

JFK International Airport - Road Safety Audit of Roadside Appurtenances

Final Report

Queens, New York

Prepared for The Port Authority of NY & NJ Engineering Department

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DEFINITIONS

- Location ID - The identification number assigned to the roadside hazard/safety device at a particular location.
Speed Limit - The maximum speed at which a vehicle can lawfully travel along a roadway.
Clear Zone Limits - The total roadside border area, starting at the edge of travelled way, available for safe use by errant vehicles.
Roadside Hazard - An obstruction within the clear zone limits which poses a threat to errant vehicles and its occupant(s).
Roadside Safety Device - A device used to protect errant vehicles from roadside hazards.
Apparent Conditions/ Roadside Safety Assessment - The condition of a particular roadside safety device with respect to assembly, function, and wear over time.
RSA (Roadside Safety Assessment) Priority Level - Judgment as to whether a particular location is good, fair, poor, or critical based on condition of the roadside safety devices available or lack thereof.
Recommended Safety Improvement Actions - Short term and long term steps that may be taken to improve roadside safety at a particular location.
Estimated Construction Cost (Excluding Design) - The cost of implementing the recommended short term and long term improvements at a particular location.
NCHRP 350 - Recommended procedures for the safety performance evaluation of highway features published and maintained by the Transportation Research Board.

ABBREVIATIONS

- AASHTO - American Association of State Highway and Transportation Officials
BBGR - Box Beam Guiderail
L/S - Left Side
NCHRP - National Cooperative Highway Research Program
NYSDOT - New York State Department of Transportation
R/S - Right Side
RSA - Roadside Safety Assessment

1.0

Introduction

Executive Summary

This Road Safety Audit (RSA) for the JFK International Airport Central Terminal Area has been prepared to identify and evaluate roadside conditions that are a potential safety risk to drivers and to develop proposed mitigation measures to reduce the likelihood of serious injury.

This RSA examines aspects of each roadside hazard, safety device, or lack thereof that pose potential safety problems, and identifies existing deficiencies with specific priority level rating. They are as follows: Green is equivalent to a "Good" rating thus no action is required to the existing safety device. Yellow is equivalent to a "Fair" rating thus repairs are necessary to the existing safety device. Orange is equivalent to a "Poor" rating thus a risk of injury to the driver is possible due to reduced performance capabilities. Red is equivalent to a "Critical" rating thus a risk of major or fatal injury is very possible. Throughout this RSA, there are 132 devices that are in good condition, 84 in fair condition, 27 in poor condition, and 29 in critical condition. See table below for cost analysis.

Cost Type	Priority Level				Total Cost
	Good	Fair	Poor	Critical	
Short Term	\$13,375	\$77,000	\$182,825	\$411,085	\$684,285
Long Term	\$75,625	\$1,069,975	\$178,000	\$79,300	\$1,401,900
Subtotal	\$89,000	\$1,145,975	\$360,825	\$490,385	\$2,086,185

The RSA also provides recommended countermeasures based on criteria outlined by the Port Authority of New York and New Jersey (PANYNJ) Engineering Department.

This Road Safety Audit (RSA) for the JFK International Airport Central Terminal Area has been prepared to identify and evaluate conditions where the roadside poses a potential safety risk resulting from crashes involving errant vehicles leaving the roadway and to develop proposed mitigation measures to reduce the likelihood of serious personal injury.

The objective of the RSA is to assess the existing roadside environment in order to identify opportunities to improve safety, and through pro-active intervention, maximize safety and reduce the frequency and severity of accidents due to vehicles leaving the traveled way.

The typical roadside environment consists of roadside features and obstacles such as trees, walls, structural supports, and other fixed objects, natural or constructed, including existing roadside safety devices, which constitute a potential hazard to motorists due to being deficient, damaged, unshielded, or otherwise potentially hazardous.

In order to reduce to frequency and severity of accidents involving vehicles leaving the roadway and impacting the aforementioned roadside hazards, the concept of a more forgiving roadside environment was developed. This led to the identification of "clear zones" within which drivers might be able to recover control of their vehicle and return to the roadway or at a minimum, slow down sufficiently before impacting fixed objects, thereby making these collisions less severe. If it is not feasible to remove fixed objects from the clear zone or modify them with breakaway type features, shielding in some manner should be provided so as to reduce the severity of vehicle impacts, in essence, making impacts with the shielding devices less severe than impacts with the fixed objects themselves.

This RSA examines aspects of each roadside hazard, safety device, or lack thereof within clear zones that pose potential safety problems, and identifies existing deficiencies and the safety levels associated with each. The RSA also provides recommended countermeasures and assigns a safety priority level based on criteria

2.0

Methodology

outlined by the Port Authority of New York and New Jersey (PANYNJ) Engineering Department.

The study area, shown in Figure 1, includes all public travel ways within the Central terminal Area (CTA) of JFK International Airport, bounded by the cordon line of Taxiway A over the Van Wyck Expressway and Taxiway A over the JFK Expressway. The parking areas are excluded from the study area as are the travel ways designated as part of the Aeronautical Operations Area (AOA).

In conducting this RSA, the following design standards and guidelines were used and referenced throughout this report for assessing existing roadside features, safety devices, safety concerns and nonconforming features that are present in the roadside area and fall within roadway clear zones. Nonconforming features are features that do not conform to, or have not been tested to, the standards of National Cooperative Highway Research Program (NCHRP) Report 350:

- ▶ AASHTO Roadside Design Guide, 2011
- ▶ National Cooperative Highway Research Program, Report 350
- ▶ New York State Highway Design Manual

As part of the RSA, observations of driver behavior was attempted during site visits to assist in identifying portions or sections of road where vehicular traffic had difficulty negotiating safely, or where motorists were committing traffic offenses (e.g. excessive speed, red light running, failing to yield to pedestrians), as an indication of roadside issues. In addition, attention to physical evidence of past crashes and off-road accidents was made. Indications of these accidents included damage to curbs, roadside barriers, trees, and utility poles, as well as damage to concrete barriers, skid marks, broken glass and other crash remnants, and vehicle tracks or rutting in the unpaved areas adjacent to a roadway.

The RSA was conducted in accordance with PANYNJ criteria and included the following project tasks:

1. Field Evaluation

- a. All existing roadside safety devices within the study area were located and recorded. The existing roadway and roadside geometrics and roadway operating conditions were documented and the specific roadside hazard at each location was identified. The type of roadside safety device, the general condition, design, installation, and placement were documented, including photographic documentation.
- b. Existing unprotected obstacles which constitute potential roadside hazards within the clear zone were identified. The existing roadway,

roadside geometrics and roadway operating conditions were documented, including photographic documentation.

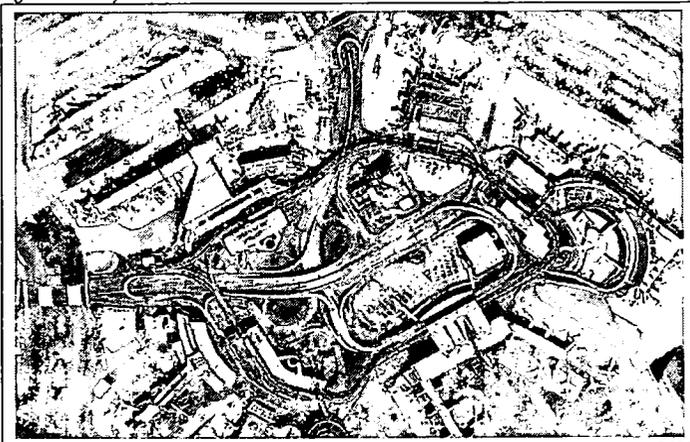
2. Engineering Analysis

- a. The information and data collected in Task 1.a was analyzed to determine if the existing roadside safety devices adhere to accepted design principles and practices as set forth in the American Association of Highway and Transportation Officials (AASHTO) Roadside Design Guide, the New York State Department of Transportation (NYSDOT) Highway Design Manual and Port Authority Design Standards.
- b. The information and data collected in Task 1.b was analyzed to determine if any of the identified obstacles within the clear zone, which are not currently protected by a roadside safety device, warrant safety treatment in accordance with the aforementioned standards.
- c. Priority rating levels were assigned to those locations where it was determined that some attention is necessary.

3. Conceptual Design of Safety Improvements

- a. For each location, recommendations for safety improvements to correct the identified deficiency were developed. Where appropriate, short-term and long-term measures were identified. Conceptual plans depicting the recommended improvements were prepared.
- b. An engineering estimate of the construction cost of each recommended improvement was developed.

Figure 1 – Study Area



3.0

Roadside Safety Devices

All attenuators, guiderail, guiderail transitions, end-treatments, and/or unshielded hazards within the study area have been identified and documented. With respect to concrete barrier within the study area, only those areas visibly damaged have been identified. In addition, bridge parapet/rail systems were not assessed as they were considered beyond the scope of this RSA due to the need for structural assessment. However, the guiderail transitions to and from bridge parapets/railing to off structure guiderail components were looked at for continuity.

The policy of the Federal Highway Administration (FHWA) requires that highway safety apparatuses meet the testing guidelines of the National Cooperative Highway Research Program (NCHRP) 350 report. Previously, the NCHRP 230 report governed these devices. As such, many devices installed on the highway system meet NCHRP 230 requirements, but not NCHRP 350 requirements. As the older, NCHRP 230 devices become damaged or as budgeting permits, they should be replaced with NCHRP 350 devices.

The following is a brief description of the various crash attenuators and guiderail systems that have been inventoried throughout the site.

QuadGuard

The QuadGuard family of crash cushions are non-gating, redirective impact attenuators. They are proprietary systems manufactured by Energy Absorption Systems. Each system is composed of collapsible fender panels, diaphragms, bays containing replaceable cartridges, a nose and a monorail base. Each bay and the nose are loaded with either a Type-I or Type-II crash cushion depending on the design. Although the nose contains a crash cushion, it is not considered a bay for design purposes. The QuadGuard system adheres to NCHRP 350 requirements and may be used for design speeds up to 75 mph. The QuadGuard system is capable of shielding hazards up to 7.5 feet wide. Figure 2 depicts the QuadGuard system in a narrow application.

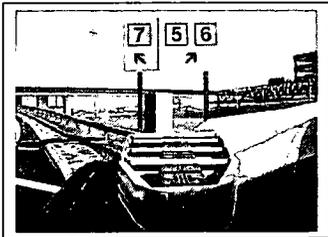


Figure 2 – QuadGuard Attenuator

Sloped Concrete End Treatment

A sloped concrete end treatment is usually a concrete median barrier which is terminated by tapering the end. Usually, the taper is between 30-40 ft, however, if necessary, it may be as short as 20 ft. Figure 3 depicts a sloped concrete end section.

In section 8.2.14 of the AASHTO roadside design manual, the following is stated regarding sloped concrete end treatments:

“It is often appropriate to terminate a concrete barrier by tapering the end, although this end treatment has not met the crash testing criteria of NCHRP Report 350. This treatment should only be used in locations where the traffic speeds are low, 40 mph or less, and space is limited by right-of-way constraints or presence of other roadside features that preclude the use of one of the tested end treatments.”



Figure 3 – Sloped Concrete End Treatment

Box Beam Guiderail

Throughout the study area, the predominant type of guiderail is box beam guiderail. This railing is square structural steel tube, 6 inches on a side with a 3/16 inch wall thickness. The rail develops most of its redirective strength through beam action and therefore does not require anchor blocks. Box beam guiderail is typically supported on “weak-posts”. These posts are S3 x 5.7s, designed to bend aside when struck, so they do not contribute to vehicles vaulting or to rapid deceleration. Standard spacing of the weak posts is 6 feet, which results in deflections of up to 5 feet under standard impact, 2000P (Pickup truck, 2000 kg) test vehicle (test vehicle traveling at

60 mph impacts the barrier at a 25° angle). With the post spacing halved to 3 feet, the deflection distance is 4 feet, under the same test circumstances. The reduced post spacing is achieved through the use of backup posts which provide additional lateral resistance.

There are four types of end sections for box beam guiderail, designated as Types 0, I, II, and III. The Type I and Type II end terminals are used exclusively through the study area. Figure 4 depicts a box beam guiderail Type I end terminal.

In the Type I end assembly, the rail is carried at its normal height until the 7'-4" long end piece is reached. The box beam end piece abruptly turns down on a 1:2 slope. This abrupt end is considered a potential hazard for vehicles impacting in line with the terminal. The assembly relies on lateral distance from the road to minimize the number of end impact accidents and on flare angle to minimize the potential for end-on or near end-on impacts. In the standard arrangement, the rail is flared away from the road, until it is approximately 15 ft back from the tangent projection of the main run of the guiderail. When the end is struck from the side, it functions as a gating and attenuating terminal, slowing the vehicle speed as the rail is torn from the posts. According to the NYSDOT Highway Design Manual, (HDM) Type I terminals can be used on high-speed roads where their end pieces will be close to (5 feet or less), at, or beyond the limit of the clear zone. In low to medium speed areas, the box beam end piece may be within the clear zone, if it is flared such that typical impacts (assume a 15 degree departure angle) on the end will be at least 35 degrees off-line. Figure 4 depicts a box beam guiderail Type I end terminal.

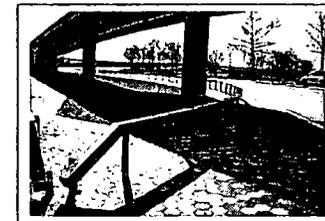


Figure 4 – Box Beam Guiderail Type I End Terminal

The Type II is no longer acceptable for new installations, but may be retained in most of its existing locations. The Type II terminal is typically used in areas where there is limited lateral distance and at driveway openings in otherwise continuous runs of box beam guiderail. It was also approved to start a run of box beam, usually at locations where a Type I terminal could not be flared away from the road. The Type II consists of a two-part gradual ramp intended to minimize the vertical lift imparted to vehicles that run over top of it. The first bend was tack-welded at the lower corners so that it would open and flatten, when a vehicle rode over it. The typical flare places the end less than 3 ft from the line of the railing. The HDM recommends that a new terminal, the Type IIA, should typically be used instead of the Type II, wherever Type II terminals must be taken down as part of design work. The Type IIA terminal should be used as a replacement if adequate lateral space is available and the conditions for installation are met. Where adequate lateral space is not available and the design speed is 45 mph or greater, a Type II should be replaced

with a Type III terminal (a telescoping end terminal piece). If the operating speed is less than 45 mph and lateral space is not available to install a Type IIA, then the existing Type II may be reset. Figures 5, 6, 7 and 8 depict box beam guiderail Type II, Type IIA and Type III end terminals respectively.

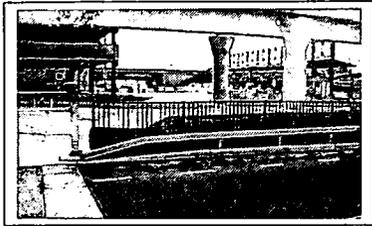


Figure 5 – Box Beam Guiderail Type II End Terminal

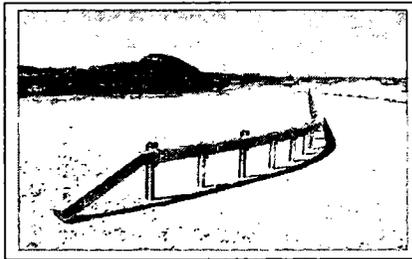


Figure 6 – Box Beam Guiderail Type IIA End Terminal

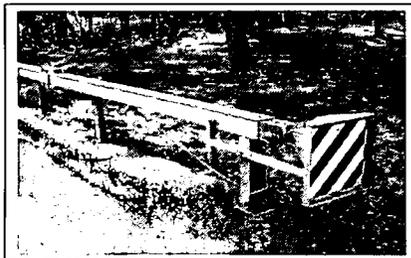


Figure 7 – Box Beam Guiderail Type III BEAT End Terminal

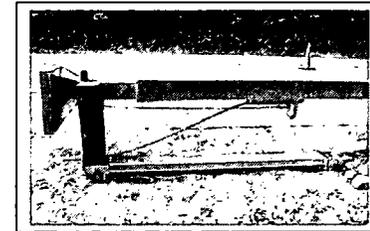


Figure 8 – Box Beam Guiderail Type III WYBET End Terminal

Box beam guiderail (weak post) systems are NCHRP Report 350 approved to Test Level 3.

Box Beam Guiderail Transitions to Concrete Barrier

Transitions to and from box beam guiderail to concrete occurs frequently in the study area. The typical transition assembly consists of the standard NYSDOT transition configuration, as shown on NYSDOT Standard Sheet M606-22. The assembly consists of an upper and lower box beam rail that tapers to meet the face of the concrete barrier. The transition assembly has a flared lower tube section for additional lateral resistance to impacts utilizes block-outs on the first four posts closest to the concrete barrier. Other, non-conforming transition assemblies are also prevalent in the study area, the main difference between these assemblies and the NYSDOT assemblies are different post spacing/configurations and the lack of block-outs on the first four posts from the concrete barrier. The current NYSDOT box beam guiderail transition assembly is NCHRP Report 350 approved to Test Level 3. Figure 9 depicts a box beam guiderail transition to concrete barrier.

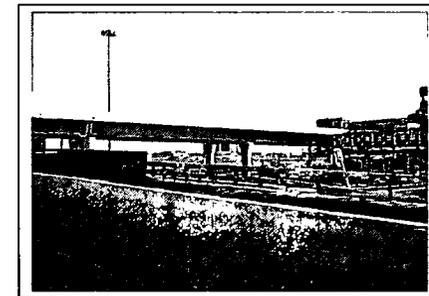


Figure 9 – Typical Box Beam Guiderail Transition to Concrete Barrier

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Field Investigations

Impact of Curb on Performance of Guiderail & Attenuators

Curbing adjacent to guiderail, is present throughout the study area. It is necessary to determine standard guidelines to be followed when evaluating each location of curbing adjacent to guiderail. Comments on curb treatment within the NYSDOT Highway Design Manual and the AASHTO Roadside Design Guide are summarized below.

In section 10.2.2.4 of the NYSDOT Highway Design Manual, it states that curbing, in front of barrier systems, contributes to vaulting of vehicles during high speed impacts. The problem is generally worse for guiderail installations located between 1 and 10 feet from the face of curb. For locations where the design speed is 45 mph or greater, vertical faced curbing is not desirable, and should be removed. Mountable curb is not desirable, but may be permitted provided that guiderail is not installed between 1 and 10 feet from the face of curb. Where the design speed is 40 mph or less, vertical faced curbs may be used.

Section 5.6.2.1. of the AASHTO Roadside Design Guide recommends that where there is a strong potential for high-speed, high-angle collisions, curbs should not be used in combination with barrier systems. However, a 4" curb may be used where absolutely necessary. Guiderail may be installed at the gutter line, but rubrail must be used.

According to the QuadGuard design manual, where a location involves either a proposed or existing attenuator, curbing should be removed. Furthermore, it is strongly recommended that curb be removed a minimum of 50' in advance of the attenuator. However, if a curb must remain, it should be of the mountable variety and no more than 4" high.

Numerous field investigations were conducted throughout the study area to identify existing impact attenuators, crash cushions, guiderail, and barriers, as well as other potential hazards located within the roadway clear zones. The clear zone is defined as an unobstructed, traversable area beyond the traveled way which allows for the safe recovery of errant vehicles. The recommended width of the clear zone is a function of vehicle speeds, traffic volumes and roadside geometry. The AASHTO Roadside Design Guide contains detailed procedures for determining recommended minimum clear zone distances. In instances where there are obstacles within the established clear zone, the preferred method of attaining the desired clear zone distance is to remove or relocate the obstacle. If this cannot be accomplished, then the use of breakaway devices or appropriate roadside barriers should be considered.

To catalogue the study area, extensive photos were taken and video logs were recorded. Inspection reports which summarize existing conditions and evaluate roadside safety conditions at each location, including recommended improvements have been prepared. Also, the requested conceptual plans are provided immediately after their respective Roadside Safety Audit Sheet.

Inspection Methodology

Each inspection report identifies and evaluates a specific location where a safety device currently exists, or a location where potential un-safe roadside conditions/situations exist. The inspection reports include recommendations for the installation of a new safety device, modification/upgrading of an existing safety device, or some other mitigation measure, as appropriate. For the purposes of this RSA, the Port Authority created four priority rating levels for evaluating the conditions of the existing roadside environment, roadside features and safety devices found through-out the study area. The four priority levels are as follows:

Green = GOOD

The existing safety device will provide the needed protection and no repairs or replacement is necessary. No action required.

Yellow = FAIR

The existing safety device will provide the needed protection, but repairs are necessary.

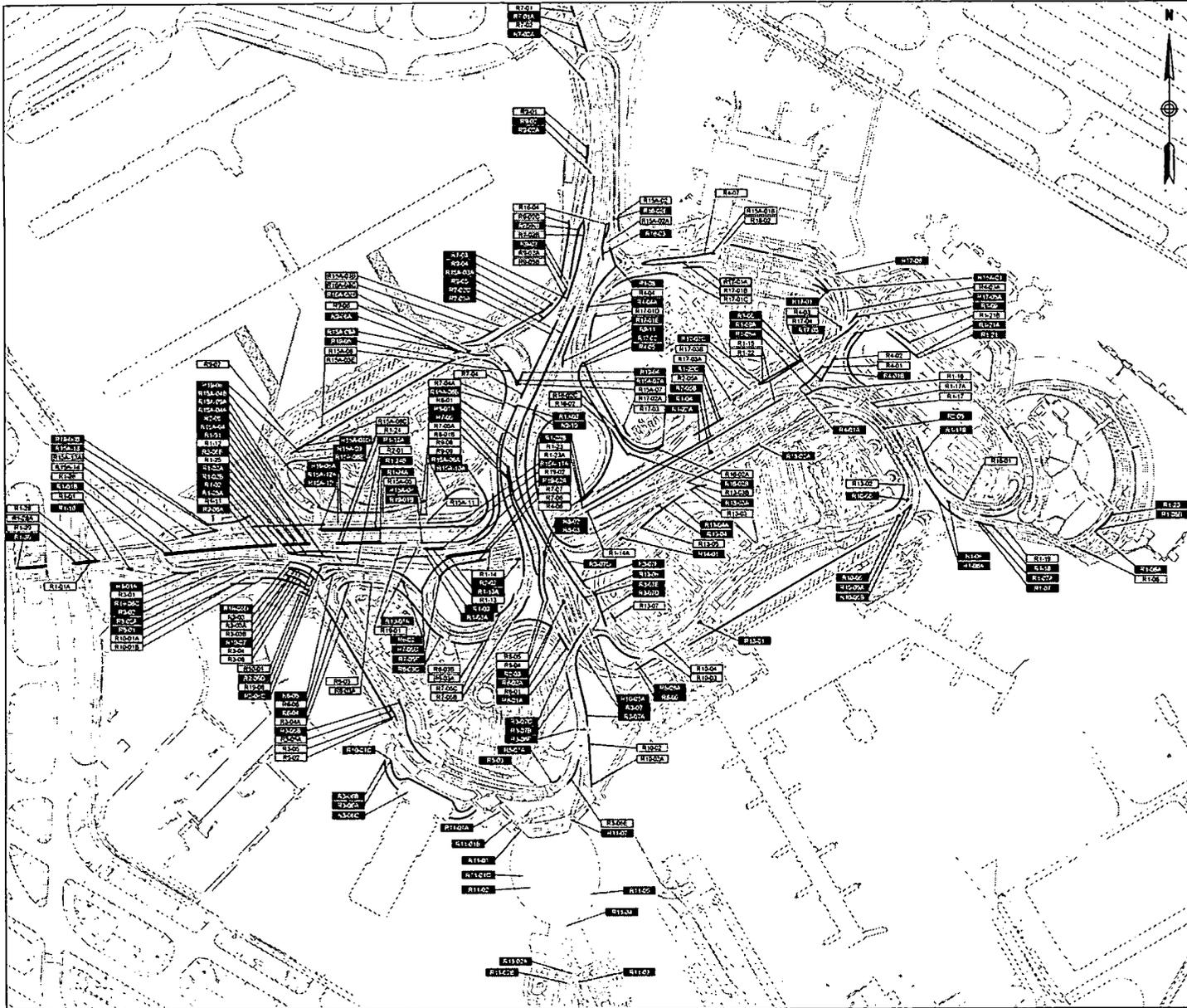
Orange = POOR

The existing safety device may provide some protection, but will likely have reduced performance capabilities. A risk of a major injury outcome is possible.

Red =CRITICAL

The existing safety device will not provide the needed protection, or there is a missing safety device. A risk of a major or fatal injury outcome is very possible.

An Overall Asset Condition Map followed by Roadside Safety Audit Sheets for each specific location are provided on the following sheets.



NOT TO SCALE



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OF NY & NJ**

**JFK International
Airport
Central Terminal Area**

Device Condition:

GOOD

FAIR

POOR

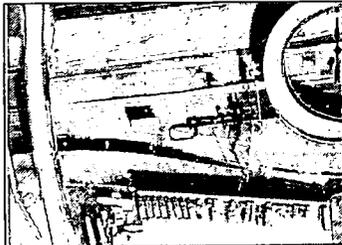
CRITICAL

**Roadside Safety
Audit**

**OVERALL ASSET
CONDITION MAP**



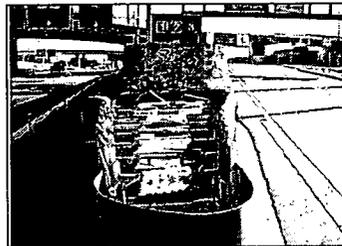
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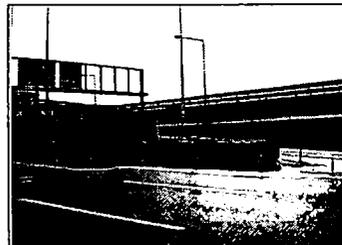
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R1-01
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 - 28 feet
ROADSIDE HAZARD	R/s - Blunt end of retaining wall in gore area between roadway and off-ramp
ROADSIDE SAFETY DEVICE	9-Bay Hex Foam Sandwich System
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush to pavement as per specifications. Minor impact of evidence to nose section. Some components/hardware need repairs or is detached; restraining cables loose and appear to be non-functioning. Unit will provide some protection but should be replaced System approved to NCHRP 230, not rated to NCHRP 350
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace unit with NCHRP 350, TL-3 rated crash cushion <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$29,000 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Central Terminal Area**

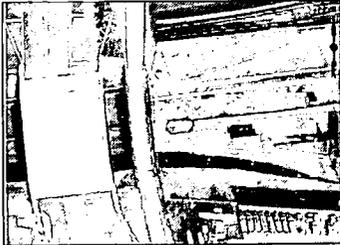


**Roadside Safety
Audit**

Location	R1-01
Device	9 Bay Crash Cushion
RSA Priority Level	POOR



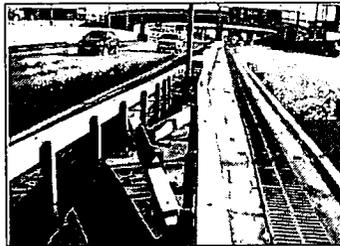
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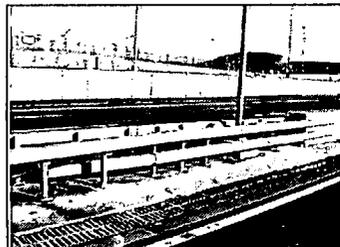
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R1-01A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Blunt end of a concrete barrier at Barrier Gate System (median)
ROADSIDE SAFETY DEVICE	Box beam transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. Mountable curb with 0" reveal exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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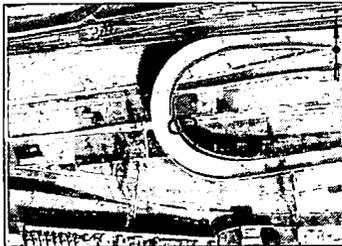


**Roadside Safety
Audit**

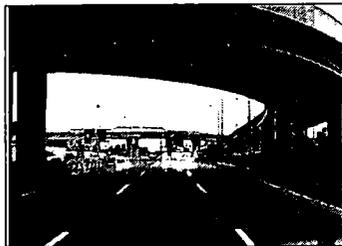
Location	R1-01A
Device	Box Beam Guiderall Transition Unit
RSA Priority Level	FAIR



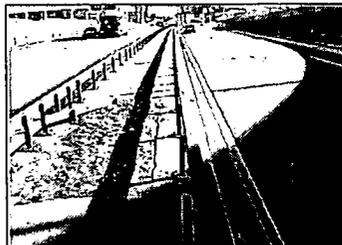
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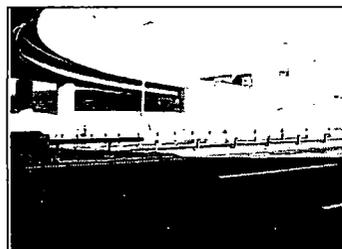
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-01B
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Narrow median, collision with opposing traffic, pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation, and within 1 foot of 6" non-mountable curb Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



**THE PORT AUTHORITY
OF NY & NJ**

**JFK International
Airport
Central Terminal Area**



**Roadside Safety
Audit**

Location	R1-01B
Device	Box Beam Guiderail
RSA Priority Level	GOOD



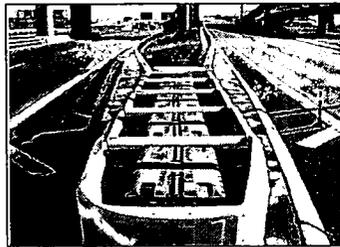
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact



Side view of Quadguard impact attenuator

LOCATION ID	R1-02
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	R/S – Box beam guiderail Type I end section not at required offset poses blunt end/impalement
ROADSIDE SAFETY DEVICE	4 Bay Quadguard Crash Cushion by Energy Absorption Systems
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. A 6" mountable curb exits around unit. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Install reflectorized panel on nose piece for improved visibility <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$175 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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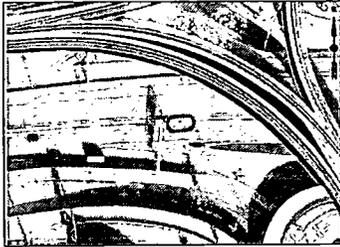


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Location	R1-02
Device	4 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



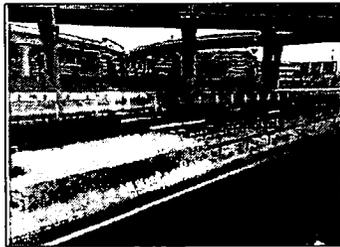
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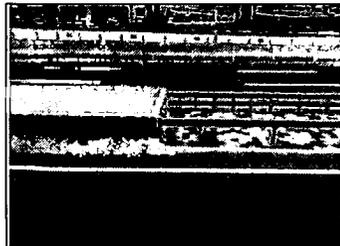
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-02A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Narrow median, cross over hazard, non-mountable curb > 4" in height
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation, and within 1 ft of 6" non-mountable curb Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R1-02A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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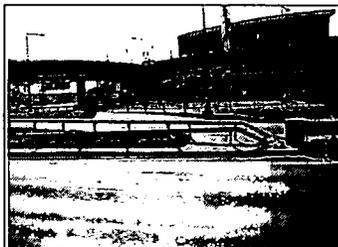
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

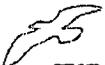


General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-02B
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	R/S – Bridge pier columns, steep side slope
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end section not at required offset, but crash cushion in place Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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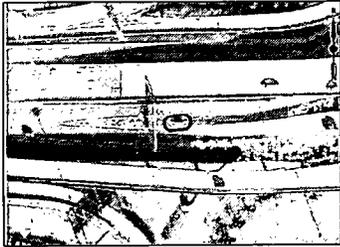


**Roadside Safety
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Location	R1-02B
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



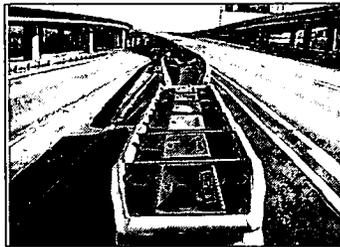
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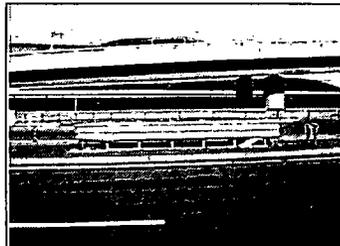
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

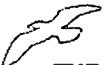


Front view of impact attenuator



Side view of impact attenuator

LOCATION ID	R1-03
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Box beam guiderail end sections not at required roadway offset, blunt end impalement hazard
ROADSIDE SAFETY DEVICE	5 Bay Hex Foam II Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed on 4" mountable curb as per specifications. All components in place and fully functional. No reflectivity on nose section of unit System approved to NCHRP 230, not rated to NCHRP 350
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> • Install reflectorized panel on nose pieces for improved visibility • Continue with routine maintenance <p>Long Term:</p> <ul style="list-style-type: none"> • Replace with NCHRP 350 TL-3 Crash Cushion
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> • \$175 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> • \$26,000



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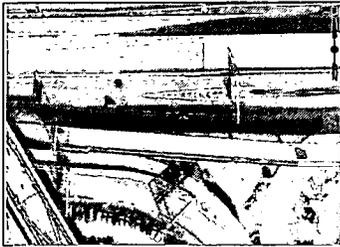


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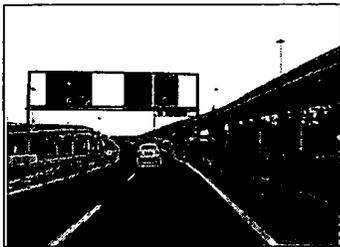
Location	R1-03
Device	Hex Foam II Crash Cushion
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-03A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	R/S – Overhead sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal adequately flared from road/travel way Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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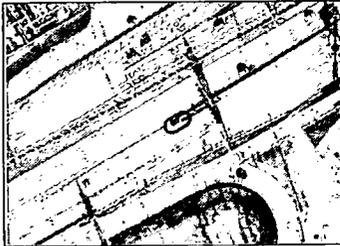


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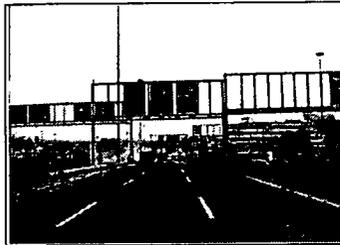
Location	R1-03A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



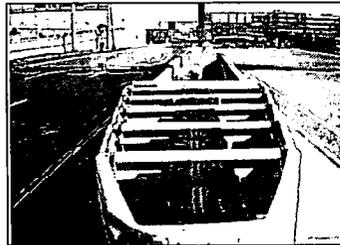
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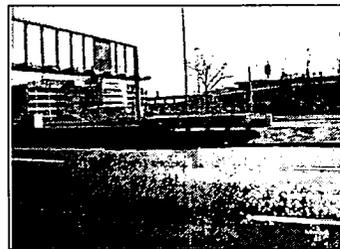
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact



Side view of Quadguard impact attenuator

LOCATION ID	R1-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at overhead sign support column
ROADSIDE SAFETY DEVICE	4 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. A 6" mountable curb exists around unit. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> • \$175 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> • \$0



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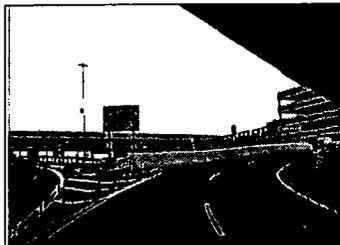
Location	R1-04
Device	4 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



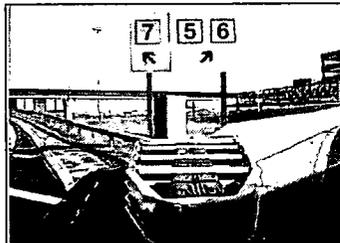
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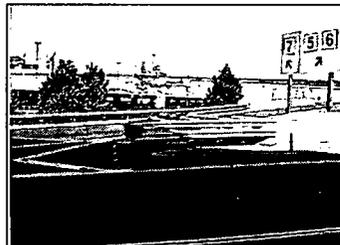
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R1-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier and box beam guiderail at gore area between road split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush to pavement as per specifications. All components in place and fully functional. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> • \$175 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> • \$0



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Location	R1-05
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



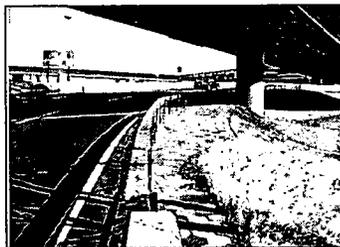
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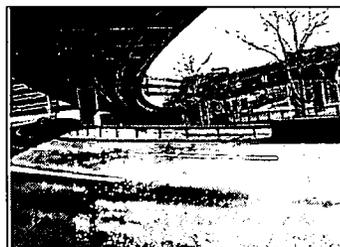
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-05A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Bridge pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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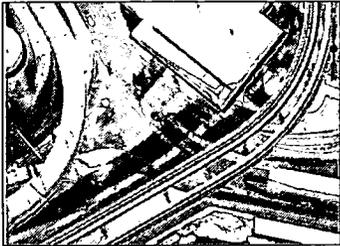


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Location	R1-05A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



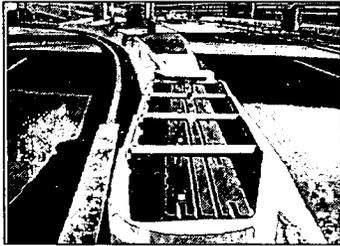
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

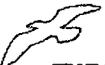


General view of Quadguard impact attenuator



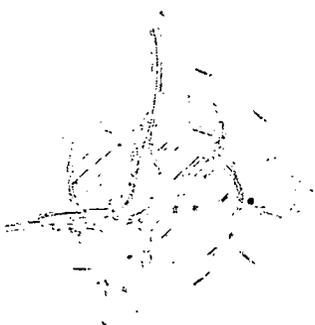
Side view of Quadguard impact attenuator

LOCATION ID	R1-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Narrow Crash Cushion
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. No reflectivity on nose section of unit. Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> • Install reflectorized panel on nose pieces for improved visibility • Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> • \$175 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> • \$0



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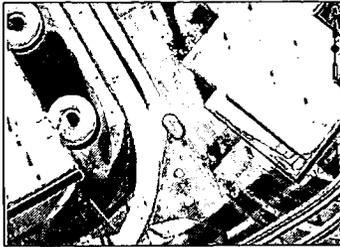


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Location	R1-06
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



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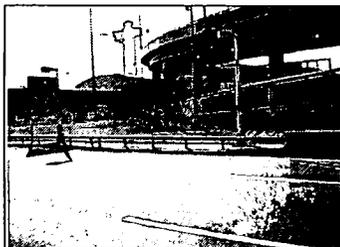
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-06A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign support columns, bridge pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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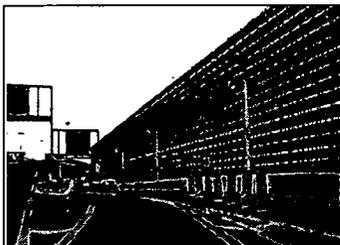
Location	R1-06A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



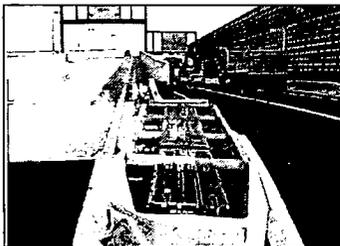
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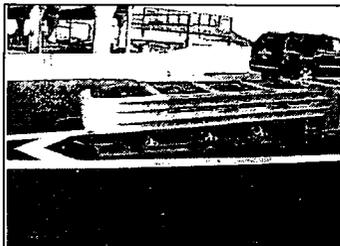
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R1-07
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. Front of unit installed flush with pavement and transitions at rear to 6" non-mountable curb. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance Long Term: <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> • \$175 Long Term Recommendation: <ul style="list-style-type: none"> • \$0



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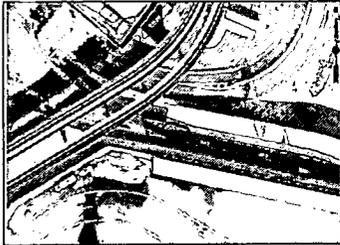


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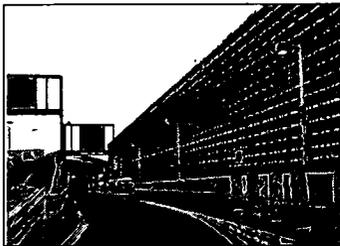
Location	R1-07
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



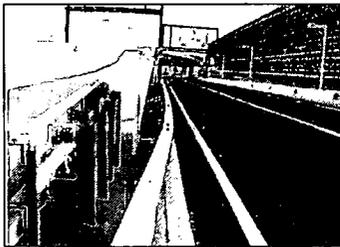
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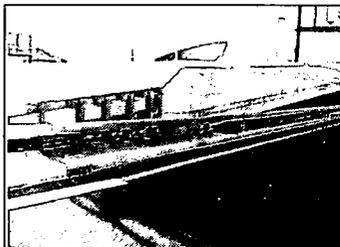
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-07A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns/underside of ramp structure
ROADSIDE SAFETY DEVICE	Box beam guiderail
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R1-07A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



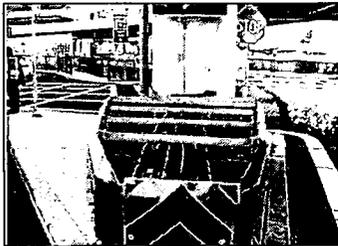
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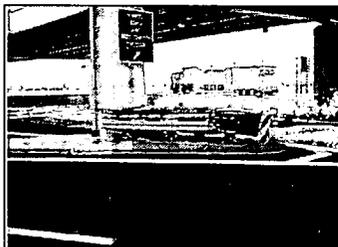
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

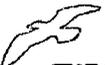


General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R1-08
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns within traffic island at roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Wide Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, all components in place and fully functional. A 5" non-mountable curb exists around unit, and manufacturer recommends no curb or mountable curb only. Vehicles jumping curb may not strike unit at optimal height, reducing effectiveness Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Remove existing Quadguard unit and existing non-mountable curb and concrete. Reinstall Quadguard unit on flush concrete base as per manufacturer's recommendations and transition to mountable curb beyond <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$6,550 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

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<p>Roadside Safety Audit</p>	
Location	R1-08
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	FAIR
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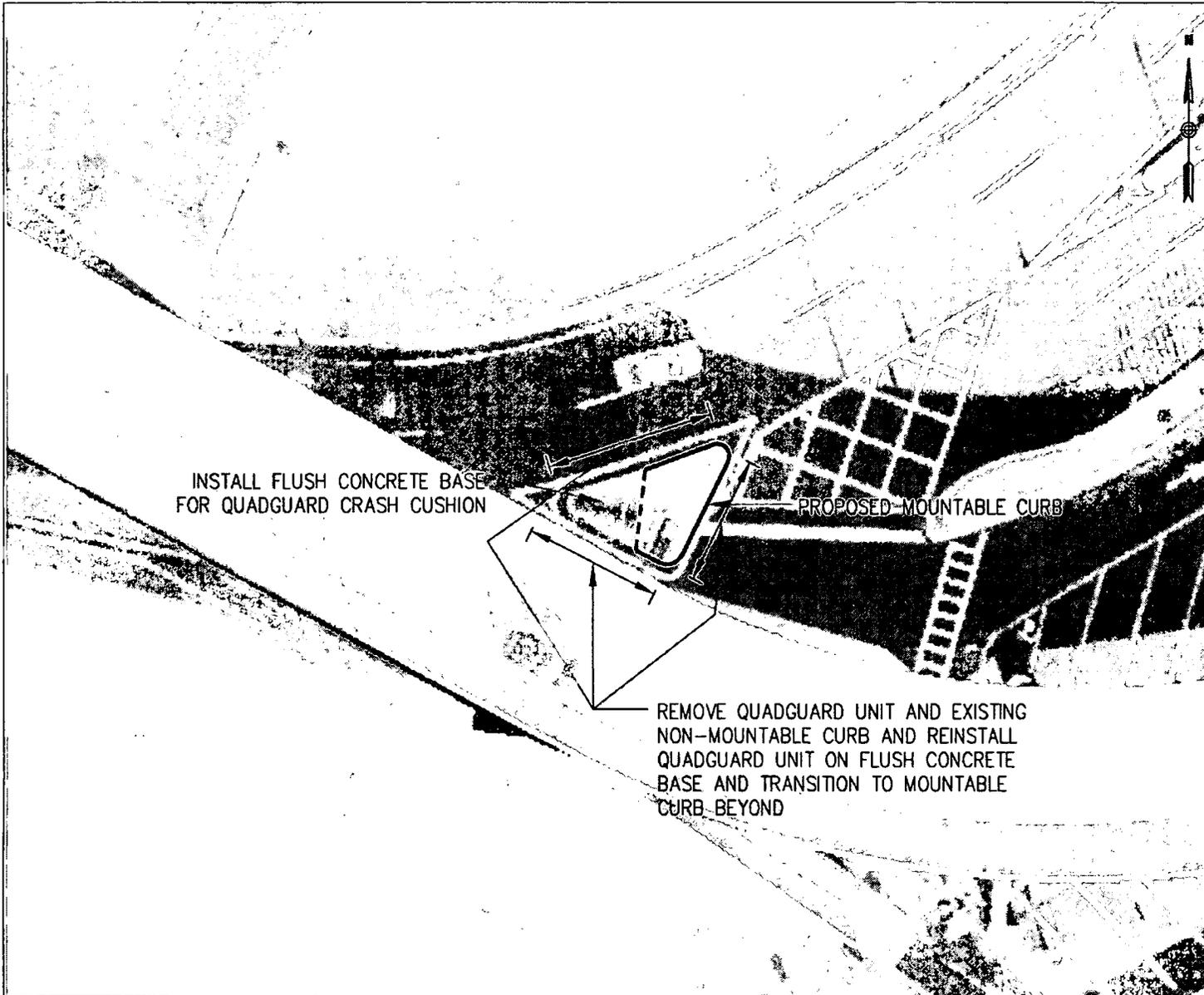
**Roadside Safety
Audit
Conceptual Plan**

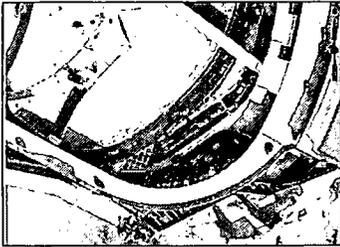
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Location	R1-08
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	FAIR

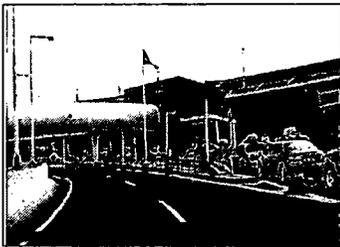


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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected BBGR Type I end sections



Side view of unprotected BBGR Type I end sections

LOCATION ID	R1-08A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Unprotected box beam guiderail Type I end sections within clear zone
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Vehicles impacting end section could vault/overturn even at low operating speeds through terminal area. A 6" non-mountable curb exists around the BBGR end sections
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install crash cushion in front of BBGR end terminals in narrow median between roadway split /remove non-mountable curb and install crash cushion flush with pavement/transition to 6" non-mountable curb beyond <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$19,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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Location	R1-08A
Device	NONE
RSA Priority Level	CRITICAL



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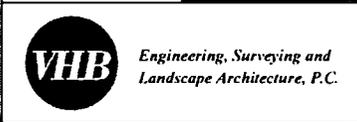


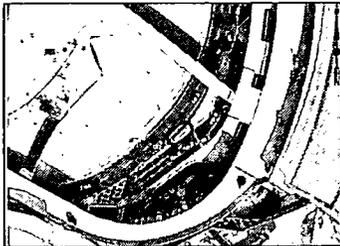
**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R1-08A
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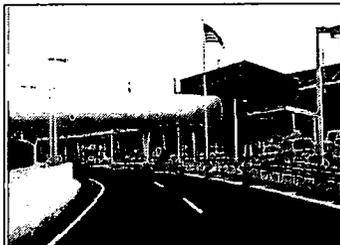
Device	NONE
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RSA Priority Level	CRITICAL
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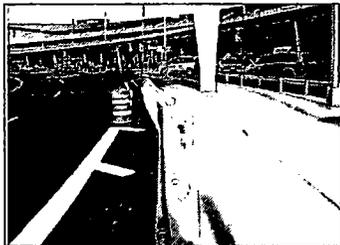




Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



General view of BBGR along rail

LOCATION ID	R1-08B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pedestrian bridge support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transitioning to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue with routine maintenance Long Term: <ul style="list-style-type: none"> Remove concrete barrier and extend box beam guiderail approximately 75 ft
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$7,125



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**Roadside Safety
Audit**

Location	R1-08B
Device	Box Beam Guiderail
RSA Priority Level	GOOD



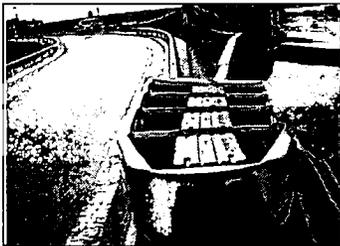
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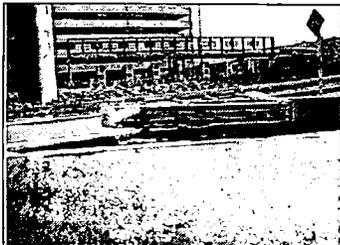
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



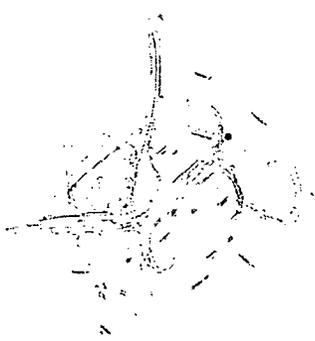
Side view of Quadguard impact attenuator

LOCATION ID	R1-09
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt ends of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	During video of location, evidence of side impact was as shown in Driver's view. However, upon return visit, unit had been repaired. Unit intact, installed flush to pavement as per specifications. All components in place and fully functional. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance Long Term: <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> • \$175 Long Term Recommendation: <ul style="list-style-type: none"> • \$0



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Location	R1-09
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



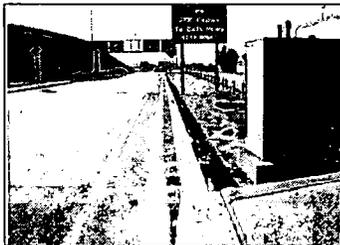
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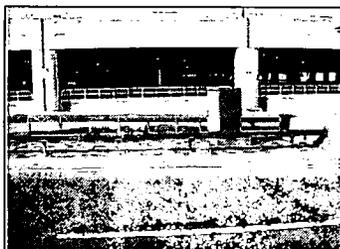
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R1-09A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Narrow median, cross over, sign posts
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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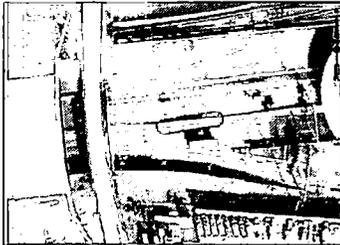


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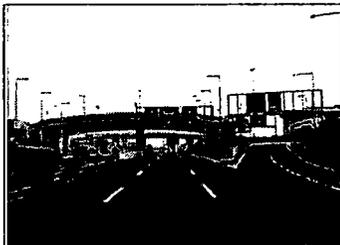
Location	R1-09A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of barrier gate system



Side view of barrier gate system

LOCATION ID	R1-10
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	"Emergency Only" opening between EB/WB traffic on Van Wick Expressway
ROADSIDE SAFETY DEVICE	Barrier Gate by Barrier Systems Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Barrier Gate intact, all components appear intact and flush with roadway. Unit not tested for operation
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Continue with routine maintenance <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$0 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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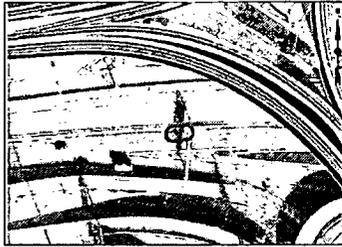


**Roadside Safety
Audit**

Location	R1-10
Device	Median Barrier Gate
RSA Priority Level	GOOD



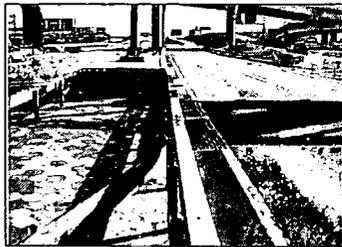
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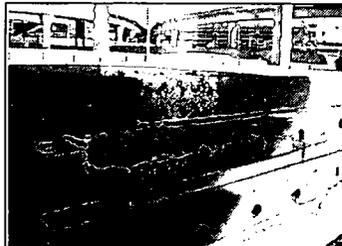
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section along rail



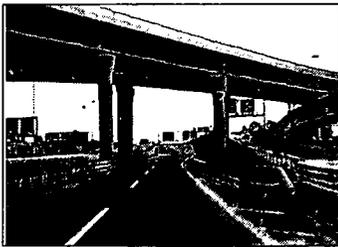
View of heavy rust/section loss to upper rail of transition section to concrete barrier

LOCATION ID	R1-11
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S - Blunt end of a concrete barrier at over head sign support columns
ROADSIDE SAFETY DEVICE	Box beam transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Poor condition; although all components installed within acceptable height variation, heavy rust/section loss to top rail at transition to concrete barrier. A 6" non-mountable curb exists along unit. The transition unit will provide some protection, but post configuration along transition assembly and lack of block-outs does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace top box rail transition piece <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$1,300 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000 (Add'l)

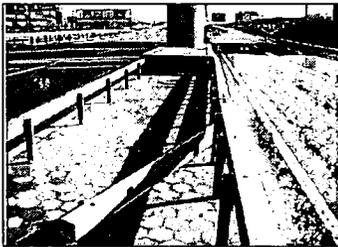
	
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Roadside Safety Audit	
Location	R1-11
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	POOR
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete median



Side view of BBGR transition section to concrete median

LOCATION ID	R1-12
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Blunt end of a concrete barrier at bridge pier column
ROADSIDE SAFETY DEVICE	Box beam transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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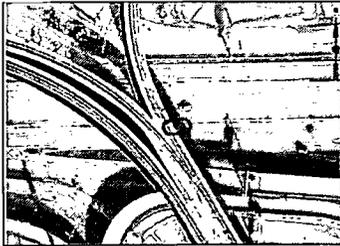


**Roadside Safety
Audit**

Location	R1-12
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



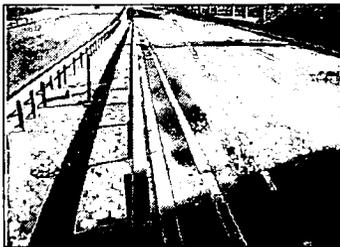
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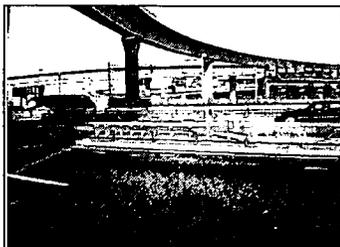
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

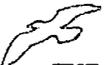


General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R1-12A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Narrow median, crossover hazard, non-mountable curb >4" in height
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation, and within 1 ft of 6" non-mountable curb Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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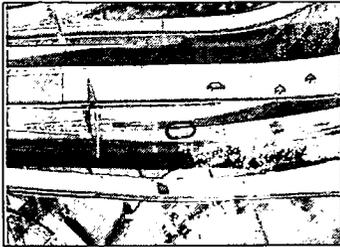


**Roadside Safety
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Location	R1-12A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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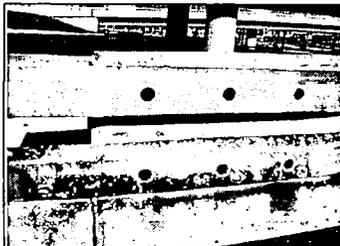
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



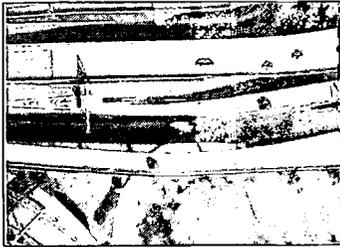
General view of BBGR along rail



Side view of rust damage to bottom section of BBGR

LOCATION ID	R1-13
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 -28 feet
ROADSIDE HAZARD	L/S – Blunt end of a concrete barrier at overpass
ROADSIDE SAFETY DEVICE	Box beam transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; all components installed within acceptable height variation, rust/some section loss to bottom rail at transition to concrete barrier. A 6" non-mountable curb exists along unit. The transition unit will provide some protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace bottom box beam rail transition piece <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$1,300 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000

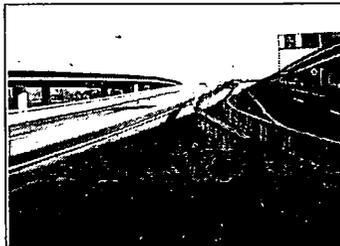
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<p>Roadside Safety Audit</p>	
Location	R1-13
Device	Box Beam Gulderall Transition Unit
RSA Priority Level	FAIR
 <p>Engineering, Surveying and Landscape Architecture, P.C.</p>	



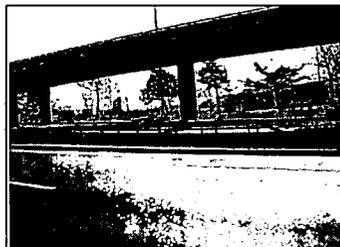
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-13A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 -28 feet
ROADSIDE HAZARD	R/S – Converging lanes of traffic separated by narrow median; crossover hazard; back of adjacent guiderail
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Evidence of minor impact includes bent rail, but post-rail connections are intact Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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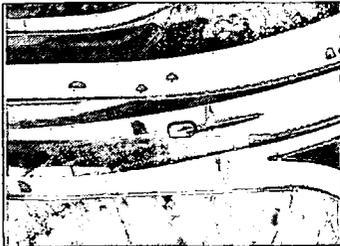


**Roadside Safety
Audit**

Location	R1-13A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



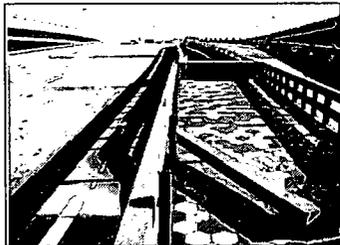
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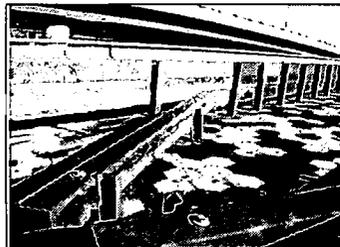
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of rust damage to bottom rail of BBGR

LOCATION ID	R1-14
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 -28 feet
ROADSIDE HAZARD	R/S – Blunt end of a concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; all components installed within acceptable height variation, rust/section loss to lower diagonal brace rail. A 6" mountable curb exists along unit. The transition unit will provide some protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Replace lower diagonal brace rail piece Long Term: <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$800 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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Location	R1-14
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



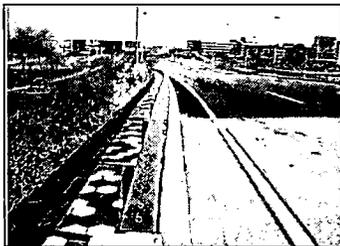
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Missing nuts and bolts on BBGR splice section

LOCATION ID	R1-14A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Narrow median, crossover hazard, overhead sign support columns, light pole foundations, steep side slope
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. 2 - BBGR splice locations at 50 ft from beginning of run missing 2 of 4 bolts, and also at 625 ft from beginning of run Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Install missing splice bolts <u>Long Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$150 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

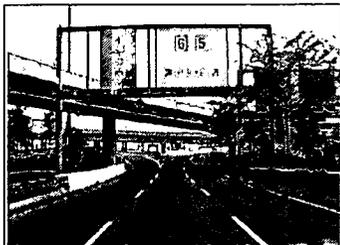
Location	R1-14A
Device	Box Beam Guiderail
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R1-15
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 -16 feet
ROADSIDE HAZARD	L/S – Blunt end of a concrete barrier at over head sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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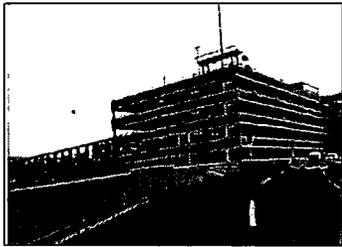
Location	R1-15
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



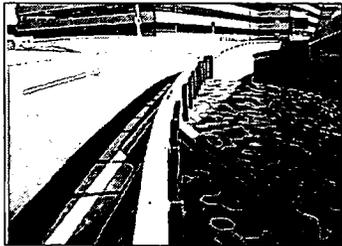
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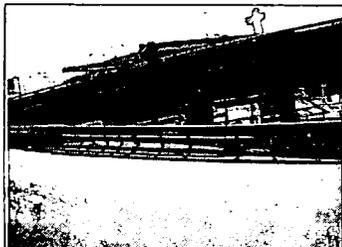
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-16
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of a concrete barrier parapet on elevated roadway
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly to bridge parapet
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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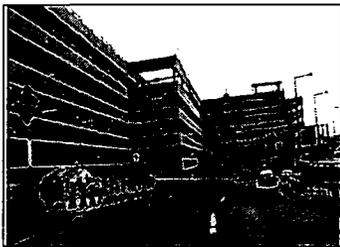
Location	R1-16
Device	Box Beam Guiderail Transition Assembly
RSA Priority Level	FAIR



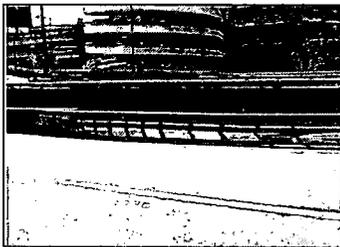
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of BBGR transition section to concrete barrier



