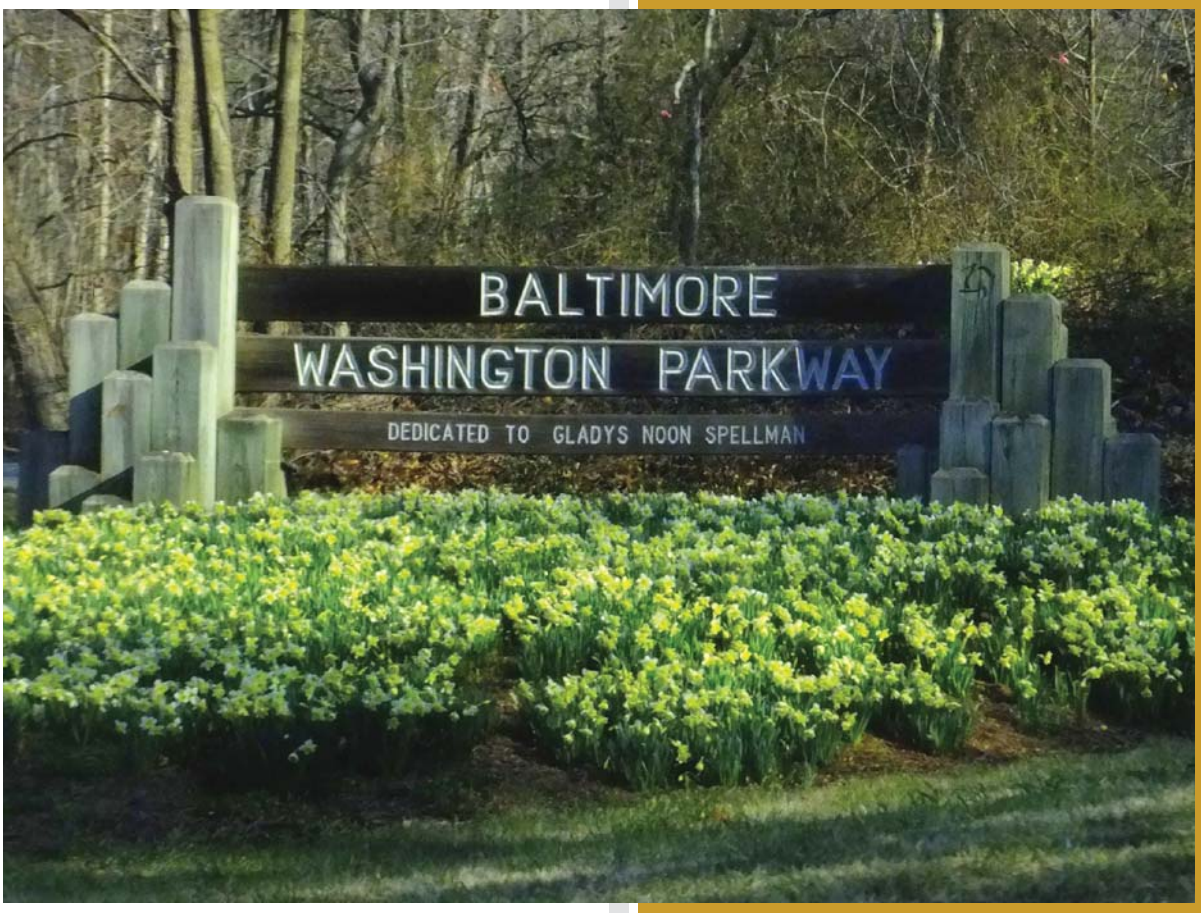
BAWA

GIP Report

NPS Guardwall/Rail Inventory Program

Baltimore - Washington Parkway



Federal Lands Highway
Road Inventory Program

Prepared By:
Federal Highway Administration
Eastern Federal Lands Highway Division
Road Inventory Program (RIP)

Data Collection Date: October 2010
Report Date: December 2015

Baltimore - Washington Parkway
in
Maryland

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors

N

Table of Contents

Introduction

Baltimore - Washington Parkway

Federal Lands Highway
Road Inventory Program

Introduction

In support of the NPS Facility Management Software System (FMSS) asset management program, FHWA- contracted staff completed the Guardwall/Rail Inventory Program (GIP) inspections within selected National Park Service (NPS) units between 2010 and 2011. This inventory provides static information to FMSS regarding barrier characteristics such as height, length and location, as well as dynamic information about the condition of the barrier. In addition, when barrier deficiencies were identified, repair recommendations and estimated costs, suitable for use as FMSS work orders, were generated to bring the barrier back to its "new" condition.

In over 30 parks, numerous crashworthy barriers inspected maybe in poor condition by simply applying a new overlay of asphalt without milling previous layers. In instances such as this, basically the critical element of barrier height decreased as the elevation of the roadway increased. Resulting work orders were drafted to raise w-beam barriers or to remove and reset stone masonry barriers to their original design height.

This inventory provides static information and a condition assessment of each barrier inventoried. In addition, when barrier deficiencies were identified, repair recommendations and estimated costs were drafted to bring the barrier back to its "new" condition.

Drafted work orders have been classified as being either deferred maintenance or capital improvement. This classification is based on the type of work recommended, as defined below.

- *Deferred Maintenance* can be classified as repair or replace in kind. Work done to the barrier does not include any upgrading.
- *Capital Improvement* can be classified as upgrading part of or the entire existing barrier. Typically the upgrade will be from a non-crashworthy to a crashworthy device. Other examples of capital improvements would be the addition of a curb to improve drainage.

Care was taken to maintain the cultural significance of historic barriers located in the NPS. While historic traffic barriers likely would not withstand current crashworthiness performance criteria, they are considered by the NPS to be important resources for the historic and/or cultural value. Historic barriers may be "character defining features" that contribute to the cultural significance of historic roadways. As such, these barriers have resource value in and of themselves which may be somewhat independent from their functionality as barriers as previously defined. The consideration of both the crashworthiness and resource value of historic barriers was a significant challenge for the NPS and the FHWA when designing the GIP, to the point that for historic stone masonry barriers, the barrier height had to be more than 6-in below its design height before any work would be considered to deal with height issues. To preserve historic stone masonry barriers, typical drafted work orders for historic barriers were to remove and reset the barrier to the barrier's original design height on a concrete footer, as compared to replacing it with a similar crashworthy barrier.

This report is organized in a tiered approach from the broad park overview perspective (Tier 1) to a route overview perspective (Tier 2), then down to the details of each barrier (Tier 3). Tier 1 presents park barrier location maps and an overall park-specific summary narrative of the results of the guardwall/rail inventory program. Tier 2 presents route overview maps with associated barrier summary information. Tier 3 presents individual barrier information in a one-page detailed format, including a photograph of each barrier. Appendix A provides a condensed summary of guardwall/rail inventory definitions and assessment categories to assist in reading this report.

