWR, he has extensive experience with the facility's operating, capital, leasing, and cost-recovery matters. Gerry was also the financial analysis lead for the financing plan of the JFK AirTrain and the EWR AirTrain extension from the airport to EWR RailLink station.

Frasca & Associates, LLC (Frasca), is a WBE financial advisory firm headquartered in New York with extensive experience providing analysis for the Authority on airport projects. Frasca has served as financial advisor for more than $26 billion of debt transactions since its founding, in 1997, and was ranked as the top advisor to airports nationally in 2014, as well as for the 2010-2014 time frame. Furthermore, no other firm can rival Frasca's experience and expertise in the development and implementation of alternative and innovative project funding and delivery structures for airports, including P3S.

Since 2006, Frasca has provided the following services at Authority aviation facilities:

- Financial modeling advisor for LGA Central Terminal Building (CTB) replacement
- Financial modeling for EWR Terminal A development
- Financial evaluation assistance between the Authority and Delta on JFK Terminal 4 expansion
- Financial feasibility studies for extension of PATH service to EWR AirTrain station

Relevant Experience

The key features of Parsons' most recent APM projects were presented earlier. In addition, two APM projects, plus one planning project that featured coordination with staff from the Authority and AirTrain JFK, are described below. The table on the next page provides the requested project-specific information and associated client contacts.

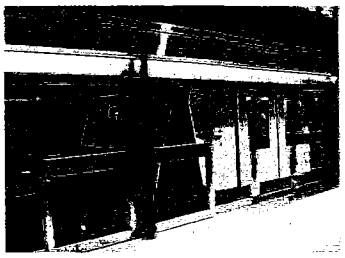
Washington-Dulles International Airport AeroTrain

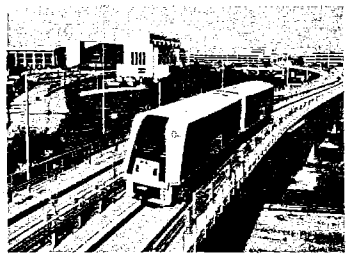
As managing partner of Parsons Management Consultants JV, Parsons led the planning, design, program management, and construction of the AeroTrain automated people mover at Washington-Dulles International Airport. With four stations and nearly 4 miles of underground track, the AeroTrain connects the original 1962 Eero Saarinen Main Terminal building with airport concourses. The AeroTrain operates entirely beyond the security cordon.

The AeroTrain system operates entirely underground (except for the maintenance facility, located at the south end of the airport property). Parsons used multiple construction and tunnel-boring techniques to ensure uninterrupted airport activity and to minimize impacts to the existing terminal buildings. Parsons also included provisions in the design and construction to accommodate reconstructions of the midfield concourses and future developments and expansion at the airport. As the AeroTrain is located approximately 55 feet below grade, particular attention was paid to vertical access between AeroTrain stations and the airport facilities at grade.

Parsons has received recognition of its work on the AeorTrain system in tandem with other significant expansion projects at Dulles Airport. In 2009, Parsons received the Project Achievement Award from the Construction Management Association of America (CMAA-NCC) and the Project of the Year from ENR.

Parsons' Relevant Experience





	Washington-Dulles International Airport AeroTrain Loudon County, VA	Miami International Airport Automated People Mover System (MIA Mover), Miami, FL	Lower Manhattan-Jamaica/JFK Transportation Project New York, NY
Participating Entities	Parsons Management Consultants (PMC) JV	Parsons-Odebrecht JV	Parsons-Systra JV
Project Manager	Bernard Seals	David Leverenz	Nicholas LaRocco
Key Personnel Participants	Bruce Swanson	David Leverenz, Jane Charambous	Monica Barrow, Jeffrey Abrams, Peter Smoluchowski, Lisa DiTaranti
Date Started	2004	2008	2005
Construction Cost	$1,200,000,000	$259,000,000	Not Constructed
Client	Metropolitan Washington Airports Authority	Miami-Dade Aviation Department	Metropolitan Transportation Authority
Services Provided	• Program Management • Environmental Planning and NEPA permitting • Design • Construction Management • Finance/Funding • On-site Integration • Safety certification	• Final Design • DB Contract Management • Operating System Interface • On-site Integration • Verification Testing • Design Coordination with System Supplier • Environmental and Permitting • Complex Operating System	• Alternatives Analysis • Ridership Analysis • Operations Analysis • Engineering Analysis • Environmental Analysis
System Length	3.7 mi	1.25 mi	N/A
Number of Stations	4	2	N/A
Fleet Size	29	12	N/A
Technology Utilized	Self-propelled driverless vehicles	Self-propelled driverless vehicles	N/A
Vendor Used	Mitsubishi	Mitsubishi	N/A
Method of Construction	DB	DBOM	N/A
System Vehicles Procured Together or Separately	Procured separately	Procured together	N/A
Client Contact	Stephan Smith, Deputy Vice President of Engineering (703) 417-8142 Stephan.Smith@mwaa.com	E.W. Stirrup, III, Project Manager (305) 341-8700 fstirrup@miami-airport.com	Christian Bastian, Project Manager (212) 878-7168 cbastian@mtahq.org

MIA Automated People Mover System

In joint venture, Parsons was selected to design, build, operate, and maintain the Miami International Airport Automated (MIA) People Mover System, the MIA Mover. Included in the design-build contract, Parsons selected Crystal Mover Systems provided by Mitsubishi Heavy Industries to supply technology and vehicles.

Parsons provided final design on the 1.23-mile-long system that connects terminals at Miami International Airport with the Miami Intermodal Center, including the Miami Central Station and Rental Car Center. The MIA Mover can carry 6,600 passengers an hour, and has removed an estimated 18,000 vehicles a day on the airport's access roads by providing a public transit link to the airport and eliminating many rental car shuttle buses.

Due to space constraints along the system, Parsons deployed innovative concepts to reduce the size of the MIA Mover footprint. Parsons designed and delivered a maintenance and storage facility (M&SF) that is in line and integrated into the airport terminal station, producing construction cost savings, as well as preserving developable land for other uses. Parsons managed extensive stakeholder relations that helped to ensure construction would have limited impacts on a hotel close to the corridor. For its work on The MIA Mover project, Parsons received the 2013 Global Best Projects Award of Merit from ENR.

Lower Manhattan-Jamaica/JFK Transportation Project

Parsons led a team (in joint venture) that completed an analysis of alternatives to provide improved commuter and airport access between lower Manhattan, Long Island, and JFK International Airport (JFK). The work was performed under contract to the MTA, which managed the Parsons team in conjunction with the Authority, the Lower Manhattan Development Corporation, and the New York City Economic Development Corporation.

The scope included the following activities:

- National Environmental Policy Act (NEPA)-compliant public scoping
- Development of alternative alignments for commuter rail, subway, and hybrid rail modes
- Conceptual engineering to evaluate feasibility and support rail network modeling
- Evaluation of vehicle types
- Creation of detailed operating plans for rail network modeling and ridership estimation
- Development of two travel demand models (including airport passenger surveys) to estimate ridership
- Cost estimation (capital and operating/maintenance)
- Development and application of evaluation criteria to screen alternatives from an initial list of hundreds of alternatives and reduce them to two alternatives
- Bi-weekly interface with a multi-agency working group and regular meetings with a multi-agency steering committee

Operations analysis (including schedule development and simulation modeling) required interface with the AirTrain JFK operator to ensure that the operating schedule for the new service maintained the AirTrain JFK headways and tied in with the airport's peak and off-peak schedules.

Why Parsons?

Parsons' business is the management and delivery of large, complex transportation programs within budget and on schedule. For more than 60 years, Parsons has provided comprehensive program management (PM) support services for transit, aviation, and highway clients. These include airport capital programs at more than 400 airports in 20 countries with a total value of more than $150 billion, many of which have included an APM element.

This record of success has helped Parsons build the essential "human" capacity of airport and transit professionals needed to serve the Authority. Parsons has developed a bench strength of staff, proven PM best practices, and unique processes and procedures to deliver highly trained program management experts when needed. Parsons' staff also maintains an unsurpassed focus on safety and quality. Parsons has one of the most extensive safety programs in the country, which provides all employees with unsurpassed safety training and field support. As an ISO 9001:2008-certified firm, all Parsons employees are trained in quality assurance and quality control procedures. By choosing Parsons, the Authority will obtain well-trained professionals, ready to meet any challenge.

F. Technical Approach

The Parsons team understands the scope of work and is committed to supporting the goal of The Port Authority of New York and New Jersey (the Authority) to release the request for proposals (RFP) for the future AirTrain to prospective bidders in the third quarter of 2017, roughly two years after the award of this consultant agreement. The schedule on the following page shows the durations and milestones for the tasks described in this technical approach.

The schedule and Parsons' overall technical approach has been informed by Parsons' extensive experience with automated people mover (APM) projects, program management contracts, and alternative delivery projects. This experience positions us to provide the Authority with insights regarding how project delivery methods and procurement requirements influence the marketplace and are likely to be handled by the contracting community, in terms of price and schedule.

Additionally, our experience on both the program management and delivery sides of large programs gives us a unique perspective of the appropriate level of design and construction oversight to protect an owner's interests while allowing the design-builder to execute the project the way that it was bid to avoid schedule delays and claims.

Parsons has completed 87 alternative delivery (e.g., design-build) projects, totaling $34 billion, in the last 15 years. Parsons provided program management services for five airport programs in Washington, D.C.; Atlanta; Seattle; San Francisco; and Doha, Qatar.

The following are key assumptions and observations about the schedule:

- Planning activities must hit the ground running, taking advantage of prior and concurrent related work and focusing on the items to which concept design and technical specification are sensitive.
- The schedule is sensitive to alignment development. We are committed to delivering the analytical work on time to support timely decision making by multiple stakeholders.
- The durations shown in our schedule for this work are based on our experience on other projects. In particular, they account for interdisciplinary coordination and reasonable review times by the Authority.
- Although most of the Task B efforts cannot be finalized without completion of the work of Task A, Task B efforts can and will start early and be refined and tailored as Task A products become available.
- Design reviews will determine whether the design-build contractor meets its schedule. They must occur on time, which requires consultant support at the right levels at the right time, as well as an on-time contractor design effort.

PHASE ONE

TASK A: General Planning Services

1. Document Review

The consultant team will review studies and reports that are relevant to the AirTrain Newark Liberty International Airport (EWR) program, including the documents listed in the RFP, as well as documents created for or by related efforts, such as the Terminal A Redevelopment Program, the Airport System Capacity Planning Study, the Port Authority Trans Hudson (PATH) to EWR study, etc. This review will provide the project team with an equal foundation and will also highlight any missing information that will need to be collected to support subsequent tasks.

All documents will be logged and stored on a secure server accessible by all team members. A summary of each document will also be prepared for future reference. A single report documenting findings and requirements will be submitted for Port Authority review. Following discussion and comments, a final version will be prepared.

The team will continue to review relevant documents that become available as the study progresses to ensure appropriate coordination between related aspects of the program. Those documents will also be logged and stored on the project server.

2. Initial Ridership Demand and Performance Requirements Definition

Credible ridership forecasting for AirTrain and the associated specification of its performance requirements

demands a firm understanding of the different markets it serves, as the travel characteristics of each market may be uniquely defined. Furthermore, the quantification of these markets will help shape the Alignment Development sub-task. Passengers on AirTrain collectively represent the following markets:

- Arriving and departing airline passengers utilizing any of the daily parking facilities
- Arriving and departing airline passengers connecting with Amtrak at the Rail Link station
- Arriving and departing airline passengers connecting with New Jersey Transit at the Rail Link station
- Arriving and departing airline passengers utilizing hotel and courtesy vans and rental car shuttles
- Airline passengers transferring between terminals to catch connecting flights
- Airline and airport employees

The project team will review any recent travel-demand-related information that the Authority may be able to provide. For example, we would review the data collected by team member VHB in August 2013 as part of an extensive, seven-day, 24-hour survey of the AirTrain EWR system. We would also request entrance/exit data from AirTrain station parking lots and data from the valet parking and shuttle bus operations at P4 garage. ***We would inquire and coordinate information about the work that is being done for the PATH-EWR planning effort to be sure that the future-year assumptions we make and ridership estimates we produce for AirTrain EWR are consistent across the two projects.***

With the Authority's concurrence, team member VHB can provide a natural link between the ongoing PATH Extension to EWR planning and environmental study, because VHB is leading the planning efforts for that study. An interface between that study and the AirTrain EWR replacement program is desirable, because the planning and development of the AirTrain EWR system will likely be influenced by the potential increase in customers that may flow to it via the expanded Rail Link station and services. Similarly, the feasibility of the PATH Extension and adjacent development can only be ensured if the AirTrain system has sufficient and expanded capacity and frequency to transport the increased Rail Link Station customers to/from the airport.

We also propose to supplement the available data with a comprehensive, innovative method to efficiently and passively obtain high-quality passenger flow data for the different markets. The project team will obtain (through AirSage, a provider of anonymous population analytics) comprehensive cellular location data, which provides person-flow information (origin-destination) by time of day, trip purpose (work and non-work), and resident/visitor status. The pairing of the detail-rich survey data with the market-oriented AirSage origin-destination data represents a best offering, as the two complement each other by presenting a unique level of detail. For example, the survey data provides finer-grained time increments and passenger details, such as party size and presence of luggage carts, whereas the AirSage data informs us which travel markets (employee, passenger, etc) the passengers belong to.

Why AirSage Data?

- The data are collected over a period of at least one month, allowing the detection of individuals' routine (such as going to work) and non-routine (such as going to the airport) travel patterns (note that the identity of individuals is stripped, thereby preserving anonymity). This permits the identification of airport employees separate from airline passengers, even if both access/egress the airport through the Rail Link station. Further distinction of airline passengers as residents/non-residents of the region is also readily available, and this benefits the analysis by understanding their likelihood of utilizing one of the daily parking lots vs. a rental car facility.
- The wireless signal antennae at this airport should permit the identification of origin-destination patterns of the AirTrain passengers at the station-to-station-level.
- The wireless data records are retrieved for any past point in time (e.g., the peak month of AirTrain ridership). Most other data collection programs are for a future point in time.
- The AirSage data are observed travel patterns, permitting the validation of any base year estimates produced by models.

The project team will translate all of the activity data — for the base year, opening year and any design year

— into trip tables that indicate AirTrain EWR passenger origin-destinations (i.e., station-to-station flows) by time increment. Separate trip tables will be developed for each market. Up to two sets of trip tables will be developed: one assuming an extension of PATH service to the Rail Link station and the other assuming the current transfer with NJ Transit at Newark Penn Station. This accounting is important in two respects: (1) the possibility of a one-seat PATH ride could yield higher ridership estimates from the team working on the extension study and (2) a PATH extension would stagger arrivals at the Rail Link station from PATH and New Jersey Transit, which may allow for improved AirTrain EWR passenger level of service through greater spreading of the passenger loads.

With this information in hand, Parsons can easily model the characteristics of the AirTrain network for different alternatives and perform a schedule-based assignment of the passenger flows. A schedule-based assignment permits a better accounting of passenger wait times transferring from Amtrak and New Jersey Transit (and PATH if the extension is built) to AirTrain EWR at the Rail Link station. The output of this step will yield or confirm many important service parameters, including peak line loads needed to determine consist and overall fleet size, span of service and service frequency, and passenger wait times (by travel market).

Model inputs and outputs will be shared with key project stakeholders to help foster a common understanding for the basis of the results. Different AirTrain alignments or technologies (as a product of the Alignment Development and Technology Assessment sub-tasks, respectively) will likely require different inputs to the modeling, which, in turn, may result in different outputs. Thus, an iterative analysis is anticipated.

Systems performance requirements will be documented and coordinated with the design criteria that will be established for the replacement system.

3. Alignment Development

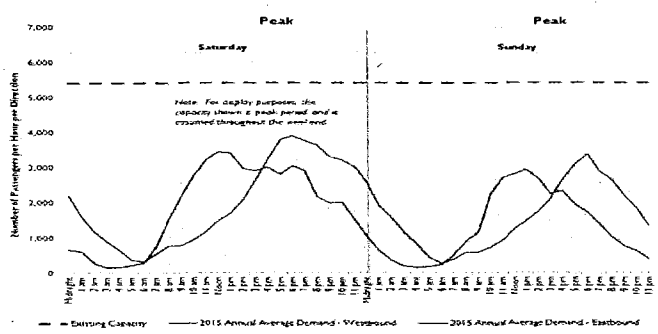
The existing AirTrain system uses an alignment inside the structure of Terminals A, B, and C that was included in the original design and construction of the buildings. Identifying an alignment that does not interfere with the existing system that will balance pedestrian circulation with constructability and capital costs is the challenge of this pursuit. Our alignment alternatives study will weigh these factors, as well as impacts to the roadways and other environmental impacts, when selecting a final alignment.

There is little precedent in the industry for replacement of airport APM infrastructure. The few airports where it has been done have required the new APM to use a different alignment than the previous system. As the Authority will keep the existing AirTrain operational until the new APM is ready to open to the public, we expect the new APM to occupy a different alignment than the existing AirTrain. We understand the imperative to deliver a product that maintains AirTrain service at the terminals and EWR Rail Link Station, and minimize service interruptions to the airport parking lots.

We are aware of existing constraints and future plans at EWR that will inform our analysis of alignment alternatives (see airport aerial on next page). Most significantly, we are familiar with the plans to construct a replacement of Terminal A in the tarmac area south of the existing Terminal A. These plans allow for a significant departure from the existing AirTrain right-of-way: the new Terminal A can include an alignment incorporated into the structure, the alignment may or may not serve the existing P1 and P2 parking areas, and the new alignment can pass farther away from the existing Terminal A en route to Terminal B. These plans also require that the planned alignment not interfere with new road circulation to be constructed for Terminal A. We are familiar with the plans to extend the PATH railroad to the EWR Rail Link Station and will study its impacts on new APM alignments and identify the best way to integrate the new APM into the existing and expanded EWR Rail Link Station. Lastly, we are familiar with long-term capacity studies for Newark that envision a third runway and significant alterations to the existing terminal configuration. All of these plans will be considered in the alignment analysis.

Structures, including a control tower and baggage facility at Terminal C and the Customs screening building at Terminal B, are close to the existing AirTrain alignment and likely preclude a similar alignment for the new system. There may be an opportunity for an alignment that passes through the existing terminal structures, either in the front or back of the terminal buildings (but west of the existing alignment). Structural and pedestrian circulation analyses

would determine the feasibility of these alternatives. In addition to these alternatives inside or near the terminal building envelope, we will study alignments that run west of or above Express Road (see terminal section diagram below). These alignments face similar constraints, including the parking garage at Terminal C, the arrival level access roads at both terminals, and the longer distance between station locations and entrances to the terminals. All of these factors will be considered and weighed in our analysis to present a preferred alignment for the new APM.

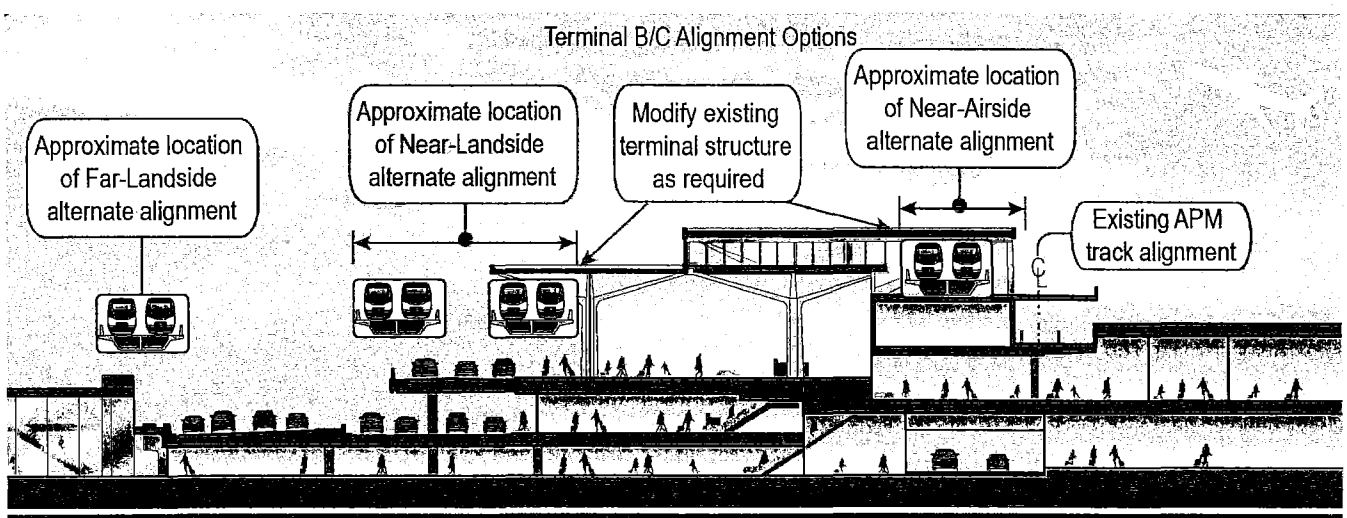


Ridership estimate specialist *Gregory Gaides* has supplied the Authority with ridership analysis on the PATH system. This data was used to identify service options, eliminate under-performing options, and determine preferred service patterns during the reconstruction of the PATH uptown tunnel.

The new alignment must include an envelope that accommodates a generic guideway, a generic vehicle and all associated appurtenances, and clearance requirements. In other words, it must fit cleanly within the selected corridor, either by clearing or by eliminating all external elements that would otherwise encroach into the envelope. The existing guideway infrastructure represents the most obvious encroachment and severely limits the alignment alternatives between the terminals and the EWR Rail Link Station. In the case that the existing alignment between Terminal C and the EWR Rail Link Station cannot accommodate the new APM alignment, we will study alternative alignments to reach the Northeast Corridor and document the necessary takings. We will also make the necessary updates to the Airport Layout Plan as needed to comply with FAA oversight.

Parsons will determine whether alignment alternatives require updates to the Airport Layout Plan and will determine whether new alignments comply with Part 77 of Federal Aviation Regulations. Peter Byrne has extensive experience verifying that off-site airport improvements comply with Part 77 FAA.

The new APM alignment and design may potentially have a great impact on surrounding roadway networks and key airport elements, such as parking lots and frontage roads. The location of the alignment and the APM stations will also significantly change the pedestrian circulation at each terminal building and throughout the airport. Our team will simulate and study these impacts to facilitate comparison of alternative alignment and to develop plans that ameliorate major traffic impacts or impacts to parking capacity. This will ensure that capacity and safety is



Parsons will consider three to four alignments to serve Terminals B and C: a terminal/airside alignment, a near landside alignment over one of the terminal access roads, and a further landside alignment across all access roads from the terminal main building.

maintained for all modes during and after construction of the new APM system.

The alignment, maintenance facility, and stations will be subjected to an alternatives analysis that will help determine the preferred alignment. Elements such as ongoing and future developments at EWR, environmental concerns (such as impacts to the EWR drainage canal), constructability, and capital costs will form the basis of the alternatives analysis. Additionally, pedestrian circulation and impacts on airport circulation will be considered once the alternatives are narrowed down. This process will help select the preferred alignment serving the terminals and airport facilities, as well as new station placement and the location for a new maintenance facility.

The project team will develop an operations simulation model to test single-train performance for the various combinations of alignment, station spacing, and technology alternatives. This analysis will provide input into overall train operating time, dwell time at stations, alignment curvature and grade, and other operating/physical characteristics of the proposed system. The model will have the capability to be expanded to provide assessments of multiple trains (including failure mode "put ins") on each single track to further inform the spacing between stations and to provide the travel time between each station and for the entire route during peak and off-peak times. It is anticipated that this effort will be an iterative process, informing the initial concept development and confirming the final alignment and facility siting.

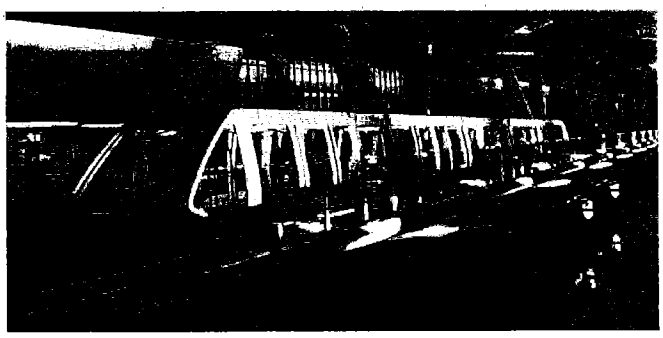
Alternative alignments could potentially have significant impacts on surrounding roadway networks and key airport elements, such as parking lots, internal roadway network, frontage road, pick-up and drop-off area, taxi stand, and pedestrian access. Our team recognizes the importance of alignment development that both meets the future demand of airport users and various stakeholders and is also effective in providing safe driving and pedestrian conditions while minimizing queuing that could otherwise impact the on-airport and off-airport roadway network. Our traffic professionals will work side by side with the team's engineering staff to determine the impacts of alternative alignments on vehicular and pedestrian traffic and parking. We will provide guidance on capacity improvements needed to ameliorate major traffic impacts to obtain defensible clearance under the National Environmental Policy Act (NEPA), if needed. This will be an iterative and interactive process throughout the duration of the AirTrain alignment development effort.

4. Technology Assessments and Recommendations

The technology assessment will be based on ridership estimates and system performance needs over the life of the system. The physical alignment, including gradients, curve radii, and potential crossovers will be considered, as will the operating environment, including extremes of weather. While it is expected that the deployed system will meet the necessary safety requirements in all cases, other factors to be considered would include evacuation or recovery in the event of a major failure or emergency. The technology selection will also consider how the system would connect with PATH, NJ Transit, or Amtrak services, as well as other connections or passenger interfaces required.

Parsons has considerable experience with automated people mover technology, from the perspectives of design-builder partner, program manager, and vehicle manufacturer. Below, we offer a summary of the potential technologies, ranked with lowest cost first:

- Cable pulled systems, such as the Link system, provided by Doppelmayr, for Toronto's Pearson Airport APM. This is one of the more simple monorail technologies, using cable technology and operating in a simple shuttle operation, with three stations and over a distance of approximately one mile.
- Rubber-tired APMs, with many examples providing a wide range of capacity and performance needs for airports across North America and around the world.
- More advanced monorail technologies, such as the Las Vegas Monorail, but with no recent examples in service as APMs in North America.
- Transit grade, rubber-tired systems, such as the technology now to be implemented for Chicago's O'Hare Airport.
- Transit-grade, steel wheel on rail systems, such as the JFK AirTrain, in service since 2003.



The Doha Airport APM, a cable-pulled system delivered by Doppelmayr.

All examples are characterized by full automation (unmanned train operation [UTO]), and all new systems will utilize communications-based train control (CBTC) that will typically utilize wireless (Wi-Fi) communications and will be in accordance with the IEEE 1474 suite of standards. The ASCE APM-21 set of standards would also typically apply, except where the system requirements mandated interface with mainline railway or metro type operations (i.e., transit grade). In these cases, other railway standards would apply, also affecting choice of technology.

It should be noted that a MagLev example is planned as a simple connector for Orlando Airport, but this remains technology under development and would not be considered service proven at this time.

Monorail technology has advanced significantly, compared to the original Von Roll monorail implemented for Newark AirTrain. Other examples include Jacksonville Skyway and more recently the Las Vegas monorail. However, outside of Japan, few monorails have until now been truly transit grade. Bombardier has recently developed new monorail technology for mass transit applications with implementation in progress in Sao Paolo, Brazil. Monorail technology is expected to be limited to a niche market until the technology has been demonstrated to be cost effective while meeting the performance and higher capacity needs of mass transit applications over a period of time. The technology is typically expensive, with higher life-cycle costs. Monorail switch beams can also be problematic and complex, and evacuation from stranded trains is also difficult without a walkway in place.

More conventional APM technologies have been implemented and have been in service in North America since the 1980s. Examples include Bombardier's Innovia APM and Mitsubishi's Crystal Mover technologies. Both are rubber tired, fully automated, with various applications according to complexity of operations and ridership/ capacity requirements.

The Innovia APM includes the 100, 200, and 300 series with variations in car capacity and performance and complexity of operations. These are in service at a number of airports, including Pittsburgh, Tampa, Atlanta, Las Vegas, Dallas, San Francisco, and Seattle-Tacoma. The complexity of operations also varies, with some simple shuttles (e.g., Pittsburgh) and others providing far higher capacity, performance, and multiple routes (e.g. San Francisco and Seattle-Tacoma).

Mitsubishi's Crystal Mover is similar in application and technology and has successfully been implemented at several U.S. and international airports, including Washington's Dulles Airport, Miami's MIA and SkyTrain Systems, Atlanta's ATL SkyTrain, and most recently under construction at Orlando Airport.

The MIA Mover, a rubber-tired APM, uses Mitsubishi's Crystal Mover vehicles.

The JFK AirTrain is a steel wheel on rail system using Linear Induction Motors (LIM) that do not rely on wheel/ rail adhesion for propulsion or braking and can manage extremes of weather with steep gradients. This technology can also meet transit (railway) grade requirements ,including capacity and performance.

The project team will develop long-term operation and maintenance costs for each technology alternative based upon the initial operating requirements and alignment information. Operating and maintenance costs for the existing Air Train system will be reviewed, as well as similar data from locations where the technology alternatives may be in operation. An operating and maintenance cost model will be developed to take into account costs for

operations, including propulsion costs, control center and maintenance labor, vehicle and alignment maintenance, and other components. The development of operating maintenance costs will be forecast over the useful life of the system. Because the procurement strategy (e.g., DBOM) can affect operating costs, the preliminary costs developed in this task will be assessed in the procurement and financing strategy task.

Based on the technology evaluation and assessment of life-cycle costs, including initial capital costs and the long-term operations and maintenance costs, it will be possible to evaluate and compare the technology alternatives on a qualitative or comparative basis.

Factors to be considered will include the following:

1. Specification, design, and certification risks. These will depend on the extent to which the technology is service proven or requires significant development or modification.
2. Ability to meet safety and security requirements, including, for example, passenger evacuation from the guideway.
3. Ability to meet capacity and performance requirements, including both normal and degraded modes of operation.
4. Ability to interface with other transit services, e.g., the system must be able to accommodate passengers transferring from PATH, NJT, or Amtrak services with minimal transfer times.
5. Ability to meet both initial service demands and future demands with minimal impacts to operation from necessary upgrades or extensions, for example, addition of cars to train length, additional stations or line extensions.
6. Assuming this would be a 24/7 operation, the technology must allow for the safety and security of personnel during maintenance of way activities.

From the cost perspective, the evaluation will consider the following:

1. Initial capital costs
2. Operations and maintenance costs over the life of the system
3. Potential costs of upgrades or extensions.

The recommendations may include alternative technologies that could equally satisfy the requirements, depending on the project delivery model selected. The procurement of the system based on a performance specification would allow multiple suppliers to propose the best technical solution to meet the requirements. For example, the JFK AirTrain technology is proprietary, and specification of such could preclude competitive tenders, whereas other steel-wheel or rubber-tired technologies could provide similar capabilities. However, the JFK AirTrain technology and many of the rubber-tired APM technologies are service proven in similar environments to Newark, and their application could provide the least risk.

5. Procurement Strategy

Parsons offers a team of experts to support the Authority's assessment of procurement options available to finalize design, construct, operate, and maintain the replacement AirTrain. Such procurement options may include the delivery of the program under a traditional delivery model, a design-bid-build (DBB) approach, or an alternative delivery model (APD), such as construction-manager-at-risk (CMAR), design-build (DB), or design-build-operate-maintain (DBOM), with permutations across these models regarding areas such as the acquisition and maintenance of the APM vehicles.

Bundling project delivery and implementation contracts provides a mechanism to transfer specific project risks such that the public sector's exposure in developing a complex mode of transportation, which in this case includes civil works, structures, rail, systems, vehicles, interfacing projects, and ongoing operational requirements, is mitigated. For instance, while a design-build approach transfers construction risk to the private entity, providing for date and price certainty, as well as opportunities for design and construction innovations, further incorporating operations and maintenance obligations provides for the consideration of whole-life costing of the system and budget certainty over the operational term of the contract.

The size and complexity of the Newark AirTrain project create the potential for innovation, value for money, and effective risk transfer if delivered under an APD model.

Based on the agency's goals and objectives for the project and the potential for risk transfer, we will

The Parsons team includes technical, risk, procurement, and financial specialists with experience on the owner, bidding, implementation, delivery, and regulatory sides of these major projects. Parsons, together with its dedicated subconsultants Mary Peters and Gerry Stoughton, along with Rich Louis, bring together the experience and capacity to effectively deliver the scope. Additionally, should the agency determine at a future date it would like to add financing or funding elements to the scope, Frasca & Associates is an exclusive member of our team, providing a thorough knowledge of the Authority's Aviation Department's financial structure and use of alternative delivery.

analyze the various procurement alternatives on first a qualitative and then quantitative basis. The qualitative assessment will identify the key parameters, often less prescriptive or quantifiable in nature, specific to the agency and any regulatory requirements within which the replacement AirTrain Program is to be delivered. Inputs into the qualitative analysis will be drawn from qualitative workshops, with agency staff capturing internal considerations and examining lessons learned from the two on-airport APM projects delivered at EWR and JFK by the Authority to date using DBOM models. The results of the qualitative analysis will be used to narrow the number of delivery models under consideration.

The next step in evaluating the procurement strategy will be to evaluate the quantitative differences across the remaining delivery models. The procurement assessment's quantitative analysis will look at the following:

- Efficiencies from integration of delivery elements, including the vehicles, or subsets thereof
- Effectiveness of risk transfer
- Design innovation through competition
- Operating, maintenance, and life-cycle costs
- Impacts to related projects (e.g., Terminal A, Terminal B, and PATH to Newark)
- Project acceleration
- Schedule and price certainty
- Funding availability (as and if required)
- Upfront resource requirements and costs
- Other economic costs and benefits

The Parsons planning services team will gather preliminary quantitative inputs from the agency's Capital Plan and budget and will draw on information identified in Task A1 Document Review. Building on these initial numeric inputs, the quantitative analysis will incorporate information from a second series of conference calls and workshops with Authority staff to confirm the inputs, vet model assumptions, and identify quantitative values in terms of cost and time associated with the allocation of risk within each delivery method. The risk valuation exercise will focus first on the design and construction elements of the project and then on the operations and maintenance elements to evaluate risks and opportunities across the scenarios using a probabilistic approach (e.g., Monte Carlo).

A summary report of the pros and cons and short- and long-term costs of each model, along with recommendations for implementing the program, will be provided first in draft form and then finalized after incorporating Authority comments.

In addition to the qualitative and quantitative analysis, our team recommends conducting a market sounding once the preferred method is identified. A market sounding facilitates the development of marketplace interest in the AirTrain Replacement Program and provides a mechanism to obtain industry feedback on the preferred delivery method.

6. Other Studies and Reports

The Parsons team was developed to offer the Authority the depth and breadth of services that the AirTrain EWR replacement program could require, recognizing the potential for the scope to evolve and additional tasks to be awarded as needed. We are prepared to perform various studies and analyses, such as those outlined below and addressed in the accompanying staffing analysis. An example of additional studies and deliverables that would be scoped and negotiated at the Authority's option would be environmental compliance documents, should they be required for the preferred alignment.

Design Basis Threat Analysis

Parsons will perform a design basis threat analysis with the objective of identifying potential threats, risks, and vulnerabilities in the envisioned system. We will consider natural and manmade hazards. Parsons has performed such assessments for many agencies, most notably the New York Metropolitan Transportation Authority (MTA).

Parsons evaluated the assets of the MTA operating agencies, conducted risk assessments and cost-benefit analyses, identified cost-effective enhancements, and designed numerous retrofits and security systems. Because AirTrain EWR is a replacement project, we will use the existing system as a starting point and then determine whether the design criteria mitigate or add threats. The assessment will be reviewed with Authority staff, and the design/procurement documents will be revised as appropriate.

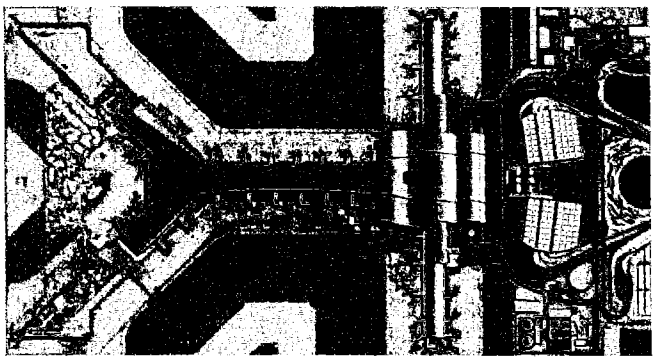
Analysis of Risk, Resiliency, and Mitigation Measures

The threat assessment described above would include natural and manmade risks. At the Authority's direction, Parsons will focus specifically on climate-change-related risk to infrastructure and systems. The evaluation will be based on the type of event (e.g., 100- and 500-year storm) and the anticipated change in environment due to climate change as developed by the Federal Emergency Management Agency (FEMA) and potential seismic hazards as provided by the U.S. Geological Survey. We will use knowledge developed in conducting post-Super Storm Sandy resiliency studies for clients such as the MTA, the New York City Department of Environmental Protection, and the Battery Park City Authority. We will also use the knowledge of our Florida, Texas, and California offices to understand the types of damage expected and mitigation options for hurricane, wind, and earthquake hazards. Findings and recommendations will be summarized in a report to the Authority. Accepted recommendations will be reflected in technical specifications.

TASK B: CONCEPT DESIGN & PROCUREMENT CONTRACT DOCUMENTS

1. Develop Procurement Plan

The procurement plan will build on the procurement strategy summary report completed under Task A.5, translating the Parsons team's recommendations and the procurement approach agreed to with the Authority into a document outlining the specific steps, deliverables, and criteria required to procure the project. The procurement plan will describe a systematic method of the steps required to develop the procurement documents, identifying the specific time frames, reviews, and approvals needed. It will define any remaining information that is required before contract documents can be prepared. The procurement plan also will define the proposed scope of the AirTrain contract and its interface with other facilities and ongoing programs. The Parsons team will clearly delineate interfaces and system requirements, which will be incorporated as criteria.



As program manager for the design and construction of the New Doha International Airport, in Qatar, Parsons was responsible for the procurement of all design and construction contractors, from prequalification through the award and preparation of contract documents.

2. Finalize Performance and Operation Requirements

In this task, the project team will further detail and finalize the performance and operational requirements of the Air Train system based upon the preliminary ridership, requirements, alignments, technology assessments, and recommendations resulting from Task A's efforts.

The ridership analysis conducted in Task A will be supplemented and updated by any new data collection and forecasting efforts. This would include any additional surveying or airport choice or usage modeling that may be underway by others or included for conduct by the project team by request of the Authority into the scope of this project. We will also review and incorporate any airline activity data and planning assumptions made by the Authority's Aviation Department, including information about growth in demand. Sensitivity analyses to planning decisions, such as amount of parking available adjacent to the AirTrain system, frequency of PATH/NJ TRANSIT/ Amtrak service, and other factors, will be provided. The level of sensitivity, the variability of the proposed system from what exists today, and the complexity of operations anticipated will result in decisions about whether the project team will conduct ridership analyses in a spreadsheet or simulated ridership forecasting tool. These decisions will be made collaboratively with the

Authority. The deliverable for the ridership analysis will be a technical memorandum detailing data sources, ridership (including peak ridership), and dwell time at each station by time of day (in increments equal to the initial headways projected in Task A) and day of week for opening day and one forecast year. An assessment of group size and use of luggage carts will also be used to differentiate the ridership.

The Concept of Operations (ConOps) is a document that describes and determines, through qualitative and quantitative processes, the characteristics of the proposed AirTrain system. The ConOps documents the decision-making processes and details how the system is conceptualized both physically and operationally.

ConOps can begin with the establishment of a problem statement outlining the existing conditions and laying out the need to meet current and future demand. In the case of the AirTrain Replacement project, the project team would work with the Authority to set the problem statement, which would likely include the age of the existing system, current deficiencies (if any) along with the technical challenges, overall project schedule, and order-of-magnitude funding. By setting the problem statement, clear objectives for the system can be set and the system's ability to meet those objectives can be measured and refined.

Most airport link systems deal with the same problems of passenger loading and unloading, frequency of operations based upon passenger demand, and ease of transferring between the airport terminal(s) and the link services. In the case of replacing the EWR AirTrain, system we will be looking at the current and future number of airport terminals and other stopping locations to design an alignment and operating system that can support the demand for the system.

In order to develop an initial and final operating plan, an initial understanding of the following components of the AirTrain system will be required:

- Initial ridership demand
- Passenger characteristics, including use of luggage, luggage carts and travel group size
- Vehicle technology
- Overall operating distance, including non-revenue operations (to turn/reverse or from/to the yard)
- Number and spacing of station stops
- Maximum authorized speed (MAS) and acceleration/deceleration profile of the fleet
- Number of passenger loading doors per car
- Overall space capacity and configuration of the car
- Consist configurations (individuals, pairs or triplets, articulated)
- Length of platform(s)
- Headway capacities
- Yard location and capacity (or off-mainline storage)
- Power supply to support operations (Substations)
- Control technologies (automated, moving block, etc.)
- Control center facilities operational needs
- Number of vehicles available for the service plan (including spares)

It is likely that some of these components will be studied in an iterative manner. For instance, the updated ridership arising from Task 2b may be used to revise the initial estimate of train and platform length or headway. Given that there are likely space or technological constraints (the technology can only support a certain maximum headway and the terminals can only accommodate platforms of a certain length), finding the right balance between dependent system components will be the subject of this task.

A well-thought-out ConOps discusses all of the factors that the overall project must address and presents arguments as to the pros and cons of their abilities to meet the project's problem statement. Most times, there is no "silver bullet" but there can be a best-case solution.

With operations, vehicles, and supporting systems decided, the frequency and overall operational strategy can be developed and finalized. This would include defining peak-period headways that are driven by user demand, the distances between stations, and the length and amount of control blocks needed for separation to maintain MAS. Headways will be initially developed to meet these parameters and then further refined (for instance, if AirTrain scheduling needs to meet specific PATH, NJ Transit, and Amtrak schedules at the Rail Link

Station). These inputs will ultimately lead to defining the overall system operation.

The operating analysis will set headway and dwell time by time of day for each station to meet the established opening-day and future-year demand and would result in the determination of vehicle requirements, including individual train consists and overall fleet composition (including spares). Once the operating plan is set, we will conduct one final assessment of the system's ability to meet the ridership demand, including peaks. Adjustments will be made where feasible and necessary. This information will lead to the refinement of the initial operating costs.

The project team will use the system headway, train capacity, and ridership information to determine the platform-level queuing and pedestrian movements by time of day and confirm if sufficient vertical, horizontal, and platform capacity is provided. Pedestrian modeling of specific "design day" or "peak hour" at stations and station locations will be performed. The key steps are outlined below:

- **Develop Base Model:** This model will reflect a base condition drawing reflecting key facets of each Airtrain station to be modeled, including train platforms and circulation elements. As part of this base preparation, information from the ridership projections will be established, as well as periods to be modeled. Assumptions regarding volume of activity, time of of day, train capacity, headways, etc., will be built into the model based on operating plan.
- **Develop Alternative Model:** This model will reflect future conditions at the proposed AirTrain stations, as directed for key periods of operations. The model will reflect inputs, assumptions, and calculations developed by the conceptual engineering team. Measures of effectiveness (MOEs) will be calculated and presented.
- **Post-Processing Video Preparation and Analysis Summarization:** Post-processing of the simulation files is required in order to understand the output of the analysis and to narrow/customize the models for presentation purposes. We will work with the Authority to develop future condition simulation "movies" that best demonstrate the operations and any potential. Movie files will capture periods of the model runs outlined above. They will be customized as necessary to highlight key facets of the area modeled and will zoom in/out and include "fly-between" transitions between areas to demonstrate constraints or operational challenges as necessary.