General view of BBGR transition section to concrete barrier

LOCATION ID	R1-17
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Blunt end of a concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	<p>Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22)</p> <p>Not tested under NCHRP 350 criteria</p>
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$8,000



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Location	R1-17
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



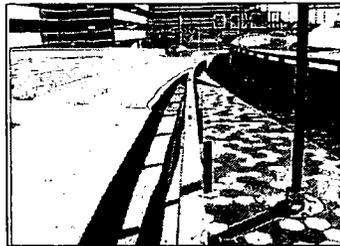
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



No anchoring between concrete barrier and BBGR

LOCATION ID	R1-17A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 - 16 feet
ROADSIDE HAZARD	R/S – Wing wall of elevated structure
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. BBGR attachment to concrete barrier is broken Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Repair concrete barrier at connection to box beam guiderail <u>Long Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$800 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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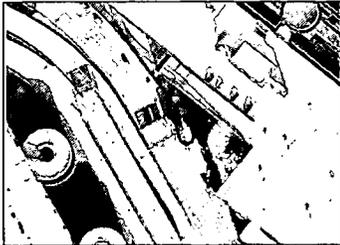


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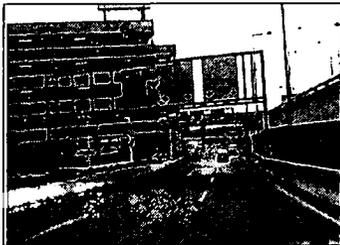
Location	R1-17A
Device	Box Beam Guiderail
RSA Priority Level	FAIR



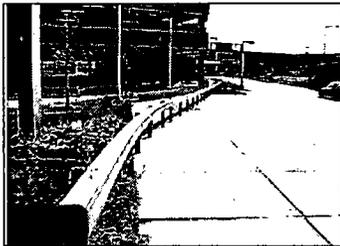
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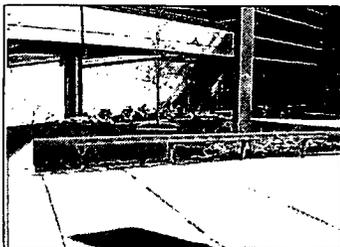
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-17B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns, parking garage building corner
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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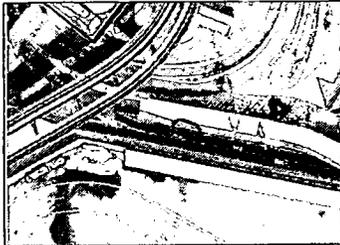


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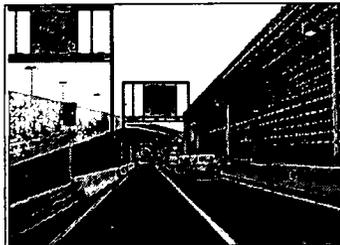
Location	R1-17B
Device	Box Beam Guiderail
RSA Priority Level	GOOD



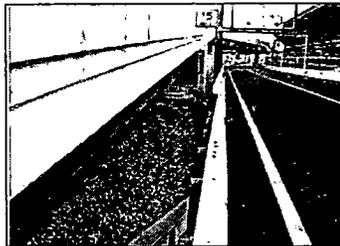
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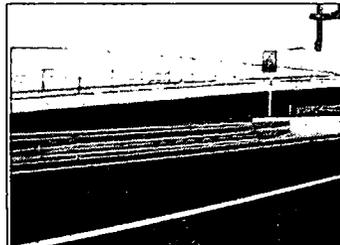
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R1-18
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per specification within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit conforms to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Meets NCHRP 350 TL-3 criteria
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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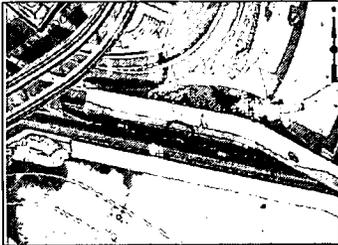


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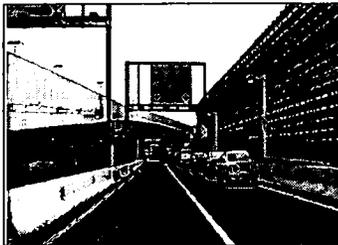
Location	R1-18
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



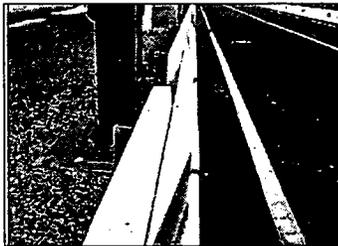
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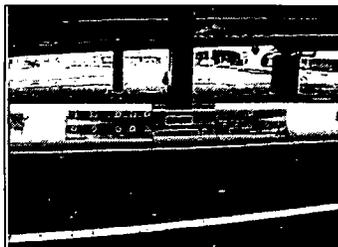
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



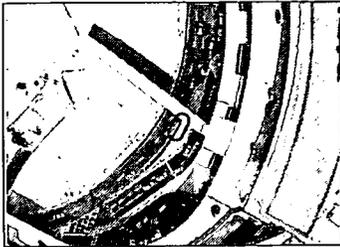
General view of BBGR bridging gap on concrete barrier terminal attenuator



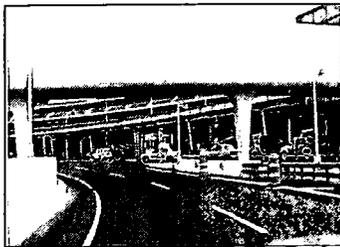
Side view of BBGR bridging gap on concrete barrier

LOCATION ID	R1-19
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – 2 locations where blunt ends of concrete barrier at opening for overhead sign support columns
ROADSIDE SAFETY DEVICE	Tapered box beam guiderail sections (upper and lower), on approach and departure, spanning opening
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; rails intact at similar height level as transition unit rail section, no evidence of deterioration. A 2" lip exists along the BBGR. This device appears satisfactory for existing conditions of low speed/tangent section of roadway Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

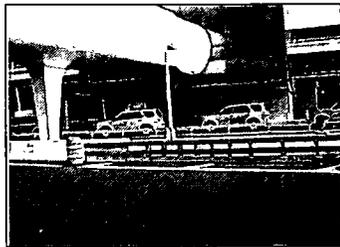
 <p>THE PORT AUTHORITY OF NY & NJ</p>	
<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R1-19
Device	Box Beam Transition Rails
RSA Priority Level	FAIR
 <p><i>Engineering, Surveying and Landscape Architecture, P.C.</i></p>	



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of BBGR transition section to concrete barrier



Side view of BBGR

LOCATION ID	R1-20
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of a concrete barrier at pedestrian overpass support column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per specification within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit conforms to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-32) Meets NCHRP 350 TL-3 criteria
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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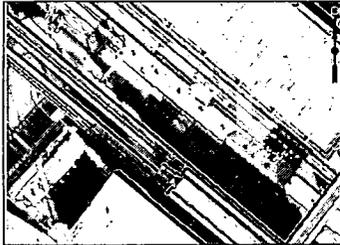


**Roadside Safety
Audit**

Location	R1-20
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



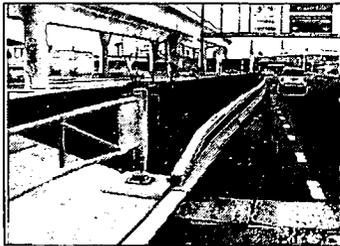
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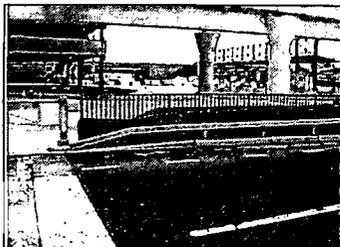
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of exposed gate post



Side view of exposed gate post

LOCATION ID	R1-21
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Driveway gate posts, box beam guiderail Type II end terminal with insufficient flare rate
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Exposed Type II terminal can cause rollovers and is no longer acceptable for new installations. Under existing low speeds/tangent section of roadway unit is acceptable. Driveway posts are fixed objects and should be protected from impacts or relocated outside clear zone limits. 6" non-mountable curb exists beyond driveway
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Remove posts and relocate gate opening at 16 ft back from roadway edge; relocate decorative fence beyond clear zone Remove existing box beam guiderail <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$20,000 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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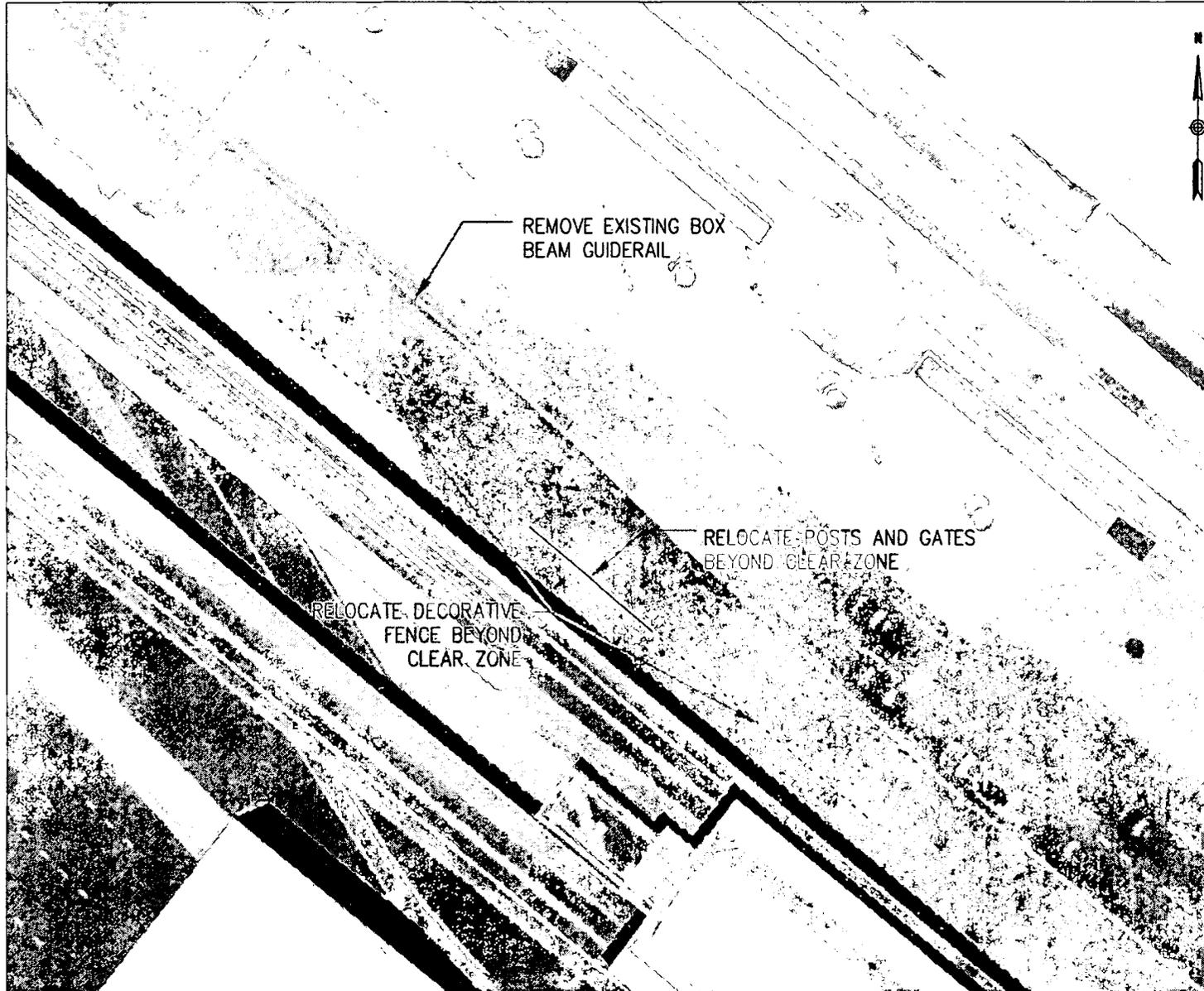


**Roadside Safety
Audit**

Location	R1-21
Device	NONE
RSA Priority Level	CRITICAL

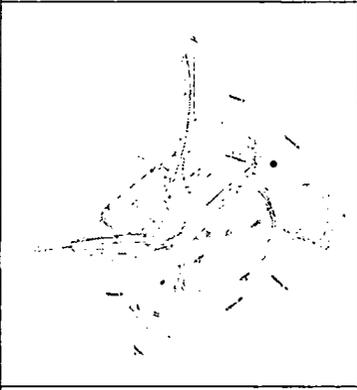


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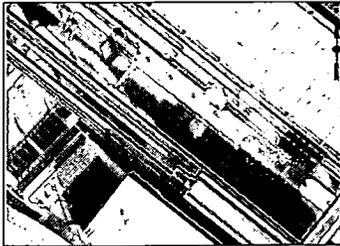
Roadside Safety
Audit
Conceptual Plan
 (Not to Scale)

Location	R1-21
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Device	NONE
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RSA Priority Level	CRITICAL
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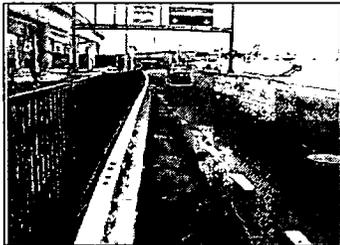

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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-21A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns/decorative fence
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation, and within 1 ft of 6" non-mountable curb. (See R1-21 for Type II end terminal assessment) Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> See Location R1-21 – remove BBGR <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> See Location 1-21 for costs of combined mitigation for two locations <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R1-21A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-21B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end terminal
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation, and within 1 ft of 6" non-mountable curb. The Type II end terminal is no longer acceptable for new installations but can be retained in low speed areas and can be retained based on existing low speed and tangent roadway section Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Replace Type II terminal with Type III telescoping terminal under future safety upgrade or roadway project/remove non-mountable curb in vicinity of proposed new end treatment and replace with mountable curb
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$7,000



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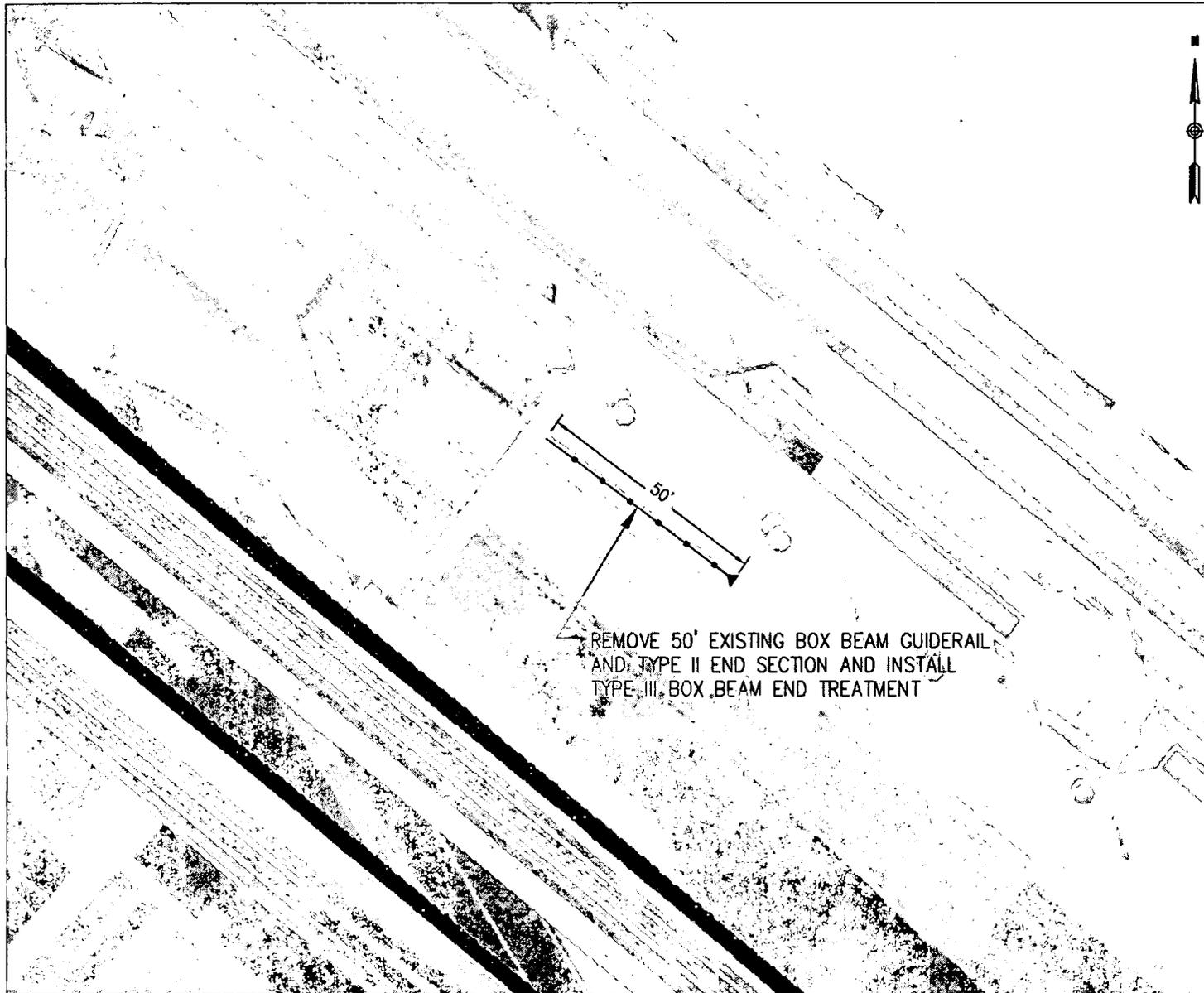


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Location	R1-21B
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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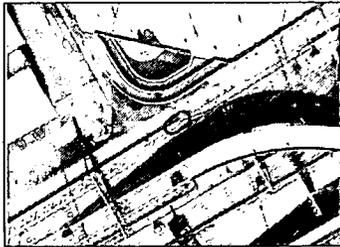
**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

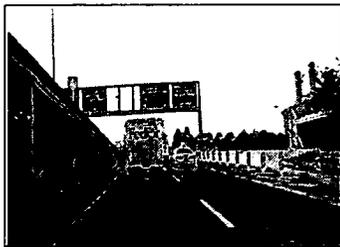
Location	R1-21B
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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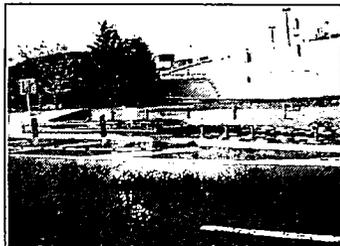
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R1-22
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of a concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of block-outs and incorporation of w-beam does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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**Roadside Safety
Audit**

Location	R1-22
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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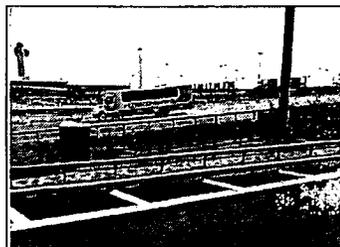
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-22A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns, equipment cabinets, non-breakaway light foundation
ROADSIDE SAFETY DEVICE	Box beam guiderail
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R1-22A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



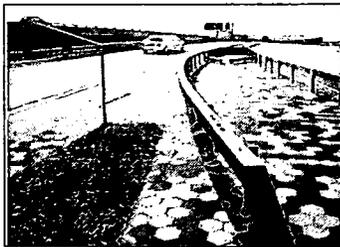
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-22B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 - 16 feet
ROADSIDE HAZARD	R/S – Concrete bridge barrier at overpass
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. Type I end section at/beyond required offset. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R1-22B
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



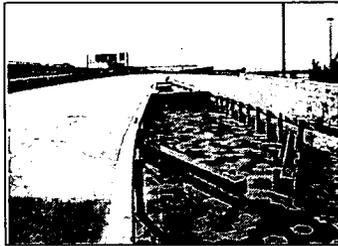
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



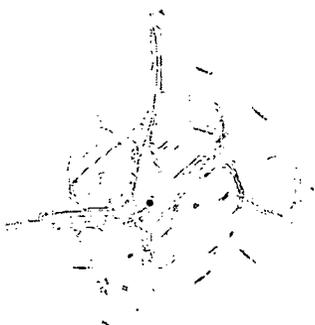
Side view of BBGR transition section to concrete barrier

LOCATION ID	R1-23
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 15 feet
ROADSIDE HAZARD	R/S - Blunt end of concrete barrier at bridge
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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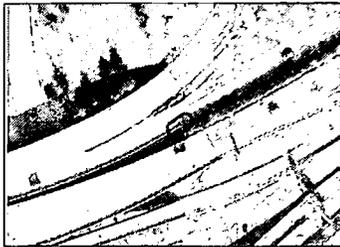


**Roadside Safety
Audit**

Location	R1-23
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



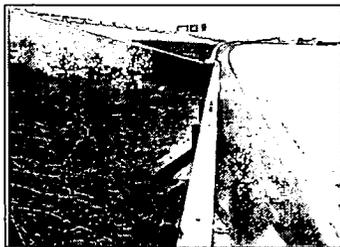
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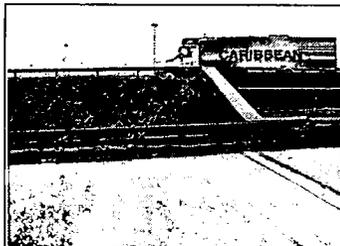
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R1-23A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at bridge
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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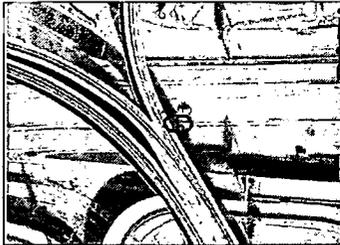


**Roadside Safety
Audit**

Location	R1-23A
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



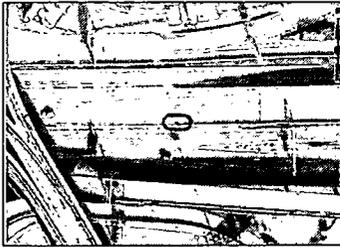
General view of BBGR transition section to concrete barrier



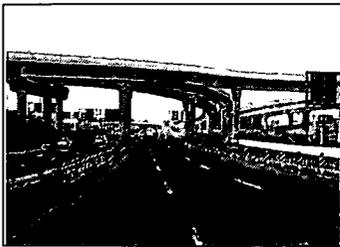
Side view of BBGR transition section to concrete barrier

LOCATION ID	R1-24
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at pier columns, 6" non-mountable curb
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation and within 1 ft of 6" non-mountable curb. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000

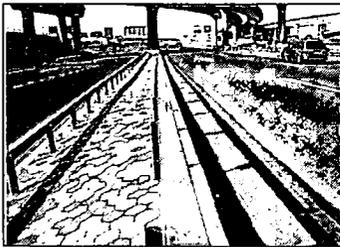
 <p>THE PORT AUTHORITY OF NY & NJ</p>	
<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R1-24
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR
 <p>Engineering, Surveying and Landscape Architecture, P.C.</p>	



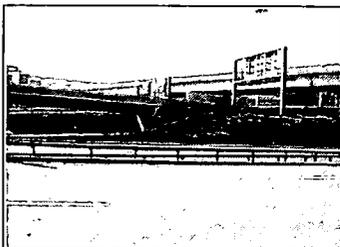
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-24A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Narrow median of opposing traffic presents crossover potential; >6" non-mountable curb
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation and within 1 ft of 6+” non-mountable curb. Also, 5 post to rail connection bolts missing ~ 50 ft from beginning of run Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace missing post to rail connection bolts <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$150 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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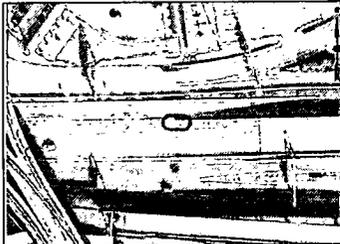


**Roadside Safety
Audit**

Location	R1-24A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



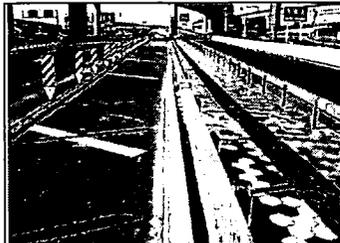
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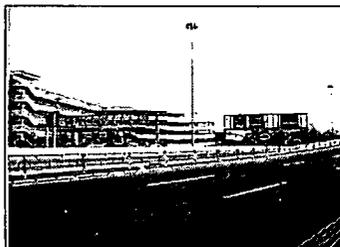
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R1-24B
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	R/S – Pier columns, narrow raised median
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation, and within 1 ft of 6" non-mountable curb Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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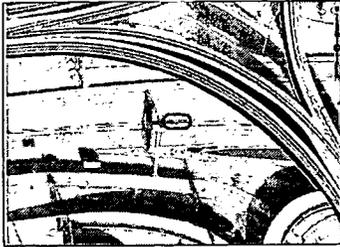


**Roadside Safety
Audit**

Location	R1-24B
Device	Box Beam Guiderail
RSA Priority Level	GOOD



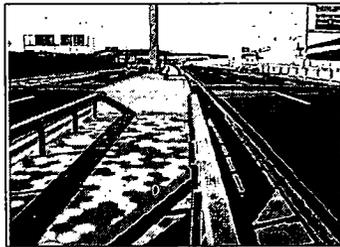
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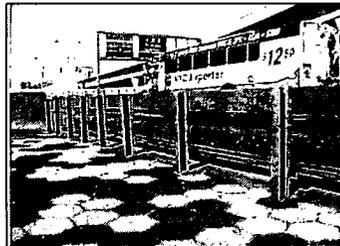
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



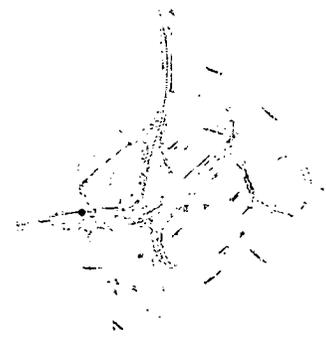
Side view of rust damage to BBGR transition section to concrete barrier

LOCATION ID	R1-25
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at overhead sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation and within 1 ft of 6" non-mountable curb. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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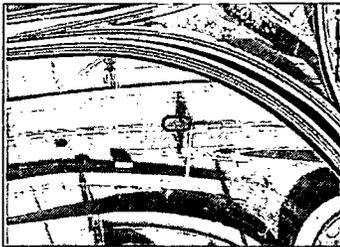


**Roadside Safety
Audit**

Location	R1-25
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



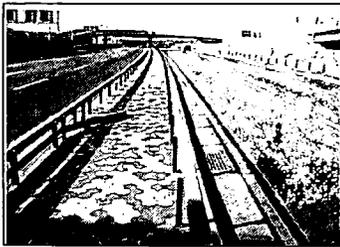
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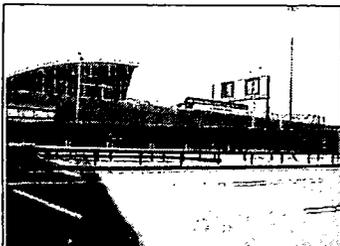
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-25A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Narrow raised median of opposing traffic
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation, and within 1 ft of 6" non-mountable curb. Also, 1 post to rail connection bolt missing ~ 100 ft from end of run Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace missing bolt at post rail connection <u>Long Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$150 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R1-25A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



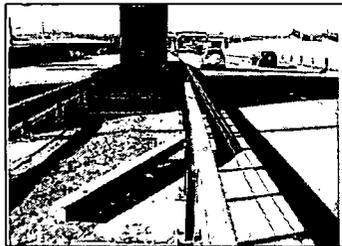
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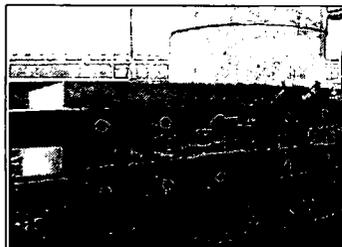
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of extensive rust damage to BBGR transition section to concrete barrier

LOCATION ID	R1-26
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition over all; although all components installed within acceptable height variation, rust/section loss to both rails attached to concrete barrier. A 6" non-mountable curb exists around unit. The transition unit will provide some protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace top and bottom rail transition pieces that are attached to concrete barrier <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$2,600 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000 (Add'l)



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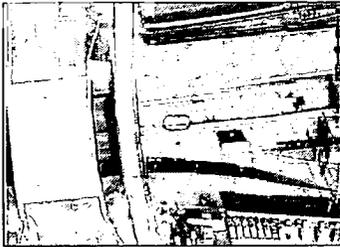


**Roadside Safety
Audit**

Location	R1-26
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	POOR



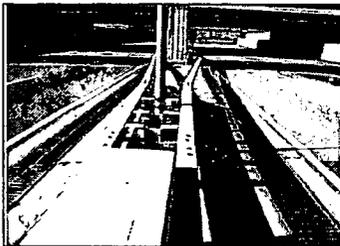
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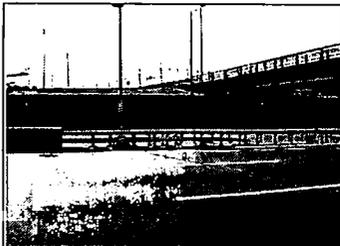
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of transition from concrete barrier to BBGR



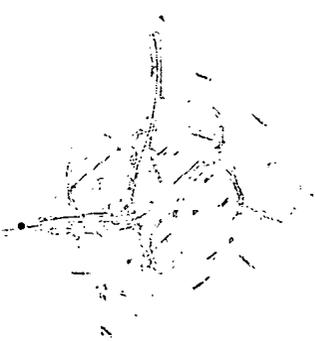
Side view of transition from concrete barrier to BBGR

LOCATION ID	R1-28
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at bridge pier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation and is flush with the roadway. The transition unit will provide needed protection, but post configuration along transition assembly and lack of “block-outs” does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue with routine maintenance Long Term: <ul style="list-style-type: none"> If impacted/damaged or as part of future roadway/safety upgrade project, remove and replace box beam guiderail and existing non-mountable curb beginning at end of existing concrete barrier and install vertical face, half section concrete barrier section in front of bridge piers as per NYSDOT standards; continue concrete barrier approximately 650 ft past bridge piers/columns at Locations R1-28A, R1-29 to meet existing concrete barrier at Location R1-30
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$500,000



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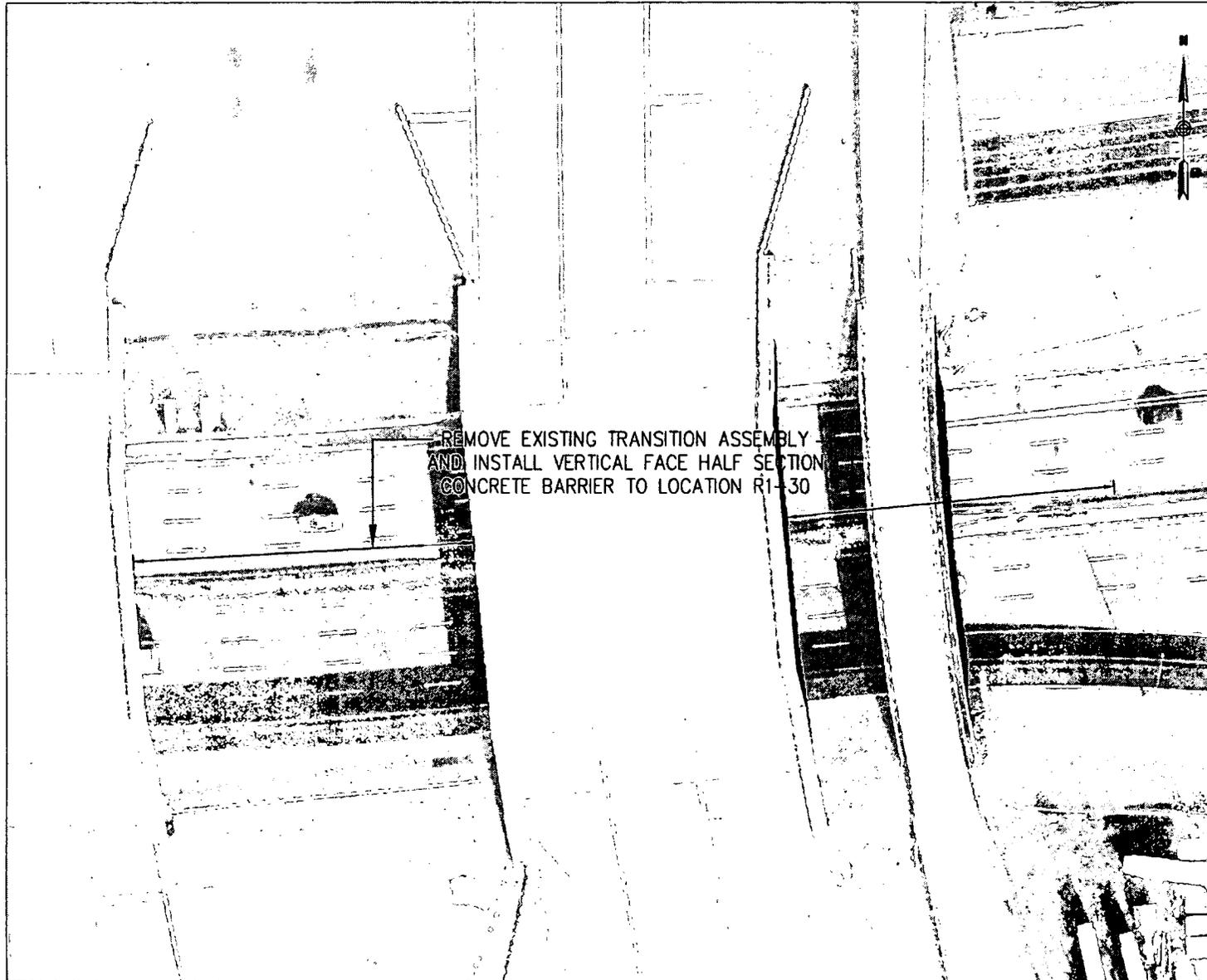


**Roadside Safety
Audit**

Location	R1-28
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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REMOVE EXISTING TRANSITION ASSEMBLY
 AND INSTALL VERTICAL FACE HALF SECTION
 CONCRETE BARRIER TO LOCATION R1-30



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**Roadside Safety
 Audit
 Conceptual Plan**
 (Not to Scale)

Location	R1-28
Device	Box Beam Guidrail Transition Unit
RSA Priority Level	FAIR

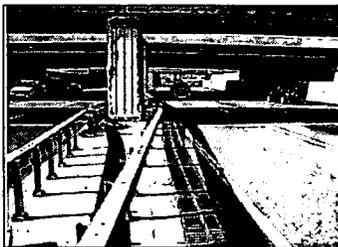




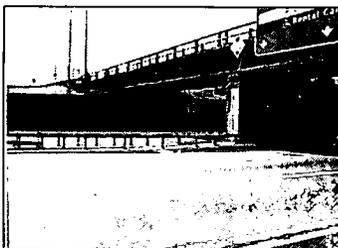
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-28A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Blunt end of bridge pier
ROADSIDE SAFETY DEVICE	Box beam guiderail on strong posts
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	In addition to blunt end of bridge pier, the pier face is within 2 ft of BBGR. No data available on deflection/damage characteristics of BBGR with heavy posts in this configuration, with ½ spaced posts to limit deflection distance. BBGR system appears to be recently installed. BBGR installed behind 6" non-mountable curb but is > 1 ft from face of curb and could cause cars to vault an impact pier above top rail Not tested under NCHRP 350 criteria.
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> See Location R1-28
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	See R1-28 for estimate of combined cost to address 650 l.f. of VWE median



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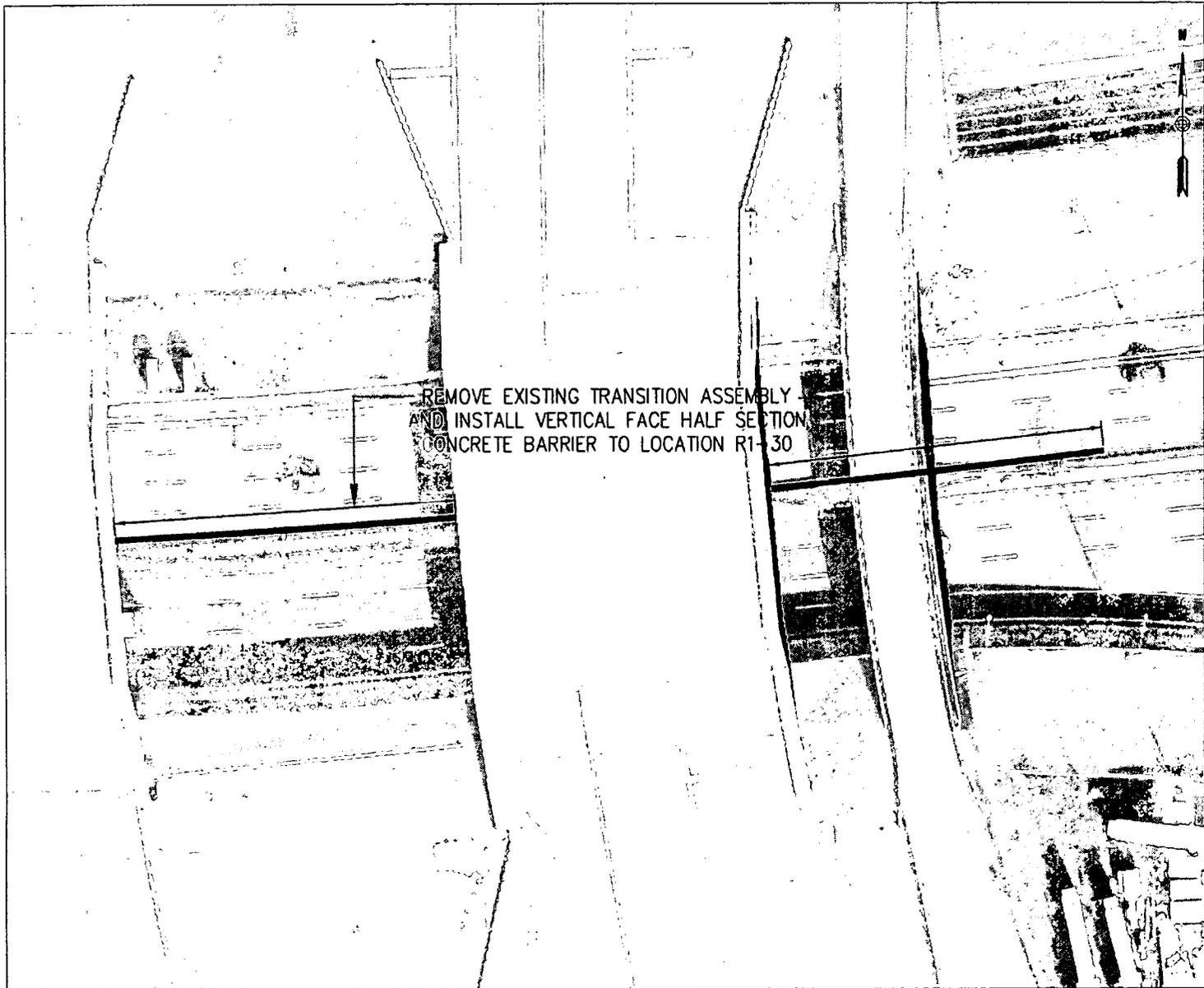


**Roadside Safety
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Location	R1-28A
Device	Box Beam Guiderail
RSA Priority Level	POOR



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REMOVE EXISTING TRANSITION ASSEMBLY
AND INSTALL VERTICAL FACE HALF SECTION
CONCRETE BARRIER TO LOCATION R1-30



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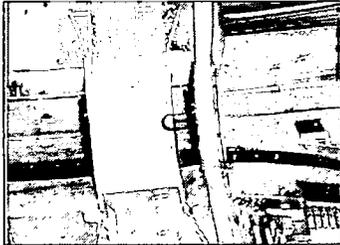
**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location	R1-28A
Device	Box Beam Guiderail
RSA Priority Level	POOR



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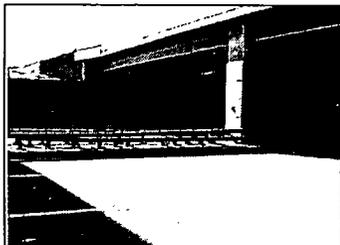
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R1-29
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Blunt end pier column and blunt end of concrete bridge pier face
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly utilizing strong posts/block-outs
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, but NO data available on deflection/damage characteristics of BBGR w/heavy posts in this configuration, with ¼ spaced posts to limit deflection distance. BBGR installed behind 6" non-mountable curb but is > 1 ft from face of curb and could cause cars to vault and impact blunt end of pier Not tested under NCHRP 350 criteria.
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> See Location R1-28
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	See R1-28 for estimate of combined cost to address 650 l.f. of VWE median



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**Roadside Safety
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Location	R1-29
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	POOR



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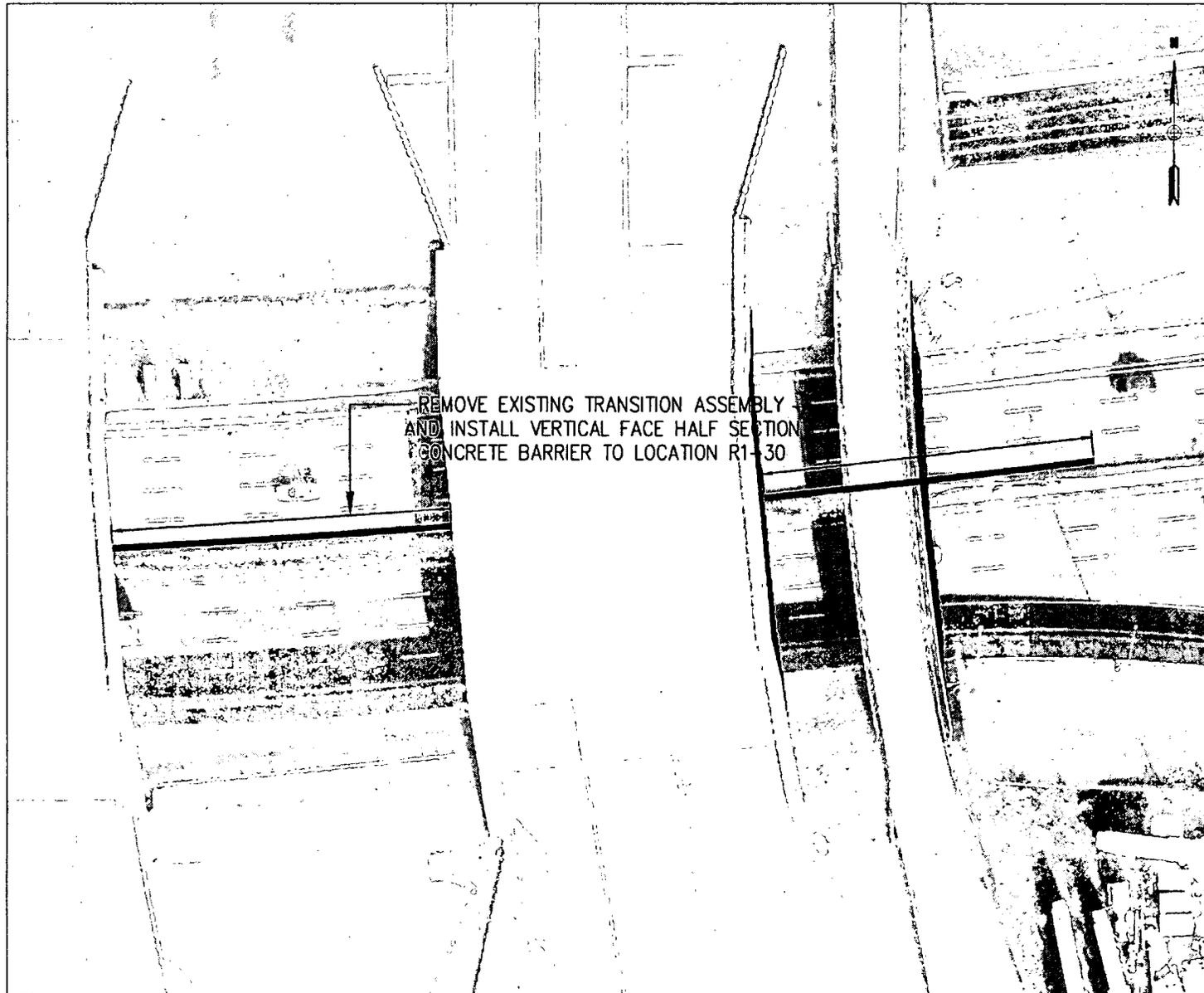
**Roadside Safety
Audit
Conceptual Plan**

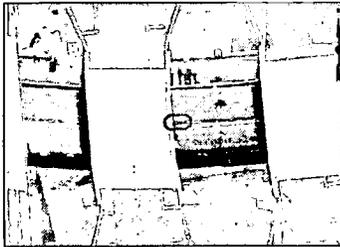
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Location	R1-29
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	POOR



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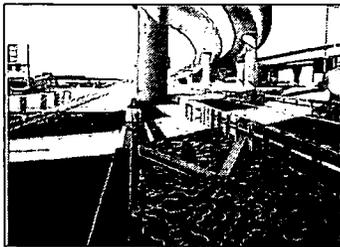




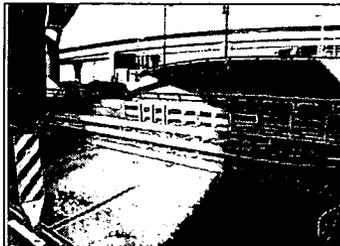
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R1-30
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 -28 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per specification within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit conforms to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Meets NCHRP 350 TL-3 criteria
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> See recommendation for Location R1-28
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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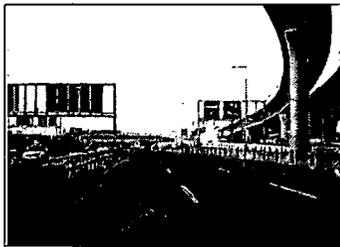
Location	R1-30
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



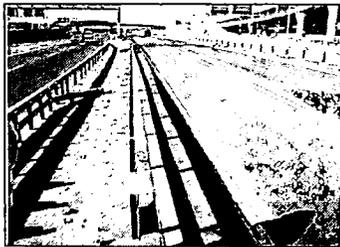
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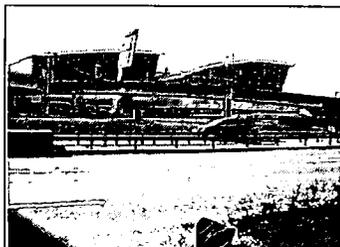
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R1-31
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	24 – 28 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns, narrow median for opposing traffic
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation, and within 1 ft +/- of 6" non-mountable curb. Note – 8 th post from begin of run missing post to rail connection bolt Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace missing connection bolt and continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$150 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R1-31
Device	Box Beam Guiderail
RSA Priority Level	GOOD



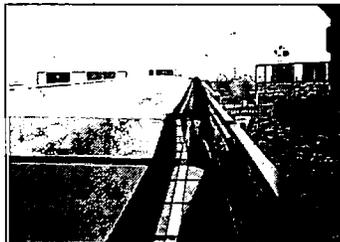
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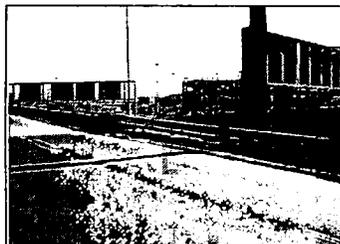
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR transition section to concrete barrier

LOCATION ID	R2-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete bridge barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition to concrete bridge barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; minor rust at spot locations, all components installed within acceptable height variation. There is a 6" mountable curb which transitions to a non-mountable curb at the bridge concrete barrier. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT Standard Sheet 606-22 and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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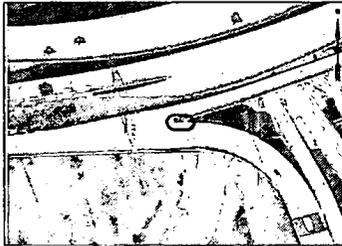


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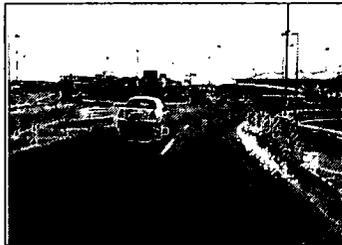
Location	R2-01
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



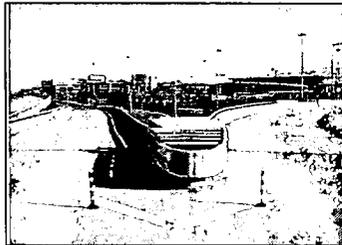
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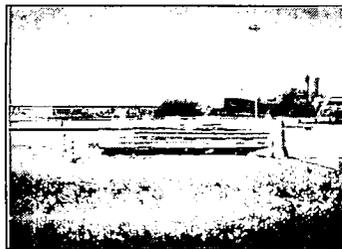
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R2-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier and BBGR at gore area between divergent roadways
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush to pavement as per specifications. All components in place and fully functional. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$175 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$0



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Location	R2-02
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



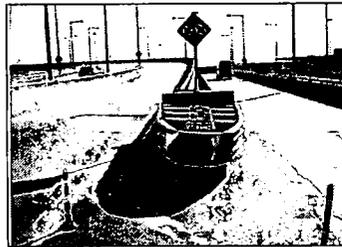
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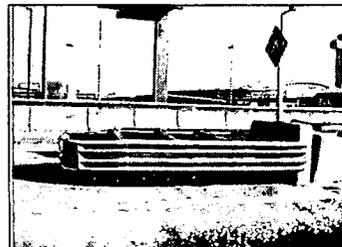
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R2-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier and BBGR at gore area between divergent roadways
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush to pavement as per specifications. All components in place and fully functional. No reflectivity on nose section of unit. Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$175 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$0



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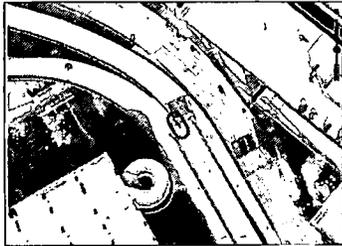


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Location	R2-03
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R2-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush to pavement as per specifications. All components in place and fully functional. Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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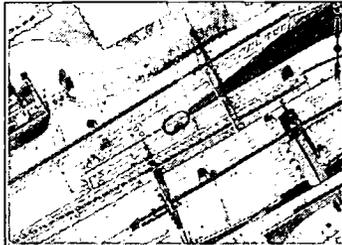


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Location	R2-05
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



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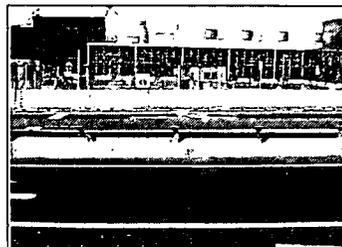
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR



View of BBGR with bent back posts

LOCATION ID	R2-05A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Guiderail posts/rear of adjacent lane box beam guiderail
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; all components installed as per standard, within acceptable height variation. Minor evidence of impact; some posts bent back/minor damage. Weak posts and rear of guiderail exposed to vehicle impacts. Rail will not function as intended if impacted from the rear side. A 6" mountable curb exists along BBGR. 3-4 posts bent/leaning back; guiderail still functional Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> • Replace damaged posts • Continue routine maintenance Long Term: <ul style="list-style-type: none"> • Replace existing BBGR with box beam median barrier
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> • \$400 Long Term Recommendation: <ul style="list-style-type: none"> • \$6,350



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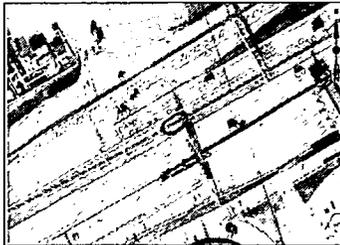


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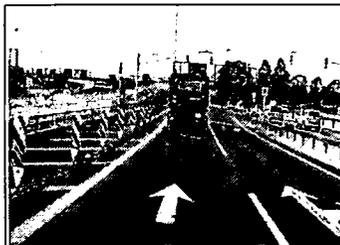
Location	R2-05A
Device	Box Beam Guiderail
RSA Priority Level	FAIR



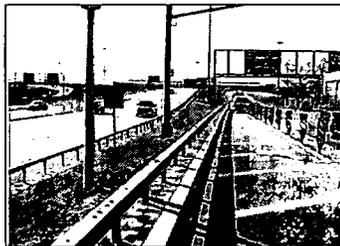
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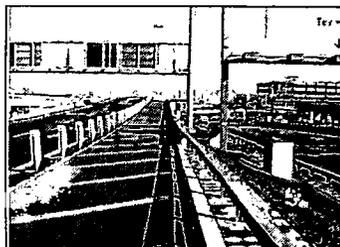
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



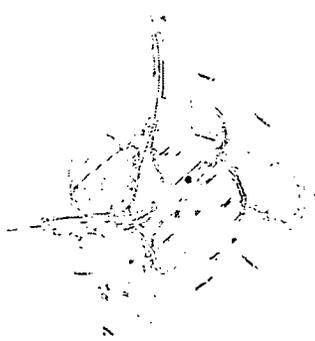
General view of BBGR along curb line

LOCATION ID	R2-05B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 -16 feet
ROADSIDE HAZARD	L/S – Narrow median, steep side slope, overhead sign support columns all along length of guiderail run
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. There is a 6" non-mountable curb which transitions to a mountable curb at the bridge concrete barrier Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
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Location	R2-05B
Device	Box Beam Guiderail
RSA Priority Level	GOOD



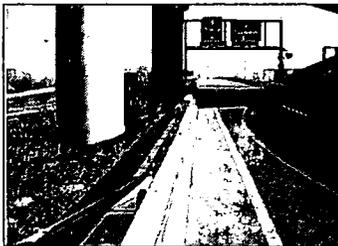
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of transition section along BBGR rail

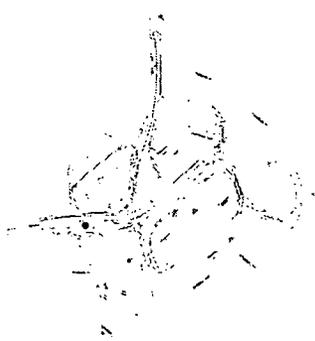


Side view of BBGR

LOCATION ID	R2-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at pier columns
ROADSIDE SAFETY DEVICE	Standard NYSDOT box beam guiderail to single slope half section concrete barrier transition assembly (Standard Sheet 606-22)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along unit Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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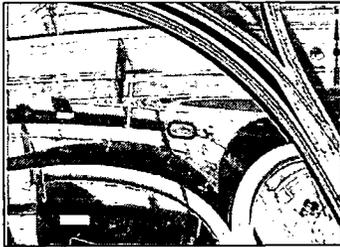


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Location	R2-06
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



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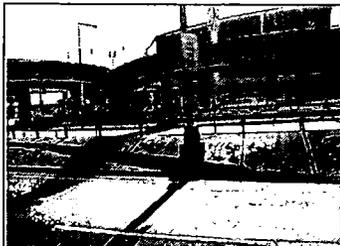
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of unprotected light pole foundation



General view along curb line of unprotected light pole foundation on steep slope

LOCATION ID	R2-06A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Light pole foundation/step side slope/equipment cabinet
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Light pole base is breakaway, but vehicles can snag on excessive height (>4") of foundation above grade; equipment cabinet within clear zone unprotected from impact. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> • Install approximately 250 l.f. of additional box beam guiderail from wing wall past exposed foundation and equipment cabinet and attach to existing BBGR • Remove flared section of existing BBGR downstream and connect above additional guiderail <p>Long Term:</p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> • \$16,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> • \$0



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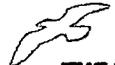


**Roadside Safety
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Location	R2-06A
Device	NONE
RSA Priority Level	CRITICAL

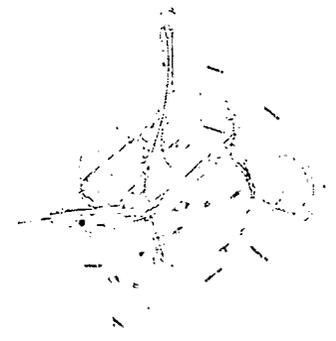


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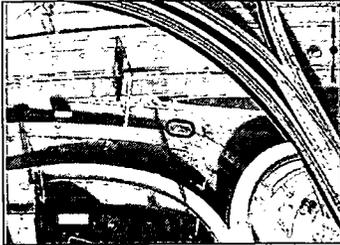
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(Not to Scale)

Location	R2-06A
Device	NONE
RSA Priority Level	CRITICAL



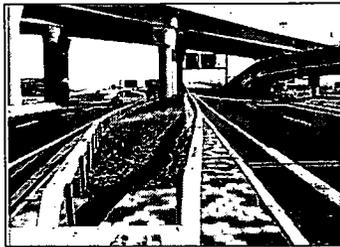
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



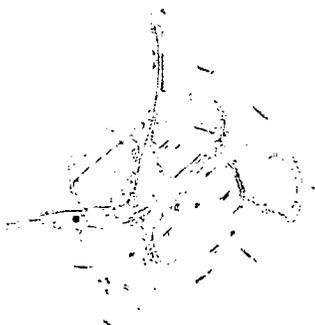
Side view of BBGR

LOCATION ID	R2-06B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Bridge pier columns; steep side slope
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
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Location	R2-06B
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR



Side view of BBGR

LOCATION ID	R2-06C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Bridge pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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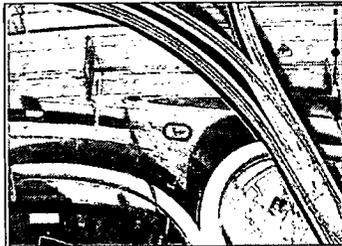


**Roadside Safety
Audit**

Location	R2-06C
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of equipment cabinet along curb line



Side view of equipment cabinet

LOCATION ID	R2-06D
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Equipment cabinet
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Equipment cabinet is located 12'-1" from curb line/13'-11" from white edge line, which is within clear zone limits. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • See Location R2-6A - Install approximately 250 ft of additional BBGR from wing wall past exposed light foundation and equipment cabinet and attach to existing BBGR downstream • Remove flared section of existing BBGR and connect above additional guiderail <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	See R2-06A for costs of combined mitigation for two locations



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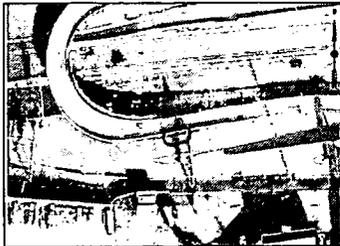


**Roadside Safety
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Location	R2-06D
Device	NONE
RSA Priority Level	CRITICAL



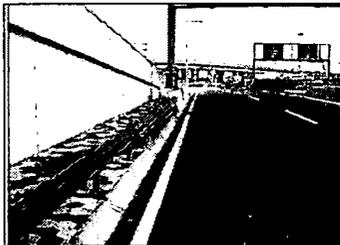
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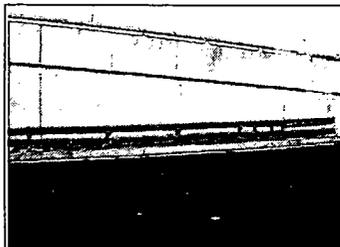
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition along rail



Side view of BBGR transition to concrete barrier

LOCATION ID	R3-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at overhead sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. The transition unit will provide needed protection, but post configuration along transition assembly and lack of “block-outs” does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22). A 6” mountable curb exists at this location Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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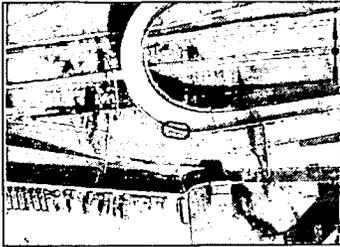


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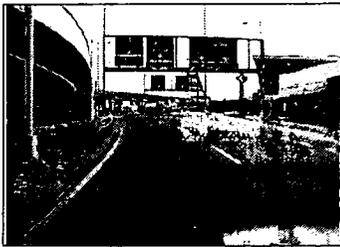
Location	R3-01
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



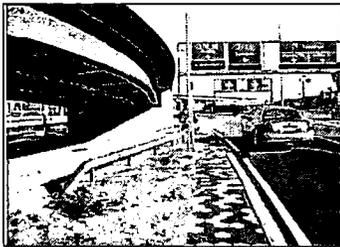
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R3-01A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Bridge abutment, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal adequately flared from road/travel way. The bolt for post/rail connection missing at 4 th post from beginning of run Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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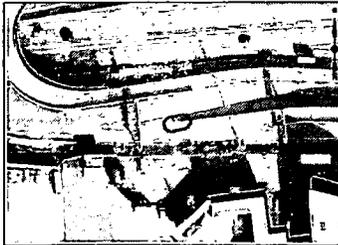


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Audit**

Location	R3-01A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



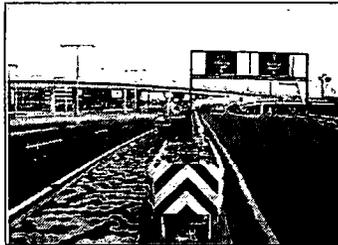
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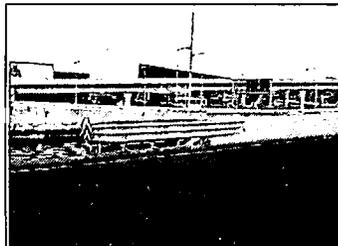
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Front view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R3-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. A 6" mountable curb exists around unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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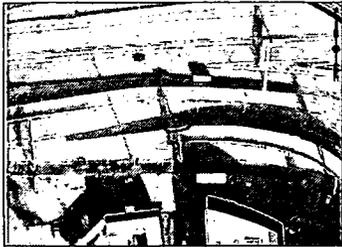