Park Barrier Location Maps

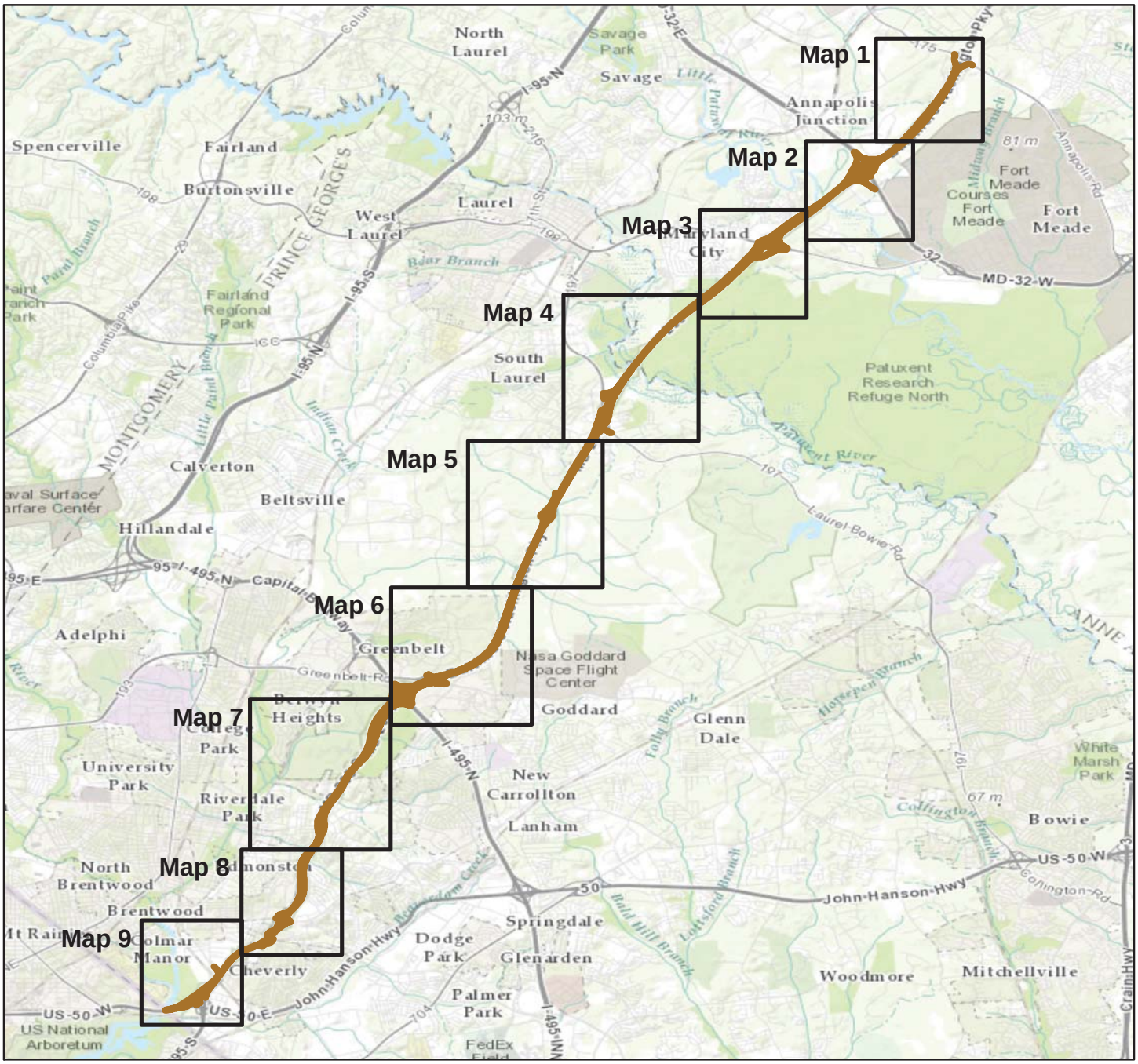
Baltimore - Washington Parkway

Federal Lands Highway
Road Inventory Program

Baltimore-Washington Parkway

BARRIER LOCATION MAP

Key Map



RIP Collected Routes

Miles

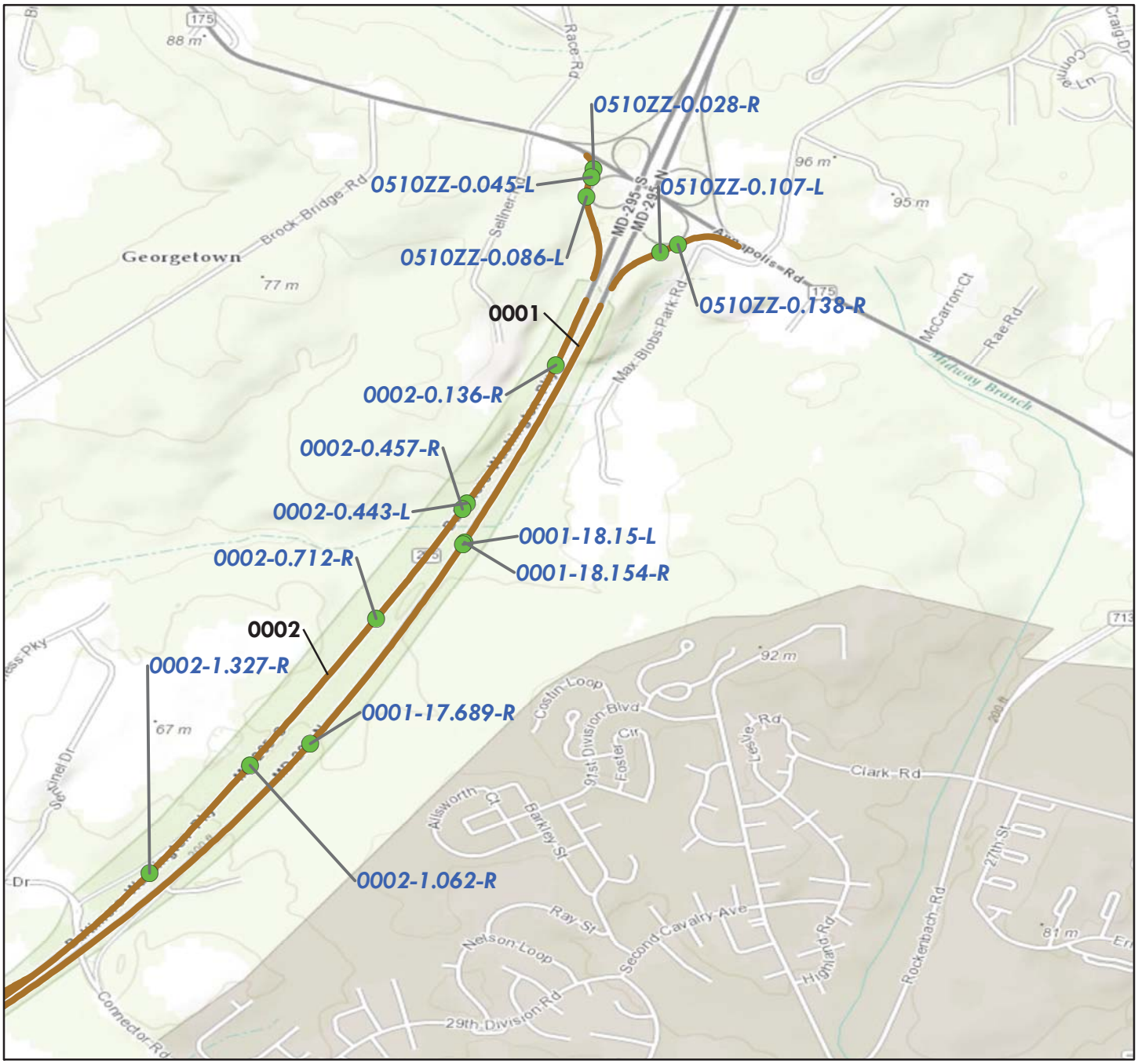
0 1.5 3

N

Baltimore-Washington Parkway

BARRIER LOCATION MAP

Map 1



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations

RIP Collected Routes

Miles

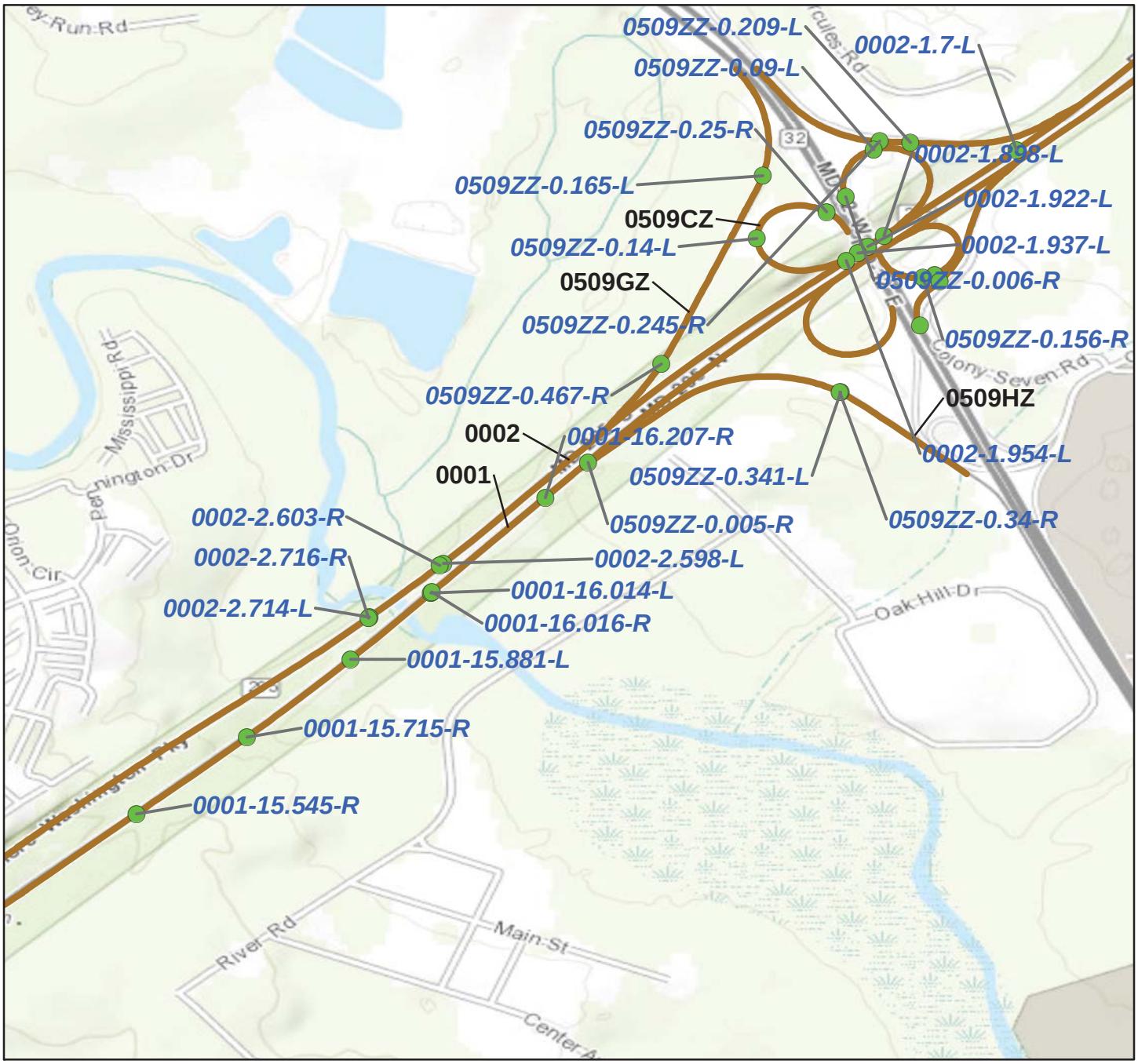
0 0.25 0.5

N

Baltimore-Washington Parkway

BARRIER LOCATION MAP

Map 2



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations (Not all labeled)

RIP Collected Routes

Miles

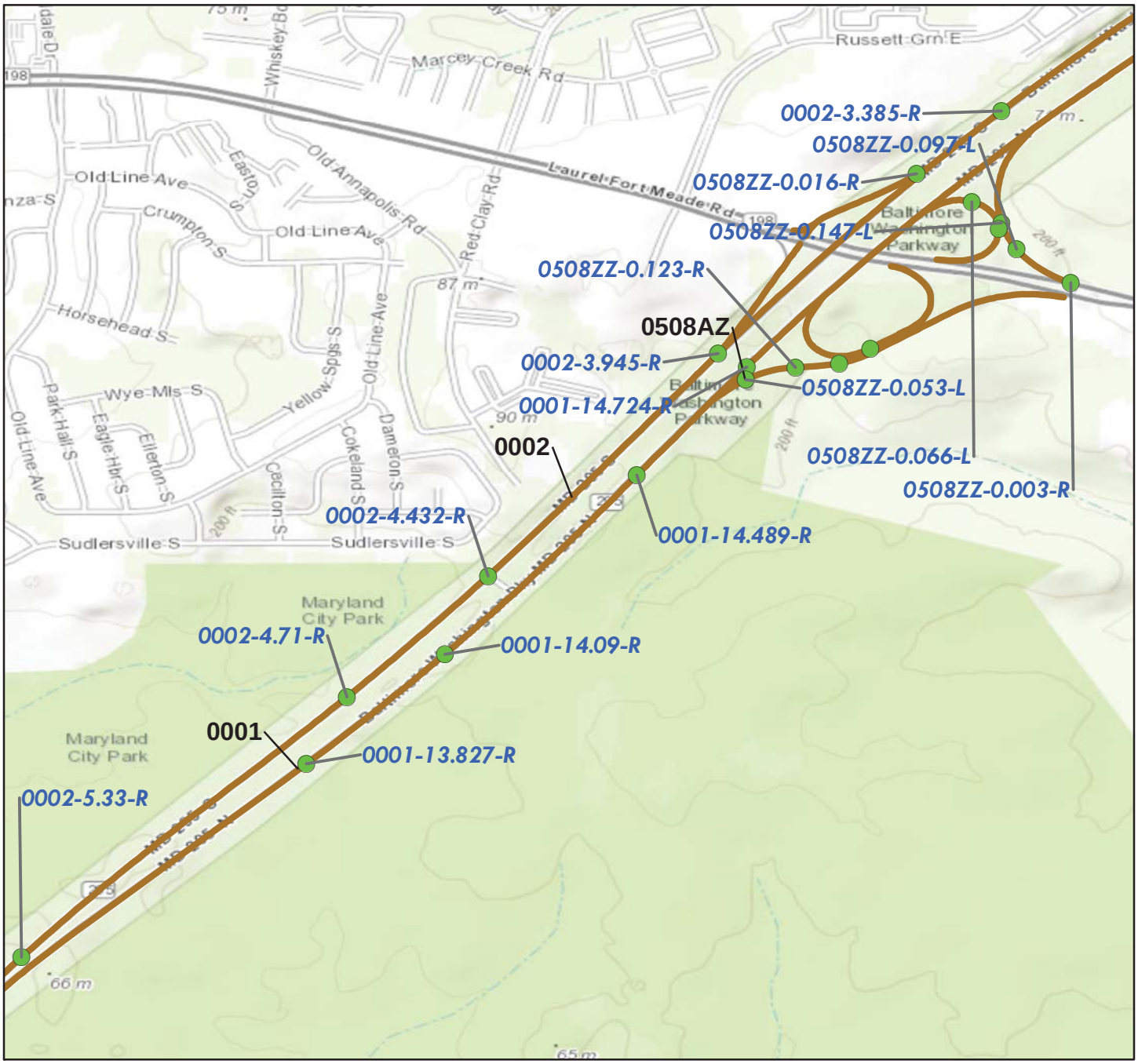
0 0.25 0.5

N

Baltimore-Washington Parkway

BARRIER LOCATION MAP

Map 3



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations (Not all labeled)