Parson understands that providing an emergency evacuation analysis for a transit station is more than just a necessity. It is a critical part of completing any facilities design service for a station. There are multiple approaches to ensuring that a design delivers a solution that implements a safe and comfortable environment for the traveling public.

NFPA 130 has become the most respected and most widely used regulatory framework to prescribe and codify what constitutes a set of exiting requirements for transit stations that ensures the safety of the traveling public. We include an NFPA 130-compliant exiting analysis as a matter of course on all of our transit station projects.

A complete fire life safety (FLS) analysis for a transit station will take into account the overall configuration of the transit station, particularly whether it is an at-grade, above-grade, or below-grade station. For below-grade stations, Parsons will typically conduct a computational fluid dynamics (CFD) analysis to determine the overall FLS performance of the station environment. Efforts related to maintaining general FLS features are discussed in other parts of this proposal. This portion of the proposal response is focused on how we are ensuring that stations are compliant with codified exiting requirements in accordance with NFPA 130.

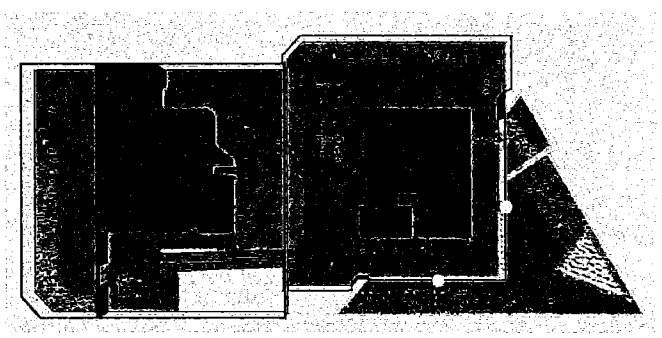
As part of our standard design processes, we perform a number of analyses that ensure the wellbeing and safety of the traveling public. A critical component of that analysis is an evaluation of NFPA 130-compliant exiting. NFPA's requirements are unique in that they invoke a time factor to determine adequate exiting and require that platforms be evacuated in 4 minutes or less (NFPA 130, Section 5.3.3.1) and that passengers are able to reach a point of safety in 6 minutes or less (NFPA 130, Section 5.5.5.2).

Within Parsons, we have implemented a standardized system to perform existing analyses in accordance to

NFPA 130. We have integrated the requirements of NFPA 130, Paragraph 5.3, into a standardized exiting analysis tool (see attached). That tool includes a standardized way to accomplish the following:

- Establish occupant load for the platform as a result of train load and entraining load (NCPA 130, Section 5.3.2)
- Determine resulting exiting capacity (NFPA 130, Section 5.3.8)
- Illustrate exiting path and resulting exiting times (NFPA 130, Section 5.3.3)

Based on that standard tool and the formulas embedded in our proprietary spreadsheet, we will evaluate each of the station configurations and generate a report that illustrates an exiting configuration that is compliant with NFPA 130.



Pedestrian circulation and egress analysis will be a critical task to determine system capacity and station capacity as part of documenting performance and operations requirements.

We have successfully performed egress analysis for a large number of stations in accordance with that method for a number of the major transit agencies across the United States and throughout the world. Based on that experience and as described above, Parsons has developed a method and automated forms based on the requirements of NFPA 130 that allows us to efficiently establish station occupant loads, resulting required exiting capacity, and output proof of compliance with the NFPA's required four-minute and six-minute tests. A number of Parsons engineers are members of the NFPA committee, allowing for a deep understanding of those requirements and enabling Parsons to effectively obtain input from experts in the field.

The simulation model created under Task A will be used to analyze various failure scenarios, for example, disabled train(s) at alternate locations, power or signal system failure, weather event, fire, etc., at different times of day. The possible scenarios will be reviewed with the Authority before analysis. Based on the associated system performance, we will describe associated recommendations for maintaining service, including optimal locations for storing "ready" trains and the associated infrastructure to put those trains in service. We will estimate the incremental cost of such failure management infrastructure and vehicles.

The project team will produce a ConOps document that details the efforts described in the preceding subtasks. The ConOps will detail the overall system features, including alignment, the selected system technology, the operating plan, the passenger interface, operating and maintenance requirements, and other system components. The decision-making processes will be documented, and the final analyses will be incorporated as appendices. The success of the system in meeting the project's stated need and goals will be detailed.

3. Propulsion Power System Requirements

The propulsion power system for the APM is dependent on many factors that must be evaluated before final selection. Of these, the available power from Public Service Electric & Gas (PSE&G) will be a major contributing factor in finalizing the overall energy feeding arrangements and system configuration and will be established early in the process.

The design of the propulsion power system also requires consideration of the following factors:

- Level-of-service mandates
- Design headways
- Train propulsion performance and size of train consists
- Guideway alignment characteristics and heating requirements
- Substation quantities, sizes, and locations
- Station electrical loads
- Wayside equipment and locations
- Maintenance storage facility (MSF) and its location

- Central control facility (CCF) and its location

The power availability to EWR will be analyzed focusing on three broad areas:

- Traction power (energy to power vehicles propulsion, onboard auxiliaries, and may include guideway heating)
- Facilities power (general buildings, passenger stations, depot lighting, and mechanical/electrical and plumbing [MEP])
- Medium voltage (MV) availability from PSE&G and feeding arrangements

Special consideration will be given to the ongoing operational needs of the AirTrain during the phasing out period, to ensure seamless power availability during transitioning to the future APM. Data will be analyzed and documented in a preliminary power load study for the APM technology and system selection process, which requires iterative modifications as the technology evaluation process matures.

*Traction power expert **Paul Soleyn** is familiar with the necessary power requirements for transit operations and support facilities. His experience as a former transit operator with New York City Transit will help him understand the power propulsion needs of the new APM system.*

The traction power demands for the new system will be computer modeled based on planned system operating characteristics utilizing Parsons proprietary simulation program, TrackPac. TrackPac has been validated by comparison of simulated results versus actual metered values on several operating systems in the United States. Multiple design configurations will be analyzed in order to determine the most cost-effective design and solution, offering the required level of service and allowing for future growth and ridership demand increases. The analysis will include peak operational loads and annual consumption estimates, including investigating energy optimization by recycling braking generated energy. A traction power negative return system to reduce stray current leakage and corrosion mitigation will also be simulated. Voltage rise minimization on the guideway, including grounding and bonding of electrically conductive surfaces for safety and protection against electromagnetic interference, will be analyzed during this simulation study.

Facilities power analysis for the existing terminals, rental car facilities and parking structures, including proposed stations, CCF, and MSF, will be carried out using a proven commercially available software tool, such as ETAP. The analysis will also consider auxiliary power requirements for mission critical equipment to determine uninterruptable power supply (UPS) design and sizing.

Once the APS system traction and facilities power requirements are established, the next task is coordination with PSE&G to identify the need to modify MV electrical feeding arrangements and access power availability. Studies will be conducted in conjunction with PSE&G to access the thermal capacity of grid network to meet projected future power demands of the APS system.

Multiple system types and configurations are expected to be analyzed yielding a solution specific to Newark Liberty International Airport. The final propulsion power system report will include proposed upgrades to the utility provider's infrastructure required to meet any additional power demands. Reference conceptual design drawings and single line diagrams will also be included in the report.

4. Infrastructure Design Criteria & Conceptual Design

Infrastructure Design Criteria

In developing the infrastructure design criteria, our team is assembling a comprehensive document that succinctly defines the critical requirements for all infrastructure components of the program, including guideway, stations, and maintenance control facilities and defines interfaces between the system and related facilities.

We foresee the infrastructure design criteria being a blend of the current Port Authority Design Standards (with their existing discipline standards), combined with relevant industry standards. The Automated People Mover Standards, ANSI/ASCE/T&DI 21-13, prepared by the Automated People Mover Standards Committee of the Standards Council of the Transportation and Development Institute of the American Society of Civil Engineers (ASCE), establishes the minimum requirements of safety and performance for an APM system. With the inclusion of this document augmented with applicable provisions of the International Building Code, New Jersey Edition; the AASHTO Standard Specifications for Highway Bridges; the NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail System; and other codes, as required, a

strong basis of the design criteria is in place. The criteria is further strengthened by address the local conditions and constraints at the airport to produce a document that speaks to the unique characteristics of EWR.

Critical to the success of the program is demonstrating the constructability of the preferred APM alignment. The terminal buildings likely do not meet current seismic codes and may not support the loads of a new APM. The roof structure and roadways may complicate the placement of supports for the guideways. Structural design experts ***Peter Mauritz*** *and* ***Jeffrey Abrams*** *bring extensive experience delivering designs for transit systems in dense built environments that mitigate impacts on surrounding structures.*

We view this design criteria as being similar to the Basis of Design Report that the Parsons team helped to develop for our work on the World Trade Center Transportation Hub. This document served as the backbone of the design process, acting as a living document that is still relied upon today.

The criteria is a multidisciplinary effort assembled in the early stages of the project and acts as a vehicle to ensure that the project team understands the constraints. The criteria will be enhanced as the conceptual design develops and airport functions and interfaces become better defined. It should be limited to defining the essential criteria to ensure that the project is designed and constructed to meet the Authority's needs. It should not dissuade innovation and should allow for flexibility where appropriate. The criteria will include the somewhat unique aspects of needing to address coordination with the ongoing operations and decommissioning of the existing APM system while maintaining acceptable service levels of the AirTrain for public use.

The design criteria need to capture the Authority's commitment to sustainability and resiliency. Parsons has effectively incorporated sustainability and resiliency within an airport environment on various LEED-certified and/green sustainable projects. The experience and knowledge of having completed those projects will contribute immensely to assisting the design and later the design-builder in delivering a "high-performance/ sustainable" project without substantially or materially increasing cost. Projects to note are Miami International Airport's MIA Mover APM System and Denver International Airport's Hotel and Transit Center.

The MIA Mover APM System achieved LEED Gold certification for the station platform, and DIA's Hotel and Transit Center will achieve LEED Gold certification for both the hotel and transit center components, including the commuter rail station upon its completion in late 2015.

Conceptual Design

In addition to the infrastructure design criteria report (IDCR) discussed above, conceptual-level design drawings, performance specifications, and structural and electrical preliminary design calculations will be submitted for the guideway, stations, and maintenance control facility. Additional submissions will include a construction cost estimate and construction schedule.

The drawings will be developed to a level that they clearly capture the work's magnitude, scope, character, and the essential basic elements (site/civil, right-of-way, geotechnical, architectural, structural, plumbing, fire protection, mechanical, electrical, transportation, traffic, environmental, and all other applicable disciplines). The drawings are the tool that can best convey specific complex issues that need to be identified as part of the scope of work.

These documents will be utilized by the selected contractor's architectural and engineering consultants to complete the design of the program elements. They will serve as the basis for the development of A/E design packages and RFPs. As such, the drawings need to be developed to a level where they furnish sufficient information that a proposer can adequately prepare a complete bid.

The IDCR components will be developed in strict adherence to the Authority's BIM Standard Manual.

Infrastructure design criteria addresses guideway, stations, maintenance facility, central control, wayside electronic rooms, station equipment rooms, ancillary structures such as pedestrian bridges, terminal modifications, and decommissioning of the existing system.

5. System Technical and Performance Specifications

The products of earlier tasks — the technology assessment, operational analysis, propulsion power system report, and infrastructure design criteria and conceptual design — will be compiled into system technical specifications that define all of the technical

and performance requirements for prospective bidders. The specifications will avoid being unduly restrictive and will be written in terms of functionality and performance instead of detailed specific

*APM Systems Lead **Peter Harrison** brings extensive experience in vehicle procurement projects, including for PATH and the MTA. Performance Requirements Specialist **Douglas Baird** brings his experience as a system operator, as a manager for the APM system at Denver International Airport, and as system supplier as an APM system specialist at Bombardier. He has helped deliver several similar systems for airports nationally and internationally.*

designs. By specifying what is to be provided, rather than how, the bid documents allow bidders to use initiative and experience to propose a system that meets mandatory Authority requirements for service and other operation criteria, useful life, etc. The specifications produced by Parsons will reflect the unique perspective that comes from experience on both the program management and delivery sides of large programs. The Authority can be confident that the specifications will have technical integrity and provide the flexibility that will appeal to the market and result in a compliant, cost-effective system.

6. Cost Estimating and Schedule Development

The Parsons team will develop preliminary capital cost and operations and maintenance cost (O&M) estimates for the AirTrain. Parsons has excellent resources to draw from for historic and comparable costs, having recent experience with eight APM projects on both the program manager and provider sides. Team member JCMS has worked with Parsons on many projects for which estimates were required only on the strength of concept or preliminary engineering. Both firms provide expert risk management services that include risk register development to inform appropriate contingency levels.

The team will prepare a detailed preliminary capital cost estimate in accordance with the Authority's Estimating Guidelines, as well as the Construction Cost Estimating Procedures. The cost estimates will include but not be limited to construction with separate costs for labor, equipment, and materials; detailed construction costs for temporary structures; temporary and permanent modifications or relocation of existing conditions, structures, and utilities; demolitions; right-of-way; vehicle procurement; and project contingency, depending on the level of design. In addition, the cost estimate will reflect special conditions and precautions, mobilization, hours of work, and security requirements, in addition to recent trends of price escalation.

During the conceptual level, the accuracy of the estimate is linked to the level of detail of the design documents. As there will be a certain level of uncertainty at the end of the conceptual design phase, the project will still carry a fairly substantial contingency – likely in the range of 20 to 30 percent of the capital cost estimate.

The Parsons team has estimated O&M costs for many systems, including those we implemented via design-build, those we designed, and those we studied under various planning contracts. O&M cost estimates will reflect industry-available unit costs and system-specific operating statistics generated by the operational analysis performed under this contract.

We will develop and maintain a detailed implementation schedule for the entire program, including a phased transition from the old system. The schedule will be informed by our experience as design-builders, program managers, and risk management specialists.

Recent Estimating Services Performed for Airport Programs/Projects

- Hartsfield Jackson Atlanta International Airport Development Program
- Miami International Airport Expansion Project
- Denver International Airport Expansion Project
- Raleigh-Durham International Airport
- John Wayne Airport – Orange Co., CA
- LaGuardia International Airport
- John F. Kennedy International Airport
- Los Angeles International Airport
- San Francisco International Airport
- Dulles International Airport
- Bill & Hillary Clinton International Airport Terminal Expansion
- Bob Hope Burbank Airport
- Abu Dhabi International Airport Expansion Program
- Doha International Airport
- Mexico City International Airport

The project team will develop a summary-level initial baseline schedule that includes key activities and

milestones during the design and construction period of the project, including the decommissioning of the existing system. Different strategies will need to be in place to address landside versus airside construction, as well as blending the new stations into the existing terminals including detailed phasing plans. The project schedule will be prepared using Primavera P6.

As a minimum, the initial baseline schedule will do the following:

- Provide a description of the team's assumptions regarding interactions and interfaces with the owner, including the approach to managing the review and submittal processes, permits, and other processes that impact the critical path, as well as the assumptions regarding interactions and interfaces with third parties (and the owner when required for such third party interaction)
- Provide schedule activities representing all design and construction during the design and construction period. These activities are our work breakdown structure (WBS). The schedule includes the sequence of work activities showing relationships from one activity to the next, as well as the assigned durations
- Include a narrative description of the team's strategies related to the development, implementation, and updating of the proposed schedule
- Include narrative description of the proposed execution of the work during the term of the project with clear references and linkage to the proposed schedule
- Include the team's approach to integrate subcontract activities into the proposer's scheduling and reporting system
- Show the team's approach to managing resources and activities, both those of the proposer and contractors, in order to achieve the project schedule and, if necessary, to recover schedule slippage

The schedule, the work breakdown structure, the inter-relationships, and the activity durations will all be vetted to ensure the reasonableness of the schedule and to ensure that the proper schedule risk contingency is in place to achieve a reasonable confidence level. The team understands that early delays in the engineering and planning process lead to attempts to accelerate the procurement and construction phases, which are not always possible, especially where project milestones are already very tight.

The baseline schedule will be updated on a monthly basis or more frequently as required. The schedule will be revised to incorporate significant changes to the scope. We will utilize earned value management techniques to measure and forecast schedule progress.

7. Procurement Contract Documents

The Parsons team has prepared procurement contract documents for countless projects. For example, our design staff routinely prepares drawings and technical specifications for construction by other parties. As aviation industry program managers, we have prepared procurement documents that were used by clients such as the Metropolitan Washington Airports Authority, Denver International Airport, and the Federal Aviation Administration (FAA). Parsons has held two FAA Technical Support Services Contracts (TSSC-III and TSSC-IV), under which we provide procurement services for a host of projects that support the FAA's mission to modernize the National Airspace System and support the strategic transformation to the Next Generation Air Transportation System. Parsons also provides vehicle-only specification for clients. For example, Parsons created the design specification and procurement documents for light rail vehicles for Muni in San Francisco and is developing performance specifications, procurement strategy, procurement plan, and vehicle procurement support services for Houston METRO.

The Parsons team will prepare and submit all supporting contract documents for use in the AirTrain procurement process. These will include the contract, general provisions, and special provisions and all component documents, forms, procedures, drawings, etc., listed in the Authority's scope of work.

TASK C: AirTrain Procurement Support

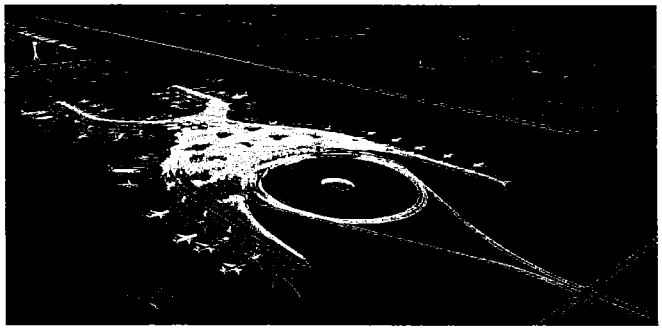
The Parsons team will support the Authority's procurement process for AirTrain EWR from start to finish, from assisting the preparation of the documents requesting interest, qualifications, and/or proposals to assisting in negotiations with the finalist proposer(s). The Parsons

team has helped clients, such as the New International Airport of Mexico City, the New Doha International Airport Steering Committee, and the Metropolitan Washington Airports Authority, pre-qualify potential contractors, negotiate and award design-build contracts, and provide cradle-to-grave contract administration services to ensure contract compliance. We have delivered a full range of procurement services, including bid planning, preparation of bid documents, bid/proposal management, contract administration, change management support during construction, and contract closeout. The Parsons team is adept at jointly developing technical and commercial procurement language that conforms to your project requirements, preparing bid tabulations, and analyzing each offering to determine cost and price reasonableness. Our expertise in evaluating cost provides compliance with public-sector requirements and yields economically sound awards.

Our procurement phase services for transportation clients around the world have included the following:

Procurement Phase Services

- Acquisition planning
- Pre-bid conferences
- Site visits
- Market surveys
- RFQ and RFP packages
- Amendment packages
- Responding to bid/RFP questions
- Selection assistance
- Technical and cost evaluation



As program manager for the New International Airport of Mexico City, Parsons helped procure services of the master architect, writing the scope of work and RFP, evaluating proposals, and interviewing candidates.

TASK D System Implementation Oversight

Parsons will develop the following plans as part of a comprehensive program management approach to the EWR's AirTrain replacement program that will be implemented during Phase Two services:

- Design Management Plan
- Construction Management
- Quality Management Plan
- Safety Management Plan
- Project Management Plan
- Project Controls Plan, Policies, and Procedures

Design Oversight and Document Review

Parsons will provide design and construction management, quality management, and coordination staff to review the contractor's design documents and ensure completeness and compliance to the contract scope, schedule, quality requirements, and budget. Processes will be developed to ensure the Authority and consultant reviews and reports are executed in a timely fashion, avoiding delays to the contractor and project.

Design submittals will be reviewed within the following Authority classifications:

- Contract Submittal Reviews
- Design Audit Reviews
- Quality Assurance Reviews

All submissions will be reviewed for completeness, technology and system requirements, existing facility integration and constructability concerns during the various design submission levels, schematic design,

design development, and final design. Reports of the findings will be issued.

Quality audits will be conducted to ensure the contractor's design consultant are following the approved quality plan and procedures.

The construction phasing and scheduling activities plans will be required to be coordinated as the design documents are completed to avoid missing elements that could negatively affect the project's schedule.

Parsons is a premier provider of program and construction management services for airports worldwide. The corporation has provided services at more than 450 airports throughout the world with a construction value in excess of $175 billion in more than 40 countries.

The contractor will be required to develop and submit APM testing and commissioning plans, procedures and operations plans, maintenance plans, operating procedures, and manuals. Parsons will review these documents to ensure their completeness and conformance to a "revenue ready", fully operational and certifiable system.

Manufacturing, Installation and Construction Oversight

During the Implementation Phase, the Parsons team will provide dedicated staff to oversee and ensure contractor quality assurance compliance for the vehicle and equipment manufacturing, testing, commissioning, installation, and certification activities, as identified below and in accordance to the requirements established by the Authority, state, and federal mandates, in addition to those of regulatory agencies and governing codes and standards (ANSI, AREMA, ASCE, ASHRAE, AASTM, IEEE, TIA, NEMA, and NFPA):

- On-site APM engineering and manufacturing process and procedures
- On-site APM manufacturer's performance testing and factory commissioning
- Train control and communications systems testing
- Contractor's vehicle procurement processes are in compliance with federal regulations
- System safety certifications

The construction oversight staff will provide quality assurance services and monitoring of on-site construction activities to ensure contractor compliance to the contract documents. The oversight will include reviews of the contractor's quality control processes and procedures and review of site tests results and noncompliance and mitigation strategies to ensure construction schedule and budget compliance. The Parsons inspection team will consist of the following disciplines, as needed, predicated upon the authority approval of the contractor's schedule:

- Civil Inspectors
  - Survey Control
  - Roadway
  - Traffic (maintenance of traffic)
  - Structural (facility and guideway structure)
  - Electrical (facility and traction power)
  - Mechanical (HVAC)
  - Mechanical (plumbing and fire protection)
  - Track Inspector
  - Systems (communications and SCADA)
  - Utilities
- Architectural Inspectors
  - Stations Finishes
  - Sustainability Compliance
- BIM and CAD Standards
- APM System Elements Installation
- Quality Assurance
- Construction Safety Manager

Acceptance Testing and Demonstrations

The Parsons team will consist of staff dedicated to the review, approval and enforcement of the contractor's system acceptance testing plan, procedures and schedule.

This staff will monitor and witness the contractor's testing and compliance activities to ensure compliance with the project requirements.

The following staff positions are dedicated to the APM system compliance and acceptance testing:

- Vehicle Engineering and Inspections
- System Safety Certification
- Systems Startup, Testing, and Commissioning

Parsons will provide the authority with weekly reports identifying progress of all testing activities during the period of its implementation. Upon the successful completion of the safety certification process, testing and commissioning activities, Parsons will issue a special report identifying the system as ready for operations.

Warranty Administration

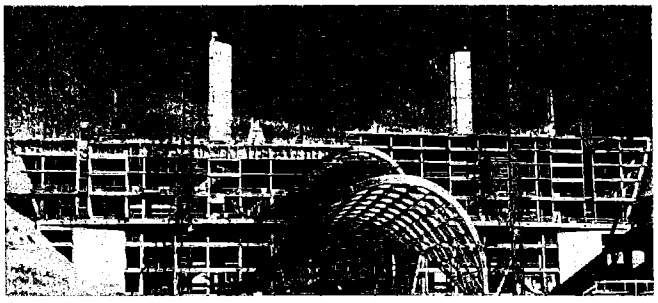
The Parsons team will provide management and oversight during the systems warranty period. Processes will be developed within the Policies and Procedures Manual identifying a WBS that aligns with the prime contract special provisions covering warranty requirements.

Contract Administration and Payments

Parsons will develop and integrate project control policies and procedures that will define the procedures and systems that will be implemented in support of the project. This will include scheduling, cost control, estimating, change control, payments and invoice development, cash flow forecasting, manpower projections, and project reporting and will align with the Authority's project management business processes.

Fully integrated and reliable project control processes will enable Parsons to take a structured approach to managing and reporting the work of all program participants and program elements where continuous monitoring and forecasting offer the ability to identify potential deviations from the scope, schedule, and budget. The tools and methods that will be used include the following:

- Program organization and WBS
- Scheduling and resource analysis
- Cost estimating
- Budget and cost control
- Scope, budget, and funding management
- Integration of controls with finance and procurement
- Cost management - using the earned value method (EVM)
- Change management, management of issues and changes



Construction Management Design Lead *Jorge Estevez* is providing construction oversight and quality assurance on the construction of the hotel, convention center, and transit center at Denver International Airport (DIA), pictured above. Construction Oversight Specialist *John Postorino* brings extensive experience from Hudson Yards and East Side Access in multiphased construction projects with transit elements.

- Risk management
- Risk, contingency, and reserve management
- Contract administration
- Procurement support
- Content management
- Document control
- Communications and collaboration
- Business and work flow management
- Change management
- Progress, forecasts, and exception reporting
- Process and work flow management

The contract administration team will use a web-based version of software for contract administration as part of the program's validation process and the project's design-build delivery method. The contract(s) will be entered into the database in advance of the procurement phase so that relevant pre-contract information may be captured and controlled in the appropriate database location. The organizational structure will show the contract, control accounts and work packages from the WBS, and pay items. Web-based software will be used to track, manage, and report on the following:

1. Communication provides a common ground for everyone involved in the project to share project information. Communication contains all of the project's correspondence to establish an audit trail. Each item generated produces a related log item of

transmittals, letters, requests for information (RFIs) and answers, notices, notepads for miscellaneous items, telephone conversations, meeting minutes, and all incoming and outgoing correspondences.

2. Contract information provides tools for managing contracts, including the management and facilitation of the change process. The cost worksheet provides a summary of all project costs, including budgeted, committed, and actual costs, including contracts, POs, trends (adjustments), requisitions for payment, invoices, change management (change orders and proposals), and cost worksheets.
3. Logs provide the ability to track many of the items relating to a project module, including drawings, submittals, materials, daily reports, insurance, punch lists, and issues. This tracking allows the manager to create and track the submittal schedule, even for multiple reviewers, and will track and report on drawing revisions. The status, location, and person responsible for a particular issue or item can be found easily at any time.
4. Project information provides key project information at a glance. This feature cuts through the clutter of project management and displays the action list, alerts, inbox, and reports fields (that are fully customizable), as well as project contacts and key players.

Earned Value Management

Earned value management (EVM) is a proven method to measure progress in achieving the project objective of performing agreed-to work within an agreed-to budget and schedule. All Parsons projects implement EVM techniques to manage the work. In EVM, cost, schedule, and technical scope are all described using a common unit of measure (usually currency or labor hours). This practice allows all three aspects of the project to be integrated into a single system that allows the PM and PCM to evaluate and control project risk by planning, measuring, and analyzing the financial and physical project performance.

By comparing the PV to the EV at any time, the PM and PCM can calculate a schedule variance that determines whether the project, in aggregate or by WBS element, is accomplishing work faster or slower than planned. In addition, by comparing the EV to AC, a cost variance can be calculated that the PM or PCM can use to determine whether the work performed costs more or less than budgeted. In general, a negative variance indicates poor performance; a positive cost or schedule variance indicates favorable performance.

ATTACHMENT D – STAFFING ANALYSIS

Replacement of AirTrain at Newark Liberty International Airport
PANYNJ RFP 42022
Staffing Estimate by Task and Phase

Task		Hours	Dollars
Task A.1	Document Review	4,245	738,528
Task A.2	Initial Ridership Demands and Performance	4,479	794,442
Task A.3	Alignment Development	14,223	2,428,777
Task A.4	Technology Assessments and Recommendations	1,622	349,946
Task A.5	Procurement Strategy	2,384	490,098
Task A.6	Other Support Services	18,552	2,509,357
Task B.1	Develop Procurement Plan	2,748	709,319
Task B.2	Finalize Performance and Operation Requirements	12,336	1,695,229
Task B.3	Propulsion Power System Requirements	2,286	368,714
Task B.4	Design Criteria	49,124	6,591,240
Task B.5	System Technical Performance Specifications	5,332	1,136,823
Task B.6	Cost Estimating and Schedule Development	7,290	1,132,970
Task B.7	Procurement Contract Documents	5,236	1,051,284
Task C	AirTrain Vendor Procurement Support	3,168	795,824
	Subtotal Phase 1 Hours	**133,025**	**$20,792,552**
Task D.1	Design Oversight and Documentation Review	13,800	2,887,778
Task D.2	Manufacturing, Installation and Construction	87,900	14,373,452
Task D.3	Acceptance Testing and Demonstrations	6,890	1,357,986
Task D.4	Warranty Administration	540	135,876
Task D.5	Contract Administration and Payments	76,542	9,822,386
	Subtotal Phase 2 Hours	**185,672**	**$28,577,479**
	Total Phases 1 and 2	**318,697**	**$49,370,031**

Replacement of AirTrain at Newark Liberty International Airport
PANYNJ RFP 42022
Staffing Estimate by Firm and Phase

	Phase 1		Phase 2		Total		
	Hours	Dollars	Hours	Dollars	Hours	Dollars	Percent
Parsons	87,870	$14,659,282	86,166	$16,753,471	174,036	31,412,753	64%
B. Thayer Associates (WBE)	11,770	1,578,436	1,920	281,088	13,690	1,859,524	4%
Frasca (WBE)	0	0	0	0	0	0	0%
InGroup (WBE)	340	33,350	0	0	340	33,350	0%
JCMS (MBE)	2,768	345,522	2,000	302,842	4,768	648,364	1%
Mary Peters	80	36,000	0	0	80	36,000	0%
Matrix (WBE)	1,174	120,458	20,640	2,373,600	21,814	2,494,058	5%
MRCE	236	51,955	0	0	236	51,955	0%
Ricondo & Assoc (MBE)	3,360	588,398	0	0	3,360	588,398	1%
Stoughton	300	60,000	0	0	300	60,000	0%
Techno Consult (MBE)	6,594	593,261	74,946	8,866,479	81,540	9,459,740	19%
VHB	18,533	2,725,889	0	0	18,533	2,725,889	6%
Total	**133,025**	**$20,792,552**	**185,672**	**$28,577,479**	**318,697**	**$49,370,031**	**100%**

WBE %	9%
MBE %	22%

Replacement of AirTrain at Newark Liberty International Airport
PANYNJ RFP 42022
Estimate of Out-of-Pocket (Direct) Expenses, All Firms, Both Phases

Out of Pocket (Direct) Expenses	
Description	Amount
Travel	$119,940
Software	488,700
Reproduction	54,500
Inspection Vehicles	108,134
Survey	20,000
Misc. Expenses	88,150
	$879,424

Replacement of AirTrain at Newark Liberty International Airport
PANYNJ RFP 42022

Notes to Attachment D – Staffing Estimate

The staffing estimate was based on the information available in the RFP, the experience of the Parsons team with similar work, and the Program schedule that we developed to meet the Authority's milestones. The estimate does not reflect specific drawing counts or specific quantities of meetings, reviews, etc. Please note the following additional assumptions and exclusions:

1. Although we understand that this is a task order contract, the estimate reflects an assumption that Phase One tasks will be awarded at one time or awarded in a manner that does not require demobilization or inefficiencies in staffing.
2. On Attachment D, Task A.6 ("Other Support Services") is used to capture project control hours (e.g., for cost, schedule, and document control) that we feel will be required to support the Program.
3. The estimate for geotechnical analysis is limited to review of Authority-provided borings and recommendations based on that review.
4. The order-of-magnitude estimate for direct out-of-pocket costs is our best attempt to establish placeholders for printing, out-of-town trips, software/seat license fees, and other items. However, the estimates could not be informed by specific quantities.

G. Management Approach

Parsons will manage this project in conformance with its own world-class, ISO 9001:2008-certified project and quality management procedures, as well those of the Authority. Project manager David Leverenz, PE, and the team supporting him understand the unique challenges of this contract, which defines specific scope but also allows for additional scope on as "as-needed" basis. The following is a discussion of key aspects of our management approach.

Experienced Project Manager

David has more than 40 years of professional experience in the planning, design, and construction of transportation projects, including leadership roles on several APM projects. He has completed projects and programs similar to the AirTrain EWR replacement on-time, within scope and budget, safely and in compliance with various goals for subcontractor participation. ***A hands-on manager with careful attention to details, David will be dedicated full-time to this project.*** David will ensure that the project follows Parsons' overall project management and quality controls procedures, which include the establishment of a project management plan (PMP) before commencement of any services on the project.

> *The PMP represents how the team will plan, manage, and implement the project. The PMP establishes project requirements; sets the basis for controlling scope, schedule, and budget for project activities; describes the principal responsibilities and authority of participants; and supports a consistent and integrated approach to project management. The PMP incorporates project-specific safety and quality plans. The PMP is continuously updated to include all authorized changes in the work program, time schedule, budgets, or other matters that might deviate from the original plan.*

Experienced Team

The organization chart included in Section D summarizes the overall structure of the team that has been hand-picked to deliver the requirements of the AirTrain EWR replacement program. David will be supported by some of the best managers that Parsons has to offer: Jane Charalambous, PE; Monica Barrow; Peter Harrison; and Jorge Estevez, RA. The qualifications of these individuals are described in Section D. The Parsons team includes subject matter experts for every area of planning, design development/specification, procurement strategy and support, and program management that can be anticipated for the program. These individuals were specifically chosen for their relevant experience and their track record for delivering work that satisfies client expectations.

This organization is well positioned to be responsive to the Authority's needs because it is

- Available for the work—as scoped and as it may evolve;
- A team that has worked together before;
- Concentrated in the New York metropolitan area (lower Manhattan and Newark); and
- Used to the requirements of "as needed" contracts, i.e., the need to respond quickly to task order assignments.

Subcontractor Management

The Parsons team includes 11 subconsultants that have worked with us and/or the Authority on other projects and have demonstrated the same commitment as Parsons to safety, quality, and cost and schedule adherence. Our subconsultants are required to comply with the provisions of the master agreement and the OMO, including project-specific quality and safety plans. We are prepared to augment, as needed, to address emerging technical requirements or to maintain compliance with requirements for MBE and WBE participation.

Safety

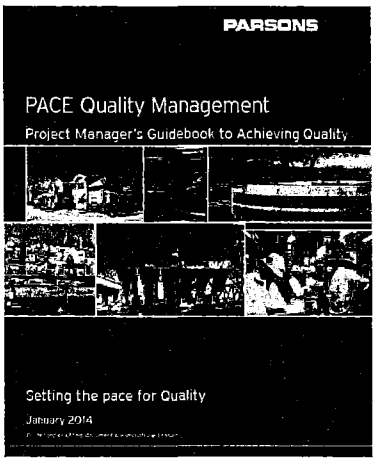
Parsons is committed to maintaining safe, healthy, environmentally compliant offices and construction work sites. Safety is Parsons' number one core value. Parsons' definition of safety includes health, risk management, and security factors. Parsons developed and implemented the Environment, Safety, Health, and Risk Program (ESHARP) to address all of these factors and to ensure the protection of our employees, subcontractors, clients, and the communities in which we work. ESHARP is a compilation of safety industry best practices and our senior safety officers' expertise in integrated risk management,

enabling achievement of our goal of zero accidents and zero injuries. This program will be followed for this project.

Voluntary Protection Programs
An OSHA Cooperative Program

Parsons is one of only five companies to hold Occupational Safety and Health Administration (OSHA) Voluntary Protection Program (VPP) status, and our experience modification rate (EMR) of 0.55 places us within the top 15 percent of companies nationally. We continuously strive for the highest safety standards, as reflected by our declining recordable incident rate (RIR), which is below 1.25 percent, and our best-in-industry VPP Star Status. The VPP is OSHA's premier recognition program for employers and employees who have implemented exemplary workplace safety and health management systems. Parsons has achieved all steps of the three-step federal OSHA VPP.

Approach to Quality Assurance/Quality Control

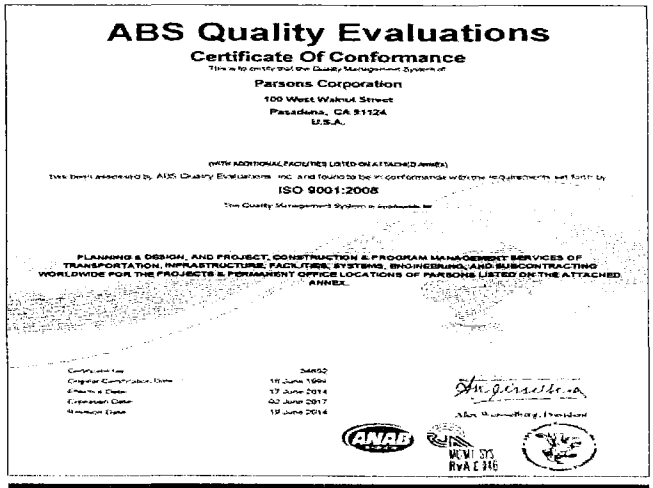


Quality is always a result of intention, sincere effort, and intelligent direction. The Parsons team is committed to providing quality services to meet the mutually agreed to requirements the first time and striving for continuous improvement. Parsons Transportation Group's ISO 9001:2008 certification is an assurance of trust and confidence that we have a proactive, thorough, and aggressive quality program and that it is implemented on every project at all stages of development. In order to maintain this certification, Parsons conducts annual quality assurance (QA) audits of every office in the company to document our adherence to our quality program.

The results of these audits are reviewed at the highest levels of our organization by the chairman and board of directors. The ISO 9001:2008 international standard specifies that quality system requirements be used by organizations where designs are supplied. The requirements specified are aimed primarily at achieving customer satisfaction by preventing nonconformity at all stages of the project, from planning through operations.

The Parsons Quality Manual addresses each of these elements and discusses how quality products and services are achieved at Parsons.

Our well-established QA procedures help us maintain our high levels of efficiency in schedule and costs and directly benefit our clients. Project managers can rest assured that they do not need to check every calculation that is being presented to them and that our work has been checked, back-checked, and verified before submission. This brings about savings in cost and peace of mind to our project managers, and it also preserves the client's reputation.


ABS Quality Evaluations
Certificate Of Conformance
Parsons Corporation
100 West Walnut Street
Pasadena, CA 91124
U.S.A.
ISO 9001:2008
PLANNING & DESIGN, AND PROJECT, CONSTRUCTION & PROGRAM MANAGEMENT SERVICES OF TRANSPORTATION, INFRASTRUCTURE, FACILITIES, SYSTEMS, ENGINEERING, AND SUBCONTRACTING WORLDWIDE FOR THE PROJECTS & PERMANENT OFFICE LOCATIONS OF PARSONS LISTED ON THE ATTACHED ANNEX.

Parsons' ISO 9001:2008 certification is an assurance of trust and confidence that we have a proactive, thorough, and aggressive quality program that is implemented on every project and at all stages of development.

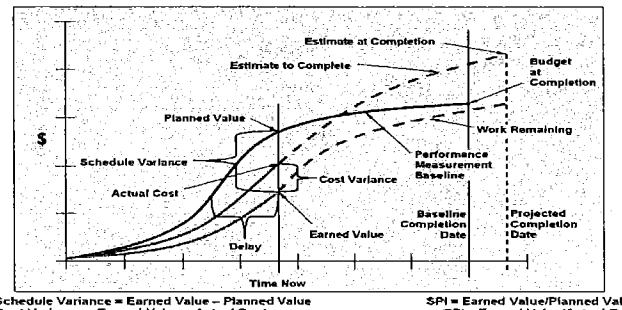
Progress Reporting & Related Tools for Keeping the Authority Apprised of Project Status

Monitoring, oversight, and reporting are essential for the effective control of the project. This element of project management includes three main components:

- Progress meetings and reports
- Schedule reviews
- Earned-value analyses

Regularly-scheduled team meetings with the Authority will be held to provide close coordination. The focus of

these periodic formal meetings will be on progress against schedule, coordination among project disciplines, and the identification of technical issues. The resolution of



Schedule Variance = Earned Value – Planned Value
Cost Variance = Earned Value – Actual Cost
Variance at Completion = BAC – EAC
Percent Complete = Earned Value/BAC

SPI = Earned Value/Planned Value
CPI = Earned Value/Actual Cost
EAC = Actual Cost + ETC
Work Remaining = BAC – Earned Value
Trend EAC = Actual Cost + (Work Remaining/CPI)

This figure illustrates the type of earned value analysis that is required for all Parsons' projects.

technical issues, however, will be handled at separate, issue-specific meetings. Progress reports will be prepared monthly and will provide a summary discussion of work completed over the past month. Emphasis will be placed on deliverables, as opposed to more general statements of work in progress. Progress against schedule will involve a review of the project baseline schedule to assess the timeliness of the project.

Schedule control is an important part of the project's success. This team is keenly aware of the mandate to have bid documents ready for release two years after this consultant contract is awarded. The project schedule in Section F will be updated at the start of the project and reviewed with the Authority at least monthly to evaluate the project performance against the schedule and develop the look-ahead to plan the upcoming period's activities.

Cost control starts with a clear statement of work and associated estimates of hours to complete that work. At Parsons, actual costs are available on a weekly basis, so project managers do not wait for monthly invoices to track expenditures. One of the most important management metrics that we use is the measure of expenditures against physical progress and against the planned rate of expenditure. These two measures represent the earned value of the project products.

Meeting Management

Microsoft Outlook and the task-specific SharePoint site will be used for scheduling meetings and storing and tracking agendas, minutes, and follow-up items. Attendees will be given sufficient notice of meetings to maximize productivity and meeting summaries, clearly indicating action items, will be available more than five days after each meeting.

Conclusion

Parsons has decades of experience with "as-needed" contracts for the Authority and many other clients. We have managed eight recent APM projects and several dozen alternative delivery contracts. We offer an experienced project manager who will have access to the best management tools that the industry can offer for project controls. Our team is local and immediately available to support the Authority's goal to have a replacement AirTrain system in place by 2022.

I. Conflict of Interest

Neither Parsons nor any member of its team have an appearance of a possible conflict of interest for this project.