**Roadside Safety
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Location	R3-02
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



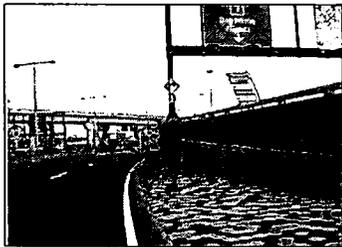
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of protruding column along curb line



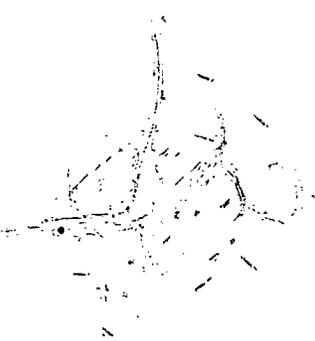
View of protruding column

LOCATION ID	R3-02A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt face of concrete sign support column which protrudes 1'-6" from face of wall
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Impact to concrete protrusion would cause severe damage to vehicles/occupants and needs to be protected by more giving safety device. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Modify lower portion of retaining wall to provide more gradual taper into protrusion for sign support pedestal <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$12,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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Location	R3-02A
Device	NONE
RSA Priority Level	CRITICAL



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Audit
Conceptual Plan**

(Not to Scale)

Location

R3-02A

Device

NONE

RSA Priority
Level

CRITICAL



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MEET EXISTING CONCRETE FACE

20'

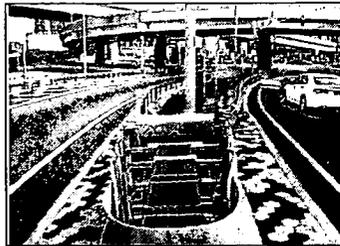
INSTALL CONCRETE TRANSITION TO
FULL WIDTH OF SIGN SUPPORT COLUMN



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

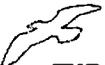


Front view of Hex Foam Sandwich System



View of unprotected end of BBGR

LOCATION ID	R3-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Type I end section of box beam guiderail
ROADSIDE SAFETY DEVICE	4 Bay Hex Foam Sandwich System
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Type I end section of box beam guiderail is inadequately flared from roadway and is on outside of road curve. Existing 6" mountable curb on both sides. Minor impact to nose of crash cushion and also needs reflective sheeting on nose, and servicing as cables for attenuation system are loose. Unit will provide some protection but should be replaced with crash cushion meeting NCHRP 350 test criteria
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Replace with NCHRP 350, TL-2 tested crash cushion; remove existing mountable curb and paving blocks and install new crash cushion on flush concrete base (See Location 19-06C for alternative recommendation) <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$20,800 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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Location	R3-03
Device	4 Bay Hex Foam Sandwich System
RSA Priority Level	POOR



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Conceptual Plan**

(Not to Scale)

Location	R3-03
Device	4 Bay Hex Foam Sandwich System
RSA Priority Level	POOR



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EXISTING MOUNTABLE CURB



REMOVE EXISTING ATTENUATOR
AND REPLACE WITH 4-BAY QUADGUARD
(NARROW) WITH NOSE REFLECTOR



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected pier column



Side view of unprotected pier column

LOCATION ID	R3-03A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns of bridge structure within clear zone
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Although BBGR provides some protection and columns are on inside of roadway curve, vehicles could pass behind end section or vault from striking end section and impact columns Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Extend leading end of box beam guiderail approximately 60 ft beyond point of need for pier column and transition to bridge wing wall or extend and taper end section to proper off-set from roadway <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$3,500 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

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<p>Roadside Safety Audit</p>	
Location	R3-03A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	POOR
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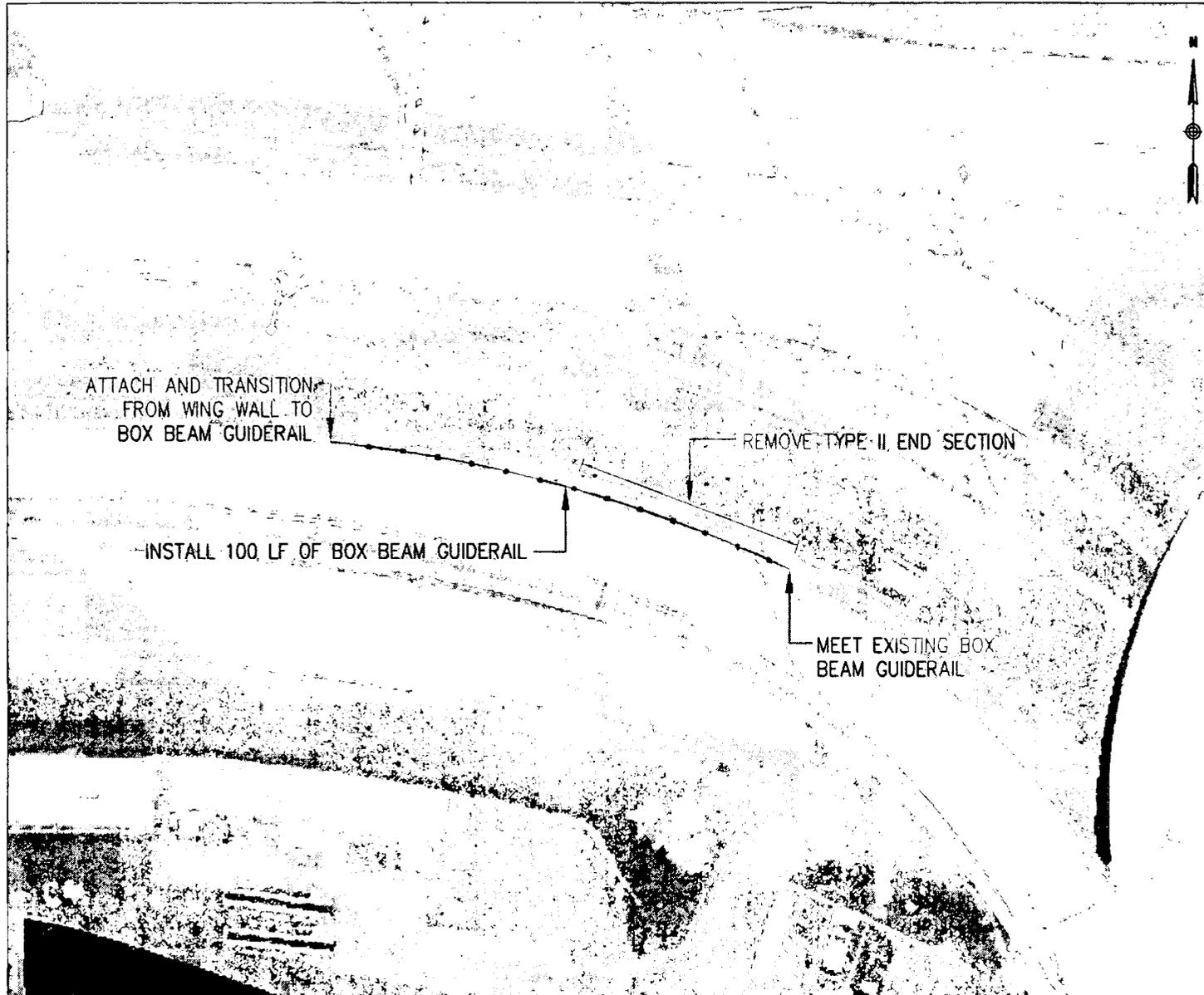
**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location	R3-03A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	POOR



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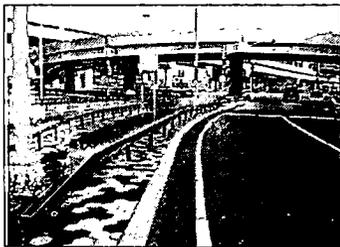




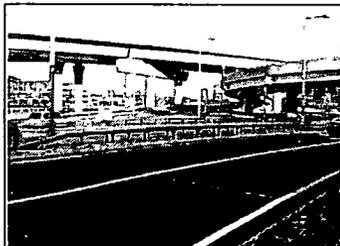
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected pier column



Side view of BBGR

LOCATION ID	R3-03B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S - Narrow median, light poles, pier column
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type II end terminal not adequately flared from roadway and not adequately protected by crash cushion unit (see R3-03) Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Modify leading end of BBGR and attach to concrete block with properly designed connection (See Location 19-06C for alternative recommendation) <u>Long Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$3,750 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

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<p>Roadside Safety Audit</p>	
Location	R3-03B
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR
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**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location	R3-03B
Device	Box Beam Guidrail
RSA Priority Level	FAIR



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CONCRETE BACK-UP
FOR CRASH CUSHION

REMOVE TYPE II LEADING END
SECTION AND CONNECT TO
CONCRETE BACK-UP WALL
FOR CRASH CUSHION



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of back side of BBGR



Side of BBGR transition section to concrete barrier

LOCATION ID	R3-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at over head sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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**Roadside Safety
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Location	R3-04
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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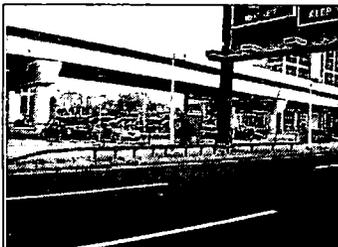
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R3-04A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II leading end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. Type II leading end section is no longer approved for new installations, but can remain in place in low speed (< 45 mph) areas. However, if lateral offset distance is available, replace terminal with NYSDOT Type IIA leading end section. Guiderail is missing trailing end section piece (Type I end section). A 6" mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Install Type I end piece on trailing end of guiderail Extend leading end to obtain required length of need and replace existing Type II leading end section with a NYSDOT Type IIA leading end treatment which provides greater lateral off set distance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$4,950 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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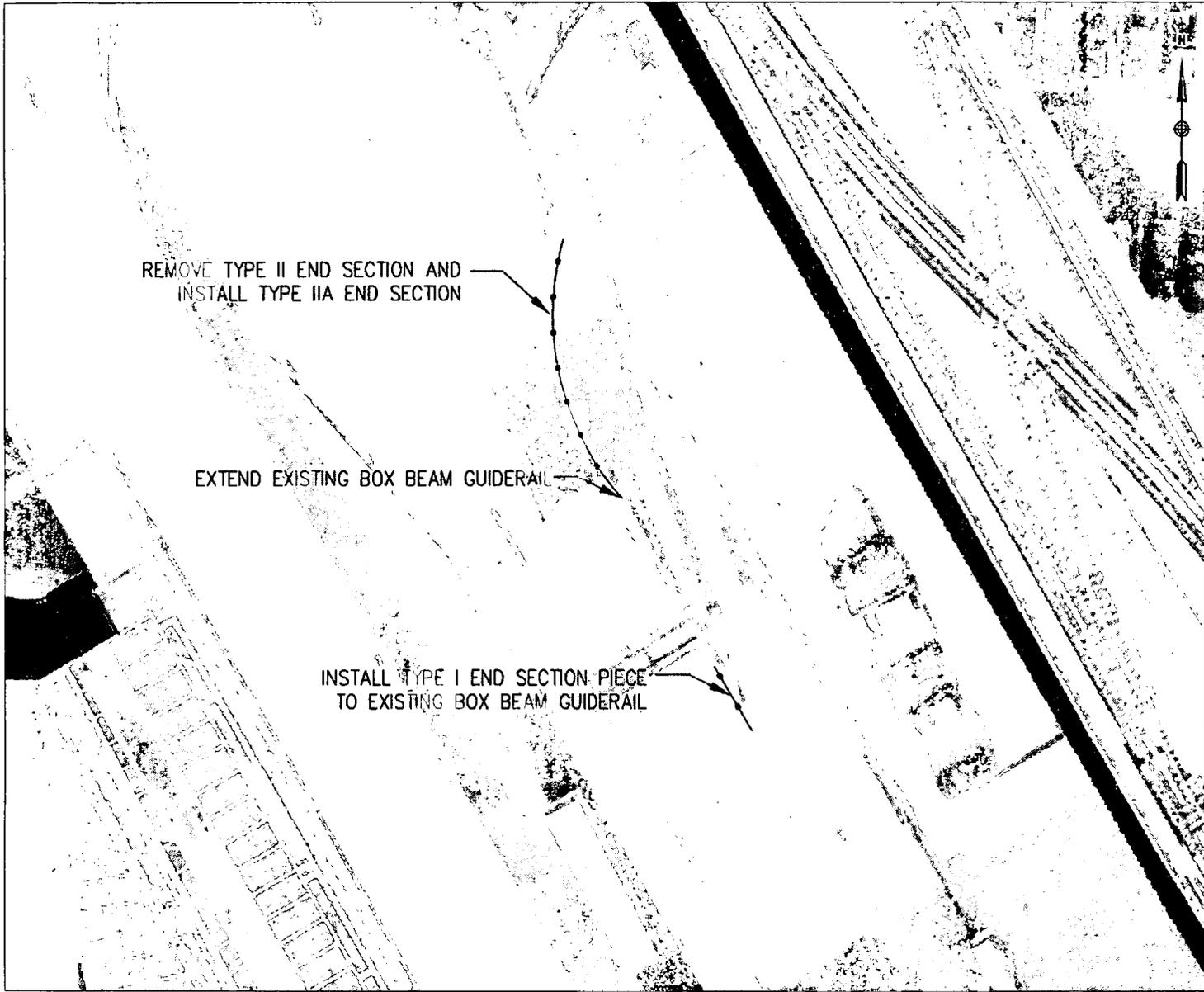


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Location	R3-04A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR

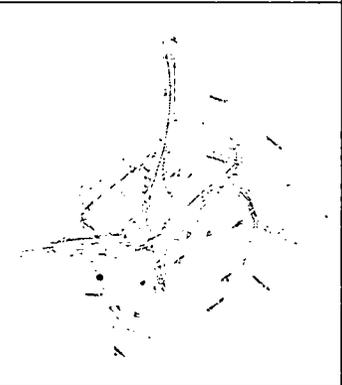


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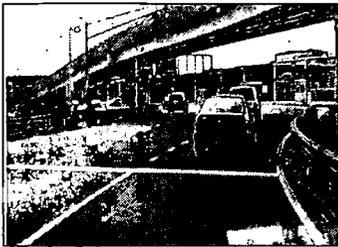
Location	R3-04A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



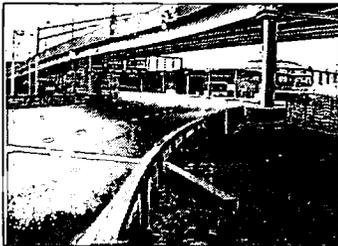
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition to concrete barrier



Side view of BBGR transition to concrete barrier

LOCATION ID	R3-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22). A 6" non-mountable curb exists at this location Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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Location	R3-05
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



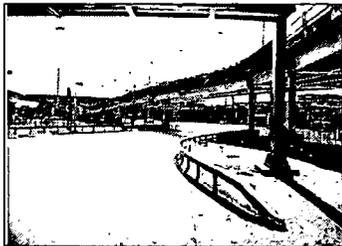
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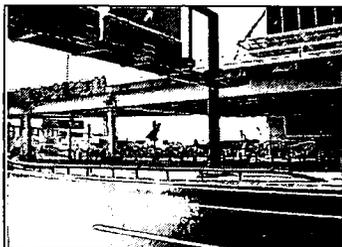
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R3-05A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II leading end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	<p>Good condition; installed as per standard, within acceptable height variation. A 6" non-mountable curb exists at this location. Type II leading end section is no longer approved for new installations, but can remain in place in low speed (< 45 mph) areas, but should be replaced with Type IIA end section. Overhead sign support column is not fully protected by BBGR which does not extend to point of need</p> <p>Meets NCHRP 350, TL-3</p>
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Extend box beam guiderail to point of need and replace Type II leading end section with Type IIA end section. Non-mountable curb can remain in place if new leading end section is flared at least 10 ft from curb <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$5,600 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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Location	R3-05A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	POOR



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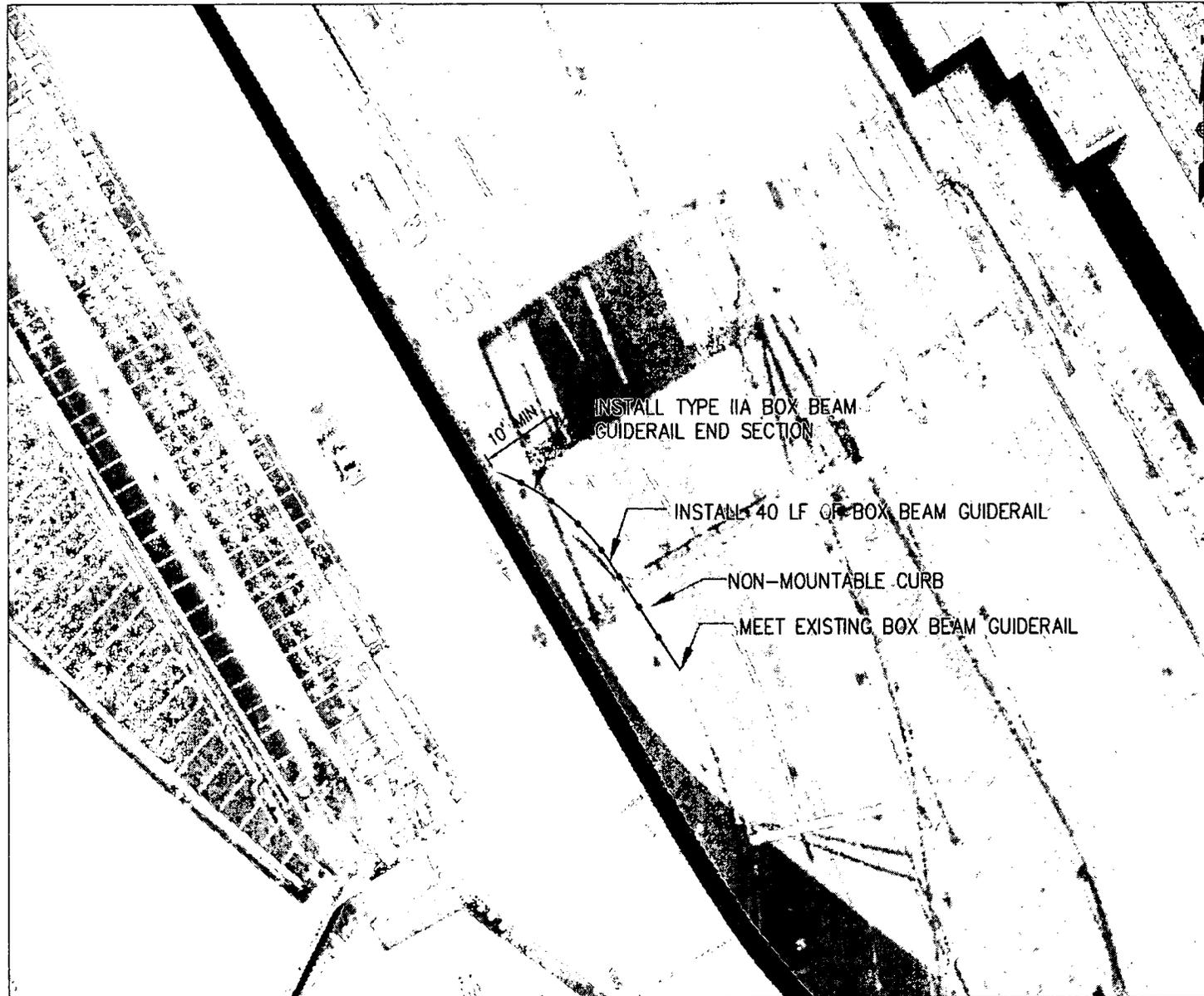
**Roadside Safety
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Conceptual Plan**

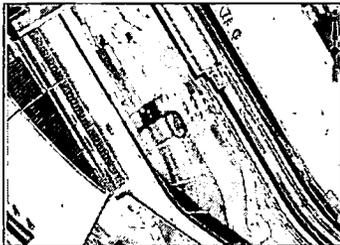
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Location	R3-05A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	POOR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R3-05B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II leading end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Type II leading end section, although not approved for new installations, can remain as it is adequately flared from road and in low speed (<45 mph) area. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Continue with routine maintenance <p>Long Term:</p> <ul style="list-style-type: none"> Replace non-mountable curb at leading end with mountable curb
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$0 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$2,000



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Location	R3-05B
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	GOOD



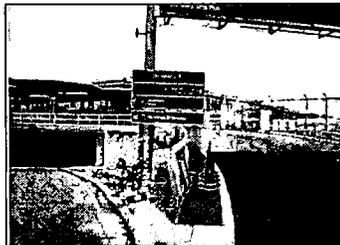
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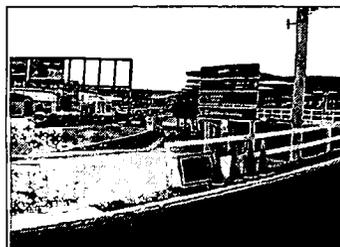
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Front view of steel bridge railing



Side view of steel bridge railing

LOCATION ID	R3-06A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S - Bridge rail blunt end/spearing, steep drop-off
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	There is a post/rail leaning back and connection at base is broken as result of impact. A 4" non-mountable curb exists at this location. Exposed end of railing /parapet could impale occupants if impacted and unknown if railing meets current design standards
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install crash cushion device meeting minimum NCHRP 350 TL-2 standards, in front of railing/remove existing non-mountable curb and re-grade as necessary to install crash cushion in accordance with manufacturer's recommendations <p>Long Term:</p> <ul style="list-style-type: none"> Install bridge railing meeting current design standards with appropriate approach end configuration
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$18,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$25,000 (Add'l)



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Location	R3-06A
Device	NONE
RSA Priority Level	CRITICAL



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Conceptual Plan
 (Not to Scale)

Location	R3-06A
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Device	NONE
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RSA Priority Level	CRITICAL
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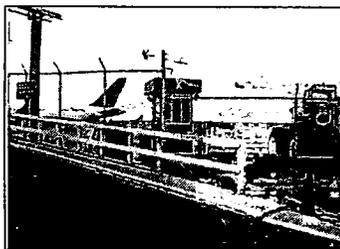
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Front view of W section steel bridge railing



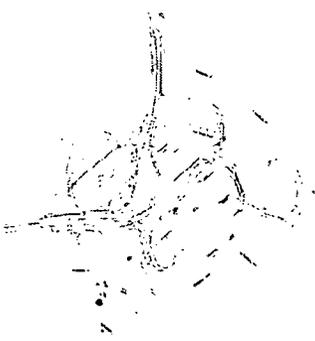
Side view of W section steel bridge railing

LOCATION ID	R3-06B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Bridge rail blunt end/spearing, steep drop-off, building structure
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	A 4" non-mountable curb exists at this location. Exposed end of railing /parapet could impale occupants if impacted, vehicles could impact building structure, and unknown if railing meets current design standards
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install crash cushion device meeting minimum NCHRP 350 TL-2 standards, in front of railing/ remove existing non-mountable curb and re-grade as necessary to install crash cushion in accordance with manufacturer's recommendations <p>Long Term:</p> <ul style="list-style-type: none"> Install bridge railing meeting current design standards with appropriate approach end configuration
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$18,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$37,500 (Add'l)



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Location	R3-06B
Device	NONE
RSA Priority Level	CRITICAL



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(Not to Scale)

Location

R3-06B

Device

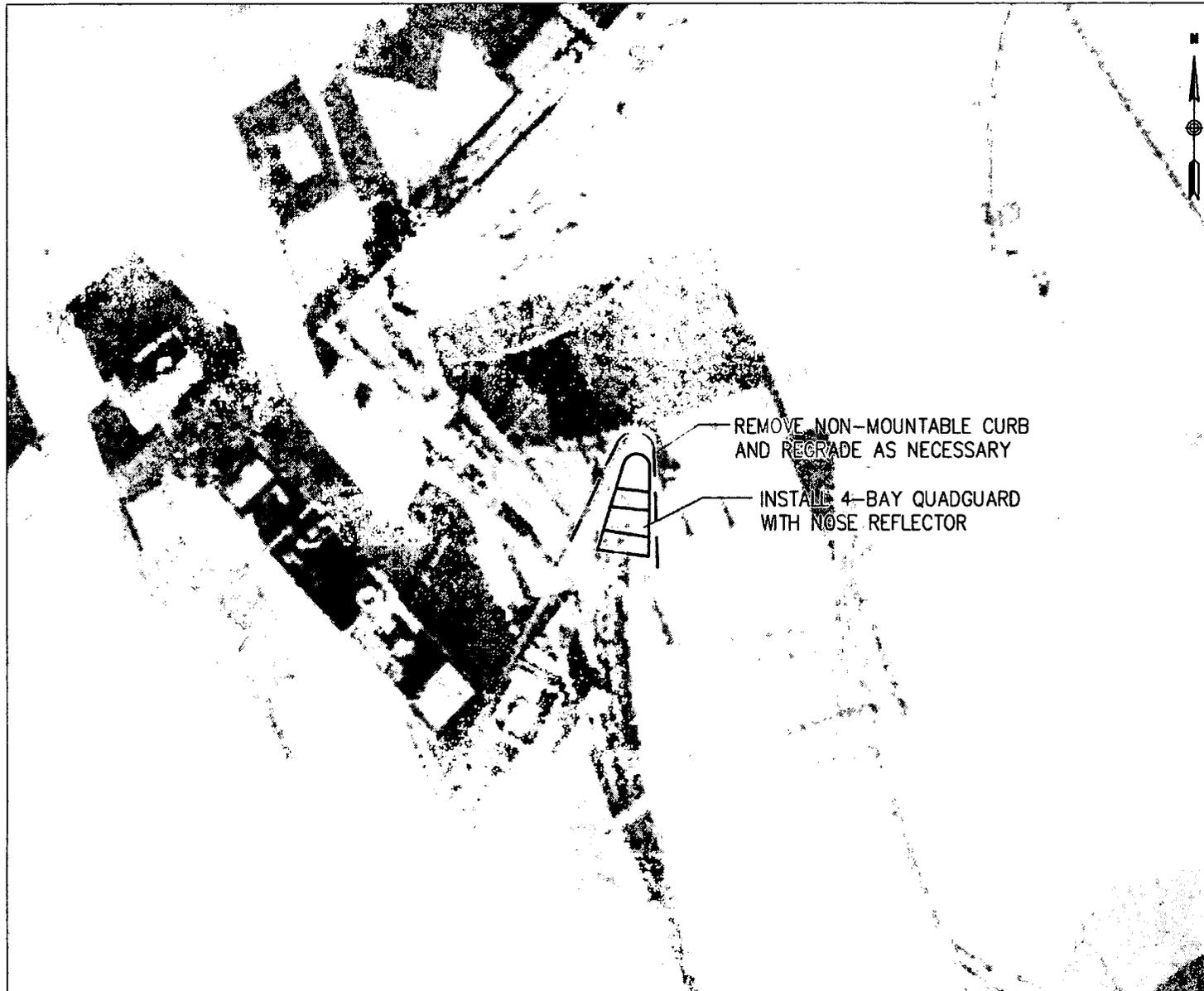
NONE

**RSA Priority
Level**

CRITICAL

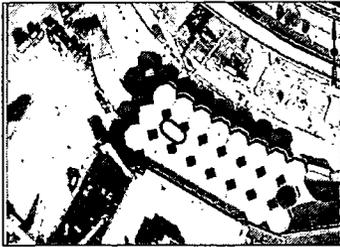


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REMOVE NON-MOUNTABLE CURB
AND REGRADE AS NECESSARY

INSTALL 4-BAY QUADGUARD
WITH NOSE REFLECTOR



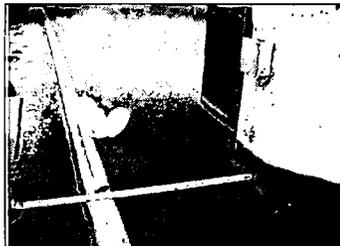
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Left side roof support column @ T-2



Right side roof support column

LOCATION ID	R3-06C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 - 16 feet
ROADSIDE HAZARD	L/S - Roof support columns in terminal area (typical)
ROADSIDE SAFETY DEVICE	4 - 6 inch non-mountable curb
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	In the terminal areas, which are similar to local urban streets/developed areas, have low operating speeds and non-mountable curbs, the width of the clear zone should provide a minimum of 18", but preferred minimum is 3 ft. Columns are typically spaced > 18" from curb, but less than 3 ft desirable
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Continue with routine maintenance <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$0 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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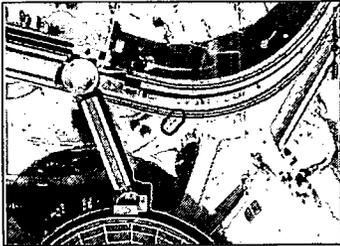


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Location	R3-06C
Device	4 - 6" High Non-Mountable Curb
RSA Priority Level	GOOD



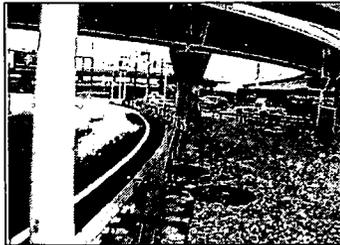
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R3-06E
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR. Type II end section is no longer approved for new installations, but can remain in place in low speed (< 45 mph) areas. However, if lateral offset distance is available, replace terminal with NYSDOT Type IIA end section; if not, replace with Type III end section Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace Type II end section with Type III end section as part of future safety/construction improvement project/remove non-mountable curb in vicinity of new end section as necessary to meet manufacturer's recommendations
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$7,900



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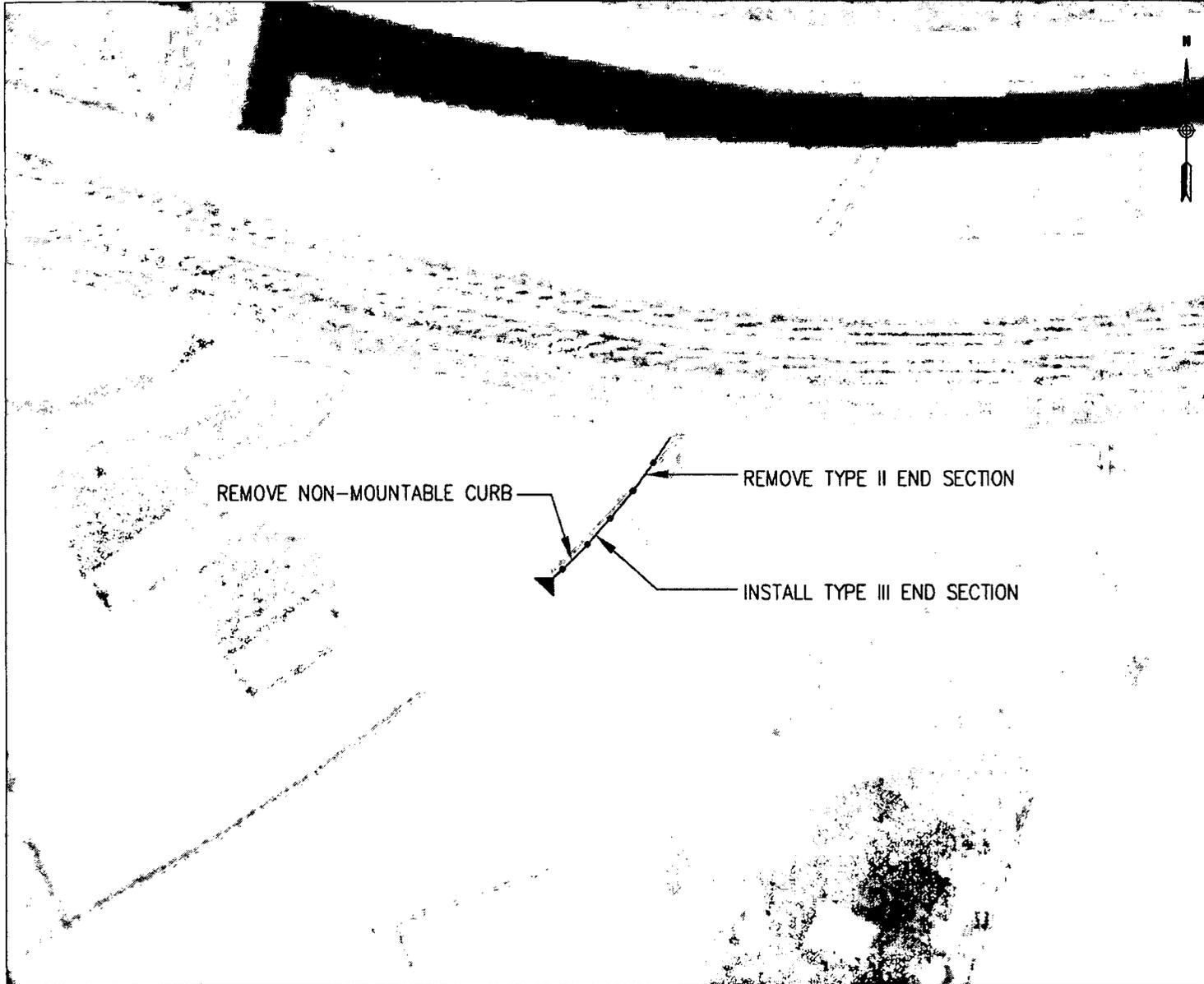


**Roadside Safety
Audit**

Location	R3-06E
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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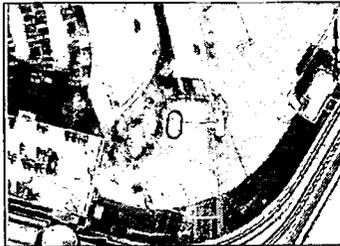
**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location	R3-06E
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected OHS post



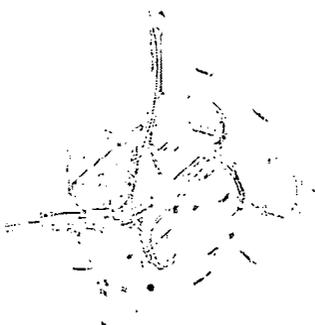
General view of unprotected OHS post

LOCATION ID	R3-06F
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support column
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Although the support column is on the inside part of roadway curve, it is 13'-2" from edge of pavement and represents an unprotected fixed object within the clear zone. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Design and install box beam guiderail to protect overhead sign support column <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$8,400 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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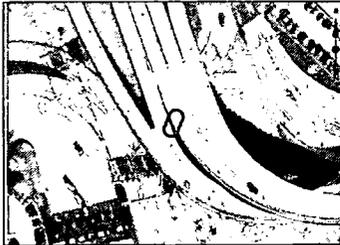


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Location	R3-06F
Device	NONE
RSA Priority Level	CRITICAL



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section



Side view of BBGR transition section

LOCATION ID	R3-07
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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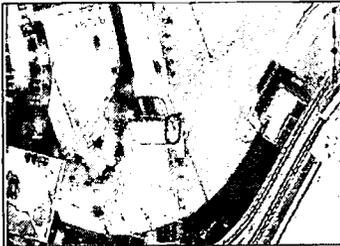


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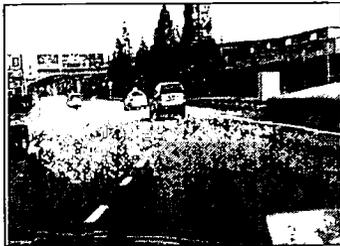
Location	R3-07
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R3-07A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Equipment cabinets, trees/landscaping
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R3-07A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



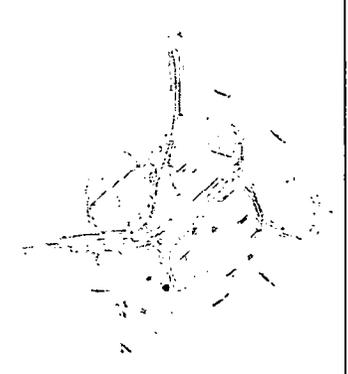
Side view of BBGR

LOCATION ID	R3-07B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support posts
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end section at/beyond required off-set from roadway Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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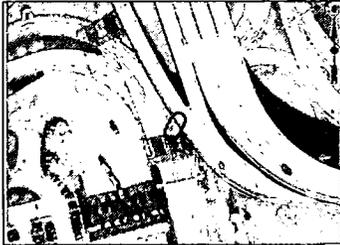


**Roadside Safety
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Location	R3-07B
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R3-07C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end section offset within acceptable limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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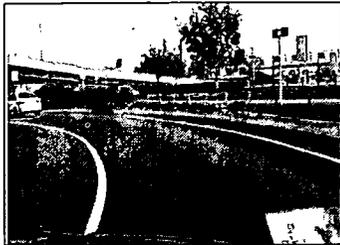
Location	R3-07C
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR



View of BBGR at narrowest point

LOCATION ID	R3-07D
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Narrow median of opposing traffic, with rear of box beam guiderail/posts facing traffic
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Box beam guiderail in place is to protect other direction from cross-over, but exposes rear of guiderail and posts to approaching traffic from other direction. If impacted in rear BBGR will not function as intended. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Design and install additional BBGR at narrow median for approaching traffic, or remove and replace BBGR with NYSDOT median type BBGR used between opposing traffic streams <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$10,450 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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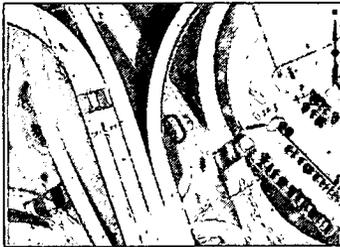


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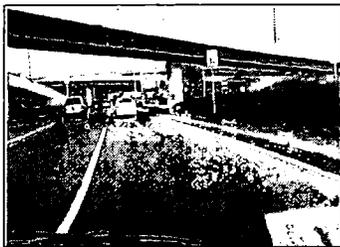
Location	R3-07D
Device	NONE
RSA Priority Level	CRITICAL



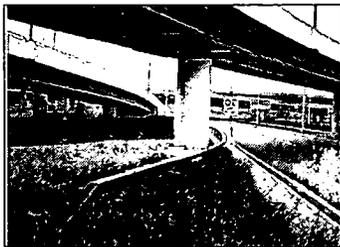
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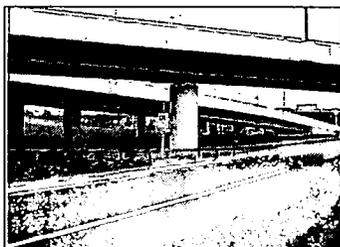
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R3-07E
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end section offset within acceptable limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

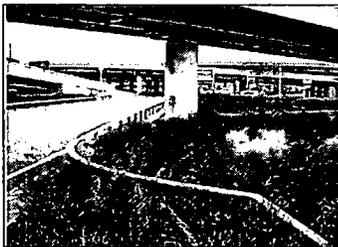
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<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R3-07E
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD
 <p>Engineering, Surveying and Landscape Architecture, P.C.</p>	



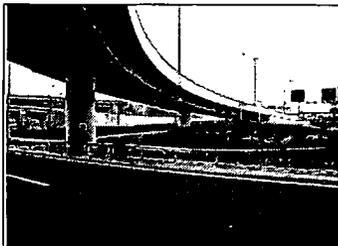
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R3-07F
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end section offset within acceptable limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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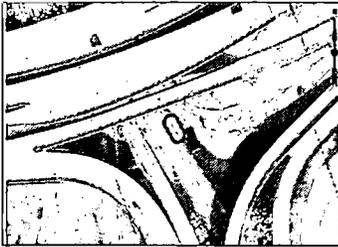


**Roadside Safety
Audit**

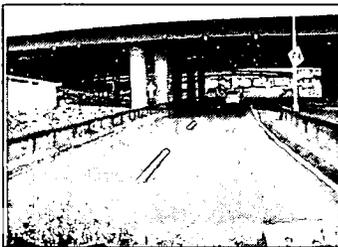
Location	R3-07F
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



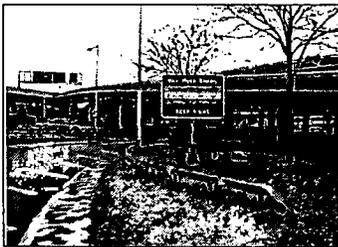
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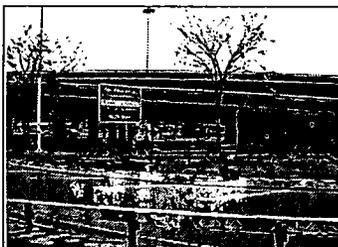
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R3-07G
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns, drop-off
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end section offset within acceptable limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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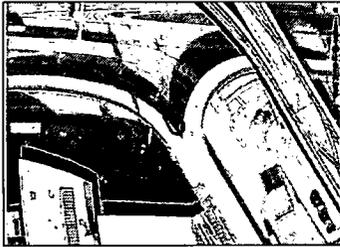


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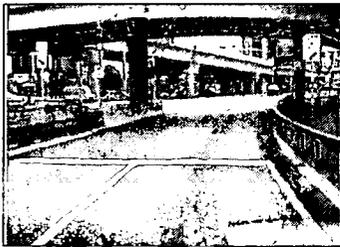
Location	R3-07G
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR



Side view of BBGR transition to concrete barrier

LOCATION ID	R3-08
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at pier column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. The transition unit will provide needed protection, but post configuration along transition assembly and lack of “block-outs” does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22). A 6” mountable curb exists at this location Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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Location	R3-08
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R4-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete bridge barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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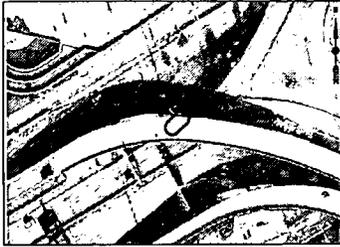


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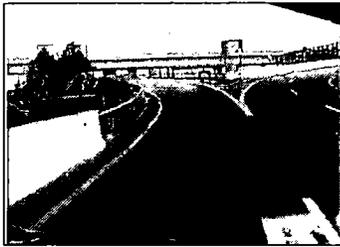
Location	R4-01
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



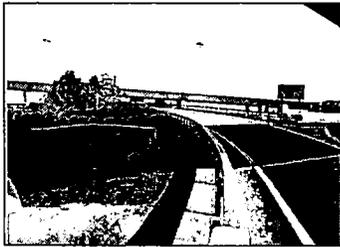
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R4-01A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Steep drop-off, trees/shrubs
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R4-01A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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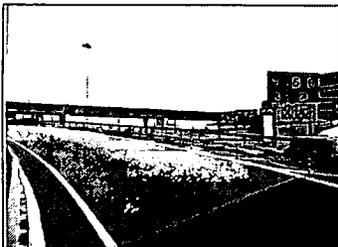
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R4-01B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Steep drop-off
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete pad for crash cushion
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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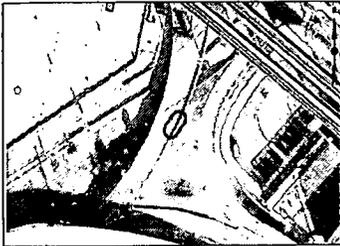


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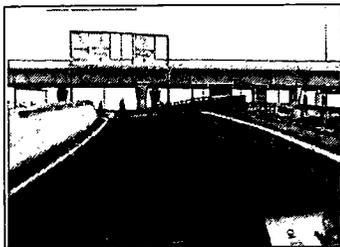
Location	R4-01B
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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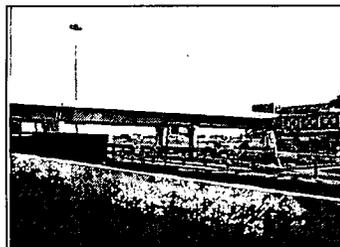
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section

LOCATION ID	R4-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYS DOT BBGR transition to concrete barrier standard (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYS DOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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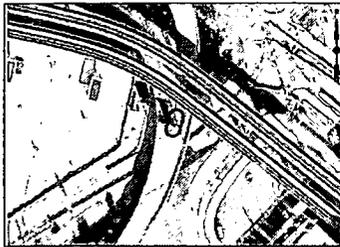


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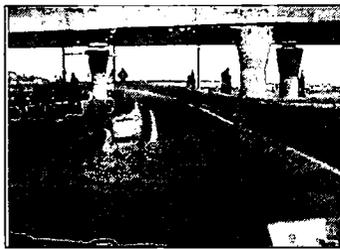
Location	R4-02
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



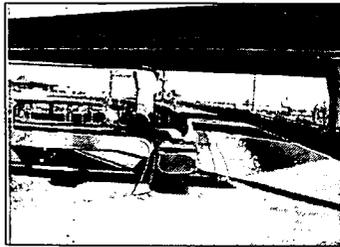
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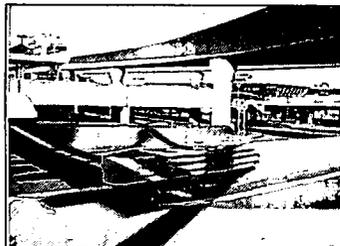
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R4-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier in gore area of diverging roads
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, nose and rear bay cartridges loose, and need to be reset. Unit installed flush to pavement as per specifications. All components in place and functional. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Reset loose cartridges and install reflective sheeting on nose Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$750 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R4-03
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of unprotected end of concrete barrier



Protruding approach end of concrete barrier

LOCATION ID	R4-03A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Mismatched concrete barrier profiles leave 5-6" protrusion that vehicles can impact at the start of concrete bridge barrier
ROADSIDE SAFETY DEVICE	Concrete barrier section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Protrusion presents blunt end that vehicles can impact or snag
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Modify face of barrier with polymer concrete "overlay" to eliminate protrusion <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Replace concrete barrier (30 l.f.) on retaining wall supporting roadway
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$7,500 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$45,000 (Add'l)



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**Roadside Safety
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Location	R4-03A
Device	Concrete Barrier
RSA Priority Level	POOR



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**Roadside Safety
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Conceptual Plan**

(Not to Scale)

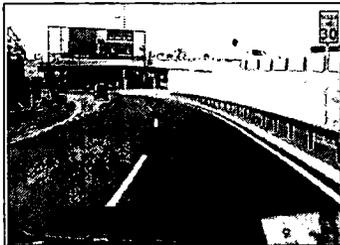
Location	R4-03A
Device	Concrete Barrier
RSA Priority Level	POOR



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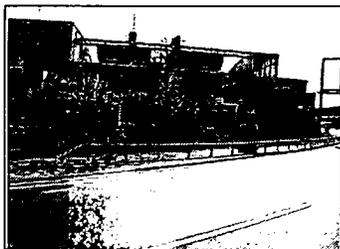
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R4-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Equipment cabinet, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard and within acceptable height variation. A 6" mountable curb exists along BBGR. The end section is within clear zone (10 ft from edge line), and equipment cabinet is within 5 ft deflection distance of BBGR (3'-7") with its standard post spacing of 6 ft Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Follow NYSDOT standards, install additional back up posts at half spacing (3 ft) in vicinity of equipment cabinet to limit deflection to 4 ft Add NYSDOT Type I end assembly extension piece which will move end section an additional 6 ft away from roadway <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$4,100 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R4-04
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR



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**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location

R4-04

Device

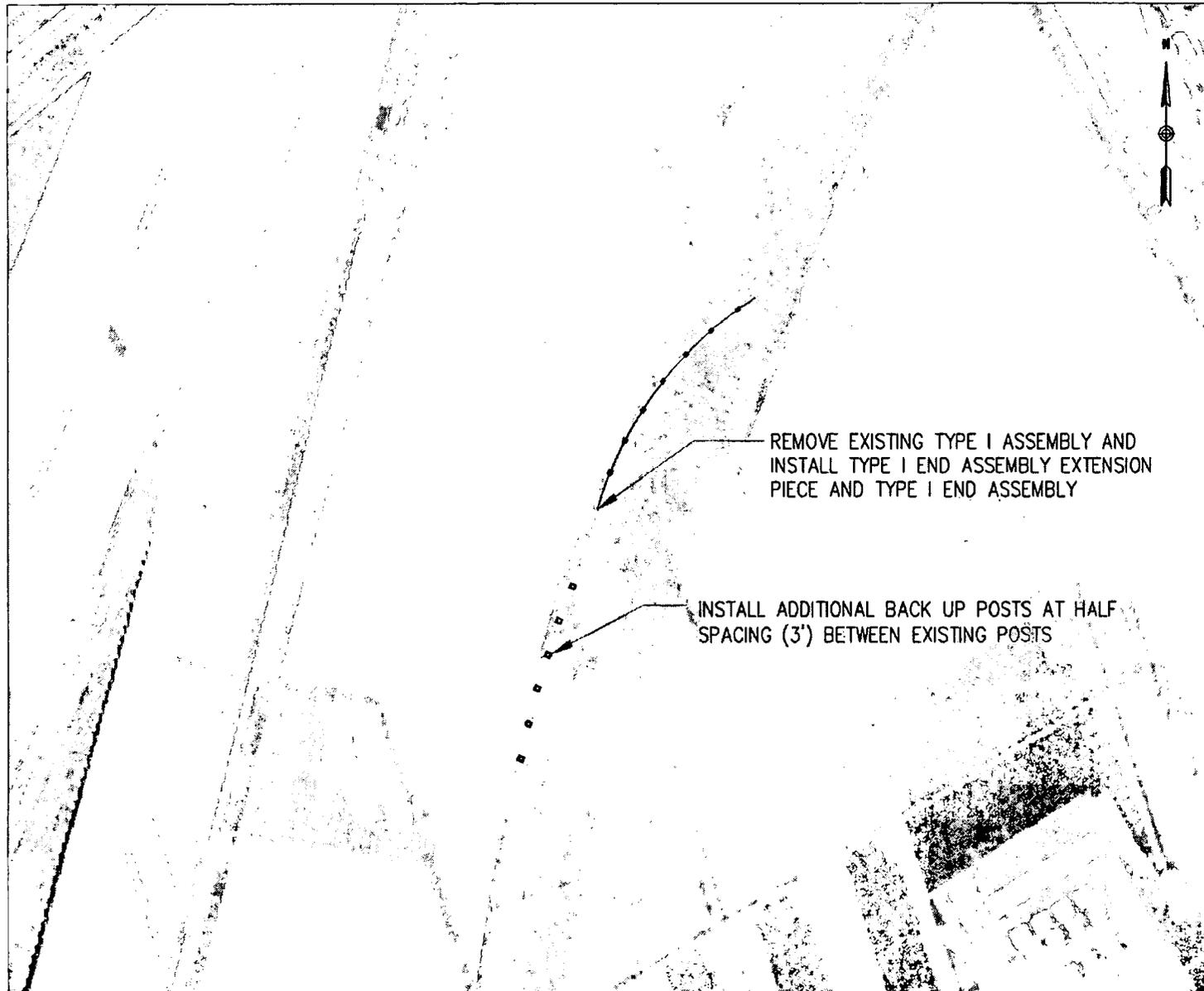
Box Beam Guiderail
with Type I End
Terminal

**RSA Priority
Level**

FAIR



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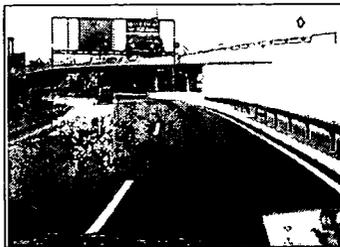


REMOVE EXISTING TYPE I ASSEMBLY AND
INSTALL TYPE I END ASSEMBLY EXTENSION
PIECE AND TYPE I END ASSEMBLY

INSTALL ADDITIONAL BACK UP POSTS AT HALF
SPACING (3') BETWEEN EXISTING POSTS



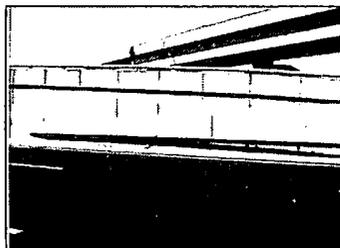
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of BBGR along rail



Side view of BBGR

LOCATION ID	R4-04A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at bridge wing wall
ROADSIDE SAFETY DEVICE	Single tapered box beam rail section with block-outs (spacers)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	A 6" mountable curb exists along BBGR. Unique configuration appears to adequate transition from BBGR to concrete barrier Not tested to NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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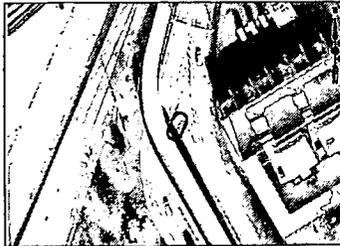


**Roadside Safety
Audit**

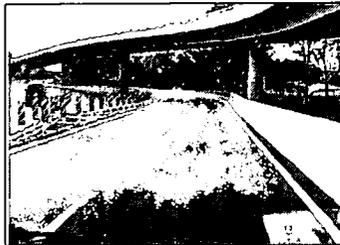
Location	R4-04A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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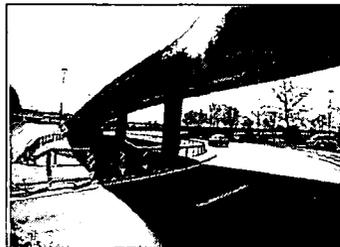
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



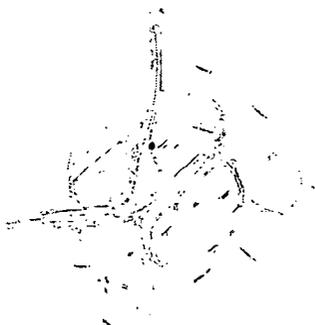
Side view of BBGR

LOCATION ID	R4-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end section offset within acceptable limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

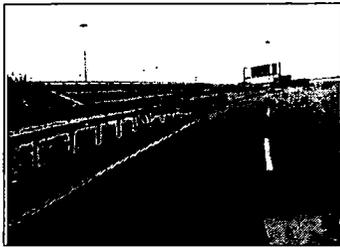
Location	R4-05
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

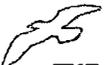


General view of BBGR along rail



Side view of BBGR

LOCATION ID	R4-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at overpass
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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Location	R4-06
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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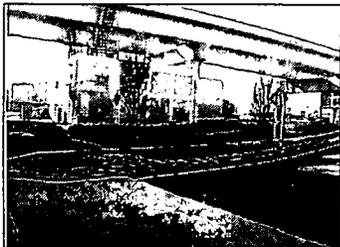
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R4-07
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II leading end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type II leading end section is no longer approved for new installations, but can remain in place in low speed (< 45 mph) areas. However, offset of end piece is within clear zone (9'-6") Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Replace Type II leading end section with NYSDOT Type IIA end section which provides greater lateral off set distance Long Term: <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$1,500 Long Term Recommendation: <ul style="list-style-type: none"> \$0



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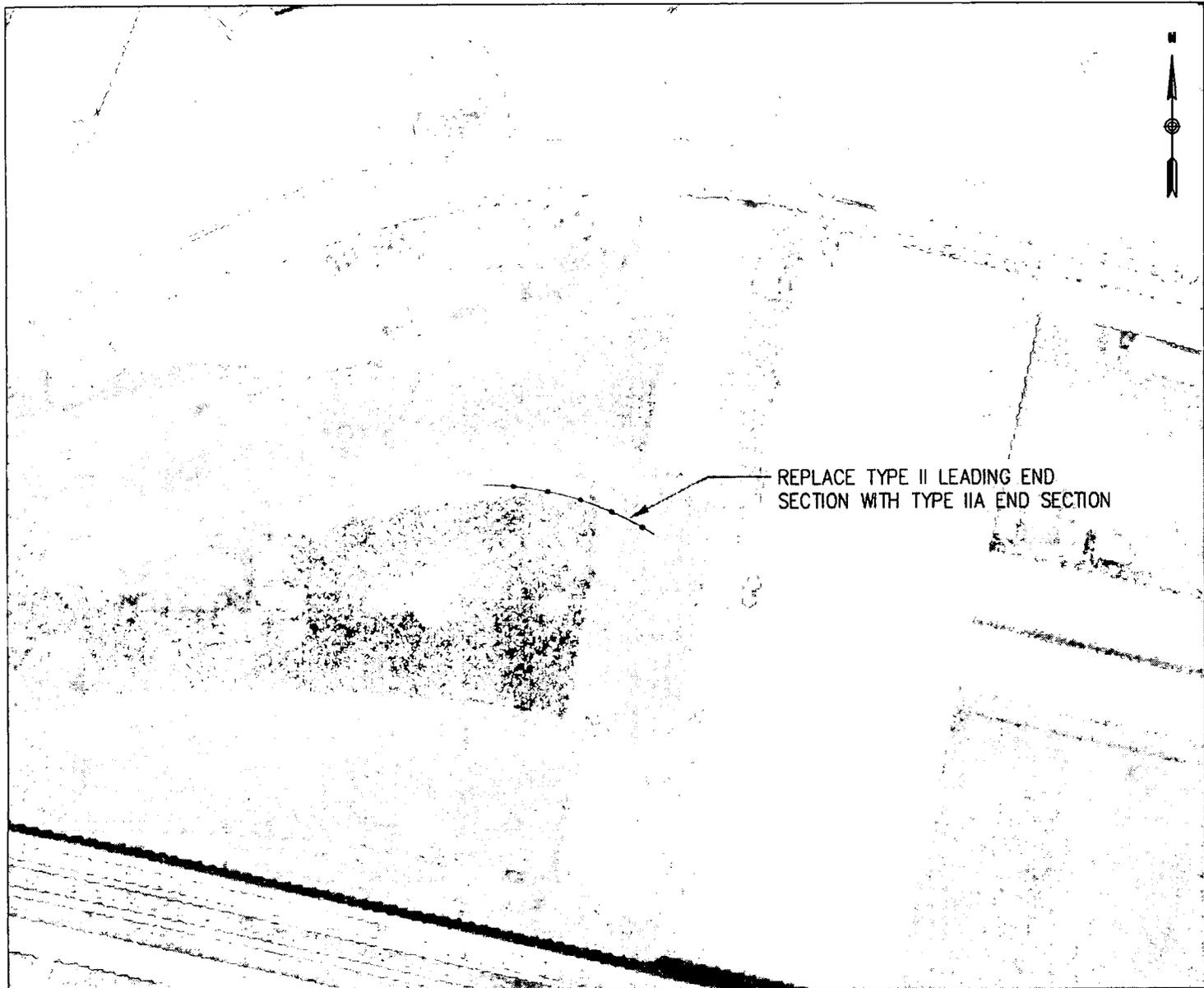


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Location	R4-07
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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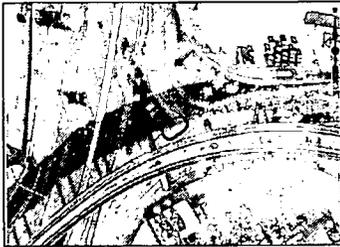
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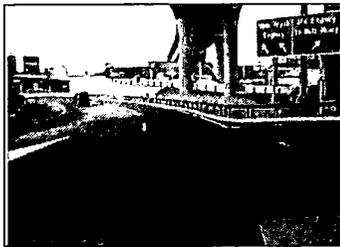
**Roadside Safety
 Audit
 Conceptual Plan**
 (Not to Scale)

Location	R4-07
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR


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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR



Side view of BBGR

LOCATION ID	R4-08
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns, sign supports
ROADSIDE SAFETY DEVICE	Box beam guiderail
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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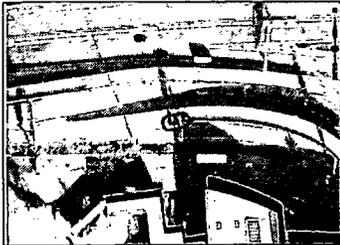


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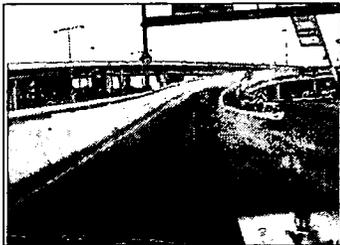
Location	R4-08
Device	Box Beam Guiderail
RSA Priority Level	GOOD



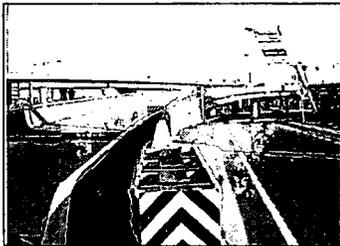
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator

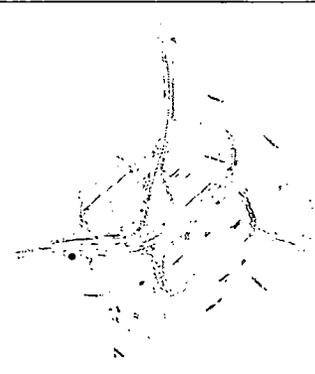


Side view of Quadguard impact attenuator

LOCATION ID	R5-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 ft
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush to pavement as per specifications. All components in place and fully functional. Reflective panel on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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**Roadside Safety
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Location	R5-01
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



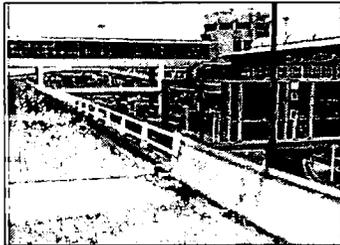
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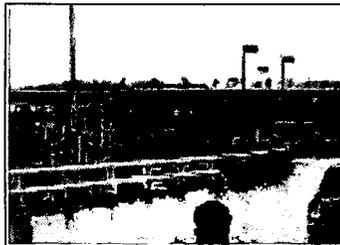
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of transition