RIP Collected Routes

Miles

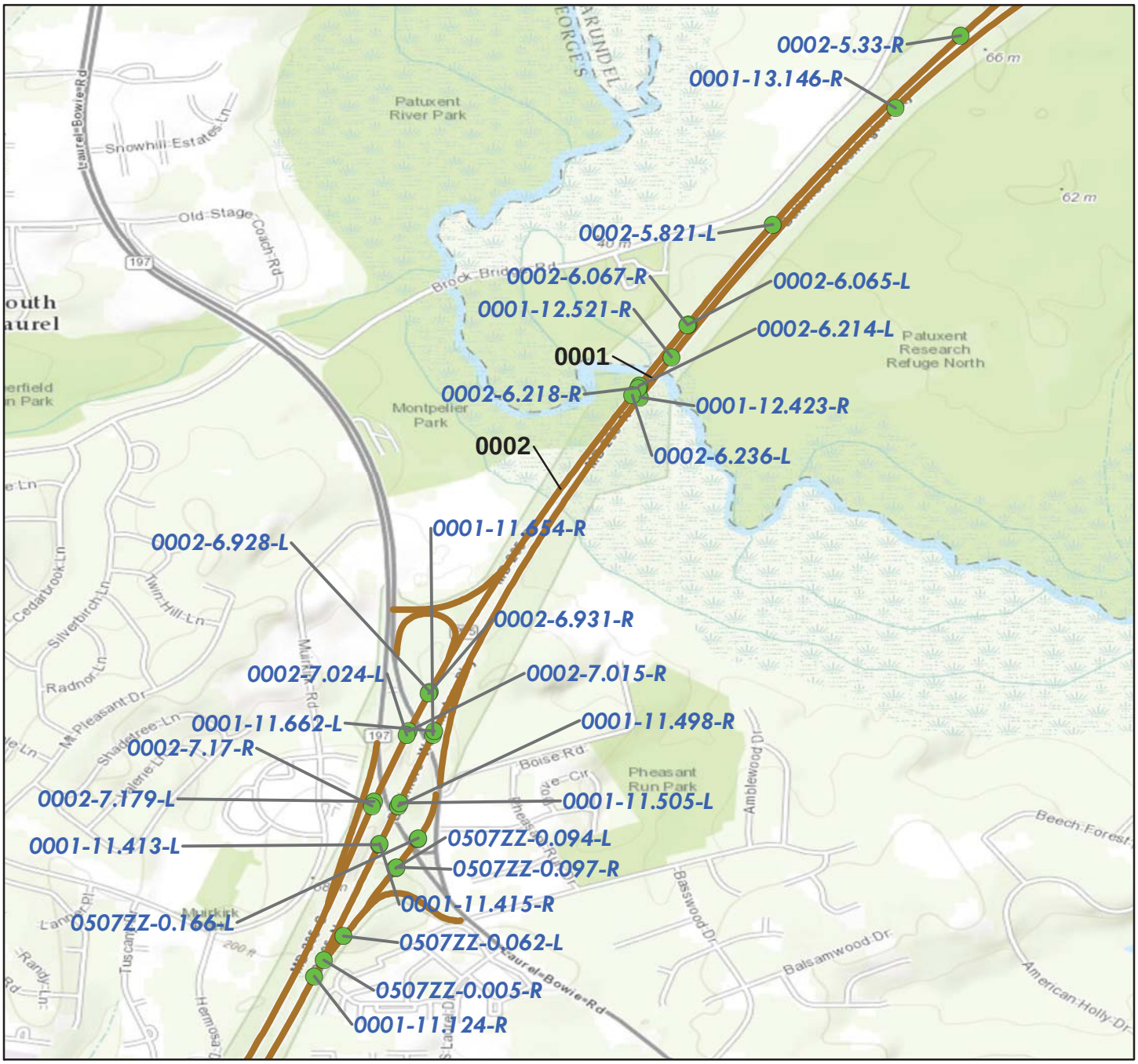
0 0.25 0.5

N

Baltimore-Washington Parkway

BARRIER LOCATION MAP

Map 4



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations

RIP Collected Routes

Miles

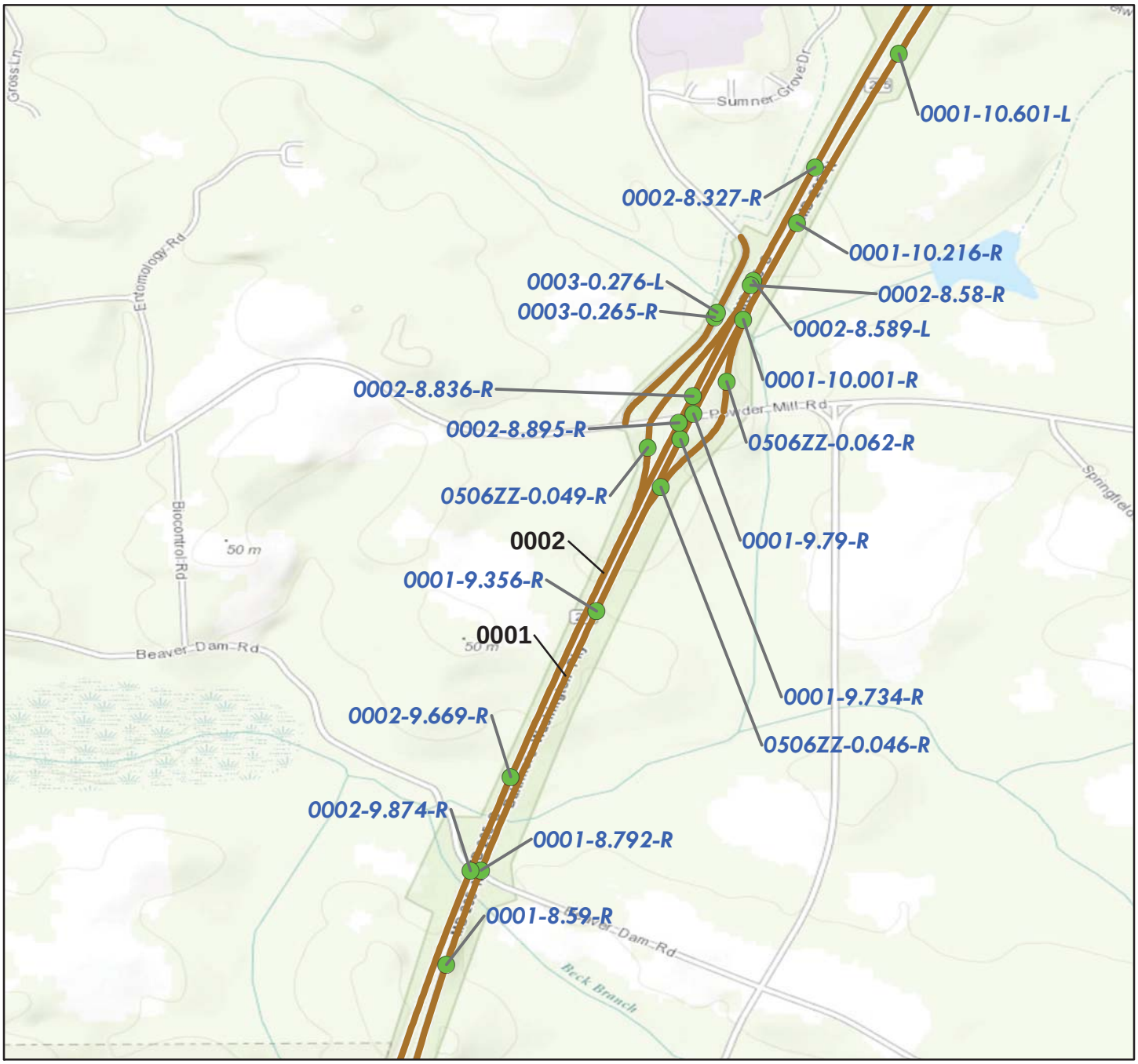
0 0.25 0.5

N

Baltimore-Washington Parkway

BARRIER LOCATION MAP

Map 5



Barrier Locations

RIP Collected Routes

Miles

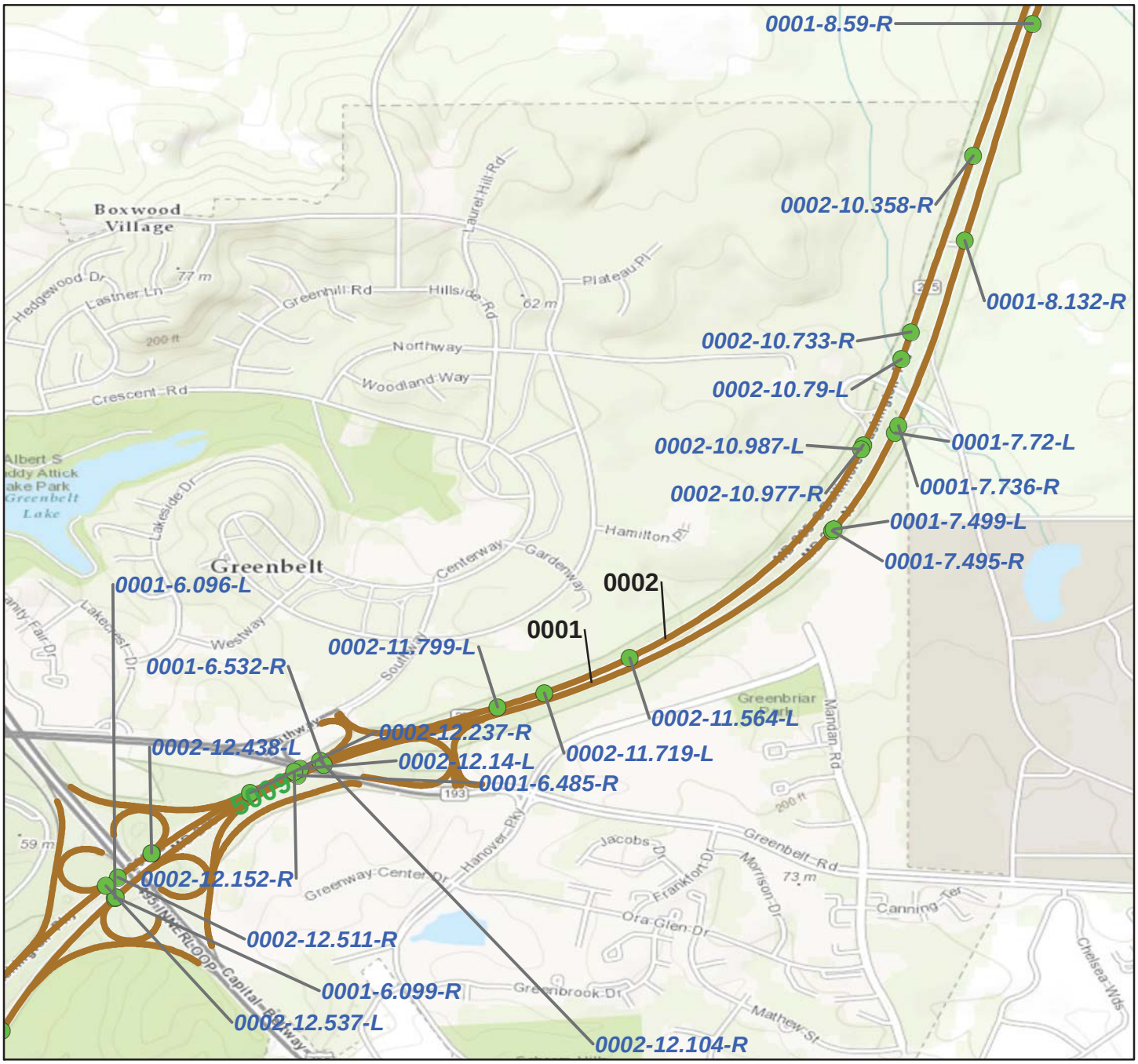
0 0.25 0.5

N

Baltimore-Washington Parkway

BARRIER LOCATION MAP

Map 6



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations

RIP Collected Routes

Miles

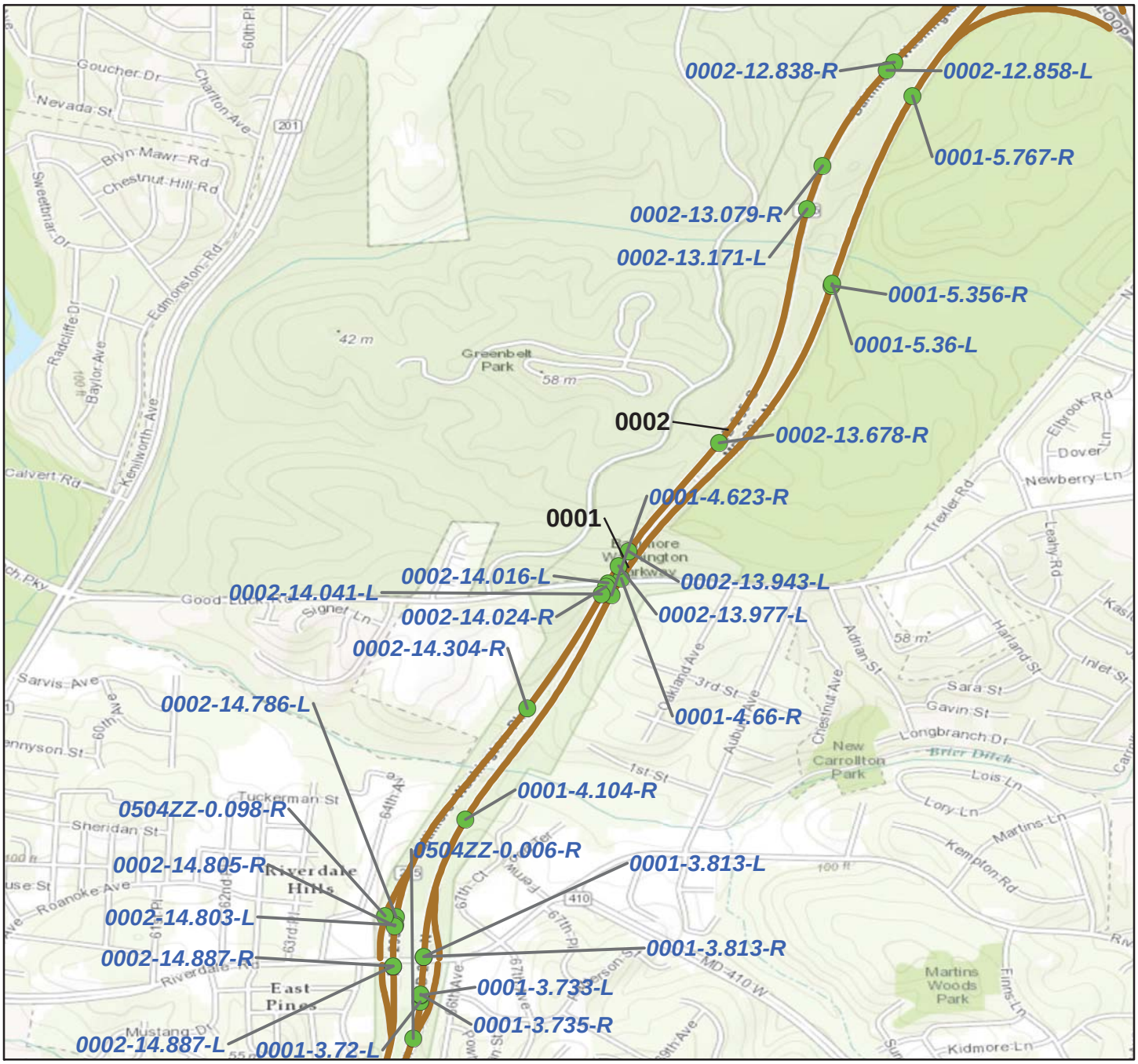
0 0.25 0.5

N

Baltimore-Washington Parkway

BARRIER LOCATION MAP

Map 7



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations

RIP Collected Routes

Miles

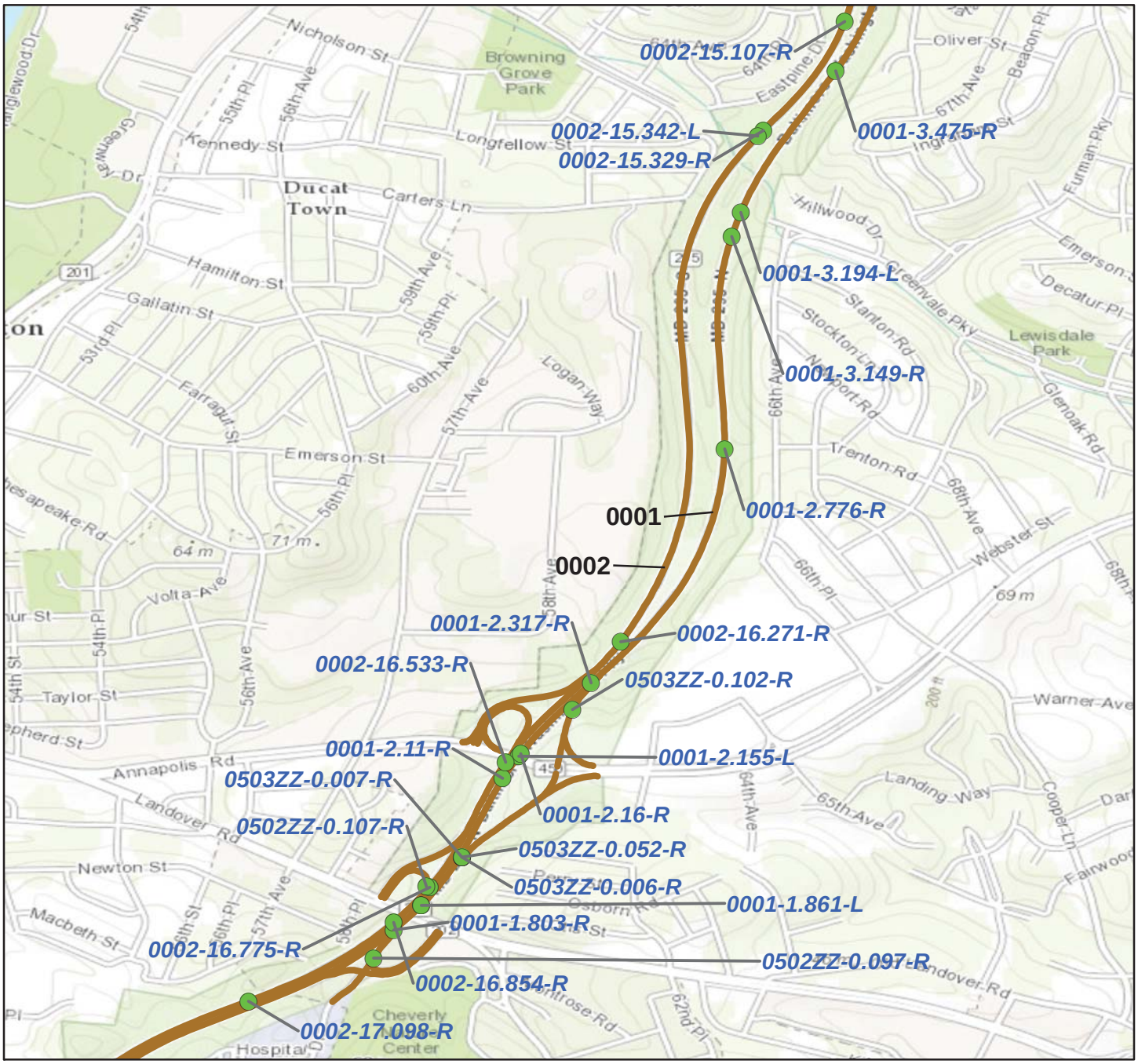
0 0.25 0.5

N

Baltimore-Washington Parkway

BARRIER LOCATION MAP

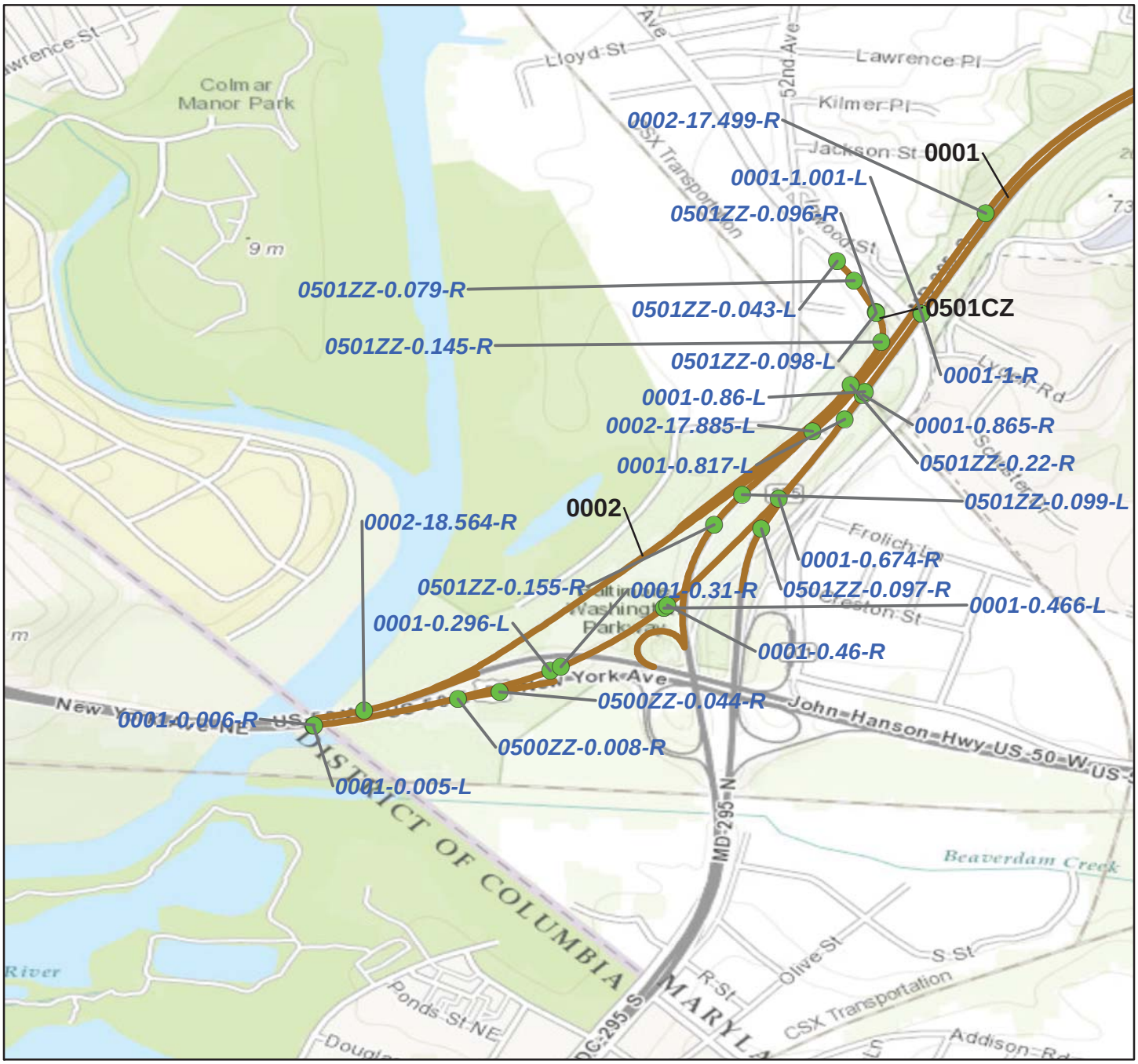
Map 8



Baltimore-Washington Parkway

BARRIER LOCATION MAP

Map 9



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations

RIP Collected Routes

Miles

0 0.25 0.5

N

Tier 1
Park Barrier Overview

Baltimore - Washington Parkway

Federal Lands Highway
Road Inventory Program

Parkwide Summary: Baltimore - Washington Parkway

Initial barrier inspections were conducted at Baltimore - Washington Parkway in 2010, and encompassed all known barriers associated with Park roadways. In general, walls are not included in this assessment, but were inspected for Baltimore - Washington Parkway in 2007 under a separate effort as part of the Retaining Wall Inventory Program (WIP). A report for WIP is available under separate cover.

All paved roadways and parking areas listed in the RIP Route Identification Report were inspected for barriers.

The following tables provide an overview of the findings of this inspection and assessment effort. In all, 216 barriers were inventoried on the routes listed below.

Table 1: Number of Barriers by Route

Route Number	Route Name	No. of Barriers
0001	BALTIMORE-WASHINGTON PARKWAY (NB)	74
0002	BALTIMORE-WASHINGTON PARKWAY (SB)	82
0003	SPRINGFIELD ROAD WEST	2
0500ZZ	U.S. ROUTE 50, MD ROUTE 201 INTERCHANGE RAMPS	2
0501ZZ	KENILWORTH AVENUE INTERCHANGE RAMPS	9
0502ZZ	LANDOVER ROAD RAMPS (MD ROUTE 202 INTERCHANGE)	2
0503ZZ	ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)	4
0504ZZ	RIVERDALE ROAD RAMPS (MD ROUTE 410 INTERCHANGE)	2
0506ZZ	POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)	3
0507ZZ	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)	6
0508ZZ	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)	10
0509ZZ	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)	15
0510ZZ	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)	5

Due to the different GIP assessment criteria of barriers based on their intended use, barriers were classified as being either traffic barriers or non-traffic barriers.

- *Traffic* barriers are physical devices intended to keep vehicles or people from straying into dangerous or off-limits areas. For the purpose of this inventory, a traffic barrier is categorized as roadside hardware placed longitudinally, excluding pedestrian railing and fencing.