H. List of Affiliates

3D/International, Inc.
1900 West Loop South, Suite 400
Houston, Texas 77027, United States

Argotek, Inc.
5875 Trinity Parkway, Suite 300
Centreville, Virginia 20120, United States

Barton-Aschman Associates, Inc.
100 M. Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

Barton-Aschman Associates, Inc.
300 West Washington Street, Suite 610
Chicago, Illinois 60606-1720, United States

Barton-Aschman Associates, Inc. of Ohio
100 M. Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

Barton-Aschman Associates, Inc. of Ohio
The Landings II, Ste. 224, 3040 Riverside Dr.
Columbus, Ohio 43221, United States

Bonifica S.p.A.
Via Vincenzo Bona 101/C
Roma, Italy 00156, Italy

Chas. T. Main of Louisiana, Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Chas. T. Main of Louisiana, Inc.
Thirty Dan Road
Canton, Massachusetts 02021, United States

Chas. T. Main, Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Chas. T. Main, Inc.
Thirty Dan Road
Canton, Massachusetts 02021, United States

Computer Sciences Parsons LLC
2701 Liberty Parkway, Suite 317
Midwest City, Oklahoma 73110, United States

Contingency Response Services LLC
13500 Heritage Parkway
Forth Worth, Texas 76177, United States

De Leuw, Cather & Company
100 M Street, Southeast
Washington, District of Columbia 20003, United States

De Leuw, Cather & Company
1133 15th Street, NW
Washington, District of Columbia 20005 United States

De Leuw, Cather International Inc.
10 S. Riverside, Suite 400
Chicago, Illinois 60606, United States

De Leuw, Cather International Inc.
525 West Monroe St.
Chicago, Illinois 60606, United States

De Leuw, Cather International Limited
100 M Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

Delcan Corporation
650 E. Algonquin Road, Suite 400
Schaumburg, Illinois 60194, United States

Delcan Group Inc.
625 Cochrane Drive, Suite 500
Markham, Ontario L3R 9R9, Canada

Delcan Ltée
2500-1 place Ville-Marie
Montreal, Quebec H3B4S2, Canada

Delcan Professional Corporation
601 Abbot Road
East Lansing, Michigan 48823, United States

Delcan Technologies, Inc.
2055 Sugarloaf Circle, Suite 500
Duluth, Georgia 30097, United States

DZSP 21 LLC
1818 Market Street, 22nd Floor
Philadelphia, Pennsylvania 19103-3672, United States

Engineering-Science Development Corporation
100 West Walnut Street
Pasadena, California 91124, United States

ES Environmental Services, Inc.
100 West Walnut Street
Pasadena, California 91124, United States

ES Environmental Services, Inc.
2101 Webster Street, Ste. 725
Oakland, California 94501, United States

EXi Parsons Telecom Inc.
1301 W. President George Bush Highway
Richardson, Texas 75081, United States

EXi Parsons Telecom LLC
1301 West President George Bush Hwy, Suite 350
Richardson, Texas 75080, United States

Fair Oaks Consultants, Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Finley McNary Engineers, Inc.
3500 Financial Plaza,Suite 300
Tallahassee, Florida 32312, United States

First Defense Services Pte. Ltd.
3 Anson Road, #27-01 Springleaf Tower
Singapore 079909, Singapore

G4S-Parsons Pacific, LLC
7121 Fairway Drive, Suite 301
Palm Beach Gardens, Florida 33418, United States

Global Response Services LLC
13601 Heritage Parkway
Fort Worth, Texas 76177, United States

GS 21 LLC
1818 Market Street
Philadelphia, Pennsylvania 19103, United States

H. E. Hennigh, Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

HealthCare Facilities, LLC
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Holding S.r.L.
c/o Richard Reddy, Parsons, 100 M Street, SE
Washington, District of Columbia 20003, United States

IAP-Parsons, LLC
7315 North Atlantic Avenue
Cape Canaveral, Florida 32920, United States

International Aviation Consultants, L.L.C.
524 West Peachtree Street
Atlanta, Georgia 30308, United States

Kirklin Architect P.C.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

KP Leasing Company
Kiewit Western Co.
1000 Kiewit Plaza
Omaha, Nebraska, United States

Main Construction Management, Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Main Construction Management, Inc.
Thirty Dan Road
Canton, Massachusetts 02021, United States

Main Constructors, Inc.
Thirty Dan Road
Canton, Massachusetts 02021, United States

Main Constructors, Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

META Associates, Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Michael Walsh Limited
Airport Business Park, Unit 4600
Cork, Ireland, Ireland

Niland Geothermal, Inc.
100 West Walnut Street
Pasadena, California 91124, United States

P & F Architectural Services, P.C.
100 West Walnut Street
Pasadena, California 91124, United States

PARCAN, Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parcor LLC
2800 Crystal Drive, Suite 600
Arlington, Virginia 22202, United States

Parfinco NC, LLC
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parfinco TX, LLC
16055 Space Center Boulevard
Houston, Texas 77062, United States

Parfinco, Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parmetek, S.A. De C.V.
1A Cerrada de Santa Lucia No. 38
Santa Lucia, Delegacion Alvaro
Obregon, Mexico, D.F., C.P. 01400, Mexico

Parsons Advanced Technologies Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Architectural Services of Illinois Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Architecture of Florida Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Architecture of New Jersey P.C.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Canada Ltd.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons China Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Commercial Services Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Construction Group Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Constructors & Fabricators Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Constructors Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Corporation
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Corporation
Worldwide Headquarters
100 West Walnut St.
Pasadena, California 91124, United States

Parsons CT Main Projetos de Infraestrutura Sociedade Simples Ltda.
Parsons do Brasil
Rua Ministro Nelson Hungria No. 239
offices 1 e 2
District of Jardim Tramontano
05690-050 Sao Paulo, SP, Brazil, Brazil

Parsons Development Company
100 West Walnut Street
Pasadena, California 91124, United States

Parsons do Brasil
Rua Álvares Penteado, 97, 4 Andar Sala 1
Säo Paulo, SP, Brazil
01012-001, Brazil

Parsons Engineering Inc. of Michigan
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Engineering Inc. of Ohio
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Engineering Limited
Unit 4100, Airport Business Park
Cork, Ireland, Ireland

Parsons Engineering of New York, Inc.
301 Plainfield Road, Suite 350
Syracuse, New York 13212, United States

Parsons Engineering Science International, Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Engineering Science, Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Environment & Infrastructure Group Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Evergreene, LLC
10235 South Jordan Gateway, Suite 300
South Jordan, Utah 84095, United States

Parsons Facility Management Corporation
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Federal Services Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Global Services, Ltd.
100 M Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

Parsons Global Services, Ltd.
c/o Maples and Calder
PO Box 309, Ugland House, So. Church St.
Cayman Islands (B.W.I.), Cayman Islands

Parsons Government Services Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Government Services International Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Government Support Services Inc.
2221 E. Lamar Blvd., Suite 500
Arlington, Texas 76006-7447, United States

Parsons Group International Limited
Regis House, 45 King William Street
London, England EC4R 9AN, United Kingdom

Parsons Group Services Pte Ltd
80 Robinson Road, #02-00
Singapore 068898, Singapore

Parsons Hanford Fabricators Inc.
3005 East Ainsworth Street, Warehouse 5
Pasco, Washington 99301, United States

Parsons Harland Bartholomew & Associates Inc.
400 Woods Mill Road, South, Suite 330
Chesterfield, Missouri 63017-3427, United States

Parsons Infrastructure & Technology Group Inc. of Ohio
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Infrastructure & Technology Group Inc. of Ohio
4055 Executive Park Drive
Cincinnati, Ohio, United States

Parsons Infrastructure & Technology Group of Illinois P.C.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Infrastructure & Technology Group of Michigan Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Infrastructure & Technology Group of New York Inc.
100 Broadway
New York, New York 10005, United States

Parsons Inspection & Maintenance Corporation
100 West Walnut Street
Pasadena, California 91124, United States

Parsons International & Company LLC
The Old Ericsson Building, Way No. 4149
Al Khuwair, Muscat, Sultanate of Oman, Oman

Parsons International Corporation, L.L.C.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons International Corporation, L.L.C.
c/o Maples and Calder, P.O. Box 309
Ugland House, S. Church St.
Cayman Islands (B.W.I.), Cayman Islands

Parsons International Limited
100 West Walnut Street
Pasadena, California 91124, United States

Parsons International Limited
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Investments Corp.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Italia S.r.L.
Via Antonio Salandra
18 cap 00187,Roma, Italy, Italy

Parsons Main of New York, Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Main of New York, Inc.
Thirty Dan Road
Canton, Massachusetts 02021, United States

Parsons Main, Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Main, Inc.
Thirty Dan Road
Canton, Massachusetts 02021, United States

Parsons Middle East Corporation
100 West Walnut Street
Pasadena, California 91124, United States

Parsons of Australia Pty Limited
c/o Gadens Lawyers, Level 25, 240 Queen Street,
Brisbane, Queensland 4000, Australia

Parsons of Mississippi, Professional Corporation
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons of North Carolina Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Overseas Company
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Overseas Limited Inc.
100 M Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

Parsons PATCO Inc.
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

Parsons Professional Corporation
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Professional Corporation
1133 15th Street, NW
Washington, District of Columbia 20005, United States

Parsons Project Services, Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons RCI Inc.
1216 140th Avenue, Court E
Sumner, Washington 98390, United States

Parsons RCIE Inc.
1216 140th Avenue, Court E
Sumner, Washington 98390, United States

Parsons RDS Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons S.I.P. Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Savannah Construction Company
1080 Silver Bluff Road
Aiken, South Carolina 29803, United States

Parsons Savannah Services Company
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Services Company
The Parsons Building
16055 Space Center Boulevard, Suite 725
Houston, Texas 77062-6269, United States

Parsons Services Company
9906 Gulf Freeway
Houston, Texas 77034, United States

Parsons Technical Services Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Technical Services International Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Technical Support Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Telecommunication Services Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Tournament for Life Corp.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Transportation Concessionaires LLC
100 M Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

Parsons Transportation Group Inc.
100 M Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

Parsons Transportation Group Inc.
1133 15th St., NW, Ste. 800
Washington, District of Columbia 20005, United States

Parsons Transportation Group Inc. of Michigan
26777 Central Park Boulevard, Suite 275
Southfield, Michigan 48076, United States

Parsons Transportation Group Inc. of Michigan
211 West Fort Street, Suite 300
Detroit, Michigan 48226, United States

Parsons Transportation Group Inc. of Ohio
100 M Street SE, Suite 1200
Washington, District of Columbia 29993, United States

Parsons Transportation Group Inc. of Ohio
The Landings II, 3040 Riverside Dr., Ste. 224
Columbus, Ohio 43221, United States

Parsons Transportation Group Inc. of Virginia
3926 Pender Drive, Suite 100
Fairfax, Virginia 22030, United States

Parsons Transportation Group Inc. of Virginia
Ste. 100, 10521 Rosehaven St.
Fairfax, Virginia 22030, United States

Parsons Transportation Group of New York, Inc.
100 Broadway
New York, New York 10005, United States

Parsons Transportation Group of New York, Inc.
110 William St., 9th Floor
New York, New York 10038-3901, United States

Parsons Transportation Group, Professional Corporation
100 M Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

Parsons Transportation Group, Professional Corporation
1133 15th St., NW, Ste. 800
Washington, District of Columbia 20005, United States

Parsons Water & Infrastructure Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Parsons Water Resources, Inc.
100 West Walnut Street
Pasadena, California 91124, United States

PARSONSECUADOR Cia. Ltda.
E4-41 Av. Patria, La Mariscal
San Blas, Quito, Pichincha, Ecuador, Ecuador

Parsons-J&J International LLC
c/o Corporation Trust Center, 1209 Orange Street
Wilmington, Delaware 19801, United States

Parsons-Jurden International Corporation
100 West Walnut Street
Pasadena, California 91124, United States

Partnership for Temporary Housing LLC
3190 Fairview Park Drive, Suite 350
Falls Church, Virginia 22042, United States

PFI Design, P.C.
100 High Street
Boston, Massachusetts 02110, United States

PGS Subsidiary II Company
100 West Walnut Street
Pasadena, California 91124, United States

Process Facilities, Inc.
100 High Street
Boston, Massachusetts 02110, United States

Protect Air Corp.
2751 John Street
Markham, Ontario L3R 2Y8, Canada

PTG Construction Services Company
100 M Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

PTGI, Inc.
100 M Street, SE, Suite 1200
Washington, District of Columbia 20003, United States

PTSI Managed Services Inc.
100 West Walnut Street
Pasadena, California 91124, United States

Research and Development Solutions, LLC
3604 Collins Ferry Road, Suite 200
Morgantown, West Virginia 26505, United States

RMP International, Ltd.
100 West Walnut Street
Pasadena, California 91124, United States

RMP International, Ltd.
c/o Southaven Limited,
MacLaw House, Duke Street
Grand Turk, Turks & Caicos Islands (B.W.I.)
Turks And Caicos Islands

S.I.P. Engineering, Inc.
The Parsons Building,
16055 Space Center Boulevard, Suite 725
Houston, Texas 77062, United States

S.I.P. Engineering, Inc.
9920 Gulf Freeway
Houston, Texas 77034, United States

S.I.P., Inc.
The Parsons Building
16055 Space Center Boulevard, Suite 725
Houston, Texas 77062, United States

S.I.P., Inc.
9920 Gulf Freeway
Houston, Texas 77034, United States

Saudi Arabian Parsons Limited
Post Box 1174, Dar Al Riyadh, Prince Mamdouh Street
Riyadh, Saudi Arabia 111431, Saudi Arabia

Saudi Arabian Parsons Limited
P. O. Box 31421,Al Khobar 31952
Saudi Arabia, Saudi Arabia

Secure Mission Solutions LLC
8260 Willow Oaks Corporate Drive, Suite 300
Fairfax, Virginia 22031, United States

Secure Mission Solutions, Inc.
11921 Freedom Drive, Suite 730
Reston, Virginia 20190, United States

Steinman Boynton Gronquist & Birdsall
100 Broadway
New York, New York 10005, United States

Steinman Boynton Gronquist & Birdsall
110 William St.
New York, New York 10038, United States

Steinman Boynton Gronquist & Birdsall Inc.
100 Broadway
New York, New York 10005, United States

Steinman Boynton Gronquist & Birdsall Inc.
89 Hudson St.
Hoboken, New Jersey 7030, United States

Steinman Inc.
100 Broadway
New York, New York 10005, United States

Steinman Inc.
110 William St.
New York, New York 10038, United States

The C. T. Main Corporation
4701 Hedgemore Drive
Charlotte, North Carolina 28209, United States

The C. T. Main Corporation
Thirty Dan Road
Canton, Massachusetts 02021, United States

The Ralph M. Parsons Company
100 West Walnut Street
Pasadena, California 91124, United States

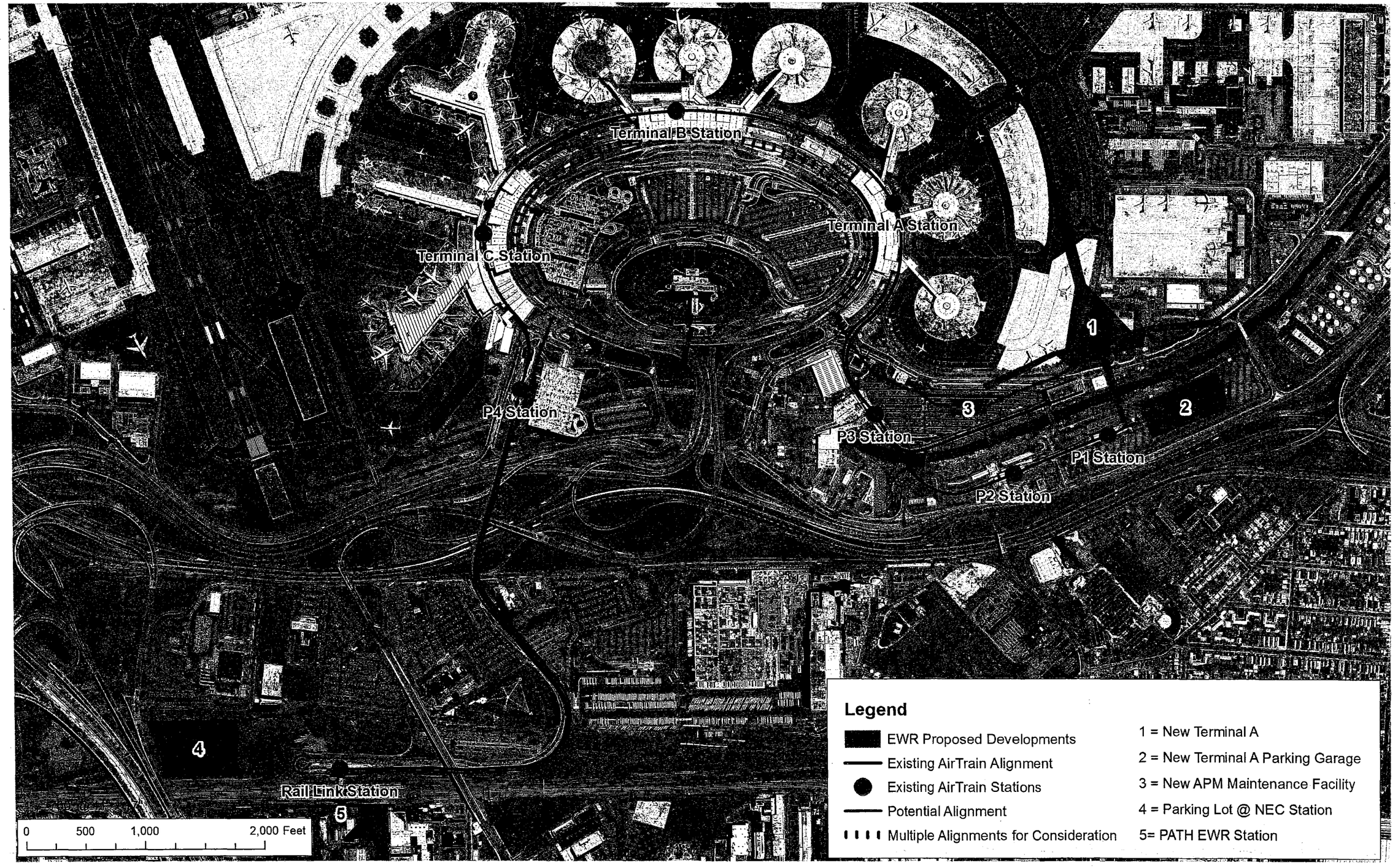
The Ralph M. Parsons Electronics Company
100 West Walnut Street
Pasadena, California 91124, United States

The Ralph M. Parsons Services Company
100 West Walnut Street
Pasadena, California 91124, United States

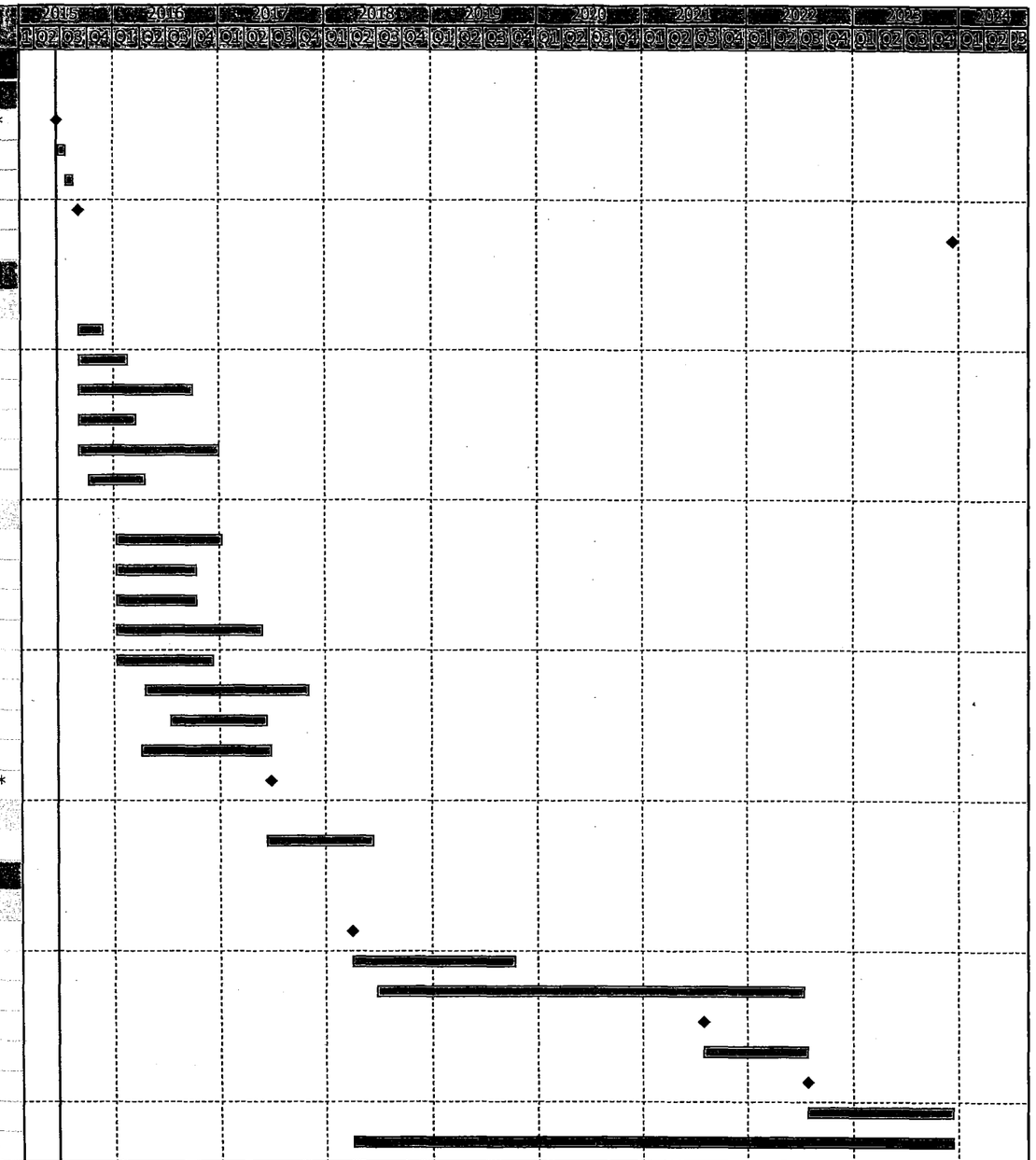
Wholesale Supply Co., Inc.
100 West Walnut Street
Pasadena, California 91124, United States

J. Agreement with Terms

Parsons takes no exceptions to the terms and conditions of the agreement included in RFP 42022.


Terminal B Station
Terminal A Station
Terminal C Station
P4 Station
P3 Station
P1 Station
P2 Station
Rail Link Station
1
2
3
4
5
0 500 1,000 2,000 Feet
Legend
EWR Proposed Developments
Existing AirTrain Alignment
Existing AirTrain Stations
Potential Alignment
Multiple Alignments for Consideration
1 = New Terminal A
2 = New Terminal A Parking Garage
3 = New APM Maintenance Facility
4 = Parking Lot @ NEC Station
5= PATH EWR Station

Activity ID	Activity Name	Duration (Work Day)	Start	Finish
PLANNING SERVICES_REPLACEMENT OF AIRTRAIN AT EWR		2209d	06/17/15	12/15/23
CONSULTANT SERVICES SCHEDULE		2209d	06/17/15	12/15/23
P1010	RFP Due Date 17-Jun-2015	0d		06/17/15*
P1020	Interviews	20d	06/18/15	07/16/15
P1030	Selection	20d	07/17/15	08/13/15
P1040	M1: Award/NTP (Unknown): Assume 9/1/2015	0d	09/01/15*	
P1050	M6: Project Completion	0d		12/15/23
PHASE 1 & 2		720d	09/01/15	08/13/18
TASK A: GENERAL PLANNING SERVICES		345d	09/01/15	12/30/16
A100	Document Review	60d	09/01/15	11/23/15
A110	Initial Ridership Demands and Performance Requirements Definition	120d	09/01/15	02/17/16
A120	Alignment Development	280d	09/01/15	09/29/16
A130	Technology Assessments and Recommendations	140d	09/01/15	03/16/16
A140	Other Support Services (Notes: Vibration Wind & Environmental)	345d	09/01/15	12/30/16
A150	Procurement Strategy	140d	09/29/15	04/13/16
TASK B: CONCEPT DESIGN & PROCUREMENT CONTRACT DOCUMENT		470d	01/07/16	10/31/17
B090	Propulsion Power System Requirements	260d	01/07/16	01/09/17
B100	Develop Procurement Plan	200d	01/07/16	10/13/16
B110	Finalize Performance and Operations Requirements	200d	01/07/16	10/13/16
B130	Design Criteria and Conceptual Design	360d	01/07/16	05/29/17
B140	System Technical Performance Specs	240d	01/07/16	12/08/16
B150	Cost Estimating and Schedule Development	400d	04/14/16	10/31/17
B160	Procurement AirTrain Contract Documents & Board Approval	240d	07/08/16	06/12/17
B170	Procurement Design-Build Contract Documents	320d	03/31/16	06/26/17
B180	M2: Release Request for Proposals for Future AirTrain	0d		06/26/17*
TASK C: AIRTRAN PROCUREMENT SUPPORT		260d	06/13/17	06/13/18
C110	AirTrain Vendor Support	260d	06/13/17	06/13/18
PHASE 3 & 4		1490d	04/02/18	12/15/23
TASK D: SYSTEM IMPLEMENTATION OVERSIGHT		1490d	04/02/18	12/15/23
D100	M3: Award Contract for Future AirTrain	0d	04/02/18*	
D110	Design Oversight and Document Review	400d	04/02/18	10/11/19
D120	Manufacturing, Installation and Construction Oversight	1060d	06/25/18	07/15/22
D130	M4: Initiate Testing and Commissioning of future AirTrain	0d	08/02/21*	
D140	Acceptance Testing and Demonstrations	260d	08/02/21	07/29/22
D150	M5: Initiate Passenger Service on future AirTrain	0d	08/01/22*	
D160	Warranty Administration	360d	08/01/22	12/15/23
D200	Contract Administration and Payments	1490d	04/02/18	12/15/23



Remaining Work
Critical Remaining Work
Remaining Level of Effort

PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT
RFP 42022
SUBMISSION DATE: 6/17/2015

Page 1 of 1 Print on: 06/12/15
Project Start: 06/17/15
Project Finish: 12/15/23

ATTACHMENT D - STAFF AND COSTS ANALYSIS

EWR APM Staffing Plan

COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task A.1 Document Review		Task A.2 Initial Ridership Demands and Performance Requirements Definition		Task A.3 Alignment Development		Task A.4 Technology Assessments and Recommendations		Task A.5 Procurement Strategy		Task A.6 Other Support Services	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Project Management			**Subtotal**		204	$ 52,260	320	$ 93,968	656	$ 191,559	290	$ 85,166	120	$ 35,206	290	$ 69,535
David Leverenz	Parsons	Program Manager	$120.24	2.44	80	$ 23,471	240	$ 70,413	160	$ 46,942	210	$ 61,611	120	$ 35,206	110	$ 32,272
Richard Eitland	Parsons	Quality Manager	$66.93	2.44	48	$ 7,838		$ -		$ -		$ -		$ -	120	$ 19,596
Kenneth Sundberg	Parsons	Safety Manager	$84.14	2.44	16	$ 3,285		$ -	16	$ 3,285		$ -	0	$ -		$ -
Jane Charalambous	Parsons	Conceptual Design/Design Oversight Mgr	$120.67	2.44	60	$ 17,667	80	$ 23,555	480	$ 141,332	80	$ 23,555		$ -	60	$ 17,667
Project Controls			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	356	$ 50,175	13,600	$ 1,840,309
Elaine Donaty	Parsons	Cost Control	$84.02	2.44		$ -		$ -		$ -	0	$ -		$ -	3,320	$ 680,613
Hans Hoppe	Parsons	Risk Management	$82.53	2.44		$ -		$ -		$ -		$ -	178	$ 35,846	480	$ 96,663
Document Control	Techno	Document Control	$35.00	2.30		$ -		$ -		$ -		$ -	178	$ 14,329	4,640	$ 373,520
Thomas Gallagher	Parsons	Project Controls Manager	$54.77	2.44		$ -		$ -		$ -		$ -		$ -	5,160	$ 689,513
Project Controls	Parsons	Project Controls Specialist	$45.00	2.44												
Cost Estimating and Scheduling			**Subtotal**		96	$ 13,218	0	$ -	0	$ -	0	$ -	80	$ 13,039	0	$ -
F. George	JCMS, Inc.	Chief Estimator	$75.75	2.39	16	$ 2,897		$ -		$ -		$ -	40	$ 7,242		$ -
K. Meehan / H. Shukla	JCMS, Inc.	Sr. Estimator	$60.64	2.39	48	$ 6,957		$ -		$ -		$ -	40	$ 5,797		$ -
K. Gandhi	JCMS, Inc.	Estimator	$44.00	2.39	32	$ 3,365		$ -		$ -		$ -		$ -		$ -
R. Sondur	JCMS, Inc.	Technician	$29.75	2.39		$ -		$ -		$ -		$ -		$ -		$ -
Sr Scheduler	Techno	Sr. Schedulier	$75.00	2.39		$ -		$ -		$ -		$ -		$ -		$ -
Scheduler	Techno	Scheduler	$50.00	2.39		$ -		$ -		$ -		$ -		$ -		$ -
Track Alignment			**Subtotal**		64	$ 7,798	0	$ -	1,224	$ 139,016	0	$ -	0	$ -	0	$ -
Phil Nguyen	Parsons	PM_Track Design	$55.90	2.44	40	$ 5,456		$ -	504	$ 68,744		$ -		$ -		$ -
David Pell	Parsons	Track Engineer	$40.00	2.44	24	$ 2,342		$ -	720	$ 70,272		$ -		$ -		$ -
Planning			**Subtotal**		1,161	$ 198,432	3,005	$ 477,979	3,615	$ 598,212	564	$ 86,602	240	$ 59,113	340	$ 33,350
Monica Barrow	Parsons	Project Development Lead	$108.00	2.44	60	$ 15,811	480	$ 126,491	480	$ 126,491		$ -		$ -		$ -
Gregory Gaides	Parsons	Planner	$58.84	2.44	75	$ 10,767	910	$ 130,644	50	$ 7,178		$ -		$ -		$ -
Joseph Steindam	Parsons	Planner	$29.40	2.44	75	$ 5,380	390	$ 27,977	50	$ 3,587		$ -		$ -		$ -
Julie Murphy	VHB	Demand Analyst	$68.72	2.84	40	$ 7,807	200	$ 39,033	0	$ -	0	$ -	0	$ -		$ -
Elizabeth Hynes	Parsons	Environmental Lead	$52.51	2.44	40	$ 5,125		$ -	640	$ 81,995		$ -		$ -		$ -
Jennifer Hogan	VHB	Airport and Environmental Planner	$49.99	2.84	40	$ 5,679		$ -	400	$ 56,789		$ -		$ -		$ -
Richard Louis	VHB	Senior Airport Planner	$90.00	2.84	20	$ 5,112	0	$ -	150	$ 38,340	0	$ -	160	$ 40,896		$ -
Peter Byrne	VHB	Principal, Sr Airport Planner	$80.18	2.84	75	$ 17,078	0	$ -	135	$ 30,741	0	$ -	80	$ 18,217		$ -
Matt Sloane	VHB	PFC Task - GIS Graphics Technician	$30.78	2.84	24	$ 2,098	0	$ -	60	$ 5,245	0	$ -	0	$ -		$ -
Ted Kleiner	VHB	Senior Airport Planner	$90.00	2.84	40	$ 10,224	0	$ -	80	$ 20,448	0	$ -	0	$ -		$ -
Lisa DiTaranti	VHB	Transit Manager	$92.60	2.84	80	$ 21,039	80	$ 21,039	80	$ 21,039	48	$ 12,623	0	$ -		$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task A.1		Task A.2		Task A.3		Task A.4		Task A.5		Task A.6	
					Document Review		Initial Ridership Demands and Performance Requirements Definition		Alignment Development		Technology Assessments and Recommendations		Procurement Strategy		Other Support Services	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Senior Planner	VHB	Senior Planner	$74.71	2.84	64	$ 13,579	80	$ 16,974	40	$ 8,487	24	$ 5,092	0	$ -		$ -
Planner	VHB	Planner	$46.20	2.84	120	$ 15,745	200	$ 26,242	40	$ 5,248	80	$ 10,497	0	$ -		$ -
Junior Planner	VHB	Junior Planner	$36.49	2.84	40	$ 4,145	100	$ 10,363	40	$ 4,145	48	$ 4,974	0	$ -		$ -
Charles Passanisi	VHB	Operating Cost and Finance Analyst	$60.94	2.84	40	$ 6,923	0	$ -	0	$ -	100	$ 17,307	0	$ -		$ -
Randy Hart	VHB	Pedestrian Analysis	$78.70	2.84	24	$ 5,364	0	$ -	0	$ -	0	$ -	0	$ -		$ -
Christine Trearchis	VHB	Pedestrian Analysis	$36.50	2.84	40	$ 4,146	0	$ -	0	$ -	0	$ -	0	$ -		$ -
Ped Modeler	VHB	Pedestrian Analysis	$31.57	2.84	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -		$ -
Terry Byrne	VHB	Operations Lead	$88.94	2.84	80	$ 20,207	80	$ 20,207	200	$ 50,518	64	$ 16,166		$ -		$ -
Josh Bendyk, et al	VHB	Operations Analyst	$35.11	2.84	120	$ 11,965	325	$ 32,407	850	$ 84,756	200	$ 19,942		$ -		$ -
CAD	VHB	CAD	$45.18	2.84	24	$ 3,079	40	$ 5,132	80	$ 10,265	0	$ -		$ -		$ -
Marlene Pissott	INGROUP	Mananger Stakeholder Coordination	$50.00	2.88		$ -		$ -		$ -		$ -		$ -	120	$ 17,280
Carmen Costa	INGROUP	Specialist Stakeholder Coordination	$28.00	2.88		$ -		$ -		$ -		$ -		$ -	60	$ 4,838
Kristin Connington	INGROUP	Associate II Stakeholder Coordination	$25.00	2.88		$ -		$ -		$ -		$ -		$ -	60	$ 4,320
Cynthia Valentino	INGROUP	Associate Stakeholder Coordiantion	$24.00	2.88		$ -		$ -		$ -		$ -		$ -	100	$ 6,912
William Jensen	Ricondo	Airport Planner/FAA Coord	$56.80	3.15	40	$ 7,157	120	$ 21,470	240	$ 42,941		$ -		$ -		$ -
Architecture			**Subtotal**		780	$ 147,290	960	$ 185,134	5,840	$ 946,287	0	$ -	0	$ -	0	$ -
Joe Chang	Ricondo	Vice President	$330.00	1.00	40	$ 13,200	40	$ 13,200	40	$ 13,200		$ -		$ -		$ -
Ramacorti	Ricondo	Director	$258.41	1.00	80	$ 20,673		$ -	160	$ 41,346		$ -		$ -		$ -
McKenna	Ricondo	Director	$258.41	1.00	80	$ 20,673		$ -	160	$ 41,346		$ -		$ -		$ -
Jensen	Ricondo	Station Simulation	$56.80	3.15	80	$ 14,314	120	$ 21,470	160	$ 28,627		$ -		$ -		$ -
Senior Consultant	Ricondo	Station Simulation	$31.04	3.15	40	$ 3,911	160	$ 15,644	160	$ 15,644		$ -		$ -		$ -
Peter Smoluchowski	Parsons	PM_Arch Design Lead_Stations	$112.53	2.44	40	$ 10,983		$ -	640	$ 175,730		$ -		$ -		$ -
Architect 1_Stations	B. Thayer	Architect 1_Stations	$60.00	2.44	40	$ 5,856		$ -	860	$ 125,904		$ -		$ -		$ -
Drafter Stations	B. Thayer	Drafter_Stations	$50.00	2.44	65	$ 7,930		$ -	1,020	$ 124,440		$ -		$ -		$ -
Designer Stations	B. Thayer	Designer_Stations	$60.00	2.44	40	$ 5,856		$ -	860	$ 125,904		$ -		$ -		$ -
Drafter Stations	B. Thayer	Drafter_Stations	$50.00	2.44	65	$ 7,930		$ -	1,020	$ 124,440		$ -		$ -		$ -
Roland Genick	Parsons	PM_Arch Design Lead_VMF	$87.24	2.44	40	$ 8,515	560	$ 119,203	160	$ 34,058		$ -		$ -		$ -
Architect 1 Mtce Facility	Parsons	Architect 1 Mtce Facility	$80.00	2.44	65	$ 12,688	80	$ 15,616	200	$ 39,040		$ -		$ -		$ -
Designer Mtce Facility	Parsons	Designer Mtce Facility	$70.00	2.44	40	$ 6,832		$ -	160	$ 27,328		$ -		$ -		$ -
Drafter Mtce Facility	Parsons	Drafter Mtce Facility	$50.00	2.44	65	$ 7,930		$ -	240	$ 29,280		$ -		$ -		$ -
Structural			**Subtotal**		720	$ 106,868	0	$ -	540	$ 69,538	0	$ -	0	$ -	0	$ -
Peter Mauritz	Parsons	PM SE Bridge	$97.03	2.44	120	$ 28,411		$ -	60	$ 14,205		$ -		$ -		$ -
Jeffrey Abrams	Parsons	PM SE Structures	$112.96	2.44	120	$ 33,073		$ -	60	$ 16,537		$ -		$ -		$ -
Senior Engineer I	Parsons	Senior Engineer I	$50.00	2.44	80	$ 9,760		$ -	60	$ 7,320		$ -		$ -		$ -
Senior Engineer II	Parsons	Senior Engineer II	$45.00	2.44	80	$ 8,784		$ -	60	$ 6,588		$ -		$ -		$ -
Engineer I	Parsons	Engineer I	$35.00	2.44	40	$ 3,416		$ -	60	$ 5,124		$ -		$ -		$ -
Engineer II	Parsons	Engineer II	$30.00	2.44	40	$ 2,928		$ -	60	$ 4,392		$ -		$ -		$ -
Senior Tech	Parsons	Senior Tech	$35.00	2.44	120	$ 10,248		$ -	90	$ 7,686		$ -		$ -		$ -
Tech	Parsons	Tech	$35.00	2.44	120	$ 10,248		$ -	90	$ 7,686		$ -		$ -		$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task A.1		Task A.2		Task A.3		Task A.4		Task A.5		Task A.6	
					Document Review		Initial Ridership Demands and Performance Requirements Definition		Alignment Development		Technology Assessments and Recommendations		Procurement Strategy		Other Support Services	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
MEP			**Subtotal**		208	$ 34,826	0	$ -	0	$ -	48	$ 10,214	0	$ -	0	$ -
Michael McDonald	Parsons	PM Electrical Design	$77.96	2.44	40	$ 7,609		$ -		$ -	24	$ 4,566		$ -		$ -
John Lewandowski	Parsons	PM Electrical Design	$96.46	2.44	40	$ 9,415		$ -		$ -	24	$ 5,649		$ -		$ -
Lighting Designer	Parsons	Lighting Designer	$60.00	2.44	64	$ 9,370		$ -		$ -		$ -		$ -		$ -
Winston Ailey	Parsons	Plumbing Designer	$65.00	2.44		$ -		$ -		$ -	0	$ -	0	$ -	0	$ -
William Connors	Parsons	Fire Protection Engineer	$90.00	2.44		$ -		$ -		$ -	0	$ -	0	$ -	0	$ -
TBD	Parsons	Electrical Design Tech	$54.00	2.44	64	$ 8,433		$ -		$ -		$ -		$ -		$ -
Traction Power			**Subtotal**		240	$ 34,048	90	$ 14,334	0	$ -	32	$ 5,248	0	$ -	0	$ -
Paul Soleyn	Parsons	PM Design Lead	$76.92	2.44	80	$ 15,015	36	$ 6,757		$ -	16	$ 3,003		$ -		$ -
David Penrose	Parsons	Designer	$57.51	2.44	80	$ 11,225	54	$ 7,577		$ -	16	$ 2,245		$ -		$ -
Partha Roy	Parsons	Elec Designer	$45.00	2.44	40	$ 4,392		$ -		$ -		$ -		$ -		$ -
Brian Kwon	Parsons	Elec Design Tech	$35.00	2.44	40	$ 3,416		$ -		$ -		$ -		$ -		$ -
Train Control and Communications Systems			**Subtotal**		288	$ 44,785	0	$ -	108	$ 21,793	64	$ 13,640	0	$ -	370	$ 48,739
Raymond Palce	Parsons	PM Systems Lead	$86.15	2.44	40	$ 8,408		$ -	48	$ 10,090		$ -		$ -		$ -
David Greener	Parsons	Systems Designer	$75.00	2.44	24	$ 4,392		$ -	36	$ 6,588		$ -		$ -		$ -
Nichola Grossi	Parsons	Systems Designer	$70.00	2.44	24	$ 4,099		$ -		$ -		$ -		$ -		$ -
Philip Scharff	Parsons	PM Communications	$70.80	2.44	48	$ 8,292		$ -		$ -		$ -		$ -	160	$ 27,638
Daniel Beebe	Parsons	Communications Engineer	$41.18	2.44	48	$ 4,823		$ -		$ -		$ -		$ -	210	$ 21,101
Mourad Habashi	Parsons	Communications Tech	$40.00	2.44	64	$ 6,246		$ -		$ -		$ -		$ -		$ -
Alain Kouassi	Parsons	PM Systems Integration	$87.35	2.44	40	$ 8,525		$ -	24	$ 5,115	64	$ 13,640		$ -		$ -
System Startup / Safety Certification and Commissioning			**Subtotal**		0	$ -	40	$ 5,645	0	$ -	24	$ 3,387	0	$ -	0	$ -
Kevin Jones	Parsons	Safety Certification	$57.84	2.44		$ -	40	$ 5,645		$ -	24	$ 3,387		$ -		$ -
Alain Kouassi	Parsons	Commissioning	$87.35	2.44		$ -		$ -		$ -		$ -		$ -		$ -
Survey			**Subtotal**		24	$ 3,667	0	$ -	0	$ -	0	$ -	0	$ -	900	$ 83,326
James D. Sens, PLS	Matrix	Director of Survey	$65.00	2.86	16	$ 2,974		$ -		$ -		$ -		$ -	20	$ 3,718
Frank Barlowski, PLS	Matrix	Senior Surveyor	$53.00	2.86		$ -		$ -		$ -		$ -		$ -	80	$ 12,126
Jon Roberts	Matrix	Senior Survey Tech	$30.29	2.86	8	$ 693		$ -		$ -		$ -		$ -	120	$ 10,396
Alex Sorokin, PLS	Matrix	Survey Crew Chief	$33.81	2.86		$ -		$ -		$ -		$ -		$ -	200	$ 19,339
Bruce Krouse	Matrix	Field Surveyor	$30.00	2.86		$ -		$ -		$ -		$ -		$ -	200	$ 17,160
Emanuel DeBras	Matrix	Laser Scanning Tech	$19.00	2.86		$ -		$ -		$ -		$ -		$ -	160	$ 8,694
Jose Vargas	Matrix	CAD	$34.65	2.86		$ -		$ -		$ -		$ -		$ -	120	$ 11,892