Side view of transition

LOCATION ID	R5-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Transition from tubular bridge rail to concrete barrier
ROADSIDE SAFETY DEVICE	None
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Vehicles can become snagged by concrete barrier and/or bridge rails system may deflect and expose vehicles to blunt end of concrete barrier with a severe impact. A 6" non-mountable curb exists at this location
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Continue with routine maintenance <p>Long Term:</p> <ul style="list-style-type: none"> Replace portion of existing 2-rail tubular railing with bridge rail-to-barrier transition which meets NCHRP 350 criteria. Custom transition required to connect existing and new rail segments
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$0 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$20,000 (Add'l)



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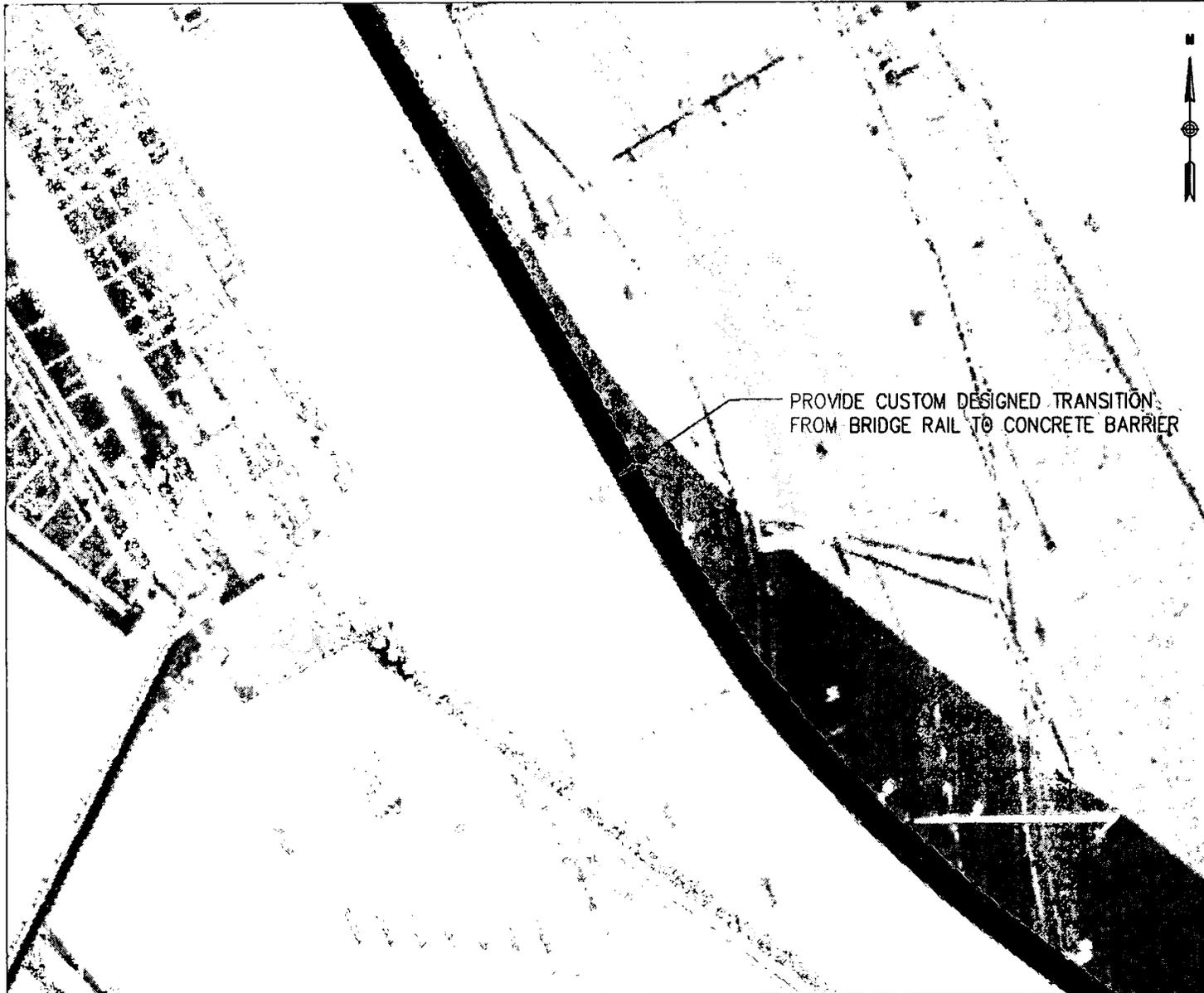


**Roadside Safety
Audit**

Location	R5-02
Device	NONE
RSA Priority Level	POOR



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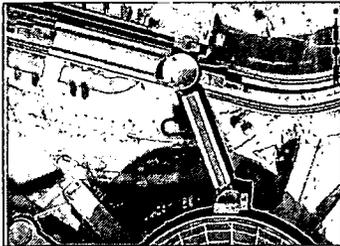
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Audit
Conceptual Plan**
(Not to Scale)

Location	R5-02
Device	NONE
RSA Priority Level	POOR

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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected equipment cabinet



General view of unprotected equipment cabinet

LOCATION ID	R5-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Equipment cabinet
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Equipment cabinet is within 6 ft of yellow edge line and within 4 ft of mountable curb. Foundation for cabinet extends > 4" above grade and will cause vehicles to snag. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Relocate equipment cabinet beyond clear zone <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$11,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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Location	R5-03
Device	NONE
RSA Priority Level	CRITICAL

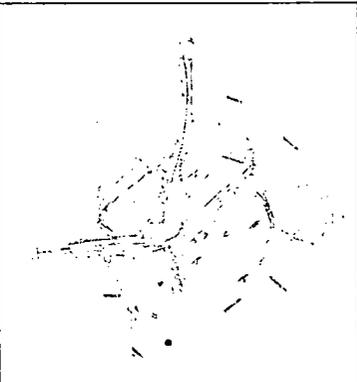


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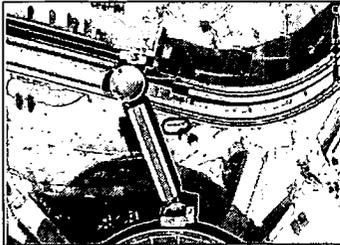
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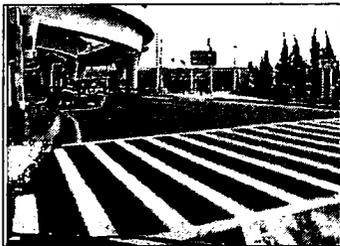
**Roadside Safety
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Conceptual Plan**
 (Not to Scale)

Location	R5-03
Device	NONE
RSA Priority Level	CRITICAL


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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R5-03A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 - 16 feet
ROADSIDE HAZARD	L/S - Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
CRASH HISTORY	None evident at time of inspection
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. End terminal adequately flared from road/travel way. A 6" mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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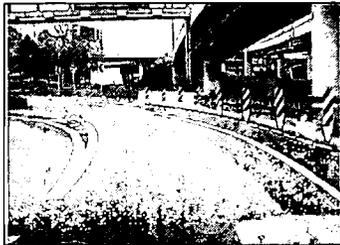
Location	R5-03A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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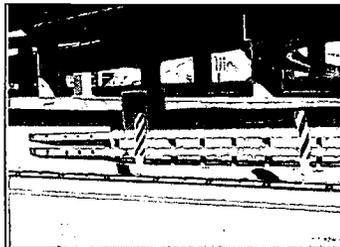
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

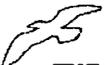


General view of BBGR transition section along rail



Side view of BBGR transition section to concrete barrier

LOCATION ID	R6-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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Location	R6-01
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



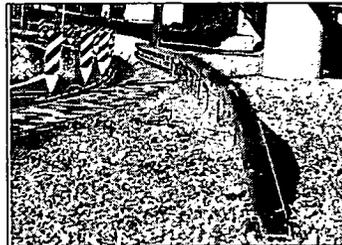
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

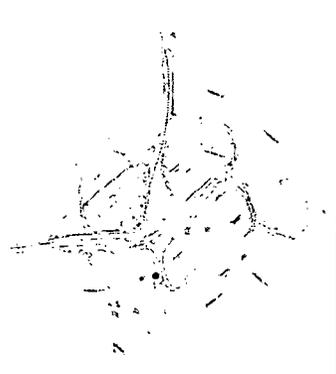


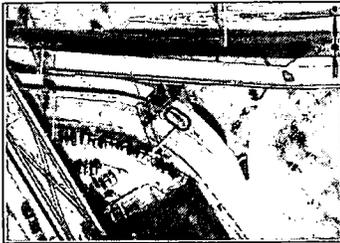
General view of BBGR Type II end section



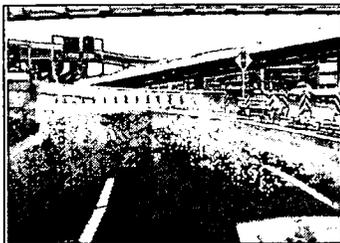
Side view of BBGR Type II end section

LOCATION ID	R6-01A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type II end section is no longer approved for new installations, but can remain in place in low speed (< 45 mph) areas. Lateral offset distance of end section is satisfactory Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

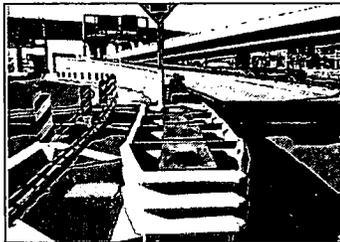
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<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R6-01A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	GOOD
 <p>Engineering, Surveying and Landscape Architecture, P.C.</p>	



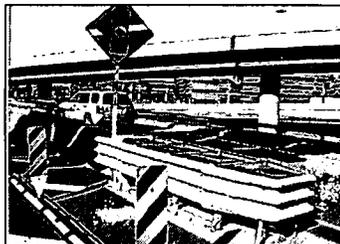
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R6-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush to pavement as per specifications. All components in place and fully functional. Unit is missing reflectorized panel on nose section Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install reflectorized panel on nose section for improved visibility • Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$175 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$0



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Location	R6-02
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



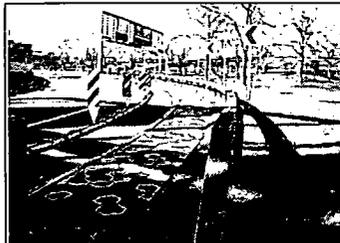
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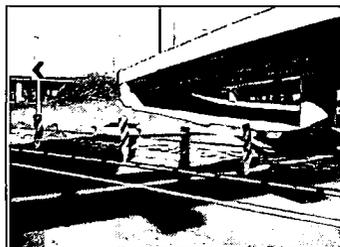
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR Type I end section

LOCATION ID	R6-02A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Pier columns, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section beginning behind concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end terminal starts behind concrete barrier at pier column and cannot be impacted Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Audit**

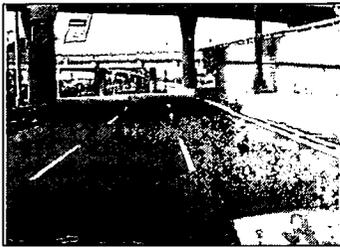
Location	R6-02A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section along rail



Side view of BBGR transition section to concrete barrier

LOCATION ID	R6-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at pier columns
ROADSIDE SAFETY DEVICE	Box beam transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	<p>Good condition; all components installed within acceptable height variation. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet M606-32). A 6" mountable curb exists at this location</p> <p>Not tested under NCHRP 350 criteria</p>
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$8,000



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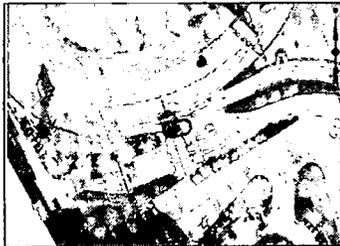


**Roadside Safety
Audit**

Location	R6-03
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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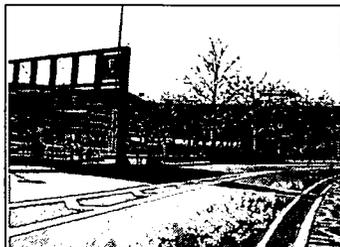
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

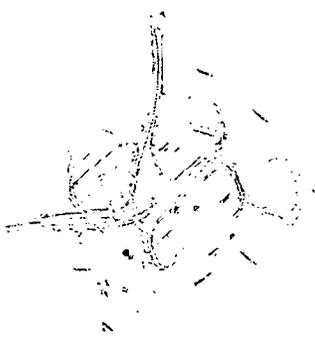


General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R6-03A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Parking lot entrance structure support columns, equipment cabinet, trees
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II leading end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR. Type II leading end section is no longer approved for new installations, but can remain in place in low speed (< 45 mph) areas, but should be replaced with Type III end section. Also, structure support column is not fully protected by BBGR which does not extend to point of need Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Extend box beam guiderail to point of need and replace Type II leading end section with Type III end section Long Term: <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$6,700 Long Term Recommendation: <ul style="list-style-type: none"> \$0

	
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Roadside Safety Audit	
Location	R6-03A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	POOR
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**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location

R6-03A

Device

**Box Beam Guiderail
with Type II End
Terminal**

**RSA Priority
Level**

POOR



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REMOVE EXISTING TYPE II END SECTION

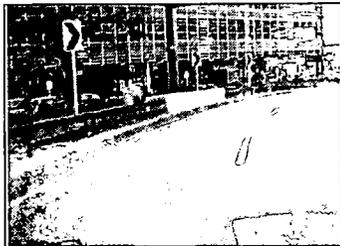
INSTALL TYPE III END SECTION

INSTALL BOX BEAM GUIDERAIL

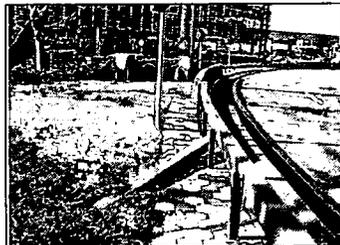
MEET EXISTING BOX BEAM GUIDERAIL



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section along rail



Side view of BBGR transition section to concrete barrier

LOCATION ID	R6-03B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at over head sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet M606-32) Not tested under NCHRP 350 criteria.
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue with routine maintenance Long Term: <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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Audit**

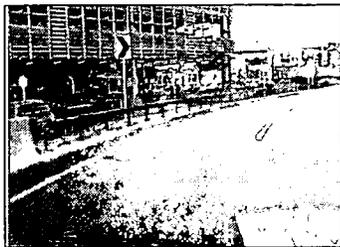
Location	R6-03B
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



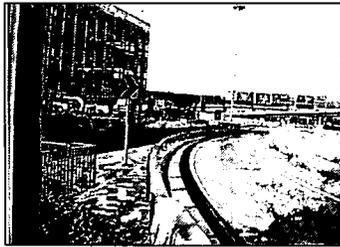
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R6-03C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Narrow median between opposing traffic, pier columns, parking area
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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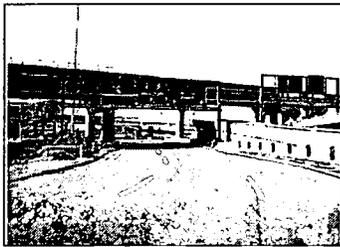
Location	R6-03C
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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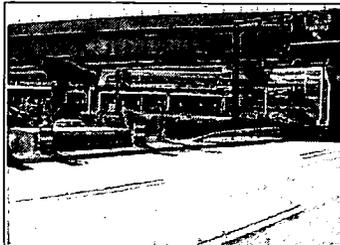
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR Type II end section along curb line



Side view of BBGR Type II end section

LOCATION ID	R6-03D
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns, concrete vault (under construction)
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	A 6" mountable curb exists along BBGR. Guiderail is in good condition but Type II end section is no longer approved for new installations. Vault under construction poses a blunt end to vehicles and should be protected from impact. Safety condition is poor, but will be critical once construction completed and construction barrels/fence/other devices removed and vault exposed
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> • New BBGR was recently installed under Contract JFK-997 Backflow Prevention Devices and Water Meter Upgrades Phase III • Continue routine maintenance <p>Long Term:</p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> • \$0 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> • \$0



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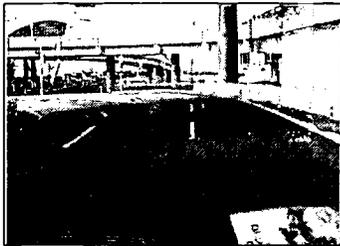
Location	R6-03D
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	POOR



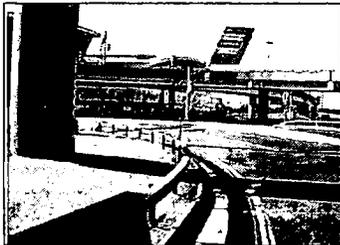
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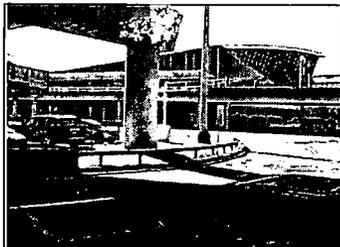
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R6-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns, lighting foundations
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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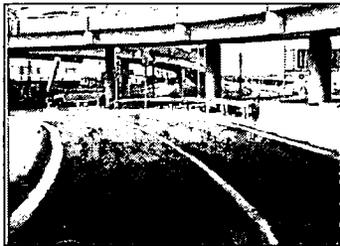
Location	R6-04
Device	Box Beam Guiderail
RSA Priority Level	GOOD



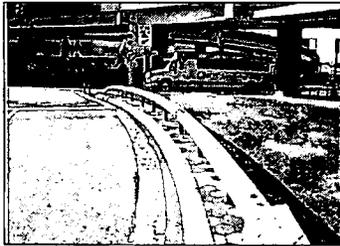
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



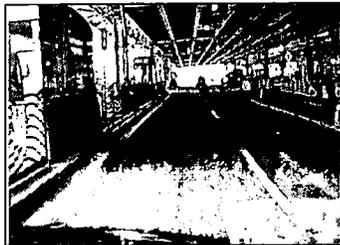
Side view of BBGR

LOCATION ID	R6-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns, rear of BBGR from converging road
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

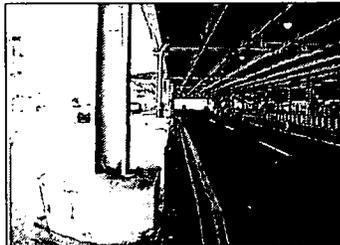
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<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R6-05
Device	Box Beam Guiderail
RSA Priority Level	GOOD
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of typical steel columns along airport terminal



Typical separation from curb line of steel columns along airport terminal

LOCATION ID	R6-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Concrete encased steel superstructure column bases (length of terminal)
ROADSIDE SAFETY DEVICE	NONE - other than 6" non-mountable curb
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	6" non-mountable curb is OK in low speed areas such as the terminal area; however, columns footings and security booth are within 18" minimum offset distance from curb face
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Under low speed conditions in terminal area, no remedial action is necessary <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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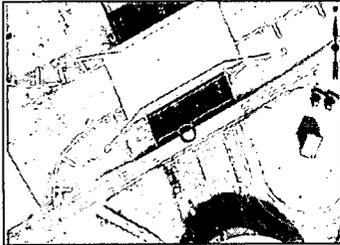


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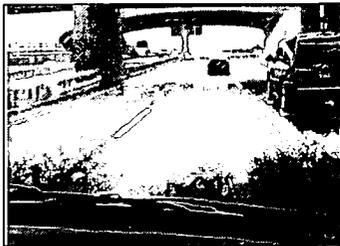
Location	R6-06
Device	6" Non-Mountable Curb
RSA Priority Level	POOR



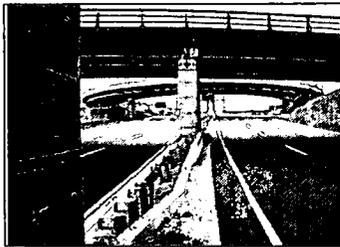
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR protection between pier columns



Side view of BBGR protection between pier columns

LOCATION ID	R7-01
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	L/S – Blunt end of pier face; narrow median cross over hazard
ROADSIDE SAFETY DEVICE	Box beam guiderail transition from guiderail to concrete pier face
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; all components installed within acceptable height variation. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet 606-22). BBGR is greater than 1 ft from a 6" non-mountable curb which can cause vehicles to vault Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace with standard NYSDOT transition unit if damaged/impacted or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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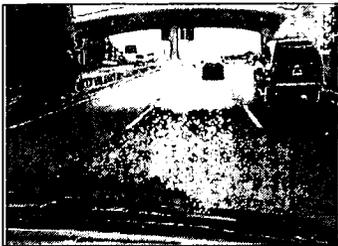
Location	R7-01
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



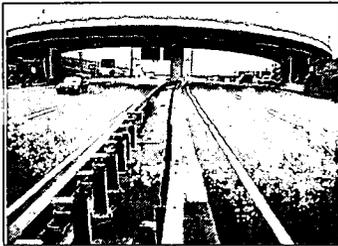
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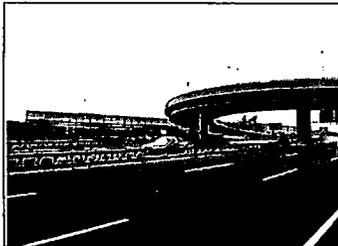
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R7-01A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 -32 feet
ROADSIDE HAZARD	L/S – Narrow median; crossover/head-on collisions
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete bridge pier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. BBGR is installed within 1 foot of 6" to 8" non-mountable curb which is within acceptable limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Box beam guide rail is being replaced under Contract JFK-114.010 Restricted Vehicle Service Road Bridge J8 Replacement project Long Term: <ul style="list-style-type: none"> Continue routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$0



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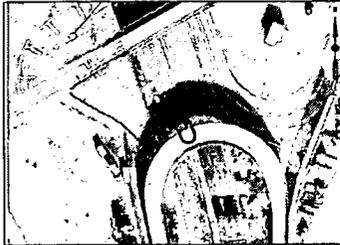


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Location	R7-01A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



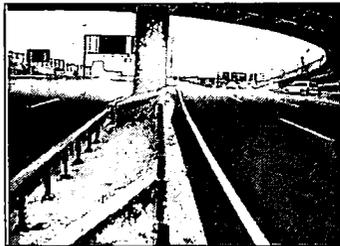
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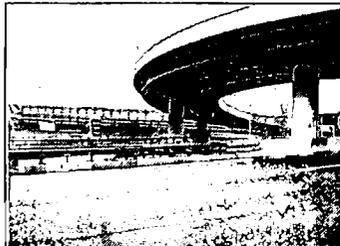
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R7-02
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at pier column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; all components installed within acceptable height variation and within 1 ft of 6" to 8" non-mountable curb. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue routine maintenance Long Term: <ul style="list-style-type: none"> Replace with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000

	
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Roadside Safety Audit	
Location	R7-02
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR
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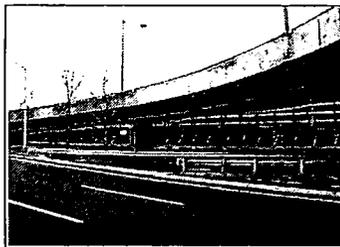
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of W-beam guiderail



Side view of W-beam guiderail

LOCATION ID	R7-02A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	R/S – HPBO guiderail for maintenance ramp/driveway within clear zone can be struck
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	A 6" mountable curb exists at this location. Vehicles can impact steel heavy posts on rear side of HPBO guiderail which faces traffic and is within 9 ft of roadway
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Remove 2 sections of guiderail on left side of maintenance driveway <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$325 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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Location	R7-02A
Device	NONE
RSA Priority Level	CRITICAL



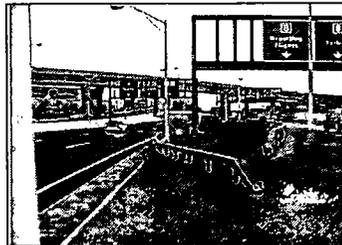
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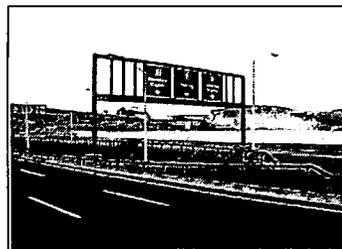
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R7-02B
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	R/S – Overhead sign support columns, pier columns, equipment cabinets
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Both end sections are within clear zone, and equipment cabinets are within deflection distance of BBGR, and within taper. Actual BBGR point of need is from BBGR Type I end section on off-ramp
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Extend BBGR beyond ramp BBGR Type I end section to point of need and install Type III end terminal as median in gore area too narrow for offset flare <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$11,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0

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<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R7-02B
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	POOR
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**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location	R7-02B
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	POOR



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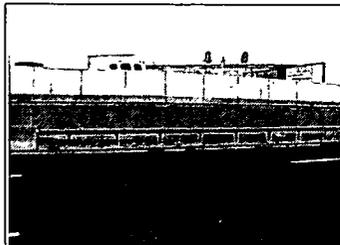
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along roadway edge



Side view of BBGR from concrete barrier

LOCATION ID	R7-02C
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	L/S – Abutment/wing wall of elevated ramp running parallel to roadway
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R7-02C
Device	Box Beam Guiderail
RSA Priority Level	GOOD



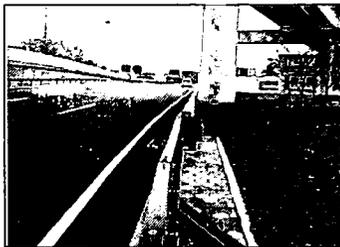
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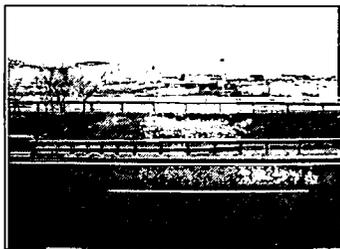
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



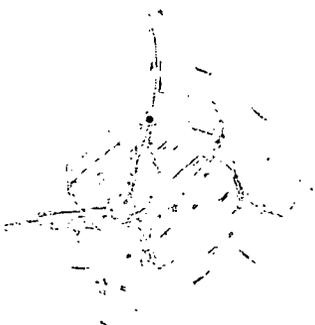
Side view of transition section from BBGR to concrete barrier

LOCATION ID	R7-03
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at pier column
ROADSIDE SAFETY DEVICE	Standard NYSDOT box beam guiderail to single slope half section concrete barrier transition assembly (Standard Sheet M606-32)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along unit Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R7-03
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



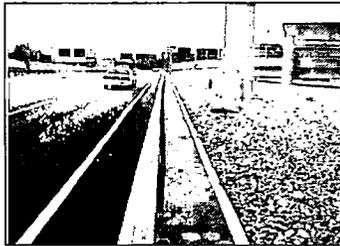
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of transition from concrete barrier to BBGR



Side view of transition from concrete barrier to BBGR

LOCATION ID	R7-03A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	R/S – Pier columns, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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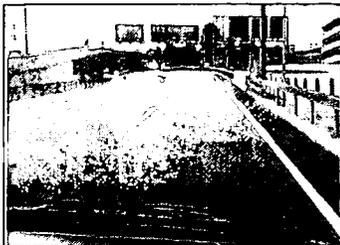
Location	R7-03A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



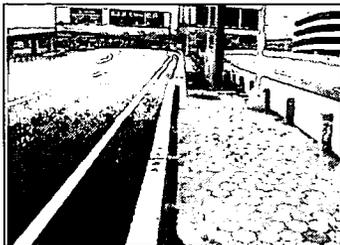
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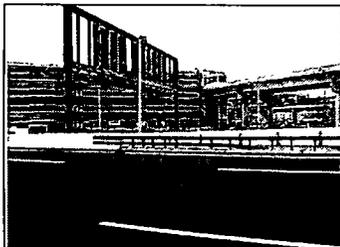
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R7-04
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at overhead sign support columns, equipment cabinets
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; all components installed within acceptable height. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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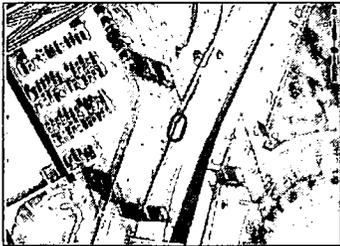


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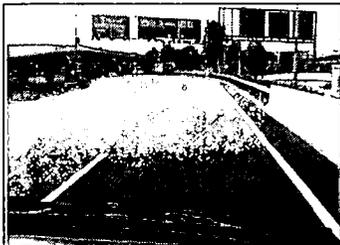
Location	R7-04
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



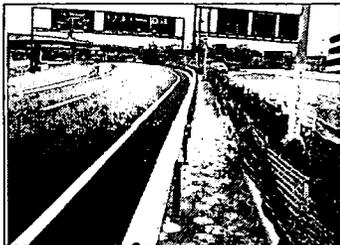
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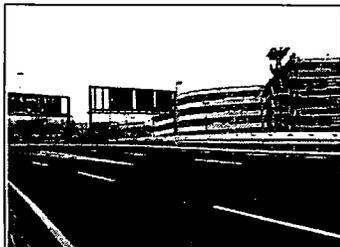
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of transition from concrete barrier to BBGR



Side view of BBGR

LOCATION ID	R7-04A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	R/S – Overhead sign support columns, equipment cabinets, narrow median between opposing traffic
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. The first equipment cabinet from beginning of run is within 5 ft BBGR deflection distance (2'-5') at standard 6 ft post spacing Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Install additional BBGR post at 3 ft centers to reduce deflection distance of existing BBGR on approach to and in front of the first equipment cabinet from beginning of run <u>Long Term:</u> <ul style="list-style-type: none"> Install 40 l.f. of concrete barrier with back-up posts and provide approach and departure transitions from concrete barrier to guiderail
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$2,200 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$20,000 (Add'l)



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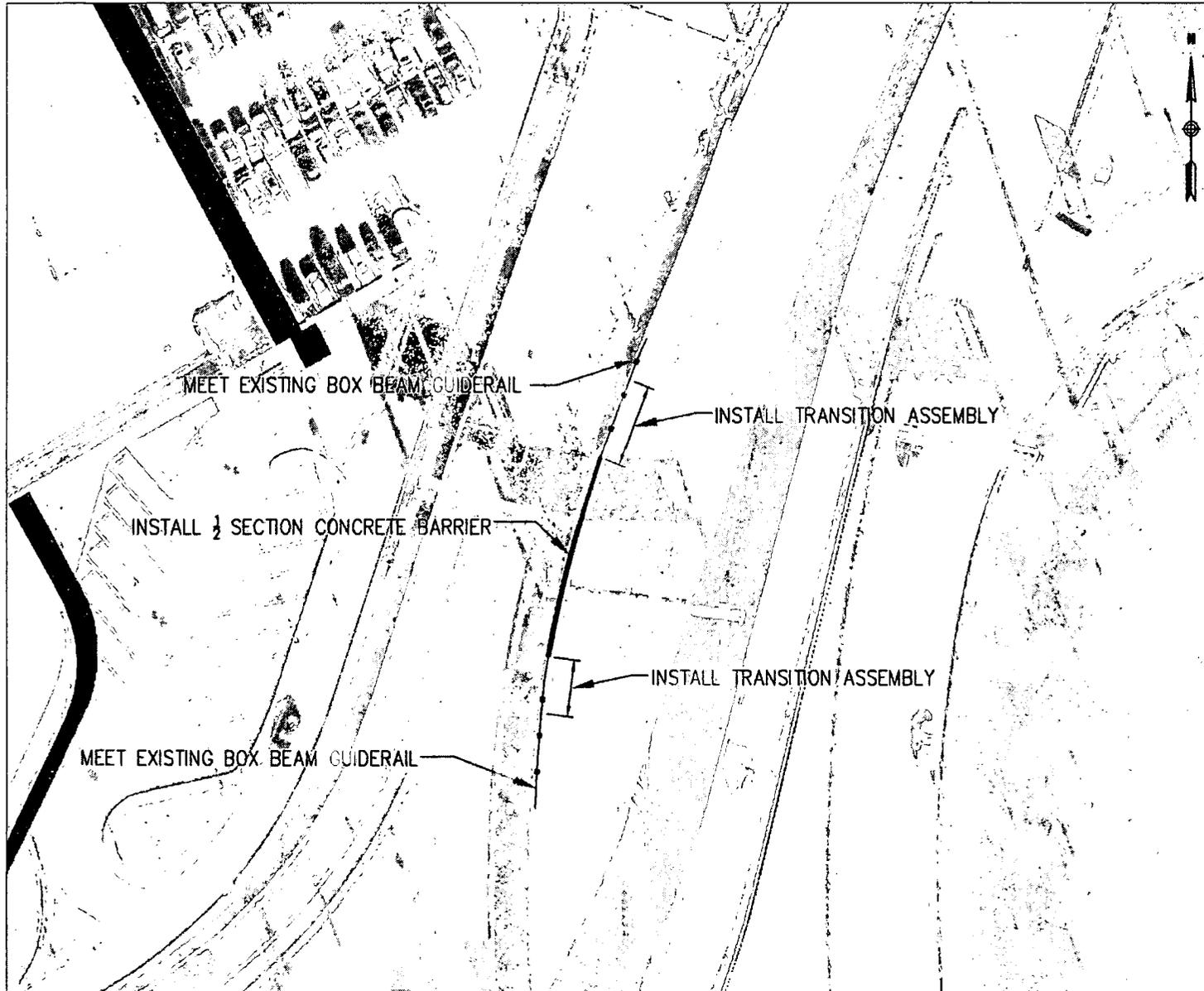


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Location	R7-04A
Device	Box Beam Guiderail
RSA Priority Level	FAIR



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Roadside Safety
Audit
Conceptual Plan
 (Not to Scale)

Location	R7-04A
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Device	Box Beam Guiderail
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RSA Priority Level	FAIR
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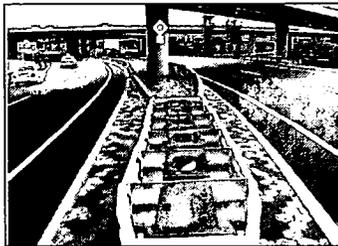

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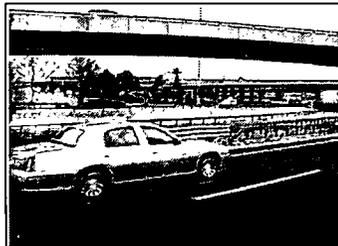
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R7-05
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	L/S – Pier columns; blunt end of BBGR Type I end section in gore area between diverging roads
ROADSIDE SAFETY DEVICE	5 Bay Quadguard Crash Cushion
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. No reflectivity on nose section of unit. A 6" mountable curb exists at this location System approved for NCHRP 230, not rated for NCHRP 350
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> • Install reflective panel/sheeting on nose section of unit • Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> • Replace existing attenuator with NCHRP 350, TL3 rated device
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> • \$175 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> • \$26,500



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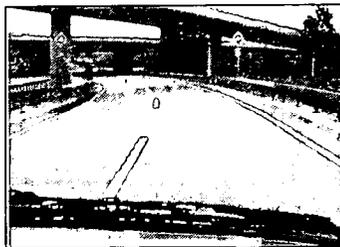
Location	R7-05
Device	5 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



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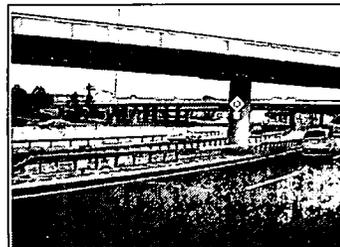
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quad Guard impact attenuator



Side view of BBGR

LOCATION ID	R7-05A
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	L/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. 20' +/- section of BBGR was recently replaced in front of pier column. The first pier column from beginning of run is within 4 ft deflection distance (3'-7") of BBGR with 3 ft post spacing. The Type I end section is protected by crash cushion Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Remove BBGR in front of pier column and replace with concrete half section barrier and install transition assemblies on approach and departure sides of barrier
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$14,750



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**Roadside Safety
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Location	R7-05A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR



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**Roadside Safety
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Conceptual Plan**

(Not to Scale)

Location	R7-05A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR



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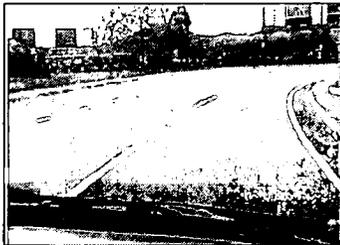
PROVIDE TRANSITION FROM BOX
BEAM GUIDERAIL TO CONCRETE BARRIER

INSTALL 1/2 SECTION CONCRETE BARRIER
TO SHIELD BRIDGE COLUMNS

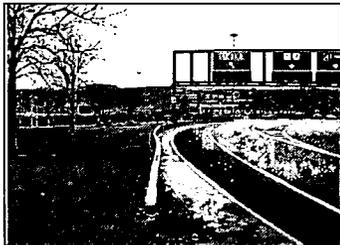
PROVIDE TRANSITION FROM CONCRETE
BARRIER TO BOX BEAM GUIDERAIL



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R7-05B
SPEED LIMIT	50 MPH
CLEAR ZONE LIMITS	30 – 32 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns, trees
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. The Type II end section is no longer approved for new installations, but can be retained Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Install NYSDOT Type IIA end section if BBGR impacted/damaged or as part of new roadway construction/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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**Roadside Safety
Audit**

Location	R7-05B
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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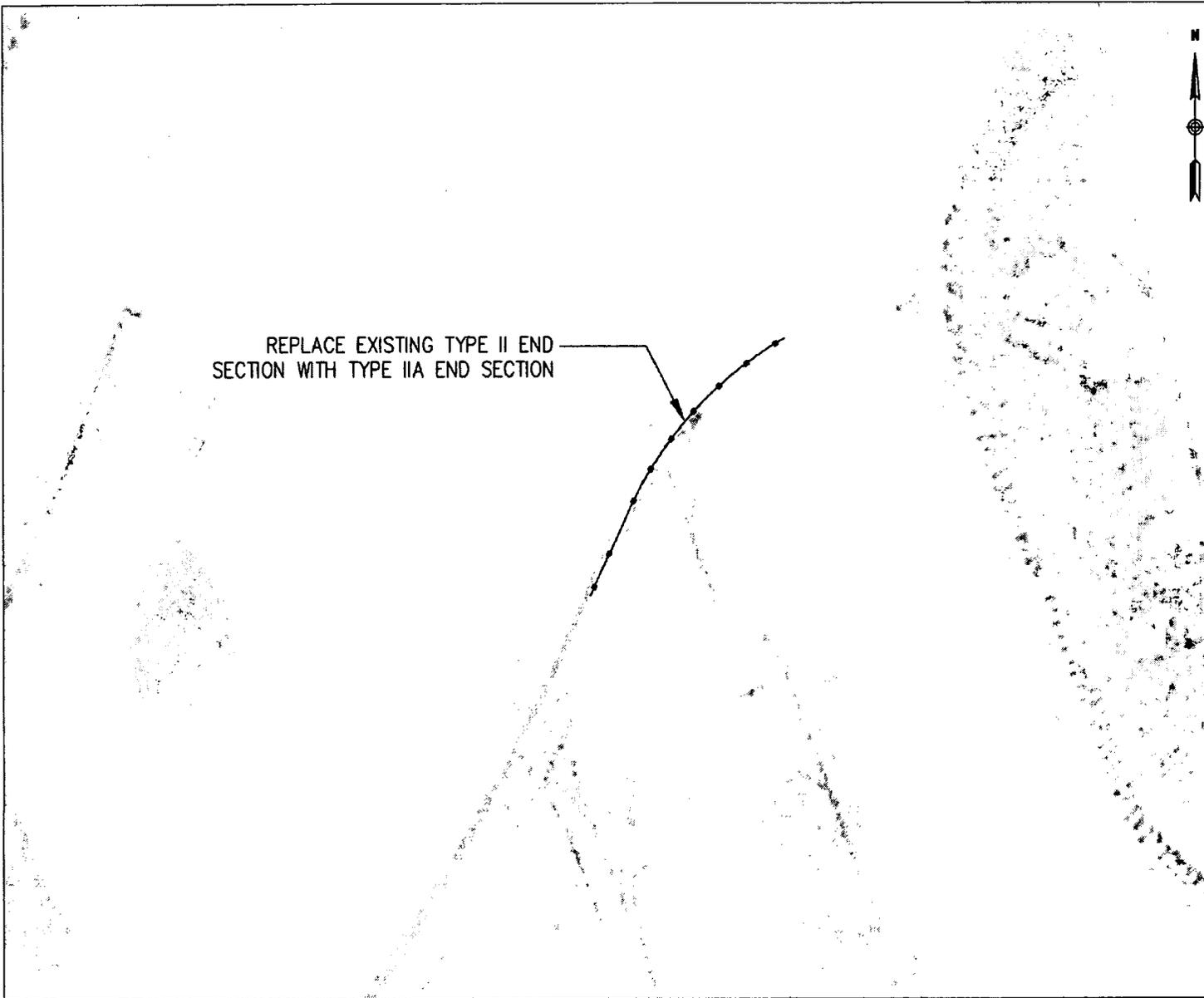
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Conceptual Plan**
(Not to Scale)

Location	R7-05B
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR

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REPLACE EXISTING TYPE II END
SECTION WITH TYPE IIA END SECTION





Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

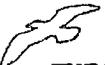


General view of BBGR along rail



Side view of BBGR showing 17 ft section missing posts

LOCATION ID	R7-05C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign support columns, equipment cabinet
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Splice made at 50 ft from beginning of rail. At BBGR splice, several posts (3) missing along 17 ft section of rail. Type I end section flared beyond clear zone limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Install additional posts where missing at BBGR splice and continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$900 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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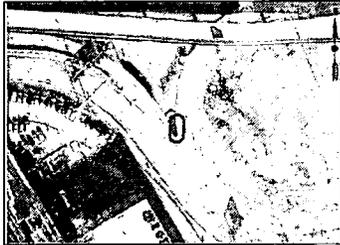


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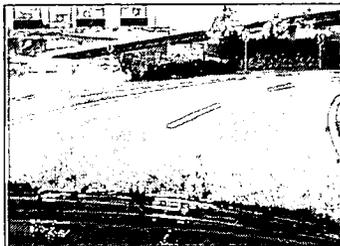
Location	R7-05C
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R7-05D
SPEED LIMIT	30 mph
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns, trees, shrubs
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end section installed beyond clear zone limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R7-05D
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



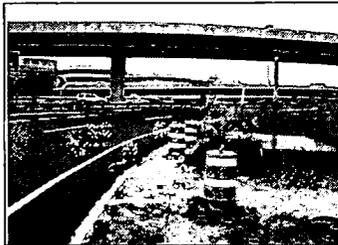
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R7-05F
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type I end section installed beyond clear zone limits. Note that upon completion of vault installation, guiderail should be extended to protect vault which will be within clear zone limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Extend BBGR run to beyond concrete vault presently being installed <u>Long Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$8,350 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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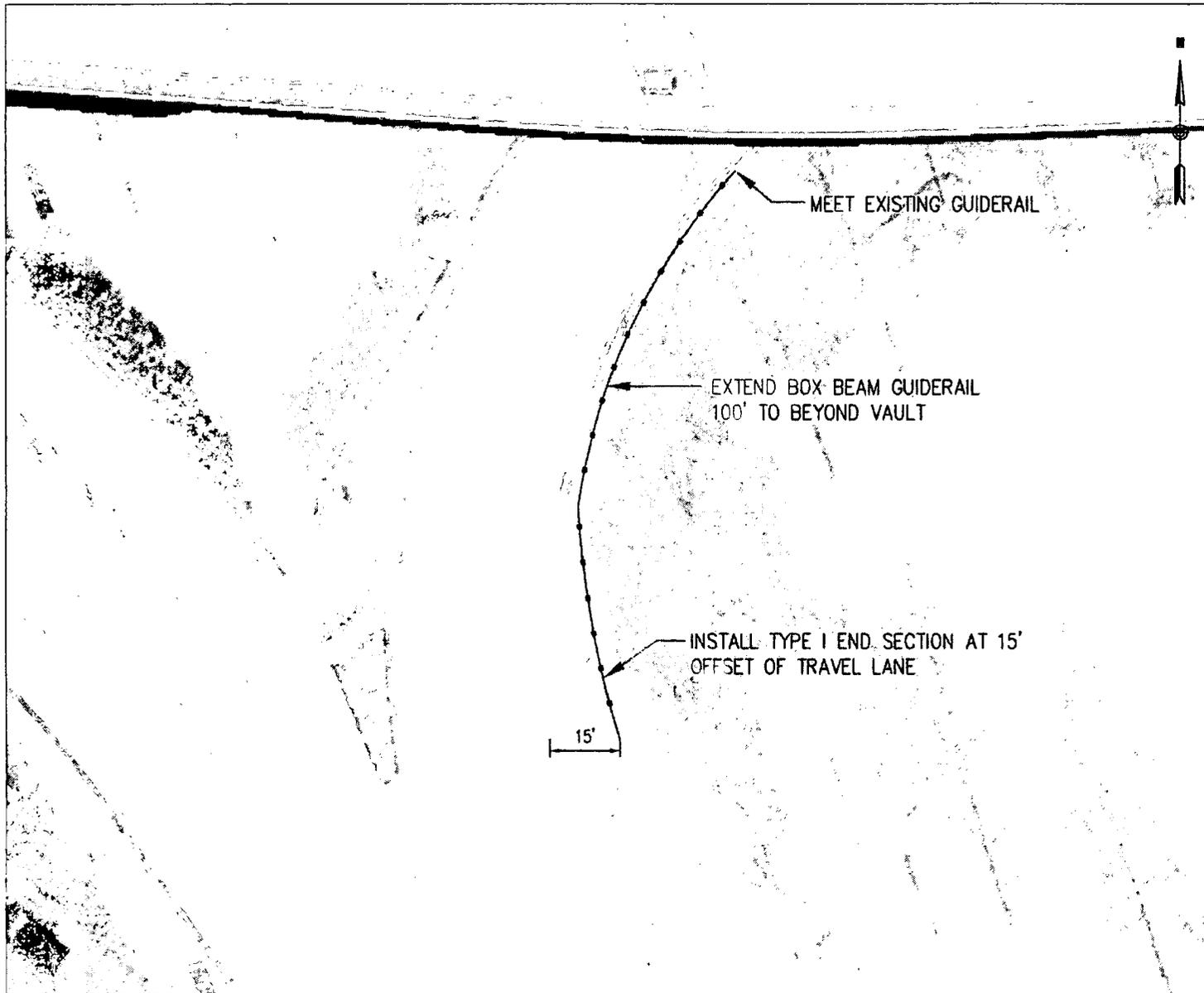


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Location	R7-05F
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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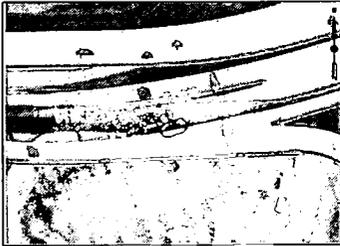
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 Audit
 Conceptual Plan**
 (Not to Scale)

Location	R7-05F
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Device	Box Beam Guiderail with Type I End Terminal
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RSA Priority Level	GOOD
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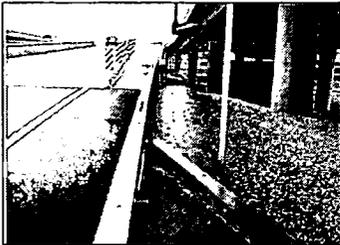

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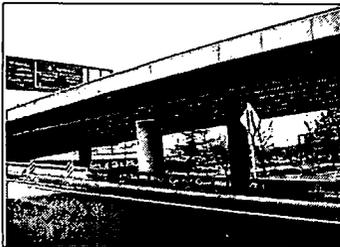
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R7-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier bridge rail
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition, minor impact to lower transition rail section attached to concrete barrier and rusting evident; all components installed within acceptable height. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue routine maintenance Long Term: <ul style="list-style-type: none"> Replace with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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Location	R7-06
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



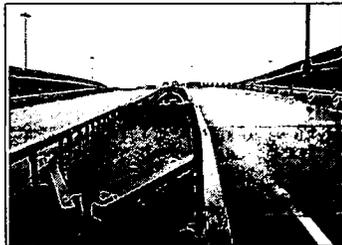
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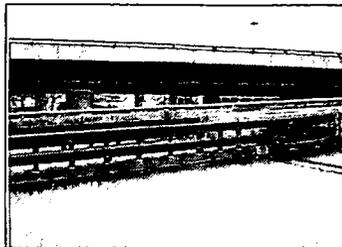
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R7-07
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier bridge rail
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition, corrosion/section loss to lower box rail and transition rail to concrete barrier; all components installed within acceptable height. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace rusted lower box rail section and lower transition rail attached to concrete barrier <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$1,300 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000 (Add'l)



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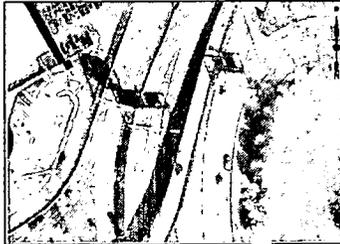


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Location	R7-07
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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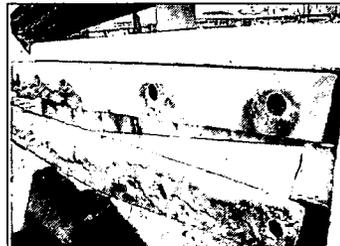
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



View of corrosion to transition rails

LOCATION ID	R8-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at overhead sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition, corrosion/section loss to box rails and transition rails to concrete barrier; all components installed within acceptable height. A 6" mountable curb exists along the unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace rusted box rails and transition rails attached to concrete barrier <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$1,300 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000 (Add'l)



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Location	R8-01
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



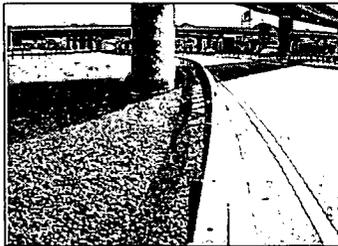
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR



Side view of BBGR

LOCATION ID	R8-01A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. 3 ft post spacing of BBGR at protected pier columns reduces deflection to 4 ft at 60 mph. Closest column at 3'-6", but reduced speed will mean reduced BBGR deflection if impacted Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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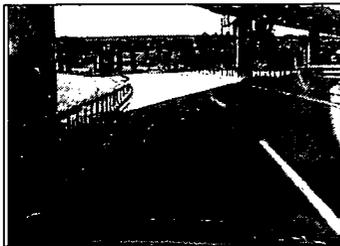
Location	R8-01A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



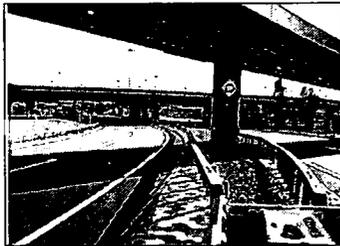
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



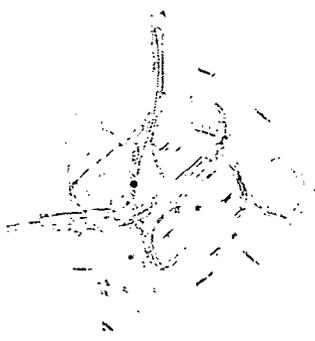
Column within 4' of BBGR - Posts at 6' apart

LOCATION ID	R8-01B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. 6 ft post spacing of BBGR at protected pier columns results in deflection of 5 ft at 60 mph. The closest column is within 3'-8" of the back of BBGR. Posts at 3 ft will reduce BBGR deflection to 4 ft at 60 mph, and reduced speed will mean < 4 ft BBGR deflection if impacted. End terminal protected by crash cushion Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Install additional posts at 3 ft spacing at column to reduce BBGR maximum deflection to 4 ft at 60 mph, and continue routine maintenance Long Term: <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$1,200 Long Term Recommendation: <ul style="list-style-type: none"> \$0



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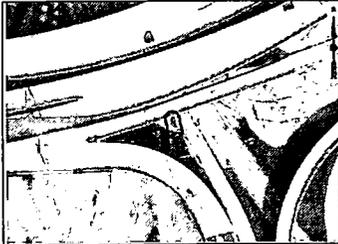


**Roadside Safety
Audit**

Location	R8-01B
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR



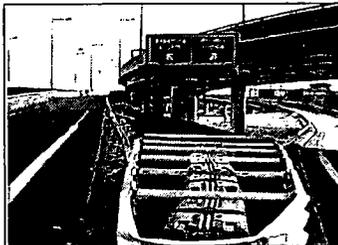
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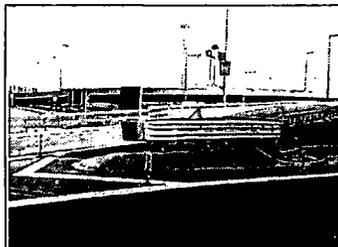
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R8-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns, pier columns, BBGR end sections
ROADSIDE SAFETY DEVICE	4 Bay Quadguard Crash Cushion by Energy Absorbision Sytems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed on sloped concrete base. All components in place and fully functional. Nose section is missing reflectorized panel Unit meets NCHRP 350, TL-2 but installation method may compromise effectiveness
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Install reflectorized panel/sheeting on nose piece Continue routine maintenance Long Term: <ul style="list-style-type: none"> Remove unit and lower concrete base flush with pavement; reinstall as per manufacturer's recommendations; modify leading end of BBGR beyond (both sides) by attaching to unit's concrete back-up
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$175 Long Term Recommendation: <ul style="list-style-type: none"> \$6,000



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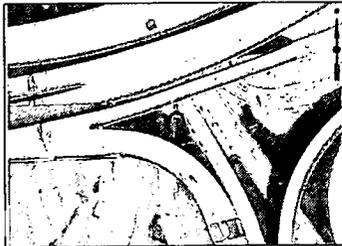


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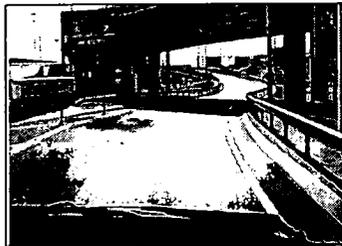
Location	R8-02
Device	4 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



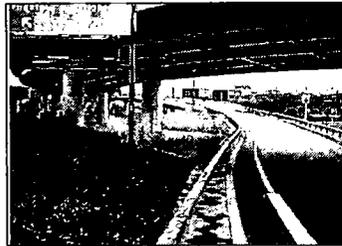
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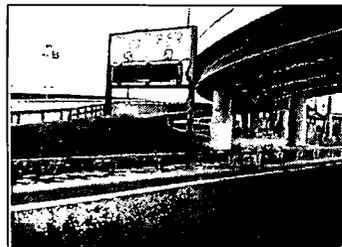
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R8-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 -16 feet
ROADSIDE HAZARD	L/S – Pier columns and overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Type II end section no longer approved for new installations, but can be retained in low speed (< 45 mph) locations Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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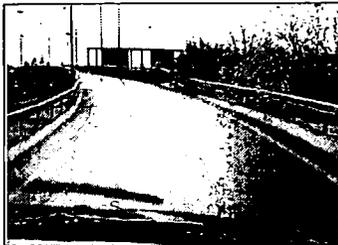
Location	R8-03
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier along rail



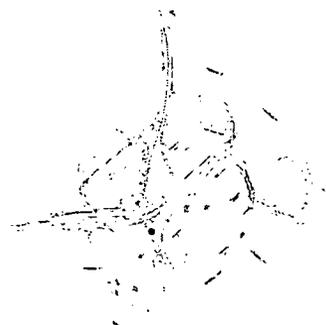
Side view of BBGR transition section to concrete barrier

LOCATION ID	R8-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier bridge rail
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, minor paint flaking; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue with routine maintenance Long Term: <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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Location	R8-04
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R8-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier bridge rail
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, minor paint flaking; all components installed within acceptable height variation. The transition unit will provide needed protection, but post configuration along transition assembly and lack of “block-outs” does not conform to current NYSDOT BBGR transition to concrete barrier standard (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace entire transition assembly with standard NYSDOT transition assembly if impacted/damaged or as part of future roadway/safety upgrade project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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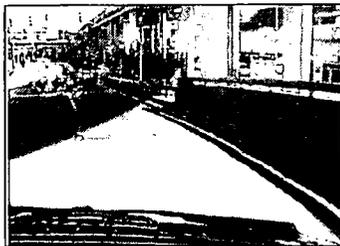
Location	R8-05
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R8-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns, trees and shrubs
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

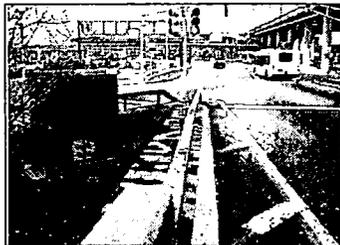
 <p>THE PORT AUTHORITY OF NY & NJ</p>	
<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R8-06
Device	Box Beam Guiderail
RSA Priority Level	GOOD
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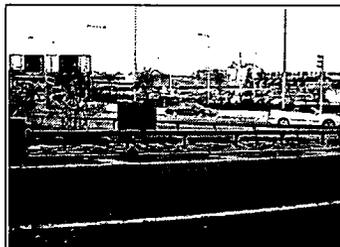
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R8-06A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 -16 feet
ROADSIDE HAZARD	L/S – Equipment cabinet and rear/posts of adjacent BBGR
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
CRASH HISTORY	None evident at time of inspection
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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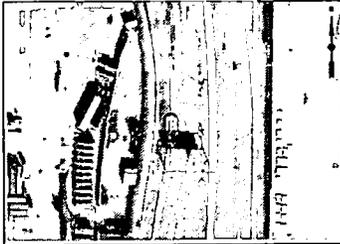


**Roadside Safety
Audit**

Location	R8-06A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



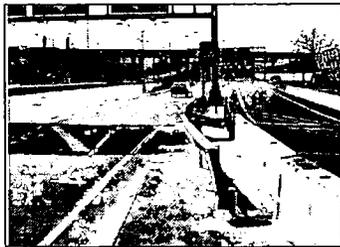
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Type I end terminal and inadequate offset



Elevation of Box Beam Guiderail

LOCATION ID	R9-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14-16 feet
ROADSIDE SAFETY DEVICE	R/S - Overhead sign support column within clear zone limits
ROADSIDE HAZARD	Box beam guiderail with Type I leading end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard and within acceptable height variation. A 6" mountable curb exists along BBGR. The Type I leading end terminal is inadequately flared from roadway and poses blunt impact hazard and potential vaulting condition Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Replace Type I End Terminal with Type III End Terminal section that meets NCHRP 350 TL-3, such as Wyoming Box Beam End Terminal (WY-BET) or Bursting Energy Absorbing Terminal (BEAT) Long Term: <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$8,500 Long Term Recommendation: <ul style="list-style-type: none"> \$0



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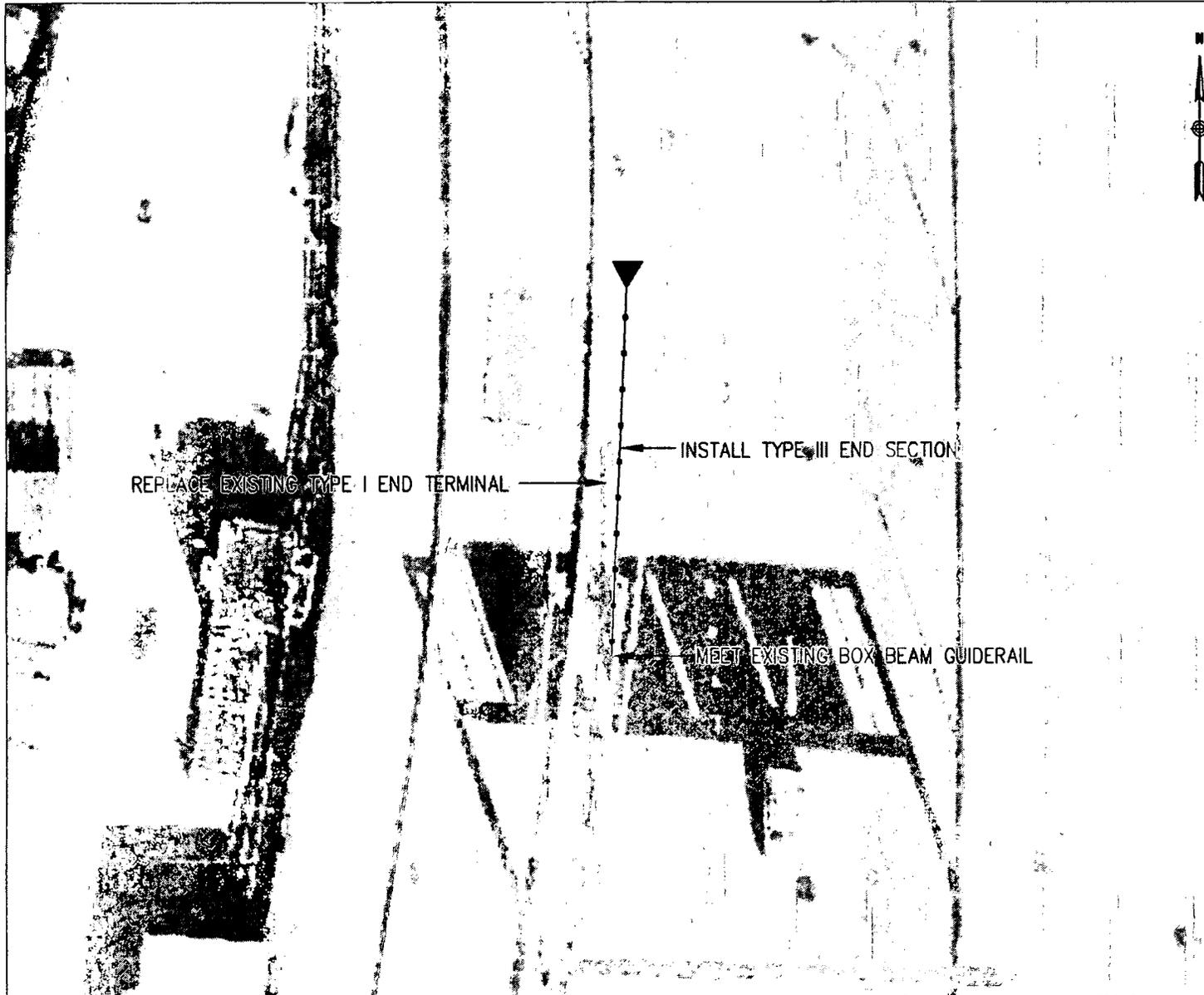


**Roadside Safety
Audit**

Location	R9-01
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	POOR



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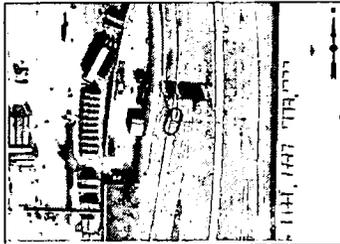
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**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R9-01
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	POOR

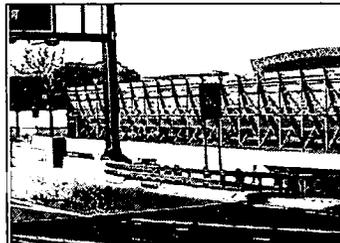
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

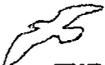


Elevation of transition unit



Damaged concrete at upper rail bolt connection

LOCATION ID	R9-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 -16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at overhead sign support column
ROADSIDE SAFETY DEVICE	Standard NYSDOT box beam guiderail to single slope half section concrete barrier transition assembly (Standard Sheet M606-32)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. Concrete corner of barrier has broken off at bolted connection. A 6" mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Repair damaged concrete at box rail bolted connection <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$800 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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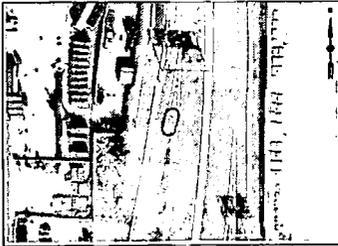


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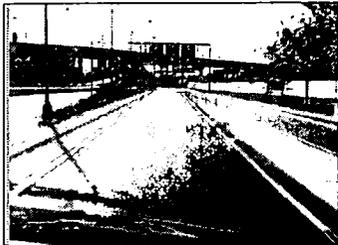
Location	R9-02
Device	NYSDOT BBGR Transition
RSA Priority Level	GOOD



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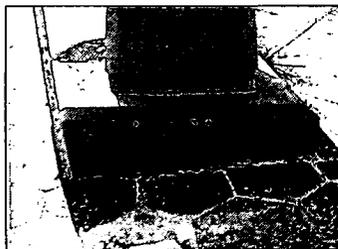
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Typical light pole/foundation in median



7" protrusion of foundation above grade

LOCATION ID	R9-02A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14-16 feet
ROADSIDE HAZARD	L/S - Light pole foundations protruding more than 4" above grade
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Foundations of light poles in narrow median protrude more than 4" and could cause vehicles to snag on them. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Re-grade median areas at light pole foundations Reset octagonal pavers so foundations protrude less than 4" <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$12,000 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R9-02A
Device	NONE
RSA Priority Level	CRITICAL



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**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location R9-02A

Device NONE

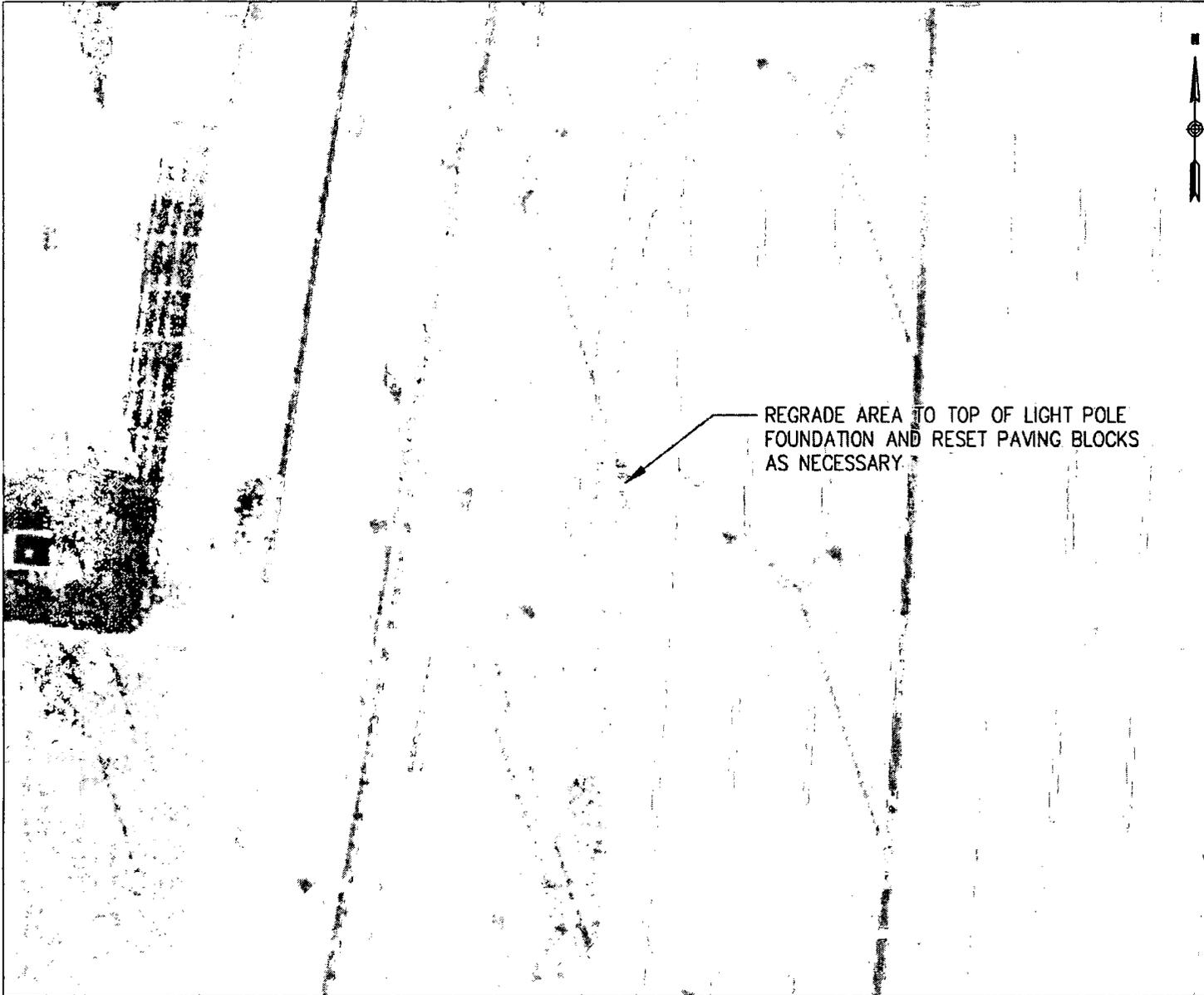
RSA Priority Level **CRITICAL**

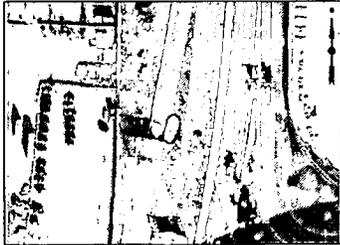


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REGRADE AREA TO TOP OF LIGHT POLE
FOUNDATION AND RESET PAVING BLOCKS
AS NECESSARY.