- *Non-traffic* barriers provide a physical delineation between public access areas and restricted or protected areas in locations such as a parking lot, viewpoint or turnout. **Non-traffic barriers which inhibit access of vehicles are included in this report; non-traffic barriers which only inhibit access of pedestrians or bicyclists are not included. For the purpose of this inventory, non-traffic barriers are guidewalls and guiderails. Note: rocks, stones, boulders, fences or curbs were excluded from this inventory.**

There are instances in parks where a single barrier can switch between being classified as a traffic barrier and a non-traffic barrier. Such instances typically occur at pullouts, where a traffic barrier along the road will continue through the pullout without interruption. In such instances, the traffic barrier and non-traffic barrier were assessed using different criteria. Due to the different criteria, the GIP database was designed to record the traffic barrier and non-traffic barrier as multiple distinct barriers, even though to the eye, they appear as one barrier. Other instances where a single barrier is split into multiple barriers would be when the barrier is placed continuously along two legs of an intersection, so that one portion of the barrier may be on one road and the remaining portion of the barrier is on a different road.

Table 2: Number of Barriers by Function

Barrier Function	No. of Barriers
TRAFFIC	216

The following table shows the barrier types that were inventoried and assessed.

Table 3: Number of Barriers by Type

Primary Barrier Type	No. of Barriers
W-Beam Double Face Strong Post	11
W-Beam Strong Post	27
Steel-Backed Timber With Blockout	9
Steel-Backed Timber Without Blockout	3
Concrete With Simulated Stone Face	166

The following table shows the number of barriers by one of four categories of recommended action along with associated work order costs and the number of barriers that are in each recommended action. All work order information is presented for individual barriers, even though some work orders were not accepted by the Park. Some work orders were later combined to simplify route deferred maintenance requests.

Table 4: Number of Barriers by Recommended Action and Associated 2008 Cost

Recommended Action	Repair Costs*	No. of Barriers
No Action	$0	124
Monitor	$0	2
Repair	$452,365	90
Replace	$0	0
Totals	**$452,365**	**216**

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

The following table categorizes the number of barriers that fall into one of ten cost ranges, based on the prepared work orders. The locations, work descriptions, and cost of the recommended repairs for these barriers are listed by individual barrier in Tier 3 of this report.

Table 5: Number of Barriers Grouped by Associated 2008 Cost

Cost Range*	No. of Barriers
$0	126
$1 - $25,000	89
$25,001 - $50,000	0
$50,001 - $100,000	1
$100,001 - $250,000	0
$250,001 - $500,000	0
$500,001 - $1,000,000	0
$1,000,001 - $2,000,000	0
$2,000,001 - $3,000,000	0
$3,000,001 - $4,000,000	0
Total Number of Barriers	**216**

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Data for end terminals was collected on the GIP data collection form and indicates if an end terminal meets current crashworthiness standards. End terminals are specially designed barrier ends that attenuate impacts to the ends of barriers. This is supplemental information that WASO designed into the inventory program.

A total of 41 end terminals were found on barriers at the Park. There are generally a greater number of end treatments than actual barriers because end treatments are located at both the beginning and end of each barrier.