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task A.1		Task A.2		Task A.3		Task A.4		Task A.5		Task A.6	
					Document Review		Initial Ridership Demands and Performance Requirements Definition		Alignment Development		Technology Assessments and Recommendations		Procurement Strategy		Other Support Services	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Geotechnical			**Subtotal**		48	$ 6,007	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Arland, F.	Mueser Rutledge	Partner	$100.14	2.90		$ -		$ -		$ -		$ -		$ -		$ -
Rhyner, F.	Mueser Rutledge	Senior Associate	$90.45	2.90		$ -		$ -		$ -		$ -		$ -		$ -
Yemenadra, S.	Mueser Rutledge	Associate	$60.57	2.90		$ -		$ -		$ -		$ -		$ -		$ -
Andy Raichle, PE	Matrix	Project Supervisor	$103.99	2.86	2	$ 595		$ -		$ -		$ -		$ -		$ -
Donald Heck, PE	Matrix	Geotechnical Project Manager	$60.81	2.86	8	$ 1,391		$ -		$ -		$ -		$ -		$ -
Charles Bassett, PE	Matrix	Senior Geotechnical Engineer	$48.27	2.86	10	$ 1,381		$ -		$ -		$ -		$ -		$ -
Raymond Persaud	Matrix	Geotechnical Engineer	$32.81	2.86	26	$ 2,440		$ -		$ -		$ -		$ -		$ -
Anthony Riccio	Matrix	CADD	$35.12	2.86	2	$ 201		$ -		$ -		$ -		$ -		$ -
Courtney Zilske	Matrix	Administrative Support	$16.80	2.86		$ -		$ -		$ -		$ -		$ -		$ -
Roadways and Utilities			**Subtotal**		180	$ 31,546	0	$ -	140	$ 25,324	0	$ -	0	$ -	600	$ 100,425
Nigel Newton	Parsons	Civil Design Lead	$87.98	2.44	60	$ 12,880		$ -	60	$ 12,880		$ -		$ -	120	$ 25,761
TBD	Parsons	Drainage Engineer	$65.00	2.44	60	$ 9,516		$ -	40	$ 6,344		$ -		$ -	240	$ 38,064
TBD	Parsons	Utility Engineer	$62.50	2.44	60	$ 9,150		$ -	40	$ 6,100		$ -		$ -	240	$ 36,600
Traffic Modeling			**Subtotal**		0	$ -	0	$ -	686	$ 98,240	0	$ -	0	$ -	2,452	$ 333,674
Marty Taub (Category 9)	VHB	Technical Director	$94.10	2.84		$ -		$ -	40	$ 10,690		$ -		$ -	148	$ 39,552
Babu Veeregowda (Category 8)	VHB	Project Manager	$83.27	2.84		$ -		$ -	140	$ 33,106		$ -		$ -	360	$ 85,130
Michael Despojado (Category 6)	VHB	Senior Project Manager	$48.10	2.84		$ -		$ -	56	$ 7,650		$ -		$ -	208	$ 28,414
Alferd Yeung (Category 4)	VHB	Senior Engineer	$38.47	2.84		$ -		$ -	100	$ 10,925		$ -		$ -	388	$ 42,391
Andrew Cheng (Category 4)	VHB	Senior Engineer	$39.62	2.84		$ -		$ -	100	$ 11,253		$ -		$ -	388	$ 43,663
Erica Swansen (Category 2)	VHB	Engineer	$34.67	2.84		$ -		$ -	125	$ 12,308		$ -		$ -	480	$ 47,262
Josh Herman (Category 2)	VHB	Engineer	$34.67	2.84		$ -		$ -	125	$ 12,308		$ -		$ -	480	$ 47,262
Vehicle Engineering/Inspections			**Subtotal**		168	$ 39,630	24	$ 6,039	1,174	$ 270,744	600	$ 145,689	230	$ 57,873	0	$ -
Jeffrey Pringle	Parsons	Vehicle Expert	$103.12	2.44	48	$ 12,078	24	$ 6,039	54	$ 13,588	360	$ 90,584	230	$ 57,873		$ -
Peter Harrison	Parsons	APM Systems Lead	$94.10	2.44	120	$ 27,552		$ -	1,120	$ 257,156	240	$ 55,105		$ -		$ -
Vehicle Inspector	Parsons	Vehicle Inspector	$60.00	2.44				$ -						$ -		$ -
Procurement Strategy / Procurement Support			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	1,358	$ 274,692	0	$ -
Aaron Singer	Parsons	Procurement Support	$67.89	2.44		$ -		$ -		$ -		$ -	670	$ 110,985		$ -
Ruth McMorrow	Parsons	Alt Delivery Consultant	$200.00	1.00		$ -		$ -		$ -		$ -	196	$ 39,200		$ -
Peter Harrison	Parsons	Vehicle Expert	$94.10	2.44		$ -		$ -		$ -		$ -	32	$ 7,347		$ -
Gerry Stoughton	Stoughton	AD Consultant	$200.00	1.00		$ -		$ -		$ -		$ -	300	$ 60,000		$ -
Mary Peters	MP Consulting	AD Consultant	$450.00	1.00		$ -		$ -		$ -		$ -	80	$ 36,000		$ -
Jerrold Dinkels	Techno Consulting	AD Consultant	$115.00	2.30		$ -		$ -		$ -		$ -	80	$ 21,160		$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task A.1		Task A.2		Task A.3		Task A.4		Task A.5		Task A.6	
					Document Review		Initial Ridership Demands and Performance Requirements Definition		Alignment Development		Technology Assessments and Recommendations		Procurement Strategy		Other Support Services	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Procurement Documents			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Anthony Fleres	Parsons		$81.71	2.44		$ -		$ -		$ -		$ -		$ -		$ -
John Christodoulakis	Parsons		$81.30	2.44		$ -		$ -		$ -		$ -		$ -		$ -
Construction Management			**Subtotal**		64	$ 18,150	40	$ 11,344	240	$ 68,064	0	$ -	0	$ -	0	$ -
Jorge L Estevez	Parsons	Construction Management	$116.23	2.44	64	$ 18,150	40	$ 11,344	240	$ 68,064		$ -	0	$ -		$ -
John Postorino	Parsons	Construction Oversight	$91.33	2.44		$ -		$ -		$ -		$ -		$ -		$ -
Christine Terril	Parsons	Configuration Manager	$55.00	2.44		$ -		$ -		$ -		$ -		$ -		$ -
Document Control Manager	Techno Consulting	Document Control Manager	$45.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Civil	Matrix	Inspector Civil	$50.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Civil	Matrix	Inspector Civil	$50.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Utilities	Matrix	Inspector Utilities	$50.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Environmental	Techno Consulting	Inspector Environmental	$55.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Structural	Techno Consulting	Inspector Structural	$55.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Structural	Techno Consulting	Inspector Structural	$55.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector MEP	Techno Consulting	Inspector MEP	$55.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Systems	Parsons	Inspector Systems	$70.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Systems	Parsons	Inspector Systems	$70.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Safety	Techno Consulting	Inspector Safety	$60.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -
Totals					4,245	$ 738,528	4,479	$ 794,442	14,223	$ 2,428,777	1,622	$ 349,946	2,384	$ 490,098	18,552	$ 2,509,357

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task B.1		Task B.2		Task B.3		Task B.4		Task B.5		Task B.6		Task B.7		Task C	
					Develop Procurement Plan		Finalize Performance and Operation Requirements		Propulsion Power System Requirements		Design Criteria		System Technical Performance Specifications		Cost Estimating and Schedule Development		Procurement Contract Documents		AirTrain Vendor Procurement Support	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Senior Planner	VHB	Senior Planner	$74.71	2.84	0	$ -	250	$ 53,044		$ -		$ -		$ -		$ -		$ -	0	$ -
Planner	VHB	Planner	$46.20	2.84	0	$ -	300	$ 39,362		$ -		$ -		$ -		$ -		$ -	0	$ -
Junior Planner	VHB	Junior Planner	$36.49	2.84	0	$ -	125	$ 12,954		$ -		$ -		$ -		$ -		$ -	0	$ -
Charles Passanisi	VHB	Operating Cost and Finance Analyst	$60.94	2.84	0	$ -	225	$ 38,941		$ -		$ -		$ -		$ -		$ -	0	$ -
Randy Hart	VHB	Pedestrian Analysis	$78.70	2.84	0	$ -	525	$ 117,342		$ -		$ -		$ -		$ -		$ -	0	$ -
Christine Trearchis	VHB	Pedestrian Analysis	$36.50	2.84	0	$ -	1,800	$ 186,588		$ -		$ -		$ -		$ -		$ -	0	$ -
Ped Modeler	VHB	Pedestrian Analysis	$31.57	2.84	0	$ -	2,200	$ 197,249		$ -		$ -		$ -		$ -		$ -	0	$ -
Terry Byrne	VHB	Operations Lead	$88.94	2.84		$ -	300	$ 75,777		$ -		$ -		$ -		$ -		$ -		$ -
Josh Bendyk, et al	VHB	Operations Analyst	$35.11	2.84		$ -	2,500	$ 249,281		$ -		$ -		$ -		$ -		$ -		$ -
CAD	VHB	CAD	$45.18	2.84		$ -	200	$ 25,662		$ -		$ -		$ -		$ -		$ -		$ -
Marlene Pissott	INGROUP	Mananger Stakeholder Coordination	$50.00	2.88		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Carmen Costa	INGROUP	Specialist Stakeholder Coordination	$28.00	2.88		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Kristin Connington	INGROUP	Associate II Stakeholder Coordination	$25.00	2.88		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Cynthia Valentino	INGROUP	Associate Stakeholder Coordiantion	$24.00	2.88		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
William Jensen	Ricondo	Airport Planner/FAA Coord	$56.80	3.15		$ -	400	$ 71,568		$ -	120	$ 21,470		$ -		$ -		$ -		$ -
Architecture			**Subtotal**		0	$ -	1,120	$ 160,545	0	$ -	9,960	$ 1,525,169	376	$ 92,729	344	$ 64,163	504	$ 90,762	480	$ 90,780
Joe Chang	Ricondo	Vice President	$330.00	1.00		$ -	80	$ 26,400		$ -		$ -		$ -		$ -		$ -		$ -
Ramacorti	Ricondo	Director	$258.41	1.00		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
McKenna	Ricondo	Director	$258.41	1.00		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Jensen	Ricondo	Station Simulation	$56.80	3.15		$ -	400	$ 71,568		$ -		$ -		$ -		$ -		$ -		$ -
Senior Consultant	Ricondo	Station Simulation	$31.04	3.15		$ -	640	$ 62,577		$ -		$ -		$ -		$ -		$ -		$ -
Peter Smoluchowski	Parsons	PM_Arch Design Lead_Stations	$112.53	2.44		$ -		$ -		$ -	1,000	$ 274,578	240	$ 65,899	80	$ 21,966	120	$ 32,949	160	$ 43,932
Architect 1_Stations	B. Thayer	Architect 1_Stations	$60.00	2.44		$ -		$ -		$ -	1,680	$ 245,952		$ -	80	$ 11,712	80	$ 11,712	160	$ 23,424
Drafter Stations	B. Thayer	Drafter_Stations	$50.00	2.44		$ -		$ -		$ -	1,860	$ 226,920		$ -		$ -	40	$ 4,880		$ -
Designer Stations	B. Thayer	Designer_Stations	$60.00	2.44		$ -		$ -		$ -	1,680	$ 245,952		$ -	120	$ 17,568	80	$ 11,712	160	$ 23,424
Drafter Stations	B. Thayer	Drafter_Stations	$50.00	2.44		$ -		$ -		$ -	1,860	$ 226,920		$ -		$ -		$ -		$ -
Roland Genick	Parsons	PM_Arch Design Lead_VMF	$87.24	2.44		$ -		$ -		$ -	240	$ 51,087	16	$ 3,406	24	$ 5,109	24	$ 5,109		$ -
Architect 1 Mtce Facility	Parsons	Architect 1 Mtce Facility	$80.00	2.44		$ -		$ -		$ -	360	$ 70,272	120	$ 23,424	40	$ 7,808	40	$ 7,808		$ -
Designer Mtce Facility	Parsons	Designer Mtce Facility	$70.00	2.44		$ -		$ -		$ -	560	$ 95,648		$ -		$ -	40	$ 6,832		$ -
Drafter Mtce Facility	Parsons	Drafter Mtce Facility	$50.00	2.44		$ -		$ -		$ -	720	$ 87,840		$ -		$ -	80	$ 9,760		$ -
Structural			**Subtotal**		0	$ -	0	$ -	0	$ -	30,014	$ 3,250,767	340	$ 53,823	232	$ 41,944	444	$ 50,867	0	$ -
Peter Mauritz	Parsons	PM SE Bridge	$97.03	2.44		$ -		$ -		$ -	1,120	$ 265,166	40	$ 9,470	40	$ 9,470	24	$ 5,682		$ -
Jeffrey Abrams	Parsons	PM SE Structures	$112.96	2.44		$ -		$ -		$ -	1,850	$ 509,879	60	$ 16,537	64	$ 17,639	40	$ 11,024		$ -
Senior Engineer I	Parsons	Senior Engineer I	$50.00	2.44		$ -		$ -		$ -	3,340	$ 407,480	120	$ 14,640	64	$ 7,808	40	$ 4,880		$ -
Senior Engineer II	Parsons	Senior Engineer II	$45.00	2.44		$ -		$ -		$ -	3,850	$ 422,730	120	$ 13,176	64	$ 7,027	40	$ 4,392		$ -
Engineer I	Parsons	Engineer I	$35.00	2.44		$ -		$ -		$ -	4,100	$ 350,140		$ -		$ -	60	$ 5,124		$ -
Engineer II	Parsons	Engineer II	$30.00	2.44		$ -		$ -		$ -	4,100	$ 300,120		$ -		$ -	60	$ 4,392		$ -
Senior Tech	Parsons	Senior Tech	$35.00	2.44		$ -		$ -		$ -	5,804	$ 495,662		$ -		$ -	60	$ 5,124		$ -
Tech	Parsons	Tech	$35.00	2.44		$ -		$ -		$ -	5,850	$ 499,590		$ -		$ -	120	$ 10,248		$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task B.1		Task B.2		Task B.3		Task B.4		Task B.5		Task B.6		Task B.7		Task C	
					Develop Procurement Plan		Finalize Performance and Operation Requirements		Propulsion Power System Requirements		Design Criteria		System Technical Performance Specifications		Cost Estimating and Schedule Development		Procurement Contract Documents		AirTrain Vendor Procurement Support	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
MEP			**Subtotal**		0	$ -	0	$ -	0	$ -	2,020	$ 334,303	360	$ 69,086	296	$ 59,215	0	0	0	0
Michael McDonald	Parsons	PM Electrical Design	$77.96	2.44		$ -		$ -		$ -	160	$ 30,437	80	$ 15,218	80	$ 15,218		$ -		$ -
John Lewandowski	Parsons	PM Electrical Design	$96.46	2.44		$ -		$ -		$ -	120	$ 28,244	80	$ 18,829	120	$ 28,244		$ -		$ -
Lighting Designer	Parsons	Lighting Designer	$60.00	2.44		$ -		$ -		$ -	420	$ 61,488	40	$ 5,856	24	$ 3,514		$ -		$ -
Winston Ailey	Parsons	Plumbing Designer	$65.00	2.44		$ -		$ -		$ -	320	$ 50,752	40	$ 6,344	24	$ 3,806		$ -		$ -
William Connors	Parsons	Fire Protection Engineer	$90.00	2.44		$ -		$ -		$ -	360	$ 79,056	80	$ 17,568	24	$ 5,270		$ -		$ -
TBD	Parsons	Electrical Design Tech	$54.00	2.44		$ -		$ -		$ -	640	$ 84,326	40	$ 5,270	24	$ 3,162		$ -		$ -
Traction Power			**Subtotal**		0	$ -	104	$ 15,730	1,350	$ 140,795	2,020	$ 209,544	220	$ 28,098	222	$ 29,676	0	$ -	0	$ -
Paul Soleyn	Parsons	PM Design Lead	$76.92	2.44		$ -	24	$ 4,505	40	$ 7,508	40	$ 7,508	60	$ 11,262	40	$ 7,508		$ -		$ -
David Penrose	Parsons	Designer	$57.51	2.44		$ -	80	$ 11,225	230	$ 32,272	360	$ 50,512	40	$ 5,612	110	$ 15,434		$ -		$ -
Partha Roy	Parsons	Elec Designer	$45.00	2.44		$ -		$ -	360	$ 39,528	540	$ 59,292	40	$ 4,392	24	$ 2,635		$ -		$ -
Brian Kwon	Parsons	Elec Design Tech	$35.00	2.44		$ -		$ -	720	$ 61,488	1,080	$ 92,232	80	$ 6,832	48	$ 4,099		$ -		$ -
Train Control and Communications Systems			**Subtotal**		204	$ 43,477	160	$ 34,099	200	$ 39,377	560	$ 119,348	880	$ 147,999	200	$ 36,047	48	$ 10,230	0	$ -
Raymond Paice	Parsons	PM Systems Lead	$86.15	2.44		$ -		$ -	120	$ 25,225		$ -	120	$ 25,225	40	$ 8,408		$ -		$ -
David Greener	Parsons	Systems Designer	$75.00	2.44		$ -		$ -	40	$ 7,320		$ -	80	$ 14,640		$ -		$ -		$ -
Nichola Grossi	Parsons	Systems Designer	$70.00	2.44		$ -		$ -	40	$ 6,832		$ -		$ -		$ -		$ -		$ -
Philip Scharff	Parsons	PM Communications	$70.80	2.44		$ -		$ -		$ -		$ -	120	$ 20,729	160	$ 27,638		$ -		$ -
Daniel Beebe	Parsons	Communications Engineer	$41.18	2.44		$ -		$ -		$ -		$ -	140	$ 14,067		$ -		$ -		$ -
Mourad Habashi	Parsons	Communications Tech	$40.00	2.44		$ -		$ -		$ -		$ -	140	$ 13,664		$ -		$ -		$ -
Alain Kouassi	Parsons	PM Systems Integration	$87.35	2.44	204	$ 43,477	160	$ 34,099		$ -	560	$ 119,348	280	$ 59,674		$ -	48	$ 10,230		$ -
System Startup / Safety Certification and Commissioning			**Subtotal**		0	$ -	0	$ -	0	$ -	200	$ 36,864	600	$ 122,113	80	$ 14,170	80	$ 14,170	0	$ -
Kevin Jones	Parsons	Safety Certification	$57.84	2.44		$ -		$ -		$ -	80	$ 11,290	80	$ 11,290	40	$ 5,645	40	$ 5,645		$ -
Alain Kouassi	Parsons	Commissioning	$87.35	2.44		$ -		$ -		$ -	120	$ 25,575	520	$ 110,823	40	$ 8,525	40	$ 8,525		$ -
Survey			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
James D. Sens, PLS	Matrix	Director of Survey	$65.00	2.86		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Frank Barlowski, PLS	Matrix	Senior Surveyor	$53.00	2.86		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Jon Roberts	Matrix	Senior Survey Tech	$30.29	2.86		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Alex Sorokin, PLS	Matrix	Survey Crew Chief	$33.81	2.86		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Bruce Krouse	Matrix	Field Surveyor	$30.00	2.86		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Emanuel DeBras	Matrix	Laser Scanning Tech	$19.00	2.86		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Jose Vargas	Matrix	CAD	$34.65	2.86		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task B.1		Task B.2		Task B.3		Task B.4		Task B.5		Task B.6		Task B.7		Task C	
					Develop Procurement Plan		Finalize Performance and Operation Requirements		Propulsion Power System Requirements		Design Criteria		System Technical Performance Specifications		Cost Estimating and Schedule Development		Procurement Contract Documents		AirTrain Vendor Procurement Support	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Geotechnical			**Subtotal**		0	$ -	0	$ -	0	$ -	438	$ 79,413	0	$ -	0	$ -	0	$ -	0	$ -
Arland, F.	Mueser Rutledge	Partner	$100.14	2.90		$ -		$ -		$ -	16	$ 4,646		$ -		$ -		$ -		$ -
Rhyner, F.	Mueser Rutledge	Senior Associate	$90.45	2.90		$ -		$ -		$ -	100	$ 26,231		$ -		$ -		$ -		$ -
Yemenadra, S.	Mueser Rutledge	Associate	$60.57	2.90		$ -		$ -		$ -	120	$ 21,078		$ -		$ -		$ -		$ -
Andy Raichle, PE	Matrix	Project Supervisor	$103.99	2.86		$ -		$ -		$ -	16	$ 4,759		$ -		$ -		$ -		$ -
Donald Heck, PE	Matrix	Geotechnical Project Manager	$60.81	2.86		$ -		$ -		$ -	34	$ 5,913		$ -		$ -		$ -		$ -
Charles Bassett, PE	Matrix	Senior Geotechnical Engineer	$48.27	2.86		$ -		$ -		$ -	60	$ 8,283		$ -		$ -		$ -		$ -
Raymond Persaud	Matrix	Geotechnical Engineer	$32.81	2.86		$ -		$ -		$ -	80	$ 7,507		$ -		$ -		$ -		$ -
Anthony Riccio	Matrix	CADD	$35.12	2.86		$ -		$ -		$ -	8	$ 804		$ -		$ -		$ -		$ -
Courtney Zilske	Matrix	Administrative Support	$16.80	2.86		$ -		$ -		$ -	4	$ 192		$ -		$ -		$ -		$ -
Roadways and Utilities			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Nigel Newton	Parsons	Civil Design Lead	$87.98	2.44		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
TBD	Parsons	Drainage Engineer	$65.00	2.44		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
TBD	Parsons	Utility Engineer	$62.50	2.44		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Traffic Modeling			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Marty Taub (Category 9)	VHB	Technical Director	$94.10	2.84		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Babu Veeregowda (Category 8)	VHB	Project Manager	$83.27	2.84		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Michael Despojado (Category 6)	VHB	Senior Project Manager	$48.10	2.84		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Alferd Yeung (Category 4)	VHB	Senior Engineer	$38.47	2.84		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Andrew Cheng (Category 4)	VHB	Senior Engineer	$39.62	2.84		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Erica Swansen (Category 2)	VHB	Engineer	$34.67	2.84		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Josh Herman (Category 2)	VHB	Engineer	$34.67	2.84		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Vehicle Engineering/Inspections			**Subtotal**		0	$ -	0	$ -	360	$ 82,657	0	$ -	1,460	$ 348,433	180	$ 45,292	360	$ 84,419	1,000	$ 237,531
Jeffrey Pringle	Parsons	Vehicle Expert	$103.12	2.44		$ -		$ -		$ -		$ -	600	$ 150,974	180	$ 45,292	80	$ 20,130	360	$ 90,584
Peter Harrison	Parsons	APM Systems Lead	$94.10	2.44		$ -		$ -	360	$ 82,657		$ -	860	$ 197,459		$ -	280	$ 64,289	640	$ 146,947
Vehicle Inspector	Parsons	Vehicle Inspector	$60.00	2.44		$ -		$ -				$ -				$ -				
Procurement Strategy / Procurement Support			**Subtotal**		160	$ 26,504	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Aaron Singer	Parsons	Procurement Support	$67.89	2.44	160	$ 26,504		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Ruth McMorrow	Parsons	Alt Delivery Consultant	$200.00	1.00		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Peter Harrison	Parsons	Vehicle Expert	$94.10	2.44		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Gerry Stoughton	Stoughton	AD Consultant	$200.00	1.00		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Mary Peters	MP Consulting	AD Consultant	$450.00	1.00		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Jerrold Dinkels	Techno Consulting	AD Consultant	$115.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -

ATTACHMENT D - STAFF AND COSTS ANALYSIS

EWR APM Staffing Plan

COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task B.1		Task B.2		Task B.3		Task B.4		Task B.5		Task B.6		Task B.7		Task C	
					Develop Procurement Plan		Finalize Performance and Operation Requirements		Propulsion Power System Requirements		Design Criteria		System Technical Performance Specifications		Cost Estimating and Schedule Development		Procurement Contract Documents		AirTrain Vendor Procurement Support	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Project Management			**Subtotal**		784	$ 216,321	280	$ 78,624	136	$ 37,819	3,152	$ 878,729	640	$ 187,936	368	$ 101,722	480	$ 130,418	936	$ 272,654
David Leverenz	Parsons	Program Manager	$120.24	2.44	640	$ 187,767	240	$ 70,413	120	$ 35,206	720	$ 211,238	480	$ 140,825	320	$ 93,883	400	$ 117,354	800	$ 234,708
Richard Eitland	Parsons	Quality Manager	$66.93	2.44	24	$ 3,919		$ -	16	$ 2,613	240	$ 39,191		$ -	48	$ 7,838	80	$ 13,064	16	$ 2,613
Kenneth Sundberg	Parsons	Safety Manager	$84.14	2.44	120	$ 24,635	40	$ 8,212		$ -	192	$ 39,416		$ -		$ -		$ -		$ -
Jane Charalambous	Parsons	Conceptual Design/Design Oversight Mgr	$120.67	2.44		$ -		$ -		$ -	2,000	$ 588,884	160	$ 47,111		$ -		$ -	120	$ 35,333
Project Controls			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1,680	$ 236,780	0	$ -	0	$ -
Elaine Donaty	Parsons	Cost Control	$84.02	2.44		$ -		$ -		$ -		$ -		$ -	0	$ -		$ -		$ -
Hans Hoppe	Parsons	Risk Management	$82.53	2.44		$ -		$ -		$ -		$ -		$ -	840	$ 169,160		$ -		$ -
Document Control	Techno	Document Control	$35.00	2.30		$ -		$ -		$ -		$ -		$ -	840	$ 67,620		$ -		$ -
Thomas Gallagher	Parsons	Project Controls Manager	$54.77	2.44		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Project Controls	Parsons	Project Controls Specialist	$45.00	2.44																
Cost Estimating and Scheduling			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	3,448	$ 435,897	0	$ -	0	$ -
F. George	JCMS, Inc.	Chief Estimator	$75.75	2.39		$ -		$ -		$ -		$ -		$ -	160	$ 28,967		$ -		$ -
K. Meehan / H. Shukla	JCMS, Inc.	Sr. Estimator	$60.64	2.39		$ -		$ -		$ -		$ -		$ -	1,040	$ 150,727		$ -		$ -
K. Gandhi	JCMS, Inc.	Estimator	$44.00	2.39		$ -		$ -		$ -		$ -		$ -	1,192	$ 125,351		$ -		$ -
R. Sondur	JCMS, Inc.	Technician	$29.75	2.39		$ -		$ -		$ -		$ -		$ -	200	$ 14,221		$ -		$ -
Sr Scheduler	Techno	Sr. Schedulier	$75.00	2.39		$ -		$ -		$ -		$ -		$ -	240	$ 43,020		$ -		$ -
Scheduler	Techno	Scheduler	$50.00	2.39		$ -		$ -		$ -		$ -		$ -	616	$ 73,612		$ -		$ -
Track Alignment			**Subtotal**		0	$ -	216	$ 24,185	0	$ -	280	$ 33,535	240	$ 28,080	0	$ -	0	$ -	0	$ -
Phil Nguyen	Parsons	PM_Track Design	$55.90	2.44		$ -	80	$ 10,912		$ -	160	$ 21,823	120	$ 16,368		$ -		$ -		$ -
David Pell	Parsons	Track Engineer	$40.00	2.44		$ -	136	$ 13,274		$ -	120	$ 11,712	120	$ 11,712		$ -		$ -		$ -
Planning			**Subtotal**		960	$ 241,513	10,448	$ 1,379,777	0	$ -	120	$ 21,470	136	$ 35,839	0	$ -	0	$ -	452	$ 109,778
Monica Barrow	Parsons	Project Development Lead	$108.00	2.44	320	$ 84,327	48	$ 12,649		$ -		$ -	136	$ 35,839		$ -		$ -		$ -
Gregory Gaides	Parsons	Planner	$58.84	2.44		$ -	400	$ 57,426		$ -		$ -		$ -		$ -		$ -		$ -
Joseph Steindam	Parsons	Planner	$29.40	2.44		$ -	200	$ 14,347		$ -		$ -		$ -		$ -		$ -		$ -
Julie Murphy	VHB	Demand Analyst	$68.72	2.84	0	$ -	425	$ 82,945		$ -		$ -		$ -		$ -		$ -	0	$ -
Elizabeth Hynes	Parsons	Environmental Lead	$52.51	2.44		$ -		$ -		$ -		$ -		$ -		$ -		$ -	32	$ 4,100
Jennifer Hogan	VHB	Airport and Environmental Planner	$49.99	2.84		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Richard Louis	VHB	Senior Airport Planner	$90.00	2.84	180	$ 46,008	0	$ -		$ -		$ -		$ -		$ -		$ -	180	$ 46,008
Peter Byrne	VHB	Principal, Sr Airport Planner	$80.18	2.84	240	$ 54,651	0	$ -		$ -		$ -		$ -		$ -		$ -	60	$ 13,663
Matt Sloane	VHB	PFC Task - GIS Graphics Technician	$30.78	2.84	0	$ -	0	$ -		$ -		$ -		$ -		$ -		$ -	0	$ -
Ted Kleiner	VHB	Senior Airport Planner	$90.00	2.84	180	$ 46,008	0	$ -		$ -		$ -		$ -		$ -		$ -	180	$ 46,008
Lisa DiTaranti	VHB	Transit Manager	$92.60	2.84	40	$ 10,519	550	$ 144,641		$ -		$ -		$ -		$ -		$ -	0	$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task B.1		Task B.2		Task B.3		Task B.4		Task B.5		Task B.6		Task B.7		Task C	
					Develop Procurement Plan		Finalize Performance and Operation Requirements		Propulsion Power System Requirements		Design Criteria		System Technical Performance Specifications		Cost Estimating and Schedule Development		Procurement Contract Documents		AirTrain Vendor Procurement Support	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Procurement Documents			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	3,200	$ 636,387	0	$ -
Anthony Fleres	Parsons		$81.71	2.44		$ -		$ -		$ -		$ -		$ -		$ -	1,600	$ 318,984		$ -
John Christodoulakis	Parsons		$81.30	2.44		$ -		$ -		$ -		$ -		$ -		$ -	1,600	$ 317,403		$ -
Construction Management			**Subtotal**		640	$ 181,505	8	$ 2,269	240	$ 68,064	360	$ 102,096	80	$ 22,688	240	$ 68,064	120	$ 34,032	300	$ 85,080
Jorge L Estevez	Parsons	Construction Management	$116.23	2.44	640	$ 181,505	8	$ 2,269	240	$ 68,064	360	$ 102,096	80	$ 22,688	240	$ 68,064	120	$ 34,032	300	$ 85,080
John Postorino	Parsons	Construction Oversight	$91.33	2.44		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Christine Terril	Parsons	Configuration Manager	$55.00	2.44		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Document Control Manager	Techno Consulting	Document Control Manager	$45.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Civil	Matrix	Inspector Civil	$50.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Civil	Matrix	Inspector Civil	$50.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Utilities	Matrix	Inspector Utilities	$50.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Environmental	Techno Consulting	Inspector Environmental	$55.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Structural	Techno Consulting	Inspector Structural	$55.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Structural	Techno Consulting	Inspector Structural	$55.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector MEP	Techno Consulting	Inspector MEP	$55.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Systems	Parsons	Inspector Systems	$70.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Systems	Parsons	Inspector Systems	$70.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Inspector Safety	Techno Consulting	Inspector Safety	$60.00	2.30		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Totals					2,748	$ 709,319	12,336	$ 1,695,229	2,286	$ 368,714	49,124	$ 6,591,240	5,332	$ 1,136,823	7,290	$ 1,132,970	5,236	$ 1,051,284	3,168	$ 795,824

ATTACHMENT D - STAFF AND COSTS ANALYSIS

EWR APM Staffing Plan

COST DETAIL - STAFFING PLAN * Add rows as needed. For Partners & Principals use Billing Rates

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Project Management			**Subtotal**		4,490	$ 1,225,973	5,180	$ 1,065,749	2,390	$ 410,930	0	$ -	980	$ 287,518
David Leverenz	Parsons	Program Manager	$120.24	2.44	520	$ 152,561	980	$ 287,518	120	$ 35,206		$ -	980	$ 287,518
Richard Eitland	Parsons	Quality Manager	$66.93	2.44	640	$ 104,510	2,000	$ 326,594	2,150	$ 351,089		$ -		$ -
Kenneth Sundberg	Parsons	Safety Manager	$84.14	2.44	130	$ 26,688	2,200	$ 451,637	120	$ 24,635		$ -		$ -
Jane Charalambous	Parsons	Conceptual Design/Design Oversight Mgr	$120.67	2.44	3,200	$ 942,215		$ -		$ -		$ -		$ -
Project Controls			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	29,680	$ 3,920,018
Elaine Donaty	Parsons	Cost Control	$84.02	2.44		$ -		$ -		$ -		$ -	5,000	$ 1,025,020
Hans Hoppe	Parsons	Risk Management	$82.53	2.44		$ -		$ -		$ -		$ -	3,400	$ 684,694
Document Control	Techno	Document Control	$35.00	2.30		$ -		$ -		$ -		$ -	11,920	$ 959,560
Thomas Gallagher	Parsons	Project Controls Manager	$54.77	2.44		$ -		$ -		$ -		$ -	9,360	$ 1,250,745
Project Controls	Parsons	Project Controls Specialist	$45.00	2.44									4,000	$ 439,200
Cost Estimating and Scheduling			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	11,250	$ 1,482,904
F. George	JCMS, Inc.	Chief Estimator	$75.75	2.39		$ -		$ -		$ -		$ -	800	$ 144,834
K. Meehan / H. Shukla	JCMS, Inc.	Sr. Estimator	$60.64	2.39		$ -		$ -		$ -		$ -	800	$ 115,944
K. Gandhi	JCMS, Inc.	Estimator	$44.00	2.39		$ -		$ -		$ -		$ -	400	$ 42,064
R. Sondur	JCMS, Inc.	Technician	$29.75	2.39		$ -		$ -		$ -		$ -		$ -
Sr Scheduler	Techno	Sr. Schedulier	$75.00	2.39		$ -		$ -		$ -		$ -	1,250	$ 224,063
Scheduler	Techno	Scheduler	$50.00	2.39		$ -		$ -		$ -		$ -	8,000	$ 956,000
Track Alignment			**Subtotal**		400	$ 46,799	0	$ -	0	$ -	0	$ -	0	$ -
Phil Nguyen	Parsons	PM_Track Design	$55.90	2.44	200	$ 27,279		$ -		$ -		$ -		$ -
David Pell	Parsons	Track Engineer	$40.00	2.44	200	$ 19,520		$ -		$ -		$ -		$ -
Planning			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Monica Barrow	Parsons	Project Development Lead	$108.00	2.44		$ -		$ -		$ -		$ -		$ -
Gregory Gaides	Parsons	Planner	$58.84	2.44		$ -		$ -		$ -		$ -		$ -
Joseph Steindam	Parsons	Planner	$29.40	2.44		$ -		$ -		$ -		$ -		$ -
Julie Murphy	VHB	Demand Analyst	$68.72	2.84		$ -		$ -		$ -		$ -		$ -
Elizabeth Hynes	Parsons	Environmental Lead	$52.51	2.44		$ -		$ -		$ -		$ -		$ -
Jennifer Hogan	VHB	Airport and Environmental Planner	$49.99	2.84		$ -		$ -		$ -		$ -		$ -
Richard Louis	VHB	Senior Airport Planner	$90.00	2.84		$ -		$ -		$ -		$ -		$ -
Peter Byrne	VHB	Principal, Sr Airport Planner	$80.18	2.84		$ -		$ -		$ -		$ -		$ -
Matt Sloane	VHB	PFC Task - GIS Graphics Technician	$30.78	2.84		$ -		$ -		$ -		$ -		$ -
Ted Kleiner	VHB	Senior Airport Planner	$90.00	2.84		$ -		$ -		$ -		$ -		$ -
Lisa DiTaranti	VHB	Transit Manager	$92.60	2.84		$ -		$ -		$ -		$ -		$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task D.1 Design Oversight and Documentation Review		Task D.2 Manufacturing, Installation and Construction Oversight		Task D.3 Acceptance Testing and Demonstrations		Task D.4 Warranty Administration		Task D.5 Contract Administration and Payments	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Senior Planner	VHB	Senior Planner	$74.71	2.84		$ -		$ -		$ -		$ -		$ -
Planner	VHB	Planner	$46.20	2.84		$ -		$ -		$ -		$ -		$ -
Junior Planner	VHB	Junior Planner	$36.49	2.84		$ -		$ -		$ -		$ -		$ -
Charles Passanisi	VHB	Operating Cost and Finance Analyst	$60.94	2.84		$ -		$ -		$ -		$ -		$ -
Randy Hart	VHB	Pedestrian Analysis	$78.70	2.84		$ -		$ -		$ -		$ -		$ -
Christine Trearchis	VHB	Pedestrian Analysis	$36.50	2.84		$ -		$ -		$ -		$ -		$ -
Ped Modeler	VHB	Pedestrian Analysis	$31.57	2.84		$ -		$ -		$ -		$ -		$ -
Terry Byrne	VHB	Operations Lead	$88.94	2.84		$ -		$ -		$ -		$ -		$ -
Josh Bendyk, et al	VHB	Operations Analyst	$35.11	2.84		$ -		$ -		$ -		$ -		$ -
CAD	VHB	CAD	$45.18	2.84		$ -		$ -		$ -		$ -		$ -
Marlene Pissott	INGROUP	Mananger Stakeholder Coordination	$50.00	2.88		$ -		$ -		$ -		$ -		$ -
Carmen Costa	INGROUP	Specialist Stakeholder Coordination	$28.00	2.88		$ -		$ -		$ -		$ -		$ -
Kristin Connington	INGROUP	Associate II Stakeholder Coordination	$25.00	2.88		$ -		$ -		$ -		$ -		$ -
Cynthia Valentino	INGROUP	Associate Stakeholder Coordiantion	$24.00	2.88		$ -		$ -		$ -		$ -		$ -
William Jensen	Ricondo	Airport Planner/FAA Coord	$56.80	3.15		$ -		$ -		$ -		$ -		$ -
Architecture			**Subtotal**		2,560	$ 499,354	800	$ 137,628	0	$ -	0	$ -	0	$ -
Joe Chang	Ricondo	Vice President	$330.00	1.00	0	$ -		$ -		$ -		$ -		$ -
Ramacorti	Ricondo	Director	$258.41	1.00	0	$ -		$ -		$ -		$ -		$ -
McKenna	Ricondo	Director	$258.41	1.00	0	$ -		$ -		$ -		$ -		$ -
Jensen	Ricondo	Station Simulation	$56.80	3.15	0	$ -		$ -		$ -		$ -		$ -
Senior Consultant	Ricondo	Station Simulation	$31.04	3.15	0	$ -		$ -		$ -		$ -		$ -
Peter Smoluchowski	Parsons	PM_Arch Design Lead_Stations	$112.53	2.44	640	$ 175,730	160	$ 43,932		$ -		$ -		$ -
Architect 1_Stations	B. Thayer	Architect 1_Stations	$60.00	2.44	640	$ 93,696	320	$ 46,848		$ -		$ -		$ -
Drafter Stations	B. Thayer	Drafter_Stations	$50.00	2.44		$ -		$ -		$ -		$ -		$ -
Designer Stations	B. Thayer	Designer_Stations	$60.00	2.44	640	$ 93,696	320	$ 46,848		$ -		$ -		$ -
Drafter Stations	B. Thayer	Drafter_Stations	$50.00	2.44		$ -		$ -		$ -		$ -		$ -
Roland Genick	Parsons	PM_Arch Design Lead_VMF	$87.24	2.44	640	$ 136,232		$ -		$ -		$ -		$ -
Architect 1 Mtce Facility	Parsons	Architect 1 Mtce Facility	$80.00	2.44		$ -		$ -		$ -		$ -		$ -
Designer Mtce Facility	Parsons	Designer Mtce Facility	$70.00	2.44		$ -		$ -		$ -		$ -		$ -
Drafter Mtce Facility	Parsons	Drafter Mtce Facility	$50.00	2.44		$ -		$ -		$ -		$ -		$ -
Structural			**Subtotal**		1,200	$ 155,180	0	$ -	0	$ -	0	$ -	0	$ -
Peter Mauritz	Parsons	PM SE Bridge	$97.03	2.44	120	$ 28,411		$ -		$ -		$ -		$ -
Jeffrey Abrams	Parsons	PM SE Structures	$112.96	2.44	120	$ 33,073		$ -		$ -		$ -		$ -
Senior Engineer I	Parsons	Senior Engineer I	$50.00	2.44	240	$ 29,280		$ -		$ -		$ -		$ -
Senior Engineer II	Parsons	Senior Engineer II	$45.00	2.44	240	$ 26,352		$ -		$ -		$ -		$ -
Engineer I	Parsons	Engineer I	$35.00	2.44	240	$ 20,496		$ -		$ -		$ -		$ -
Engineer II	Parsons	Engineer II	$30.00	2.44	240	$ 17,568		$ -		$ -		$ -		$ -
Senior Tech	Parsons	Senior Tech	$35.00	2.44		$ -		$ -		$ -		$ -		$ -
Tech	Parsons	Tech	$35.00	2.44		$ -		$ -		$ -		$ -		$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task D.1		Task D.2		Task D.3		Task D.4		Task D.5	
					Design Oversight and Documentation Review		Manufacturing, Installation and Construction Oversight		Acceptance Testing and Demonstrations		Warranty Administration		Contract Administration and Payments	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
MEP			**Subtotal**		1,100	$ 198,245	0	0	0	0	0	0	0	0
Michael McDonald	Parsons	PM Electrical Design	$77.96	2.44	160	$ 30,437		$ -		$ -		$ -		$ -
John Lewandowski	Parsons	PM Electrical Design	$96.46	2.44	160	$ 37,659		$ -		$ -		$ -		$ -
Lighting Designer	Parsons	Lighting Designer	$60.00	2.44	210	$ 30,744		$ -		$ -		$ -		$ -
Winston Ailey	Parsons	Plumbing Designer	$65.00	2.44	120	$ 19,032		$ -		$ -		$ -		$ -
William Connors	Parsons	Fire Protection Engineer	$90.00	2.44	240	$ 52,704		$ -		$ -		$ -		$ -
TBD	Parsons	Electrical Design Tech	$54.00	2.44	210	$ 27,670		$ -		$ -		$ -		$ -
Traction Power			**Subtotal**		950	$ 111,407	0	$ -	160	$ 26,240	0	$ -	0	$ -
Paul Soleyn	Parsons	PM Design Lead	$76.92	2.44	160	$ 30,031		$ -	80	$ 15,015		$ -		$ -
David Penrose	Parsons	Designer	$57.51	2.44	160	$ 22,450		$ -	80	$ 11,225		$ -		$ -
Partha Roy	Parsons	Elec Designer	$45.00	2.44	210	$ 23,058		$ -		$ -		$ -		$ -
Brian Kwon	Parsons	Elec Design Tech	$35.00	2.44	420	$ 35,868		$ -		$ -		$ -		$ -
Train Control and Communications Systems			**Subtotal**		700	$ 139,253	0	$ -	680	$ 137,996	0	$ -	0	$ -
Raymond Paice	Parsons	PM Systems Lead	$86.15	2.44	360	$ 75,676		$ -	160	$ 33,634		$ -		$ -
David Greener	Parsons	Systems Designer	$75.00	2.44		$ -		$ -		$ -		$ -		$ -
Nichola Grossi	Parsons	Systems Designer	$70.00	2.44		$ -		$ -		$ -		$ -		$ -
Philip Scharff	Parsons	PM Communications	$70.80	2.44	220	$ 38,003		$ -	160	$ 27,638		$ -		$ -
Daniel Beebe	Parsons	Communications Engineer	$41.18	2.44		$ -		$ -		$ -		$ -		$ -
Mourad Habashi	Parsons	Communications Tech	$40.00	2.44		$ -		$ -		$ -		$ -		$ -
Alain Kouassi	Parsons	PM Systems Integration	$87.35	2.44	120	$ 25,575		$ -	360	$ 76,724		$ -		$ -
System Startup / Safety Certification and Commissioning			**Subtotal**		1,020	$ 182,823	0	$ -	1,200	$ 169,344	0	$ -	0	$ -
Kevin Jones	Parsons	Safety Certification	$57.84	2.44	480	$ 67,738		$ -	1,200	$ 169,344		$ -		$ -
Alain Kouassi	Parsons	Commissioning	$87.35	2.44	540	$ 115,086		$ -		$ -		$ -		$ -
Survey			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
James D. Sens, PLS	Matrix	Director of Survey	$65.00	2.86		$ -		$ -		$ -		$ -		$ -
Frank Barlowski, PLS	Matrix	Senior Surveyor	$53.00	2.86		$ -		$ -		$ -		$ -		$ -
Jon Roberts	Matrix	Senior Survey Tech	$30.29	2.86		$ -		$ -		$ -		$ -		$ -
Alex Sorokin, PLS	Matrix	Survey Crew Chief	$33.81	2.86		$ -		$ -		$ -		$ -		$ -
Bruce Krouse	Matrix	Field Surveyor	$30.00	2.86		$ -		$ -		$ -		$ -		$ -
Emanuel DeBras	Matrix	Laser Scanning Tech	$19.00	2.86		$ -		$ -		$ -		$ -		$ -
Jose Vargas	Matrix	CAD	$34.65	2.86		$ -		$ -		$ -		$ -		$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task D.1		Task D.2		Task D.3		Task D.4		Task D.5	
					Design Oversight and Documentation Review		Manufacturing, Installation and Construction Oversight		Acceptance Testing and Demonstrations		Warranty Administration		Contract Administration and Payments	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Geotechnical			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Arland, F.	Mueser Rutledge	Partner	$100.14	2.90		$ -		$ -		$ -		$ -		$ -
Rhyner, F.	Mueser Rutledge	Senior Associate	$90.45	2.90		$ -		$ -		$ -		$ -		$ -
Yemenadra, S.	Mueser Rutledge	Associate	$60.57	2.90		$ -		$ -		$ -		$ -		$ -
Andy Raichle, PE	Matrix	Project Supervisor	$103.99	2.86		$ -		$ -		$ -		$ -		$ -
Donald Heck, PE	Matrix	Geotechnical Project Manager	$60.81	2.86		$ -		$ -		$ -		$ -		$ -
Charles Bassett, PE	Matrix	Senior Geotechnical Engineer	$48.27	2.86		$ -		$ -		$ -		$ -		$ -
Raymond Persaud	Matrix	Geotechnical Engineer	$32.81	2.86		$ -		$ -		$ -		$ -		$ -
Anthony Riccio	Matrix	CADD	$35.12	2.86		$ -		$ -		$ -		$ -		$ -
Courtney Zilske	Matrix	Administrative Support	$16.80	2.86		$ -		$ -		$ -		$ -		$ -
Roadways and Utilities			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Nigel Newton	Parsons	Civil Design Lead	$87.98	2.44		$ -		$ -		$ -		$ -		$ -
TBD	Parsons	Drainage Engineer	$65.00	2.44		$ -		$ -		$ -		$ -		$ -
TBD	Parsons	Utility Engineer	$62.50	2.44		$ -		$ -		$ -		$ -		$ -
Traffic Modeling			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Marty Taub (Category 9)	VHB	Technical Director	$94.10	2.84		$ -		$ -		$ -		$ -		$ -
Babu Veeregowda (Category 8)	VHB	Project Manager	$83.27	2.84		$ -		$ -		$ -		$ -		$ -
Michael Despojado (Category 6)	VHB	Senior Project Manager	$48.10	2.84		$ -		$ -		$ -		$ -		$ -
Alferd Yeung (Category 4)	VHB	Senior Engineer	$38.47	2.84		$ -		$ -		$ -		$ -		$ -
Andrew Cheng (Category 4)	VHB	Senior Engineer	$39.62	2.84		$ -		$ -		$ -		$ -		$ -
Erica Swansen (Category 2)	VHB	Engineer	$34.67	2.84		$ -		$ -		$ -		$ -		$ -
Josh Herman (Category 2)	VHB	Engineer	$34.67	2.84		$ -		$ -		$ -		$ -		$ -
Vehicle Engineering/Inspections			**Subtotal**		1,380	$ 328,744	8,800	$ 1,873,670	1,820	$ 431,971	540	$ 135,876	**120.00**	$ 30,195
Jeffrey Pringle	Parsons	Vehicle Expert	$103.12	2.44	540	$ 135,876	2,400	$ 603,894	640	$ 161,038	540	$ 135,876	120	$ 30,195
Peter Harrison	Parsons	APM Systems Lead	$94.10	2.44	840	$ 192,867	4,000	$ 918,416	1,180	$ 270,933		$ -		$ -
Vehicle Inspector	Parsons	Vehicle Inspector	$60.00	2.44			2,400	$ 351,360		$ -		$ -		$ -
Procurement Strategy / Procurement Support			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Aaron Singer	Parsons	Procurement Support	$67.89	2.44		$ -		$ -		$ -		$ -		$ -
Ruth McMorrow	Parsons	Alt Delivery Consultant	$200.00	1.00		$ -		$ -		$ -		$ -		$ -
Peter Harrison	Parsons	Vehicle Expert	$94.10	2.44		$ -		$ -		$ -		$ -		$ -
Gerry Stoughton	Stoughton	AD Consultant	$200.00	1.00		$ -		$ -		$ -		$ -		$ -
Mary Peters	MP Consulting	AD Consultant	$450.00	1.00		$ -		$ -		$ -		$ -		$ -
Jerrold Dinkels	Techno Consulting	AD Consultant	$115.00	2.30		$ -		$ -		$ -		$ -		$ -