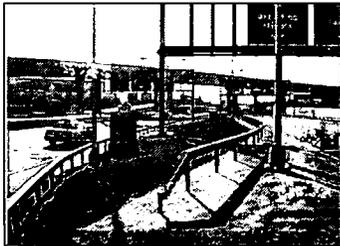




Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Type I end terminal and flare from roadway



Damaged/bent post at end terminal

LOCATION ID	R9-02B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns, equipment cabinets, steep side slope
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I leading end terminal
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal flared at/beyond clear zone limits. Damaged/bent first post at approach end terminal Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Replace damaged/bent first post at Type I end terminal Continue routine maintenance Long Term: <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$100 Long Term Recommendation: <ul style="list-style-type: none"> \$0



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**Roadside Safety
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Location	R9-02B
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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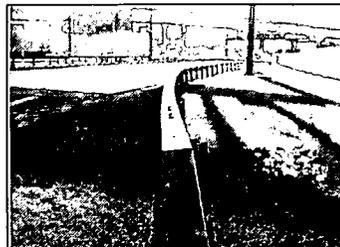
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Guiderail run and flared Type I end terminal



Type I end terminal

LOCATION ID	R9-02C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – overhead sign support column and fence/wall area
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I leading end terminal
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard and within acceptable height variation. A 6" mountable curb exists along BBGR. Type I leading end terminal adequately flared from roadway but BBGR does not adequately shield overhead sign support column to point of need, and is within flare section of guiderail Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Extend BBGR to point of need (approximately 40 ft) for overhead sign support column Install Type I end terminal at required flare offset from travel way <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$6,200 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0

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<p>Roadside Safety Audit</p>	
Location	R9-02C
Device	Box Beam Guiderail
RSA Priority Level	POOR
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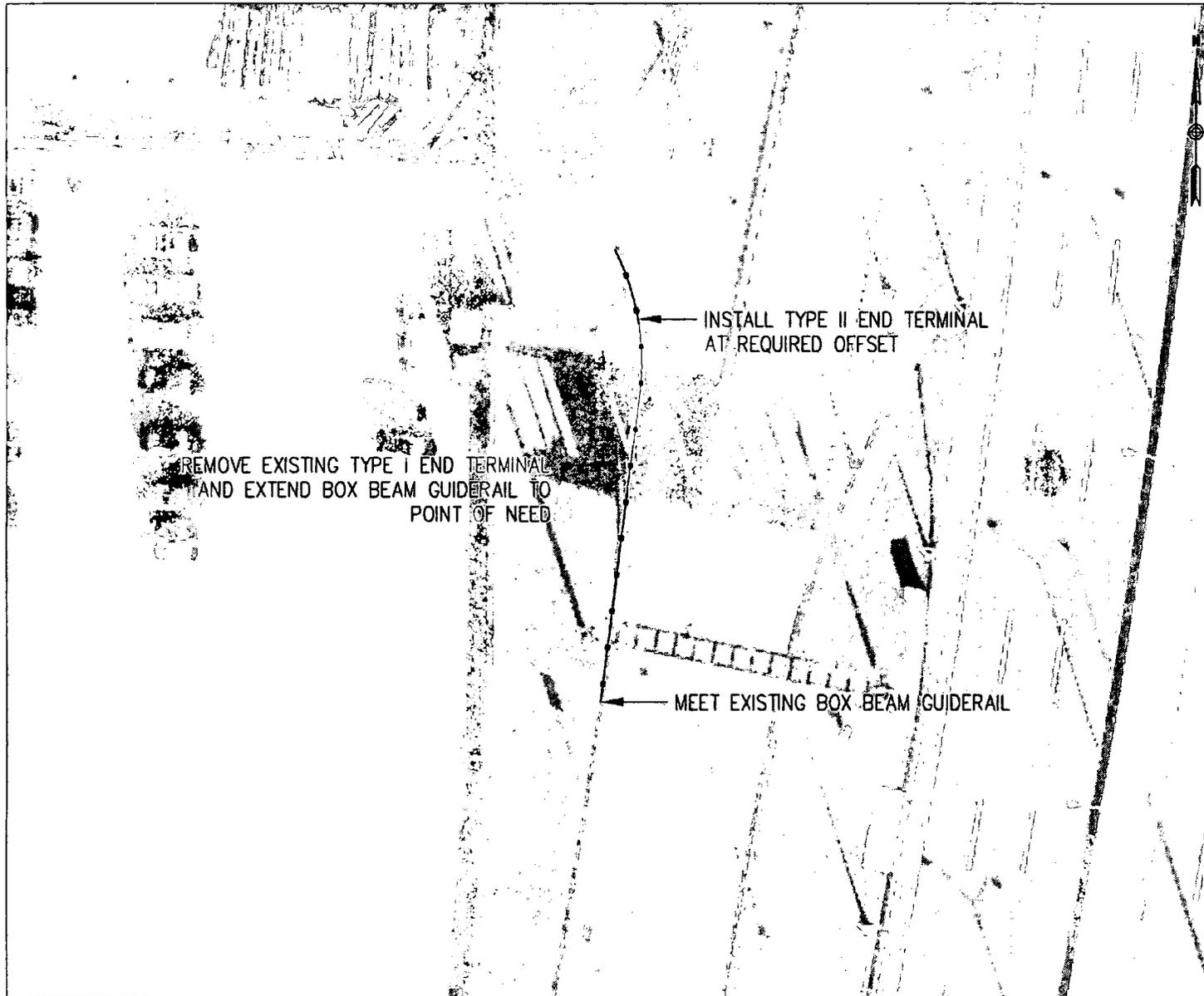
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(Not to Scale)

Location	R9-02C
Device	Box Beam Guiderail
RSA Priority Level	POOR

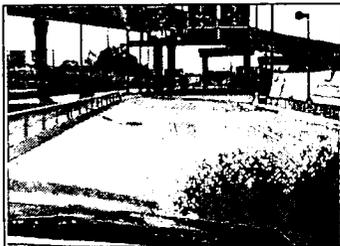


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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



52 foot gap/opening in guiderail



Exposed overhead sign support column and footing

LOCATION ID	R9-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – 52 ft gap in box beam guiderail exposing overhead sign support column, steep side slope, and Type I end terminal of BBGR
ROADSIDE SAFETY DEVICE	None
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	52 ft gap in box beam guiderail, on outside of curve in roadway, leaves overhead sign support column unprotected and subject to potential impacts. Additionally, un-flared Type I end terminal poses blunt end to traffic with vaulting potential. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> • Close gap in guiderail by removing trailing and approach Type I end terminals • Install new BBGR between existing BBGR runs <p>Long Term:</p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> • \$4,550 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> • \$0



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Location	R9-03
Device	NONE
RSA Priority Level	CRITICAL



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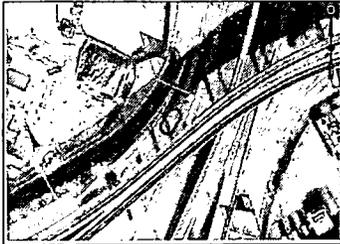
**Roadside Safety
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(Not to Scale)

Location	R9-03
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Device	NONE
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RSA Priority Level	CRITICAL
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



BBGR run and Type I end terminal – no flare



New rail section at damaged light pole

LOCATION ID	R9-03A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Steep side slope, pier bent columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end terminal
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Two sections of BBGR appear to have been replaced recently, and damaged light pole also exists behind rail sections. BBGR is on outside of curve and Type I end terminal is within 3 ft of travel way, and not flared away from roadway. A 6" mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> • See recommendations for Location R9-03 • Close gap in guiderail by removing trailing and approach Type I end terminals • Install new BBGR between existing BBGR runs Long Term: <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Cost included in estimate for Location R9-03



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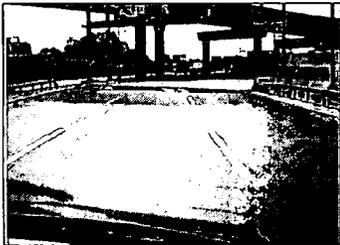
Location	R9-03A
Device	Box Beam Guiderail
RSA Priority Level	POOR



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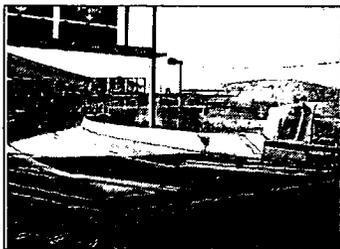
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Single box rail transitioned to concrete barrier



Elevation of single box transition piece

LOCATION ID	R9-03B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at overhead sign support column
ROADSIDE SAFETY DEVICE	Single box beam rail section transition
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Single box beam transition piece not adequate as vehicles will snag on lower portion of half section concrete barrier. Impact at BBGR just before concrete barrier will likely result in significant deflection (up to 5 ft at 60 mph for 6 ft post spacing), resulting in blunt impact to concrete barrier. Transitions from BBGR to concrete section should be made in increments of increasing stiffness of barrier system. A 6" mountable curb exists at this location Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Extend the half section concrete barrier an additional 20 ft to eliminate curved section Install standard NYSDOT BBGR to half section concrete barrier transition section (Standard Sheet M606-32) <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$16,000 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R9-03B
Device	Single Box Rail Transition
RSA Priority Level	POOR



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Location	R9-03B
Device	Single Box Rail Transition
RSA Priority Level	POOR



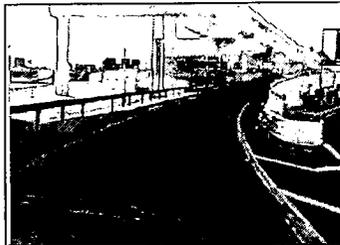
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EXTEND EXISTING $\frac{1}{2}$ SECTION
CONCRETE BARRIER

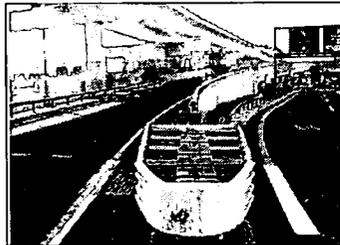
INSTALL STANDARD NYSDOT BOX BEAM
GUIDERAIL TRANSITION TO CONCRETE BARRIER



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of QuadGuard Crash Cushion



Side view of QuadGuard Crash Cushion

LOCATION ID	R9-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier and BBGR at gore area between upper and lower roadways
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush to pavement as per specifications. All components in place and fully functional. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$175 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$0

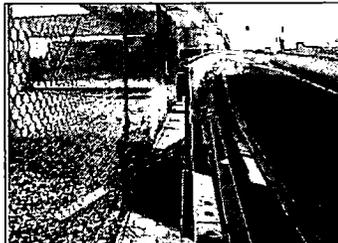
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<p>Roadside Safety Audit</p>	
Location	R9-04
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD
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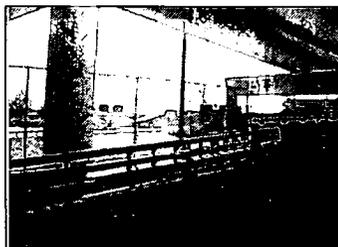
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



View along length transition unit



Side view of transition unit

LOCATION ID	R9-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at pier bent columns and drop off
ROADSIDE SAFETY DEVICE	Standard NYSDOT box beam guiderail to single slope half section concrete barrier transition (Standard Sheet M606-32)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. Minor paint flaking. A 6" mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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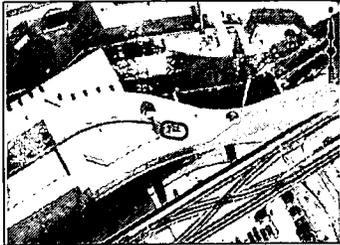


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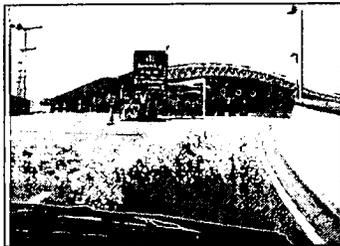
Location	R9-05
Device	NYSDOT BBGR Transition
RSA Priority Level	GOOD



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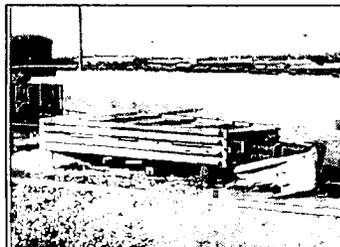
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



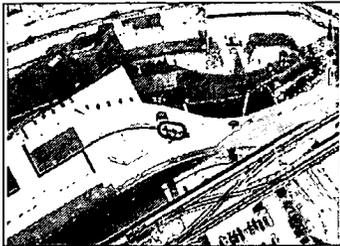
Front view of damaged nose & cartridge



Damage to left side of unit

LOCATION ID	R9-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 - 16 feet
ROADSIDE HAZARD	L/S - Box beam guiderail end terminus and sign structure
ROADSIDE SAFETY DEVICE	4 Bay Quadguard Crash Cushion - Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Evidence of glancing impact to left side nose section. Internal energy absorbing cartridge needs to be re-set on supporting steel diaphragms. Reduced performance likely, but will provide some protection at reduced impact speeds. Unit installed flush to pavement Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Re-set internal energy absorbing cartridge in nose section Replace reflectorized panel on nose section Long Term: <ul style="list-style-type: none"> Continue routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$925 Long Term Recommendation: <ul style="list-style-type: none"> \$0

	
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Roadside Safety Audit	
Location	R9-06
Device	4 Bay Quadguard Crash Cushion
RSA Priority Level	POOR
	



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



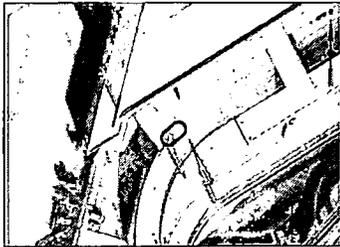
Elevation of left side BBGR



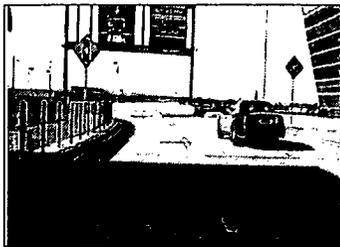
Elevation of right side BBGR

LOCATION ID	R9-06A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Equipment cabinet and sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Short run of guiderail is in good condition, all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

	
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Roadside Safety Audit	
Location	R9-06A
Device	Box Beam Guiderail
RSA Priority Level	GOOD
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

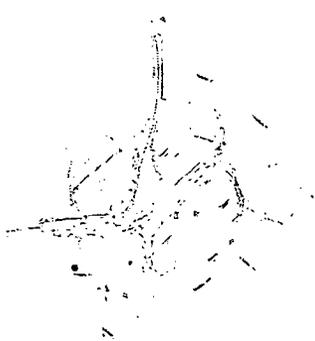


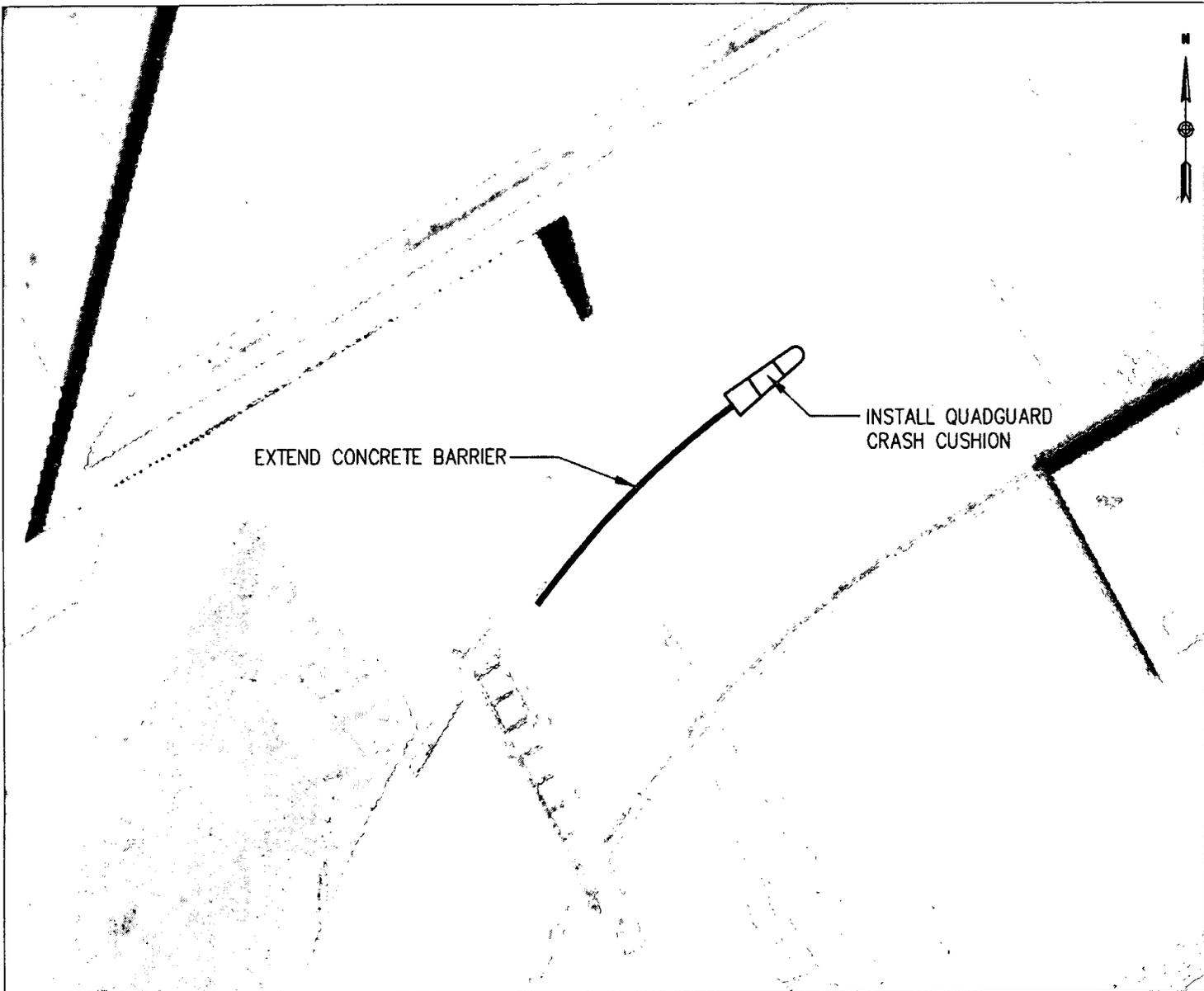
Sloped end section at sign support column



Over head sign support column at/in curb line

LOCATION ID	R9-07
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 MPH
ROADSIDE HAZARD	R/S – Overhead sign support column at/in curb line
ROADSIDE SAFETY DEVICE	Temporary concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	One full concrete barrier section and one sloped end piece is not adequate to provide necessary impact resistance. Errant vehicles could ride sloped barrier into column. A 6" non-mountable curb exists at this location
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install 40 ft of temporary concrete barrier sections • Install crash cushion to shield leading end <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Relocate overhead sign support column into sidewalk area
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$21,500 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$75,000 (Add'l)

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<p>Roadside Safety Audit</p>	
Location	R9-07
Device	Temporary Concrete Barrier
RSA Priority Level	POOR
 <p><i>Engineering, Surveying and Landscape Architecture, P.C.</i></p>	



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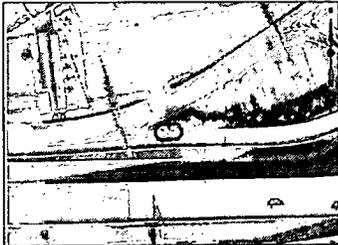
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(Not to Scale)

Location	R9-07
Device	Temporary Concrete Barrier
RSA Priority Level	POOR



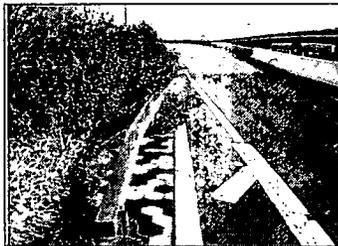
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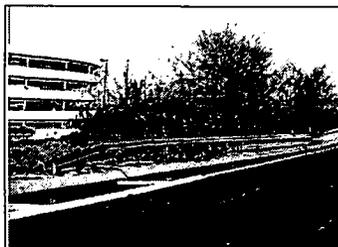
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Type II end terminal showing offset & damage



Elevation of BBGR Type II End Terminal

LOCATION ID	R9-08
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Trees/shrubs and drop-off at gore area between roadways
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end terminal
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition, marred/scraped and rusted, but otherwise intact. Box beam guiderail indicates previous minor impact. All components installed as per standard, within acceptable height variation. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH. A 6" mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace Type II end terminal with Type III end terminal section that meets NCHRP 350 TL-3, such as Wyoming Box Beam End Terminal (WY-BET) or Bursting Energy Absorbing Terminal (BEAT)
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$5,000



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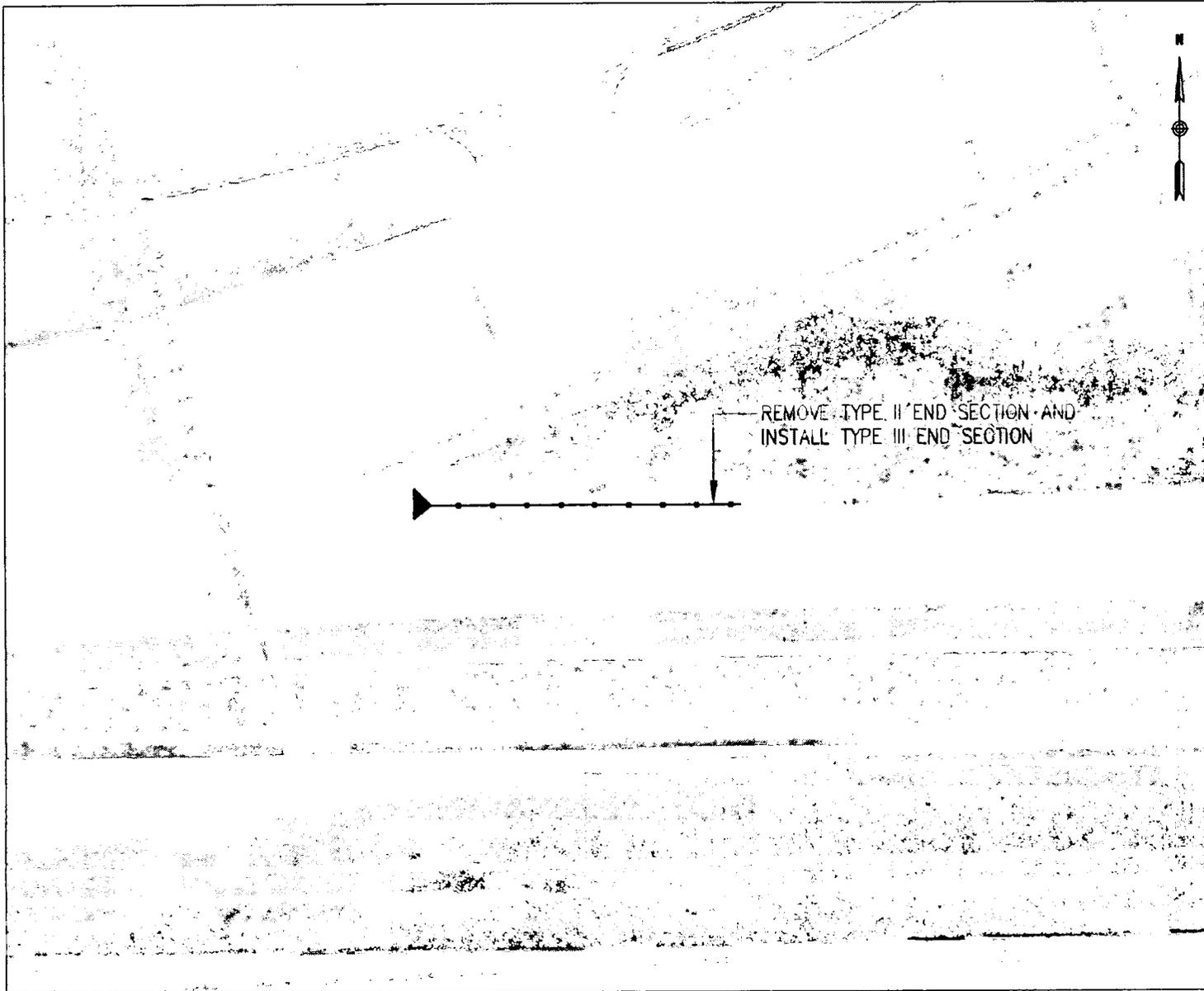


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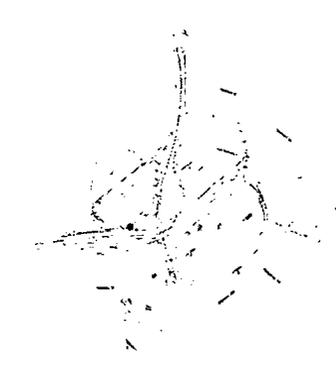
Location	R9-08
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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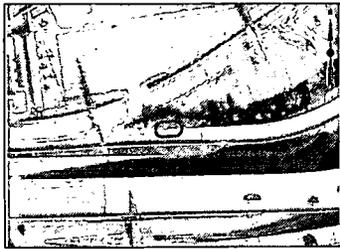
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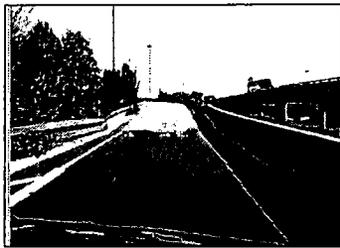
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(Not to Scale)

Location	R9-08
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR

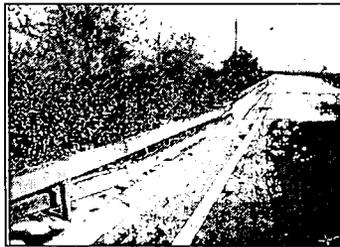




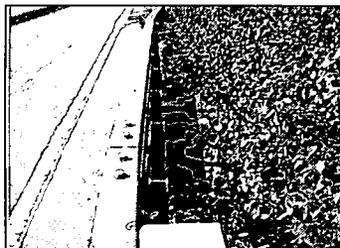
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Elevation of transition unit



Non-conforming back-up post installation

LOCATION ID	R9-09
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – transition from BBGR to ramp concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition to concrete barrier bridge rail
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; minor rust to lower rub rail, all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly and lack of "block-outs" does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet 606-22) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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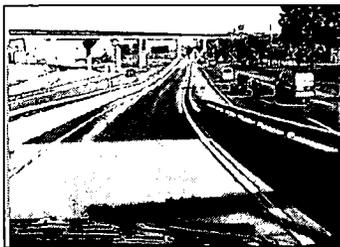
Location	R9-09
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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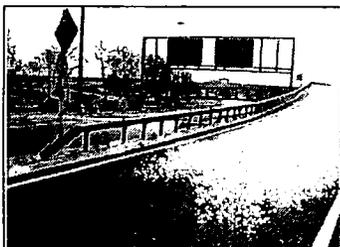
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Steep side slope behind guiderail



Extent of BBGR from concrete bridge barrier

LOCATION ID	R9-10
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Non-recoverable steep side slope in gore area
ROADSIDE SAFETY DEVICE	Box beam guiderail (from attachment to concrete bridge barrier)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R9-10
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Elevation and extent of BBGR



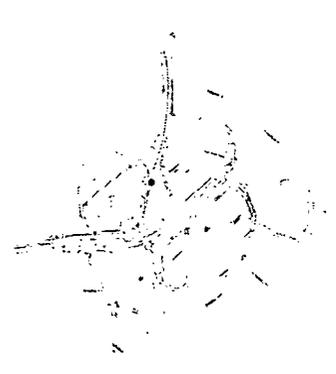
Type I end terminal approach flare

LOCATION ID	R9-11
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns, trees, drop-off
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end terminal
CRASH HISTORY	Skid marks and minor impact evident at time of inspection
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; skid marks and minor impact evident at time of inspection. All components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal flared at/beyond clear zone limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R9-11
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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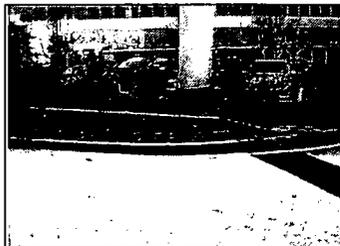
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

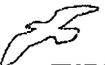


General view of BBGR along rail



Side view of BBGR

LOCATION ID	R10-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation, but offset from 6" non-mountable curb exceeds preferred 1 ft max. BBGR should be extended around radius to protect column. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Extend BBGR around radius to prevent vehicles impacting column <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$6,700 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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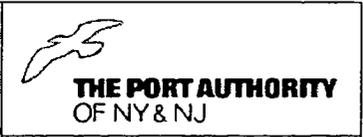
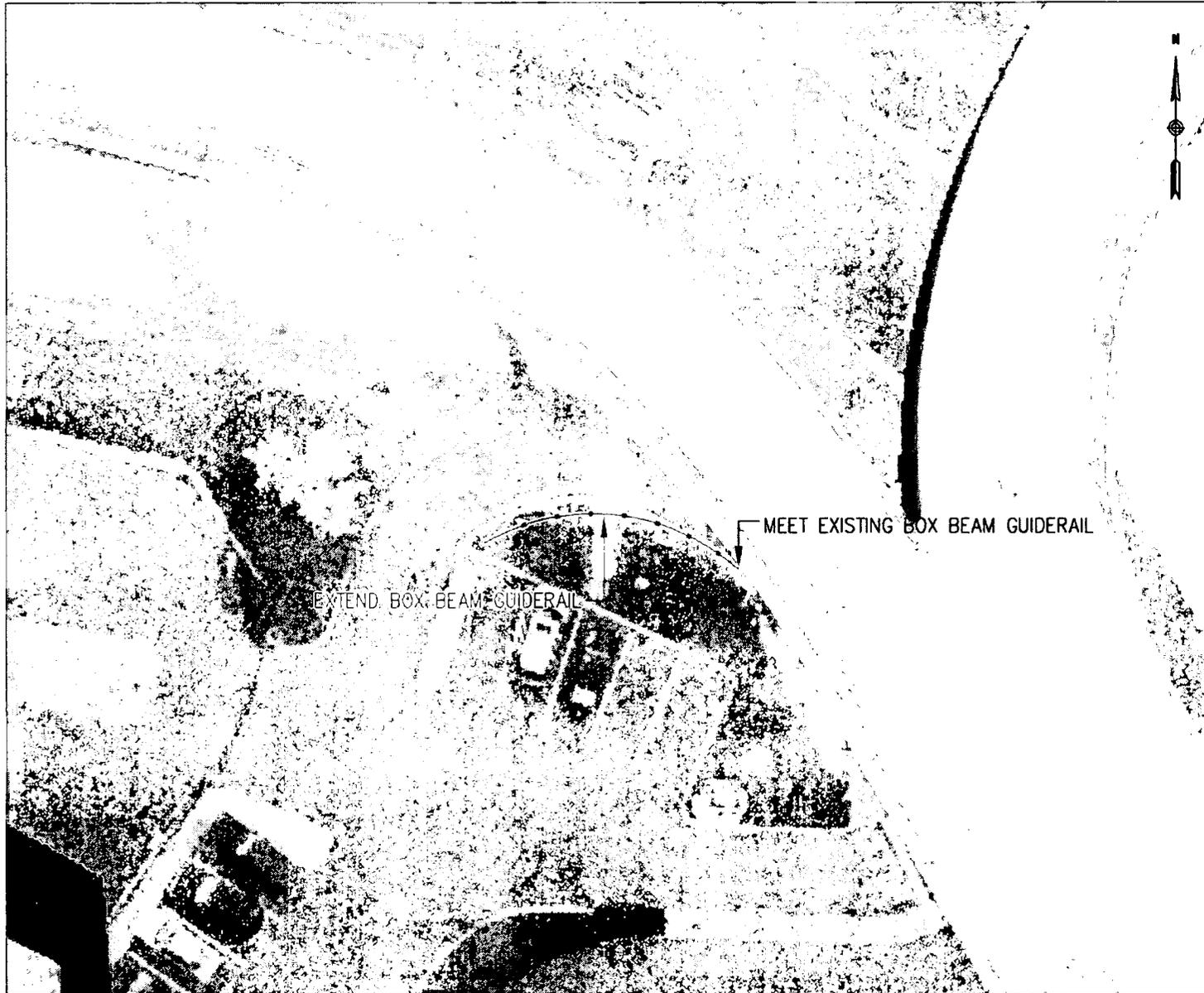


**Roadside Safety
Audit**

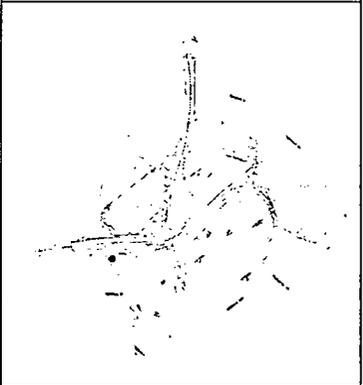
Location	R10-01
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	POOR



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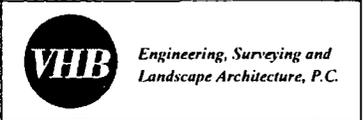


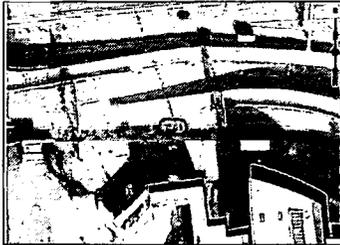
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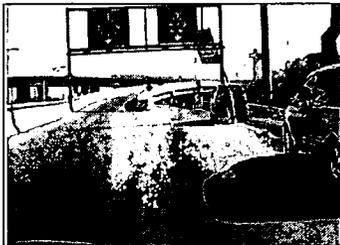
**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R10-01
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	POOR





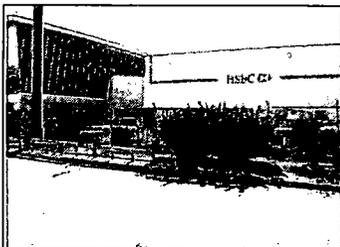
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R10-01A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign support columns, light pole, steep side slope
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace Type II end terminal with Type III end terminal section that meets NCHRP 350 TL-3, such as Wyoming Box Beam End Terminal (WY-BET) or Bursting Energy Absorbing Terminal (BEAT)
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$5,000



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**Roadside Safety
Audit**

Location	R10-01A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location

R10-01A

Device

Box Beam Guiderail
with Type II End
Terminal

**RSA Priority
Level**

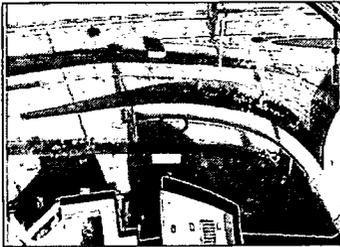
FAIR



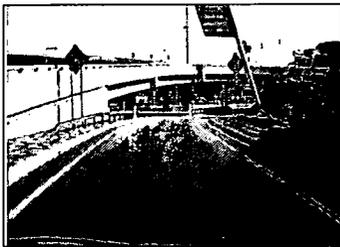
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REMOVE TYPE II END TERMINAL AND
REPLACE WITH TYPE III END TERMINAL

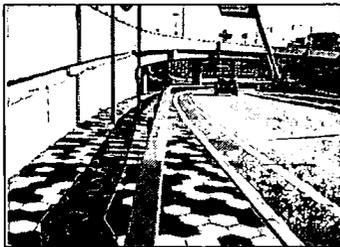
MEET EXISTING BOX BEAM GUIDERAIL



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R10-01B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace Type II end terminal with Type III end terminal section that meets NCHRP 350 TL-3, such as Wyoming Box Beam End Terminal (WY-BET) or Bursting Energy Absorbing Terminal (BEAT)
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$5,000



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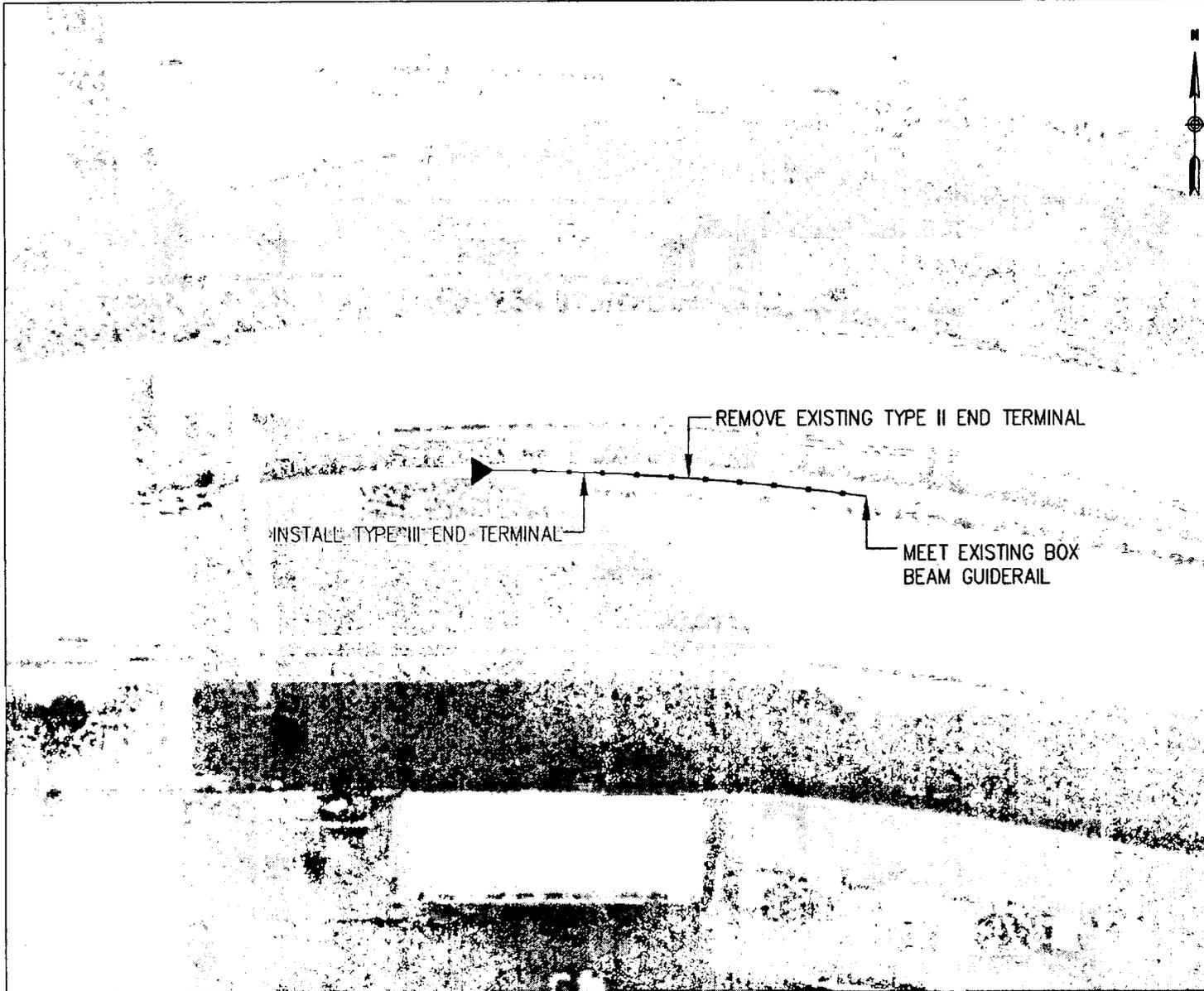


**Roadside Safety
Audit**

Location	R10-01B
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR

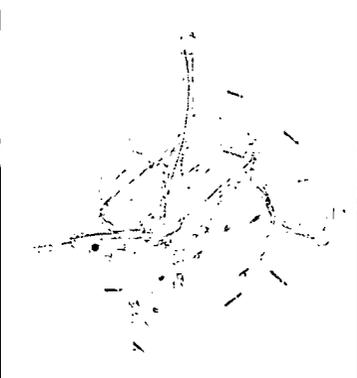


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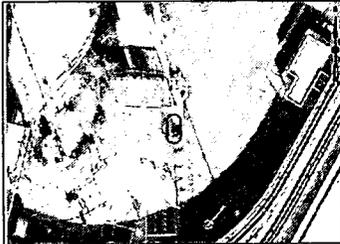
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**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R10-01B
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR

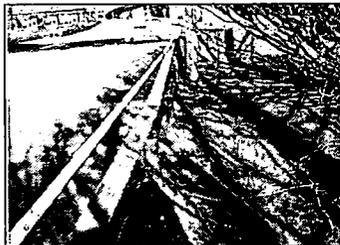
VHB *Engineering, Surveying and
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



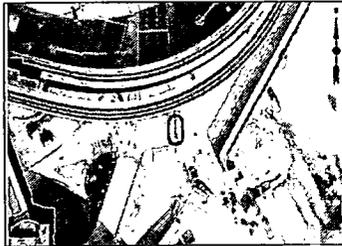
General view of BBGR transition section to concrete



Side view of BBGR transition section

LOCATION ID	R10-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at overhead sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000

 <p>THE PORT AUTHORITY OF NY & NJ</p>	
<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R10-02
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR
 <p><i>Engineering, Surveying and Landscape Architecture, P.C.</i></p>	



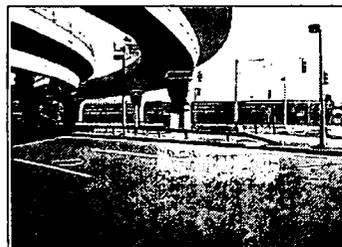
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R10-02A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Pier columns, signal poles
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace Type II end terminal with Type III end terminal section that meets NCHRP 350 TL-3, such as Wyoming Box Beam End Terminal (WY-BET) or Bursting Energy Absorbing Terminal (BEAT)
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$5,000



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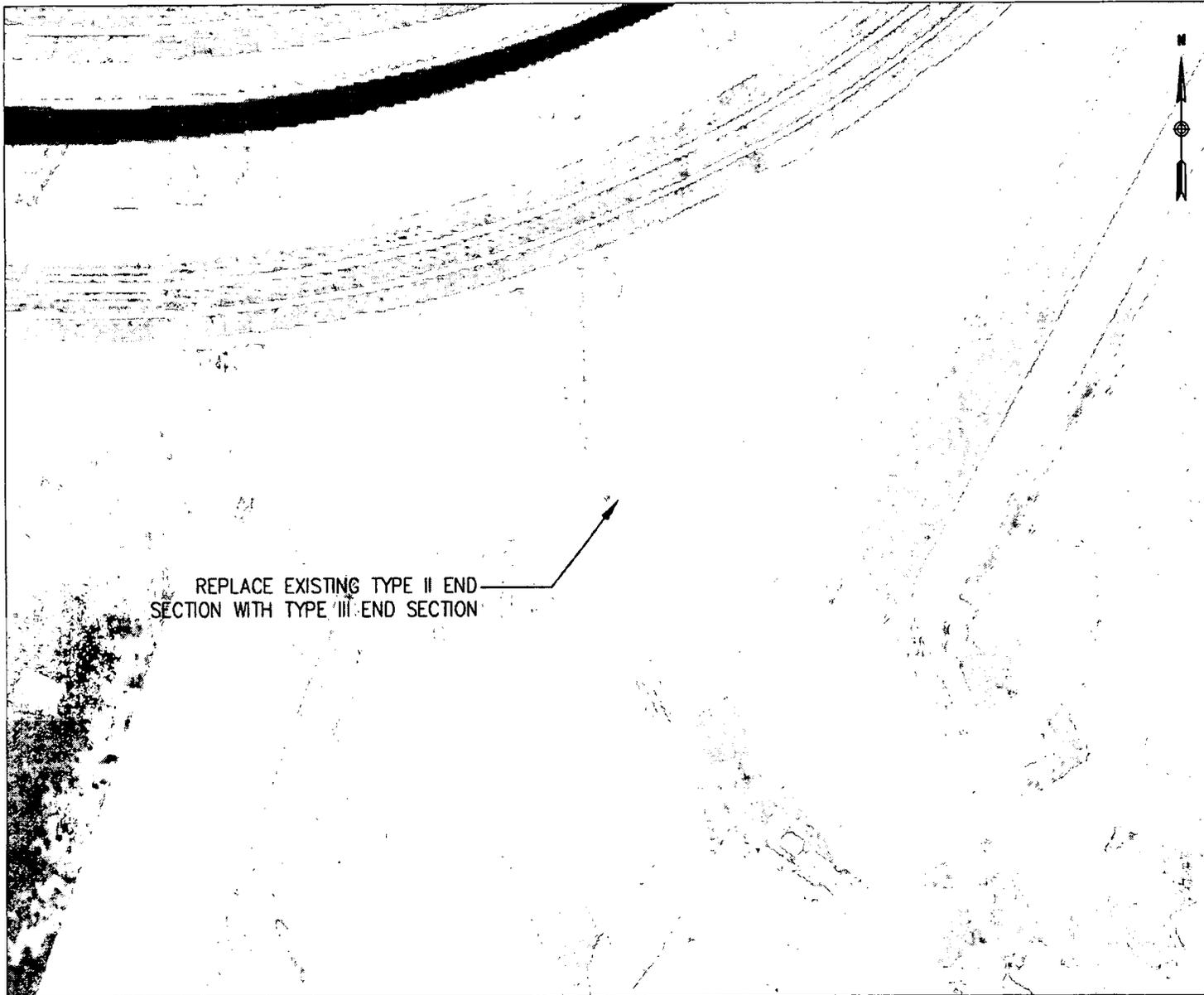


**Roadside Safety
Audit**

Location	R10-02A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR

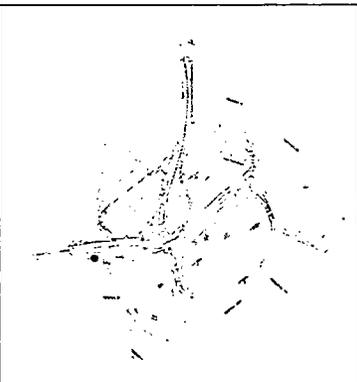


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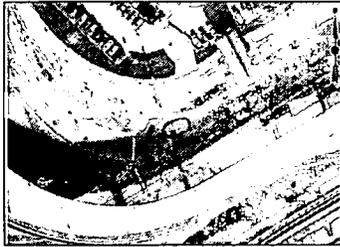
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**Roadside Safety
Audit
Conceptual Plan**
 (Not to Scale)

Location	R10-02A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR


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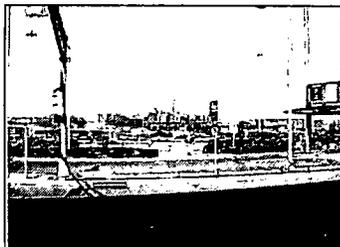
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R10-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace Type II end terminal with Type III end terminal section that meets NCHRP 350 TL-3, such as Wyoming Box Beam End Terminal (WY-BET) or Bursting Energy Absorbing Terminal (BEAT)
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$5,000



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**Roadside Safety
Audit**

Location	R10-03
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location

R10-03

Device

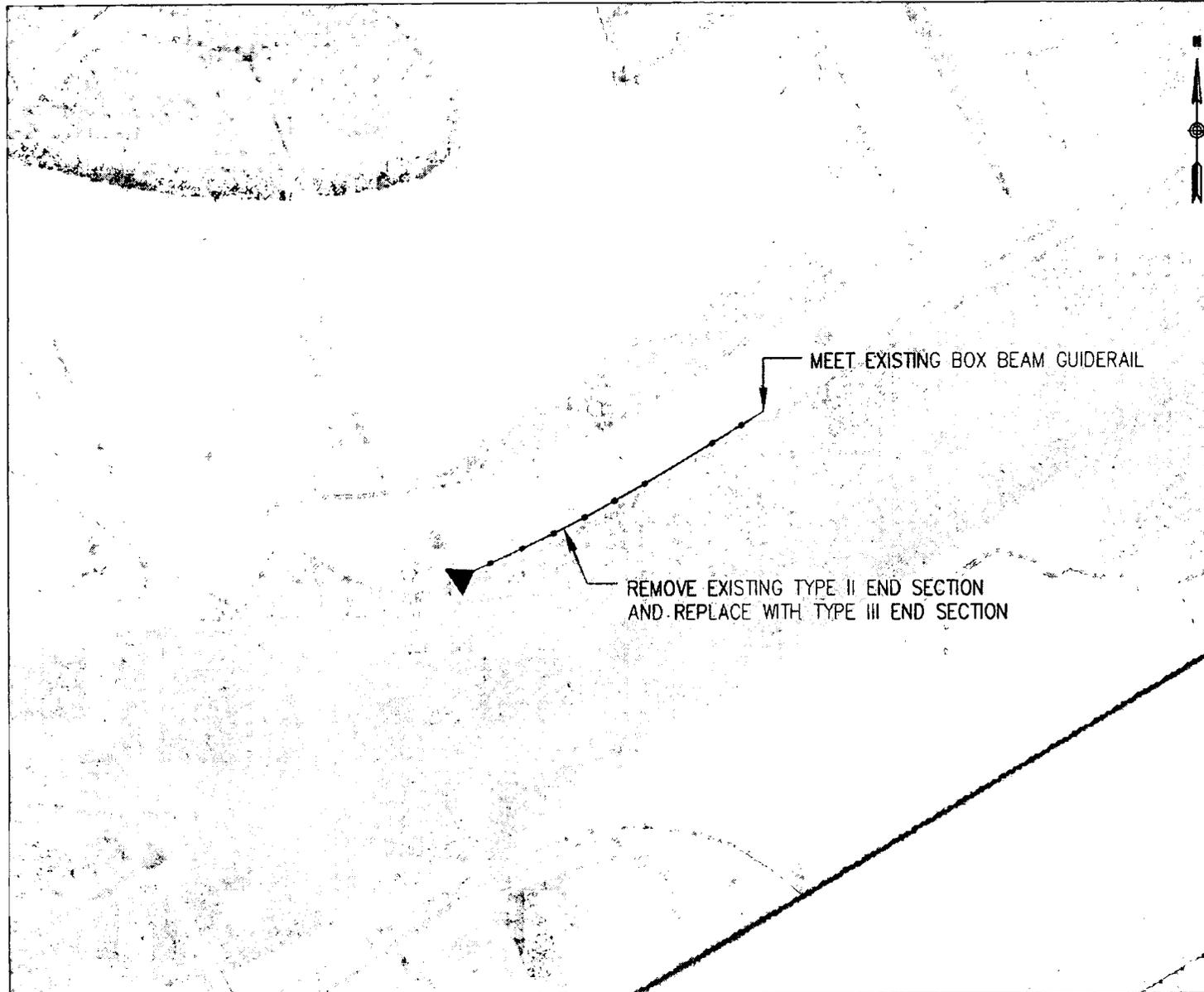
Box Beam Guiderail
with Type II End
Terminal

RSA Priority
Level

FAIR



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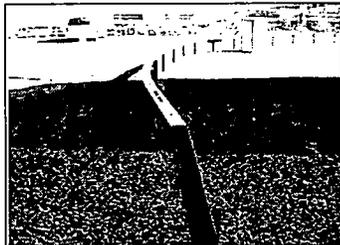




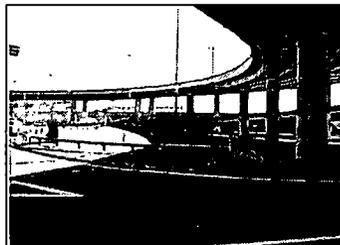
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R10-03A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Equipment cabinets
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal flared at/beyond clear zone limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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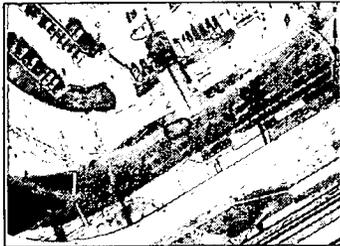


**Roadside Safety
Audit**

Location	R10-03A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR transition section to concrete barrier

LOCATION ID	R10-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S –Blunt end of concrete barrier at overhead sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but diagonal support/brace has been removed and post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace diagonal support/brace <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$800 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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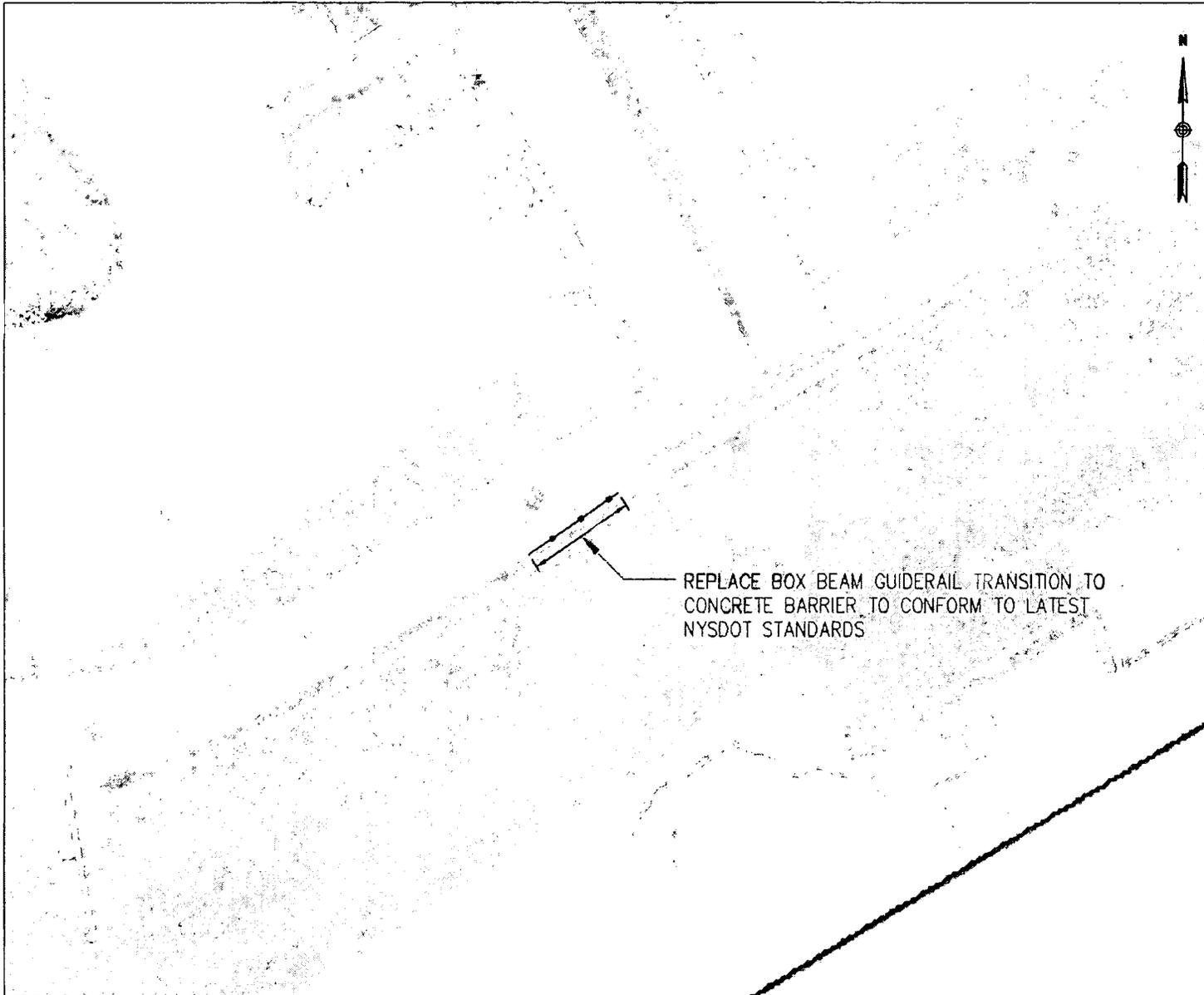