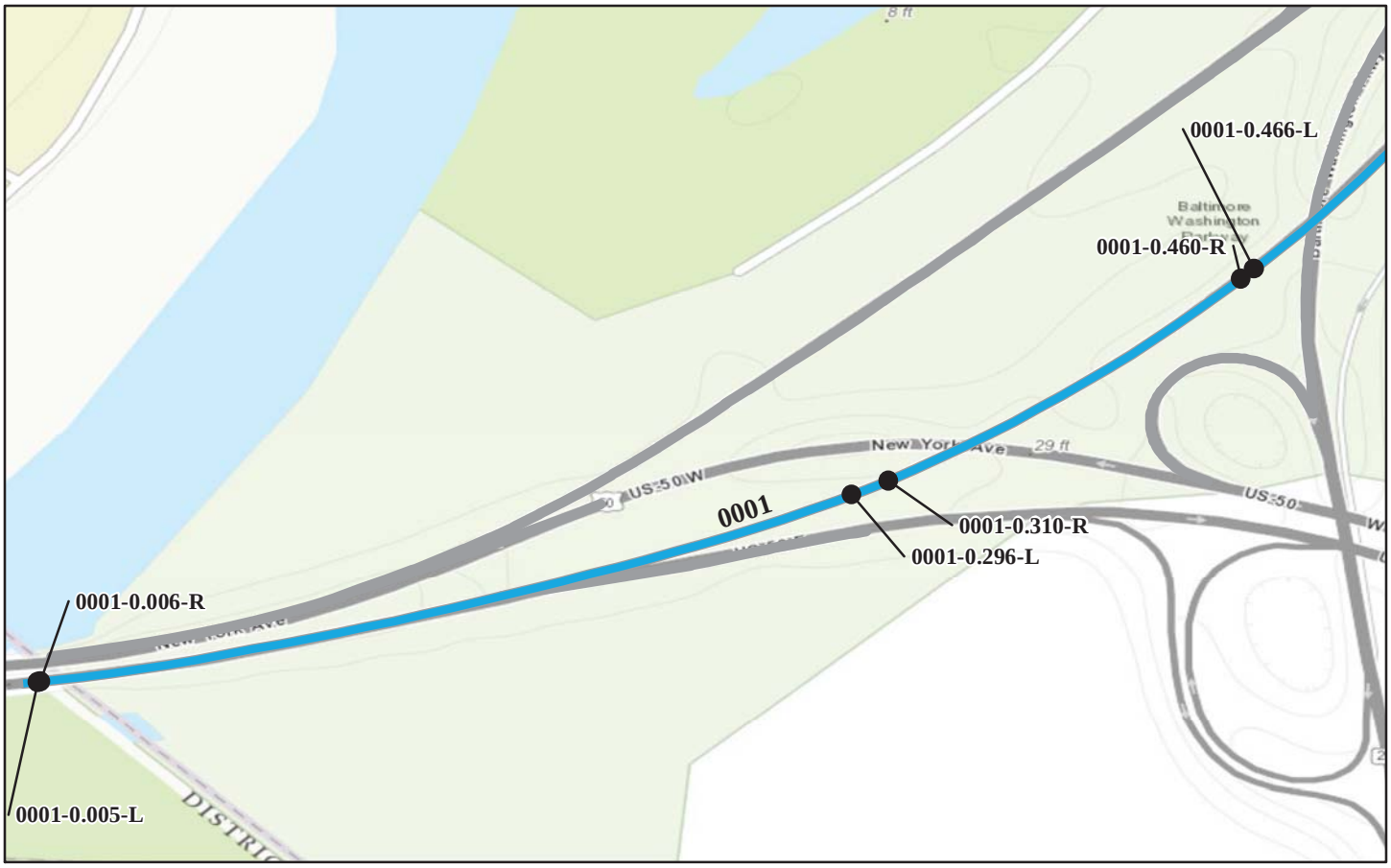
Tier 2
Route Barrier Overview

Baltimore - Washington Parkway

Federal Lands Highway
Road Inventory Program

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



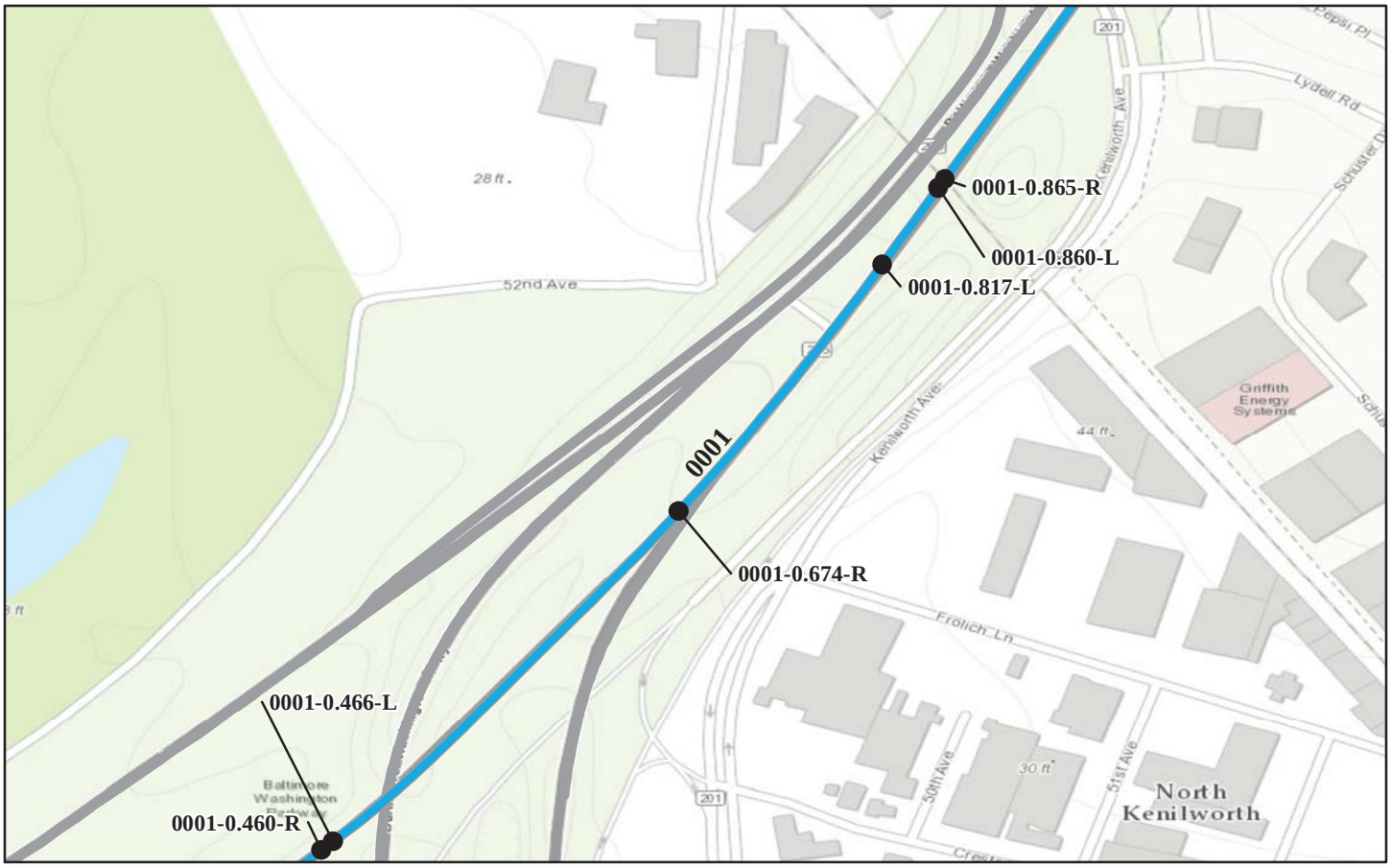
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0001-0.005-L 10/19/2010	983	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$11,220.00
BAWA-0001-0.006-R 10/18/2010	1347	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$6,419.00
BAWA-0001-0.296-L 10/19/2010	314	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$6,765.00
BAWA-0001-0.310-R 10/18/2010	333	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$1,887.00
BAWA-0001-0.460-R 10/18/2010	307	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



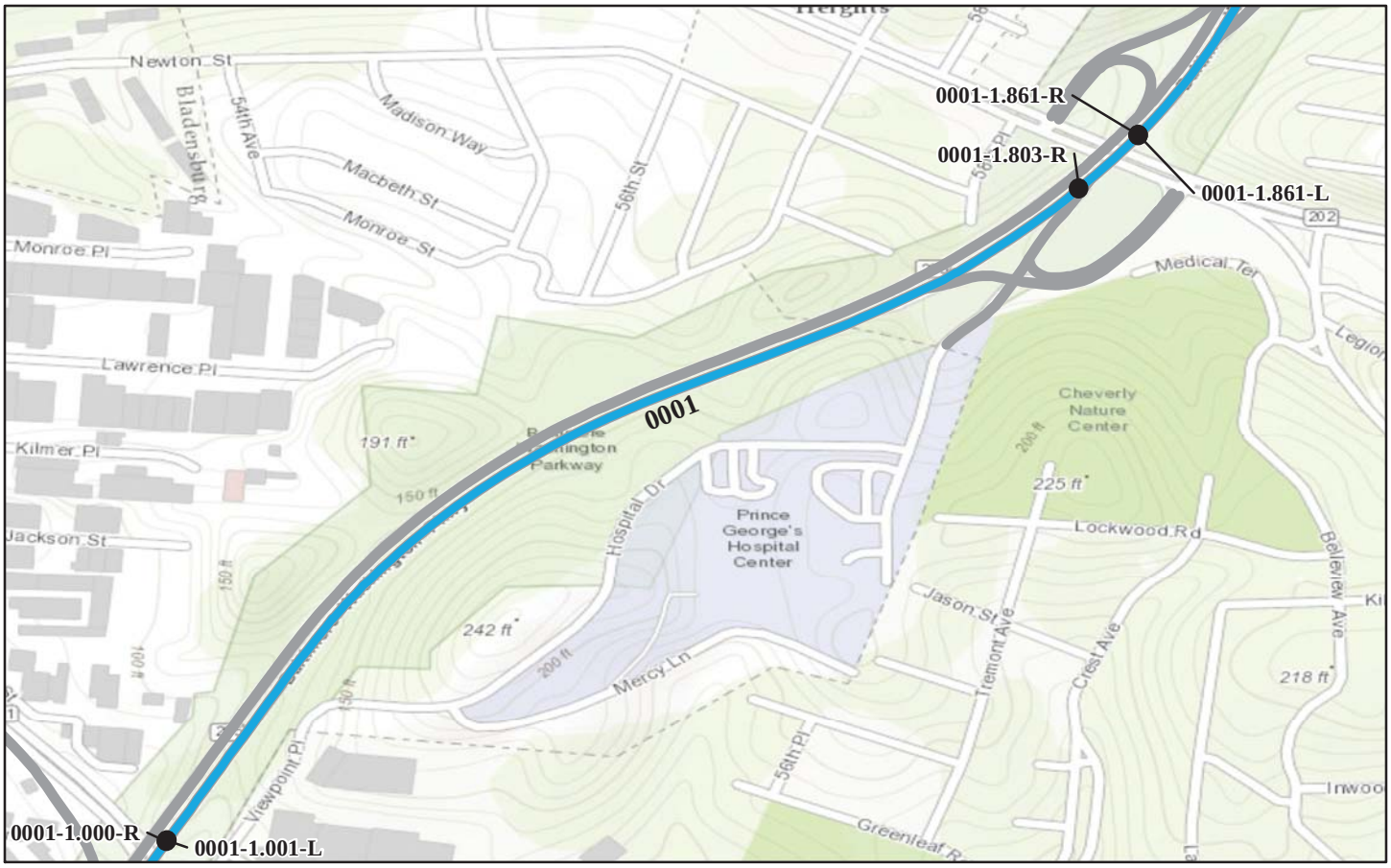
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-0.466-L 10/19/2010	319	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,163.00
BAWA-0001-0.674-R 10/20/2010	977	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$1,755.00
BAWA-0001-0.817-L 10/19/2010	173	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$1,755.00
BAWA-0001-0.860-L 10/19/2010	460	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-0.865-R 10/17/2010	460	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



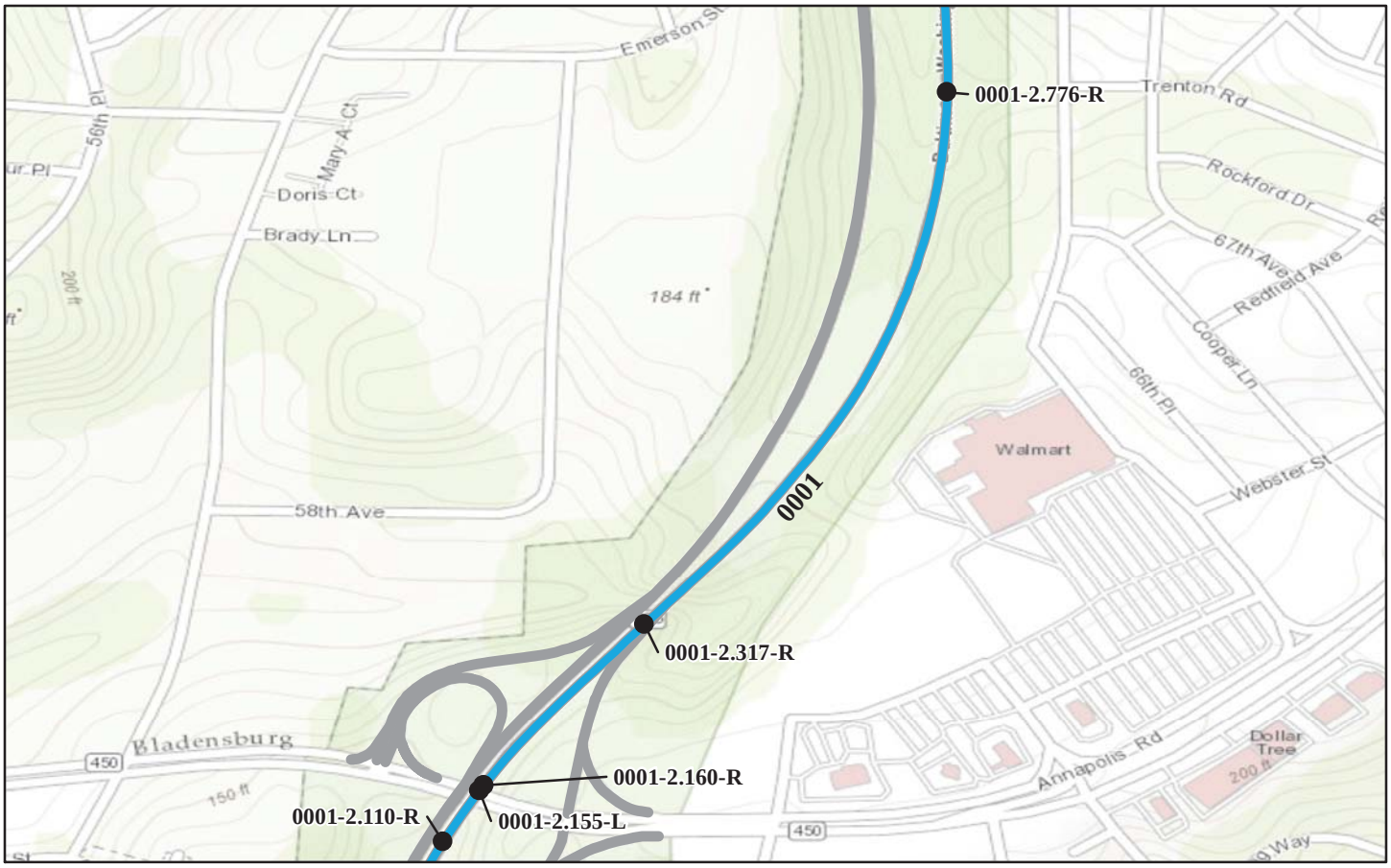
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-1.000-R 10/17/2010	423	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-1.001-L 10/20/2010	4331	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,235.00
BAWA-0001-1.803-R 10/20/2010	119	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-1.861-L 10/20/2010	1502	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-1.861-R 10/18/2010	743	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$6,221.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-2.110-R 10/18/2010	186	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-2.155-L 10/20/2010	1277	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-2.160-R 10/18/2010	139	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-2.317-R 10/18/2010	362	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-2.776-R 10/18/2010	281	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