Staffing	Name of Firm	Title	Hourly Rates	Multiplier	Task D.1		Task D.2		Task D.3		Task D.4		Task D.5	
					Design Oversight and Documentation Review		Manufacturing, Installation and Construction Oversight		Acceptance Testing and Demonstrations		Warranty Administration		Contract Administration and Payments	
					EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT	EST. HRS	AMOUNT
Procurement Documents			**Subtotal**		0	$ -	0	$ -	0	$ -	0	$ -	0	$ -
Anthony Fleres	Parsons		$81.71	2.44		$ -		$ -		$ -		$ -		$ -
John Christodoulakis	Parsons		$81.30	2.44		$ -		$ -		$ -		$ -		$ -
Construction Management			**Subtotal**		0	$ -	73,120	$ 11,296,405	640	$ 181,505	0	$ -	34,512	$ 4,101,751
Jorge L Estevez	Parsons	Construction Management	$116.23	2.44		$ -	7,000	$ 1,985,208	640	$ 181,505		$ -		$ -
John Postorino	Parsons	Construction Oversight	$91.33	2.44		$ -	8,960	$ 1,996,737		$ -		$ -		$ -
Christine Terril	Parsons	Configuration Manager	$55.00	2.44		$ -		$ -		$ -		$ -	17,256	$ 2,315,755
Document Control Manager	Techno Consulting	Document Control Manager	$45.00	2.30		$ -		$ -		$ -		$ -	17,256	$ 1,785,996
Inspector Civil	Matrix	Inspector Civil	$50.00	2.30		$ -	6,880	$ 791,200		$ -		$ -		$ -
Inspector Civil	Matrix	Inspector Civil	$50.00	2.30		$ -	6,880	$ 791,200		$ -		$ -		$ -
Inspector Utilities	Matrix	Inspector Utilities	$50.00	2.30		$ -	6,880	$ 791,200		$ -		$ -		$ -
Inspector Environmental	Techno Consulting	Inspector Environmental	$55.00	2.30		$ -	1,720	$ 217,580		$ -		$ -		$ -
Inspector Structural	Techno Consulting	Inspector Structural	$55.00	2.30		$ -	6,880	$ 870,320		$ -		$ -		$ -
Inspector Structural	Techno Consulting	Inspector Structural	$55.00	2.30		$ -	6,880	$ 870,320		$ -		$ -		$ -
Inspector MEP	Techno Consulting	Inspector MEP	$55.00	2.30		$ -	6,880	$ 870,320		$ -		$ -		$ -
Inspector Systems	Parsons	Inspector Systems	$70.00	2.30		$ -	3,440	$ 553,840		$ -		$ -		$ -
Inspector Systems	Parsons	Inspector Systems	$70.00	2.30		$ -	3,440	$ 553,840		$ -		$ -		$ -
Inspector Safety	Techno Consulting	Inspector Safety	$60.00	2.30		$ -	7,280	$ 1,004,640		$ -		$ -		$ -
Totals					13,800	$ 2,887,778	87,900	$ 14,373,452	6,890	$ 1,357,986	540	$ 135,876	76,542	$ 9,822,386

CONSULTANT EVALUATION SUMMARY

REQUEST FOR PROPOSALS FOR PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

Project Manager: Richard Schnurr

FIRMS:	Parsons Transportation Group of NY	CH2M Hill New York, Inc.	Lea + Elliot, Inc.
TECHNICAL SCORE:	[redacted]	[redacted]	[redacted]
M/WBE PARTICIPATION (YES/NO):	YES	YES	YES
COST INFORMATION:	**$20,792,551**	**$10,352,019**	**$26,379,243**
MULTIPLIER:	**2.44**	**2.61**	**2.71 (Orig Mult 2.84)**
OUT OF POCKET EXPENSES:	$369,360	$250,000	$760,421
PROPOSAL COSTS (INCLUDING OPE):	$21,161,911	$10,602,019	$27,139,664
RECOMMENDED FIRM (TOP 2)			

Jessica Smith
Solicitation Manager (Procurement)

EVALUATORS: 7/31/15 Catherine Cronin Date

7/31/15 William Radinson Date

7/31/15 Brian McLaughlin Date

REVIEWED: 7/31/15 Richard V. Heslin Date
General Manager, New Jersey Airports

Concurred: 7/31/15 David Gutiérrez, CPPO Date
Manager, Construction Projects

Approved: 8/12/15 for Thomas L. Bosco Date
Director, Aviation Department

Smith, Jessica

From: Smith, Jessica
Sent: Wednesday, May 27, 2015 8:19 AM
To: 'Charalambous, Jane Y'
Cc: Barrow, Monica
Subject: RE: AirTrain EWR (RFP 42022) Questions
Attachments: employee-nda-instructions-general.pdf; General NDA Exhibits A B Templates_Handbook_Final_103113 Word.docx

Good morning—

I will forward question 1 to the project manager. For question 2, please fill out and complete the attached NDA and I will send you the CD to you with referenced documents via overnight mail.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: Charalambous, Jane Y [mailto:Jane.Y.Charalambous@parsons.com]
Sent: Tuesday, May 26, 2015 5:47 PM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: FW: AirTrain EWR (RFP 42022) Questions

Jessica,

Couple of follow up questions for your consideration:

1) The "as required" nature of Phase One, Task A, Item 6 (Other Studies and Reports) makes it particularly difficult to estimate the level of effort for those services. Will the Authority specify an allowance for this item? Alternatively, consider removing this item from Attachment D.
2) Can proposers obtain or view the following studies and reports?
    - EWR AirTrain Study July 2008
    - WER AirTrain Analysis, September 2009
    - Terminal A Redevelopment Program State I Task 2 Summary Report – AirTrain Study, January 2014

Thanks,
Jane Charalambous, PE, PARSONS

Smith, Jessica

From: Smith, Jessica
Sent: Monday, May 11, 2015 10:53 AM
To: 'Archer, Liz'
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: RE: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA
Attachments: General NDA Exhibits A B Templates_Handbook_Final_103113 Word.docx; employee-nda-instructions-general.pdf

Good morning—

Please fill out the attached and submit to me a scanned copy via email and the original in the mail. Once I receive the scanned copy, I will be able to send you the CD with the documents.

Thank you,
Jessica Smith

From: Archer, Liz [mailto:larcher@Dewberry.com]
Sent: Wednesday, May 06, 2015 11:11 AM
To: Smith, Jessica
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Hi Jessica,

May we obtain the documents listed in "Attachment A", section V, starting on page 11 of the RFP (especially the three documents listed under item A)?

Please advise.

Thank you,

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted] cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

Visit Dewberry's website at www.dewberry.com

If you've received this email even though it's intended for someone else, then please delete the email, don't share its contents with others, and don't read its attachments. Thank you.

Smith, Jessica

From: Smith, Jessica
Sent: Wednesday, May 13, 2015 1:40 PM
To: 'David.Strong@ch2m.com'
Subject: RE: RFP 42022 - Question and Information Request
Attachments: General NDA Exhibits A B Templates_Handbook_Final_103113 Word.docx; employee-nda-instructions-general.pdf

In order to obtain the documents on a CD, please fill out the attached and submit a scanned copy to me via email and the original in the regular mail.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: David.Strong@ch2m.com [mailto:David.Strong@ch2m.com]
Sent: Wednesday, May 13, 2015 9:21 AM
To: Smith, Jessica
Subject: RE: RFP 42022 - Question and Information Request

Thank you.

J David Strong - cell [redacted]

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Wednesday, May 13, 2015 9:16 AM
To: Strong, David/NYC
Cc: Li, Janice/NYC; Paterson, Ric/ATL
Subject: RE: RFP 42022 - Question and Information Request

Good morning—

I received your request from yesterday and am working on the response with the Project Manager.

Thank you,
Jessica

From: David.Strong@ch2m.com [mailto:David.Strong@ch2m.com]
Sent: Wednesday, May 13, 2015 8:59 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com; Ric.Paterson@ch2m.com
Subject: RE: RFP 42022 - Question and Information Request

Dear Ms. Smith,

I would like to follow up on my request below.

Could you please confirm you have received my email?

Could you please provide an estimate of when we might receive a response?

Thank You

J David Strong - cell [redacted]

From: Strong, David/NYC
Sent: Tuesday, May 12, 2015 10:34 AM
To: 'jlsmith@panynj.gov'
Cc: Li, Janice/NYC; Paterson, Ric/ATL (Ric.Paterson@ch2m.com)
Subject: RE: RFP 42022 - Question and Information Request

Dear Ms. Smith,

CH2M HILL would like to request that the Port Authority consider extending the due date for RFP 42022, Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an "As Needed" Basis. We believe that the 3-week period allotted for response is extremely short to allow consultants to fully consider the technical aspects of the program and deliver a quality response to all elements of the RFP. In addition, the Memorial Day Holiday falls within the 3-week response time, further reducing our ability to provide the Authority with a quality proposal. We respectfully ask that the PA consider extending the due date by 1 week to allow consultants to better respond to the request. This extension would not impact our ability to successfully deliver the requested services by the 3rd Quarter of 2017.

Further, we would like to request access to the information referenced in Section V of Attachment A; Item A – Available Documents.

Sincerely, David Strong

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M[redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Smith, Jessica
Sent: Thursday, May 14, 2015 11:13 AM
To: 'Mayor, Jorge I.'
Subject: RE: RFP 42022 Questions
Attachments: General NDA Exhibits A B Templates_Handbook_Final_103113 Word.docx; employee-nda-instructions-general.pdf

Good morning –

Please see responses below in red.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: Mayor, Jorge I. [mailto:Jorge.Mayor@stvinc.com]
Sent: Wednesday, May 13, 2015 11:58 AM
To: Smith, Jessica
Subject: RFP 42022 Questions

Good afternoon, Ms. Smith. STV Incorporated would like to submit the following questions pertaining to RFP 42022 for Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport:

- Are firms that worked on the listed projects in the RFP (EWR AirTrain Study July 2008; EWR AirTrain Analysis, September 2009; Terminal A Redevelopment Program Stage I Task 2 Summary Report - AirTrain Study, January 2014) eligible to participate in the pursuit of this project, or are they precluded from this project? – I have forwarded this to the PM for review.
- Could the Port Authority make available to us the referenced documents (EWR AirTrain Study July 2008; EWR AirTrain Analysis, September 2009; Terminal A Redevelopment Program Stage I Task 2 Summary Report - AirTrain Study, January 2014)? – Please complete the attached NDA in order to obtain a copy of the CD with the files on it.
- The RFP mentions ". . .future Terminal B expansion programs" (Attachment A, page 1) and "... redevelopment efforts that may be undertaken by the Authority for EWR, including... Terminal B Expansion" (Attachment A, page 3). Is a Terminal B expansion study currently available? If not, does the Port Authority intend to develop a Terminal B expansion study simultaneously with the EWR AirTrain replacement project? – I have forwarded this to the PM for review.
- Could the due date of May 27, 2015 be extended by two weeks to June 10, 2015, so as to allow a more detailed and thorough analysis and response to the Port Authority's requirements for this project? Please check the Authority's website under "addenda" for this RFP in regard to this question.

Thank you for your consideration.

JORGE MAYOR
Senior Proposal Manager
STV | 200 W. Monroe, Ste. 1650, Chicago, IL, 60606
(d) 312.553.8458 | (f) 312.553.0661 | (o) 312.553.0655
jorge.mayor@stvinc.com | www.stvinc.com

STV 100 Years

Please consider the environment before printing this e-mail.

Visit us at our website: http://www.stvinc.com

The information contained in this electronic message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, you are informed that any dissemination, copying or disclosure of the material contained herein, in whole or in part, is strictly prohibited. If you have received this transmission in error, please notify STV and purge this message.

Smith, Jessica

From: Smith, Jessica
Sent: Tuesday, May 26, 2015 9:21 AM
To: Radkowska, Monika; Aviles, Maria
Cc: Hernandez, Mirthia; Ruffin, Sheri; Levey, Susan
Subject: RFP 42022 -- Addenda #4
Attachments: Addendum #4 (Revisions).doc

Good morning –

Please post the attached under RFP#42022. This is addenda #4.

PLEASE NOTE: The due date has been changed to June 17th.

If you have any questions please feel free to contact me.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

Smith, Jessica

From: Janice.Li@ch2m.com
Sent: Thursday, May 14, 2015 3:12 PM
To: Smith, Jessica
Cc: David.Strong@ch2m.com; Ric.Paterson@ch2m.com
Subject: RE: RFP 42022 - Question and Information Request
Attachments: General NDA Exhibits A B Templates_Handbook_Final_103113 Word (CH2M)-signed.pdf

Hi Jessica,

Please find attached scanned copy of the signed NDA form. Original copy to be dropped off at your building tomorrow morning.

Regards,
Janice

Janice Li, P.E.

CH2M
22 Cortlandt, 31st Floor, New York, NY 10007
Office (646) 253-8686 | **Fax** (212) 566-5059 | **Cel** [redacted]
Email janice.li@ch2m.com

www.ch2m.com | LinkedIn | Twitter | Facebook

Begin forwarded message:

> **From:** "Smith, Jessica" <jlsmith@panynj.gov>
> **Date:** May 13, 2015 at 1:40:16 PM EDT
> **To:** "'David.Strong@ch2m.com'" <David.Strong@ch2m.com>
> **Subject: RE: RFP 42022 - Question and Information Request**
>
> In order to obtain the documents on a CD, please fill out the attached and submit a scanned copy to me via email and the original in the regular mail.
>
> Thank you,
>
> **JESSICA L. SMITH**
> PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
> 4 WORLD TRADE CENTER, 21ST FLOOR
> PHONE: 212-435-4621 | JLSMITH@panynj.gov

Smith, Jessica

From: Janice.Li@ch2m.com
Sent: Wednesday, May 20, 2015 2:28 PM
To: Smith, Jessica
Cc: David.Strong@ch2m.com
Subject: RE: RFP 42022 - Ch2M HILL NDA - Exhibit (Sub)
Attachments: NDA STV Staff (Signed).pdf

Hi Jessica,

Please find attached NDA forms signed by staff from our sub.

Thanks, Janice

From: Li, Janice/NYC
Sent: Friday, May 15, 2015 5:41 PM
To: Smith, Jessica
Cc: Strong, David/NYC
Subject: RE: RFP 42022 - Ch2M HILL NDA - Exhibit (Sub)

Hi Jessica,

Please find attached NDA forms from our sub.

Thanks,
Janice

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Friday, May 15, 2015 11:53 AM
To: Strong, David/NYC
Cc: Li, Janice/NYC
Subject: RE: RFP 42022 - Ch2M HILL NDA - Exhibit As

David—

You can come and pick up the CD between 2 and 4 today. I need something corrected on the NDA but our lawyers said it can be changed via pen and initialed by one of your staff. (it's just something regarding a date). Who will be coming for the CD so I can let security know?

Thank you,
Jessica

From: David.Strong@ch2m.com [mailto:David.Strong@ch2m.com]
Sent: Friday, May 15, 2015 11:29 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RFP 42022 - Ch2M HILL NDA - Exhibit As

Jessica,

Here are scanned copies of Exhibit A's signed by the relevant individuals.

All dates are May 14.

If you need anything further, please let us know.

Please let us know when we can stop by to collect the CDs.

Thank You, David

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M [redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Janice.Li@ch2m.com
Sent: Wednesday, June 03, 2015 9:05 AM
To: Smith, Jessica
Cc: Ric.Paterson@ch2m.com; David.Strong@ch2m.com
Subject: FW: RFP 42022 - Question and Information Request

Hi Jessica,

CH2M HILL would like to submit the following two questions to Port Authority for clarification on the subject RFP:

Question 1. PANYNJ Board Planning Authorization states: '*Professional services would be required to support the planning effort via task orders, through the selection of a contractor(s) to replace the system, at an estimated amount of $30 million.*' Should the spreadsheet cost only be developed against the scope from Planning up to 20-30% Design? Should proposers provide an estimated fee only up to 20-30% Design; and thereby leave the columns associated with Phase 2 in the spreadsheet blank?

Question 2. Please confirm airside APM system is not included in the Scope of Work.

Regards,
Janice

Janice Li, P.E.
Senior Director

CH2M
22 Cortlandt, 31st Floor, New York, NY 10007
Office (646) 253-8686 | **Fax** (212) 566-5059 | **Cell** [redacted]
Email janice.li@ch2m.com

www.ch2m.com | LinkedIn | Twitter | Facebook

From: Strong, David/NYC
Sent: Tuesday, May 12, 2015 10:13 AM
To: jlsmith@panyynj.gov
Cc: Li, Janice/NYC; Paterson, Ric/ATL
Subject: RFP 42022 - Question and Information Request

Dear Ms. Smith,

CH2M HILL would like to request that the Port Authority consider extending the due date for RFP 42022, Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an "As Needed" Basis. We believe that the 3-week period allotted for response is extremely short to allow consultants to fully consider the technical aspects of the program and deliver a quality response to all elements of the RFP. In addition, the Memorial Day Holiday falls within the 3-week response time, further reducing our ability to provide the Authority with a quality proposal. We respectfully ask that the PA consider extending the due date by 1 week to allow consultants to better respond to the request. This extension would not impact our ability to successfully deliver the requested services by the 3rd Quarter of 2017.

Further, we would like to request access to the information referenced in Section V of Attachment A; Item A – Available Documents.

Sincerely, David Strong

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M[redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Monday, July 06, 2015 2:24 PM
To: Smith, Jessica
Subject: RFP 42022 - Confirmation of Presentation for Lea+Elliott

Hi Jessica,

I hope you had a pleasant holiday weekend.

I am emailing to confirm Lea+Elliott's presentation on July 14, 2015, at EWR, Building 1. Has there been a start time assigned yet? Additionally, do you have an update on if we are to be addressing any specific questions from the Authority?

Best Regards,
-Russell

Russell Green, P.E. + Associate Principal + Lea+Elliott, Inc.
44965 Aviation Drive Suite 290, Dulles, Virginia 20166 + T 703.537.7408

Please consider the environment before printing this email.

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Friday, July 17, 2015 10:01 AM
To: Smith, Jessica
Cc: Brown, Erica
Subject: RE: RFP#42022

Hi Jessica,

I created a PowerPoint (pptx) file that contains our cover page and pages 29 through 48 only. Given its size, Erica Brown of my office will email you a file transfer link from Newforma (the PM and file management program we use). This will enable you to directly download the 22meg ppxt file. The images can be extracted from the ppxt file and gives the committee the ability to copy and paste the images elsewhere.

Let me know if this method works. If easier, we can also save each image as its own jpg file and emails those as well without the associated text.

Best,
-Russell

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Friday, July 17, 2015 8:21 AM
To: Green, Russell
Subject: RE: RFP#42022

Good morning Russell—

Thank you for your submission. Another request came from the committee during their Evaluation. They have requested the following:

"the electronic originals of the graphics in their presentation from page 29 through 48. "

I know that you had left a copy of the presentation for each committee member however, they would like the electronic version of the above referenced pages/slides, if possible.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: Green, Russell [mailto:Regreen@LeaElliott.com]
Sent: Thursday, July 16, 2015 3:15 PM
To: Smith, Jessica
Subject: RE: RFP#42022

Jessica,

As requested this morning, I have attached a revised Staffing Analysis that reflects the new 2.712 multiplier for Lea+Elliott.

We also added a note to the analysis clarifying the hourly rates depicted in the Staffing Analysis were 2015 burdened hourly rates and assumed an annual escalation of 3% to the hourly rates for years 2016 through 2023. This escalation is factored in the analysis.

Please do not hesitate to contact me if there are any questions or additional information that I can provide.

Best Regards,
-Russell

From: Green, Russell
Sent: Wednesday, July 15, 2015 4:31 PM
To: 'Smith, Jessica'
Subject: RE: RFP#42022

Jessica,

Thank you for the phone call today to discuss the 10% profit and 2.842 multiplier Lea+Elliott proposed in our Staff and Cost Analysis for the subject Newark AirTrain RFP.

I shared the Port Authority's concerns with my management and want to work towards a multiplier that is mutually beneficial to both parties. We have agreed to lower our profit for this assignment to 5% and multiplier to 2.712.

Lea+Elliott has enjoyed our long standing relationship with the Port Authority and are eager to continue working together on this exciting opportunity. We trust this 50% reduction in profit will be found acceptable to the Port Authority.

The revised breakdown of our overhead and multiplier is reflected on the attached document.

Best Regards,
-Russell

Russell Green, P.E. + Associate Principal + Lea+Elliott, Inc.
44965 Aviation Drive Suite 290, Dulles, Virginia 20166 + T 703.537.7408

Please consider the environment before printing this email.

From: Green, Russell
Sent: Wednesday, July 15, 2015 11:36 AM
To: 'Smith, Jessica'
Subject: RE: RFP#42022

Hi Jessica,

As requested, attached is the breakdown of Lea+Elliott's 2013 FAR compliant overhead and multiplier for the subject Newark AirTrain RFP. This is our most recent audited overhead and was used to determine the 2.842 multiplier in Attachment D (Staff and Costs Analysis).

Please do not hesitate to contact me if additional information is required.

Best,

-Russell Green

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Wednesday, July 15, 2015 9:45 AM
To: Green, Russell
Subject: RFP#42022

Good morning Russell—

Please provide to me the breakdown of your multiplier for the subject RFP, no later than noon today. If you have any questions, please feel free to contact me via phone or email.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.
NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Wednesday, July 15, 2015 11:36 AM
To: Smith, Jessica
Subject: RE: RFP#42022
Attachments: NCP2235_2013_PANYNJ OH-FAR.pdf

Hi Jessica,

As requested, attached is the breakdown of Lea+Elliott's 2013 FAR compliant overhead and multiplier for the subject Newark AirTrain RFP. This is our most recent audited overhead and was used to determine the 2.842 multiplier in Attachment D (Staff and Costs Analysis).

Please do not hesitate to contact me if additional information is required.

Best,
-Russell Green

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Wednesday, July 15, 2015 9:45 AM
To: Green, Russell
Subject: RFP#42022

Good morning Russell—

Please provide to me the breakdown of your multiplier for the subject RFP, no later than noon today. If you have any questions, please feel free to contact me via phone or email.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

LEA+ELLIOTT, INC.
SCHEDULE OF FRINGE AND INDIRECT COSTS
FOR THE YEAR 2013

		ALLOWABLE COSTS ($)
I.	DIRECT LABOR	$ 8,170,069
II.	INDIRECT SALARIES	$ 1,806,716
III.	FRINGE BENEFITS	
	Vacation Salary	$ 761,422
	Sick Leave Salary	266,435
	Holiday Salary	485,806
	Other Leave	19,748
	Group Health Insurance	1,213,970
	Payroll Taxes	857,380
	Retirement Contributions	923,458
	Total Fringe Benefits	$ 4,528,217
IV.	INDIRECT COSTS	
	Office Expenses and Utilities	$ 1,437,751
	Professional Services	191,771
	Marketing & Proposals	201,747
	Travel and Meetings	228,929
	Other Indirect Costs	3,543,474
	Taxes and Licenses	381,960
	Insurance	403,266
	Depreciation	210,950
	Total Indirect Costs	$ 6,599,849
	TOTAL OVERHEAD COSTS	**$ 12,934,781**
	FAR AUDITED OVERHEAD RATE	**158.32%**

DIRECT LABOR MULTIPLIER:		
Raw Labor		1.000
Overhead		1.583
	Subtotal	2.583
Profit at		10%
Total Direct Labor Multiplier		**2.842**

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Wednesday, July 15, 2015 4:31 PM
To: Smith, Jessica
Subject: RE: RFP#42022
Attachments: NCP2235_2013_PANYNJ OH-FAR_r1.pdf

Jessica,

Thank you for the phone call today to discuss the 10% profit and 2.842 multiplier Lea+Elliott proposed in our Staff and Cost Analysis for the subject Newark AirTrain RFP.

I shared the Port Authority's concerns with my management and want to work towards a multiplier that is mutually beneficial to both parties. We have agreed to lower our profit for this assignment to 5% and multiplier to 2.712.

Lea+Elliott has enjoyed our long standing relationship with the Port Authority and are eager to continue working together on this exciting opportunity. We trust this 50% reduction in profit will be found acceptable to the Port Authority.

The revised breakdown of our overhead and multiplier is reflected on the attached document.

Best Regards,
-Russell

Russell Green, P.E. + Associate Principal + Lea+Elliott, Inc.
44965 Aviation Drive Suite 290, Dulles, Virginia 20166 + T 703.537.7408

Please consider the environment before printing this email.

From: Green, Russell
Sent: Wednesday, July 15, 2015 11:36 AM
To: 'Smith, Jessica'
Subject: RE: RFP#42022

Hi Jessica,

As requested, attached is the breakdown of Lea+Elliott's 2013 FAR compliant overhead and multiplier for the subject Newark AirTrain RFP. This is our most recent audited overhead and was used to determine the 2.842 multiplier in Attachment D (Staff and Costs Analysis).

Please do not hesitate to contact me if additional information is required.

Best,
-Russell Green

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Wednesday, July 15, 2015 9:45 AM
To: Green, Russell
Subject: RFP#42022

Good morning Russell—

Please provide to me the breakdown of your multiplier for the subject RFP, no later than noon today. If you have any questions, please feel free to contact me via phone or email.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

LEA+ELLIOTT, INC.
SCHEDULE OF FRINGE AND INDIRECT COSTS
FOR THE YEAR 2013

		ALLOWABLE COSTS ($)	
I.	DIRECT LABOR	$	8,170,069
II.	INDIRECT SALARIES	$	1,806,716
III.	FRINGE BENEFITS		
	Vacation Salary	$	761,422
	Sick Leave Salary		266,435
	Holiday Salary		485,806
	Other Leave		19,748
	Group Health Insurance		1,213,970
	Payroll Taxes		857,380
	Retirement Contributions		923,458
	Total Fringe Benefits	$	4,528,217
IV.	INDIRECT COSTS		
	Office Expenses and Utilities	$	1,437,751
	Professional Services		191,771
	Marketing & Proposals		201,747
	Travel and Meetings		228,929
	Other Indirect Costs		3,543,474
	Taxes and Licenses		381,960
	Insurance		403,266
	Depreciation		210,950
	Total Indirect Costs	$	6,599,849
	TOTAL OVERHEAD COSTS	**$**	**12,934,781**
	FAR AUDITED OVERHEAD RATE		**158.32%**

DIRECT LABOR MULTIPLIER:		
Raw Labor		1.000
Overhead		1.583
	Subtotal	2.583
Profit at		5.00%
Total Direct Labor Multiplier		**2.712**

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Friday, July 10, 2015 3:22 PM
To: Smith, Jessica
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) -- PRESENTATIONS

Ms. Smith,

Please except my apologies. Here is the list of the six presenters:

- Russell Green, Lea+Elliott, Inc. (Project Manager)
- David Casselman, Lea+Elliott, Inc.
- Donald Fram, HNTB
- Joe Englot, HNTB
- Nate Walnum, Kimley-Horn
- Kiran Merchant, DY Consulting.

Best,
-Russell

From: Green, Russell
Sent: Friday, July 10, 2015 3:13 PM
To: 'Smith, Jessica'
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) -- PRESENTATIONS

Ms. Smith,

On behalf of the Lea+Elliott team, please find attached our Response to Questions to the Port Authority of New York and New Jersey in response to the subject Request for Proposal.

We look forward to meeting with you on Tuesday, July 14, to discuss our responses and to answer any further questions you may have.

I will contact you later this afternoon to confirm this email was received and the pdf file was not corrupted.

Sincerely,
Russell Green

Russell Green, P.E. + Associate Principal + Lea+Elliott, Inc.
44965 Aviation Drive Suite 290, Dulles, Virginia 20166 + T 703.537.7408

Please consider the environment before printing this email.

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Tuesday, July 07, 2015 10:38 AM
To: Green, Russell

Subject: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) -- PRESENTATIONS

July 7, 2015

Lea+Elliot, Inc.
Attn.: Russell Green

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

Dear Mr. Green:

Thank you for your recent submittal in response to the subject Request for Proposals (RFP). As part of the on-going evaluation process, we now ask that you and members of your team meet with us to present your proposal, and address Authority questions, if any. The presentation is scheduled for Tuesday, July 14th at 2:00, and will be held at Newark Liberty International Airport, at Building 1 in the General Manager's Conference Room.

If, on July 14th, you have any difficulty accessing the facility, please call Mr. Richard Schnurr , directly at (973) 961-6189, who should be able to assist you, as appropriate. To gain access to the Building, a picture ID (e.g. drivers license) will be required.

Presentations are limited to one hour, followed by a 30 minute question and answer period. A Smart Board will be provided for your use. A PC tower will be provided so you should bring your own Laptop or USB Drive containing the Presentation.

You are limited to no more than 6 members of your team, as follows:

- The Project Manager
- Five (5) other senior staff members proposed to work on this project

Please provide the names of the above and responses to the below to me via email no later than COB Friday, July 10th.

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this project?

2. What is your proposed Procurement Strategy?

3. What is your proposed alignment selection seeing as the layout of the airport is unknown?

4. What is the total cost of what will be built?

5. What is your proposed staging plan?

6. What was your assumption of the following Tasks –
Task A.1 Document Review
Task D – Assumptions on level of inspection and oversight

7. How do you propose to equally weigh all different possible system types?

8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort?

Please bring ten (10) copies of your presentation for distribution to the Proposal Evaluation Committee Members.

If you have any questions please contact me at (212) 435-4621 or via email.

Sincerely,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Friday, July 10, 2015 3:13 PM
To: Smith, Jessica
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) -- PRESENTATIONS
Attachments: RFP_42022_L+E - Response to Questions_10JUL15_Final.pdf

Ms. Smith,

On behalf of the Lea+Elliott team, please find attached our Response to Questions to the Port Authority of New York and New Jersey in response to the subject Request for Proposal.

We look forward to meeting with you on Tuesday, July 14, to discuss our responses and to answer any further questions you may have.

I will contact you later this afternoon to confirm this email was received and the pdf file was not corrupted.

Sincerely,
Russell Green

Russell Green, P.E. + Associate Principal + Lea+Elliott, Inc.
44965 Aviation Drive Suite 290, Dulles, Virginia 20166 + T 703.537.7408

Please consider the environment before printing this email.

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Tuesday, July 07, 2015 10:38 AM
To: Green, Russell
Subject: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) -- PRESENTATIONS

July 7, 2015

Lea+Elliot, Inc.
Attn.: Russell Green

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

Dear Mr. Green:

Thank you for your recent submittal in response to the subject Request for Proposals (RFP). As part of the on-going evaluation process, we now ask that you and members of your team meet with us to present your proposal, and address Authority questions, if any. The presentation is scheduled for Tuesday, July 14th at 2:00, and will be held at Newark Liberty International Airport, at Building 1 in the General Manager's Conference Room.

If, on July 14th, you have any difficulty accessing the facility, please call Mr. Richard Schnurr , directly at (973) 961-6189, who should be able to assist you, as appropriate. To gain access to the Building, a picture ID (e.g. drivers license) will be required.

Presentations are limited to one hour, followed by a 30 minute question and answer period. A Smart Board will be provided for your use. A PC tower will be provided so you should bring your own Laptop or USB Drive containing the Presentation.

You are limited to no more than 6 members of your team, as follows:

- The Project Manager
- Five (5) other senior staff members proposed to work on this project

Please provide the names of the above and responses to the below to me via email no later than COB Friday, July 10th.

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this project?

2. What is your proposed Procurement Strategy?

3. What is your proposed alignment selection seeing as the layout of the airport is unknown?

4. What is the total cost of what will be built?

5. What is your proposed staging plan?

6. What was your assumption of the following Tasks –
Task A.1 Document Review
Task D – Assumptions on level of inspection and oversight

7. How do you propose to equally weigh all different possible system types?

8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort?

Please bring ten (10) copies of your presentation for distribution to the Proposal Evaluation Committee Members.

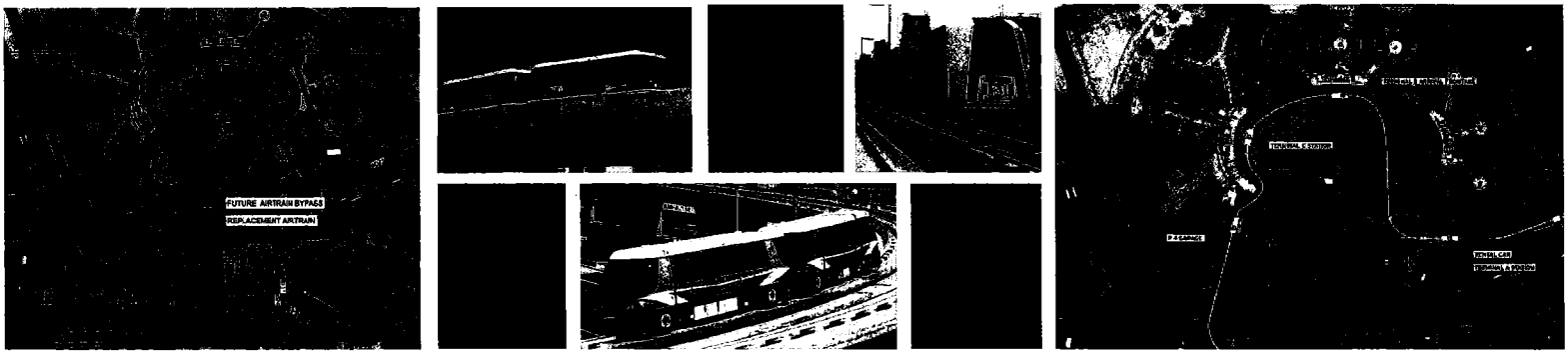
If you have any questions please contact me at (212) 435-4621 or via email.

Sincerely,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

THE PORT AUTHORITY OF NY & NJ



PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS RFP 42022

RESPONSE TO QUESTIONS

Submitted by :

LEA ELLIOTT

In association with :

HNTB Corporation | Kimley-Horn & Associates | Walter P Moore

DY Consultants | Radin Consulting | Stellar Services | AECOM

July 10, 2015

LEA+ELLIOTT

July 10, 2015 NCP-2235

Ms. Jessica L. Smith
Principal Contracts Specialist | Procurement Document
The Port Authority of NY & NJ
4 World Trade Center, 21st Floor
New York, NY 10007

SUBJECT: Request for Proposals for the Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an "As-Needed" Basis (RFP 42022)
Response to Questions

Ms. Smith:

On behalf of the Lea+Elliott team, I am pleased to submit our Response to Questions to the Port Authority of New York and New Jersey in response to the subject Request for Proposal.

We look forward to meeting with you on Tuesday, July 14, to discuss our responses and to answer any further questions you may have.

Sincerely,

LEA+ELLIOTT, INC.

Russell E. Green, P.E.
Associate Principal

Table of Contents

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this Project? 1
2. What is your proposed Procurement Strategy? 2
3. What is your proposed alignment selection seeing as the layout of the airport is unknown? 5
4. What is the total cost of what will be built? 8
5. What is your proposed staging plan? 9
6. What was your assumption on the following Tasks? 11
7. How do you propose to equally weigh all different possible system types? 12
8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort? 13

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this Project?

As the President/CEO of Lea+Elliott, Inc., I can commit to the Authority that our Project Manager, Mr. Russell Green, will be available for the duration of this project. We cleared the decks for him about a year ago in anticipation of this important work. Over this period he has immersed himself into becoming familiar with all the details, background and key issues. He is the ideal candidate having recently served for 10 years in a similar role on the Washington Dulles Airport AeroTrain APM installation, which he successfully led from beginning to completion.

This project is very important to our firm and we've assigned one of our best and brightest PM's to lead the effort. Russell is well versed on all of the technical aspects of implementing an APM in an active airport. He is a very strong project manager with great interpersonal skills and very well liked by our clients. You will be well served by him to lead this important project.

Jack Norton
President/CEO
Lea+Elliott, Inc.

2. What is your proposed Procurement Strategy?

Lea+Elliott has a proud heritage in the procurement of APM systems. In over 40 years of practice, we have developed procurement methodologies for a wide range of APM applications. We performed pioneering work in the use of performance-based contracting and Design-Build-Operate-Maintain (DBOM) methodologies that have become APM industry standards. As APM technologies are proprietary (and there are only a handful of qualified suppliers worldwide), the DBOM methodology provides for a competitive procurement environment and optimizes the life-cycle cost of the APM system.

In performing procurement tasks, our in-house experts will work closely with the Authority's procurement and legal counsel. Our experts understand the complex pulls between the legal, procurement and technical aspects of a project; they will identify inherent tensions and analyze the benefits/consequences of each issue. We will help the Authority make informed decisions that result in optimized solutions. The Authority's procurement and legal counsel will provide guidance on applicable procurement and legal requirements. We anticipate early and regular meetings with procurement staff and legal counsel to vet the viability of potential procurement methodologies.

Important goals of the procurement strategy will be:

- To identify a procurement approach which offers the lowest risk to the Authority; and,
- To package the work in a way that assigns risks to the parties best able to manage them.

Proposed Procurement Strategy

We anticipate the most effective packaging approach would be a combined DBOM of system + facilities that can provide efficiency and cost effectiveness, optimizes coordination, and reduces interface risk to the program.

Procurement Plan and Time line

Following the development of the Procurement Strategy, the Lea+Elliott team will develop a Procurement Plan specific to the AirTrain replacement, including specific steps and time line. The charts on the following pages are examples of procurement diagrams from prior projects.

Procurement Documents

Lea+Elliott's Procurement Documents Guide provides guidelines and material for:

- Bidding and contract documents
- General requirements
- Special provisions
- Technical provisions
- Operations & Maintenance provisions

The Lea+Elliott team will use these as the basis for developing your project's Procurement Contract Documents.

3. What is your proposed alignment selection seeing as the layout of the airport is unknown?

This is one of the "Key Issues" we identified in our Technical Approach, that we believe is critical to the success of the project.

The replacement AirTrain must meet the Airport's needs both at the time of its opening and in the future. It must be planned to provide excellent service within the challenging confines of the existing facilities and infrastructure at the Airport, to serve both the existing terminals and facilities and the future redevelopment.