**Roadside Safety
Audit**

Location	R10-04
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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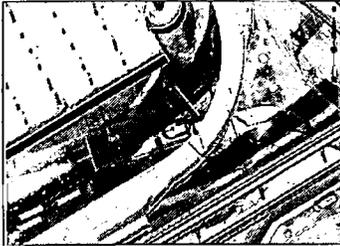
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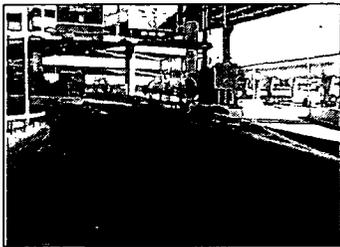
**Roadside Safety
Audit
Conceptual Plan**
 (Not to Scale)

Location	R10-04
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR

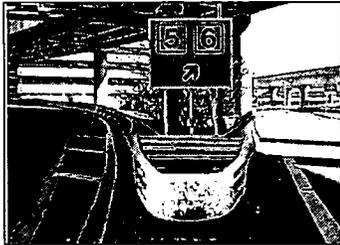

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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

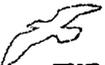


General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R10-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barriers in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. A 4" mountable curb exists around unit. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Install reflectorized panel on nose piece for improved visibility Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$175 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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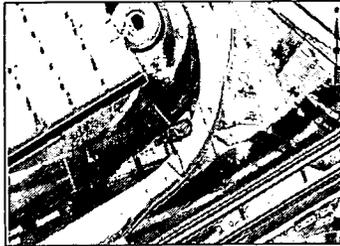


**Roadside Safety
Audit**

Location	R10-05
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R10-05A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, paint flaking off; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

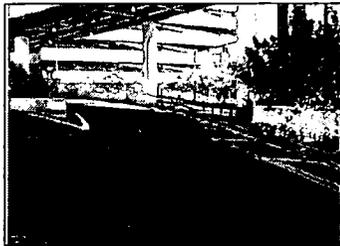
Location	R10-05A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



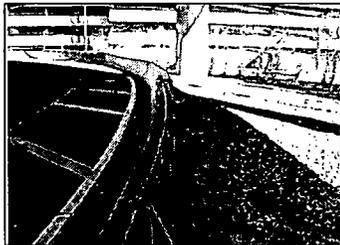
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



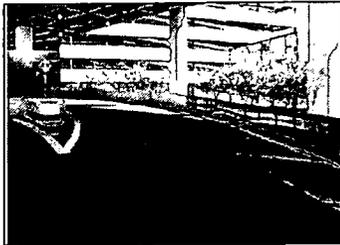
Side view of BBGR transition section to concrete barrier

LOCATION ID	R10-05B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at pier column
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, paint flaking off; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000

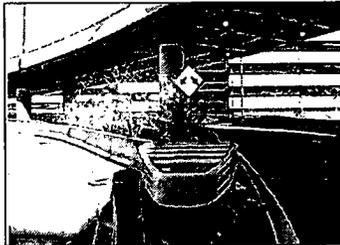
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<p>Roadside Safety Audit</p>	
Location	R10-05B
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R10-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barriers in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. No reflectivity on nose section of unit. Curb transitions from 0" to 4" Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> • \$175 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> • \$0



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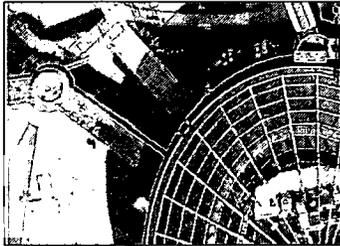


**Roadside Safety
Audit**

Location	R10-06
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



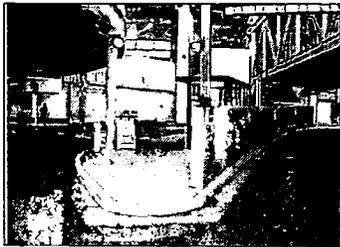
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Front view of unprotected blunt end of concrete wall



Side view of unprotected blunt end of concrete wall

LOCATION ID	R11-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete wall at roadway split
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Impacting blunt end of wall and deceleration can cause serious injury to motorists. Only small reflector on wall and no pavement delineation or edge lines guiding you through area and away from wall. A 6" non-mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install energy absorbing crash cushion, similar to Quadguard System, minimum rating of NCHRP 350, TL-2, in front of blunt end of wall. Install pavement striping to delineate traffic pattern and provide channelization at roadway split and through rest of terminal <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$19,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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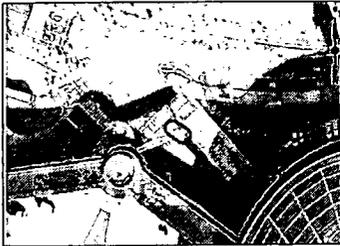


**Roadside Safety
Audit**

Location	R11-01
Device	NONE
RSA Priority Level	CRITICAL



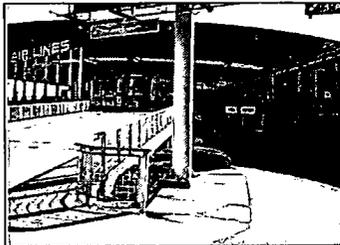
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected sign support post



Side view of unprotected sign support post

LOCATION ID	R11-01A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Exposed column and side of ramp structure
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Column and structure within clear zone and can be impacted. Even at lower speeds, collision can cause serious injuries to motorists and damage to vehicle. Non-mountable curb varies from 0 to 4"
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install box beam guiderail with Bursting Energy Absorbing Terminal (BEAT) from roadway split continuing down & terminating at left under ramp structure <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$18,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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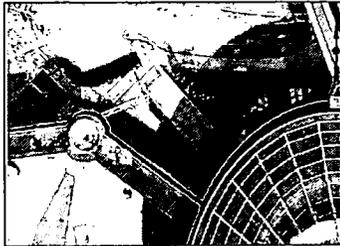


**Roadside Safety
Audit**

Location	R11-01A
Device	NONE
RSA Priority Level	CRITICAL



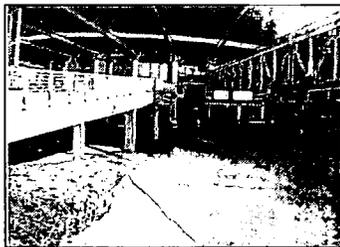
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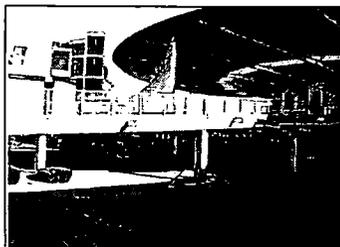
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



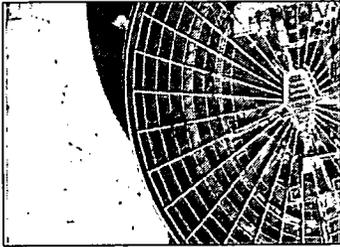
General view of unprotected support columns



Side view of unprotected support columns

LOCATION ID	R11-01B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Ramp structure pier columns (3)
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Pier columns exposed to traffic present blunt impact hazard. Even at lower speeds, collision can cause serious injuries to motorists and damage to vehicles. A 5" to 6" non-mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Install energy absorbing crash cushion, similar to Quadguard System, minimum rating of NCHRP 350, TL-2, in front of columns on islands Install pavement striping to provide channelization at roadway split and through terminal area <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$19,000 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0

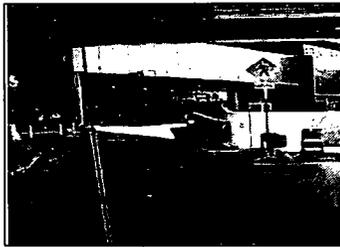
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<p>Roadside Safety Audit</p>	
Location	R11-01B
Device	NONE
RSA Priority Level	CRITICAL
 <p>Engineering, Surveying and Landscape Architecture, P.C.</p>	



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



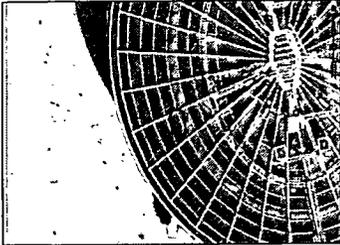
General view of unprotected blunt end of wall



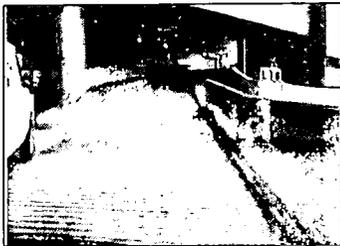
Side view of unprotected blunt end of concrete wall

LOCATION ID	R11-01C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Blunt end of concrete wall facing traffic in gore area between ramps, and obsolete end treatment on guiderail section
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Impacting blunt end of wall and deceleration can cause serious injury to motorists. No pavement delineation or edge lines guiding you through area and away from wall. A 0" to 6" non-mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> • Install energy absorbing crash cushion, similar to Quadguard System, minimum rating of NCHRP 350, TL-2, in front of blunt end of wall, and remove existing guiderail • Install pavement striping to delineate traffic pattern and provide channelization at roadway split and through rest of terminal <p>Long Term:</p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> • \$19,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> • \$0

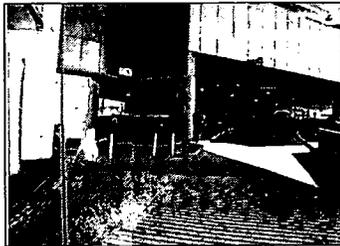
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<p>Roadside Safety Audit</p>	
Location	R11-01C
Device	NONE
RSA Priority Level	CRITICAL
 <p>VHB Engineering, Surveying and Landscape Architecture, P.C.</p>	



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of blunt end of pier column



Side view of blunt end of pier column

LOCATION ID	R11-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S - Blunt end of pier column/wall at roadway split
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Impacting blunt end of wall and deceleration can cause serious injury to motorists. No pavement delineation or edge lines guiding you through area and away from wall. A 5" to 6" non-mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Install energy absorbing crash cushion, similar to Quadguard System, minimum rating of NCHRP 350, TL-2, in front of blunt end of wall Install pavement striping to delineate traffic pattern and provide channelization at roadway split and through rest of terminal <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$19,000 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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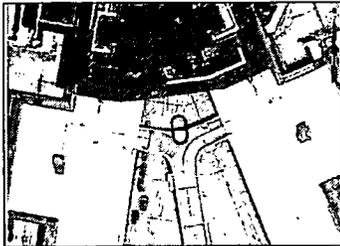


**Roadside Safety
Audit**

Location	R11-02
Device	NONE
RSA Priority Level	CRITICAL



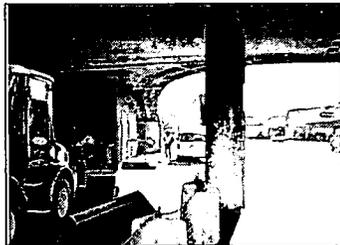
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

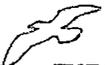


Front view of unprotected blunt end of pier column



Side view of unprotected blunt end of pier column

LOCATION ID	R11-02A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Exposed/unprotected pier column
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Column and structure within clear zone and can be impacted. Even at lower speeds, collision can cause serious injuries to motorists and damage to vehicles
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install energy absorbing crash cushion, similar to Quadguard System, minimum rating of NCHRP 350, TL-2, in front of column <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$17,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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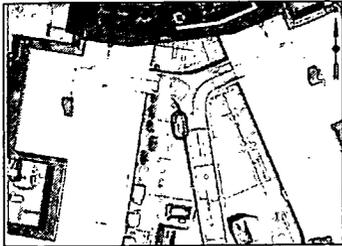


**Roadside Safety
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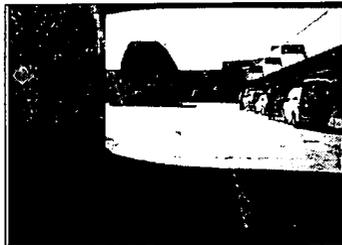
Location	R11-02A
Device	NONE
RSA Priority Level	CRITICAL



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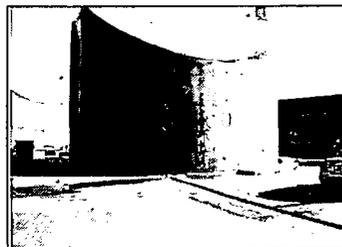
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected wall of building



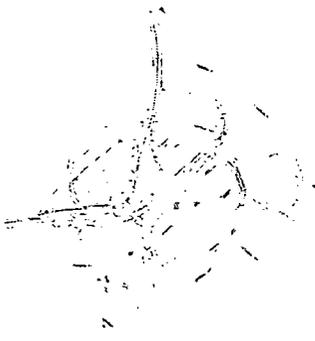
Side view of unprotected wall of building

LOCATION ID	R11-02B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Maintenance building structure within clear zone, fencing
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Vehicles traveling through terminal in this area can impact structure and fenced areas that are within clear zone due to lack of clear channelization and guiderail devices
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Install box beam guiderail around perimeter of building structure Install pavement striping to delineate travel way and restricted areas <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$9,500 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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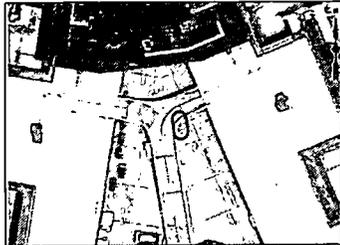


**Roadside Safety
Audit**

Location	R11-02B
Device	NONE
RSA Priority Level	CRITICAL



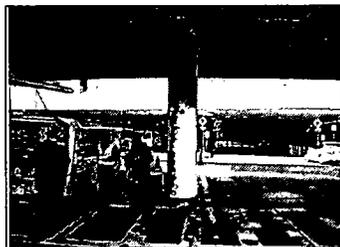
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected blunt end of column



Side view of unprotected blunt end of column

LOCATION ID	R11-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Exposed pier column within clear zone
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Pier columns exposed to traffic present blunt impact hazard. Even at lower speeds, collision can cause serious injuries to motorists and damage to vehicles
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Install energy absorbing crash cushion, similar to Quadguard System, minimum rating of NCHRP 350, TL-2, in front of column <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$17,000 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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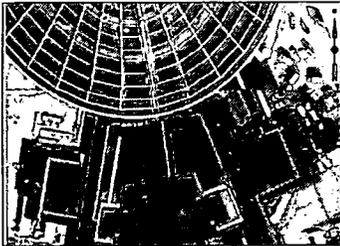


**Roadside Safety
Audit**

Location	R11-03
Device	NONE
RSA Priority Level	CRITICAL



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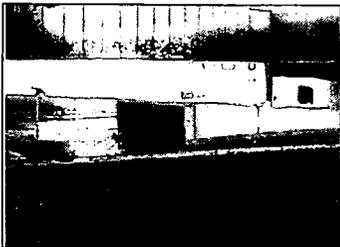
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected parapet concrete wall



Side view of unprotected parapet concrete wall

LOCATION ID	R11-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier/wall
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Impacting blunt end of wall and deceleration can cause serious injury to motorists. A 5" to 6" non-mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install energy absorbing crash cushion, similar to Quadguard System, minimum rating of NCHRP 350, TL-2, in front of blunt end of wall <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$17,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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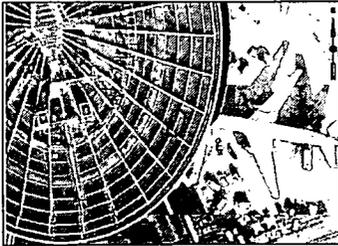


**Roadside Safety
Audit**

Location	R11-04
Device	NONE
RSA Priority Level	CRITICAL



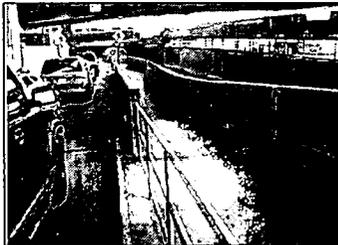
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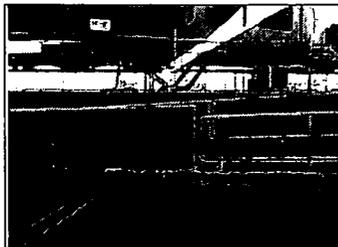
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of exposed blunt end of concrete wall



Side view of exposed blunt end of concrete wall

LOCATION ID	R11-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete wall at walkway where railing and wall meet
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Impacting blunt end of wall and deceleration can cause serious injury to motorists. Due to limited installation space and proximity of lanes and to pedestrian walkway, energy absorption crash cushion system not feasible. Use of tapered concrete barrier end section should be considered as traffic speeds are low in this area. A 6" non-mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Install tapered concrete end section and transition to existing wall <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Remove portion of wall and install BBGR connected to wall with Type III End Section on approach end
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$5,000 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$16,800



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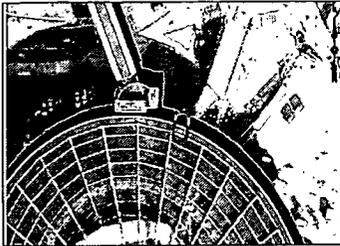


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Location	R11-05
Device	NONE
RSA Priority Level	CRITICAL



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected pier columns



Side view of unprotected pier columns

LOCATION ID	R11-07
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S –Pier columns adjacent to travel way
ROADSIDE SAFETY DEVICE	Non-mountable curbed concrete traffic islands around perimeter of columns and along roadway edge
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	The 6" non-mountable curb and curbed islands are not sufficient to deflect vehicles or prevent impacts with columns. Severe impact with columns would affect structural integrity. Space limitation precludes use of crash cushions unless traffic patterns/flow/channelization re-evaluated and re-routed to allow space for their installation. Structural integrity of columns is main concern
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Remove curbed islands and install concrete barrier on both sides of columns with energy absorbing crash cushion on approach end of concrete barrier <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$19,900 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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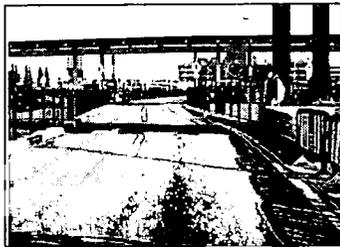
Location	R11-07
Device	NONE
RSA Priority Level	CRITICAL



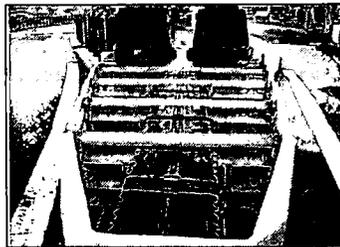
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R13-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign support columns/structure support columns in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush with roadway as per specifications. All components in place and fully functional. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$175 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$0



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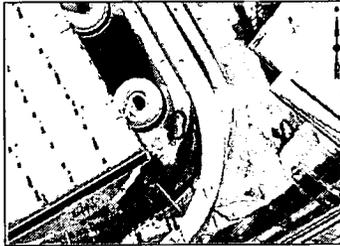


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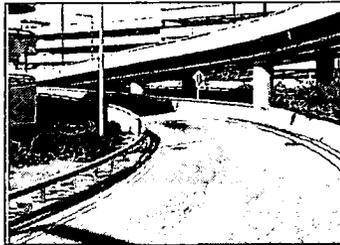
Location	R13-01
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



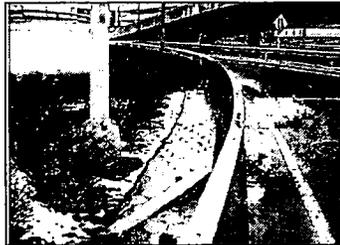
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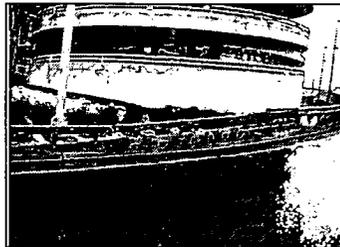
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R13-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at bridge rail
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; most components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue with routine maintenance Long Term: <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (Standard Sheet 606-22) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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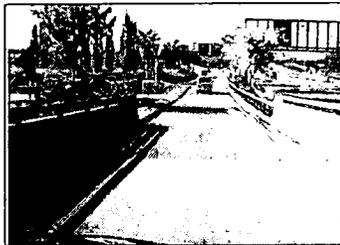
Location	R13-02
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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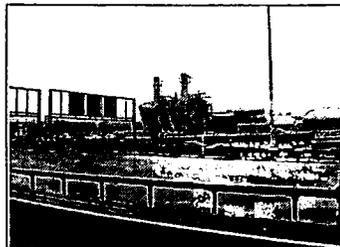
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R13-02A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Narrow median separating opposing traffic/steep side slope/trees
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, minor paint flaking off; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R13-02A
Device	Box Beam Gulderail
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R13-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition, minor paint flaking; all components installed within acceptable height variation. A 6" mountable curb exists along the unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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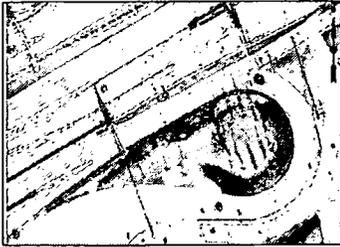


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Location	R13-03
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



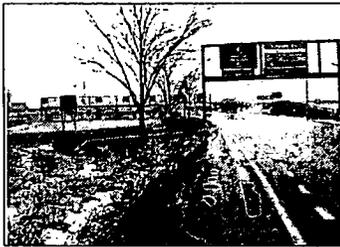
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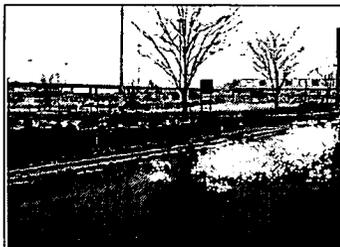
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R13-03A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns/trees
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal flared at/beyond clear zone limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R13-03A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



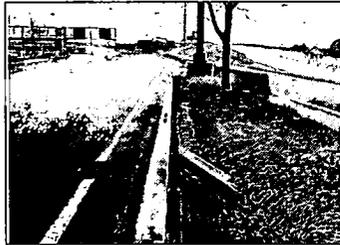
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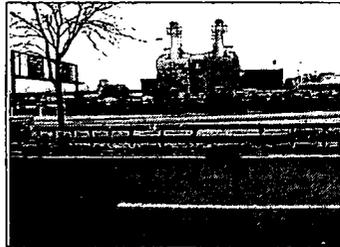
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R13-03B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Blunt end of concrete barrier at overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition, minor paint flaking; all components installed within acceptable height variation. A 6" mountable curb exists along the unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue routine maintenance Long Term: <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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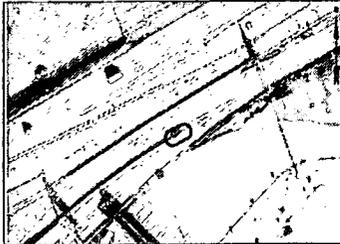


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Location	R13-03B
Device	Box Beam Guidrail Transition Unit
RSA Priority Level	FAIR



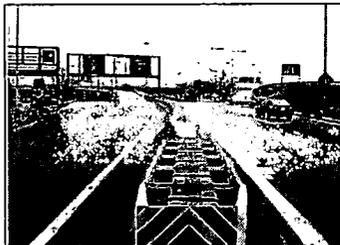
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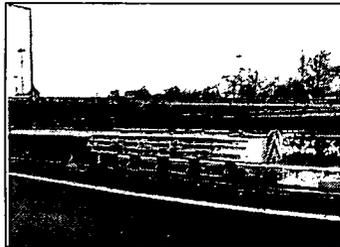
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R13-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Blunt end of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	4 Bay Quadguard Crash Cushion, by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. A 4" mountable curb exists at this location Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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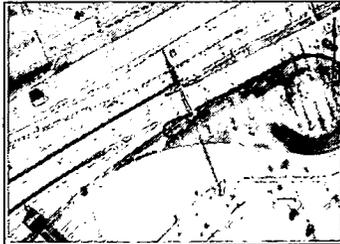


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Location	R13-04
Device	4 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R13-04A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns/trees
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, minor paint flaking off; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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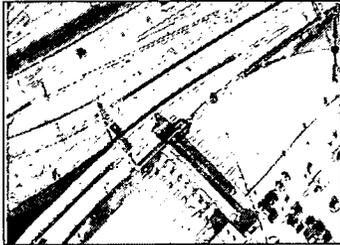


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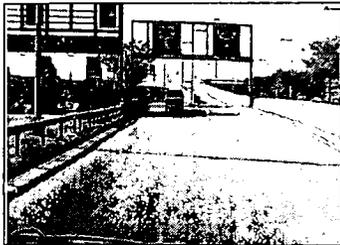
Location	R13-04A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



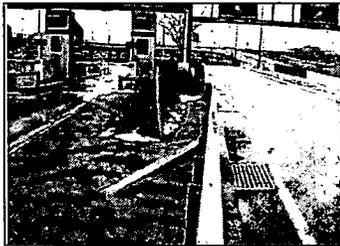
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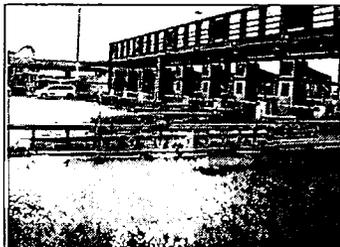
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R13-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition, minor paint flaking; all components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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Location	R13-05
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



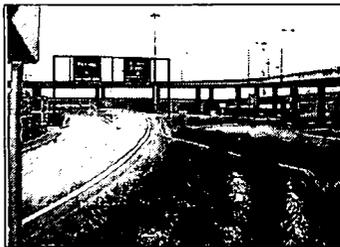
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R13-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Narrow median between opposing traffic
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal flared at/beyond clear zone limits. NOTE: The guiderail posts face opposing traffic, which is a hazard for those vehicles. See R3-07D Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance (see R3-07D) <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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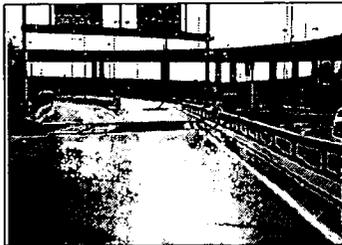
Location	R13-06
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



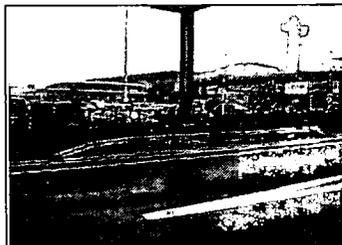
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of BBGR



Side view of BBGR along curb line

LOCATION ID	R13-07
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH. Parking lot exit area very close to end terminal and hazard to exiting vehicles. A 6" mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Replace Type II end terminal with Type III end terminal due to limited lateral clearance, <u>or</u> extend BBGR around curve and into parking lot area and flare from pavement edge as required Long Term: <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$5,150 Long Term Recommendation: <ul style="list-style-type: none"> \$0

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<p>Roadside Safety Audit</p>	
Location	R13-07
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR
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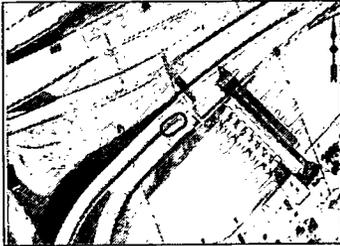
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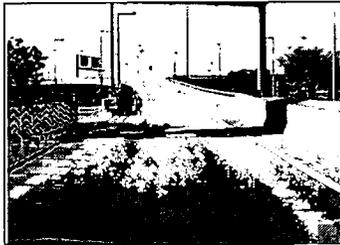
**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R13-07
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR

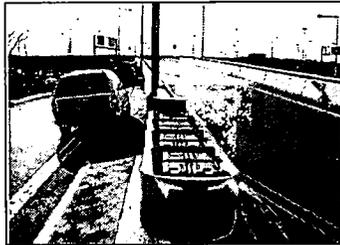
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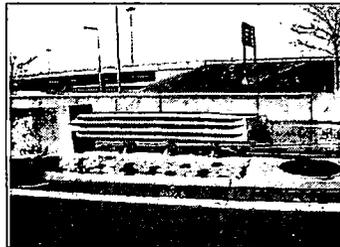
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



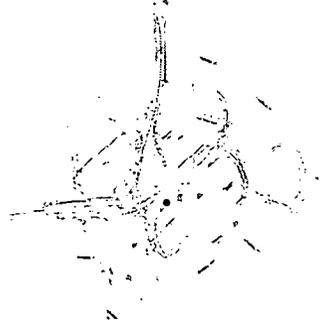
Side view of Quadguard impact attenuator

LOCATION ID	R14-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components in place and fully functional. No reflectivity on nose section of unit. A 4" mountable curb exists at this location Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> • \$175 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> • \$0



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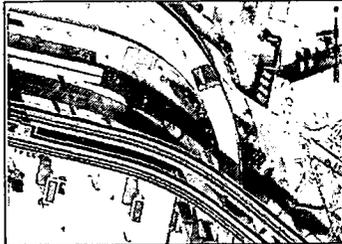


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Audit**

Location	R14-01
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



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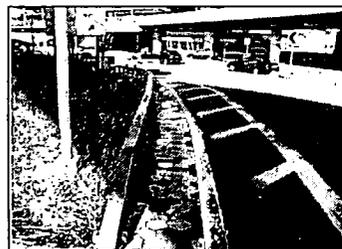
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of BBGR



General view of BBGR along curb line

LOCATION ID	R15A-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 ft
ROADSIDE HAZARD	L/S - Sign structure support columns, trees
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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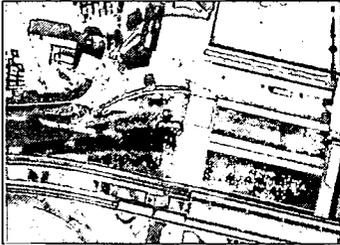


**Roadside Safety
Audit**

Location	R15A-01
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of BBGR



Side view of BBGR along rail

LOCATION ID	R15A-01B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns, over head sign structure support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. 1 post damaged 75 ft from start of run. As per NYS DOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> • Replace damaged post • Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> • \$150 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> • \$0



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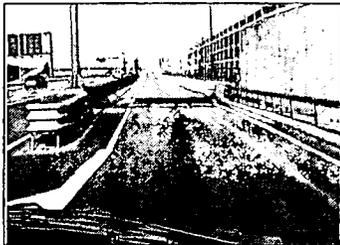
Location	R15A-01B
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



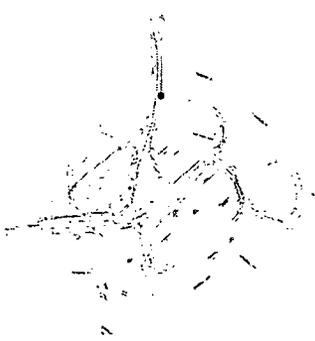
Side view of BBGR

LOCATION ID	R15A-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at concrete wall/fence structure
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32). A 6" mountable curb exists at this location Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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Location	R15A-02
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



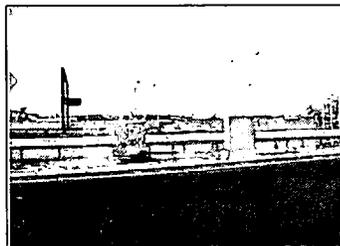
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of unprotected equipment cabinets



Side view of unprotected equipment cabinets

LOCATION ID	R15A-02A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Unprotected equipment cabinets and foundations
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fixed object with foundations protruding > 4” above grade pose serious risk to drivers if hit, and need to be protected from impacts. A 6” mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Re-align and extend existing BBGR to in-front of and past equipment cabinets, and install Type III end section due to lack of available lateral offset <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$4,550 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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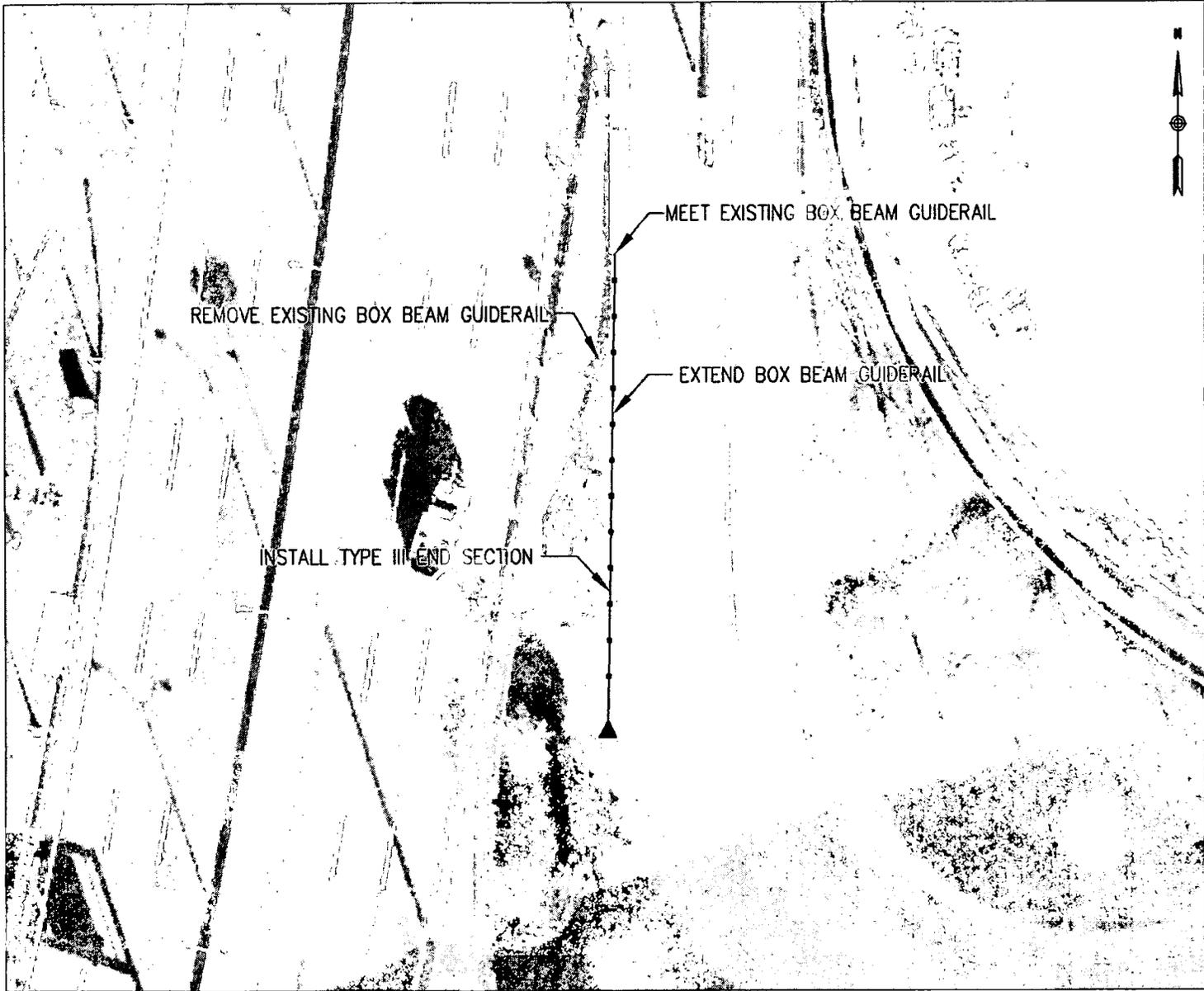


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Location	R15A-02A
Device	NONE
RSA Priority Level	CRITICAL



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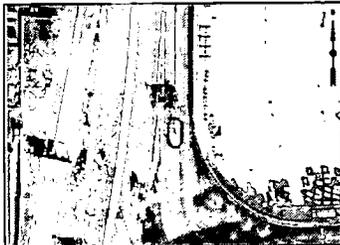
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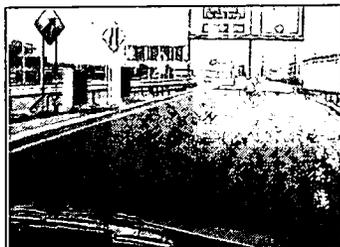
**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R15A-02A
Device	NONE
RSA Priority Level	CRITICAL

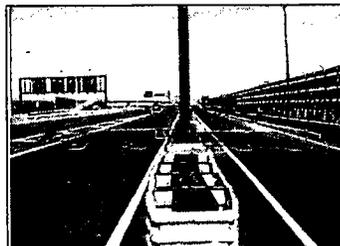




Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



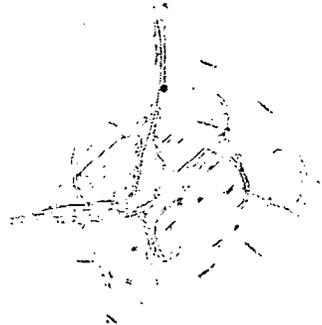
Side view of Quadguard impact attenuator

LOCATION ID	R15A-02B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier between lanes at over head sign support column foundation
ROADSIDE SAFETY DEVICE	4 Bay Hex Foam II Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush with roadway as per specifications. All components are in place and fully functional. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$175 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$0



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Location	R15A-02B
Device	4 Bay Hex Foam II Crash Cushion
RSA Priority Level	GOOD



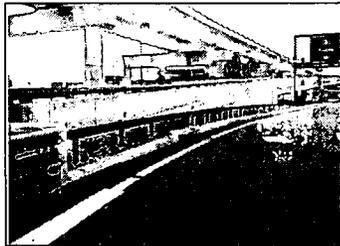
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of BBGR



General view of BBGR along curb line

LOCATION ID	R15A-03A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Wing wall of ramp, overhead sign support columns, pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from behind crash cushion concrete support
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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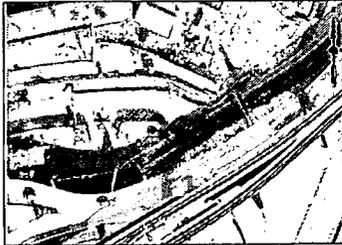


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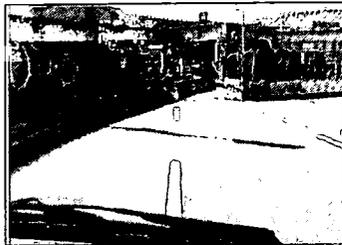
Location	R15A-03A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



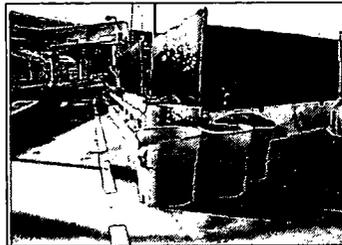
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of sand barrels



Side view of sand barrels

LOCATION ID	R15A-03B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Temporary concrete barrier and blunt end section of BBGR
ROADSIDE SAFETY DEVICE	Sand barrel array
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Some protection will be provided, but unknown if sand levels within barrels are adequate to function as intended if impacted. Although temporary, sand barrel array should be designed and situated according to NYSDOT standards. Also, first barrel in array is broken from impact
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Replace sand barrel array with properly designed array <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Install TL-2 Crash Cushion (2 Bay Quadguard)
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$6,000 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$17,000



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Location	R15A-03B
Device	Sand Barrel Array
RSA Priority Level	POOR



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Audit
Conceptual Plan**

(Not to Scale)

Location

R15A-03B

Device

Sand Barrel Array

**RSA Priority
Level**

POOR



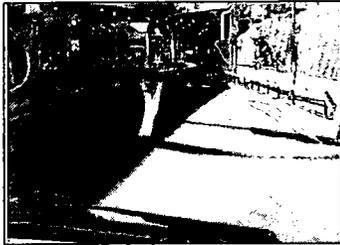
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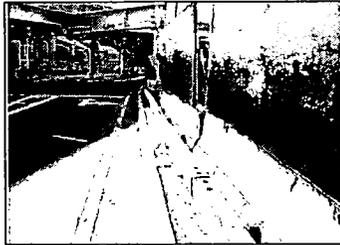
INSTALL 2 BAY QUADGUARD
CRASH CUSHION



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R15A-03C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Temporary concrete barrier IFO work area, pier column
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. However, Type I end terminals should terminate at or beyond clear zone and be flared away from the road to avoid near end or end on impacts and vaulting. Sand barrel array in place, but capability unknown (see 15A-03B location for assessment). A 6" non-mountable curb exists at this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance while construction work on-going (see 15A-03B location for sand barrel array) <u>Long Term:</u> <ul style="list-style-type: none"> Replace Type I end section with Type III end section
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$5,000



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**Roadside Safety
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Location	R15A-03C
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	POOR



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Conceptual Plan**

(Not to Scale)

Location

R15A-03C

Device

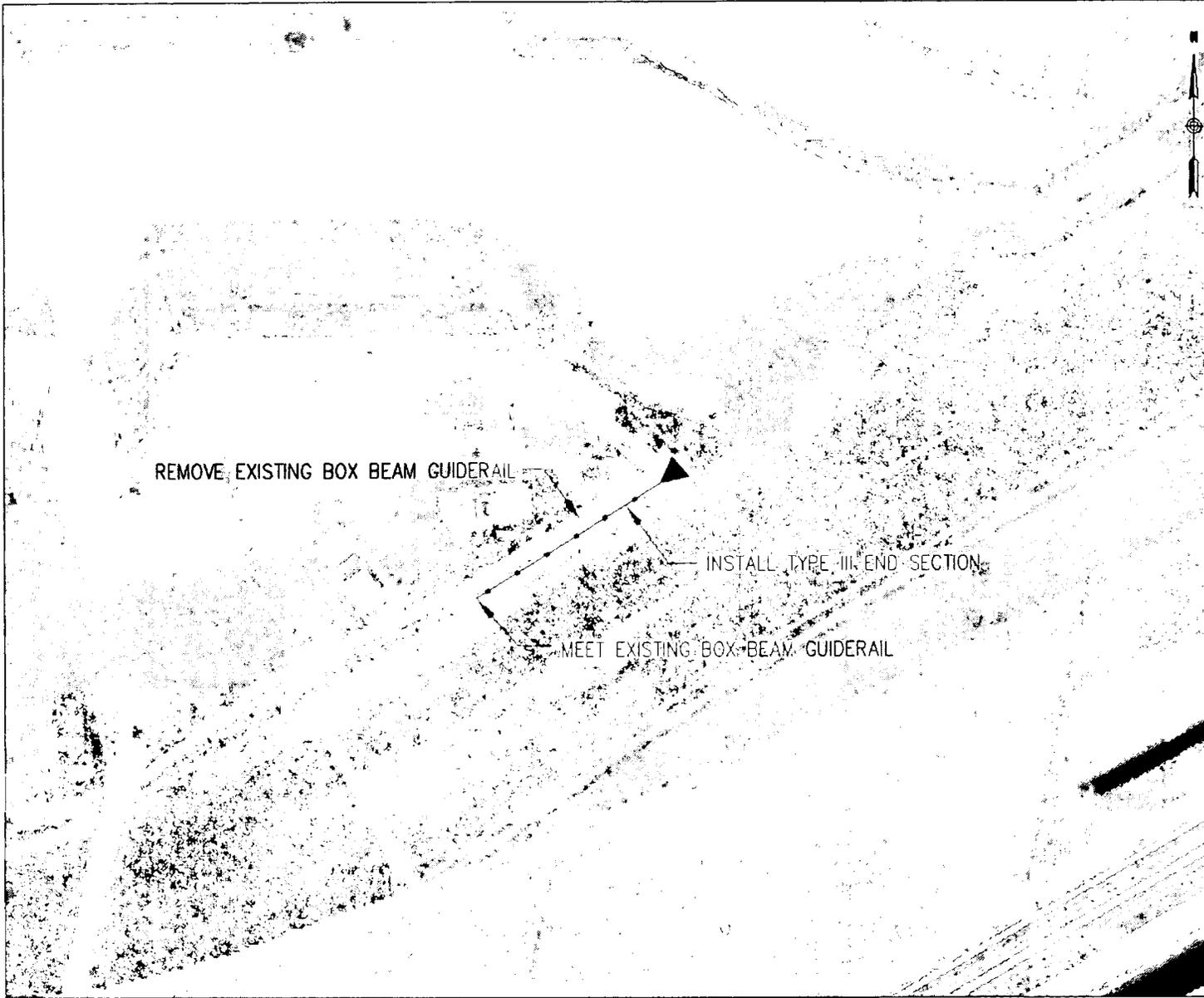
Box Beam Guiderail
with Type I End
Terminal

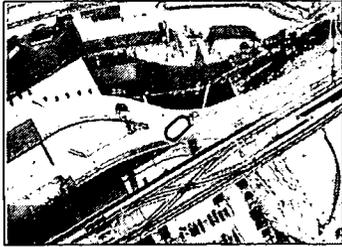
RSA Priority
Level

POOR



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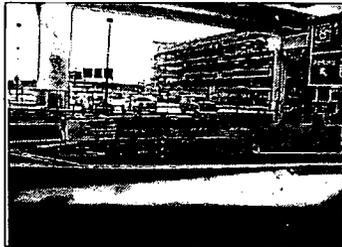
Location Plan-Aerial View (Lower Level)



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R15A-03D
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush with roadway as per specifications. All components are in place and fully functional Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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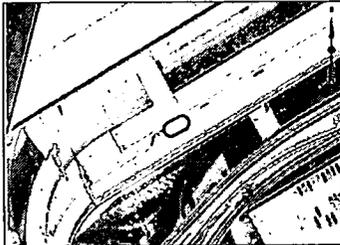


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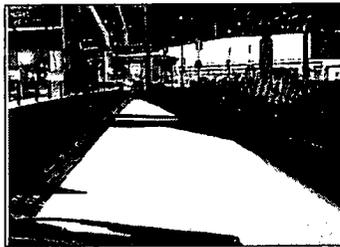
Location	R15A-03D
Device	3 Quadguard Crash Cushion
RSA Priority Level	GOOD



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Location Plan-Aerial View (Lower Level)



Device/Roadway Hazard-Driver's View

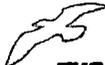


General view of BBGR



Side view of BBGR

LOCATION ID	R15A-03E
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Equipment cabinet, overhead sign support column
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. However, Type I end terminals should terminate at or beyond clear zone and be flared away from the road to avoid near end or end on impacts & vaulting. Low speed through area and 6" non-mountable curb limits this possibility and BBGR will provide some needed protection Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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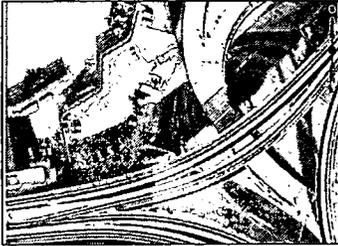


**Roadside Safety
Audit**

Location	R15A-03E
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR



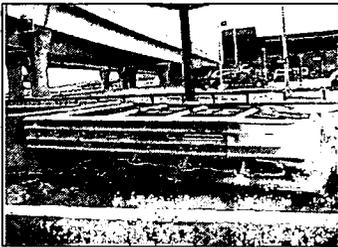
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of Quadguard impact attenuator



General view of Quadguard impact attenuator

LOCATION ID	R15A-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier in gore area between diverging ramps
ROADSIDE SAFETY DEVICE	3 Bay Quadguard crash cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components are in place and fully functional. Missing reflector on nose piece Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install reflectorized panel on nose section • Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$175 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$0



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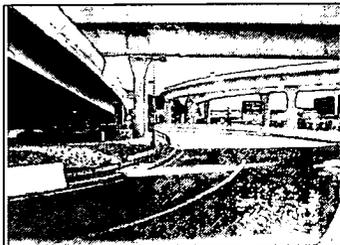
Location	R15A-04
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R15A-04A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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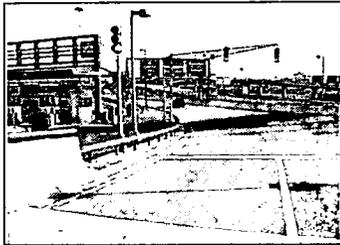
Location	R15A-04A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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Landscape Architecture, P.C.*



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



Side view of BBGR



General view of BBGR along curb line

LOCATION ID	R15A-04B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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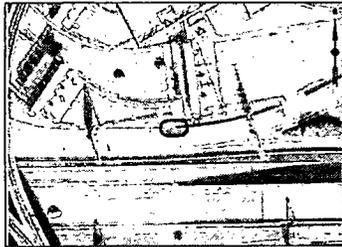


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Location	R15A-04B
Device	Box Beam Guiderail
RSA Priority Level	GOOD



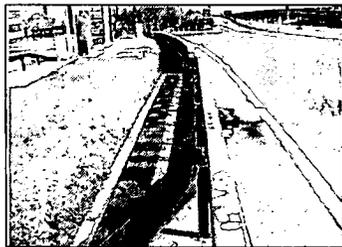
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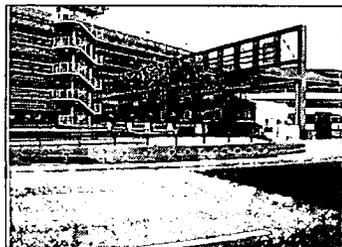
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



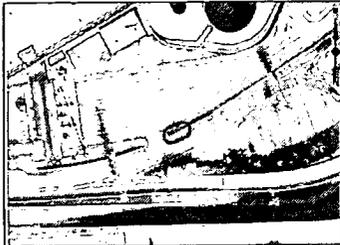
General view of BBGR along rail



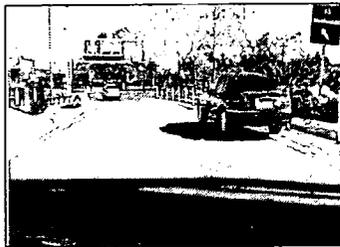
Side view of BBGR transition section to concrete barrier

LOCATION ID	R15A-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue routine maintenance Long Term: <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000

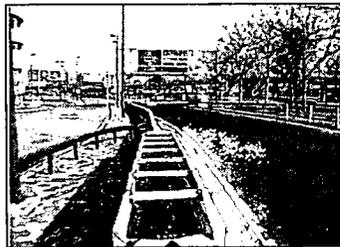
 <p>THE PORT AUTHORITY OF NY & NJ</p>	
<p align="center">JFK International Airport Central Terminal Area</p>	
	
<p align="center">Roadside Safety Audit</p>	
Location	R15A-05
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR
 <p>Engineering, Surveying and Landscape Architecture, P.C.</p>	



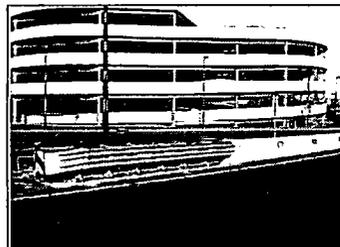
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R15A-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S - Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	6 Bay Quadguard Crash Cushion, by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush with roadway as per specifications. All components are in place and fully functional Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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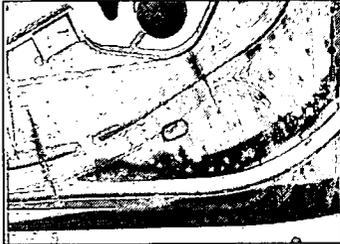


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Location	R15A-06
Device	6 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R15A-06A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign support column/trees
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Flare from road for Type I end section is satisfactory Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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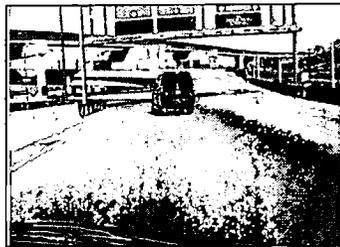
Location	R15A-06A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



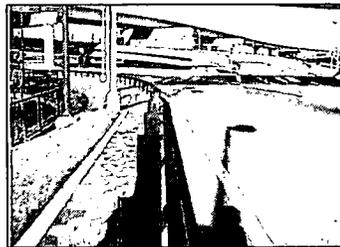
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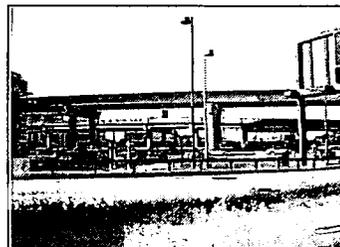
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



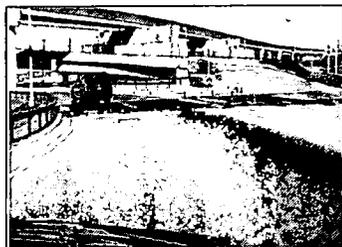
Side view of BBGR

LOCATION ID	R15A-06B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – over head sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
CRASH HISTORY	None evident at time of inspection
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0

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Location	R15A-06B
Device	Box Beam Guiderail
RSA Priority Level	GOOD
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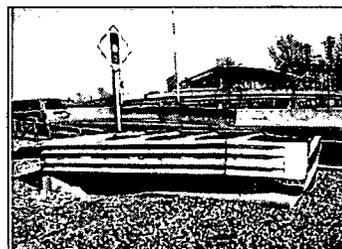
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R15A-07
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 - 16 feet
ROADSIDE HAZARD	R/S -End sections of box beam guiderail in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion, by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed as per specifications. All components are in place and fully functional. A 6" non-mountable curb exists around unit. However these type units recommend installation without curbing to prevent vaulting into unit or impacts at less than desirable height level Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Remove non-mountable curb and install flush concrete base for Quadguard unit/transition to existing curb beyond Remove and reinstall Quadguard unit on flush concrete base <u>Long Term:</u> <ul style="list-style-type: none"> Continue routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$4,650 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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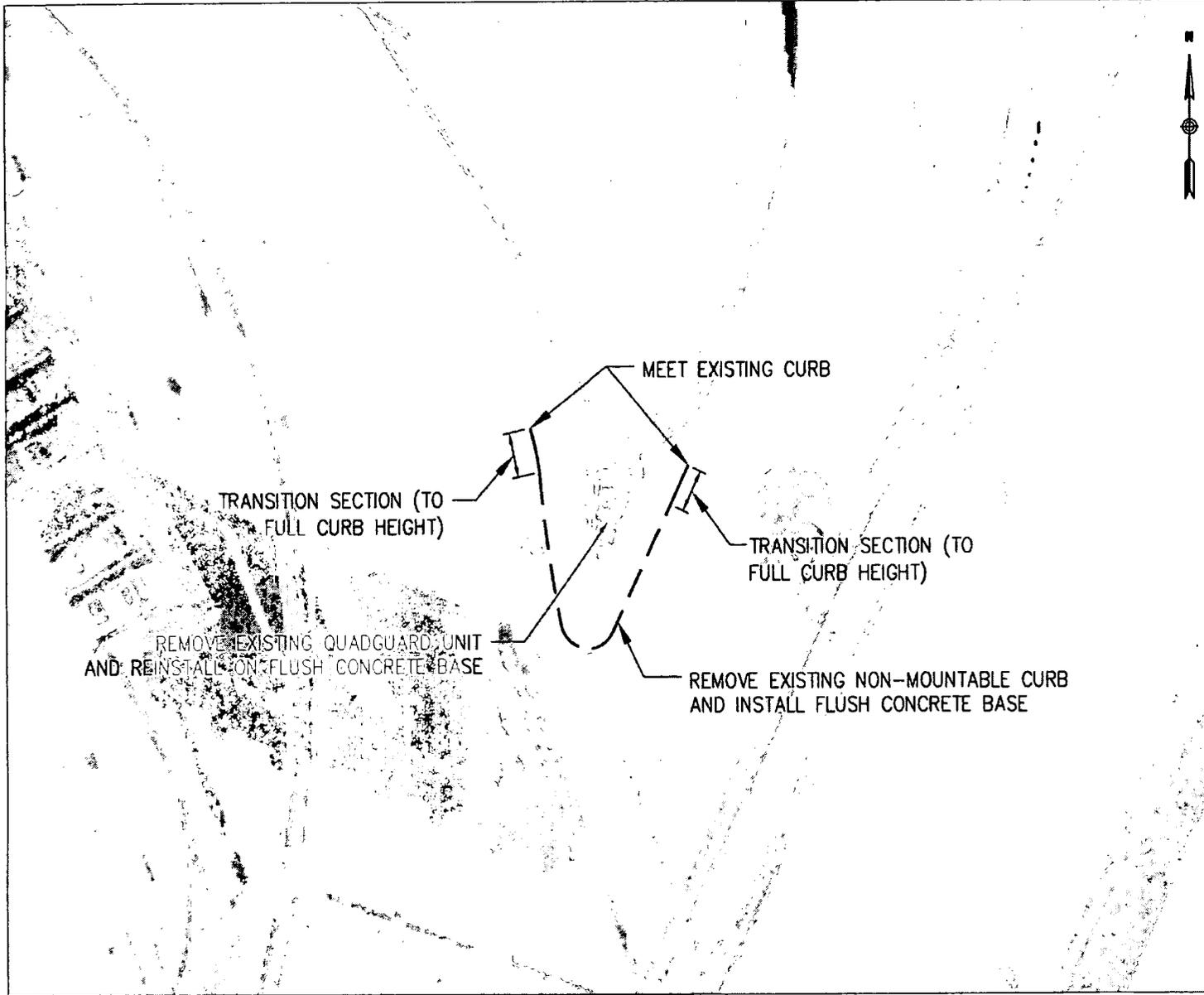


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Location	R15A-07
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	FAIR



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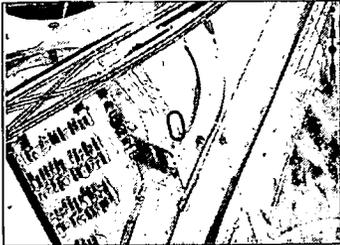
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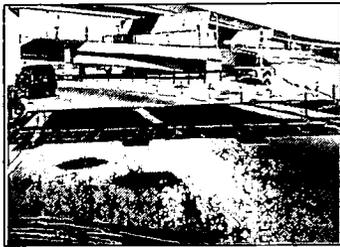
**Roadside Safety
 Audit
 Conceptual Plan**
 (Not to Scale)

Location	R15A-07
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	FAIR

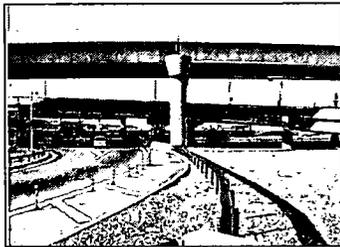
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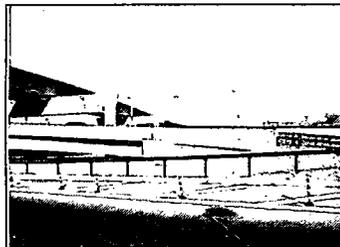
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R15A-07A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Pier columns/drop-off
ROADSIDE SAFETY DEVICE	Box beam guiderail from behind crash cushion (see 15A-07 location)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
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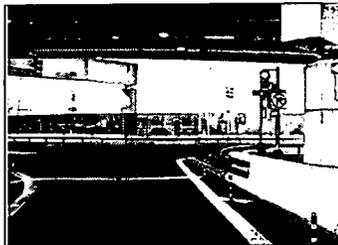
Location	R15A-07A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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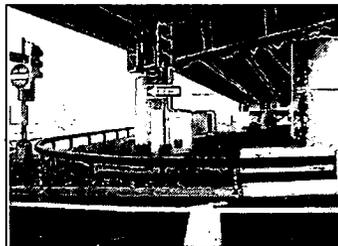
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R15A-08
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier to box beam guiderail at pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly around curve
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue routine maintenance Long Term: <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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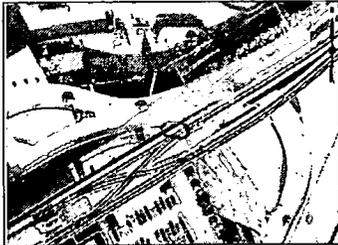


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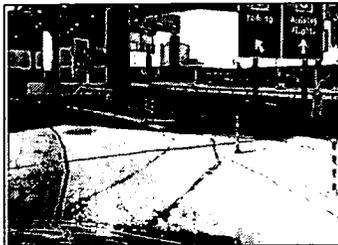
Location	R15A-08
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



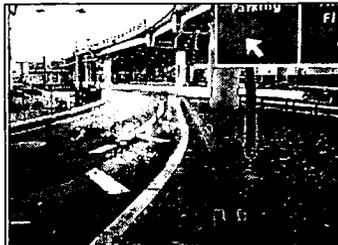
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Location Plan-Aerial View (Lower Level)



Device/Roadway Hazard-Driver's View



General view of BBGR Type II end section offset from roadway



Side view of BBGR Type II end section

LOCATION ID	R15A-08A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R15A-08A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	GOOD