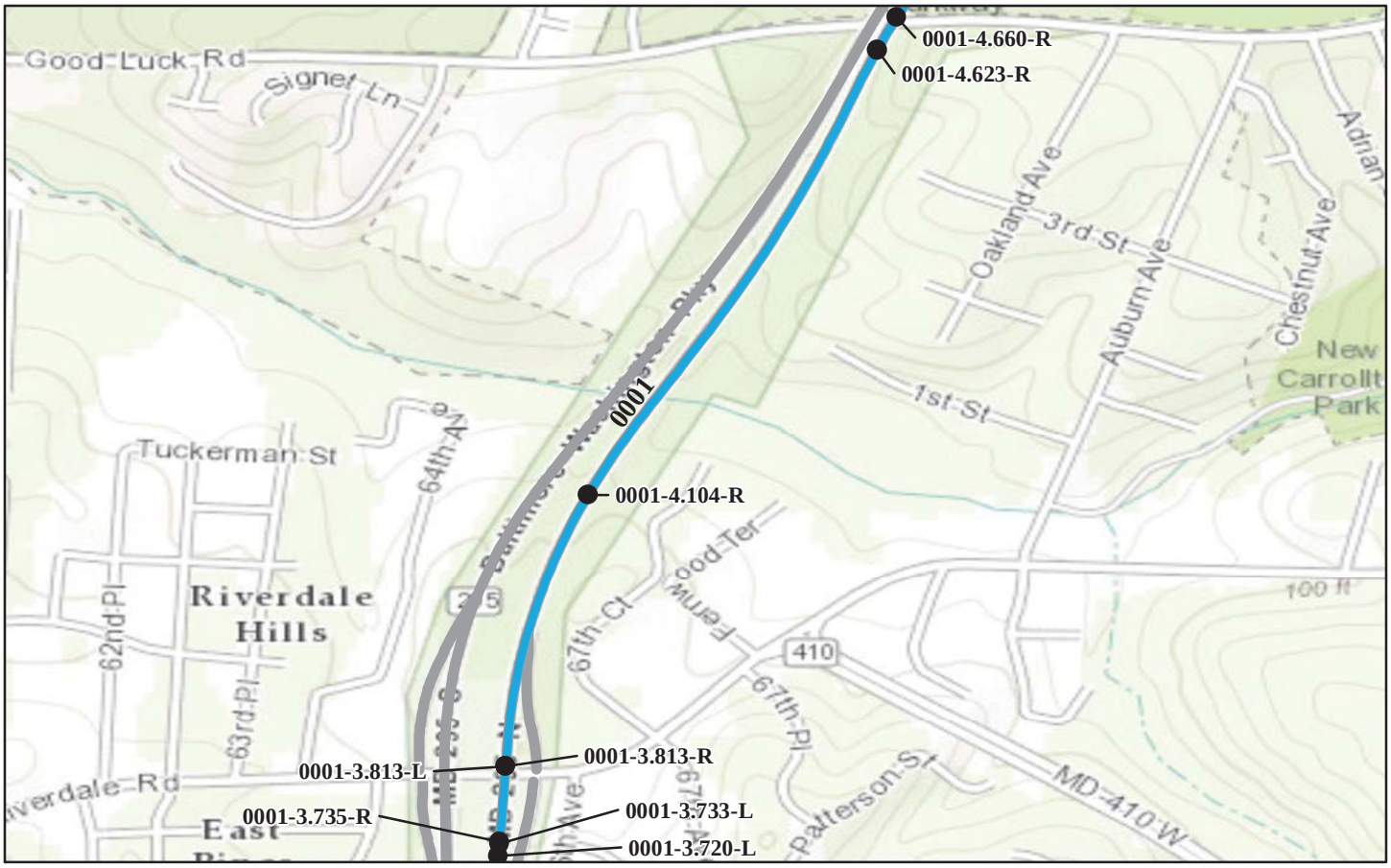
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0001-3.149-R 10/18/2010	872	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-3.194-L 10/20/2010	659	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$8,085.00
BAWA-0001-3.475-R 10/18/2010	684	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-3.720-L 10/20/2010	92	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	NONE	$0.00
BAWA-0001-3.733-L 10/20/2010	275	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



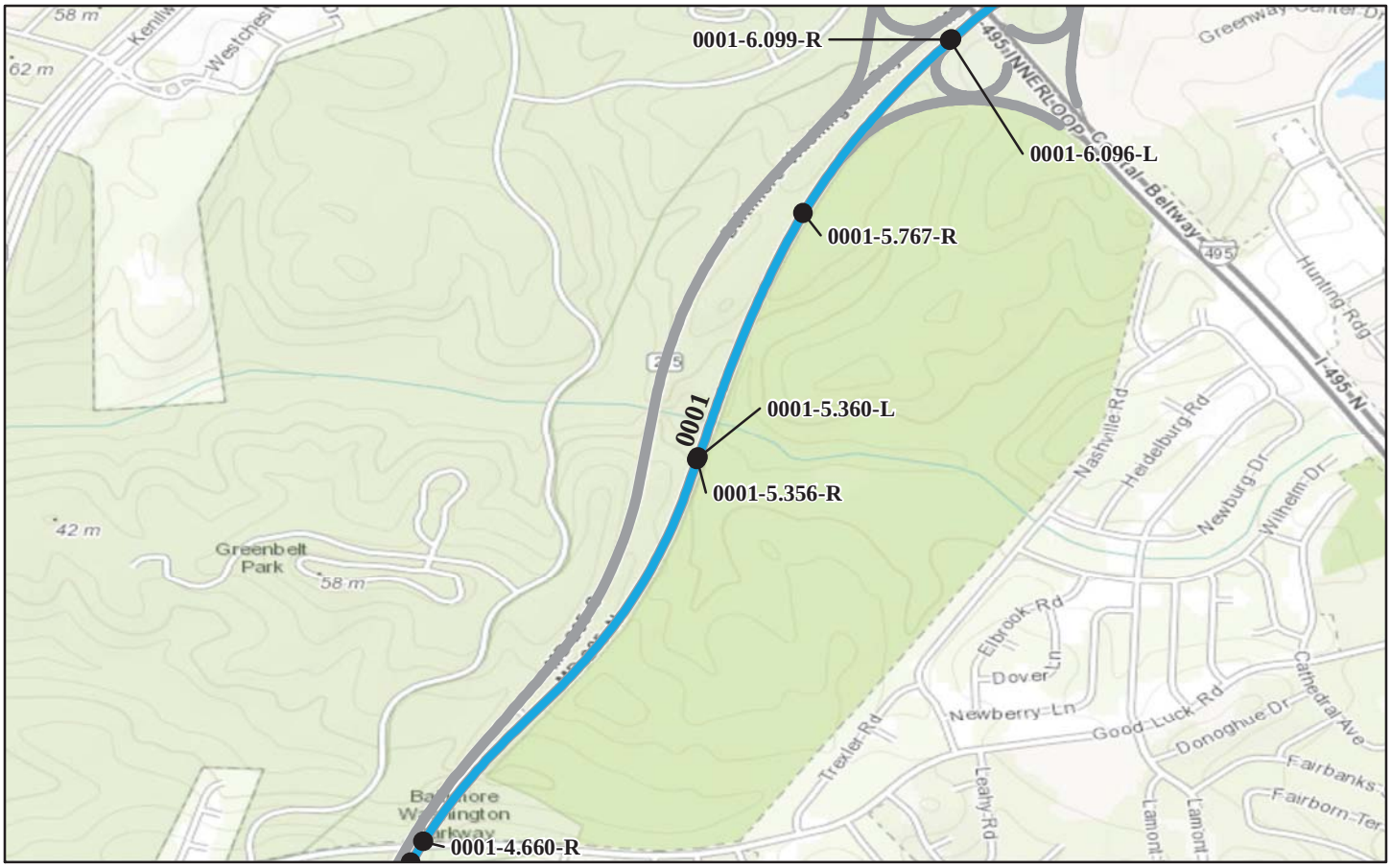
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-3.735-R 10/18/2010	292	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-3.813-L 10/20/2010	490	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,235.00
BAWA-0001-3.813-R 10/18/2010	312	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-4.104-R 10/19/2010	1407	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-4.623-R 10/18/2010	143	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,290.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



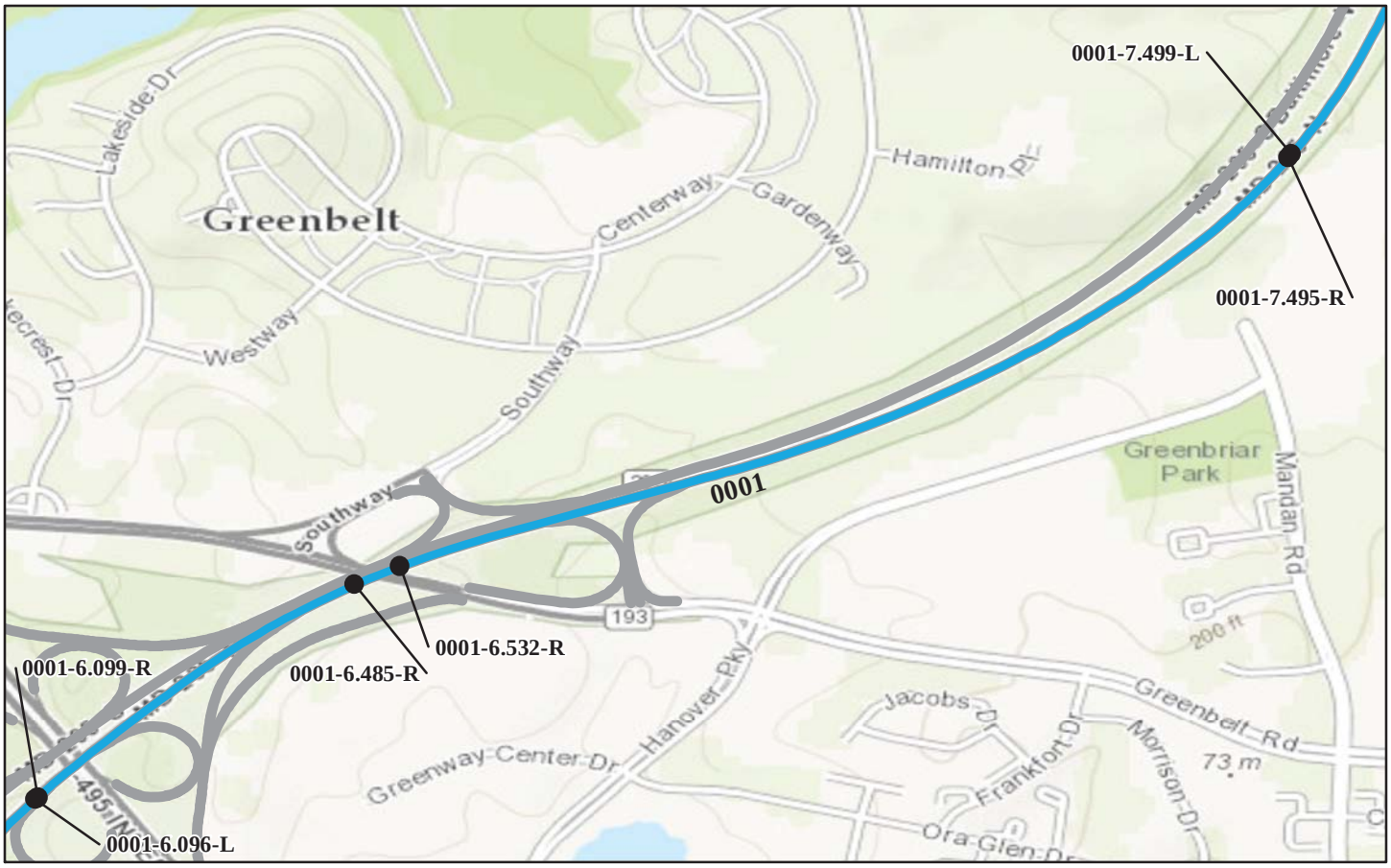
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0001-4.660-R 10/18/2010	1,356	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-5.356-R 10/19/2010	1318	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,640.00
BAWA-0001-5.360-L 10/20/2010	1054	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-5.767-R 10/18/2010	248	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-6.096-L 10/20/2010	162	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