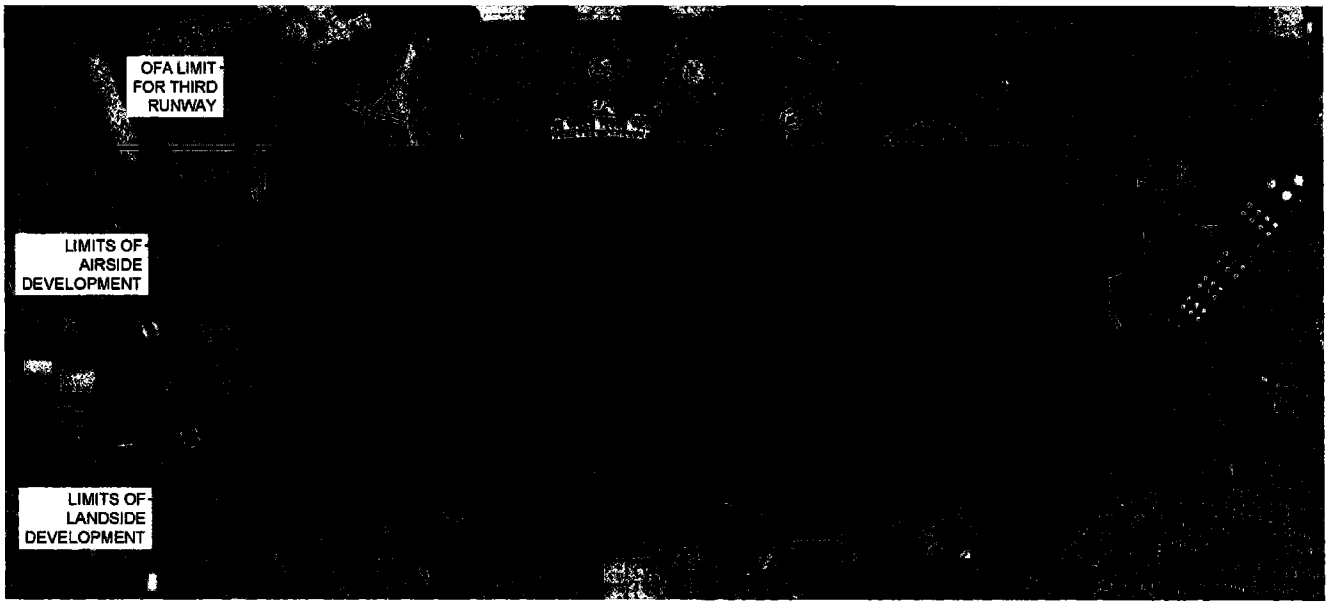
The future requirements of the airport and the future airfield, terminal and roadway configurations are not fully known. The configuration of the replacement AirTrain, including the alignment and station locations must be planned and designed with flexibility to accommodate the maximum range of future airport plans and alternatives, including:

- Terminal A redevelopment
- Future terminal expansion and redevelopment
- Future roadway configurations
- Future rental car locations or consolidated facility
- Future parking locations
- Continued service to the Rail Link station and interface with future PATH extension to EWR

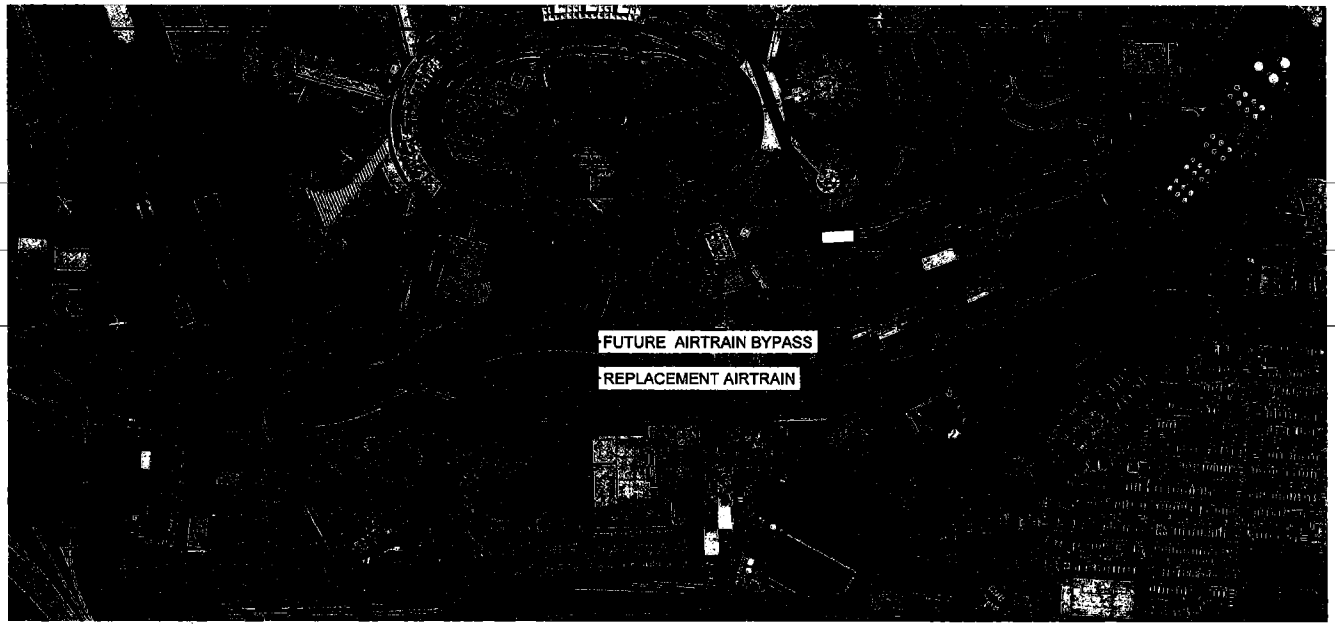
The time line of these future airport facilities is not known, however, it is likely that the redevelopment will occur in stages over many years. DY Consultants will assist in identifying potential terminal development scenarios. Based on our AirTrain studies, the replacement AirTrain configuration will be staged to correspond to the stages of redevelopment. It is critical for the replacement AirTrain to provide a high level of service in each stage of development, since the duration of each stage is unknown.

Our previous AirTrain study identified possible extents of terminal airside and landside areas that could be available for future development, as shown on the following page.

Numerous alignment alternatives were developed and analyzed. Alternative 5b was identified in our prior *Task 2 Summary Report - AirTrain Study, January 2014* as providing the greatest flexibility to serve the future "unknown" layout of the airport. See Alternative 5b on the following page.



Possible Airside and Landside Development Areas
EWR AirTrain Replacement Study - Task 1 Summary Report



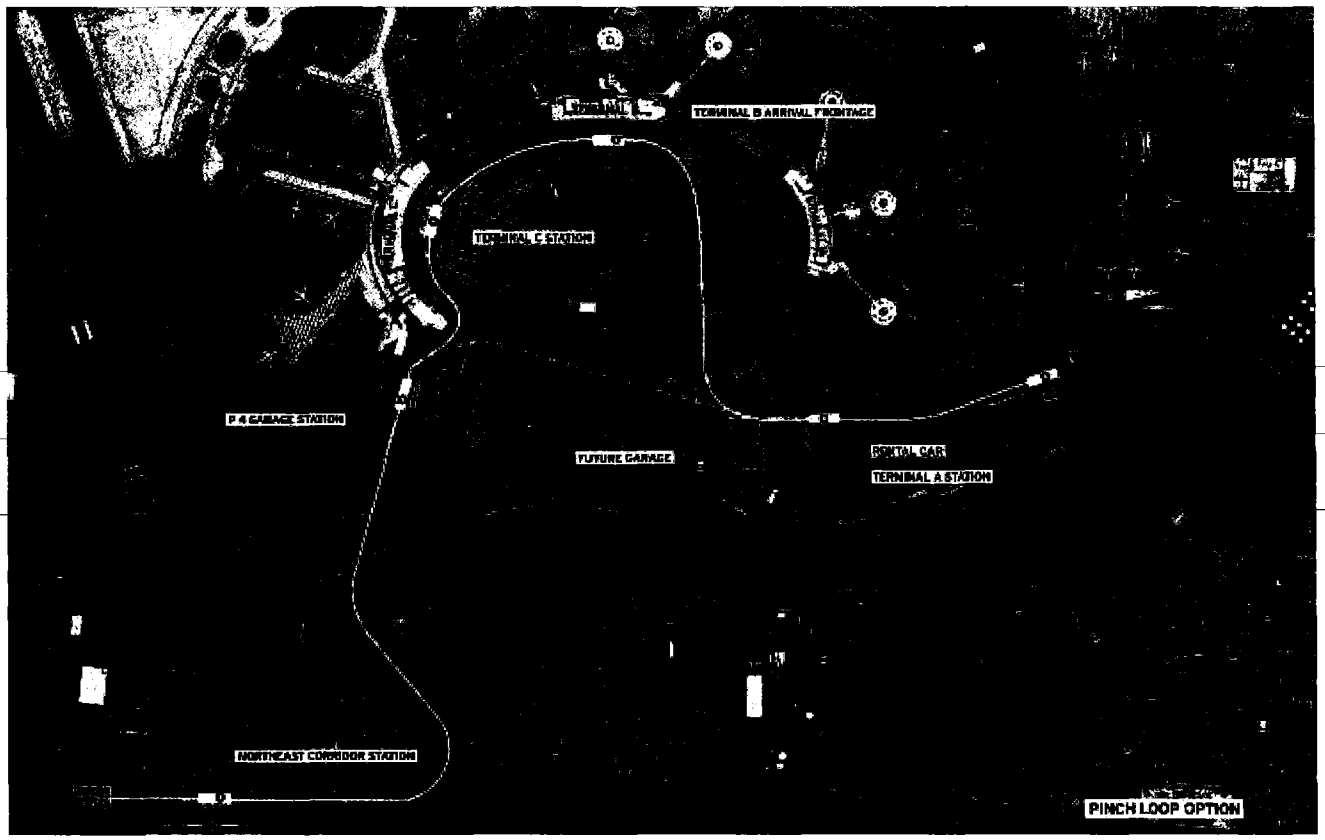
Alternative 5b from the Task 2 Summary Report - AirTrain Study, January 2014

Proposed Alignment Alternatives

The alternative alignment illustrated is consistent with the Planning Level Alternative 5b alignment described in our prior AirTrain study.

The initial loop alignment in solid yellow depicts a potential opening day configuration. The dashed yellow alignment accommodates the possible extents of terminal airside and landside development and represents the ultimate AirTrain configuration should Terminals B and C relocate in similar fashion as Terminal A.

Highlighted in magenta color, are refinements to the PLA 5b alignment that take into account additional consideration to constructability and additional right-of-way that may become available for AirTrain use. HNTB will assist with station location and alignment considerations.



Alternative alignment and station locations

4. What is the total cost of what will be built?

The AirTrain system is comprised of two major elements, the Operating System and Fixed Facilities, which are integrated into a fully functional system. The Operating System consists of vehicles, running track, guideway equipment, propulsion power, automatic train control and communications subsystems, station and wayside equipment, maintenance equipment and other elements. Fixed Facilities include guideway infrastructure, stations, equipment rooms and buildings for the Maintenance and Control Facility, command and control facilities, propulsion power substations and other facilities upon which Operating System elements are installed by the APM system supplier.

From our prior AirTrain study, the following are our rough order of magnitude estimated costs for the initial AirTrain system and the future bypass lane for the ultimate AirTrain system in 2015 U.S. dollars. These estimates will be updated based on further definition of the replacement AirTrain system. Design refinements will be undertaken to align the system costs with the Authority's budget expectations.

	Initial System	**Bypass Lane**
Operating System	$554,000,000	$109,000,000
Fixed Facilities	$976,000,000	$337,000,000
Total Cost	**$1,530,000,000**	**$446,000,000**

The cost estimates includes a 25% contingency factor and 35% for program soft costs.

Cost Estimating Approach

Lea+Elliott developed and maintains a proprietary LEGENDS© Capital Cost Model, as well as an O&M Cost Model, that includes accurate pricing data from numerous APM projects. System capital costs are derived from the Capital Cost Model. This model is validated frequently and benefits from Lea+Elliott's large, historical database of unit cost data for similar systems. Top-level capital cost estimates include: guideway, stations, maintenance and storage facility, power distribution substations, guideway equipment, vehicles, power distribution equipment, automatic train control equipment, communications equipment, station equipment, maintenance/ storage facility equipment, supplier system and equipment design/engineering, supplier project management, and contingency.

Likewise, the O&M Cost Model accurately estimates all of the O&M cost elements from the bottom up. Costs include staffing requirements for administration, operation and maintenance; energy and utilities consumption; spare parts and consumables; administrative costs; bonds and insurance.

The Lea+Elliott team will use these models (along with local facilities cost history data) to develop preliminary capital and O&M cost estimates for the AirTrain project.

5. What is your proposed staging plan?

Staged Development

It is essential that the replacement AirTrain meet the needs of the airport both at the time of it's opening and far into the future. It must initially serve the existing Terminals B and C and the new Terminal A. In the future when the older terminals are rebuilt and/or reconfigured, the replacement AirTrain must have the flexibility to adopt to those future needs.

The Proposed Alignment Alternative provides an initial loop alignment to serve existing Terminals B and C and the new Terminal A. Later if Terminals B and C are reconfigured, the "bypass" section of the alignment could be built to reconfigure the airside and landside areas.

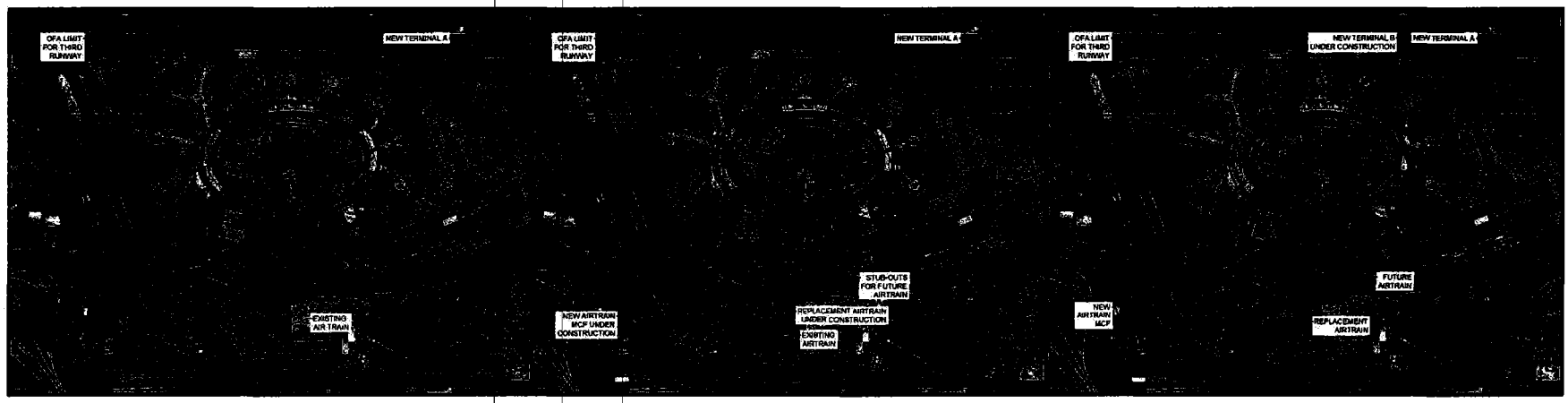
This "Staged Development" creates the flexibility to adapt the AirTrain to the future terminal area configuration. The exhibit on the following page illustrates how the Staged Development could be sequenced in response to a hypothetical terminal reconfiguration. Other variations and sequences can be developed and tested.

Construction Staging

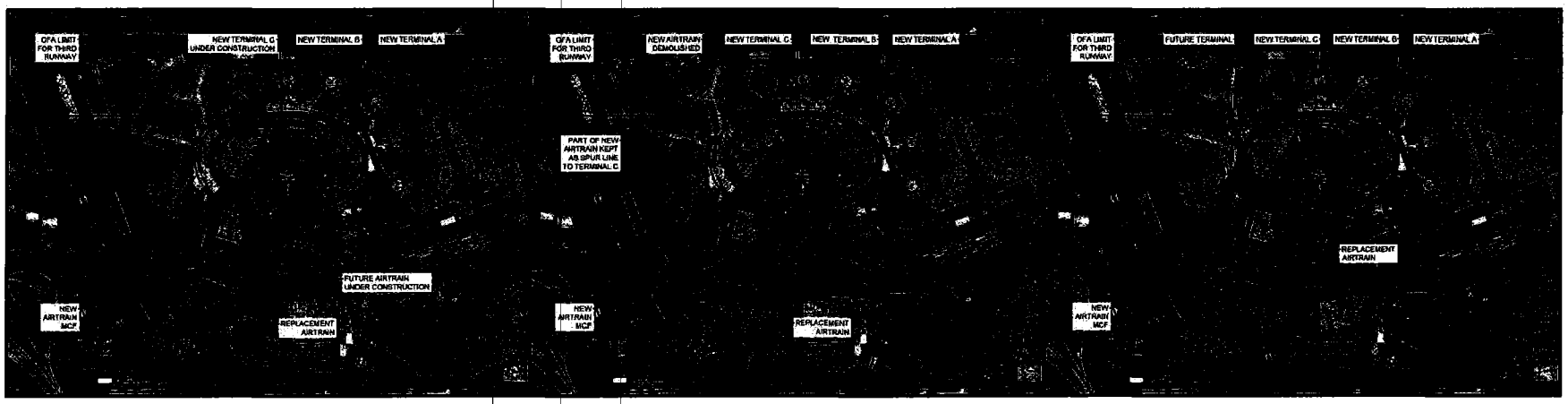
It is critical that the replacement AirTrain be planned, designed and implemented in a way that minimizes any operational impacts to airport operations. The future alignment and station locations will be evaluated based on a range of issues including level of service, terminal access, coordination with roadway networks and right-of-ways, constructability and operational impacts amongst other factors to be determined.

The existing AirTrain service must be maintained during construction of the replacement AirTrain to avoid inconvenience to passengers and to prevent adding to curbside congestion. A high level of service must be provided to all passengers using the AirTrain during each phase of construction.

Other key areas where operational impacts must be minimized include the terminal access, roadways, parking, rental car areas, and the Rail Link Station.



Phase 1 Phase 2 Phase 3



Phase 4 Phase 5 Phase 6

6. What was your assumption on the following Tasks?

In preparing our Staffing Analysis detailed in Attachment D, we made many assumptions regarding the level of effort.

We look forward to detailed discussions with the Authority regarding the tasks, approach, and staffing levels so that we can mutually refine them to meet the immediate and ongoing needs of the Project.

We are flexible and open to adjusting the Staffing Analysis to meet your needs.

Task A.1 Document Review

The Lea+Elliott team will review previous studies and report documents and the status of the other redevelopment efforts. Since our team members have been involved in several of the AirTrain Newark studies and redevelopment projects, we will focus on new developments and changes that have occurred since the studies were completed. As part of the document review task, it will be important to access existing condition technical drawings for various airport facilities including terminals, roadways, parking structures and other tenant facilities. These documents will become a critical part for the development of a project BIM database to provide key background documentation for alignment analysis and station planning.

Our staffing analysis assumed review of significant new reports and information from other redevelopment efforts mentioned in the RFP. If new reports and information are limited, then the staffing levels can be reduced considerably.

Task D - Assumptions on level of inspection and oversight

Monitoring the manufacturing, installation and construction activities is critical to project success. Lea+Elliott has developed software called the LEGENDS© System Compliance Verification Matrix (SCVM). It provides a tool for monitoring compliance with the APM contract requirements throughout the manufacturing, installation, testing and demonstration activities.

Presence in the manufacturing plant is critical and allows us to catch any problems prior to shipment and reconcile progress payments. We know from experience that personally witnessing important tests allows us to identify issues that would have otherwise been missed and would have resulted in delays late in the project. We will apply the systematic process which begins with thoroughly defining with the Authority the tests that will be required in the performance specifications as well as the criteria that will be used to measure success. We will then identify which First Article Inspections, Hold Point Inspections, and Qualification and Acceptance Tests that require test witnessing or auditing. The process is thoroughly recorded and documented.

Lea+Elliott team personnel, championed by AECOM, will monitor on-site installation and construction activities and will report progress and document any work not in conformance with the Contract Documents. Day-to-day direction and supervision of personnel and subcontractors will be the responsibility of the APM Contractor.

We are flexible and open to adjusting the level of oversight based on your input.

7. How do you propose to equally weigh all different possible system types?

Lea+Elliott considers the System technical and performance specifications to be one of the most critical steps in a successful APM project. To that end, we have committed over 40 years and many thousands of hours to develop, maintain, and refine a proprietary Procurement Documents Guide. Although this procurement guide can be used to develop specifications that procure a full range of APM and AGT technologies, after the completion of the overall planning, system requirements definition and technology assessment, we will detail the criteria in the specifications to deliver only the mature technologies that are most suitable for the AirTrain system.

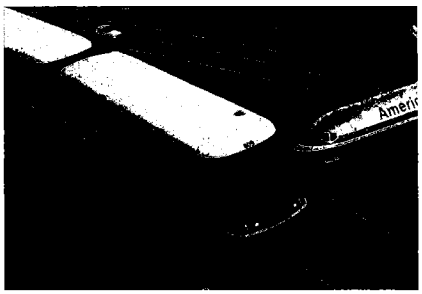
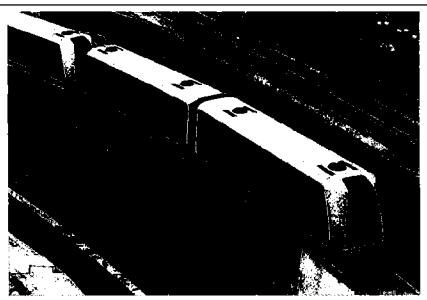
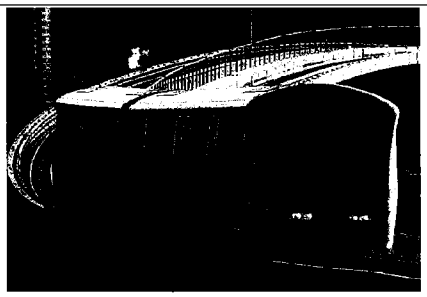
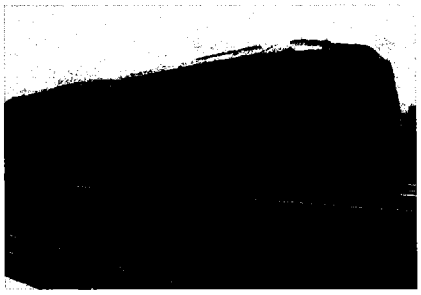
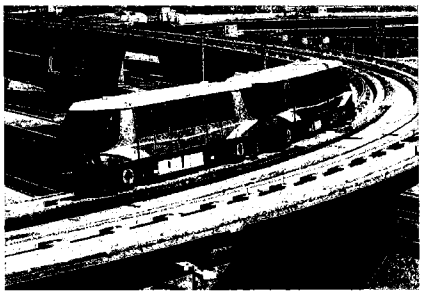
From our prior AirTrain study and understanding of the project, we anticipate the most suitable technologies being large scale rubber tired APM systems with vehicles about 40-ft in length and small to medium size steel-wheel AGT systems with vehicles about 50 to 55-ft in length. The initial system train consists could range from 2-vehicles for rubber tired systems to a single vehicle for steel. Both technologies may increase passenger capacity by the reduction of headways or expansion of consist length as the passenger demand grows.

Some advantages of rubber tired systems are smoother and quieter rides, smaller headways due to shorter braking distances and faster acceleration, and operation in inclement weather.

Some advantages of steel wheel systems are lower energy consumption and interchangeable gauge with other rail technologies in the area.

Lea+Elliott will work with the Authority to determine which of the two technologies is most advantageous for the AirTrain.

The procurement documents will establish evaluation criteria to fairly weigh the advantages and disadvantages of each technology and identify the best system. The evaluation criteria will allow the technical proposals to be scored in a numerical value assigned to individual criteria and the overall proposal.

8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort?

The Lea + Elliott team will develop a security plan that is consistent with the Authority policy for Security Design of Capital Projects. During the conceptual design phase a Design Basis Threat (DBT) Report will be developed in a workshop environment under the direction of the CSO's office that is consistent with other similar DBT reports that were prepared for the LaGuardia Central Terminal Building Modernization project and the Newark Liberty International Airport Terminal A Redevelopment Project, both undertaken by HNTB (Joe Englot, Frank Candiano and HNTB staff), who will also lead this effort for the Newark AirTrain Replacement project.

The basic steps in preparing a DBT report are:

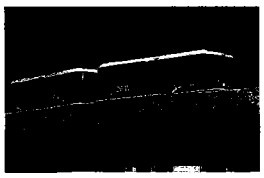
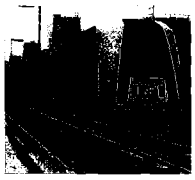
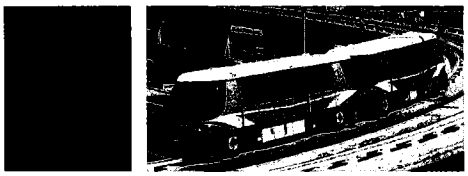
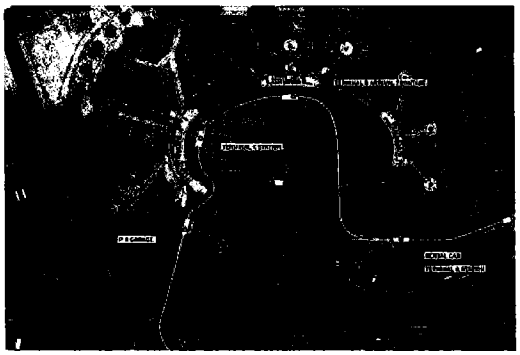
1. Identifying the applicable threats from the Authority's existing Agency-Wide Risk Assessment which is on file with PA OEM.
2. Developing a table of threat scenarios, threat locations and targeted AirTrain elements and assets.
3. Developing mitigation design strategies for the various threats that will then become performance based security design criteria that will allow the system designers at each Stage of design to optimize the security mitigation solutions at the least additional cost to the project.
4. The DBT report will lead to the Lea+Elliott team developing a Protective Design Narrative to address each threat scenario and targeted AirTrain asset in the conceptual design.

In addition, best practices in security design from the following agencies and reports will be recommended:

1. American Public Transportation Association (APTA) guidelines for safety and security of Automated People Movers
2. APTA guidelines for rail system security
3. APTA guidance for Crime Prevention Through Environmental Design (CPTED) for Transit Facilities
4. Recommended Security Guidelines for Airport Planning, Design and Construction

The most common mitigation strategies for airport APMs are:

- Station glazing systems that minimize fragmentation from blast
- Station and guideway structures that are designed to resist progressive collapse
- Provide standoff at grade level around AirTrain stations, substations and Maintenance and Control facilities through a combination of offset distance from roadways and barriers or bollards to enforce standoff distance
- Access control and intrusion detection to prevent unauthorized entry on guideway tracks
- Perimeter protection, access control and intrusion detection to prevent unauthorized access to maintenance and vehicle control centers
- Surveillance cameras and intercoms to command and control for AirTrain passenger safety in stations and aboard vehicles

LEA ELLIOTT

One Gateway Center, Suite 2600 | Newark, New Jersey 07102

leaelliott.com

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Tuesday, September 22, 2015 4:10 PM
To: Smith, Jessica
Subject: RE: PA Agreement No. AVI-15-032

Ms. Smith,

10 a.m. tomorrow morning works for me. I can be reached at my office number of 703-537-7408.

Best,
-Russell

-----Original Message-----
From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Tuesday, September 22, 2015 4:03 PM
To: Green, Russell
Subject: RE: PA Agreement No. AVI-15-032
Importance: High

Good afternoon Mr. Green--

David Gutierrez and I would like to have a phone call with you to discuss the subject Agreement. This discussion is an urgent matter and we would like to call you at 10:00 A.M. tomorrow morning. Please let me know as soon as possible if you are available and the best number to reach you at.

Thank you,
Jessica

-----Original Message-----
From: Green, Russell [mailto:Regreen@LeaElliott.com]
Sent: Tuesday, September 15, 2015 4:05 PM
To: Smith, Jessica
Subject: Re: PA Agreement No. AVI-15-032

Ms. Smith,

Our insurance company identified two other concerns regarding the professional liability insurance requirements. They have advised that the professional liability requirements in the Agreement are inconsistent with what is available in the insurance marketplace in the following respects:

1. Professional liability insurance covers the professional negligence of the insured or failure to meet the professional standard of care, as opposed to "acts" or "mistakes" of the insured. They request the addition of the word "negligent" following "covering" in the first line of the first paragraph of Section 3 on page 19.

2. Professional liability insurance is written on a claims made basis, not an occurrence basis. They suggest replacing the word "occurrence" with "claims made" in the last sentence of the first paragraph of Section 3 on page 19.

We are aware of other Port Authority agreements that have wording similar to the requested language.

Please to not hesitate to contact me there are any questions or concerns.

Best,

-Russell
703-509-9003

On Sep 14, 2015, at 3:25 PM, Green, Russell <Regreen@LeaElliott.com<mailto:Regreen@LeaElliott.com>> wrote:

Ms. Smith,

Lea+Elliott is pleased to be selected for the performance of the Replacement AirTrain Newark Planning project.

As we are performing our final review of the Agreement, we noticed the insurance requirements of Attachment A - Paragraph VIII are greater than our existing Agreements with the PANYNJ. Please see the comparison table below.

PA Contract:

GL Limit

PL Limit

Landside

Airside

Notes

AVI-13-050

$5M

$25M

$2M

Existing Agreement with PANYNJ

AVI-12-046

$10M

$25M

$5M

Existing Agreement with PANYNJ

AVI-15-032

$25M

$25M

$10M

Subject Agreement

L+E Coverage

$2M ($10M umbrella)

$5M

Our most recent Agreement with the PANYNJ required general liability limits of $10M landside and $25M airside and professional liability of $5M. It was determined that airside general liability was not required as the work was limited to the landside, as is the work on the subject Agreement.

We are concerned the higher general and professional liability limits required by the subject Agreement could present a problem for our subconsultants to obtain, particularly the DBEs. Additionally, the significant cost of the additional premiums that would be borne by all.

May we request a reduction in the general and professional liability limits for this Agreement to be in line with our insurance limits on our Agreement No. AVI-12-046 with the PANYNJ?

Best Regards,
-Russell Green

Russell Green, P.E. + Associate Principal + Lea+Elliott, Inc.
44965 Aviation Drive Suite 290, Dulles, Virginia 20166 + T 703.537.7408

Please consider the environment before printing this email.

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Friday, September 25, 2015 2:40 PM
To: Smith, Jessica
Subject: RE: Mailing Address for AVI-15-032

Hi Jessica,

Just checking in to see if the FedEx went out yesterday with the revised agreement. We have not seen anything yet. Please email the tracking number if available.

Best,
-Russell

From: Green, Russell
Sent: Thursday, September 24, 2015 12:37 PM
To: 'Smith, Jessica'
Subject: RE: Mailing Address for AVI-15-032

Hi Jessica,

The changes to Section VII Paragraphs 1 and 3 are okay. Thank you for facilitating the discussions yesterday on this topic.

Regarding the renewal letter for AVI-12-046 (O&M Contract), we have Amendment 1 dated 1/12/15 that extended the duration from 2014 to 2015. I believe there was a second Amendment that increased the funds by $700k. Our project biller is out today so I cannot confirm. Is Amendment 1 all we are discussing?

Best,
-Russell

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Thursday, September 24, 2015 10:51 AM
To: Green, Russell
Subject: RE: Mailing Address for AVI-15-032

Hi Russell—

Were you able to locate that renewal letter for the Airtrain O&M Contract? If not, I will send it overnight with the other Agreement. Please let me know if you are OK with the attached language.

Thanks,
Jessica

From: Green, Russell [mailto:Regreen@LeaElliott.com]
Sent: Wednesday, September 23, 2015 2:34 PM
To: Smith, Jessica
Subject: Mailing Address for AVI-15-032

Hi Jessica,

For the revised standard agreement, please address the FedEx package to:

David M. Casselman, AIA
Lea+Elliott, Inc.
2505 N. State HWY 360, Suite 750
Grand Prairie, TX 75050

T 972.890.9800

Best,
-Russell Green

Russell Green, P.E. + Associate Principal + Lea+Elliott, Inc.
44965 Aviation Drive Suite 290, Dulles, Virginia 20166 + T 703.537.7408

Please consider the environment before printing this email.

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Thursday, September 24, 2015 12:37 PM
To: Smith, Jessica
Subject: RE: Mailing Address for AVI-15-032

Hi Jessica,

The changes to Section VII Paragraphs 1 and 3 are okay. Thank you for facilitating the discussions yesterday on this topic.

Regarding the renewal letter for AVI-12-046 (O&M Contract), we have Amendment 1 dated 1/12/15 that extended the duration from 2014 to 2015. I believe there was a second Amendment that increased the funds by $700k. Our project biller is out today so I cannot confirm. Is Amendment 1 all we are discussing?

Best,
-Russell

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Thursday, September 24, 2015 10:51 AM
To: Green, Russell
Subject: RE: Mailing Address for AVI-15-032

Hi Russell—

Were you able to locate that renewal letter for the Airtrain O&M Contract? If not, I will send it overnight with the other Agreement. Please let me know if you are OK with the attached language.

Thanks,
Jessica

From: Green, Russell [mailto:Regreen@LeaElliott.com]
Sent: Wednesday, September 23, 2015 2:34 PM
To: Smith, Jessica
Subject: Mailing Address for AVI-15-032

Hi Jessica,

For the revised standard agreement, please address the FedEx package to:

David M. Casselman, AIA
Lea+Elliott, Inc.
2505 N. State HWY 360, Suite 750
Grand Prairie, TX 75050

T 972.890.9800

Best,
-Russell Green

Russell Green, P.E. + Associate Principal + Lea+Elliott, Inc.

44965 Aviation Drive Suite 290, Dulles, Virginia 20166 + T 703.537.7408

Please consider the environment before printing this email.

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Friday, June 19, 2015 9:26 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RFP 42022 - Oral Interview Date

Ms. Smith,

In the event the CH2M Team is invited to participate in an Oral Presentation regarding RFP 42022 (Planning Services for the Replacement of the EWR AirTrain), have there been any candidate dates established? Key members of our team are planning vacations, and any information you could provide would be helpful.

If this information is not available, we fully understand.

Thank You, David

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M [redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

Smith, Jessica

From: Green, Russell [Regreen@LeaElliott.com]
Sent: Wednesday, October 07, 2015 5:10 PM
To: Smith, Jessica
Subject: AVI-15-032

Hi Jessica,

If available, could you please email the tracking number for the executed agreement? I heard from Richard Schnurr that it was signed by the PA on Oct 2, but we have not received the hard copy (or pdf) for our records.

Best,
-Russell

Russell Green, P.E. + Associate Principal + Lea+Elliott, Inc.
44965 Aviation Drive Suite 290, Dulles, Virginia 20166 + T 703.537.7408

Please consider the environment before printing this email.

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Friday, May 15, 2015 11:29 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RFP 42022 - Ch2M HILL NDA - Exhibit As
Attachments: Scanned from a Xerox Multifunction Device.pdf

Jessica,

Here are scanned copies of Exhibit A's signed by the relevant individuals.

All dates are May 14.

If you need anything further, please let us know.

Please let us know when we can stop by to collect the CDs.

Thank You, David

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M [redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Wednesday, May 13, 2015 9:21 AM
To: Smith, Jessica
Subject: RE: RFP 42022 - Question and Information Request

Thank you.

J David Strong - cell [redacted]

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Wednesday, May 13, 2015 9:16 AM
To: Strong, David/NYC
Cc: Li, Janice/NYC; Paterson, Ric/ATL
Subject: RE: RFP 42022 - Question and Information Request

Good morning—

I received your request from yesterday and am working on the response with the Project Manager.

Thank you,
Jessica

From: David.Strong@ch2m.com [mailto:David.Strong@ch2m.com]
Sent: Wednesday, May 13, 2015 8:59 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com; Ric.Paterson@ch2m.com
Subject: RE: RFP 42022 - Question and Information Request

Dear Ms. Smith,

I would like to follow up on my request below.

Could you please confirm you have received my email?

Could you please provide an estimate of when we might receive a response?

Thank You

J David Strong - cell [redacted]

From: Strong, David/NYC
Sent: Tuesday, May 12, 2015 10:34 AM
To: 'jlsmith@panynj.gov'
Cc: Li, Janice/NYC; Paterson, Ric/ATL (Ric.Paterson@ch2m.com)
Subject: RE: RFP 42022 - Question and Information Request

Dear Ms. Smith,

CH2M HILL would like to request that the Port Authority consider extending the due date for RFP 42022, Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an "As Needed" Basis. We believe that the 3-week period allotted for response is extremely short to allow consultants to fully consider the technical aspects of the program and deliver a quality response to all elements of the RFP. In addition, the Memorial Day Holiday falls within the 3-week response time, further reducing our ability to provide the Authority with a quality proposal. We respectfully ask that the PA consider extending the due date by 1 week to allow consultants to better respond to the request. This extension would not impact our ability to successfully deliver the requested services by the 3rd Quarter of 2017.

Further, we would like to request access to the information referenced in Section V of Attachment A; Item A – Available Documents.

Sincerely, David Strong

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M [redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Wednesday, May 13, 2015 8:59 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com; Ric.Paterson@ch2m.com
Subject: RE: RFP 42022 - Question and Information Request

Dear Ms. Smith,

I would like to follow up on my request below.

Could you please confirm you have received my email?

Could you please provide an estimate of when we might receive a response?

Thank You

J David Strong - cell [redacted]

From: Strong, David/NYC
Sent: Tuesday, May 12, 2015 10:34 AM
To: 'jlsmith@panynj.gov'
Cc: Li, Janice/NYC; Paterson, Ric/ATL (Ric.Paterson@ch2m.com)
Subject: RE: RFP 42022 - Question and Information Request

Dear Ms. Smith,

CH2M HILL would like to request that the Port Authority consider extending the due date for RFP 42022, Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an "As Needed" Basis. We believe that the 3-week period allotted for response is extremely short to allow consultants to fully consider the technical aspects of the program and deliver a quality response to all elements of the RFP. In addition, the Memorial Day Holiday falls within the 3-week response time, further reducing our ability to provide the Authority with a quality proposal. We respectfully ask that the PA consider extending the due date by 1 week to allow consultants to better respond to the request. This extension would not impact our ability to successfully deliver the requested services by the 3rd Quarter of 2017.

Further, we would like to request access to the information referenced in Section V of Attachment A; Item A – Available Documents.

Sincerely, David Strong

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M [redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Friday, May 15, 2015 12:03 PM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RE: RFP 42022 - Ch2M HILL NDA - Exhibit As

Janice Li will be coming to pick up the CD.

Thank You for your help.

DS

J David Strong - cell 908 507 0220

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Friday, May 15, 2015 11:53 AM
To: Strong, David/NYC
Cc: Li, Janice/NYC
Subject: RE: RFP 42022 - Ch2M HILL NDA - Exhibit As

David—

You can come and pick up the CD between 2 and 4 today. I need something corrected on the NDA but our lawyers said it can be changed via pen and initialed by one of your staff. (it's just something regarding a date). Who will be coming for the CD so I can let security know?

Thank you,
Jessica

From: David.Strong@ch2m.com [mailto:David.Strong@ch2m.com]
Sent: Friday, May 15, 2015 11:29 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RFP 42022 - Ch2M HILL NDA - Exhibit As

Jessica,

Here are scanned copies of Exhibit A's signed by the relevant individuals.

All dates are May 14.

If you need anything further, please let us know.

Please let us know when we can stop by to collect the CDs.

Thank You, David

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M [redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Thursday, June 25, 2015 10:44 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: Re: RFP 42022 - Oral Interview Date
Attachments: image001.png

Ms. Smith,

Following up on our inquiry about the date for our oral presentation, we have managed to work around the conflict that I mentioned. We are fine to stick with July 14 as requested.

Thank you, David

J David Strong cell [redacted]

On Jun 22, 2015, at 10:09 AM, Smith, Jessica <jlsmith@panynj.gov> wrote:

> Good morning—
>
> I am working on getting a response for you and should have one shortly.
>
> Thank you,
>
> **JESSICA L. SMITH**
> PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
> 4 WORLD TRADE CENTER, 21ST FLOOR
> PHONE: 212-435-4621 | JLSMITH@panynj.gov
> **THE PORT AUTHORITY** OF NY & NJ

From: David.Strong@ch2m.com [mailto:David.Strong@ch2m.com]
Sent: Friday, June 19, 2015 9:26 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RFP 42022 - Oral Interview Date

Ms. Smith,

In the event the CH2M Team is invited to participate in an Oral Presentation regarding RFP 42022 (Planning Services for the Replacement of the EWR AirTrain), have there been any candidate dates established? Key members of our team are planning vacations, and any information you could provide would be helpful.

If this information is not available, we fully understand.

Thank You, David

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M [redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Tuesday, May 12, 2015 10:34 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com; Ric.Paterson@ch2m.com
Subject: RE: RFP 42022 - Question and Information Request

Dear Ms. Smith,

CH2M HILL would like to request that the Port Authority consider extending the due date for RFP 42022, Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an "As Needed" Basis. We believe that the 3-week period allotted for response is extremely short to allow consultants to fully consider the technical aspects of the program and deliver a quality response to all elements of the RFP. In addition, the Memorial Day Holiday falls within the 3-week response time, further reducing our ability to provide the Authority with a quality proposal. We respectfully ask that the PA consider extending the due date by 1 week to allow consultants to better respond to the request. This extension would not impact our ability to successfully deliver the requested services by the 3rd Quarter of 2017.

Further, we would like to request access to the information referenced in Section V of Attachment A; Item A – Available Documents.

Sincerely, David Strong

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646.253.8557
M [redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Friday, May 15, 2015 2:19 PM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RE: RFP 42022 - Ch2M HILL NDA - Exhibit As

Jessica,

Change in plan. I am coming over to pick up the CD.

Thank You

J David Strong - cell [redacted]

From: Strong, David/NYC
Sent: Friday, May 15, 2015 12:03 PM
To: 'Smith, Jessica'
Cc: Li, Janice/NYC
Subject: RE: RFP 42022 - Ch2M HILL NDA - Exhibit As

Janice Li will be coming to pick up the CD.

Thank You for your help.

DS

J David Strong - cell [redacted]

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Friday, May 15, 2015 11:53 AM
To: Strong, David/NYC
Cc: Li, Janice/NYC
Subject: RE: RFP 42022 - Ch2M HILL NDA - Exhibit As

David—

You can come and pick up the CD between 2 and 4 today. I need something corrected on the NDA but our lawyers said it can be changed via pen and initialed by one of your staff. (it's just something regarding a date). Who will be coming for the CD so I can let security know?

Thank you,
Jessica

From: David.Strong@ch2m.com [mailto:David.Strong@ch2m.com]
Sent: Friday, May 15, 2015 11:29 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RFP 42022 - Ch2M HILL NDA - Exhibit As

Jessica,

Here are scanned copies of Exhibit A's signed by the relevant individuals.

All dates are May 14.

If you need anything further, please let us know.

Please let us know when we can stop by to collect the CDs.

Thank You, David

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M[redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Saturday, July 11, 2015 11:01 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS

Ms. Smith,

The presentation attendees for our team will be:

Janice Li
J. David Strong
Robert Davidson
Steve Pressler
Tedd Snyder
Kishor Doshi

Thank You

J David Strong - cell [redacted]

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Friday, July 10, 2015 4:16 PM
To: Strong, David/NYC
Cc: Li, Janice/NYC
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS

Received.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: David.Strong@ch2m.com [mailto:David.Strong@ch2m.com]
Sent: Friday, July 10, 2015 4:04 PM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS

Ms. Smith,

Our responses to the 8 questions below are provided in the attached file.
We would appreciate your confirmation that this email submission has been received.

Regards, David

J David Strong - cell [redacted]

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Tuesday, July 07, 2015 10:37 AM
To: Strong, David/NYC
Subject: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)--PRESENTATIONS

July 7, 2015

CH2M HILL New York, Inc.
Attn.: J. David Strong, PE, Vice President

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

Dear Mr. Strong:

Thank you for your recent submittal in response to the subject Request for Proposals (RFP). As part of the on-going evaluation process, we now ask that you and members of your team meet with us to present your proposal, and address Authority questions, if any. The presentation is scheduled for Tuesday, July 14th at 11:00, and will be held at Newark Liberty International Airport, at Building 1 in the General Manager's Conference Room.

If, on July 14th, you have any difficulty accessing the facility, please call Mr. Richard Schnurr , directly at (973) 961-6189, who should be able to assist you, as appropriate. To gain access to the Building, a picture ID (e.g. drivers license) will be required.

Presentations are limited to one hour, followed by a 30 minute question and answer period. A Smart Board will be provided for your use. A PC tower will be provided so you should bring your own Laptop or USB Drive containing the Presentation.

You are limited to no more than 6 members of your team, as follows:

- The Project Manager
- Five (5) other senior staff members proposed to work on this project

Please provide the names of the above and responses to the below to me via email no later than COB Friday, July 10th.

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this project?

2. What is your proposed Procurement Strategy?

3. What is your proposed alignment selection seeing as the layout of the airport is unknown?

4. What is the total cost of what will be built?

5. What is your proposed staging plan?

6. What was your assumption of the following Tasks –
Task A.1 Document Review
Task D – Assumptions on level of inspection and oversight

7. How do you propose to equally weigh all different possible system types?

8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort?

Please bring ten (10) copies of your presentation for distribution to the Proposal Evaluation Committee Members.

If you have any questions please contact me at (212) 435-4621 or via email.