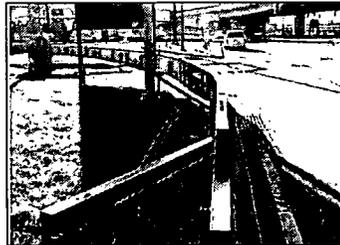
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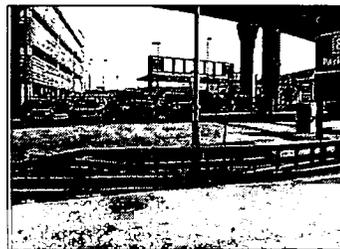
Location Plan-Aerial View (Lower Level)



Device/Roadway Hazard-Driver's View



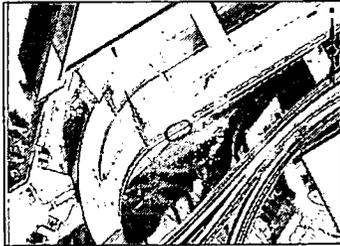
General view of BBGR transition section to concrete barrier



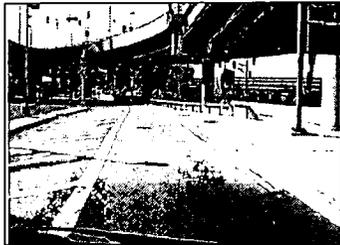
Side view of BBGR transition section to concrete barrier

LOCATION ID	R15A-08C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" non-mountable curb exists along unit. Post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32), and Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Continue routine maintenance <p>Long Term:</p> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$0 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$8,000

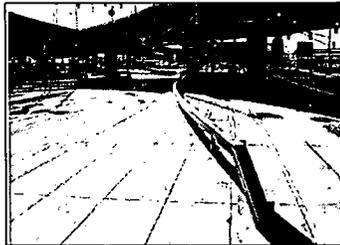
 <p>THE PORT AUTHORITY OF NY & NJ</p>	
<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R15A-08C
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR
 <p>Engineering, Surveying and Landscape Architecture, P.C.</p>	



Location Plan-Aerial View (Lower Level)



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



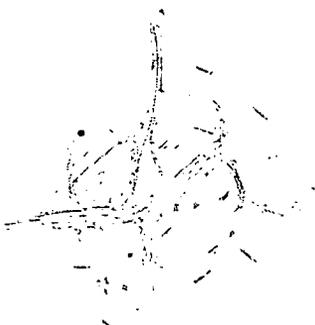
Side view of BBGR Type I end section

LOCATION ID	R15A-08D
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR. Flare from road for Type I end section is satisfactory Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R15A-08D
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



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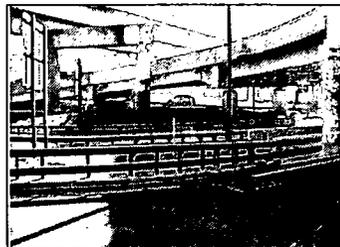
Location Plan-Aerial View (Lower Level)



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R15A-08E
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" non-mountable curb exists along unit. Post configuration along transition assembly conforms to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Meets NCHRP 350 criteria, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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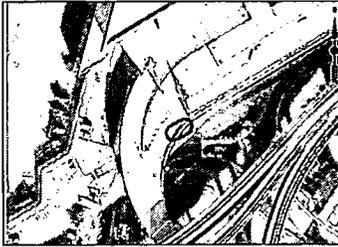


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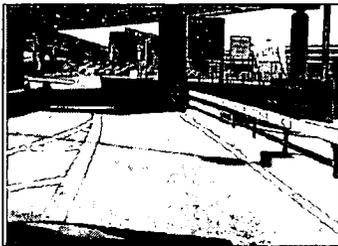
Location	R15A-08E
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



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Location Plan-Aerial View (Lower Level)



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R15A-09
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" non-mountable curb exists along unit. Post configuration along transition assembly conforms to current NYS DOT BBGR transition to concrete barrier (Standard Sheet M606-32) Meets NCHRP 350 criteria, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R15A-09
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



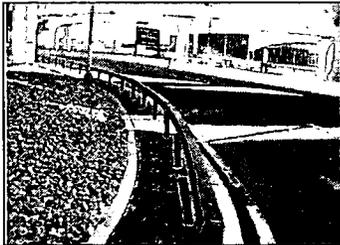
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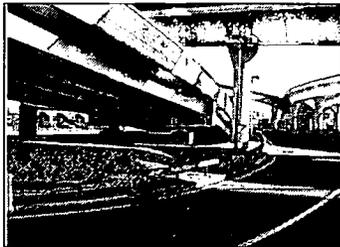
Location Plan-Aerial View (Lower Level)



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



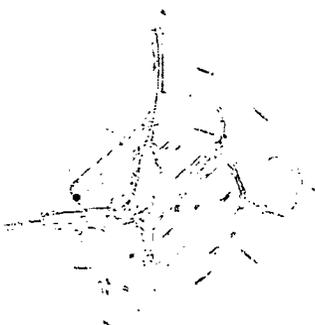
Side view of BBGR

LOCATION ID	R15A-09A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns/bridge girders
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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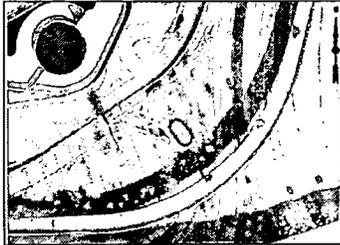


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Location	R15A-09A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

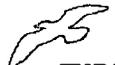


General view of BBGR along rail



Side view of BBGR

LOCATION ID	R15A-10A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guide rail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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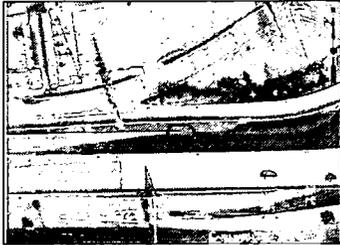


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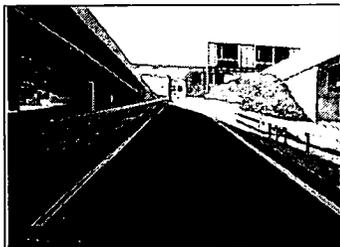
Location	R15A-10A
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	GOOD



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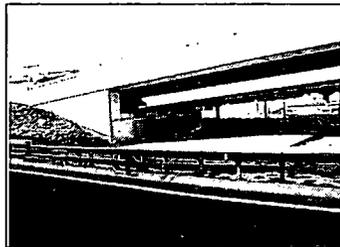
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R15A-11
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at ramp abutment and overhead sign support
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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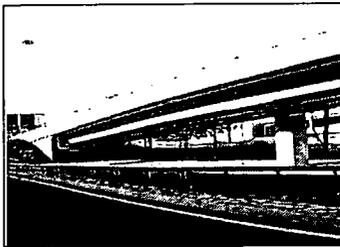
Location	R15A-11
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



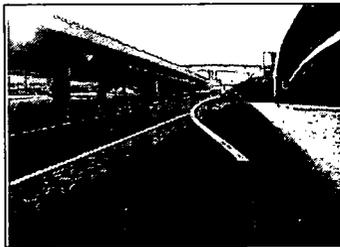
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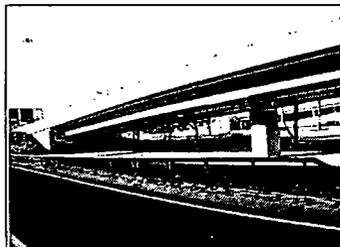
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R15A-11A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns and bridge abutment
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. Flare from road for type I end section is satisfactory Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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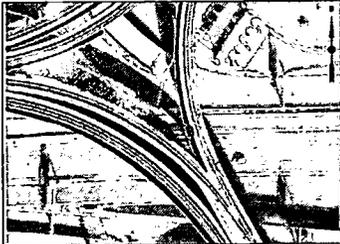


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Location	R15A-11A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



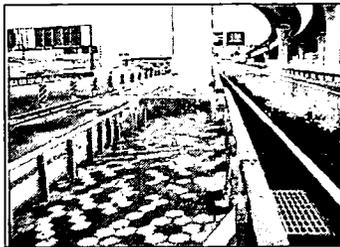
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R15A-12
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 - 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" mountable curb exists along unit. Post configuration along transition assembly conforms to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Meets NCHRP 350 criteria, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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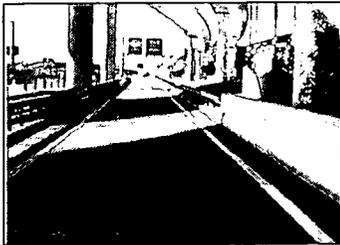
Location	R15A-12
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



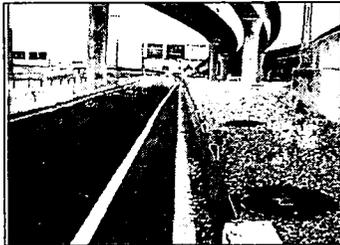
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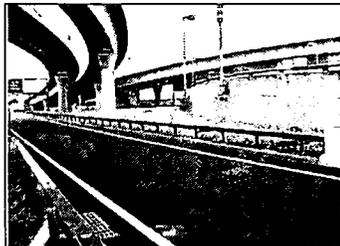
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R15A-12A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns, abutment, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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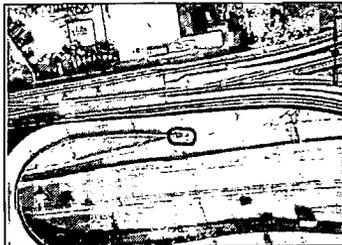


**Roadside Safety
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Location	R15A-12A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



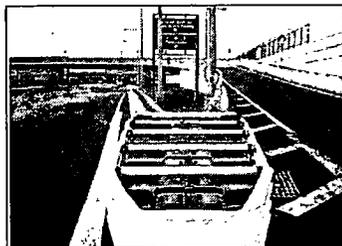
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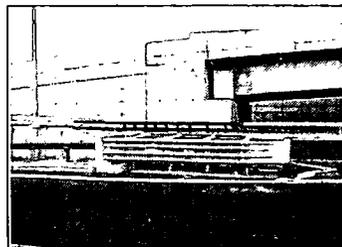
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



Side view of Quadguard impact attenuator

LOCATION ID	R15A-13
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush with roadway as per specifications. All components are in place and fully functional. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$175 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$0



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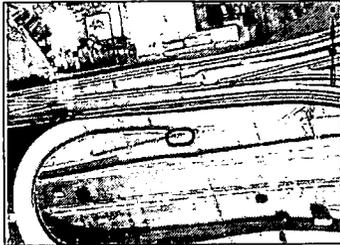


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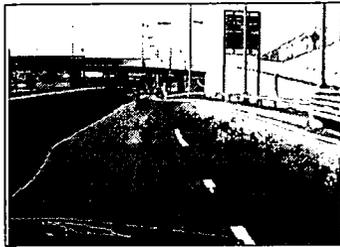
Location	R15A-13
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



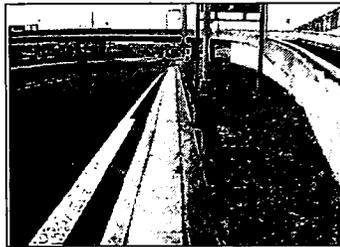
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR with post missing

LOCATION ID	R15A-13A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign support columns, wing wall
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to crash cushion concrete support
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	BBGR set back greater than 1 ft (2 ft) from 6" non-mountable curb and vehicles may vault rail. Post missing IFO concrete sign support of adjacent roadway and is within deflection distance of BBGR
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Remove and re-install BBGR at 1 ft offset max from non-mountable curb and install additional posts at half spacing to reduce BBGR deflection as necessary <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$6,500 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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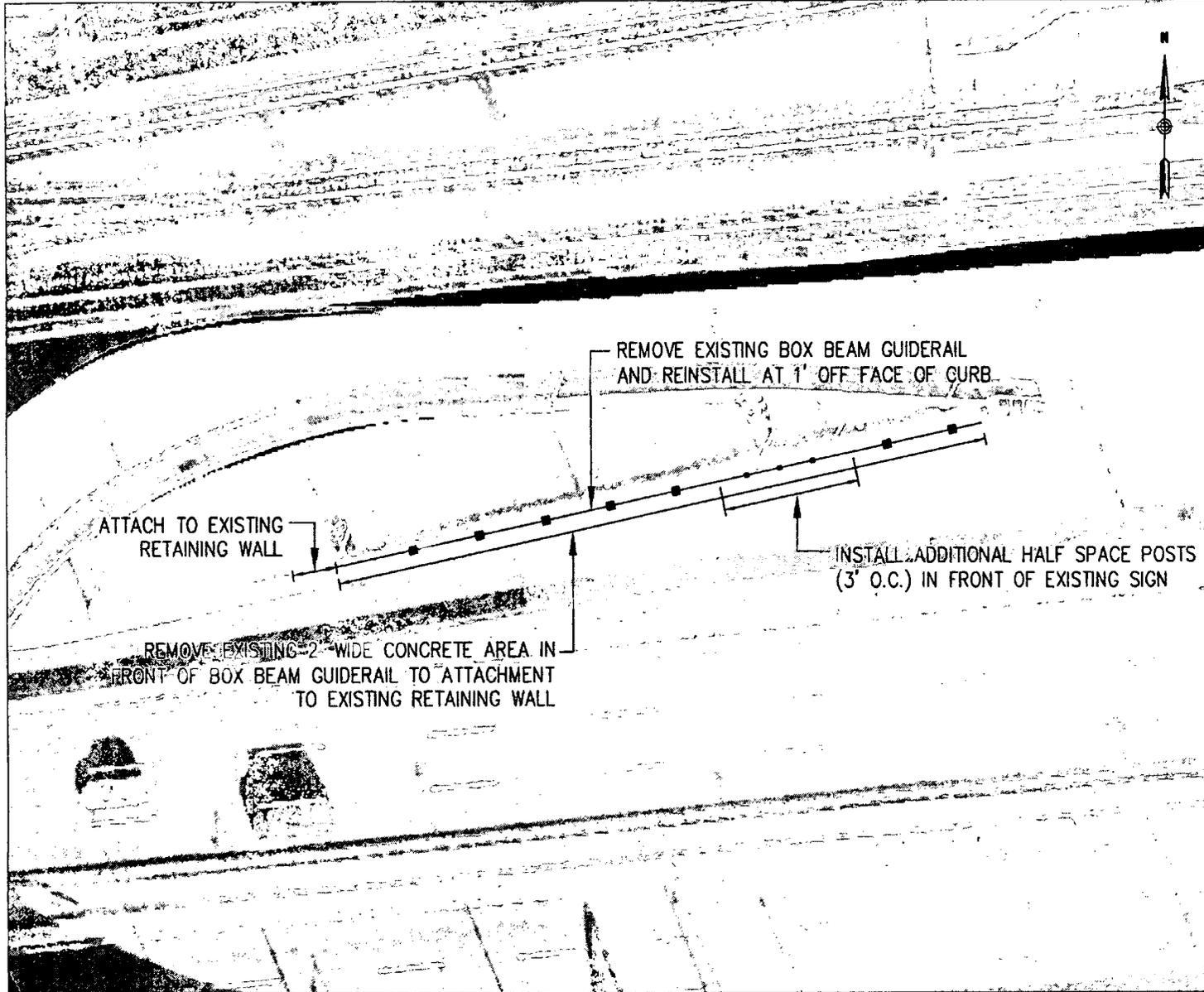


**Roadside Safety
Audit**

Location	R15A-13A
Device	Box Beam Guiderail
RSA Priority Level	POOR



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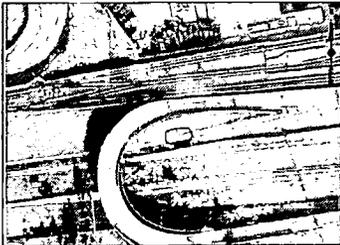


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**Roadside Safety
Audit
Conceptual Plan**
 (Not to Scale)

Location	R15A-13A
Device	Box Beam Guiderail
RSA Priority Level	POOR



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of insufficient BBGR protection



Side view of insufficient BBGR protection

LOCATION ID	R15A-14
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail and sand barrel
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	A section of box beam guiderail has been disconnected and is lying at base of intact section, creating a 17'-1" gap between BBGR and retaining wall that vehicles can enter. Only one post is visible for detached section of BBGR. Sand barrel serves no purpose. Possible that BBGR section removed to gain access. A 6" non-mountable curb exists at this location Meets NCHRP 350 criteria, TL-3
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Remove and re-install BBGR at 1 ft offset max from non-mountable curb and transition BBGR installed under Location 15A-13A to connect to face of retaining wall Long Term: <ul style="list-style-type: none"> Continue routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$9,500 Long Term Recommendation: <ul style="list-style-type: none"> \$0



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**Roadside Safety
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Location	R15A-14
Device	Box Beam Guiderail
RSA Priority Level	POOR



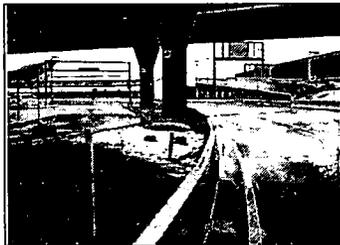
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

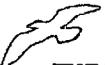


General view of BBGR along curb line



Side view of BBGR transition section to concrete barrier

LOCATION ID	R16-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at pier columns
ROADSIDE SAFETY DEVICE	Standard NYSDOT box beam guiderail to single slope half section concrete barrier transition assembly (Standard Sheet M606-32)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along unit Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R16-01
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



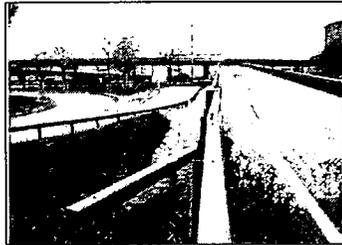
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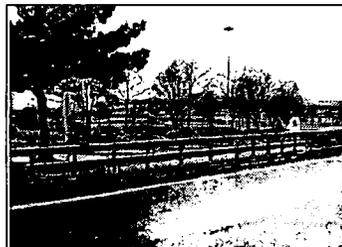
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R16-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete bridge barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition, minor impact and damage to lower box rail at lateral brace section; components installed within acceptable height variation. A 6" mountable curb exist along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Replace damaged lower box rail section Long Term: <ul style="list-style-type: none"> Upgrade/replace the transition unit to current NYSDOT transition standard (M606-32) as funds become available or as part of improvement/safety project
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$1,300 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000 (Add'l)



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**Roadside Safety
Audit**

Location	R16-02
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



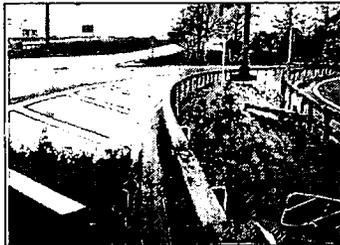
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R16-02A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, minor paint flaking off; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R16-02A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R16-02B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Trees, narrow median between opposing traffic
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal flared at/beyond clear zone limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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**Roadside Safety
Audit**

Location	R16-02B
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



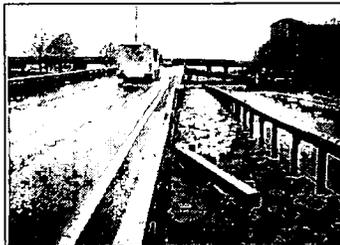
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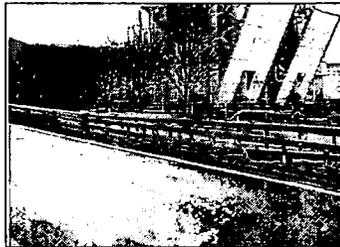
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section along rail



Side view of BBGR transition section to concrete barrier

LOCATION ID	R16-02C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete bridge barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Poor condition, numerous posts bent over and box rails scraped and rail-post connections broken/damaged; components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide limited protection due to damage and post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace damaged transition unit with current NYSDOT transition unit standard (M606-32) <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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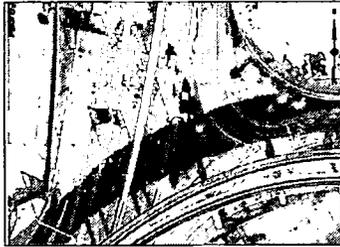


**Roadside Safety
Audit**

Location	R16-02C
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	POOR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View

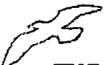


General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R16-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Trees, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal flared at/beyond clear zone limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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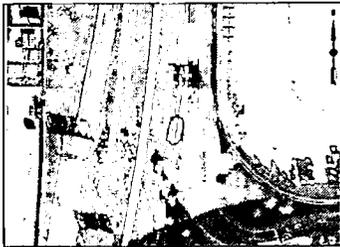


**Roadside Safety
Audit**

Location	R16-03
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



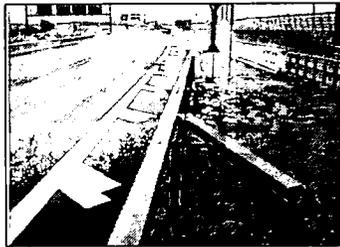
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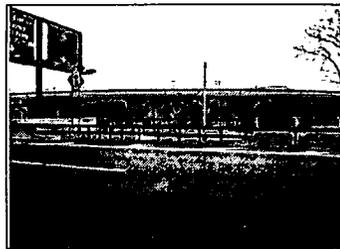
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R16-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue routine maintenance Long Term: <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (Standard Sheet 606-22) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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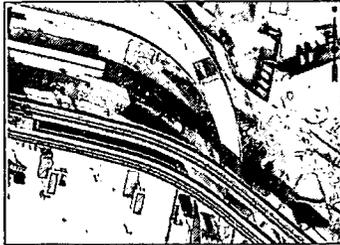


**Roadside Safety
Audit**

Location	R16-04
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R17-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Trees, sign support
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, minor scraping along rail; components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. A single splice bolt missing at 2 nd splice connection from end. As per NYSDOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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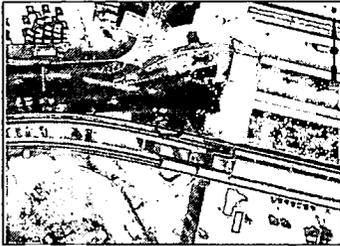


**Roadside Safety
Audit**

Location	R17-01
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	GOOD



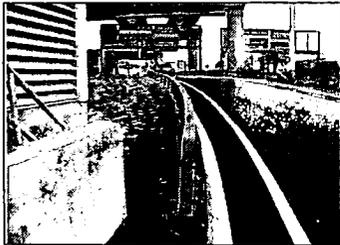
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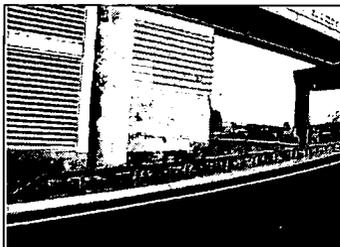
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R17-01A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S - Pier columns, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. However, Type I end terminals should terminate at or beyond clear zone and be flared away from the road to avoid near end or end on impacts and vaulting in this case Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	POOR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Replace Type I end section with Type III end section, continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$5,000 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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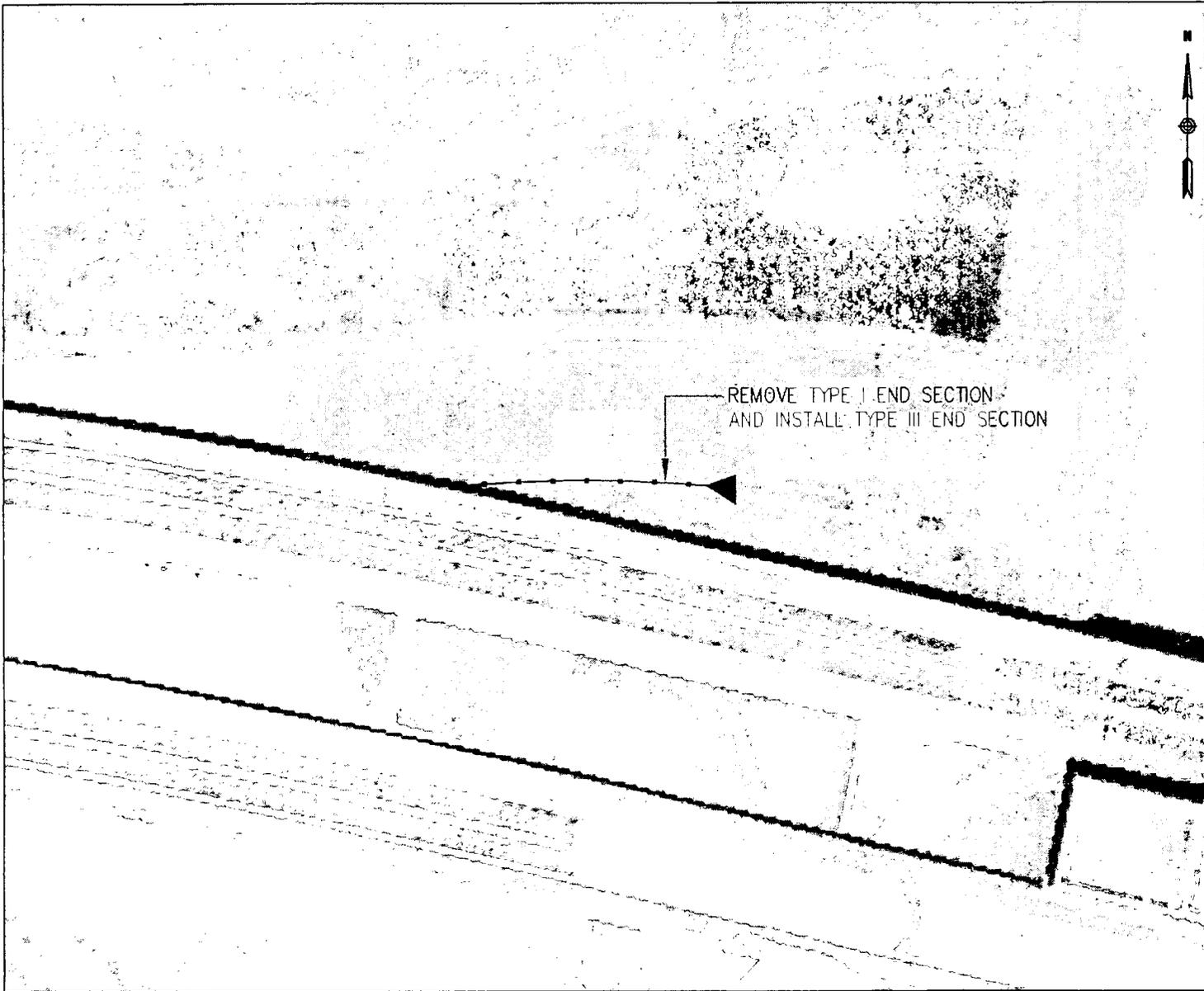


**Roadside Safety
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Location	R17-01A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	POOR



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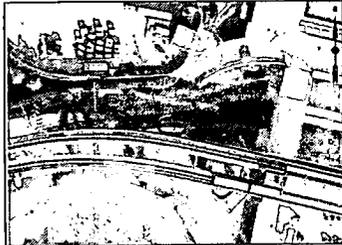
**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

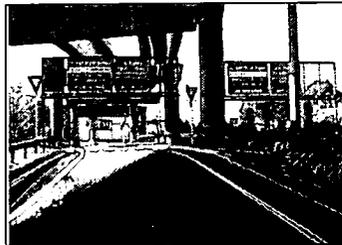
Location	R17-01A
Device	Box Beam Guardrail with Type I End Terminal
RSA Priority Level	POOR



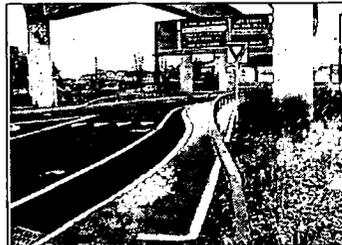
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R17-01B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S - Pier columns, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. However, Type I end terminals should terminate at or beyond clear zone and be flared away from the road to avoid near end or end on impacts and vaulting. Also, column at end of run is within deflection distance of guiderail with its standard 6 ft post spacing Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Install additional posts at half-spacing IFO last column and extend beginning of railing to achieve 14 ft to 16 ft offset of Type I end terminal from roadway Long Term: <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$3,400 Long Term Recommendation: <ul style="list-style-type: none"> \$0

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<p>Roadside Safety Audit</p>	
Location	R17-01B
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR
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**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location

R17-01B

Device

**Box Beam Guiderail
with Type I End
Terminal**

**RSA Priority
Level**

FAIR

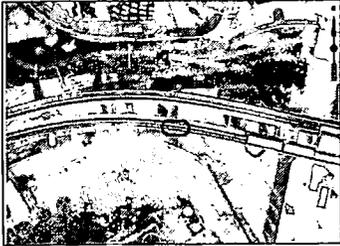


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EXTEND BOX-BEAM GUIDERAIL
UNTIL 14'-16" OFFSET ACHIEVED

14'-16"



Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



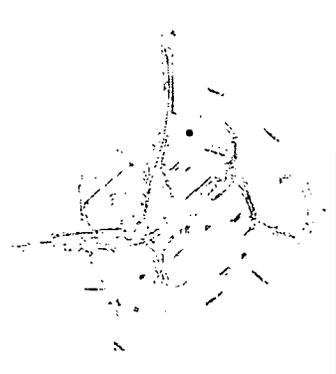
Side view of BBGR

LOCATION ID	R17-01C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns, overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. As per NYS DOT, Type II end terminals are not approved for new installations, but can be retained in most existing locations with limited lateral clearances and where operating speeds are less than 45 MPH. However, columns are within deflection distance along guiderail run, even with halved post spacing and lateral offset deflection reduction factor considered. Nearest column is 1'-7" from back of rail Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Replace guiderail along left side of road with half section concrete barrier (280 l.f.). Install BBGR-to- concrete barrier transition on approach end
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$71,975



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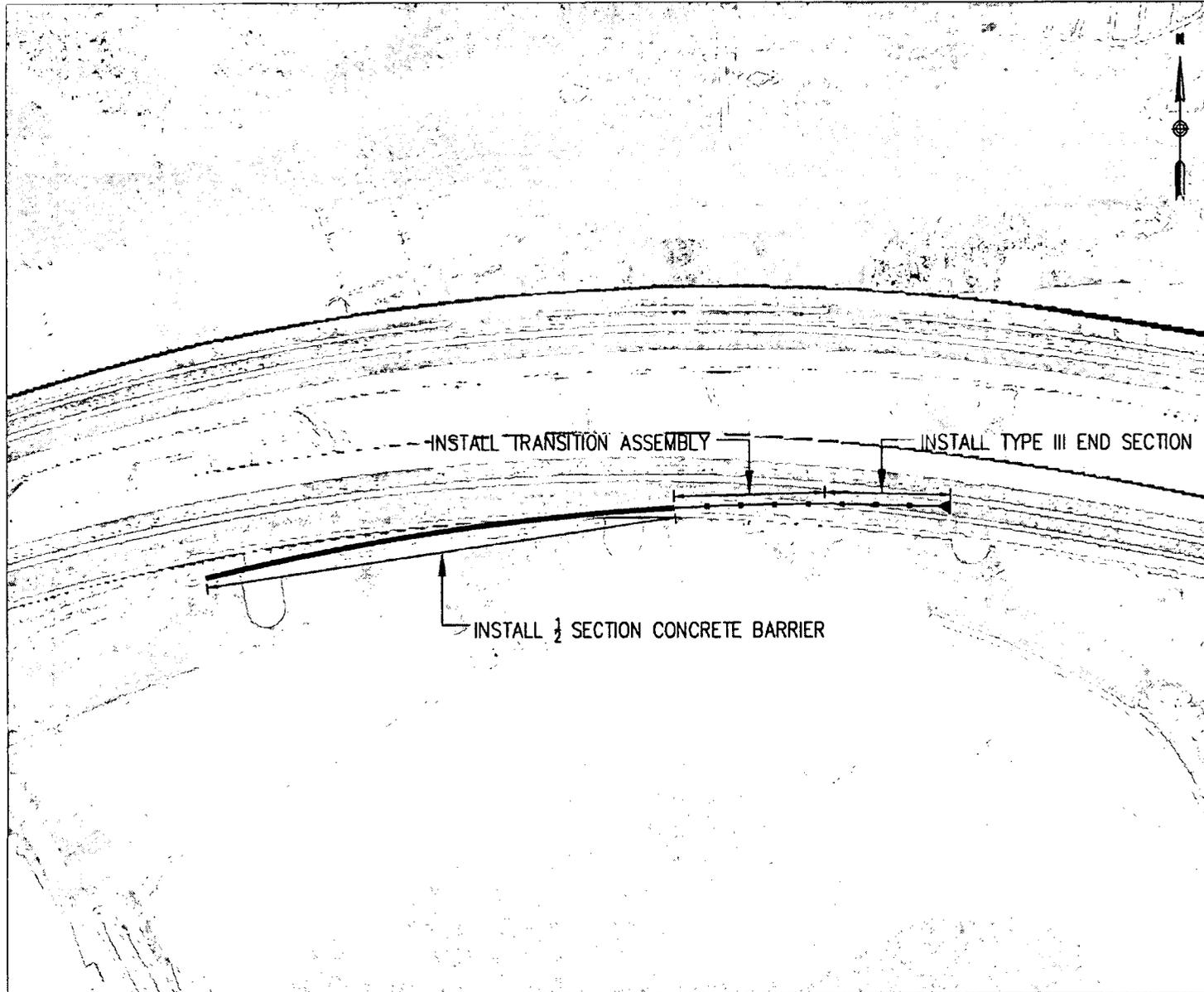


**Roadside Safety
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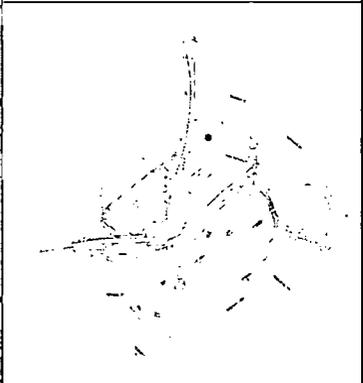
Location	R17-01C
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR



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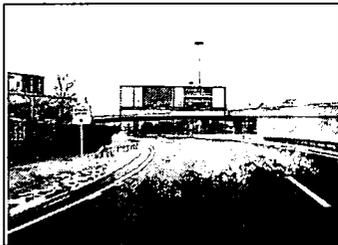
**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R17-01C
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	FAIR

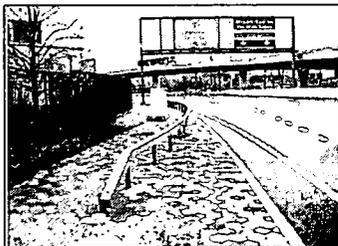




Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R17-01D
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Equipment cabinet and overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. However, insufficient flare from road for Type I end section and equipment cabinet is within deflection distance of rail Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Install additional posts at half spacing IFO equipment cabinet and extend beginning of rail to achieve required lateral offset from road for Type I end section <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$3,900 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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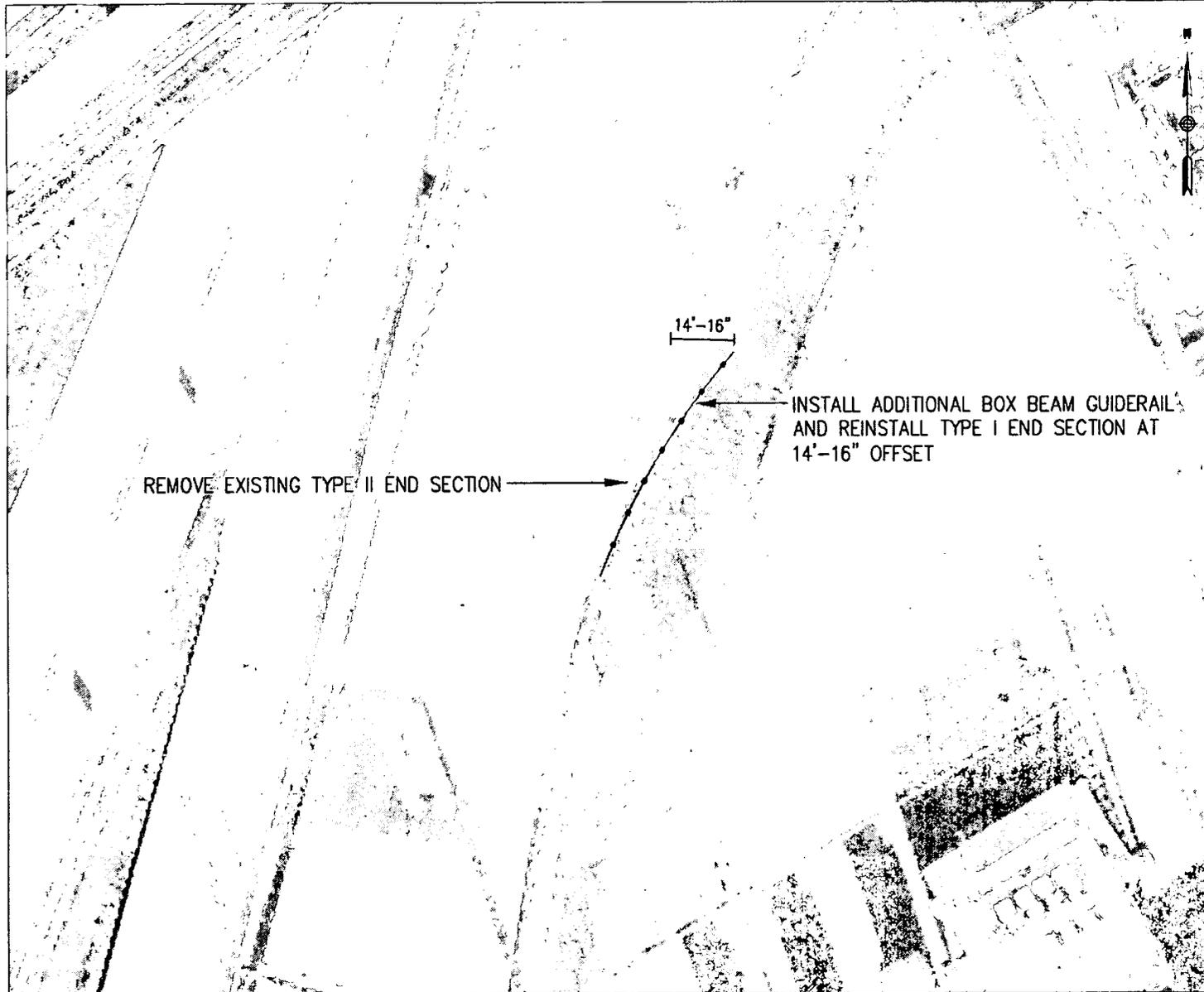


**Roadside Safety
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Location	R17-01D
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR



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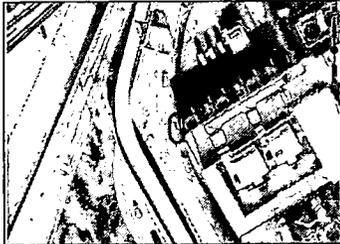
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**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R17-01D
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR





Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected equipment cabinet



Side view of unprotected equipment cabinet

LOCATION ID	R17-01E
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Unprotected equipment cabinet poses blunt end impact
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Equipment cabinet is 6 ft from yellow roadway edge line and 3'-10" from curb, well within clear zone. A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Re-grade roadside area in vicinity of equipment cabinet to reduce exposed portion of foundation <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$300 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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**Roadside Safety
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Location	R17-01E
Device	NONE
RSA Priority Level	CRITICAL



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REGRADE AREA AROUND EQUIPMENT CABINETS AS NECESSARY



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(Not to Scale)

Location	R17-01E
Device	NONE
RSA Priority Level	CRITICAL



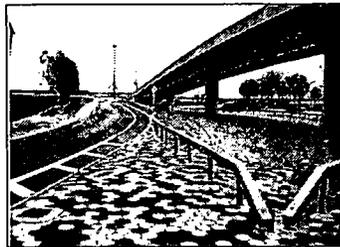
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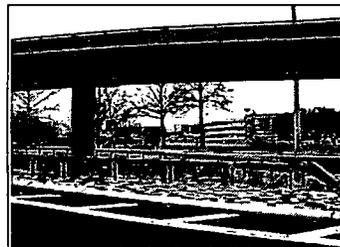
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R17-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 -16 feet
ROADSIDE HAZARD	R/S – Pier columns and bridge abutment
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal flared at/beyond clear zone limits Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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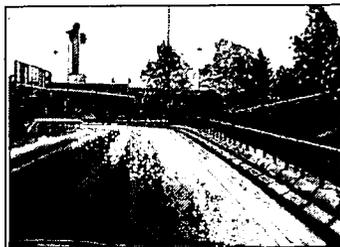
Location	R17-02
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



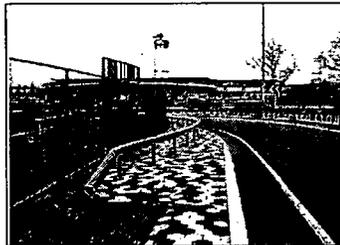
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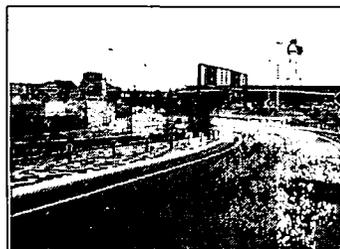
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R17-02A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Fenced area, steep side slope
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. However, Type I end terminals should terminate at or beyond clear zone and be flared away from the road to avoid near end or end on impacts and vaulting Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Extend beginning of railing past fence post to achieve 14 ft to 16 ft offset from roadway for Type I end terminal/install pavers (salt splash) under extended BBGR Long Term: <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$6,200 Long Term Recommendation: <ul style="list-style-type: none"> \$0



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**Roadside Safety
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Location	R17-02A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	FAIR



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Location

R17-02A

Device

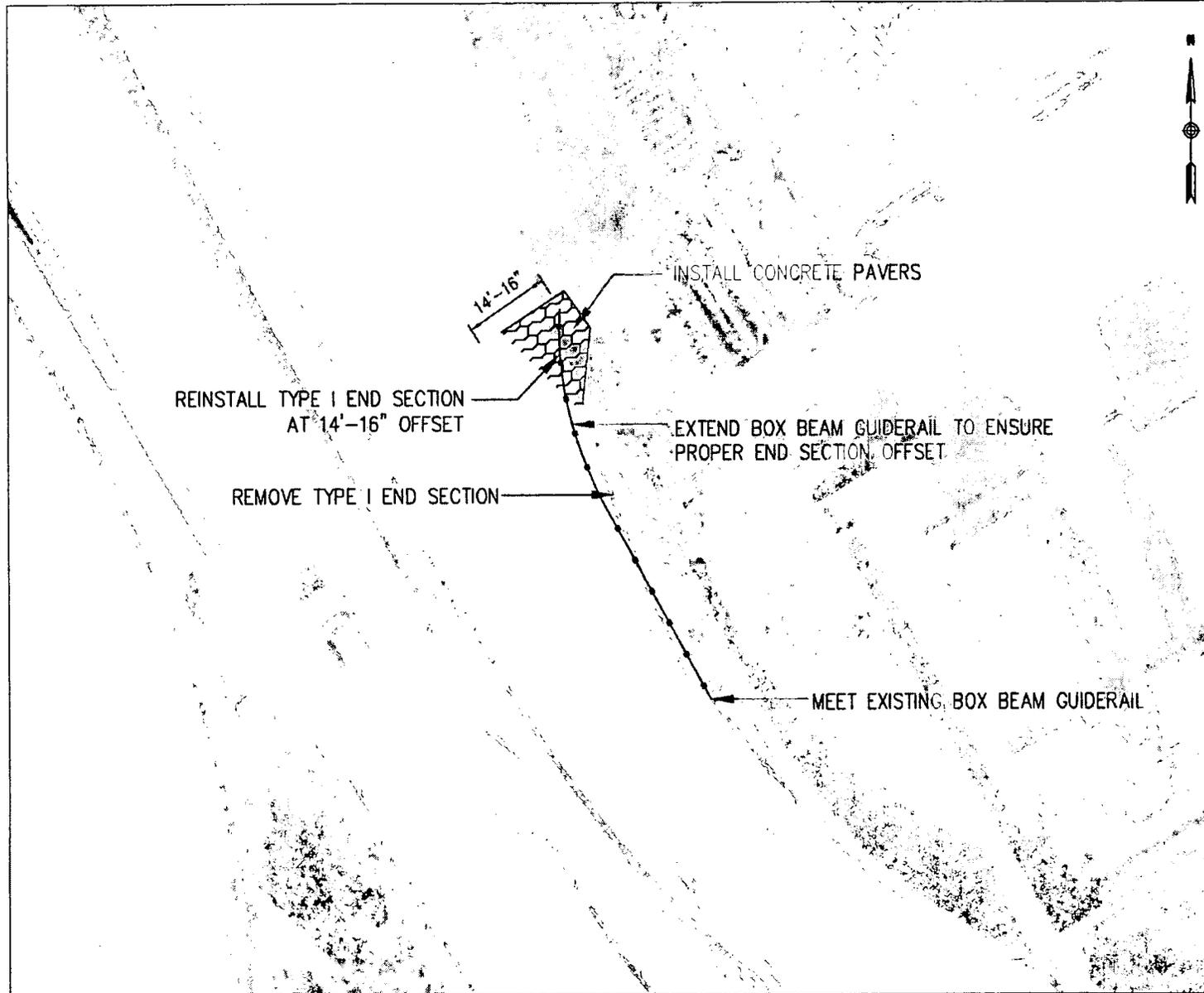
**Box Beam Guiderail
with Type I End
Terminal**

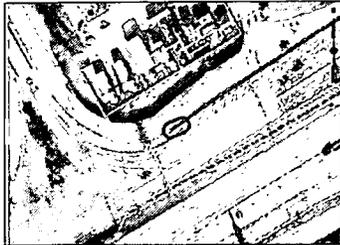
**RSA Priority
Level**

FAIR



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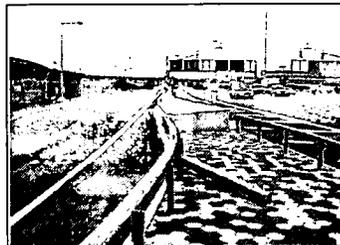




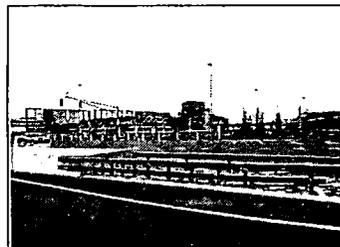
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R17-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue routine maintenance Long Term: <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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**Roadside Safety
Audit**

Location	R17-03
Device	Box Beam Gunderail Transition Unit
RSA Priority Level	FAIR



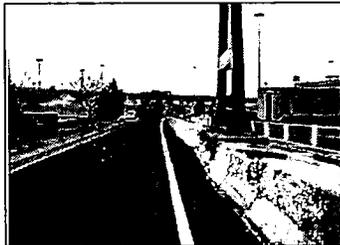
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of protective plate between concrete barrier opening



Side view of protective plate between concrete barrier opening

LOCATION ID	R17-03A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Opening between concrete barrier sections at utility locations
ROADSIDE SAFETY DEVICE	Steel barrier continuity plates
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, minor scrapes but no significant damage. Connection bolts intact Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R17-03A
Device	Steel Barrier Continuity Plates
RSA Priority Level	FAIR



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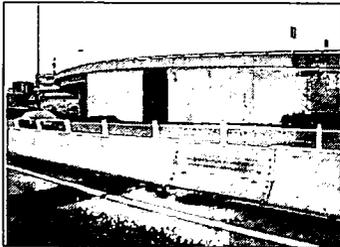
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of protective plate between concrete barrier opening



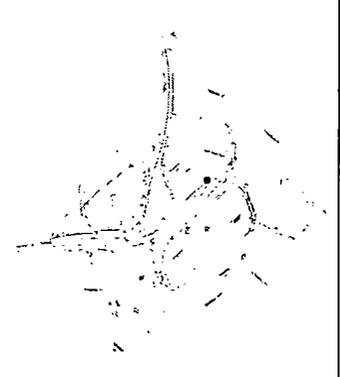
Side view of protective plate between concrete barrier opening

LOCATION ID	R17-03B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Opening between concrete barrier sections at utility locations
ROADSIDE SAFETY DEVICE	Steel barrier continuity plates
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, minor scrapes but no significant damage. Connection bolts intact Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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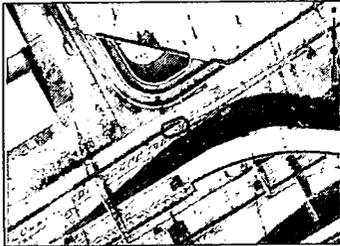


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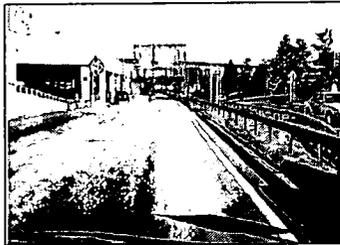
Location	R17-03B
Device	Steel Barrier Continuity Plates
RSA Priority Level	FAIR



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of transition from concrete barrier to BBGR



Side view of transition from concrete barrier to BBGR

LOCATION ID	R17-03C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Overhead sign structure support columns, narrow median of opposing traffic
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R17-03C
Device	Box Beam Guiderail
RSA Priority Level	GOOD



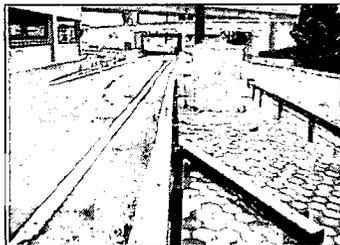
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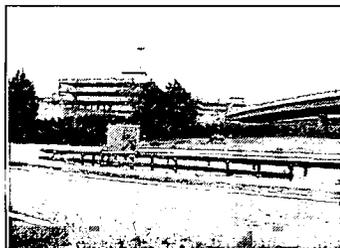
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R17-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at overhead sign structure
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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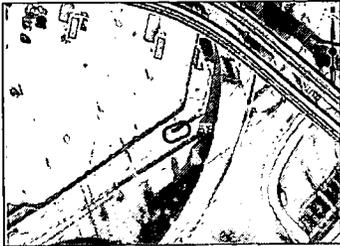


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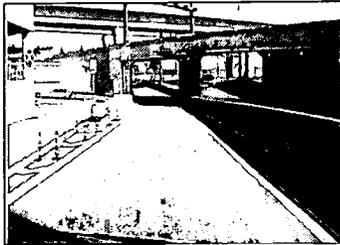
Location	R17-04
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



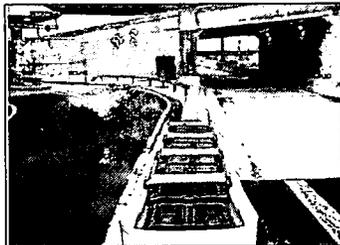
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of Quadguard impact attenuator



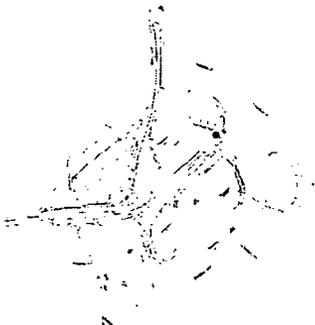
Side view of Quadguard impact attenuator

LOCATION ID	R17-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S –Blunt end of concrete barrier in gore area of roadway split
ROADSIDE SAFETY DEVICE	3 Bay Quadguard Crash Cushion by Energy Absorption Systems, Inc.
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Unit intact, installed flush with roadway as per specifications. All components in place and fully functional. No reflectivity on nose section of unit Meets NCHRP 350, TL-2
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> • Install reflectorized panel on nose piece for improved visibility • Continue with routine maintenance <p><u>Long Term:</u></p> <ul style="list-style-type: none"> • Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$175 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> • \$0



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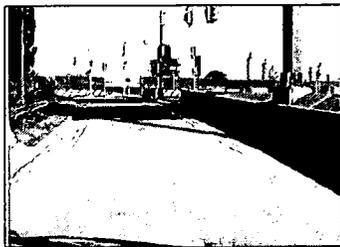
Location	R17-05
Device	3 Bay Quadguard Crash Cushion
RSA Priority Level	GOOD



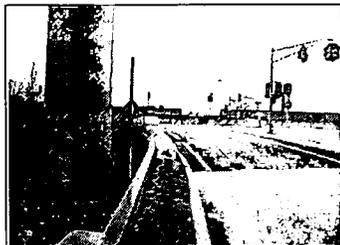
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of transition from concrete barrier to BBGR



Side view of transition from concrete barrier to BBGR

LOCATION ID	R17-05A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier column
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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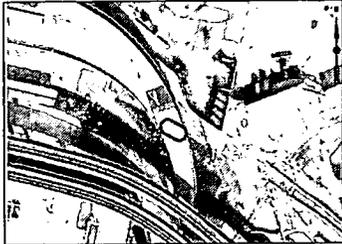


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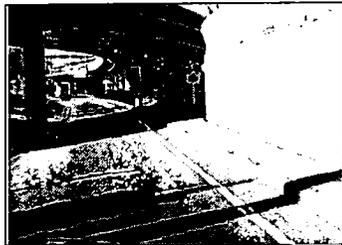
Location	R17-05A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



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Location Plan-Aerial View (Lower Level)



Device/Roadway Hazard-Driver's View



General view of unprotected pier column



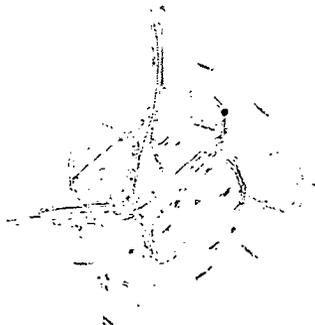
Side view of unprotected pier column

LOCATION ID	R17-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Unprotected pier column within clear zone
ROADSIDE SAFETY DEVICE	NONE
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fixed object, concrete pier column, is within 4 ft of yellow roadway edge line and within 2 ft of mountable curb and could cause serious injury if impacted. Other column also within clear zone and should be protected if a car goes behind the first column. (See alternate explanation). A 6" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install 4 Bay Quadguard Crash Cushion IFO pier column/remove curb and re-grade area as necessary to install crash cushion in accordance with manufacturer's recommendations <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$29,000 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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Location	R17-06
Device	NONE
RSA Priority Level	CRITICAL



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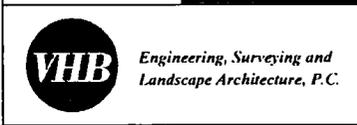


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**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R17-06
Device	NONE
RSA Priority Level	CRITICAL

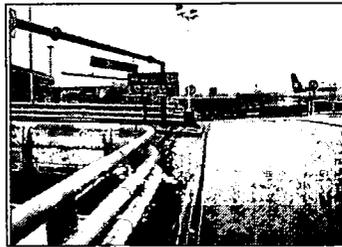




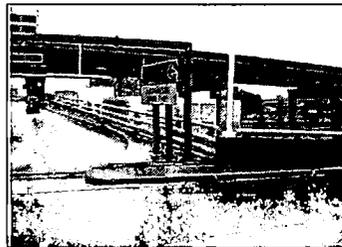
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected blunt end of concrete barrier



Side view of unprotected blunt end of concrete barrier

LOCATION ID	R18-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S - Blunt end of concrete barrier and overhead sign support columns
ROADSIDE SAFETY DEVICE	5" non-mountable curb
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Exposed blunt end of concrete barrier exposed to traffic and steel columns unprotected can cause severe injuries if impacted, however, at typical low operating speeds through area, 5" non-mountable curb does not provide adequate protection
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install NCHRP350 TL-2 approved crash cushion in front of blunt end of concrete barrier/remove existing non-mountable curb and concrete pavement as necessary <p>Long Term:</p> <ul style="list-style-type: none"> Continue routine maintenance
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$19,500 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0

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<p>JFK International Airport Central Terminal Area</p>	
	
<p>Roadside Safety Audit</p>	
Location	R18-02
Device	5" Non-Mountable Curb
RSA Priority Level	FAIR
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**Roadside Safety
Audit
Conceptual Plan**

(Not to Scale)

Location

R18-02

Device

5" Non-Mountable
Curb

**RSA Priority
Level**

FAIR



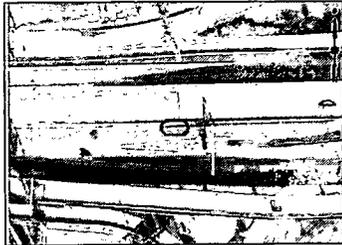
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TRANSITION TO
EXISTING CURB

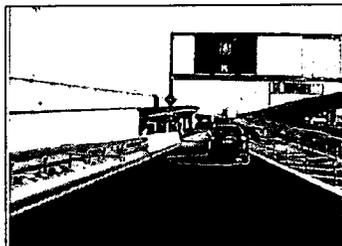
REMOVE EXISTING BULLNOSE NON-MOUNTABLE
CURB AND INSTALL UNIT FLUSH WITH PAVEMENT

INSTALL 2 OR 3 BAY, IF LENGTH
PERMITS, QUADGUARD CRASH CUSHION

MEET EXISTING CURB



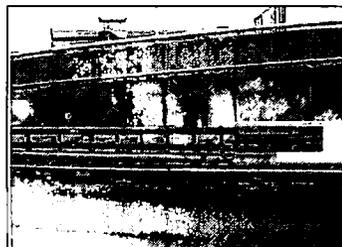
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R19-01
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete barrier at overhead sign support columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition, corrosion along bottom box rail; components installed within acceptable height variation. A 6" non-mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	Short Term: <ul style="list-style-type: none"> Continue routine maintenance Long Term: <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	Short Term Recommendation: <ul style="list-style-type: none"> \$0 Long Term Recommendation: <ul style="list-style-type: none"> \$8,000



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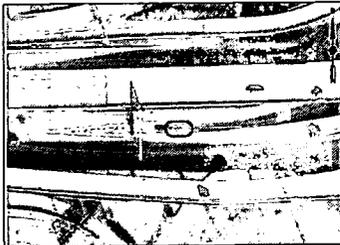


**Roadside Safety
Audit**

Location	R19-01
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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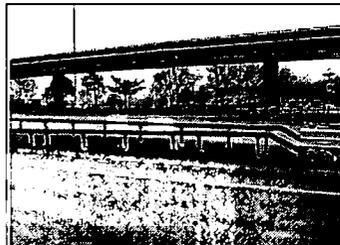
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R19-01A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Grade differential between diverging roads and blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type I end section
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR. End terminal protected by crash cushion Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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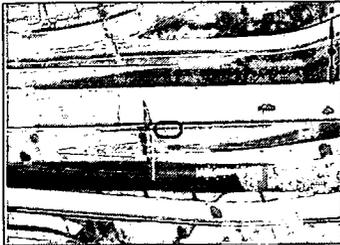


**Roadside Safety
Audit**

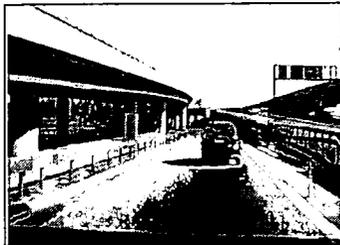
Location	R19-01A
Device	Box Beam Guiderail with Type I End Terminal
RSA Priority Level	GOOD



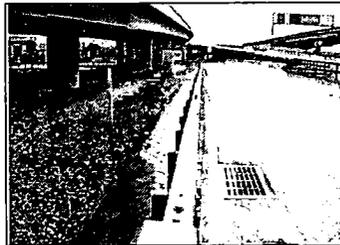
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R19-01B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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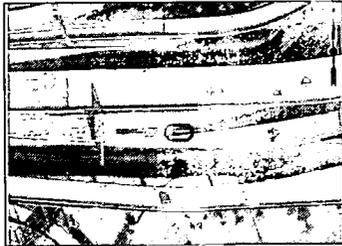


**Roadside Safety
Audit**

Location	R19-01B
Device	Box Beam Guiderail
RSA Priority Level	GOOD



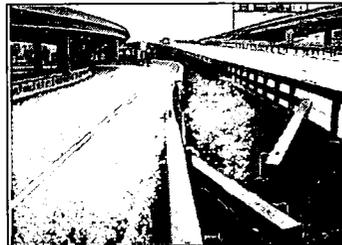
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R19-02
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Fair condition; components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32) Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$8,000



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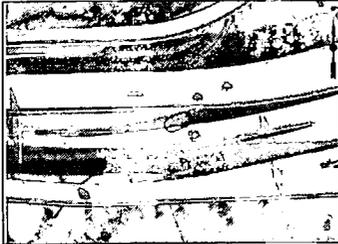


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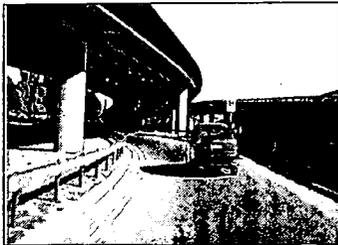
Location	R19-02
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR



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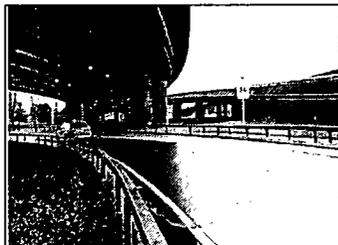
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R19-02A
SPEED LIMIT	30MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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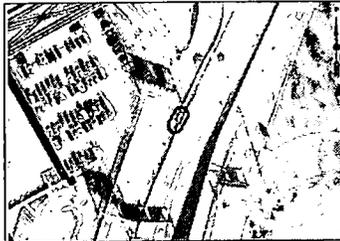


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Location	R19-02A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



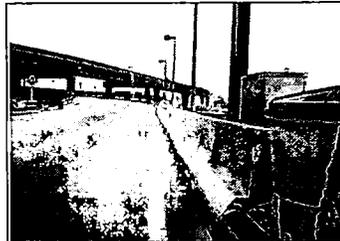
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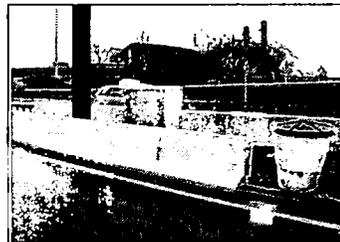
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of partially protected concrete barrier blunt end