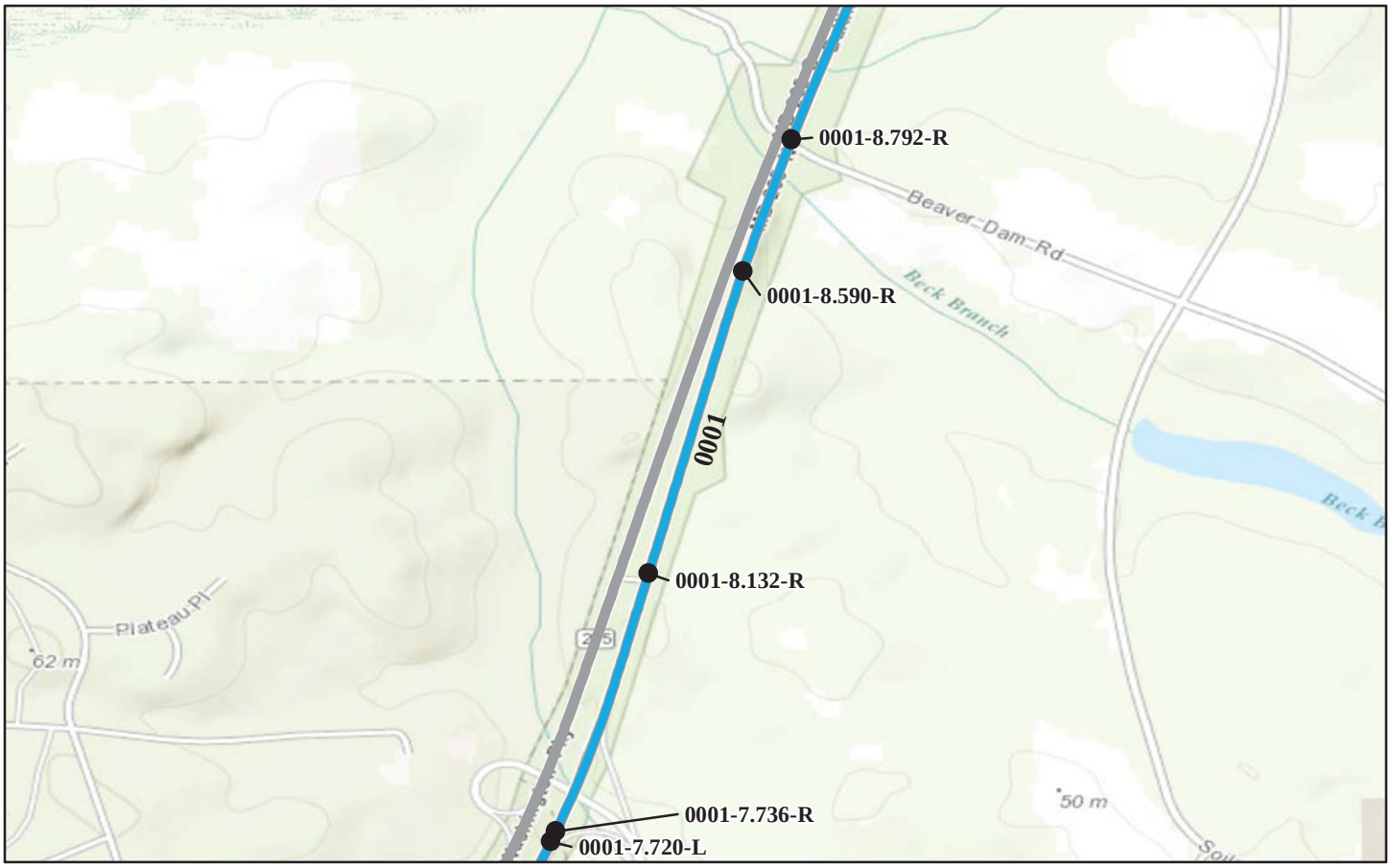
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-6.099-R 10/18/2010	157	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,849.00
BAWA-0001-6.485-R 10/19/2010	120	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-6.532-R 10/18/2010	86	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-7.495-R 10/18/2010	600	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,685.00
BAWA-0001-7.499-L 10/20/2010	607	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



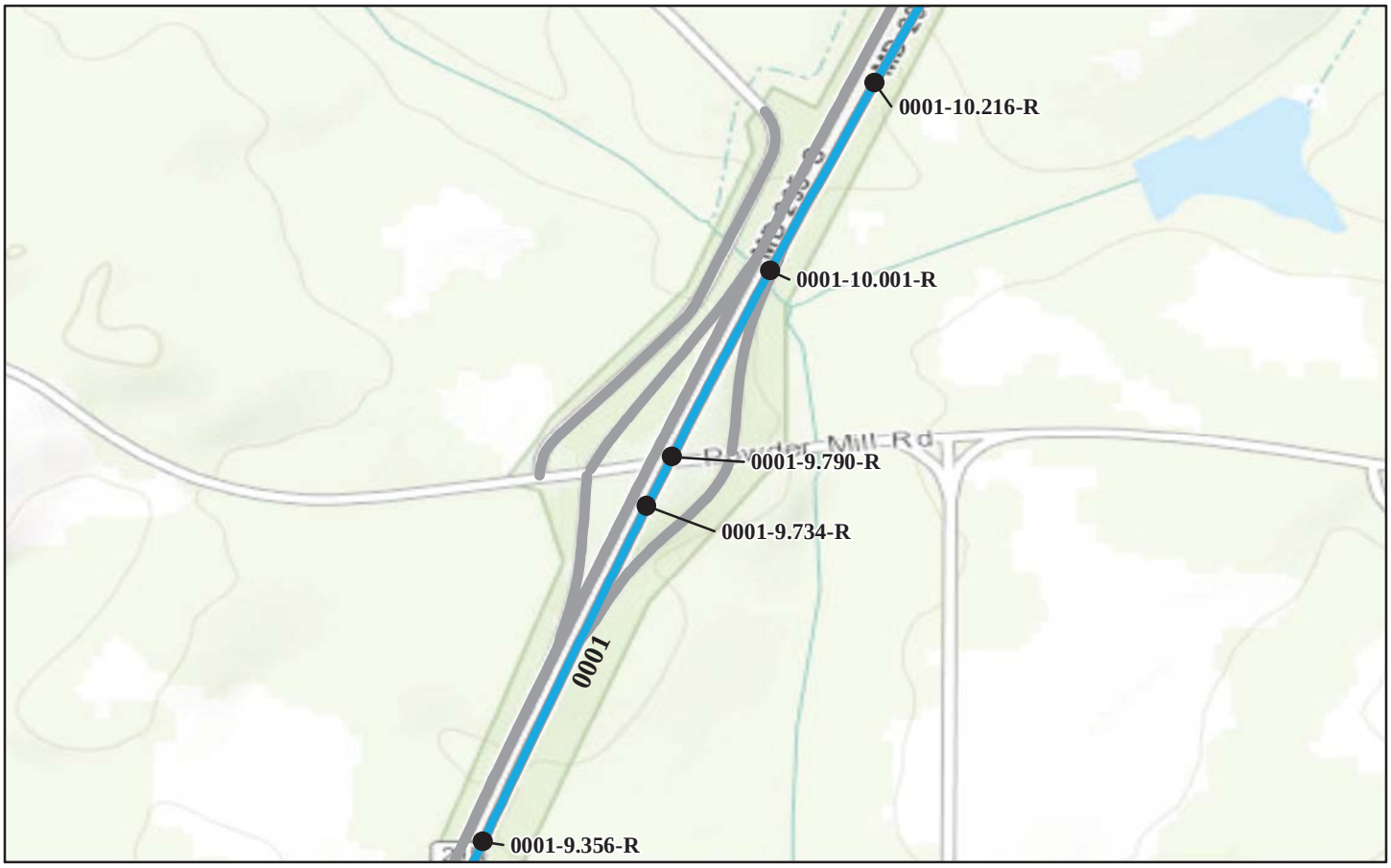
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0001-7.720-L 10/20/2010	503	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-7.736-R 10/18/2010	432	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,235.00
BAWA-0001-8.132-R 10/19/2010	657	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-8.590-R 10/18/2010	999	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-8.792-R 10/18/2010	930	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



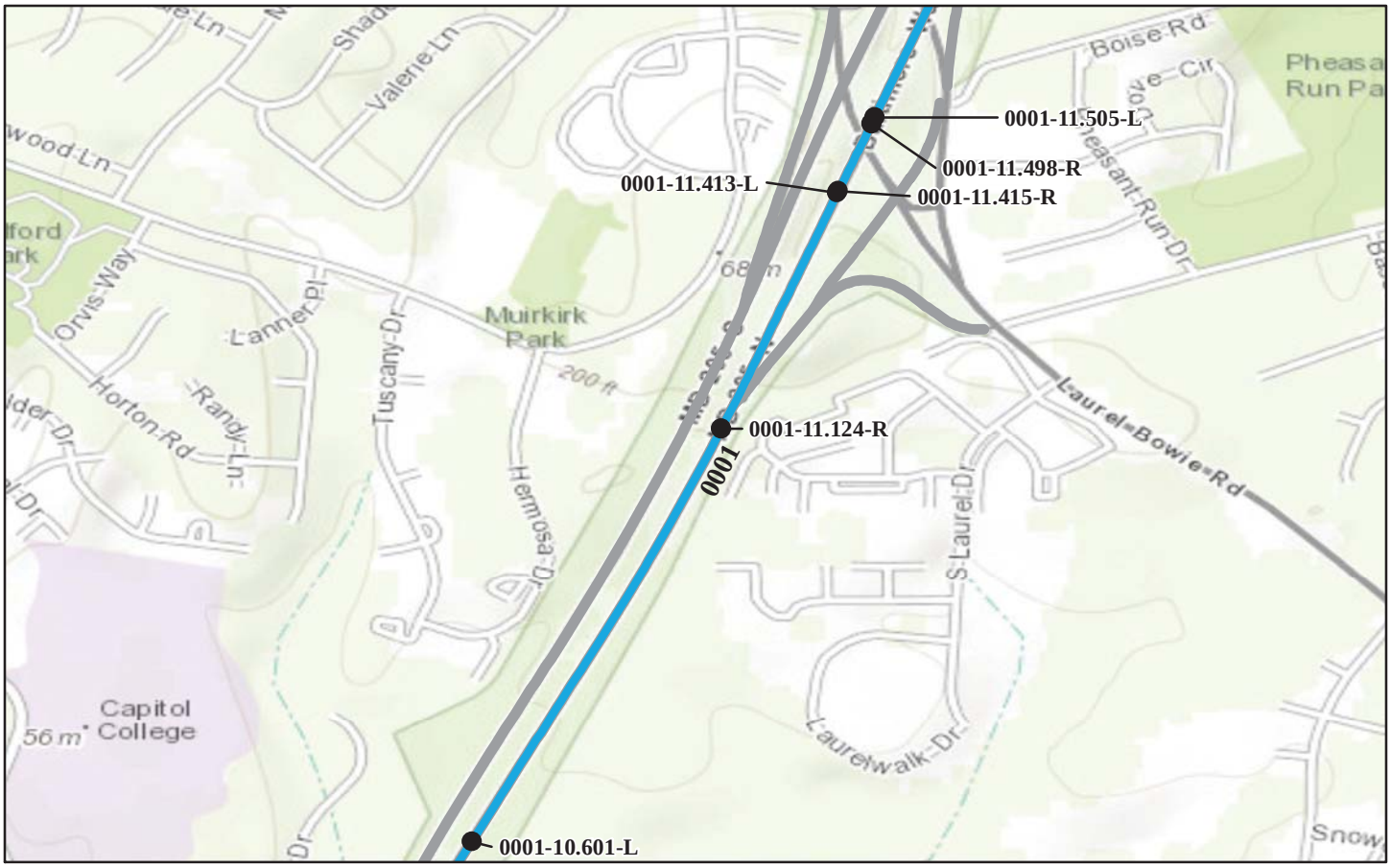
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-9.356-R 10/19/2010	456	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-9.734-R 10/18/2010	177	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-9.790-R 10/18/2010	199	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-10.001-R 10/19/2010	90	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-10.216-R 10/18/2010	355	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



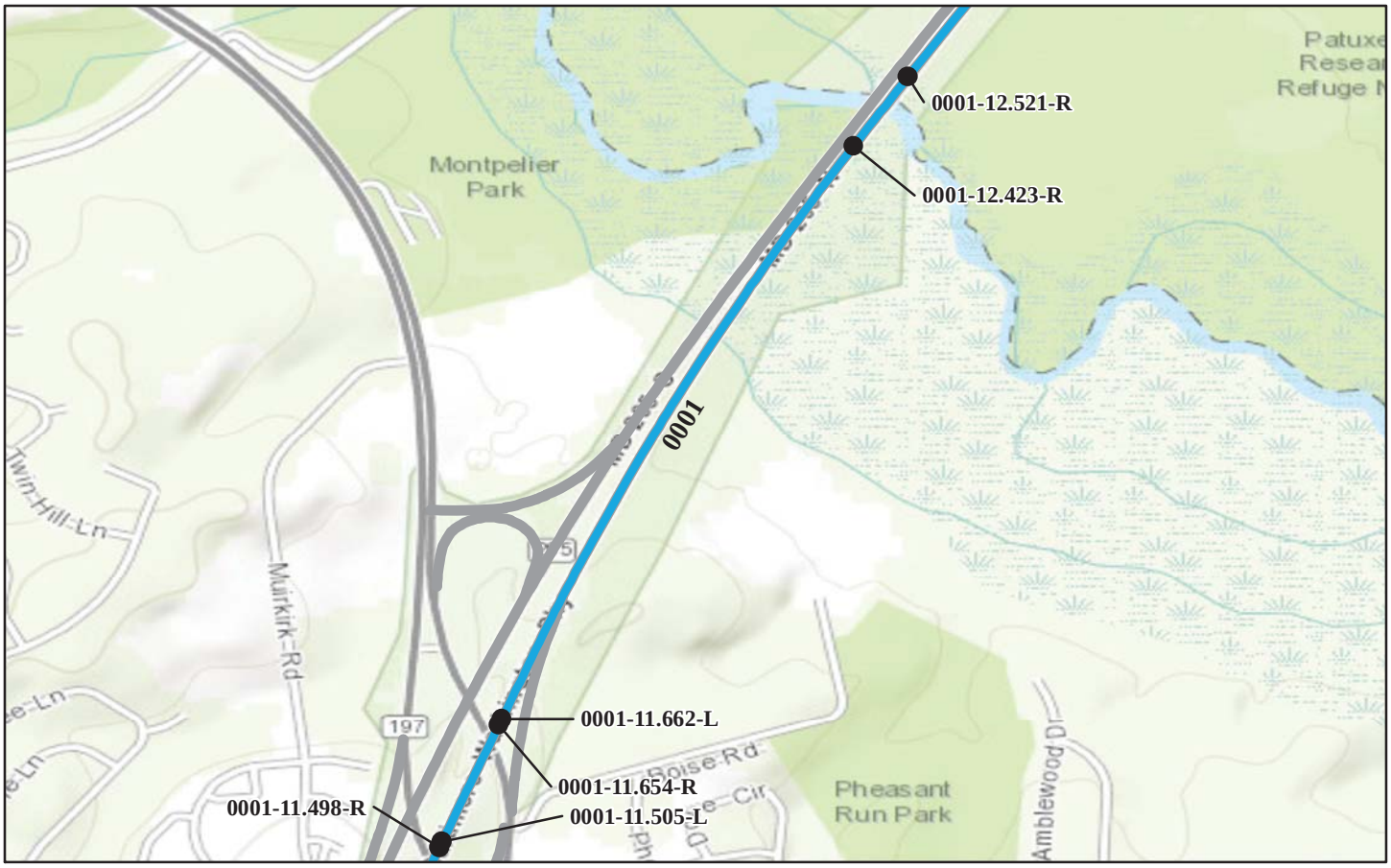
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-10.601-L 10/20/2010	241	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-11.124-R 10/18/2010	200	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-11.413-L 10/20/2010	203	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,235.00
BAWA-0001-11.415-R 10/19/2010	171	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-11.498-R 10/19/2010	527	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0001-11.505-L 10/20/2010	522	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,367.00
BAWA-0001-11.654-R 10/19/2010	151	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-11.662-L 10/20/2010	100	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,717.00
BAWA-0001-12.423-R 10/19/2010	95	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,850.00
BAWA-0001-12.521-R 10/19/2010	377	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,235.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