Sincerely,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.
NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Friday, July 10, 2015 4:04 PM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS
Attachments: CH2M_QA_RFP_42022.pdf

Ms. Smith,

Our responses to the 8 questions below are provided in the attached file.
We would appreciate your confirmation that this email submission has been received.

Regards, David

J David Strong - cell [redacted]

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Tuesday, July 07, 2015 10:37 AM
To: Strong, David/NYC
Subject: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS

July 7, 2015

CH2M HILL New York, Inc.
Attn.: J. David Strong, PE, Vice President

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

Dear Mr. Strong:

Thank you for your recent submittal in response to the subject Request for Proposals (RFP). As part of the on-going evaluation process, we now ask that you and members of your team meet with us to present your proposal, and address Authority questions, if any. The presentation is scheduled for Tuesday, July 14th at 11:00, and will be held at Newark Liberty International Airport, at Building 1 in the General Manager's Conference Room.

If, on July 14th, you have any difficulty accessing the facility, please call Mr. Richard Schnurr , directly at (973) 961-6189, who should be able to assist you, as appropriate. To gain access to the Building, a picture ID (e.g. drivers license) will be required.

Presentations are limited to one hour, followed by a 30 minute question and answer period. A Smart Board will be provided for your use. A PC tower will be provided so you should bring your own Laptop or USB Drive containing the Presentation.

You are limited to no more than 6 members of your team, as follows:

- The Project Manager
- Five (5) other senior staff members proposed to work on this project

Please provide the names of the above and responses to the below to me via email no later than COB Friday, July 10th.

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this project?

2. What is your proposed Procurement Strategy?

3. What is your proposed alignment selection seeing as the layout of the airport is unknown?

4. What is the total cost of what will be built?

5. What is your proposed staging plan?

6. What was your assumption of the following Tasks –
Task A.1 Document Review
Task D – Assumptions on level of inspection and oversight

7. How do you propose to equally weigh all different possible system types?

8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort?

Please bring ten (10) copies of your presentation for distribution to the Proposal Evaluation Committee Members.

If you have any questions please contact me at (212) 435-4621 or via email.

Sincerely,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

CH2M/ STV Response to Questions

July 10, 2015

QUESTION 1: HOW WILL YOU ENSURE THE COMMITMENT OF YOUR PROPOSED PROJECT MANAGER TO THE ENTIRE DURATION OF THIS PROJECT?

Our commitment of CH2M's Project Manager (PM) Janice Li for the duration of the project is a core component of our team's proposal. We recognize the importance of maintaining continuity of our leadership team, in particular the PM. We understand the importance of retaining an understanding of all elements of the project including the background, history and the rationale for key decisions. Continuity is critical for keeping the project on schedule, and for assuring that our support remains in line with Authority expectations and directions. The timing of this project is excellent as most of Janice's current assignments are winding down, including serving as a key project staff for the Federal Railroad Administration (FRA) Monitoring and Technical Assistance Contract. Of the three projects in the portfolio, one will reach substantial completion at the end of 2015 and another will be winding down in the second quarter of 2016. In addition we have added two new staff hires locally in the last 6 months and they have increased their involvement on these projects to take on more responsibilities and free up Janice further. Both individuals are seasoned project managers with over 25 years of professional experience; as such CH2M will have the capacity and capability to continue supporting the FRA project with other qualified resources that will require very limited management oversight from Janice. As planned, we do not anticipate these projects to require more than 1 day per week of Janice's time. If required, we do have sufficient capacity to off load Janice fully, and we are able to commit her to the EWR project full time.

In addition to our corporate commitment, Janice is also making a personal commitment to oversee the successful completion of this important project. Janice has been working at the CH2M lower Manhattan office since the spring of 2012 and has resided in New Jersey since the late 1990s. She has demonstrated commitment to work on multi-year and complex projects during her 24-year career, in particular on her prior AirTrain JFK and AirTrain EWR assignments. For the AirTrain JFK, she commuted daily to the JFK airport for almost three years to support testing and commissioning of the AirTrain a year before revenue service and then stayed on for project close out at the airport site office before moving to the Authority lower Manhattan office. For the AirTrain EWR, Janice provided on-site support at EWR to the Authority for 4 to 5 days per week between 2007 and early 2012.

QUESTION 2: WHAT IS YOUR PROPOSED PROCUREMENT STRATEGY?

There are a wide variety of procurement strategies that might be adopted for this project. Some considerations include:

- How many contracts are appropriate? For example, for the guideway, stations and the systems elements, should they all be packaged together (similar to the JFK AirTrain DBOM)? Or would separate procurements be preferred? Should all stations be treated the same? Or might some be better procured as part of a Terminal Contract?
- For each contract, what level of detail is appropriate in the design specification? Should all elements be procured via Design/Build? Or would Design-Bid-Build be more appropriate for some?
- If Operations and Maintenance is to be incorporated into a DBOM type contract, the scope of the O&M contract will need to be determined based on the best fit within the context of existing airport operations.

Considering these issues, the CH2M Team would recommend that the System be procured using a Design Build Operate and Maintain (DBOM) approach that would incorporate the full scope of the full guideway, all stations and all systems elements and vehicles. A possible exception might be the AirTrain station at the NEC, in the event that it might be combined with a new PATH station. In the DBOM project delivery approach, one contractor has responsibility for design, construction, operation and maintenance of all elements of the System for a fixed period of time. This approach offers numerous significant advantages, including:

- The procurement, design, and construction processes are streamlined, and significant time savings are possible. This streamlined process typically results in a shortened project schedule and a reduction in project costs.
- The owner engages in a single contract with a DBOM "Entity" (usually a consortium/partnership comprising companies having different disciplines, e.g. design, construction, systems, operations and maintenance) responsible for every phase of the project. Therefore, there is one point of responsibility from the owner's perspective, which should eliminate gaps in coordination and responsibility.
- Adopting a Design-Build approach for the infrastructure provides the Contractor with valuable flexibility to select the most efficient means and methods for construction within the constraints set by the Contract.
- Keeping the interface between designers and constructors within a single contract reduces the risk of conflicts and claims with the Authority.
- The DBOM approach allows the introduction of operations and maintenance (O&M) considerations early in the design process, and the DBOM Entity is motivated financially to be more aware of design decisions that affect cost over for the extended contract period. O&M reviews can be conducted in parallel with constructability reviews throughout the design process.
- The testing and commissioning phase of a project of this scope is often a substantial portion of the construction schedule. Having all the parties involved (designers, constructors, and the operator) in this phase of the project under a single contract can help facilitate testing and commissioning effort and minimize delays.
- The DBOM approach can reduce the life cycle costs of the System, since the DBOM entity has an incentive to operate and maintain the System in a cost effective manner as O&M costs directly affect the profitability to the DBOM entity.

A successful DBOM delivery method requires considerable overlap in the goals and objectives of the owner and contractor, in other words, a partnering type of arrangement is advised to ensure that common goals are met. The approach requires a project team with a clear understanding of the DBOM delivery method. It also requires sufficient definition of design criteria and performance specifications, including the required level of quality, and appropriate contract payment provisions to ensure that both parties are clear on the objectives and the owner can ensure that these objectives are met.

It is important that the DBOM contract contain the right mix of performance criteria and specific design requirements. In a project of this magnitude there is a combination of infrastructure design and construction coupled with the design, installation and operation of an APM System. System design and installation differ from infrastructure design and build. The contract must properly address the differing requirements. In particular, the contract should:

- Define aesthetics required to the extent possible
- Specify performance for systems elements and functional requirements for infrastructure elements
- Specify materials/methods where appropriate to ensure long term durability
- Contain requirements that are non-contradictory

The Authority's own experience on the initial Newark Monorail (several separate contracts) provided valuable lessons learned which informed the decision to adopt a comprehensive DBOM contract for AirTrain JFK.

QUESTION 3: WHAT IS YOUR PROPOSED ALIGNMENT SELECTION SEEING AS THE LAYOUT OF THE AIRPORT IS UNKNOWN?

Replacing AirTrain Newark is a key element of an overarching EWR Redevelopment Program that includes reconfiguration of the CTA terminal complex, airside and landside, to be realized in a phased program over the upcoming decades. During that time, existing AirTrain and Replacement AirTrain – which is currently anticipated to open in 2022 – will be affected by increased ridership, the reconfigured terminal complex numerous interim phases, as well as the extension of PATH to EWR.

Basic interdependencies will affect the transition of AirTrain systems beyond the terminal program, including the existing landside roadway network, car rental facilities, CTA/off-CTA parking garages, possibly the Airport Traffic Control Tower and Marriott Hotel operations; as well as a network of underground utilities and other infrastructure. Constructing an appropriate Replacement AirTrain alignment must maintain operations for all necessary landside passenger and airport services, as well as existing and new terminals and airside functions.

Contractor right-of-way to construct the system is a critical factor for alignment planning, particularly where the system interfaces with existing terminal and landside facilities.

The January 2014 AirTrain Study, Task Two Summary Report defines a certain program scope with respect to fixed facilities and guideway alignment that would interface with existing and new terminals. Replacement AirTrain's CLA 5B pinched loop alignment includes stations to serve new terminals that will be constructed on the airport west end, as well as two stations to service existing Terminals B and C; a third station to service the P4 Intermodal Garage operation that includes curbsides for Hotel shuttles and a Valet parking operation and a station at the Northeast Corridor (NEC).

Alignment Plan

The CH2M Alignment Plan follows guidelines established by CLA 5B: 1) a permanent alignment segment that will serve Terminal A and the future terminal precinct, 2) an interim segment that will serve Terminal B and C; 3) a permanent segment to serve the P4 Garage multimodal program and extend out to the NEC; 4) a future segment that will complete the new alignment once all terminals are built.

We have looked at CLA 5B planning from a south to north perspective. Recognizing that we have not had an opportunity to workshop with the Terminal A team, as well as PANYNJ planners who have mapped out the long term CTA reconfiguration, we are accepting the preliminary alignment and station locations outlined in 5B for the new southern terminal segment.

Southern Terminal Complex Station Planning

Regarding Terminal A, as with all components of Replacement AirTrain, constructability, staging and phasing will inform permanent alignment planning. Consequently, phased planning and construction of the Terminal A landside roadway network would include integrating the AirTrain system. We are presuming that a direct elevated Pedestrian Connector will be developed with the terminal team once the alignment is located – presumably landside of the roadway system – with the Connector approach eventually incorporated into future linear terminal precinct/ Station interface planning.

Car Rental Site Existing CTA Roadway 'Throat'

Both the interim and permanent alignments move north over the existing Avis, Hertz, Budget Car Rental site and CTA roadway 'throat' due to the CLA 5B future terminals' planned alignment emanating from the Terminal A footprint. Guideway elevation will come into play in order to fly over these landside elements, so Guideway/ Station elevation at each new terminal should address these existing landside program elements to prevent excessive Guideway slope percentages along the alignment.

Existing Terminal B and C Station Planning

The CLA 5B interim alignment that arrives at Terminal B – which follows the future Terminal B airside configuration – will also be driven by a potentially higher than expected Guideway elevation resulting from the aforementioned CTA landside elements. The Existing Terminal B Replacement AirTrain Station location is proposed to be landside of the arrivals roadway network, as with future Terminals A, B and C. What will require study is passenger pathways from Station to Terminal. The 3-Level Terminal plan introduced in the late 1990's into the 2000's created grade level arrivals roadway curbsides making a grade level crossing from the new Station a challenging prospect. The team will look at the Terminal C Garage connector approach to determine elevated passenger pathway feasibility at Terminal B, however the 'interim' nature of the existing Terminal B and C alignment segment should be taken into account regarding level of service vs. cost.

At Terminal C, locating the Guideway and Station without physically impacting the Garage and roadway/ curbside operations during and post-construction – as well as constructing the system with an appropriate contractor right-of-way while keeping roadway and Garage operations intact – will be most challenging. From a constructability perspective, prioritizing the roadway network is paramount, therefore our proposed approach at Terminal C is to locate the Guideway and Station over the landside section of Garage; keeping the roadway network operational throughout construction. This also plays into the higher Guideway elevation strategy that has already been established for clearing landside facilities and infrastructure heading into the CTA. We are also proposing to take advantage of the two existing Pedestrian Connectors by utilizing them as the passenger pathways into the terminal. The challenge to this option will be to analyze impacts to the Garage during and post construction, regarding loss of spaces; as well as other impacts to be known once planning begins. If parking is lost, having a replacement solution is essential.

P4 Station and Garage Planning

The CLA 5B Station location on the northern side of the existing Station raises service level questions about passenger circulation from the Garage to the future Station, as well as potential impacts to the hotel curbsides and valet parking operation. The complex 'S'- curve that threads the Guideway around the new Terminal C expansion – to arrive behind the existing station and rotary – also presents challenges regarding compliance with system technology criteria, as well as contractor-right-of-way to construct. We are proposing locating the alignment and Station on the Garage southern side; an operationally clear surface parking site that will not impact the existing Garage, Station and rotary. This affords many opportunities, including expanding the Garage to address potential Terminal C loss of parking. The plan would reconfigure grade level roadways coming from the Garage Helix and grade level Garage parking heading to the Exit Plaza. Constructing a new elevator core with a second level Pedestrian Connector that transports passengers over the Helix exit road – separating vehicles and pedestrians – as well as a rotary around the Station to incorporate Hotel curbsides and Valet parking will complete the program that exists at the current Station site. We also believe that this location greatly improves the alignment coming from Terminal C and have looked at optional alignments heading to the NEC; which may afford a better solution regarding technology criteria compliance. The challenges to this option are environmental considerations regarding the 'ditch' and impacts to adjacent properties; to be further studied once planning begins.

NEC Station Planning

As a final thought – which we included in our Cover Letter – Replacement AirTrain integration into this most ambitious redevelopment of EWR represents an opportunity for innovative Optioneering to come into play, particularly at this early phase of the redevelopment effort; where forward thinking can be entertained. We have explored a potential opportunity that comes from members of our Team's individual and firm experience in redeveloping EWR; specifically in leading the master plan and design of existing AirTrain Newark and the Newark Airport NEC Gateway Terminal, as well as the PATH to Newark Airport Extension Stage I Design.

Anticipating the extension of PATH to the Newark Airport Terminal on the NEC rail right-of-way provides a dynamic opportunity to collocate the Port Authority's premier New Jersey rail service with the airport's new premier airport access/airport circulator service in a single gateway terminal linked to the existing Amtrak/New Jersey Transit platforms – a seamless connection from the World Trade Center Transit Hub in Lower Manhattan to Replacement AirTrain. This can be accomplished by the following overarching transit plan:

Develop the PATH Terminal – the terminus for creating a one-seat-ride to the airport from the Trade Center – to incorporate Replacement AirTrain. This can be accomplished by developing the new AirTrain alignment – coming from the airport to the NE – to fly over the NEC into the proposed PATH Terminal; completing the public space component of the PATH to Newark Extension Program; which has also be planned to include a new yard and storage site, as well as the potential to incorporate PATH Administration within the Terminal.

This might also offer the opportunity to: 1) relocate car rental operations that will be impacted by Replacement AirTrain to a consolidated facility with connections to the new terminal, offering passengers a direct route from the terminal precinct, as well as potential car rental customers who might come from regional rail to rent at the airport; 2) create intermodal curbsides for regional bus to access PATH and Replacement AirTrain; 3) include private auto parking to commute to Lower Manhattan or take AirTrain to the airport. Although the challenges to this option are constructing over the NEC and merging the two PANYNJ programs, we felt that the idea is compelling enough to bring forward. The CH2M Team will be happy to provide more detail on this innovative idea during upcoming oral presentations.

QUESTION 4: WHAT IS THE TOTAL COST OF WHAT WILL BE BUILT?

The following represents our team's ability to best estimate costs given the current information and conceptual level of design. Our conceptual estimate is presented in a similar format to that shown on page 67 of the January 2014 Task 2 Summary Report. Comparisons and assumptions at a Rough Order of Magnitude (ROM) level are summarized below. Given that we have limited knowledge regarding assumptions and qualifications that were applied to the Task 2 report estimate, we have made certain assumptions to address contingency. For this level of thinking, our proposed alignment can be reasonably compared to CLA 5B, with the potential to compress schedule based on constructability. Our estimate is presented in a 'high'/ 'low' format to reflect a conceptual level of planning. If the high and low are averaged out, the ROM estimate is approximately $200M lower than the corresponding estimate from the Task 2 report; i.e., comparable at this early concept level. Following is a brief summary of modifications, assumptions and qualifications at key locations:

Alignment Modifications

Alignment lengths are allocated in the ROM Estimate. Adjustments to the alignment have been conceptualized to reduce airport operational impacts, improve system operations, as well as constructability. Guideway elevation has also been taken in account.

NEC Station

Combining PATH and AirTrain services within a multimodal terminal to the benefit of passenger service – while highlighting PANYNJ transportation quality – will require design and construction coordination between programs, with the possibility that one program takes ownership with costs being shared. From an estimating perspective, increased Guideway cost moving over the NEC should be offset by freeing up the proposed CLA 5B Station site for contractor right-of-way to construct the Guideway heading towards the OMSF and NEC. Demolition of the NEC elevated Pedestrian Connector should offset the difficult staging of extending the Connector to engage the 5B Station built behind the existing Station.

P4 Garage Station

Our option proposes to add Garage program as part of the alternative site design, thereby adding scope and budget, which should be offset by freeing up the existing Station and site, along with potential impacts to the Terminal C airside. Relieving the potential problem of constructing the Guideway around the Terminal C expansion should also improve constructability; thereby shortening the schedule. By constructing on an operationally cleared site on the Garage south side – with minor roadway realignment coming from the Garage – duration should also improve.

Terminal C Station

Our option proposes to prioritize the arrivals roadway operation by creating contractor right-of-way over the Garage, potentially requiring demolition and reconstruction of several bays in order to tie into the existing Pedestrian Connectors. The temporary loss of parking is offset by the benefit to the roadway network that can continue to function through construction, which should improve schedule thereby offset garage cost. Incorporating the Connectors also eliminates a potentially difficult terminal interface constructability problem, thereby impacting schedule and cost.

SUMMARY OF FIXED FACILITIES COST ESTIMATE:	PA ALIGNMENT		CH2M TEAM ALIGNMENT			
			Low Range		High Range	
Cost Element	Fixed Facilities Loop System 13700 RF	Fixed facilities Bypass Lane 3450 RF	Fixed Facilities Loop System 14,800 RF	Fixed facilities Bypass Lane 2000 RF	Fixed Facilities Loop System 14,800 RF	Fixed facilities Bypass Lane 2000 RF
Fixed Facilities Subtotal (2013$)	502	174				
Escalation to 2015$ at 7%	537	186	745	98	795	109
Contingency (25%)	134	47	186	25	199	27
Mob., Ins., Bonds, Fees (20%)	107	37	149	20	159	22
Program Soft Costs (35%)	188	65	261	34	278	38
Total Cost	**966**	**335**	**1341**	**176**	**1431**	**196**

SUMMARY OF AIRTRAIN TOTAL COST ESTIMATE:	PA ALIGNMENT		CH2M TEAM ALIGNMENT			
			Low Range		High Range	
Cost Element	Fixed Facilities for Loop System	Fixed facilities for Bypass Lane	Fixed Facilities for Loop System	Fixed facilities for Bypass Lane	Fixed Facilities for Loop System	Fixed facilities for Bypass Lane
System (rolling stock, train control, etc.) (2013$)	228	45				
Escalation to 2015$ at 7%	244	48	213	29	257	35
Contingency (30%)	73	14	64	9	77	10
Local Cost Index (28%)	89	18	INCL'D	INCL'D	INCL'D	INCL'D
Program Soft Costs (35%)	142	28	97	13	117	16
Total Cost	**776**	**153**	**374**	**51**	**451**	**61**

SUMMARY OF BOTH ESTIMATES IN 2015 DOLLARS:	PA ALIGNMENT		CH2M TEAM ALIGNMENT			
TOTAL (2015 Dollars)	1742	488	1715	227	1882	257
Total - Loop + Bypass		2230		1942		2140
Differential		0		-288		-90

NOTES:

Costs are in millons of dollars.

Costs are in 2015 dollars. Escalate PA Alignment to 2015 $ @ 7%.

Demolition costs of the existing systems are not included.

No land acquisition costs are included.

Likely Utility impacts are included in the cost of the Guideway Structure.

Cost differential for the guideway (concrete vs. steel) are covered by the contingency.

Rolling Stock - assume 15 Vehicles

Soft costs and contingencies percentages are same for all alignments PA and CH2M/STV alike for comparison purpose.

QUESTION 5: WHAT IS YOUR PROPOSED STAGING PLAN?

The CH2M/STV alignment is based upon proposed adjustments to the Task 2 CLA 5B alignment. This alignment would best be built in two phases as shown in Figure 5-1 below, with Phase 1 being the northern and eastern portion beginning at the most constrained station, Existing Terminal C Station, and moving toward the NEC. At the early stages of this phase work can also begin in the area of the Phase 2 would begin just south and west of Existing Terminal C Station and proceed along the remainder of the alignment through the loop and the southern portion ending at the new Terminal A Station.

Within these phases staging will involve a number of broadly defined activities beginning with utility / foundation work made necessary by the construction; structural work to support the guideway, stations, substations, yard and maintenance facility; architectural/MEP/FP/LV, vertical transportation equipment and maintenance equipment work associated with the stations, substations and maintenance facility; and Train Systems work (rail, power, train control and related systems). The phases and stages we describe below are based upon the proposed alignment described in our answer to question 3 above. The final staging plan for the construction of the replacement AirTrain will be the result of coordination with other projects on Newark Liberty International Airport.

Phase 1

Facilities Stage 1 – Existing Terminal C Station:

- Demolition of portion of Terminal C Garage
- Utility and foundation work for the Station
- Utility and foundation work will proceed along the alignment east and north toward the P4 Garage Station
- Structural work will begin on foundations in the Station footprint
- Following construction of the structure architectural/MEP/FP/LV, vertical transportation equipment will be installed for the Station

Facilities Stage 1A – Yard / Maintenance Facility:

- Utility and foundation work will proceed in the area of the Yard and Maintenance Facility
- Once foundation and utility work for the Yard and Maintenance Facility are complete structural work will begin on foundations in the Yard and Maintenance Facility footprint
- Following construction of the structure, architectural/MEP/FP/LV, vertical transportation equipment and maintenance equipment will be installed for the Yard and Maintenance Facility

Facilities Stage 2 – The P4 Garage Station:

- Foundation and utility work for the Expansion of P4 Garage, the new garage core and the new Station
- Utility and foundation work will proceed along the alignment east and north toward the NEC
- Structural work will begin on foundations in the Station footprint and expanded garage footprint
- Additional parking decks and new vertical core will be constructed for the P4 Garage expansion
- The new pedestrian bridge structure will be erected
- Following construction of the structure, architectural/MEP/FP/LV, vertical transportation equipment will be installed for the Station, pedestrian bridge and the expanded garage

Facilities Stage 3 – The NEC Station

- Utility and foundation work will proceed along the alignment east and north toward the NEC
- The AirTrain guideway will be built to the face of the Station with its new bridge over the NEC. Assuming the combined PATH/AirTrain NEC Station is built, coordination of the phasing will have been resolved possibly as follows: the AirTrain System – guideway, platform edge doors, train control systems, etc. – will be installed in the PATH/AirTrain NEC Station. The PATH/AirTrain NEC Station would be built under a single contract with the exception of the AirTrain System. Cost sharing for the vertical transportation, guideway, platform and additional enclosure would have to be resolved between the two programs.

Stage 4 – Train Systems

- As the guideway is completed in the sequence described above for the Facilities the train guideway, train control, power and related system will be installed.
- Vehicles will be delivered and testing will begin

Phase 2

Facilities Stage 5 – Existing Terminal B Station:

- Following the completion of the utility and foundation work at the NEC the contractor will move to the east side of the Existing Terminal C Station and begin working east toward the Existing Terminal B Station
- Structural work will begin on foundations in the Station footprint
- Following construction of the structure architectural/MEP/FP/LV, vertical transportation equipment will be installed for the Station

Facilities Stage 6 – New Terminal A Station:

- Following the completion of the utility and foundation work at the Existing Terminal B Station the contractor will continue move to the south along the alignment toward the future New Terminal B Station and on toward the New Terminal A Station
- Foundations for the future Terminal B Station will not be installed unless the design of Terminal B is advanced enough to construct them with certainty that their location will not change
- Following the completion of the utility and foundation work for the New Terminal A Station structural work will begin on foundations in the Station footprint
- Following construction of the structure architectural/MEP/FP/LV, vertical transportation equipment will be installed for the Station
- Remaining roadway and site work will be completed

Stage 7 – Train Systems

- As the guideway is completed in the sequence described above for the Facilities the train guideway, train control, power and related system will be installed
- When the systems are married to the Phase 1 segment testing will begin

Phase 1 is the most challenging and includes the Maintenance Facility, Yard and NEC terminal station. It is the logical location for test track and allows the system to be completed on a schedule that extends the AirTrain System on to the fixed guideway and facilities constructed in Phase 2 as they are completed. It should be noted that the sequence of construction for the new Terminal A Station makes it very possible that the new Terminal A will be completed before or concurrently with the new Terminal A Station.

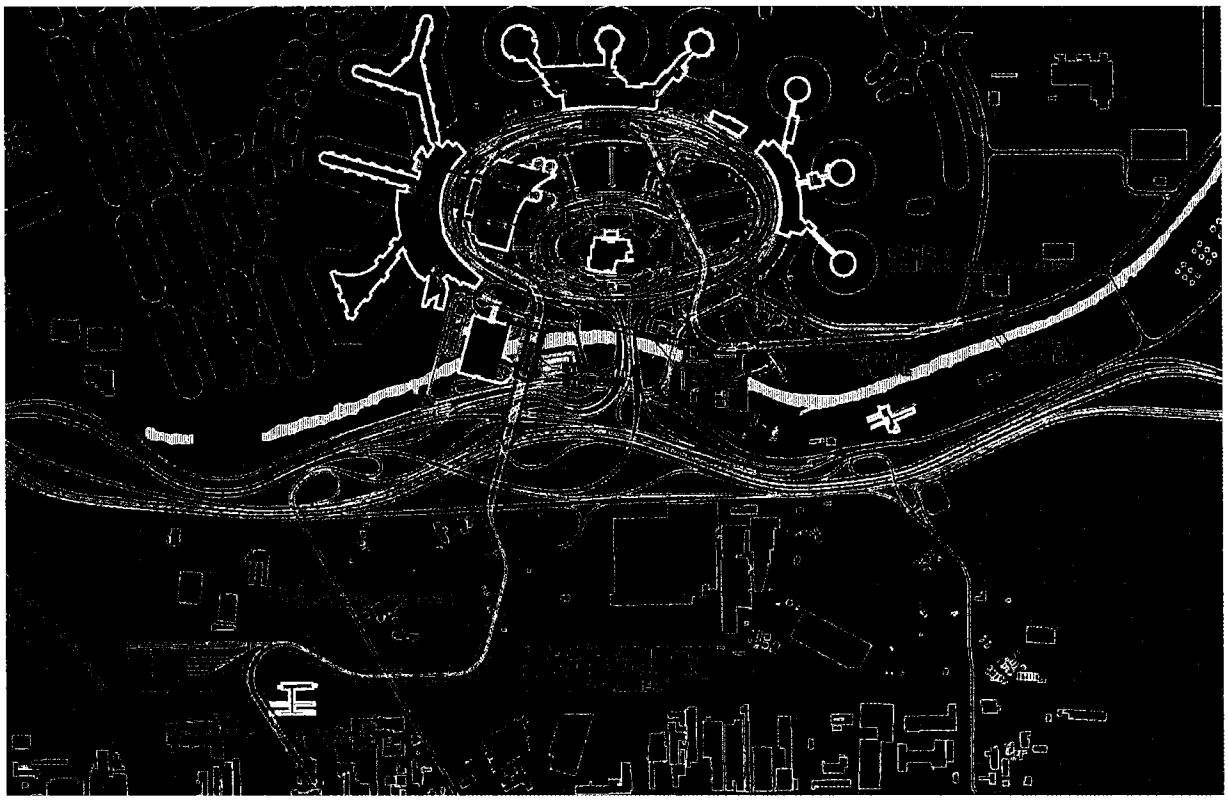


Figure 5-1

QUESTION 6: WHAT WAS YOUR ASSUMPTION OF THE FOLLOWING TASKS

TASK A.1 DOCUMENT REVIEW

The objective of this task is to have our team become fully informed on the project needs, direction and plans, in light of the work that has been done to date on the EWR AirTrain Replacement Project, and considering the status of other related projects at EWR.

The documents titles listed in the RFP Scope of Work for this task are the same as the documents that were made available to us as part of the proposal process. As part of our proposal development effort, we have reviewed these documents, and consequently, only a limited level of effort will be required to complete the review of these documents.

We have assumed that the project definition has progressed since the date of the most recent report (January 2014), and as such, we do anticipate we will need to obtain and digest additional information, either from additional reports, or by meeting with Authority staff. We have assumed that our project kick-off meeting, and subsequent Workshop meetings, will provide a productive way for our team to collect the information we will need to become fully informed on the project's current status.

Upon receiving this question, we re-reviewed our cost proposal, and we now see that the proposed allocation of hours may not adequately reflect the appropriate balance of staff. We do plan to have Bob Davidson, James Hemmerly and Kishor Doshi participate in this task, and some of the hours we have proposed for the Project Management team should more correctly be allocated to Bob, James and Kishor.

TASK D – ASSUMPTIONS ON LEVEL OF INSPECTION AND OVERSIGHT

Our approach to inspection and oversight of system implementation is based on the premise that our role would be to monitor, enforce and oversee the Contractor's Quality Assurance Plan. We have assumed that day to day construction management activities will be performed by the Authority (CMD) or through another contract. In addition, to oversee the elements of work where Contractor payments are based on work progress, we would conduct regular inspections (weekly) to evaluate and document the installation status. (refer to section D.2 of our proposal for additional description). The level of inspection and oversight we have proposed is based on the following:

- For rolling stock, the first vehicle would be manufactured over the course of approximately 1 year. Series production of the full fleet would be complete over 9 months. During the assembly of the first vehicle, engineering staff would participate in first article inspections of major assemblies and components. During series production, engineering and inspection staff would make monthly visits to evaluate the Contractor's compliance with their QA plan.
- For systems equipment (communications, signaling, traction power and platform screen doors), first article inspections would be conducted to gain agreement on production quality standards. In some cases (e.g. signaling equipment) Factory Acceptance Tests would be conducted to verify hardware and software adequacy. For on-site installations of Systems equipment, inspection and oversight activities would include witnessing of Post Installation Check out Tests (PICO), where installation quality would be evaluated. Installation progress would be evaluated through weekly site audits. Systems installation is assumed to last 24 months.
- For infrastructure and facilities elements, inspection and oversight would be based on weekly audits. The overall duration of construction is assumed to be 39 months, with the most intensive activity occurring during the last 24 months. Work progress will be evaluated on a monthly basis to support contractor invoice reviews. Invoice reviews will be based primarily on submitted supporting documentation. To the extent that more frequent inspections or monitoring are required to validate documented progress, we have assumed that the Construction Management team would provide the necessary validation. We have assumed that any material testing (e.g. slump tests) or special inspections that are required by the Authority would be conducted by others.

QUESTION 7: HOW DO YOU PROPOSE TO EQUALLY WEIGH ALL DIFFERENT POSSIBLE SYSTEM TYPES?

The DBOM procurement approach will provide a level playing field that enables and encourages industry involvement. The technical specifications, in particular, will attempt to not preclude any reputable supplier, but at the same time establish proposal evaluation criteria that will eliminate systems considered to be not qualified for the application. The following are the main steps we will incorporate in our approach to equally weigh all potential system types:

1. Develop a competitive alignment – Our first step is to minimize the risk that a requirement or interface technically eliminates a system type from consideration by providing an alignment that meets all supplier's constraints if possible, i.e., curve radius, tangents, clearances, grades, etc. The preliminary alignment should be such that all qualified APM system types would be able to participate.

2. Prepare competitive performance requirements and evaluation criteria – Similar to the above, the system specifications will establish fundamental throughput requirements along with required levels of service. In combination with the length of the alignment, these two parameters provide the criteria necessary to calculate the resulting train length, fleet size, platform length, traction power sizing, etc. Lifecycle cost will be a part of the DBOM procurement, and each proposal will be scrutinized for not only what each supplier is offering, but for what each supplier has overlooked based on our experiences with systems delivery, DBOM project delivery, and Operations and Maintenance. The risks associated with each technology are not just at Notice to Proceed, but with the continuing 30 years of O&M.

3. Judge the qualifications. - We will evaluate Supplier systems on all technical elements. In addition we will evaluate each proposal on the ability to perform including: the suppliers past history of performance, apparent preparedness for this project, and current commitment to the market, a past, present, and future evaluation. We will establish the benchmarks in the RFP for delivering a technically proven system. Additionally, proposals will be evaluated for solutions that address operations in the Newark environment, in particular snow and winter weather. This review will include how best to address snow removal for all types, rubber tire, monorail, and steel wheel.

4. Evaluate cost and value - The APM industry's response to an effective competition based on a system performance specification will clearly illustrate the differences in the suppliers proposed solutions, illuminating benefits and shortcomings, as well as alternative approaches that will need to be taken into consideration by the Authority during the final selection process. Given success establishing the above competitive environment and subsequent receipt of competent proposals, an evaluative short listing of the suppliers eliminates those not qualified, recognizing that no solution or proposal is likely to be without risks, and evaluating those risks will require sound technical judgement. The capital and life cycle costs are clearly a major factor in assessing each offer and determining a best value. There will likely be core technical requirements that prohibit proposal deviations, but there will also be performance requirements where proposer solutions will offer cost effective alternatives that will be weighed against the needs and desires of the Port Authority.

QUESTION 8: WHAT IS YOUR PROPOSED SECURITY PLAN FOR ASSESSING THREATS? WHAT IS YOUR PROPOSED THREAT VULNERABILITY EFFORT?

Task A – 6 (other studies) in the RFP mentions a threat analysis among other possible studies to be performed as required. With this identified as a study to be performed as requested, a threat and vulnerability analysis was not included in our current costs. Our team has the full capability of performing a threat and vulnerability analysis. On the JFK AirTrain project, we reviewed the threat and vulnerability analysis and Security Plan for the System, and our proposed Systems Integration Manager was the technical co-chair of the project's Safety and Security Committee. Additionally our team includes a sub-consultant, Ross and Barruzini, which has the full capability of performing this type of analysis. DVS, a division of this firm, has performed threat and vulnerability analyses for the PANYNJ in the past for the following facilities: Jamaica AirTrain Station, EWR Terminal 3, PATH stations, and the World Trade Center site.

We would anticipate performing a preliminary threat and vulnerability analysis for the APM System following the guidelines set forth in the ASCE APM Standards. The preliminary analysis would look at vulnerabilities of each component of the System to potential threats. Threats are quantified using the standards found in the ASCE APM Standards using a rating of I (catastrophic) to IV (Negligible). Probable frequencies of occurrence are also quantified using a rating system where A has a frequent probability of occurrence and E is an improbable event. Vulnerabilities of different components of the APM System (guideway; stations; vehicles; maintenance facility; control center) would be assessed. Overall ratings of the threats are then tabulated into categories of unacceptable; undesirable; and possibly acceptable. These ratings are then used to develop mitigation measures and inform the design process of security elements for the system. Results of the threat and vulnerability analysis will be documented in a report. Design criteria for elements such as CCTV cameras; access control; intrusion detection; and help point intercoms will be informed by the results of the threat and vulnerability analysis.

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Thursday, July 09, 2015 9:27 AM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS

Thank you for your response. We are preparing our written response, and we will send it tomorrow.

We are looking forward to the meeting next week.

Regards, David

J David Strong - cell [redacted]

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Thursday, July 09, 2015 9:06 AM
To: Strong, David/NYC
Cc: Li, Janice/NYC
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS

Good morning David—

The questions "if any" is in regard to additional questions raised by the committee during the question and answer period. The questions sent with the email can be touched on during your presentation but the responses should be sent to me by COB tomorrow.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: David.Strong@ch2m.com [mailto:David.Strong@ch2m.com]
Sent: Tuesday, July 07, 2015 12:14 PM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS

Ms. Smith,

Thank you for your email. I had left a voicemail message for you before receiving this email. The email below does answer the questions I had.

In light of the email below, could you please provide one clarification for us?

In addition to providing a written response to the eight questions below by this Friday, should we also plan to address these questions as part of our prepared presentation? Or does the phrase "address Authority questions, if any" refer to other questions that may arise during the 30 minute Q&A session that follows our prepared presentation?

Thank you and we are looking forward to meeting with you and the committee next Tuesday.

Regards, David

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M [redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Tuesday, July 07, 2015 10:37 AM
To: Strong, David/NYC
Subject: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)--PRESENTATIONS

July 7, 2015

CH2M HILL New York, Inc.
Attn.: J. David Strong, PE, Vice President

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

Dear Mr. Strong:

Thank you for your recent submittal in response to the subject Request for Proposals (RFP). As part of the on-going evaluation process, we now ask that you and members of your team meet with us to present your proposal, and address Authority questions, if any. The presentation is scheduled for Tuesday, July 14th at 11:00, and will be held at Newark Liberty International Airport, at Building 1 in the General Manager's Conference Room.

If, on July 14th, you have any difficulty accessing the facility, please call Mr. Richard Schnurr , directly at (973) 961-6189, who should be able to assist you, as appropriate. To gain access to the Building, a picture ID (e.g. drivers license) will be required.

Presentations are limited to one hour, followed by a 30 minute question and answer period. A Smart Board will be provided for your use. A PC tower will be provided so you should bring your own Laptop or USB Drive containing the Presentation.

You are limited to no more than 6 members of your team, as follows:

- The Project Manager
- Five (5) other senior staff members proposed to work on this project

Please provide the names of the above and responses to the below to me via email no later than COB Friday, July 10th.

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this project?

2. What is your proposed Procurement Strategy?

3. What is your proposed alignment selection seeing as the layout of the airport is unknown?

4. What is the total cost of what will be built?

5. What is your proposed staging plan?

6. What was your assumption of the following Tasks –
Task A.1 Document Review
Task D – Assumptions on level of inspection and oversight

7. How do you propose to equally weigh all different possible system types?

8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort?

Please bring ten (10) copies of your presentation for distribution to the Proposal Evaluation Committee Members.

If you have any questions please contact me at (212) 435-4621 or via email.

Sincerely,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.
NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: David.Strong@ch2m.com
Sent: Tuesday, July 07, 2015 12:14 PM
To: Smith, Jessica
Cc: Janice.Li@ch2m.com
Subject: RE: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS

Ms. Smith,

Thank you for your email. I had left a voicemail message for you before receiving this email. The email below does answer the questions I had.

In light of the email below, could you please provide one clarification for us?

In addition to providing a written response to the eight questions below by this Friday, should we also plan to address these questions as part of our prepared presentation? Or does the phrase "address Authority questions, if any" refer to other questions that may arise during the 30 minute Q&A session that follows our prepared presentation?

Thank you and we are looking forward to meeting with you and the committee next Tuesday.

Regards, David

CH2M

J. David Strong P.E.
Vice President, Transit and Rail
D 646 253-8557
M[redacted]

CH2M
22 Cortlandt St. 31st Floor New York, NY 10007
www.ch2m.com | LinkedIn | Twitter | Facebook

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Tuesday, July 07, 2015 10:37 AM
To: Strong, David/NYC
Subject: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)-- PRESENTATIONS

July 7, 2015

CH2M HILL New York, Inc.
Attn.: J. David Strong, PE, Vice President

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

Dear Mr. Strong:

Thank you for your recent submittal in response to the subject Request for Proposals (RFP). As part of the on-going evaluation process, we now ask that you and members of your team meet with us to present your proposal, and address Authority questions, if any. The presentation is scheduled for Tuesday, July 14th at 11:00, and will be held at Newark Liberty International Airport, at Building 1 in the General Manager's Conference Room.

If, on July 14th, you have any difficulty accessing the facility, please call Mr. Richard Schnurr , directly at (973) 961-6189, who should be able to assist you, as appropriate. To gain access to the Building, a picture ID (e.g. drivers license) will be required.

Presentations are limited to one hour, followed by a 30 minute question and answer period. A Smart Board will be provided for your use. A PC tower will be provided so you should bring your own Laptop or USB Drive containing the Presentation.

You are limited to no more than 6 members of your team, as follows:

- The Project Manager
- Five (5) other senior staff members proposed to work on this project

Please provide the names of the above and responses to the below to me via email no later than COB Friday, July 10th.

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this project?

2. What is your proposed Procurement Strategy?

3. What is your proposed alignment selection seeing as the layout of the airport is unknown?

4. What is the total cost of what will be built?

5. What is your proposed staging plan?

6. What was your assumption of the following Tasks –
Task A.1 Document Review
Task D – Assumptions on level of inspection and oversight

7. How do you propose to equally weigh all different possible system types?

8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort?

Please bring ten (10) copies of your presentation for distribution to the Proposal Evaluation Committee Members.

If you have any questions please contact me at (212) 435-4621 or via email.

Sincerely,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Wednesday, June 24, 2015 2:30 PM
To: Bergstein, Adriana
Cc: Barrow, Monica; Smith, Jessica
Subject: RE: Newark Airtrain APM Presentation

Adriana,

Thanks for the call this morning. As a follow up to our conversation, the following staff is not available on July 14th for the presentation:

David Leverenz - Project Manager – he is out of the country on vacation between the 14th and the 22nd
Jane Charalambous –Concept Design Oversight - I have a flight in the afternoon and can make it if the presentation is early, 9 am or 10 am.

We are available on July 13rd, if that works. Sorry for the inconvenience.

Thank you,

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) |
jane.y.charalambous@parsons.com

From: Charalambous, Jane Y
Sent: Wednesday, June 24, 2015 9:28 AM
To: 'Smith, Jessica'
Cc: Barrow, Monica
Subject: Newark Airtrain APM Presentation

Jessica,

Monica has received a call from your office (Adriana) regarding a presentation on the subject proposal on July 14th. Thanks for the chance to present our team, we look forward to it.

Unfortunately our PM is out of the country on vacation on the 14th, would it be possible to present on July 13th?

Thanks for the consideration.

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) |
jane.y.charalambous@parsons.com

Smith, Jessica

From: David Armstrong [darmstrong@axistrackreport.com]
Sent: Thursday, May 07, 2015 2:32 PM
To: Smith, Jessica
Subject: Re: FW: Request for Proposals for Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an as needed basis - 42022

Jessica
Thanks very much for responding
I will mark our report accordingly
Have a great day
David

On May 7, 2015 10:26 AM, "Smith, Jessica" <jlsmith@panynj.gov> wrote:

Good morning—

There will not be a "pre-proposal" meeting for the subject RFP. If you have any other questions regarding this solicitation, please feel free to contact me. My contact information is listed below.

Thank you,

JESSICA L. SMITH

PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT

4 WORLD TRADE CENTER, 21ST FLOOR

PHONE: 212-435-4621 | JLSMITH@panynj.gov

THE PORT AUTHORITY OF NY & NJ

From: Hernandez, Mirthia
Sent: Thursday, May 07, 2015 11:25 AM
To: Smith, Jessica

Subject: FW: Request for Proposals for Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an as needed basis - 42022

Ms Smith can you respond to this vendor request please.

From: darmstrong@axistrackreport.com [mailto:darmstrong@axistrackreport.com]
Sent: Thursday, May 07, 2015 7:26 AM
To: AskforBids
Subject: Request for Proposals for Performance of Expert Professional Planning Services for the Replacement of AirTrain at Newark Liberty International Airport on an as needed basis - 42022

Dear Bid Desk

Can you advise if there will be a pre-proposal meeting scheduled for this RFP? If yes, please advise date, time, location and whether the meeting is mandatory.