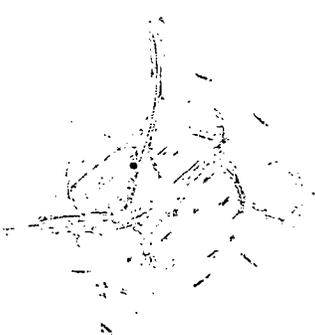
Side view of partially protected concrete barrier blunt end

LOCATION ID	R19-03
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at overhead sign support column
ROADSIDE SAFETY DEVICE	Single sand filled barrel
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Blunt end of concrete barrier within 3 ft of travel way and if impacted will cause serious injury. Single sand filled barrel provides little to no protection to vehicles
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p><u>Short Term:</u></p> <ul style="list-style-type: none"> Extend preceding run of box beam guiderail and transition to concrete barrier with standard NYSDOT BBGR transition unit (Standard Sheet 606-22) <p><u>Long Term:</u></p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p><u>Short Term Recommendation:</u></p> <ul style="list-style-type: none"> \$14,810 <p><u>Long Term Recommendation:</u></p> <ul style="list-style-type: none"> \$0



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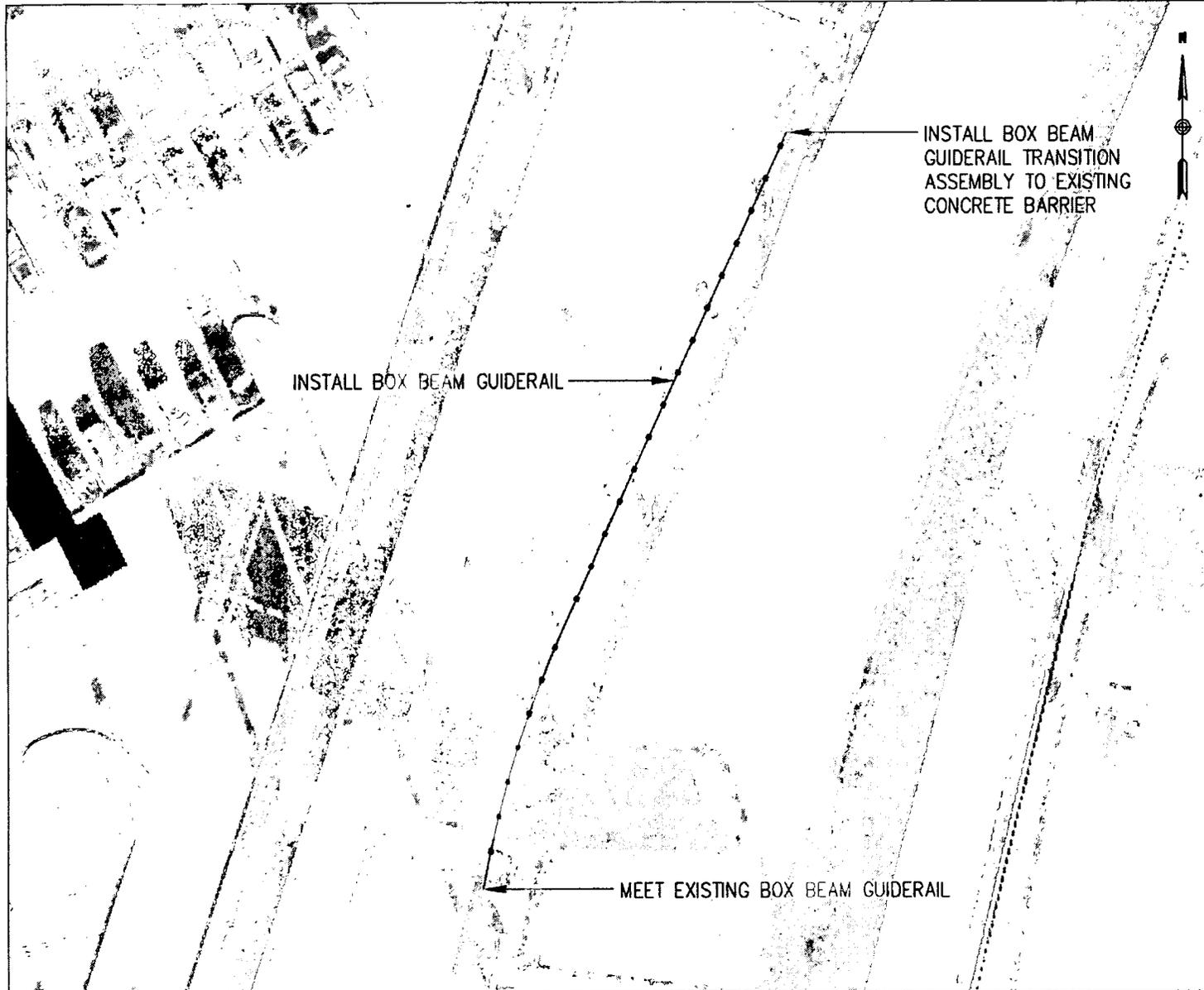


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Location	R19-03
Device	Sand Filled Barrel
RSA Priority Level	CRITICAL



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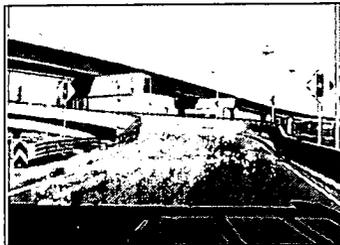
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Conceptual Plan**
 (Not to Scale)

Location	R19-03
Device	Sand Filled Barrel
RSA Priority Level	CRITICAL

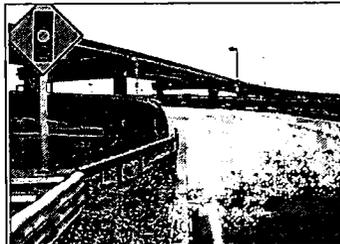

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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R19-04
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Blunt end of concrete bridge barrier
ROADSIDE SAFETY DEVICE	Standard NYSDOT box beam guiderail to single slope half section concrete barrier transition assembly (Standard Sheet M606-32)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along unit Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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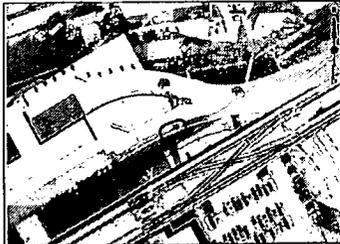


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Location	R19-04
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



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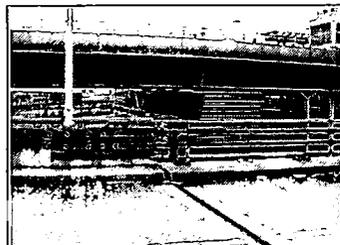
Location Plan-Aerial View (Upper Level)



Device/Roadway Hazard-Driver's View



General view of transition section from concrete bridge rail to BBGR



Side view of transition section from concrete bridge rail to BBGR

LOCATION ID	R19-05
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Transition from concrete bridge rail to 4-rail bridge rail (steel) section
ROADSIDE SAFETY DEVICE	2-tapered steel transition box rails attached to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Tapered box rails provide smooth transition from concrete barrier to bridge railing prevents possible snagging on bridge rail. A 6" non-mountable curb exists along transition Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R19-05
Device	Tapered Box Beam Transition Sections
RSA Priority Level	GOOD



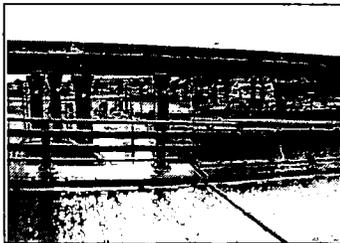
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Location Plan-Aerial View (Upper Level)



Device/Roadway Hazard-Driver's View

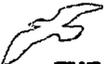


Side view of transition section from BBGR to concrete bridge rail



Side view of transition section from BBGR to concrete bridge rail

LOCATION ID	R19-06
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Transition from 4-rail steel bridge railing to concrete barrier
ROADSIDE SAFETY DEVICE	2-tapered steel transition box rails attached to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Tapered box rails provide smooth transition from concrete barrier to bridge railing prevents possible snagging on bridge rail. A 6" non-mountable curb exists along transition Not tested under NCHRP 350 criteria
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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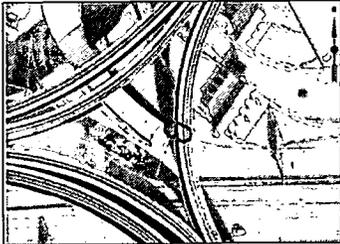


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Location	R19-06
Device	Tapered Box Beam Transition Sections
RSA Priority Level	GOOD



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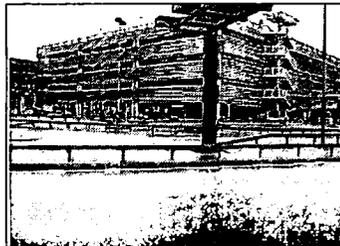
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R19-06A
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Overhead sign support columns/parking area
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, minor paint flaking; all components installed as per standard, within acceptable height variation. A 6" non-mountable curb transitions to a 6" mountable curb along this location Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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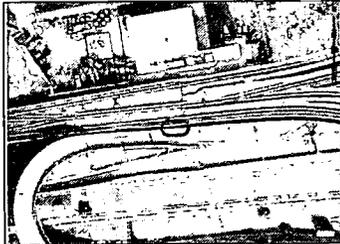


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Location	R19-06A
Device	Box Beam Guiderail
RSA Priority Level	GOOD



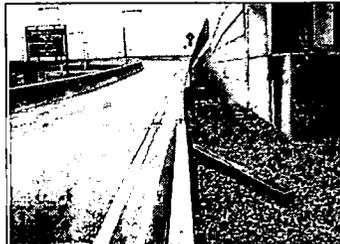
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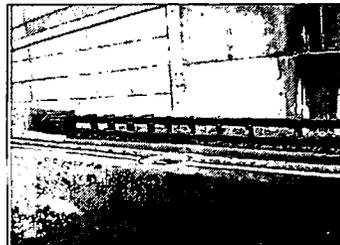
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R19-06B
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier
ROADSIDE SAFETY DEVICE	Standard NYSDOT box beam guiderail to single slope half section concrete barrier transition assembly (Standard Sheet M606-32)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition; all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along unit Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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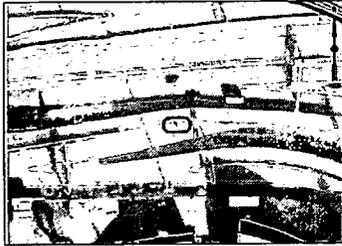


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Location	R19-06B
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	GOOD



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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of unprotected light pole foundation



View of typical exposed light pole foundation

LOCATION ID	R19-06C
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Steep side slope; light pole foundations protrude >4 inches above grade and pose a vehicle snagging hazard
ROADSIDE SAFETY DEVICE	NONE
ROADSIDE SAFETY ASSESSMENT	Vehicles could snag on protruding light pole foundations which are less than 3 ft from curb line, causing significant damage. A 6"-7" mountable curb exists at this location
RSA PRIORITY RATING LEVEL	CRITICAL
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Install BBGR on both sides of dividing island extending from concrete barrier wall at bottom of ramp to existing BBGR downstream (approximately 350 ft x 2) Provide approved transitions to concrete barrier at leading end/remove crash cushion at Location R3-3 and existing Type II leading end terminals at Location R3-3B and connect new guiderail to existing BBGR beyond <p>Long Term:</p> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$33,300 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$0



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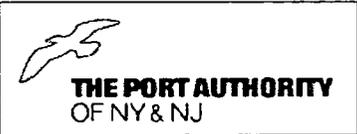


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Location	R19-06C
Device	NONE
RSA Priority Level	CRITICAL



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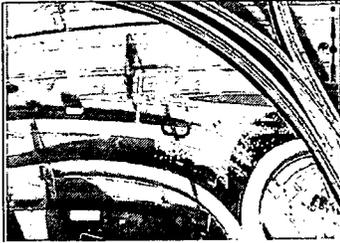
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**Roadside Safety
Audit
Conceptual Plan**
(Not to Scale)

Location	R19-06C
Device	NONE
RSA Priority Level	CRITICAL





Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along curb line



Side view of BBGR

LOCATION ID	R19-06D
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	L/S – Equipment cabinet, pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail from attachment to concrete barrier
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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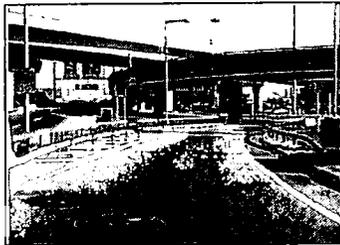
Location	R19-06D
Device	Box Beam Guiderail
RSA Priority Level	GOOD



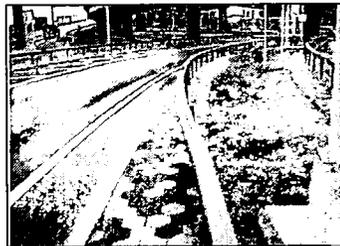
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Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR along rail



Side view of BBGR

LOCATION ID	R19-07
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail with Type II end section (protected by crash cushion)
APPARENT CONDITIONS / ROADSIDE SAFETY ASSESSMENT	Good condition, all components installed as per standard, within acceptable height variation. A 6" mountable curb exists along BBGR Meets NCHRP 350, TL-3
RSA PRIORITY RATING LEVEL	GOOD
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<u>Short Term:</u> <ul style="list-style-type: none"> Continue with routine maintenance <u>Long Term:</u> <ul style="list-style-type: none"> Same as short term
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<u>Short Term Recommendation:</u> <ul style="list-style-type: none"> \$0 <u>Long Term Recommendation:</u> <ul style="list-style-type: none"> \$0



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Location	R19-07
Device	Box Beam Guiderail with Type II End Terminal
RSA Priority Level	GOOD



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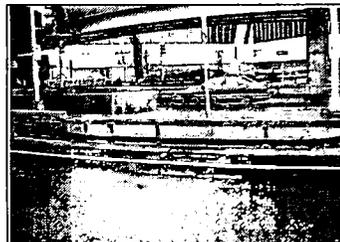
Location Plan-Aerial View



Device/Roadway Hazard-Driver's View



General view of BBGR transition section to concrete barrier



Side view of BBGR transition section to concrete barrier

LOCATION ID	R19-08
SPEED LIMIT	30 MPH
CLEAR ZONE LIMITS	14 – 16 feet
ROADSIDE HAZARD	R/S – Blunt end of concrete barrier at pier columns
ROADSIDE SAFETY DEVICE	Box beam guiderail transition assembly
ROADSIDE SAFETY ASSESSMENT	<p>Good condition; components installed within acceptable height variation. A 6" mountable curb exists along unit. The transition unit will provide needed protection, but post configuration along transition assembly does not conform to current NYSDOT BBGR transition to concrete barrier (Standard Sheet M606-32)</p> <p>Not tested under NCHRP 350 criteria</p>
RSA PRIORITY RATING LEVEL	FAIR
RECOMMENDED SAFETY IMPROVEMENT ACTIONS	<p>Short Term:</p> <ul style="list-style-type: none"> Continue routine maintenance <p>Long Term:</p> <ul style="list-style-type: none"> The transition unit will provide needed protection, but does not conform to the current NYSDOT transition standard (M606-32) and should be upgraded/replaced as funds become available
ESTIMATED CONSTRUCTION COST (EXCLUDING DESIGN)	<p>Short Term Recommendation:</p> <ul style="list-style-type: none"> \$0 <p>Long Term Recommendation:</p> <ul style="list-style-type: none"> \$8,000

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<p>Roadside Safety Audit</p>	
Location	R19-08
Device	Box Beam Guiderail Transition Unit
RSA Priority Level	FAIR
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Appendix A - Cost Estimating Data

JFK International Airport- Road Safety Audit of Roadside Appurtenances

July 15, 2013

Appendix A - Cost Estimating Data

ESTIMATED COSTS FOR MITIGATION OF ROADSIDE HAZARDS						
LOCATION No.	RECOMMENDATION & COSTS					Comments / Considerations
	SHORT TERM	EST. COST	LONG TERM	EST. COST	DISCIPLINE(S)	
Route No. 1						
1- 01	Replace with NCHRP 350, TL-3 Crash Cushion (due to condition of device)	\$ 29,000.00	Same as short term	--	--	
1- 01A	Continue with routine maintenance	--	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	Plus cost of moving Light fixture (if possible).
1- 02	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
1- 03	Install Reflectorized Panel on Nose	\$ 175.00	Replace with NCHRP 350, TL-3 Crash Cushion.	\$ 26,000.00	TRAFFIC (100%)	Existing System is not NCHRP 350 rated Reflector Nose cost would be included in \$26k
1- 04	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
1- 05	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
1- 06	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
1- 07	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
1- 08	Replace existing curbed island with flush concrete pad for crash cushion. Remove and reset crash cushion	\$ 6,550.00	Same as short term	--	--	
1- 08A	Install TL-2 crash cushion in front of BBGR end terminals in narrow median	\$ 19,000.00	Same as short term	--	--	
1- 08B	Continue with routine maintenance	--	Remove concrete barrier and extend box beam guide rail approximately 75 feet	\$ 7,125.00		
1- 09	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
1- 11	Replace Top Box beam transition piece	\$ 1,300.00	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 12	Continue with routine maintenance	--	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	

1- 13	Replace Bottom Box beam transition piece	\$ 1,300.00	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 14	Replace Lower diagonal brace rail piece	\$ 800.00	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 14A	Install missing splice bolts	\$ 150.00	Same as short term	--	--	
1- 15	Continue with routine maintenance	--	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 16	Continue with routine maintenance	--	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 17	Continue with routine maintenance	--	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 17A	Repair Concrete Barrier at Conn. To BBGR	\$ 800.00	Same as short term	--	--	
1- 21	Remove gate posts and relocate gate opening at 16 feet from roadway edge. Relocate decorative fence (xxx lf) to similar offset. Remove existing guide rail (xxx lf)	\$ 20,000.00	Same as short term	--	--	
1- 21A	See Location 1-21 for Scope of Work	Cost Included in Location 1-21	Same as short term			
1- 21B	Continue with routine maintenance	--	Replace Type II Terminal with Type III telescoping terminal. Remove non-mountable curb in vicinity of proposed new end treatment and replace with mountable curb (Assume 50 lf).	\$ 7,000.00	TRAFFIC (100%)	Type III in order to not block walkway
1- 22	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
1- 23	Continue with routine maintenance	--	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 23A	Continue with routine maintenance	--	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 24	Continue with routine maintenance	--	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 24A	Replace missing post-to-rail connection bolts	\$ 150.00	Same as short term	--	--	
1- 25	Continue with routine maintenance	--	Replace with Transition assembly per NYSDOT Std Sheet 606-22	\$ 8,000.00	TRAFFIC (100%)	
1- 25A	Replace missing post-to-rail connection bolt	\$ 150.00	Same as short term	--	--	

1- 26	Replace top and bottom rail transition pieces that are attached to CONCRETE BARRIER	\$ 2,600.00	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
1- 28	Continue with routine maintenance	--	Total Length of VWE median affected is 650 If from Perimeter Rd Bridge pier through Taxiway Bridges to beginning of concrete median barrier east of Restricted Service Road bridge. With these limits the existing box beam guiderail would need to be . Eliminate non-mountable curb by converting steel grate curb to flush grating throughout. Install half section (or vertical face) concrete barrier along pier faces and between bridge piers.	\$ 500,000.00	TRAFFIC: \$ 370,000 CIVIL: \$130,000	The presence of the raised curb 3 ft in front of the existing guide rail is not in accordance with accepted standards for roadside design. However, the drainage system in this area was reconstructed (at considerable expense within the last 10 years to address clogging issues. Further modifications to the reconstructed system would be costly and may not be supported by Airport Maintenance).
1- 28A	Continue with routine maintenance	--				
1- 29	Continue with routine maintenance	--				
1- 31	Replace missing connection bolt	\$ 150.00		--	--	
Route No. 2						
2- 01	Continue with routine maintenance	--	Transition unit does not conform to the current NYSDOT Standard Sheet 606-22 and should be upgraded/replaced as funds become available	\$ 8,000.00	TRAFFIC (100%)	
2- 02	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
2- 03	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
2- 05A	Replace damaged posts	\$ 400.00	Remove existing box beam guiderail run in its entirety	\$ 6,350.00	TRAFFIC (100%)	
2- 06A	Install approximately 250 feet of additional box beam guiderail from wingwall past exposed light foundation and electrical box and attach to existing box beam guiderail Remove 72' long flared section of existing box beam and connect above additional guiderail	\$ 16,000.00	Same as short term	--	--	
2- 06D	See Recommendation for 2-06A	Costs included in Location 2-06A	Same as short term	--	--	

Route No. 3						
3- 01	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
3- 02A	Modify shape of lower part of approx 20 feet of wall with polymer concrete to provide gradual taper into sign support protrusion (similar to treatment currently in place at sign support just upstream of R2-06A / D)	\$ 12,000.00	Same as short term	--	--	
3- 03	Replace with TL-2 Crash Cushion	\$ 20,800.00	Same as short term	--	--	
3- 03A	Extend leading end of box beam guiderail approximately 60 ft beyond point of need for pier column and transition to bridge wing wall or extend and taper end section to proper offset from roadway	\$ 3,500.00	Same as short term	--	--	
3- 03B	Modify leading end of BBGR and attach to backing wall at impact attenuator	\$ 3,750.00	Same as short term	--	--	--
3- 04	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC	
3- 04A	Extend Guide Rail to P.O.N. Replace Type II end section with NYSDOT Type IIA end piece Install Type I end piece on trailing end of guiderail	\$ 4,950.00	Same as short terms	--	--	
3- 05	Continue with Routine Maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC	
3- 05A	Extend box beam guiderail to point of need and replace type II end section with type IIA end section	\$ 5,600.00	Same as short term	--	--	
3- 05B	Continue with Routine Maintenance	--	Replace non-mountable curb at leading end with mountable curb (50 lf)	\$ 2,000.00	CIVIL (100%)	
3- 06A	Install crash cushion device meeting minimum NCHRP 350 TL-2 standards, in front of railing	\$ 18,000.00	Install more substantial bridge railing (under Terminal reconstruction??)	\$ 25,000.00	STRUCTURES (100%)	

3- 06B	Install crash cushion device meeting minimum NCHRP 350 TL-2 standards, in front of railing. Cushion size / location should be such that it protects downstream sign support between departures ramp and arrivals roadway	\$ 18,000.00	Install more substantial bridge railing (under Terminal reconstruction??)	\$ 37,500.00	STRUCTURES (100%)	
3- 06E	Continue with routine maintenance	--	Replace Type II end treatment with Type III end treatment	\$ 7,900.00	TRAFFIC (100%)	
3- 06F	Design and install box beam guiderail to protect overhead sign support column	\$ 8,400.00	Same as short term	--	--	
3- 07	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
3- 07D	Install BBGR along the left side of roadway from column pier downstream of narrow median back thru area of narrow median and beyond.	\$ 10,450.00	Same as short term	--	--	
3- 08	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
Route No. 4						
4- 01	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
4- 02	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
4- 03	Reset loose/damaged cartridges and install reflective sheeting on nose	\$ 750.00	Same as short term	--	--	
4- 03A	Modify face of barrier with polymer concrete "overlay" to eliminate barrier protrusion	\$ 7,500.00	Replace concrete barrier (30 lf) on top of retaining wall supporting roadway	\$ 45,000.00	STRUCTURES (100%)	
4- 04	Install add'l posts (6) at half spacing (3 ft) in vic. of utility box to reduce deflection to 4 ft.	\$ 600.00	Same as short term	--	--	
	Add NYSDOT Type I end assembly extension piece to shift end section away from road	\$ 3,500.00			--	
4- 06	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
4- 07	Replace Type II end section with NYSDOT Type IIA end section	\$ 1,500.00	Same as short term	--	--	

Route No. 5						
5- 02	Continue with routine maintenance	--	Replace portion of existing 2 rail tubular railing with bridge rail-to-barrier transition which meets NCHRP 350 criteria. Custom transition required to connect exist and new rail segments	\$ 20,000.00	TRAFFIC (100%)	
5- 03	Relocate Equipment Cabinet beyond clear zone	\$ 11,000.00	Same as short term	--	--	
Route No. 6						
6- 01	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
6- 02	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
6- 03	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
6- 03A	Extend box beam guiderail to point of need and install type III end section	\$ 6,700.00	Same as short term	--	--	
6- 03B	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
6- 06	Given low speeds in terminal area, no remedial action is necessary	--	Same as short term	--	--	
Route No. 7						
7- 01	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
7- 02	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
7- 02A	Remove 25' of W-Beam GR along JFK Expwy side of Maint. Access Road, so "new" end is shielded by upstream concrete barrier. Re-install "boxing glove" end treatment at new terminus.	\$ 325.00	Same as short term	--	--	
7- 02B	Extend BBGR beyond ramp BBGR Type I end section to point of need. Install Type III end terminal	\$ 11,000.00	Same as short term	--	--	
7- 04	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	

7- 04A	Install 10 additional BBGR post at 3 foot centers to reduce deflection distance of existing BBGR on approach to and in front of the first utility box from beginning of run	\$ 2,200.00	Install 40 lf of concrete barrier with back-up posts and provide approach and departure transitions from conc barrier to guiderail.	\$ 20,000.00	TRAFFIC (100%)	
7- 05	Install Reflectorized Panel on Nose	\$ 175.00	Replace with NCHRP 350, TL-3 Crash Cushion	\$ 26,500.00	TRAFFIC (100%)	Existing System is not NCHRP 350 rated
7- 05A	Continue with routine maintenance	--	Remove BBGR in front of pier column and replace with concrete half section barrier and install transition assemblies on approach and departure sides of barrier.	\$ 14,750.00	TRAFFIC (100%)	
7- 05B	Continue with routine maintenance	--	Install NYSDOT Type IIA end section if BBGR impacted/damaged or as part of new roadway construction/safety upgrade project	\$ 8,000.00	TRAFFIC (100%)	
7- 05C	Install additional posts where missing at BBGR splice	\$ 900.00	Same as short term	--	--	
7- 05F	Extend BBGR run to beyond concrete vault presently being installed.	\$ 8,350.00	Same as short term	--	--	
7- 06	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00		
7- 07	Replace rusted lower box rail section and lower transition rail attached to concrete barrier	\$ 1,300.00	Replace with NYSDOT Std Transition assembly	\$ 8,000.00		
Route No. 8						
8- 01	Replace rusted lower box rail section and lower transition rail attached to concrete barrier	\$ 1,300.00	Replace with NYSDOT Std Transition assembly	\$ 8,000.00		
8- 01B	Install additional posts at 3 foot spacing at column to reduce BBGR maximum deflection to 4 feet at 60 mph	\$ 1,200.00	Same as short term	--	--	
8- 02	Install Reflectorized Panel on Nose	\$ 175.00	Remove unit and lower concrete base flush with pavement; reinstall as per manufacturer's recommendations; modify leading end of BBGR beyond (both sides) by attaching to unit's concrete back-up	\$ 6,000.00	--	
8- 04	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
8- 05	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	

Route No. 9						
9- 01	Replace Type I End Terminal with Type III End Terminal section that meets NCHRP 350 TL-3	\$ 8,500.00	Same as short term	--	--	
9- 02	Repair damaged concrete at box rail bolted connection	\$ 800.00	Same as short term			
9- 02A	Re-grade median areas at light pole foundations Reset octagonal pavers so foundations protrude less than 4 inches	\$ 12,000.00	Same as short term	--	--	
9- 02B	Replace damaged/bent first post at Type I End Terminal	\$ 100.00	Same as short term	--	--	
9- 02C	Extend BBGR to point of need (approximately 40 feet) for overhead sign support column Install Type I End Terminal at required flare offset from travel way	\$ 6,200.00	Same as short term	--	--	
9- 03	Eliminate gap in BBGR by installing new rail between old Type I turnout end sections Install new BBGR between existing BBGR runs	\$ 4,550.00	Same as short term	--	--	
9- 03A	See recommendations for Loc. 9-03	<i>incl. in Loc. 9-03</i>	Same as short term	--	--	
9- 03B	Extend the half section concrete barrier an additional 20 feet to eliminate curved section Install standard NYSDOT BBGR to half section concrete barrier transition section (Standard Sheet 606-22)	\$ 16,000.00	Same as short term	--	--	
9- 04	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
9- 06	Re-set internal energy absorbing cartridge in nose section Replace reflectorized panel on nose section	\$ 750.00 \$ 175.00	Same as short term		TRAFFIC (100%)	\$750 Maximum repair cost per spec 654.51XX
9- 07	Install 2 additional temporary concrete barrier sections (40' add'l feet) with TL-2 Attenuator on approach end	\$ 21,500.00	Relocate overhead sign support column into sidewalk area	\$ 75,000.00	TRAFFIC (10%), STRUCTURAL (85%), ELECTRICAL (5%)	Cost assumes new Sign structure (with salvaged signs, lighting and message board re-installed)

9- 08	Continue with routine maintenance	--	Replace Type II end terminal with Type III end terminal section that meets NCHRP 350 TL-3	\$ 5,000.00	TRAFFIC (100%)	
9- 09	Repair damaged approach end treatment	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
Route No. 10						
10- 01	Extend BBGR around radius to prevent vehicles from impacting column	\$ 6,700.00	Same as short term	--	--	
10- 01A	Continue with routine maintenance	--	Replace Type II end terminal with Type III end terminal	\$ 5,000.00	TRAFFIC (100%)	
10- 01B	Continue with routine maintenance	--	Replace Type II end terminal with Type III end terminal	\$ 5,000.00	TRAFFIC (100%)	
10- 02	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
10- 02A	Continue with routine maintenance	--	Replace Type II end terminal with Type III end terminal	\$ 5,000.00	TRAFFIC (100%)	
10- 03	Continue with routine maintenance	--	Replace Type II end terminal with Type III end terminal	\$ 5,000.00	TRAFFIC (100%)	
10- 04	Replace diagonal support/brace	\$ 800.00	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
10- 05	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
10- 05B	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
10- 06	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
Route No. 11						
11- 01	Install NCHRP 350, TL-2, Crash cushion in front of blunt end of wall. Install pavement striping to provide channelization	\$ 19,000.00	Same as short term	--	--	
11- 01A	Install NCHRP 350, TL-2 crash cushion in front of column and blunt end of railing	\$ 18,000.00	Same as short term	--	--	Access to Hydrant may be an issue
11- 01B	Install NCHRP 350, TL-2, Crash cushion in front of blunt end of wall. Install pavement striping to provide channelization	\$ 19,000.00	Same as short term	--	--	

11- 01C	Install NCHRP 350, TL-2, Crash cushion in front of blunt end of wall. Install pavement striping to provide channelization	\$ 19,000.00	Same as short term	--	--	
11- 02	Install NCHRP 350, TL-2, Crash cushion in front of blunt end of wall. Install pavement striping to provide channelization	\$ 19,000.00	Same as short term	--	--	
11- 02A	Install NCHRP 350, TL-2, Crash cushion in front of blunt end of wall	\$ 17,000.00	Same as short term	--	--	
11- 02B	Install box beam guiderail around perimeter of building structure w/pavement striping to	\$ 9,500.00	Same as short term	--	--	Access to Trash Enclosure and issue
11- 03	Install NCHRP 350, TL-2, Crash cushion in front of blunt end of wall	\$ 17,000.00	Same as short term	--	--	
11- 04	Install NCHRP 350, TL-2, Crash cushion in front of blunt end of wall	\$ 17,000.00	Same as short term	--	--	
11- 05	Install temporary concrete barrier (one section + tapered end section) along curb line in advance of end of wall	\$ 5,000.00	Remove portion of rail and install BBGR connected to wall with Type III End Section on approach end	\$ 16,800.00	TRAFFIC (100%)	
11- 07	Remove curbed islands and install concrete half section barrier (2 x 30 lf) left and right of columns. At columns - encase column all around in 1 foot of add'l (sacrificial) concrete.	\$ 19,900.00	Same as short term	--	--	Approach end protection with Crash Cushion is precluded by location of crosswalk
Route No. 12						
Route No. 13						
13- 01	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
13- 02	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
13- 03	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
13- 03B	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	

13- 05	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
13- 07	Extend BBGR around curve and into parking lot area and flare from pavement edge	\$ 5,150.00	Same as short term	--	--	
Route No. 14						
14 01	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--		
Route No. 15A						
15A- 01B	Replace damaged post	\$ 150.00	Same as short term	--	--	
15A- 02	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
15A- 02A	Extend existing BBGR run on the south northward to continue beyond utility cabinets (will overlap with existing BBGR-to-Conc. Barrier transition)	\$ 4,550.00	Same as short term	--	--	
15A- 02B	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
15A- 03B	Replace sand barrel array with properly designed array.	\$ 6,000.00	Install TL-2 Crash Cushion (2Bay Quadguard)	\$ 17,000.00	TRAFFIC (100%)	
15A- 03C	Continue with routine maintenance	--	Replace with Type III End Section	\$ 5,000.00	TRAFFIC (100%)	
15A- 03E	Continue with routine maintenance	--	Same as short term	--	--	
15A- 04	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
15A- 05	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
15A- 07	Remove non-mountable curb and reconstruct nose of gore with flush curb	\$ 4,650.00	Same as short term	--	--	
15A- 08	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
15A- 08C	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	

15A- 11	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
15A- 13	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term			
15A- 13A	Remove and re-install BBGR at 1 foot offset from non-mountable curb. Transition BBGR	\$ 6,500.00	Same as short term	--	--	
15A- 14	Close Gap between end of BBGR and beginning of Retaining Wall	\$ 9,500.00	Same as short term	--	--	Existing Gap in guiderail appears to be for maintenance access to lawn area behind
Route No. 16						
16- 02	Replace damaged lower box rail section	\$ 1,300.00	Replace damaged unit with current NYSDOT Std Transition assembly	\$ 8,000.00		
16- 02C	Replace damaged transition assembly with current NYSDOT Std Transition	\$ 8,000.00	Same as short term	--	--	
16- 04	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00		
Route No. 17						
17- 01A	Replace Type I end section with Type III end section	\$ 5,000.00	Same as short term	--	--	
17- 01B	Extend BBGR Type I end terminal and bury in back slope. Install additional posts at half-spacing IFO last column and	\$ 3,400.00	Same as short term	--	--	
17- 01C	Continue with routine maintenance	\$ -	Replace guiderail along left side of road with half section concrete barrier (220 lf). Install BBGR-to-concrete barrier transition on approach end	\$ 71,975.00	TRAFFIC (100%)	
17- 01D	Extend approach end of Type 1 end treatment to achieve required lateral off-set. Install additional posts (6) at half spacing IFO utility	\$ 3,900.00	Same as short term	--	--	
17- 01E	Re-grade roadside area in vicinity of equipment cabinet to reduce exposed portion	\$ 300.00	Same as short term	--	--	

17- 02A	Extend beginning of railing past fence post to achieve 16 foot off-set from roadway for Type	\$ 6,200.00	Same as short term	--	--	
17- 03	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
17- 03A	Continue with routine maintenance	--	Same as short term	--	--	Steel Barrier section not tested under NCHRP 350 criteria
17- 03B	Continue with routine maintenance	--	Same as short term	--	--	Steel Barrier section not tested under NCHRP 350 criteria
17- 04	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
17- 05	Install Reflectorized Panel on Nose	\$ 175.00	Same as short term	--	--	
17- 06	Install 4 Bay Quadguard Crash Cushion in front of pier column	\$ 29,000.00	Same as short term	--	--	
Route No. 18						
18- 02	Install NCHRP350 TL-2 approved crash cushion in front of blunt end of concrete	\$ 19,500.00	Same as short term	--	--	
Route No. 19						
19- 01	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
19- 02	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	
19- 03	Extend preceding run of box beam guiderail and transition to concrete barrier with standard NYSDOT BBGR transition unit	\$ 14,810.00	Same as short term	--	--	
19- 06C	Install BBGR on both sides of dividing island extending from concrete barrier wall at bottom of ramp to existing BBGR downstream of Crash Cushion at Location R3-03 (approx. 350 ft x 2). Provide approved transitions to concrete barrier at leading end.. Remove crash cushion at Location R3-3 and existing Type II leading end terminals at Location R3-3B and connect new guide rail to existing BBGR.	\$ 33,300.00	Same as short term	--	--	
19 08	Continue with routine maintenance	--	Replace with NYSDOT Std Transition assembly	\$ 8,000.00	TRAFFIC (100%)	

Supporting Data for Cost Estimating

UNIT COSTS FOR RECURRING ITEMS OF WORK			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
	Box Beam Guiderail (BBGR)	\$ 35.00	PER LF
	Box Beam Median Guiderail	\$ 45.00	PER LF
	Box Beam Transition to Concrete Barrier (per NYSDOT Std Sheet 606-25)	\$ 8,000.00	Unit Costs based on NYSDOT Bid History for Item 606.8803 with an allowance for WZTC
	BBGR Type I End Assembly (per NYSDOT Std Sheet 606-22)	\$ 3,500.00	Type I End Terminal Costs based on NYSDOT Bid History for Item 606.120102 with an allowance for WZTC
	BBGR Type IIA End Assembly (per NYSDOT Std Sheet 606-22)	\$ 1,500.00	Unit Cost based on NYSDOT Recent Bid History for Item 606.120201 with an allowance for WZTC
	BBGR Type III End Assembly (per NYSDOT Std Sheet 606-06)	\$ 5,000.00	Unit Cost based on NYSDOT Recent Bid History for Item 606.1203 with an allowance for WZTC
	Half Section Concrete Barrier with back-up posts	\$ 200.00	PER LF
	Install Reflectorized Panel on Nose	\$ 175.00	Mat'l = \$75 + Labor : \$100 + WZTC: \$0
	Install bridge railing meeting current design standards with appropriate approach end configuration	\$ 250.00	PER LF
	Remove and Store Existing Box Beam Guide Rail	\$ 10.00	PER LF
	Replace Top (or Bottom) Box beam transition piece	\$ 1,300.00	Mat'l = 8' long end connection rail = \$500' + Labor : \$500 + WZTC: \$300
	Replace diagonal rub rail transition piece	\$ 800.00	Mat'l = 8'-10" long end connection rail = \$500' + Labor : \$300 + WZTC: \$0
	Repair Concrete Barrier at Conn. To BBGR	\$ 800.00	Drill Expansion Anchors into Existing Barrier, Re-set bolts and plate, Parge barrier
	Install missing splice bolts	\$ 150.00	Mat'l : Neg., Labor: \$150, WZTC: \$0
	Additional Extra Long Posts	\$ 100.00	EA
	Temporary Concrete Barrier	\$ 125.00	PER LF
	Replace internal energy absorbing cartridge	\$ 750.00	Maximum repair cost per spec 654.51XX Should long term be short term???
	NCHRP 350, TL-2 Crash Cushion	\$ 17,500.00	Depends on Location (see below). Costs include: Site Prep + WZTC + Impact Attenuator Delivered & Installed
	NCHRP 350, TL-3 Crash Cushion	\$ 27,500.00	Depends on Location (see below). Costs include: Site Prep + WZTC + Impact Attenuator Delivered & Installed

Appendix A - Cost Estimating Data

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
1-01	Replace existing attenuator (Hex Foam type) with NCHRP 350 TL-3 rated device	\$ 29,000.00	
	Remove Existing attenuator	\$ 800.00	
	Repair /Modify Exist. Concrete Foundation for use with new Attenuator	\$ 1,200.00	
	New 5 bay Quadguard attenuator @ 69" wide (delivered and installed)	\$ 25,000.00	
	Work Zone Traffic Control	\$ 2,000.00	(1 days at \$1500)
1-03	Replace existing attenuator (Hex Foam type) with NCHRP 350 TL-3 rated device	\$ 26,000.00	
	Remove Existing attenuator	\$ 800.00	
	Repair /Modify Exist. Concrete Foundation for use with new Attenuator	\$ 1,200.00	
	New 5 bay Quadguard attenuator @ 36" wide (delivered and installed)	\$ 22,000.00	
	Work Zone Traffic Control	\$ 2,000.00	(1 days at \$1500)
1-08	Eliminate existing non-traversable curb per manufacturer's guidelines	\$ 6,550.00	
	Remove & Store Existing Attenuator	\$ 800.00	
	Sawcut and Excavate Existing Curb	\$ 350.00	
	Pour Flush Foundation for Attenuator	\$ 2,000.00	
	Re-install Attenuator	\$ 1,000.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1,200)
1-08A	Install TL-2 crash cushion in front of BBGR end terminals in narrow median	\$ 19,000.00	
	Sawcut and Remove 30 ft long section of 4' wide Median.	\$ 500.00	
	Remove and Store Box Beam End Piece.	\$ 300.00	
	Install add'l 12' length of BBGR on both sides.	\$ 800.00	
	Install Flush Concrete Pad for Attenuator	\$ 2,000.00	
	Install 2 Bay Quadguard Crash Cushion 24" Wide	\$ 13,000.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1,200)
1-08B	Remove concrete barrier and extend box beam guide rail approximately 75 feet	\$ 7,125.00	
	Remove approx 40 ft of Permanent Concrete Barrier	\$ 3,000.00	
	Install 75' length of BBGR on both sides.	\$ 2,625.00	
	Repair Pavement where barrier was removed (100 sf of composite pavt)	\$ 1,500.00	

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
1-21 / 1-21A	Relocate gate to 14 – 16 feet back from roadway edge	\$ 20,000.00	
	Remove and Store Gate.	\$ 500.00	
	Remove and Dispose of Gate Posts	\$ 300.00	
	Install New Gate Posts set back from Road (2 @ \$800)	\$ 1,600.00	
	Re-install Existing Gate on New Posts	\$ 400.00	
	Restore Sidewalk (25'x8 = 200 sf)	\$ 1,800.00	
	Relocate Iron Picket Fence (450 lf)	\$ 9,000.00	450 lf at \$20/lf (removal and Re-install)
	Remove Existing Guide Rail (520 LF)	\$ 5,200.00	
	Work Zone Traffic Control	\$ 1,200.00	(1 days at \$1200)
1-28 & 1-28A 1-29	Remove existing box beam guiderail in median over VWE run in its entirety and replace with median box beam guiderail configuration	\$ 488,400.00	
	Remove (and store) existing box beam guiderail and end terminals / transitions (370 lf x 2)	\$ 7,400.00	
	Modify trench drain along median of VWE "bathtub" section (650 lf x 2)	\$ 130,000.00	
	Install 370 lf of Concrete Median Barrier between piers	\$ 111,000.00	\$300 /lf
	Install 560 lf (2x280') of Half Section Concrete Barrier along bridge pier walls	\$ 140,000.00	\$200 /lf
	Work Zone Traffic Control	\$ 100,000.00	(40 days at \$2500 - both sides need WZTC)
2-05A	Remove existing box beam guiderail (xxx lf)run in its entirety	\$ 6,350.00	
	Remove and store existing box beam guiderail and end terminals / transitions (275 lf)	\$ 2,750.00	
	Work Zone Traffic Control	\$ 3,600.00	(2 days at \$1800 - both sides need WZTC)
2-06A / 2-06D	Install approximately 250 feet of additional box beam guiderail from wingwall past exposed light foundation and electrical box and attach to existing BBGR	\$ 16,000.00	
	Connect new BBGR to Wall / Sign Structure pedestal at upstream end to BB GR	\$ 2,300.00	
	Install Add'l Box Beam Median Barrier (250 lf) and Connect to downstream BBGR to remain	\$ 10,000.00	
	Remove (and store) existing box beam guiderail Type 1 end terminals (72 lf)	\$ 700.00	
	Work Zone Traffic Control	\$ 3,000.00	(2 days at \$1500)

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
3-02A	Install box beam guiderail in advance of wall protrusion	\$ 8,800.00	
	Install 36 feet of BBGR to reach point of need	\$ 1,440.00	
	Install Type III End Assembly	\$ 5,000.00	
	Work Zone Traffic Control	\$ 2,360.00	(2 days at \$1200)
3-03	Replace existing attenuator (Hex Foam type, not NCHRP 350 rated) and Extend guiderail to new TL-2 attenuator	\$ 20,800.00	
	Remove BBGR End Sections	\$ 800.00	
	Remove and Dispose of Existing Attenuator	\$ 500.00	
	Install Flush Conc. Foundation and Backwall for New Attenuator	\$ 2,000.00	
	Furnish & Install New 2 bay Quadguard attenuator @ 36" wide	\$ 13,500.00	
	Install 36 feet of BBGR to connect to back wall of new attenuator	\$ 1,500.00	
	Restore Block Pavers (50 sf)	\$ 1,000.00	
	Work Zone Traffic Control	\$ 1,500.00	
3-03B	Modify leading end of BBGR and attach to backing wall at impact attenuator	\$ 3,750.00	
	Remove and Store Type II End section	\$ 800.00	
	Replace Type II End section with 25 lf of box beam guiderail	\$ 1,050.00	
	Connect new BBGR to back wall of impact attenuator	\$ 400.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)
3-04A	Extend Guide Rail /Replace Type II End section with Type IIA end piece	\$ 4,950.00	
	Remove and Store Type II End section	\$ 800.00	
	Extend Box beam guiderail to Point of Need (60 lf)	\$ 1,750.00	
	Replace Type II End section with NYSDOT Type IIA end piece	\$ 1,500.00	
	Install BBGR End Piece on trailing end of guiderail.	\$ 900.00	
3-05A	Extend box beam guiderail to pt. of need. Replace Type II terminal with Type IIA	\$ 5,600.00	
	Install add'l BBGR to reach point of need (36 ft)	\$ 1,440.00	
	Install Type IIA End Section.	\$ 1,500.00	
	Remove existing Type II End Treatment	\$ 250.00	
	Work Zone Traffic Control	\$ 2,410.00	(2 days at \$1200)

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
3-06A	Install TL-2 crash cushion in front of blunt end of railing	\$ 18,000.00	
	Sawcut and Remove section of Pavt in front of rail	\$ 1,000.00	
	Install Concrete Foundation	\$ 2,000.00	
	New 2 bay Quadguard attenuator @ 36" wide (delivered and installed)	\$ 13,500.00	
	Work Zone Traffic Control	\$ 1,500.00	
3-06B & 11-01A	Install TL-2 crash cushion in front of blunt end of railing	\$ 18,000.00	
	Sawcut and Remove section of Pavt in front of rail	\$ 1,000.00	Hydrant Access may be an issue
	Install Concrete Foundation	\$ 2,000.00	
	New 2 bay Quadguard attenuator @ 36" wide (delivered and installed)	\$ 13,500.00	
	Work Zone Traffic Control	\$ 1,500.00	
3-06E	Replace Type II End Section with Type III end section	\$ 7,900.00	
	Remove existing Guiderail (50 lf)	\$ 500.00	
	Install Type III End Assembly	\$ 5,000.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
3-06F	Install box beam guiderail to protect overhead sign support	\$ 8,400.00	
	Install BBGR along front of fixed object (90 l.f.)	\$ 3,600.00	90' req'd to provide min. length of 125'
	Install Type IIA End Section on approach (25'+)	\$ 1,500.00	
	Install BBGR End Piece Treatment (7')	\$ 900.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
3-07D	Install BBGR along the left side of roadway from pier column downstream of narrow median (remove abrupt end taper) back thru area of narrow median.	\$ 10,450.00	
	install Add'l 180 l.f. of BBGR required along front of fixed object	\$ 6,300.00	
	Install Type IIA End Section on upstream approach (25'+)	\$ 1,500.00	
	Remove existing Type II End Treatment	\$ 250.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
6-03A	Extend BBGR 36 lf and install Type III end terminal	\$ 6,700.00	
	Remove 54 .lf. of BBGR and End terminal	\$ 550.00	
	Install 90 l.f. of BBGR at 1' offset from curb	\$ 3,150.00	
	Install Type IIA End Treatment	\$ 1,500.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 days at \$1500)
6-03D	Extend BBGR to close gap between rail runs on either side of vault	\$ 9,350.00	This will restrict access to vault, but appears access is available from east
	Remove and Store existing End Treatment on both guide rail runs	\$ 700.00	
	Remove 45 lf of BBGR from Easterly run	\$ 450.00	
	Install 160 l.f. of new BBGR at 1' offset from curb to close gap between east & west guide rail runs	\$ 5,600.00	
	Install Type III End Section	\$ -	Not needed
	Work Zone Traffic Control	\$ 2,600.00	
7-02B	Extend BBGR beyond ramp BBGR type I end section to point of need and Install Type III end terminal	\$ 11,000.00	
	Add'l 72 l.f. of BBGR required along front of fixed object	\$ 2,600.00	
	Remove and Store existing Type 1 End Treatment	\$ 800.00	
	Install Type III End Section on upstream approach (25'+)	\$ 5,000.00	
	Work Zone Traffic Control	\$ 2,600.00	(2 days at \$1200)
7-04A	Install Concrete barrier with back-up posts to protect electric cabinets and sign supports.	\$ 20,000.00	
	Remove and store existing box beam guiderail (70 lf)	\$ 700.00	
	Install two sections (40 lf) of Concrete Barrier	\$ 8,000.00	
	Install Std. Transition from BBGR to Concrete Barrier ("on end")	\$ 8,000.00	
	Std Connection of BBGR to Concrete Barrier ("off" end).	\$ 900.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
7-05	Replace existing attenuator (not NCHRP 350 rated) with TL-3 Attenuator	\$ 26,500.00	
	Remove Existing attenuator	\$ 800.00	
	Repair /Modify Exist. Concrete Foundation for use with new Attenuator	\$ 1,200.00	
	New 5 bay Quadguard attenuator @ 69" wide (delivered and installed)	\$ 23,000.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)
7-05A	Remove BBGR in front of pier column and replace with concrete half section barrier. Install transition assemblies on approach & departure ends	\$ 14,750.00	
	Install Conc Barrier required along front of fixed object (20 l.f.)	\$ 4,000.00	
	Install Std. Transition from BBGR to Concrete Barrier on upstream approach	\$ 8,000.00	
	Install Connection of Concrete Barrier to BBGR on downstream end	\$ 350.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
7-05F	Extend BBGR run to beyond concrete vault presently being installed.	\$ 8,350.00	
	Add'l 100 l.f. of BBGR required for extension past new fixed object.	\$ 3,500.00	
	Remove and Store Existing Type I End Terminal	\$ 700.00	
	Re-Install Type I End Terminal on upstream approach	\$ 1,750.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
8-02	Eliminate existing non-traversable curb per manufacturer's guidelines	\$ 6,000.00	
	Remove & Store Existing Attenuator	\$ 250.00	
	Sawcut and Excavate Existing Curb	\$ 350.00	
	Pour Flush Foundation for Attenuator	\$ 2,000.00	
	Re-install Attenuator	\$ 1,000.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1,200)
9-01	Install Type III End Assembly	\$ 8,500.00	
	Remove and Store existing Type 1 End Treatment	\$ 720.00	
	Add'l 36 l.f. of BBGR to provide length of need (per Std Sheet 606-06)	\$ 1,280.00	
	NYS DOT Std Type III End Assembly (per Std Sheet 606-06)	\$ 5,000.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 days at \$1500)
9-02A	Re-grade median areas at light pole foundations	\$ 12,000.00	
	Restore planting area (500 sf)	\$ 1,000.00	
	Regrade and restore approx 1,500 sf of median area	\$ 5,000.00	
	Adjust utility castings (2 @ \$300)	\$ 600.00	
	Remove store and Re-set Octagonal pavers (500 sf @ \$6 - labor only)	\$ 3,000.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
9-02C	Extend BBGR run to beyond point of need	\$ 6,200.00	
	Remove and Store Existing Type I End Terminal	\$ 750.00	
	Install add'l 36 l.f. of BBGR required to reach point of re-direction	\$ 1,300.00	
	Re-Install Type I End Terminal on upstream approach	\$ 1,750.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
9-03 & 9-03A	Eliminate gap in BBGR by installing new rail between old Type I turndown end	\$ 4,550.00	
	Install add'l 72 l.f. of BBGR required to reach point of re-direction	\$ 2,450.00	
	Remove two antiquated Type I end pieces	\$ 600.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
9-03B	Extend half section concrete barrier an additional 20 feet to eliminate curved section and install standard BBGR to concrete barrier transition section	\$ 16,000.00	
	Remove and Store of Existing Concrete Barrier Transition Piece (can this be relocated?)	\$ 1,000.00	
	Remove and Store 60 l.f of Existing BBGR	\$ 600.00	
	Install add'l 40 l.f. of Concrete Half Section Barrier (NJ) to get to tangent	\$ 8,000.00	
	Install Transition from BBGR to Concrete Barrier using salvaged Conc Barrier Trans. Piece	\$ 4,000.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
9-07 Short Term	Install 2 additional temporary concrete barrier sections (40' add'l feet) with TL-2 Attenuator on approach end	\$ 21,500.00	Assume \$ 125/LF Installed for Temp Conc Barrier (\$2,500 per 20' section)
	Temporary Concrete barrier (40 lf)	\$ 5,000.00	
	Construct Flush Concrete Pad for Attenuator	\$ 2,000.00	
	New 2 bay Quadguard attenuator @ 36" wide (delivered and installed)	\$ 13,500.00	
	Work Zone Traffic Control	\$ 1,000.00	
9-07 Long Term	Relocate overhead sign support column into sidewalk area	\$ 80,000.00	Would Require New Sign Structure (FDN, Steel Fabrication, Re-installation of signs, lighting etc. Removal of Existing Sign)
10-01	Remove and re-install BBGR - extend around curb radius	\$ 6,700.00	
	Remove entire run of BBGR run (50 l.f.)	\$ 500.00	
	Re- Install 50 lf of removed BBGR at 1 offset from face of curb	\$ 1,000.00	
	Install additional shop curved guiderail 25' to extend GR run around curb radius.	\$ 2,500.00	
	Install Type I End Piece	\$ 300.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
11-01,	Install TL-2 Attenuator	\$ 19,000.00	
11-01B,	Remove Existing Curbed Island	\$ 500.00	
11-01C,	Pour Foundation	\$ 2,000.00	
11-02,	New 2 bay Quadguard attenuator @ 36" wide (delivered and installed)	\$ 13,500.00	
	Pavement Markings	\$ 1,500.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
11-01A	See Location 3-06B		
11-02A,	Install TL-2 Attenuator	\$ 17,000.00	
11-03	Pour Foundation	\$ 2,000.00	
11-04,	New 2 bay Quadguard attenuator @ 36" wide (delivered and installed)	\$ 13,500.00	
15A-03B	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)
11-02B	Install BBGR around perimeter of bldg	\$ 9,510.00	
	Install 36 lf of straight BBGR at 6 offset from face of Building wall	\$ 1,260.00	
	Install 54 lf of shop-curved BBGR at 6 offset from face of Building wall	\$ 4,050.00	
	Install Type IIA End Section	\$ 1,500.00	
	Pavement Markings	\$ 1,500.00	
	Work Zone Traffic Control	\$ 1,200.00	(1 day at \$1200)
11-05	Install BBGR with Type III End section	\$ 16,800.00	
Long Term	Install BBGR transition to wall	\$ 8,000.00	
	Install 36 lf of BBGR	\$ 1,400.00	
	Install Type III End Section	\$ 5,000.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
11-07	Install concrete half section barrier (2 x 30 lf) left and right of columns.	\$ 19,900.00	
	Install 30 lf of half section concrete barrier either side of columns (2 x30 lf)	\$ 12,000.00	
	Low Strength Conc Infill between barriers (say 5 CY)	\$ 2,500.00	
	Encasement at Columns (3 C.Y. total)	\$ 3,000.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
13-07	Extend BBGR around curve and into parking lot area	\$ 5,150.00	
	Remove and store existing end terminal	\$ 250.00	
	Install 20 lf of BBGR at 1 offset from face of curb	\$ 700.00	
	Install 15 lf add'l shop curved guiderail to extend GR run around curb radius.	\$ 1,500.00	
	Install Type I End Piece	\$ 300.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
15A-02A	Extend existing BBGR run northward to point beyond utility cabinets	\$ 4,550.00	
	Remove and store existing Type I end piece	\$ 300.00	
	Install 70 lf of BBGR at 1 offset from face of curb	\$ 2,450.00	
	Reinstall Type I end piece	\$ 300.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)
15A-03B Short term	Replace BBGR in front Temporary Barrier with Type IIA End treatment	\$ 3,300.00	
	Remove and store 25 lf of existing BBGR and Type I end piece	\$ 300.00	
	Install Type IIA End Treatment	\$ 1,500.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)
15A-07	Reconstruct nose of gore with flush curb	\$ 4,650.00	
	Sawcut and excavate existing gore pavement and Curb (250 sf)	\$ 500.00	
	Construct flush curb to define nose of gore (40 lf)	\$ 1,000.00	
	Regrade and repave nose of gore (250 sf of 3" asph. Pavt)	\$ 750.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
15A-13A	Remove & Re-install BBGR at 1 foot from face of curb	\$ 6,500.00	
	Remove 150 lf of existing BBGR	\$ 1,250.00	
	Re-Install 150 LF of BBGR	\$ 3,750.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)
15A-14	Close Gap between end of BBGR and Beginning of Retaining Wall	\$ 9,500.00	
	Transition BBGR (installed at Location 15A-13A) to Connect to Retaining Wall	\$ 8,000.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)
17-01B	Extend existing Type I End Terminal	\$ 3,400.00	
	Remove and store existing Type I end piece	\$ 300.00	
	Extend Type I end section approx 36 lf and bury in back slope	\$ 1,260.00	
	Install additional (6) guide rail post in vicinity of column	\$ 640.00	
	Work Zone Traffic Control	\$ 1,200.00	(1 day at \$1200)

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
17-01C	Replace existing BBGR with Concrete Barrier at Columns (280 lf)	\$ 71,975.00	
	Remove existing Type II End Terminal	\$ 800.00	
	Extend leading end of Guiderail 25 lf upstream	\$ 875.00	
	Replace Type II End terminal with Type IIA	\$ 1,500.00	
	Install Concrete barrier (280 lf)	\$ 56,000.00	
	Install BBGR-to-Concrete barrier transition	\$ 8,000.00	
	Work Zone Traffic Control	\$ 4,800.00	(4 days at \$1200)
17-01D	Extend approach end of Type 1 end treatment to achieve required lateral off-set. Install add'l posts (6) at 1/2 spacing IFO utility box	\$ 3,900.00	
	Remove and store existing Type I end piece	\$ 300.00	
	Extend Type 1 end section approx 30 lf to achieve desired offset	\$ 1,500.00	
	Re-install Type I End piece	\$ 300.00	
	Install additional (6) guide rail post in vicinity of column	\$ 600.00	
	Work Zone Traffic Control	\$ 1,200.00	(1 days at \$1200)
17-01E	Extend existing BBGR to a point just beyond utility box. Install add'l posts (6) at 1/2 spacing IFO utility box	\$ 6,250.00	
	Remove and store existing Type I end piece	\$ 300.00	
	Extend BBGR approx 110 lf	\$ 3,850.00	
	Re-install Type I End piece	\$ 300.00	
	Install additional (6) guide rail post in vicinity of utility cabinet	\$ 600.00	
	Work Zone Traffic Control	\$ 1,200.00	(1 day at \$1200)
17-02A	Extend existing BBGR beyond end of chain link fence	\$ 6,200.00	
	Remove and store existing Type I end piece	\$ 300.00	
	Extend BBGR Type I end treatment approx 40 lf to achieve 16' offset	\$ 1,400.00	
	Install paver treatment under extended portion of guide rail	\$ 3,000.00	100 sf @ \$30/sf
	Re-install Type I End piece	\$ 300.00	
	Work Zone Traffic Control	\$ 1,200.00	(1 day at \$1200)

COST ANALYSES FOR LOCATION-SPECIFIC RECOMMENDATIONS			
Location	Description of Work	ESTIMATED COST (2012 \$)	REMARKS
17-06	Install TL-2 Attenuator	\$ 29,000.00	
	Remove Existing Block Pavers and Prepare Level area for Attenuator Foundation	\$ 2,500.00	
	Pour Foundation	\$ 2,000.00	
	New 4 bay Quadguard attenuator @ 69" wide (delivered and installed)	\$ 23,000.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)
18-02	Install TL-2 Attenuator	\$ 19,500.00	
	Remove Existing Curbed Island	\$ 2,500.00	
	Pour Attenuator Foundation	\$ 2,000.00	
	New 2 bay Quadguard attenuator @ 36" wide (delivered and installed)	\$ 13,500.00	
	Work Zone Traffic Control	\$ 1,500.00	(1 day at \$1500)
19-03	Extend preceding run of BBGR and connect to conc. barrier with std transition assembly	\$ 14,810.00	
	Install add'l 125 l.f. of BBGR required to reach point of re-direction	\$ 4,410.00	
	Install Std. Transition from BBGR to Concrete Barrier on upstream approach	\$ 8,000.00	
	Work Zone Traffic Control	\$ 2,400.00	(2 days at \$1200)
19-06C	Install BBGR on both sides of median extending from end of wall at bottom of ramp and connecting to existing BBGR downstream of crash cushion at Location R3-3. Remove crash cushion at Location 3-03 and connect new guide rail to existing BBGR beyond	\$ 33,300.00	
	Install 700 (350 x 2) lf of BBGR and connect to existing BBGR	\$ 24,500.00	
	Connect new BBGR to barrier / wall at bottom of ramp	\$ 8,000.00	
	Remove and store existing Attenuator at Location R3-03	\$ 800.00	