



***Replacement and Upgrade of the
PATH Christopher Street Substation -
Project Re-authorization***

***Committee on Construction
March 29, 2012***

Replacement and Upgrade of the PATH Christopher Street Substation *Project - Scope of Work*

Project Scope:

- Replace and upgrade substation equipment
- Upgrade substation building for code compliance
- Significant structural modifications
- Utilize existing cable duct-bank



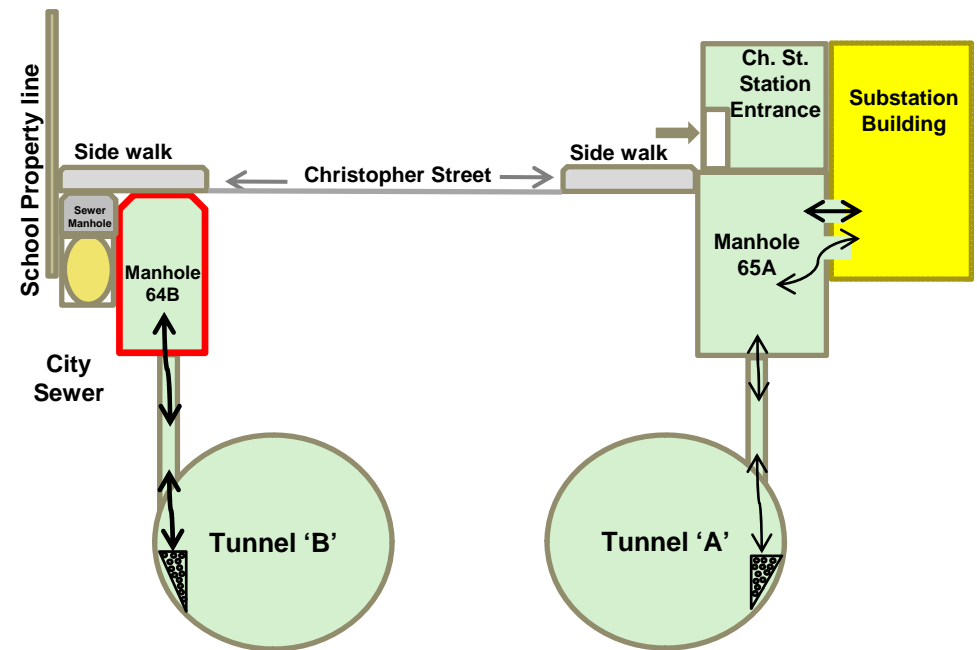
Replacement and Upgrade of the PATH Christopher Street Substation *New Duct Bank – Risks and Advantages:*

Identified Risks:

- Difficulty in establishing sewer and other utility relocation.
- Impact mitigation plan required with the adjacent school.
- Prolonged community impact during construction.
- Potential station closure.

Advantages:

- Two diverse cable routes to the substation.
- Simplified construction staging.



Replacement and Upgrade of the PATH Christopher Street Substation

Existing Duct Bank – Risks and Advantages

Identified Risks:

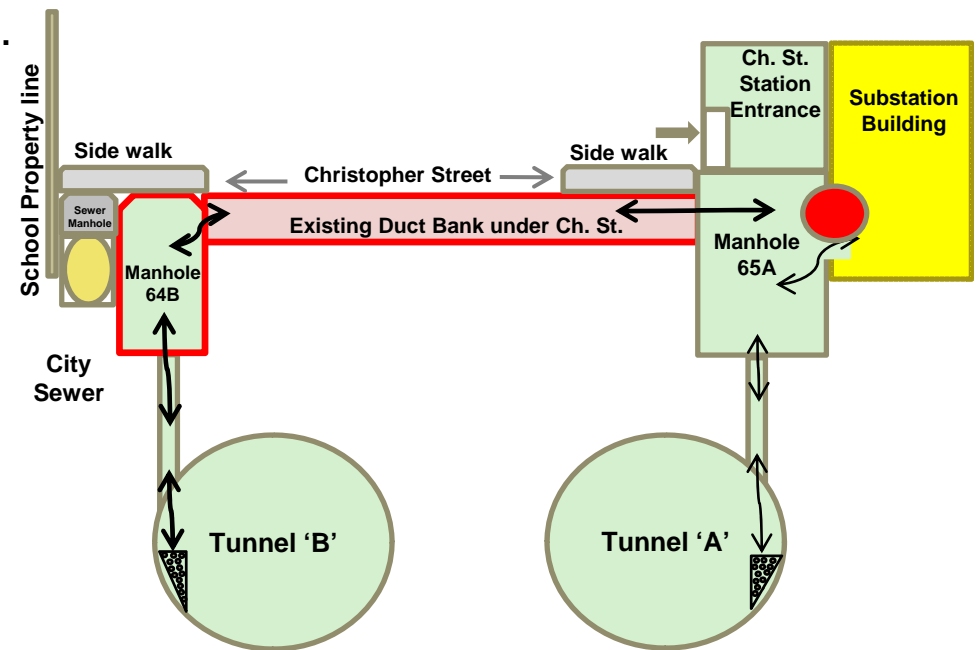
- Cables entering the substation building at the same location.
- Complex construction staging and safety plan.
- Removal of abandoned cables from the existing duct bank could damage ducts.

Advantages:

- Eliminates utility relocation.
- Minimal impact on community.
- Minimize maintenance of traffic.
- Better defined design and construction cost.
- Improved project schedule.
- Eliminates station closure.

Accomplishments:

- Cable Removal
- Engineering Dept. Feasibility Study
- Engineer redesign and revisiting construction staging



Total Project Cost (TPC) Comparison Dual Duct Banks vs. Existing Duct Bank

	Authorized Plan Dual Duct Bank	Post Bid Estimate Existing Duct Bank (Recommended)	Revised Estimate Dual Duct Bank
TPC	\$60M	\$71.0M	\$85-\$95M
Construction Duration	3 Years	5 Years	7 Years

Replacement and Upgrade of the PATH Christopher Street Substation Contract Award

- Six Pre-Qualified Firms Solicited for Bids
- Award to Lowest Qualified Bidder
- Recommended Awardee: Mass. Electric Construction Co.
- Contract Breakdown:

Base Amount:	\$24,660,000	Engineer's Estimate: \$34.8 million
Extra Work:	\$ 1,972,800	
Risk Extra Work:	\$ 1,868,200	
Net Cost:	<u>\$ 3,260,000</u>	
TOTAL:	\$31,761,000	

- Additional Authorization: \$1.8 million - Jacobs Engineering Group, Inc.

Replacement and Upgrade of the PATH Christopher Street Substation Economic Impact

- 270 Total Job-Years:
- \$16 million in Wages
- \$98 million in Economic Activity

Replacement and Upgrade of the PATH Christopher Street Substation Schedule

Project Re-Authorization: \$71 million

Construction Start: May 2012

Construction End: May 2017

Staff: \$11.4 million

Consultant: \$ 6.7 million