Thanks David Armstrong Axis Track Report darmstrong@axistrackreport.com 615.668.1177 www.axistrackreport.com

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Wednesday, June 24, 2015 9:28 AM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: Newark Airtrain APM Presentation

Jessica,

Monica has received a call from your office (Adriana) regarding a presentation on the subject proposal on July 14th. Thanks for the chance to present our team, we look forward to it.

Unfortunately our PM is out of the country on vacation on the 14th, would it be possible to present on July 13th?

Thanks for the consideration.

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) |
jane.y.charalambous@parsons.com

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Tuesday, May 26, 2015 5:47 PM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: FW: AirTrain EWR (RFP 42022) Questions

Jessica,

Couple of follow up questions for your consideration:

1) The "as required" nature of Phase One, Task A, Item 6 (Other Studies and Reports) makes it particularly difficult to estimate the level of effort for those services. Will the Authority specify an allowance for this item? Alternatively, consider removing this item from Attachment D.
2) Can proposers obtain or view the following studies and reports?
    - EWR AirTrain Study July 2008
    - WER AirTrain Analysis, September 2009
    - Terminal A Redevelopment Program State I Task 2 Summary Report – AirTrain Study, January 2014

Thanks,
Jane Charalambous, PE, PARSONS

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Wednesday, May 13, 2015 4:24 PM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR - RFP 42022

Jessica,

Thanks, very much appreciated.

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) | jane.y.charalambous@parsons.com

---

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Wednesday, May 13, 2015 4:02 PM
To: Charalambous, Jane Y
Cc: Barrow, Monica
Subject: RE: AirTrain EWR - RFP 42022

Yes, please visit the Authority's website to see the addenda for the subject RFP.

Thank you for your continued interest in working with The Port Authority of New York and New Jersey.

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: Charalambous, Jane Y [mailto:Jane.Y.Charalambous@parsons.com]
Sent: Wednesday, May 13, 2015 2:05 PM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR - RFP 42022

Jessica,

Just confirming you have this email?

Thank you,

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) | jane.y.charalambous@parsons.com

---

From: Charalambous, Jane Y
Sent: Sunday, May 10, 2015 6:40 PM
To: JLSMITH@panynj.gov
Cc: Barrow, Monica
Subject: FW: AirTrain EWR - RFP 42022

Dear Ms. Smith,

Parsons Transportation Group of New York, Inc. (Parsons) is interested in submitting a proposal to perform expert professional planning services for the replacement of the AirTrain at Newark Liberty International Airport as described in RFP 42022. Parsons has worked on airport circulator projects at major airports in San Francisco, CA; Seattle, WA; Miami, FL; Washington, DC; Dallas, TX; Denver, CO; and Atlanta, GA. We have provided a range of program management services, conceptual planning, design, construction, and construction management. We believe that the work that we have performed for other airport owners is very well-matched to the Port Authority's needs for the planning phase of the AirTrain EWR replacement program. In order to submit a proposal worthy of the Authority's attention, we respectfully request that the Authority:

(1) Accept for consideration a Project Manager that has professional experience on at least three similar major *automated people mover* programs, and
(2) Postpone the proposal due date to June 12, 2015.

Thank you for your consideration of this request.

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) |
jane.y.charalambous@parsons.com

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Thursday, May 21, 2015 7:54 AM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR - RFP 42022

Dear Ms. Smith,

1) With reference to the subject RFP, Page 4, Item E—Provide a list of no more than three (3) projects and contacts for the Authority to confirm provided information—Please clarify whether the intent is three projects for the prime, three projects for each firm on the team, or a total of three projects for the prime and any other firm on the team.

2) FYI - The link provided in the RFP (http://www.panynj.gov/DoingBusinessWith/contractors/html/other_info.html) refers to a page that may have moved or renamed. Are any forms required that are not specifically included in the RFP?

Thank you,

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted](c) |
jane.y.charalambous@parsons.com

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Thursday, May 21, 2015 11:13 AM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR - RFP 42022

Jessica,

Thank you very much for the quick response.

Have a great weekend!

Thank you,

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted](c) | jane.y.charalambous@parsons.com

---

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Thursday, May 21, 2015 9:52 AM
To: Charalambous, Jane Y
Cc: Barrow, Monica
Subject: RE: AirTrain EWR - RFP 42022

Good morning—

Please see responses below in red.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: Charalambous, Jane Y [mailto:Jane.Y.Charalambous@parsons.com]
Sent: Thursday, May 21, 2015 7:54 AM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR - RFP 42022

Dear Ms. Smith,

1) With reference to the subject RFP, Page 4, Item E—Provide a list of no more than three (3) projects and contacts for the Authority to confirm provided information—Please clarify whether the intent is three projects for the prime, three projects for each firm on the team, or a total of three projects for the prime and any other firm on the team. – It is three projects for the prime.

2) FYI - The link provided in the RFP (http://www.panynj.gov/DoingBusinessWith/contractors/html/other_info.html[panynj.gov]) refers to a page that may have moved or renamed. Are any forms required that are not specifically included in the RFP? – Just be sure to monitor The Port Authority's website (WWW.PANYNJ.GOV[PANYNJ.GOV]) under "Open Solicitations" -> "Professional Services" -> and look for any addenda for this RFP.

Thank you,

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted](c) | jane.y.charalambous@parsons.com

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Sunday, May 31, 2015 11:15 AM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR (RFP 42022) Question

Jessica,

We estimate that Attachment D (Staffing Analysis Sheet) will require a minimum of six (6) 11x17 pages to provide the required information in a readable font. Although Attachment D is part of the technical approach, please confirm that Attachment D is excluded from the 40-page limit that applies to the technical approach and experience sections.

Thanks,
Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c)

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Thursday, June 04, 2015 12:23 PM
To: Smith, Jessica
Subject: RE: AirTrain EWR (RFP 42022) Question

Thanks,

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) | jane.y.charalambous@parsons.com

---

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Thursday, June 04, 2015 12:23 PM
To: Charalambous, Jane Y
Cc: Barrow, Monica
Subject: RE: AirTrain EWR (RFP 42022) Question

Hi Jane—

I did, it should be answered this afternoon.

Thank you for your patience,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: Charalambous, Jane Y [mailto:Jane.Y.Charalambous@parsons.com]
Sent: Thursday, June 04, 2015 12:10 PM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR (RFP 42022) Question

Jessica,

Just making sure you got this email.

Thank you,

Jane Charalambous, P.E. | PARSONS | 212.266-8303 (w) | [redacted] (c) | jane.y.charalambous@parsons.com

---

From: Charalambous, Jane Y
Sent: Sunday, May 31, 2015 11:15 AM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR (RFP 42022) Question

Jessica,

We estimate that Attachment D (Staffing Analysis Sheet) will require a minimum of six (6) 11x17 pages to provide the required information in a readable font. Although Attachment D is part of the technical approach, please confirm that Attachment D is excluded from the 40-page limit that applies to the technical approach and experience sections.

Thanks,

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c)

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Friday, July 10, 2015 5:13 PM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: FW: AIRTRAIN AT NEWARK PRESENTATION
Attachments: parsons response to PA Airtrain questions 071015.pdf

Jessica,

Attached is our response to the questions as requested.

We look forward to the presentation on Tuesday.

Have a great weekend!

Thanks,
Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) | jane.y.charalambous@parsons.com

---

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Tuesday, July 07, 2015 10:36 AM
To: Barrow, Monica
Subject: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022) -- PRESENTATIONS

July 7, 2015

Parsons Transportation Group of New York, Inc.
Attn.: Monica Barrow, Program Director, Planning

SUBJECT: REQUEST FOR PROPOSALS FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP 42022)

Dear Ms. Barrow:

Thank you for your recent submittal in response to the subject Request for Proposals (RFP). As part of the on-going evaluation process, we now ask that you and members of your team meet with us to present your proposal, and address Authority questions, if any. The presentation is scheduled for Tuesday, July 14th at 9:00, and will be held at Newark Liberty International Airport, at Building 1 in the General Manager's Conference Room.

If, on July 14th, you have any difficulty accessing the facility, please call Mr. Richard Schnurr , directly at (973) 961-6189, who should be able to assist you, as appropriate. To gain access to the Building, a picture ID (e.g. drivers license) will be required.

Presentations are limited to one hour, followed by a 30 minute question and answer period. A Smart Board will be provided for your use. A PC tower will be provided so you should bring your own Laptop or USB Drive containing the Presentation.

You are limited to no more than 6 members of your team, as follows:

- The Project Manager
- Five (5) other senior staff members proposed to work on this project

Please provide the names of the above and responses to the below to me via email no later than COB Friday, July 10th.

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this project?

2. What is your proposed Procurement Strategy?

3. What is your proposed alignment selection seeing as the layout of the airport is unknown?

4. What is the total cost of what will be built?

5. What is your proposed staging plan?

6. What was your assumption of the following Tasks –
Task A.1 Document Review
Task D – Assumptions on level of inspection and oversight

7. How do you propose to equally weigh all different possible system types?

8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort?

Please bring ten (10) copies of your presentation for distribution to the Proposal Evaluation Committee Members.

If you have any questions please contact me at (212) 435-4621 or via email.

Sincerely,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Charalambous, Jane Y [Jane.Y.Charalambous@parsons.com]
Sent: Wednesday, May 13, 2015 2:05 PM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR - RFP 42022

Jessica,

Just confirming you have this email?

Thank you,

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) | jane.y.charalambous@parsons.com

---

From: Charalambous, Jane Y
Sent: Sunday, May 10, 2015 6:40 PM
To: JLSMITH@panynj.gov
Cc: Barrow, Monica
Subject: FW: AirTrain EWR - RFP 42022

Dear Ms. Smith,

Parsons Transportation Group of New York, Inc. (Parsons) is interested in submitting a proposal to perform expert professional planning services for the replacement of the AirTrain at Newark Liberty International Airport as described in RFP 42022. Parsons has worked on airport circulator projects at major airports in San Francisco, CA; Seattle, WA; Miami, FL; Washington, DC; Dallas, TX; Denver, CO; and Atlanta, GA. We have provided a range of program management services, conceptual planning, design, construction, and construction management. We believe that the work that we have performed for other airport owners is very well-matched to the Port Authority's needs for the planning phase of the AirTrain EWR replacement program. In order to submit a proposal worthy of the Authority's attention, we respectfully request that the Authority:

(1) Accept for consideration a Project Manager that has professional experience on at least three similar major *automated people mover* programs, and
(2) Postpone the proposal due date to June 12, 2015.

Thank you for your consideration of this request.

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] (c) | jane.y.charalambous@parsons.com

PARSONS

100 Broadway • New York, New York 10005 • (212) 266-8300 • Fax: (212) 571-6825 • www.parsons.com

July 10, 2015

The Port Authority of New York & New Jersey
150 Greenwich Street, 21st Floor
New York, NY 10007

Attention: Jessica Smith, Principal Contracts Specialist

Re: Performance of Expert Professional Planning Services or the Replacement of AirTrain at Newark Liberty International Airport on an "As-Needed" Basis (RFP 42022)

Dear Ms. Smith:

As requested, Parsons Transportation Group of New York, Inc. (Parsons) has prepared answers to the questions that you provided on July 7. We look forward to meeting with the Authority at Newark Liberty International Airport on July 14.

Sincerely,

Jane Charalambous, PE
Vice President

PARSONS TRANSPORTATION GROUP
ANSWERS TO QUESTIONS PROVIDED IN ADVANCE OF INTERVIEW

1. How will you ensure the commitment of your proposed Project Manager to the entire duration of this project?

Parsons' commitment to the Port Authority in this regard is quite simple: our Proposed Project Manager, David Leverenz, is available and will be assigned to the AirTrain Replacement Project on a full time basis for the project duration. Mr. Leverenz's commitment is equally simple: He is personally committed to managing the Parsons Team's participation in this project from the initial Notice to Proceed through passenger service in 2022.

2. What is your proposed Procurement Strategy?

Bundling project delivery and implementation contracts provides a mechanism to transfer specific project risks such that the public sector's exposure in developing a complex infrastructure project like the Newark AirTrain Replacement project is mitigated. The size and complexity of the AirTrain project create the likely potential for innovation, value for money, and effective risk transfer if delivered under an alternative project delivery (APD) model. However, the successful use of any APD model requires a review of agency parameters (i.e., legal authority, governance, funding availability) and objectives (i.e., project acceleration, cost certainty), while project specific parameters (i.e., scope, technology objectives, phasing and schedule constraints, risks driven by interfacing projects) may influence such market considerations as pricing and competitiveness. The Parsons Team will evaluate these considerations together and base the proposed Procurement Strategy on the mechanism that best delivers the Authority's objectives.

Risk transfer and the effectiveness of risk allocation are generally driven by the philosophy that risk should be borne by the entity best able to mitigate it, supported by complete and effective contracts. Many project risks could be transferred or subject to a risk-sharing regime, but for a cost that may or may not deliver value-for-money. Each delivery model varies in its ability to deliver a single point of accountability to the Authority. Integration risk is inherent in a rail transit project, regardless of delivery model. Interface risk is, for the most part, driven by the timing and number of contracts used to deliver the major elements of the project.

In the abstract, the design, build, operate, maintain (DBOM) approach facilitates the greatest risk transfer. DBOM has an advantage over other delivery methods in that including operations and maintenance in the contract provides an implicit warranty for the term of the contract. However, the Parsons Team will evaluate whether there are efficiencies in mobilization costs and training to procure the operations under a separate contract leveraging the existing operator that outweigh including operational services in the delivery model.

Acquiring vehicles as part of the DBOM passes additional schedule and integration risk to the private sector. Vehicle procurement is often the longest lead-time element of a transit system (4 to 6 years, depending on the degree of vehicle customization). The timing of testing and commissioning relative to the phasing of the project will be considered to determine if vehicle acquisition is a critical path item that is best managed with an independent procurement or whether integration and interface risk can be transferred by bundling vehicle acquisition in the delivery model. Other jurisdictions have looked to procure vehicles independently when acquisition is driven by timing constraints around funding availability, opportunities to "piggyback" other procurements, and considerations of the market's capacity relative to other upcoming vehicle orders. As the specifications of the vehicle and technology are narrowed through the technology assessment element of the Planning Services scope, these market considerations can be evaluated.

The evaluation and identification of the preferred Procurement Strategy will be based on an analysis of the various procurement alternatives on first a qualitative and then quantitative basis. The qualitative assessment will identify the key parameters, often less prescriptive or quantifiable in nature, specific to the Authority and any regulatory requirements within which the replacement AirTrain Program is to be delivered. The Parsons Team will look to incorporate lessons learned from the Port Authority's prior use of the DBOM method to deliver the monorail system at JFK airport, and apply them to the constraints of developing an APM system at Newark International Airport. The results of the qualitative analysis will be used to narrow the number of delivery models under consideration. A quantitative analysis will then be completed, incorporating an evaluation of risks and opportunities across the scenarios using a probabilistic approach (e.g., Monte Carlo). Once the preferred Procurement Strategy is identified, we recommend conducting a market sounding to help refine procurement details in support of the procurement plan, facilitate the development of marketplace interest in the AirTrain Replacement Program and provide a mechanism to obtain industry feedback on the preferred delivery method.

3. What is your proposed alignment selection seeing as the layout of the airport is unknown?

Clearly the alignment will evolve as the long range airport development process progresses. An important component of our work will be working with the Port Authority staff in determining what aspects of Newark Airport long range planning are to be factored into the alignment decisions made at this stage. Some portions of the alignment are more uncertain than others.

- Rail Link Station to P4 parking area: An alignment similar to the existing AirTrain alignment is likely, given the right of way constraints as well as proximity to the Runway Protection Zone (RPZ) for Runway 11-29. That being said, there may be advantages to an alignment that is aligned south of the P4 parking garage. The new alignment must recognize that AirTrain service to the Rail Link Station must be maintained at all times. The design team will investigate opportunities to go outside of the existing right of way and what property takes or easements may be necessary to accommodate an alternate alignment.

- Terminal C to Terminal B: The current assumption is that the alignment should serve these terminals in their existing location either near-airside or landside of these stations. (See discussion below regarding near-airside and landside alignments.) However, we are aware of the airport's consideration of a plan for a potential new runway arrangement, the 4/22 triple-parallel configuration. This would require the reconstruction of Terminals B and C to the northwest of their current location and would ultimately dictate a much different APM alignment through this area. This expansion is not part of the current airport plan and as such, we would need guidance from the Port Authority on how much consideration this potential expansion and/or other planned terminal modifications should be given and weigh how it would impact alignment opportunities.

- Existing and Future Terminal A: The alignment should be such that service to existing Terminal A can be maintained should the new APM system be operational prior to retiring of that Terminal. Again, conversations with the Port Authority regarding their long term plans for existing Terminal A will shape alignment choices north and west of existing terminal A. The alignment through the P3 parking area is somewhat flexible and should be determined after long term development options in this area are understood.

- Future Terminal A Station: We are aware of the latest planning for new Terminal A southwest of the existing terminal. An alignment west of the new terminal is likely to be most appropriate. Such an alignment would accommodate one parking area station between P3 and new Terminal A. Alignment choices here will be largely driven by how integrated the new AirTrain alignment can be with the new Terminal A. As the proposed Terminal A design is at an early level, we can work with

the Port Authority and their designer in making a determination of how best the new AirTrain can serve proposed Terminal A.

- Maintenance and Control Facility: Future development in this area of the airport will dictate the optimum MCF location. Options include a facility located adjacent to the active guideway between P3 and new Terminal A, at least two locations west of new Terminal A, or even integrated into the new Terminal A parking garage.

Within the terminal area, Parsons recommends evaluation of three basic alignment corridors: (a) near airside, (b) near landside and (c) far landside.

- Near Airside: Due to the need to avoid the existing AirTrain alignment, the near-airside alignment would pass through the existing Terminal C and Terminal B structures, either in the front or back of the buildings (but west of the existing alignment). Integration of a near-airside alignment into the existing structure would present unique structural and architectural challenges. The near-airside alignment is anticipated to be expensive to build because of the intricate level of work in the terminal areas, potential access restrictions and limited work hours. However, it likely provides the most convenient passenger access, it is closest to the gate areas and it most closely matches the circulation patterns of the existing system.
- Near- and Far-Landside: The near–land side alignment would look for opportunities to bring the alignment as close to the existing front face of the terminal as practical in order bring the travelers as close to the terminals as possible. A near-landside alignment will require many penetrations of the terminal building and/or upper deck roadway with the resulting disruptions to pedestrians/traffic and adding cost. The far-land side alignment, while likely less costly to build and less disruptive to terminal and roadway operations, leaves the passengers farther from the terminal and will require longer pedestrian bridges from stations to terminals to accommodate passenger movements. The convenience of this transfer would likely determine the success of a far-landside alignment.

4. What is the total cost of what will be built?

Cost estimating based on very preliminary system definition is always risky business. Cost is a function of several key variables that are not yet determined, such as alignment, number and size of stations and associated construction staging approaches. With that caveat, and based on our experience with APM systems at other airports and our understanding of AirTrain EWR's historical costs, we expect the capital cost to be in the range of $1.2 - $1.8 billion, reflecting the following:

Element	Range of Cost
Stations (8)	$85 million per station, +/- 20%
Storage & Maintenance Facility	$100 million, +/- 20%
Vehicles (54) with Control System, Communications and Traction Power	$6.4 million per vehicle, +/- 20%
Guideway (3 miles)	$125 million per mile, +/- 20%
Total	$1.5 billion, +/- 20%

5. What is your proposed staging plan?

As a program manager, we do believe that the most cost effective approach related to construction staging

and sequencing would be to impose as few staging criteria as possible, leaving the final determination of the staging plan to the design-builder or contractor to determine the most efficient sequence in which to build the project, while maintaining all required service. That being said, having a fully developed construction sequence and staging plan upfront is critical to ensuring the validity of the overall construction schedule, establishing clear construction milestones and understanding where potential risk lies.

Parsons is unique in that we have both designed and built projects. Our construction engineering, scheduling and estimating staff support the design team in looking at alternatives, answering how are we going to build that and preparing schedules and estimates to support. Three of the recent APM projects on which we were the successful design-builder required extensive value engineering by our team. In each case, this analysis should have been done during preliminary design and scoping. This has traditionally not been done by non-integrated firms, but is a strength Parsons brings to the table.

Within reason, guideway and station construction will need to work on multiple fronts at the same time. Work in an area will begin with relocation of existing functions, demolition of existing construction, and construction of any temporary or permanent partitioning to isolate the work area. Considering a terminal station within the horseshoe portion of the alignment as a starting point and assuming a far-landside location, a traffic management plan will be needed to clear all or a major portion of the station footprint. Station and guideway foundations and columns are early start up activities at the ground level. If utilities are present in the area, they will need to be relocated in advance. Given the proximity of work to terminal activities, this work is anticipated to be performed at night time and off peak hours. Limiting work in these areas to 5 to 7 hours per night will likely be a significant project expense so preliminary planning will need to consider opportunities to achieve longer working periods. Construction will proceed upward while at the same time work within the existing terminal can progress for the connection and vertical circulation required. The work related to the terminal tie-in needs to be planned in such a way as to be as least disruptive to terminal patrons as practical, with the significant portions of the work anticipated to be during night time and off peak hours. After completion of the primary structural work, a prefabricated bridge from station to terminal can be erected in a single night closure of upper deck.

Guideway construction outside the horseshoe can be scheduled more aggressively with fewer impacts as much of the guideway construction on the airport property occurs in more open spaces. Off-airport construction is challenging because of existing constraints. Approximately 1,200 feet of the guideway is constructed over an active roadway system with foundations and columns located within existing islands and superstructure framing erected over roadways with night time traffic lane shutdowns. Another portion of the off-airport alignment occurs in a narrow, limited right of way adjacent to the existing railroad corridor. Within the area closest to the Rail Link Station, it will likely be necessary to investigate single tracking opportunities along the existing AirTrain system in this limited right of way. If the single tracking can be worked out, the additional real estate could be significantly reduced though construction duration would likely be longer with phased demolition of existing system. This also opens the opportunity to reuse the existing Newark Airport Station along the NEC and avoid a costly tie in.

Another early start area will be the Maintenance Facility and a portion of the guideway alignment that will be utilized as a test track to accept new vehicles. The area will need to be cleared of existing facilities. Construction will advance with as much guideway as possible to be completed prior to delivery of first vehicle.

Track work, traction power, control and communications work can follow guideway and station construction in individual segments, although to support early vehicle testing, it must be scalable. Testing and commissioning could start from the maintenance facility as one or two of the horseshoe terminal stations and connecting guideway are completed. Final testing and commissioning of entire system would follow as the guideway to the Rail Link Station is completed, being the longest length of guideway. Testing should be

able to proceed day and night to shorten duration of typical cutover from old to new vehicles. Both will be able to operate at same time. Available power will need to be evaluated to confirm this assumption. Station and terminal tie-in finish work will proceed as the heavier construction finishes up.

6. What was your assumption of the following Tasks?

Task A.1 Document Review: Although we understand that all tasks may not be awarded at once, we assumed that many documents, including those referenced in the RFP, those provided during the proposal process, and other documents emerging from parallel work (e.g., the PATH to EWR study) would be made available by the Authority and would require review by a wide range of staff. Planners, engineers, and vehicle specialists will need to review existing plans and documentation of likely future conditions, plus documents related to travel demand forecasting and operations. Parsons already has some of these documents, but for security reasons the documents have not been disseminated internally. We intend to prepare notes for each document summarizing the nature of the contents and key considerations from each. At the end of this task, we will submit a Document Review Report.

Task D System Implementation Oversight – Level of inspection and oversight: The Phase 2 services are identified within two major Task D categories.

The first category relies on the review of the contractor's submittals to ensure compliance with the design criteria with particular focus on the system safety, quality, schedule, budget, and performance requirements. While the contractor's Engineer-of-Record and the contractor's QA team have full and complete responsibility for the detailed design and for meeting all requirements during the design phase, key members of the conceptual design and planning team will be available to provide periodic review of the design builder submittals to ensure compliance at various levels and provide assurance to the system's certifiability.

Parsons' philosophy leans heavily upon a robust audit program to verify the contractor's QA process and upon thorough design reviews to verify design compliance.

The same is true for the manufacturing and construction oversight activities identified in the second category. The contractor's QA team has full responsibility for construction inspection and quality documentation. Parsons will provide oversight inspection personnel, both at the manufacturing facility and in the field "as needed" to observe construction throughout the alignment and verify compliance with site restrictions (e.g., traffic maintenance), contract documents, contractor invoicing, and project schedule. We anticipate, for instance, making concrete cylinders only on an audit basis, relying instead on the reports from the contractor's State-certified, independent testing laboratory to monitor concrete strengths. Specialized inspectors will periodically provide onsite oversight and review the contractor's progress during the construction period. These include but are not limited to safety, quality, civil, architectural and systems inspectors. In addition to the inspection teams, we will have program controls personnel review the contractor invoices and schedule updates. We will, of course have a more visible role during system testing and commissioning, but during construction we will institute a rigorous audit program as a way of monitoring the contractor's construction progress and QA/QC program.

7. How do you propose to equally weight all different possible system types?

Alternative system types will be evaluated against criteria specific to AirTrain EWR, established in close consultation with the Port Authority. Some criteria are likely to be more important than others, so we would expect that selection of the appropriate technology for AirTrain will depend not only on how well that technology meets the requirements, but also on the relative importance of each requirement. The following represent a starting point for discussion.

- System performance
  - Compatibility with alignment
  - Compatibility with operating plan (ability to accommodate anticipated passengers per hour per direction)
  - Ability to interface with other transit services (e.g., at the Rail Link Station)
  - Ride quality
  - Passenger interface
  - Safety and security
- The system costs
  - Capital costs
  - Lifetime operating and maintenance costs
  - Degree of competition in the system supply market
  - Cost of expansion
- System expandability and long-term functionality
  - Potential for growth
  - Potential for interoperation with other transit systems
- System risk and longevity
  - The maturity of the technology (bias toward proven technologies)
  - Degree of competition in the system supply market
  - Time for the system replacement and or upgrade

We anticipate eliminating system types that are not reasonable APM candidates. For example, Maglev and Personal Rapid Transit (PRT) are examples of two technologies that we do not consider to be sufficiently industry-tested in airport applications. We would also recommend ruling out a system with physical size limitations or which would add excessive infrastructure costs. With agreement on the appropriate candidates for AirTrain EWR, we would develop an equal level of detail across technologies for fair comparison, evaluation and selection.

8. What is your proposed security plan for assessing threats? What is your proposed threat vulnerability effort?

The Parsons Team is well versed in completing threat vulnerability assessments. In our past roles as either program manager or design build consultant, the development of a project security plan has become an integral component of all major infrastructure projects. For the replacement of the AirTrain, *The Automated People Mover Standards, ANSI/ASCE/T&DI 21-13*, Chapter 12 "Security" and Chapter 13 "Emergency Preparedness" provide a basis of an outline of the project security requirements. This will be augmented by the Port Authority's *Design Guidelines for Climate Resilience"*. Additional guidance is provided through the FTA "Hazard Analysis Guidelines for Transit Projects" as well as the FTA and the FRA. Our effort will have the following components:

- Remaining abreast of the threat environment is a critical aspect of each assessment. We will begin by defining the naturally-occurring events (i.e., flood, severe storms, etc.), gathering data from

available resources such as current FEMA flood maps, applicable structural load cases, and seismic response maps, and listing specific scenarios applicable to the system's assets. For manmade threats, we maintain a consolidated list of historical threats carried out around the world and subscribe to two daily terrorism-related updates – one from the FBI, and one from the Homeland Security Digital Library. We also use historical crime data reported to the FBI each year to collect relevant information on crime trends. Working with Authority security staff, local law enforcement agencies, and the Joint Terrorism Task Force, we will validate the threat list created from all of these sources. This data collection will be used to create the Threat Scenario Report (TSR) describing the threat and quantifying the likelihood that each scenario could occur at the project site.

- Our team will then develop a snapshot of the existing conditions for the project site. This will engage several disciplines, including architects, structural, civil, and electrical engineers, as well as our security team. The objective will be to define existing conditions and to formulate projected conditions for facilities included in the project. The team will match those conditions against each of the scenarios described in the TSR to determine how vulnerable facilities, people, and operations are to each threat. The vulnerabilities will also be quantified to provide a means of comparing the impact or consequences should any of the threat scenarios occur.
- The Parsons Team will then develop countermeasures or mitigation options for reducing or eliminating the vulnerability, the likelihood of a threat occurring, or the consequences should a specific threat scenario be successfully carried out against each facility/asset. Each mitigation will also be quantified in terms of cost, relative effectiveness, etc.
- The final step will be to develop a prioritized list of mitigations based on a combination of cost and effective reduction in risk. All of the evaluation data will be captured and presented it in a Threat, Risk, and Vulnerability Assessment report (TRVA). This report will provide the Port Authority with defensible data and rationale for making management decisions, not just during this project, but going forward.

Smith, Jessica

From: Barrow, Monica [Monica.Barrow@parsons.com]
Sent: Friday, July 17, 2015 11:37 AM
To: Smith, Jessica
Cc: Charalambous, Jane Y; Larocco, Nick; Leverenz, David
Subject: RFP FOR THE PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT (RFP 42022)
Attachments: PTG AirTrain EWR post interview letter.pdf

Dear Jessica,
Parsons appreciated the opportunity to discuss our qualifications and approach for the subject pursuit with Port Authority representatives on Monday. The attached letter provides the requested follow-up information regarding our negotiations with the City of Chicago, Department of Aviation for the automated people mover at O'Hare Airport.
Monica

Monica Barrow
Rail and Transit Group Project Development
PARSONS
100 Broadway
New York, NY 10005
Office: (212) 266-8417
Mobile [redacted]
monica.barrow@parsons.com
www.parsons.com

PARSONS

100 Broadway • New York, New York 10005 • (212) 266-8300 • Fax: (212) 571-6825 • www.parsons.com

July 17, 2015

The Port Authority of New York & New Jersey
150 Greenwich Street, 21st Floor
New York, NY 10007

Attention: Jessica Smith, Principal Contracts Specialist

Re: Performance of Expert Professional Planning Services or the Replacement of AirTrain at Newark Liberty International Airport on an "As-Needed" Basis (RFP 42022)

Dear Ms. Smith:

Parsons appreciated the opportunity to discuss our qualifications and approach for the subject pursuit with Port Authority representatives on Monday. This letter provides the requested follow-up information regarding our negotiations with the City of Chicago, Department of Aviation for the automated people mover (APM) at O'Hare Airport.

Following many months of negotiation, Parsons and the City were able to come to an agreement that reduced the price of the project from $580 million to $310 million and improved the schedule for delivery by 9 months while still meeting the operational requirements.

Changes to Contract-Required Scope / Specifications

- The number of required cars for the opening date was reduced from 52 to 36. This also allowed for an associated reduction in the controls, communications, and storage tracks required to support the fleet. The contract was modified to include an option to supply additional vehicles, if needed within a specific window of time.

- The car type was changed from all identical cars to three-car married pairs. By changing the types of cars we not only reduced the need for redundant radios, batteries, and automatic couplers, but we also were able to add additional passenger seats in the locations where equipment would have been placed.

- The original scope called for three separate commissioning requirements by area. These requirements were consolidated into one single commissioning effort, resulting in a 9 month schedule reduction. Several required staff positions were also able to be eliminated or consolidated, which was a significant savings in indirect operating costs.

- By reducing the number of work bays in the maintenance and storage facility from 6 tracks to 4 and eliminating almost all the new storage and office space, significant savings were again realized. The facility is now designated for preventative maintenance and cleaning; major overhauls will be handled offsite. The existing and very large central control room was reconfigured to free up office space given that the new system will move to digital control from the current analog system.

- By installing conduit on the outside of girders on the guideway instead of lacing it through the cross bracing, our team found significant cost savings. The conduit is installed above the bottom flange to provide clearance while making it easier and safer to install and maintain, since there will be more separation from the live rail and train traffic.

- A vague requirement for public address system at stations was replaced by the specific requirement to feed messages into airport wide system.

Changes in Contract Terms and Conditions

- The original specification called for the prime and all major subcontractors to provide 100% performance and payment bonds for full value of each contract or subcontractor. Significant cost savings was realized by deleting these back to back bonds. The prime requirement was reduced to 100% of the construction value, excluding vehicle subcontract value, which satisfied state law. The vehicle subcontractor provided a reduced value bond along with a parent guarantee for 100% of contract value.

- The operations and maintenance agreement was also deferred until the design-build contract was finalized. Parsons negotiated the terms of agreement, which changed from a 15 year lump sum agreement with a fixed escalation formula to an agreement that requires an annual budget update based upon current labor agreements and subcontractor prices. The original contract included significant performance criteria with penalties which were removed. This change significantly lowers the direct costs and risk/contingency costs. These changes also enable the City to reduce its program management costs because it facilitates the current City staff to manage the O&M directly.

As we noted in the interview, Parsons' experience as a design-builder and program manager of Airport and APM systems and rail projects gives us a keen appreciation of the relationship between technical specifications, contract requirements, and project costs. Parsons has successfully worked with clients pre-award to scale back scope in a way that greatly reduced cost but still delivered systems that the clients needed. We offer the Authority a team that will be thoughtful about these considerations at every step of planning, concept design, and bid package preparation. We look forward to your next steps.

Sincerely,

J. Charalambous

Jane Charalambous, PE
Vice President

Smith, Jessica

From: Barrow, Monica [Monica.Barrow@parsons.com]
Sent: Wednesday, May 27, 2015 10:50 AM
To: Smith, Jessica
Cc: Charalambous, Jane Y
Subject: RE: AirTrain EWR (RFP 42022) Questions

Jessica,
I will pick it up myself. I'll be there at 12:30, if that's convenient, for you. Thanks.
Monica

Monica Barrow | PARSONS | (212) 266-8417 | monica.barrow@parsons.com

---

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Wednesday, May 27, 2015 10:16 AM
To: Charalambous, Jane Y
Cc: Barrow, Monica
Subject: RE: AirTrain EWR (RFP 42022) Questions

Jane—

It is up to you. I will send the CD out today via overnight so you would get it by 10:00 A.M. tomorrow or you could come pick it up here at 4 WTC. If you would like to pick it up, I will have to let security know you will be coming so just let me know exactly who would be picking it up.

Thank you,
Jessica

From: Charalambous, Jane Y [mailto:Jane.Y.Charalambous@parsons.com]
Sent: Wednesday, May 27, 2015 9:54 AM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: RE: AirTrain EWR (RFP 42022) Questions

Jessica,

Thanks for the quick response. Please see attached signed forms.

We can bring over the originals and pick up the documents, if it is easier?

Thank you,

Jane Charalambous, P.E. | Vice President | PARSONS | 212.266-8303 (w) | [redacted] c) | jane.y.charalambous@parsons.com

---

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Wednesday, May 27, 2015 8:19 AM
To: Charalambous, Jane Y
Cc: Barrow, Monica
Subject: RE: AirTrain EWR (RFP 42022) Questions

Good morning—

I will forward question 1 to the project manager. For question 2, please fill out and complete the attached NDA and I will send you the CD to you with referenced documents via overnight mail.

Thank you,

JESSICA L. SMITH
PRINCIPAL CONTRACTS SPECIALIST | PROCUREMENT DEPARTMENT
4 WORLD TRADE CENTER, 21ST FLOOR
PHONE: 212-435-4621 | JLSMITH@panynj.gov
THE PORT AUTHORITY OF NY & NJ

From: Charalambous, Jane Y [mailto:Jane.Y.Charalambous@parsons.com]
Sent: Tuesday, May 26, 2015 5:47 PM
To: Smith, Jessica
Cc: Barrow, Monica
Subject: FW: AirTrain EWR (RFP 42022) Questions

Jessica,

Couple of follow up questions for your consideration:

1) The "as required" nature of Phase One, Task A, Item 6 (Other Studies and Reports) makes it particularly difficult to estimate the level of effort for those services. Will the Authority specify an allowance for this item? Alternatively, consider removing this item from Attachment D.
2) Can proposers obtain or view the following studies and reports?
    - EWR AirTrain Study July 2008
    - WER AirTrain Analysis, September 2009
    - Terminal A Redevelopment Program State I Task 2 Summary Report – AirTrain Study, January 2014

Thanks,
Jane Charalambous, PE, PARSONS

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY,

PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Archer, Liz [larcher@Dewberry.com]
Sent: Thursday, May 14, 2015 12:01 PM
To: Smith, Jessica
Cc: Vaezi, Ali; Kamilaris, Andy
Subject: RE: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Hi Jessica,

I just wanted to let you know that we received the CD today.

Thank you very much,

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted] cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

From: Archer, Liz
Sent: Tuesday, May 12, 2015 2:38 PM
To: Smith, Jessica
Cc: Vaezi, Ali; Kamilaris, Andy
Subject: FW: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Hi Jessica,
Attached is Dewberry's signed NDA. We are fedexing the original to you this evening.
Kindly send us the CD containing the documents listed in "Attachment A", section V, starting on page 11 of the RFP (especially the three documents listed under item A.

Thank you,

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted] cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

From: Archer, Liz
Sent: Monday, May 11, 2015 1:45 PM
To: 'Smith, Jessica'
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: RE: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Thank you, Jessica – we are working on this now and anticipate emailing you a scanned copy shortly.

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted] cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Monday, May 11, 2015 10:53 AM
To: Archer, Liz
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: RE: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Good morning—

Please fill out the attached and submit to me a scanned copy via email and the original in the mail. Once I receive the scanned copy, I will be able to send you the CD with the documents.

Thank you,
Jessica Smith

From: Archer, Liz [mailto:larcher@Dewberry.com]
Sent: Wednesday, May 06, 2015 11:11 AM
To: Smith, Jessica
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Hi Jessica,

May we obtain the documents listed in "Attachment A", section V, starting on page 11 of the RFP (especially the three documents listed under item A)?

Please advise.

Thank you,

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted] cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

Visit Dewberry's website at www.dewberry.com

If you've received this email even though it's intended for someone else, then please delete the email, don't share its contents with others, and don't read its attachments. Thank you.

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Archer, Liz [larcher@Dewberry.com]
Sent: Wednesday, May 06, 2015 11:11 AM
To: Smith, Jessica
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Hi Jessica,

May we obtain the documents listed in "Attachment A", section V, starting on page 11 of the RFP (especially the three documents listed under item A)?

Please advise.

Thank you,

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted] cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

Visit Dewberry's website at www.dewberry.com

If you've received this email even though it's intended for someone else, then please delete the email, don't share its contents with others, and don't read its attachments. Thank you.

Smith, Jessica

From: Archer, Liz [larcher@Dewberry.com]
Sent: Tuesday, May 12, 2015 2:38 PM
To: Smith, Jessica
Cc: Vaezi, Ali; Kamilaris, Andy
Subject: FW: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA
Attachments: NDA_RFP_42022_Dewberry.pdf

Hi Jessica,
Attached is Dewberry's signed NDA. We are fedexing the original to you this evening.
Kindly send us the CD containing the documents listed in "Attachment A", section V, starting on page 11 of the RFP (especially the three documents listed under item A.

Thank you,

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted] cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

From: Archer, Liz
Sent: Monday, May 11, 2015 1:45 PM
To: 'Smith, Jessica'
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: RE: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Thank you, Jessica – we are working on this now and anticipate emailing you a scanned copy shortly.

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted] cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Monday, May 11, 2015 10:53 AM
To: Archer, Liz
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: RE: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Good morning—

Please fill out the attached and submit to me a scanned copy via email and the original in the mail. Once I receive the scanned copy, I will be able to send you the CD with the documents.

Thank you,
Jessica Smith

From: Archer, Liz [mailto:larcher@Dewberry.com]
Sent: Wednesday, May 06, 2015 11:11 AM
To: Smith, Jessica
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Hi Jessica,

May we obtain the documents listed in "Attachment A", section V, starting on page 11 of the RFP (especially the three documents listed under item A)?

Please advise.

Thank you,

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted]cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

Visit Dewberry's website at www.dewberry.com

If you've received this email even though it's intended for someone else, then please delete the email, don't share its contents with others, and don't read its attachments. Thank you.

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

Smith, Jessica

From: Archer, Liz [larcher@Dewberry.com]
Sent: Monday, May 11, 2015 1:45 PM
To: Smith, Jessica
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: RE: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Thank you, Jessica – we are working on this now and anticipate emailing you a scanned copy shortly.

Liz Archer
Marketing Pursuit Manager
Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted]cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

From: Smith, Jessica [mailto:jlsmith@panynj.gov]
Sent: Monday, May 11, 2015 10:53 AM
To: Archer, Liz
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: RE: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Good morning—

Please fill out the attached and submit to me a scanned copy via email and the original in the mail. Once I receive the scanned copy, I will be able to send you the CD with the documents.

Thank you,
Jessica Smith

From: Archer, Liz [mailto:larcher@Dewberry.com]
Sent: Wednesday, May 06, 2015 11:11 AM
To: Smith, Jessica
Cc: Kamilaris, Andy; Vaezi, Ali
Subject: 42022 - Question regarding the Planning RFP for the AirTrain at NLIA

Hi Jessica,

May we obtain the documents listed in "Attachment A", section V, starting on page 11 of the RFP (especially the three documents listed under item A)?

Please advise.

Thank you,

Liz Archer
Marketing Pursuit Manager

Dewberry
200 Broadacres Drive, Suite 410
Bloomfield, NJ 07003
973.780.9332
973.338.5860 fax
[redacted] cell
www.dewberry.com
www.linkedin.com/pub/elizabeth-geary-archer/2/962/831/
Follow me on Twitter at:
@Liz_Archer_2222

Visit Dewberry's website at www.dewberry.com

If you've received this email even though it's intended for someone else, then please delete the email, don't share its contents with others, and don't read its attachments. Thank you.

NOTICE: THIS E-MAIL AND ANY ATTACHMENTS CONTAIN INFORMATION FROM THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY AND AFFILIATES. IF YOU BELIEVE YOU HAVE RECEIVED THIS E-MAIL IN ERROR, PLEASE NOTIFY THE SENDER IMMEDIATELY, PERMANENTLY DELETE THIS E-MAIL (ALONG WITH ANY ATTACHMENTS), AND DESTROY ANY PRINTOUTS.

THE PORT AUTHORITY OF NY & NJ

October 19, 2015

Parsons Transportation Group of New York, Inc.
100 Broadway, 18th Floor
New York, NY 10005

Attention: Monica Barrow, Program Director - Planning

SUBJECT: PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP# 42022)

Dear Ms. Barrow:

We have completed our review of the proposals received for performance of the subject work. The firm of Lea+Elliot, Inc. was chosen. While your firm was not selected, we thank you for the time spent by you and members of your staff in the preparation of the proposal.

Sincerely,

David Gutiérrez, CPPO
Manager, Construction Procurements
Procurement Department

4 World Trade Center
150 Greenwich Street, 21st Floor
New York, NY 10007

THE PORT AUTHORITY OF NY & NJ

October 19, 2015

CH2M HILL New York, Inc.
22 Cortlandt St.
New York, NY 10007

Attention: J. David Strong, PE, Vice President

SUBJECT: PERFORMANCE OF EXPERT PROFESSIONAL PLANNING SERVICES FOR THE REPLACEMENT OF AIRTRAIN AT NEWARK LIBERTY INTERNATIONAL AIRPORT ON AN "AS-NEEDED" BASIS (RFP# 42022)

Dear Mr. Strong:

We have completed our review of the proposals received for performance of the subject work. The firm of Lea+Elliot, Inc. was chosen. While your firm was not selected, we thank you for the time spent by you and members of your staff in the preparation of the proposal.

Sincerely,

David Gutiérrez, CPPO
Manager, Construction Procurements
Procurement Department

4 World Trade Center
150 Greenwich Street, 21st Floor
New York, NY 10007