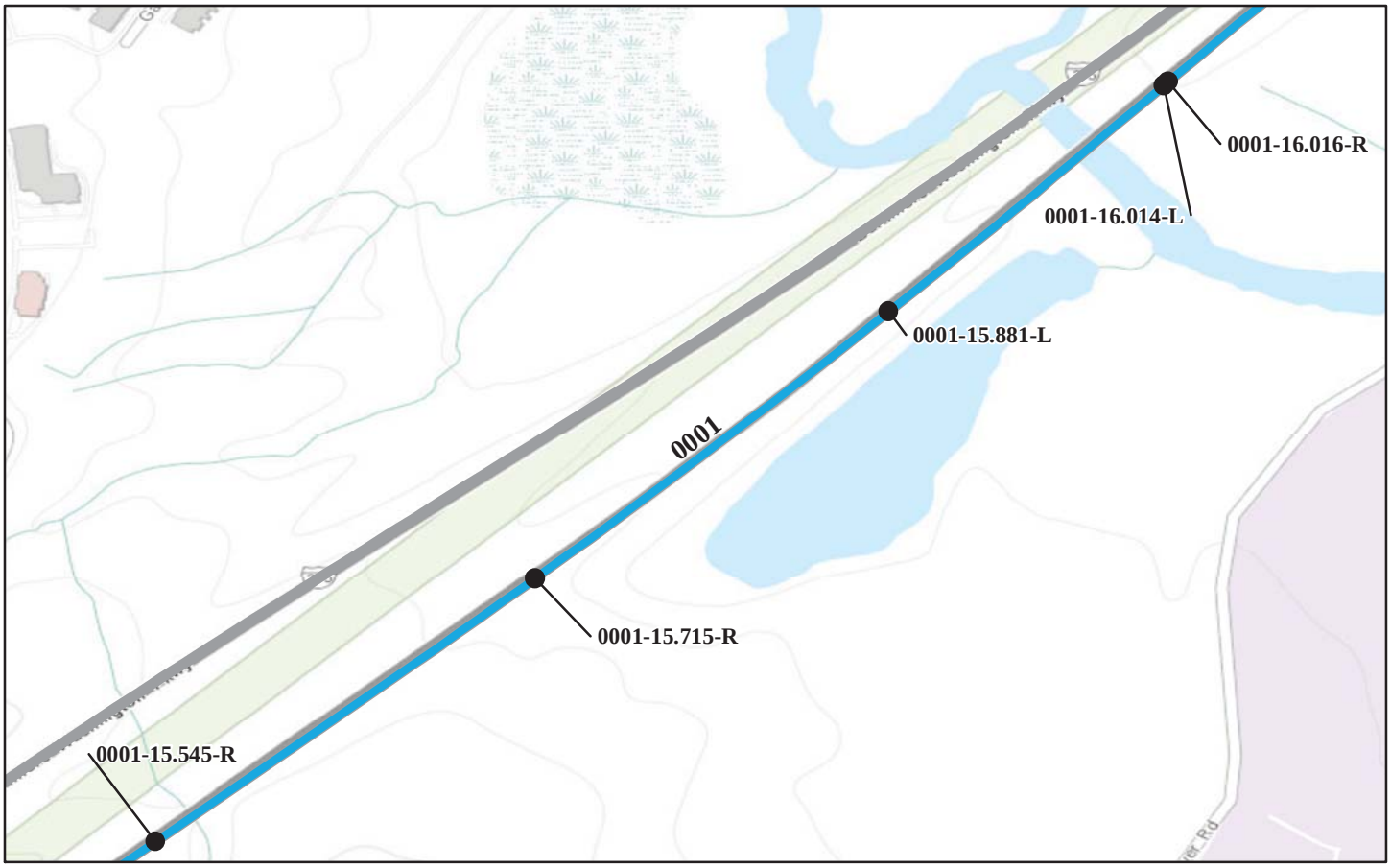
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-13.146-R 10/19/2010	906	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,685.00
BAWA-0001-13.827-R 10/19/2010	447	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,905.00
BAWA-0001-14.090-R 10/19/2010	665	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$7,205.00
BAWA-0001-14.489-R 10/19/2010	729	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-14.724-R 10/19/2010	499	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-15.545-R 10/19/2010	182	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-15.715-R 10/18/2010	1167	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,235.00
BAWA-0001-15.881-L 10/20/2010	272	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-16.014-L 10/20/2010	174	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$59,114.00
BAWA-0001-16.016-R 10/19/2010	172	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

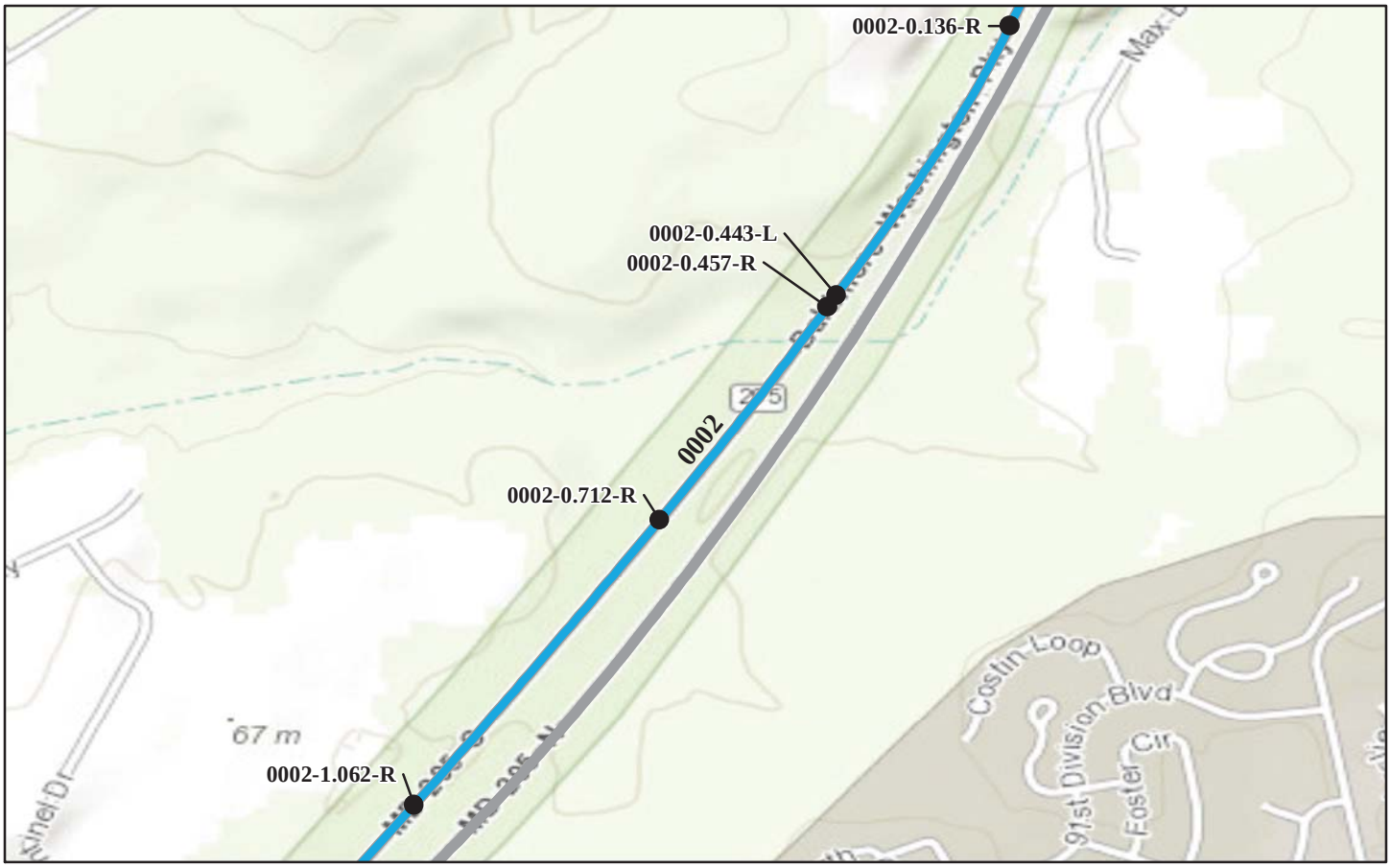
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0001-16.207-R 10/19/2010	396	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-17.689-R 10/19/2010	1252	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0001-18.150-L 10/20/2010	307	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,235.00
BAWA-0001-18.154-R 10/19/2010	502	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



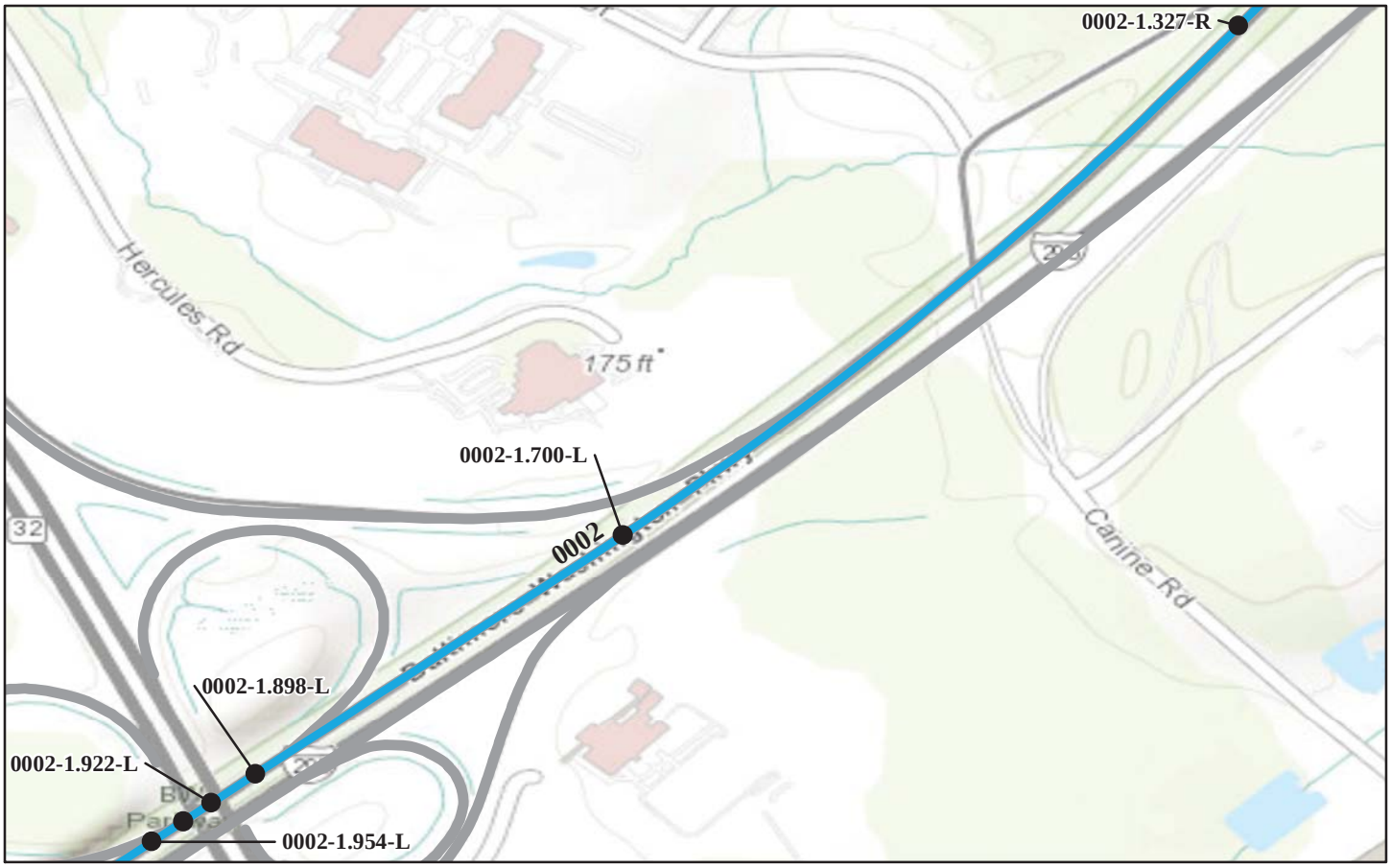
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0002-0.136-R 10/17/2010	602	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,036.00
BAWA-0002-0.443-L 10/19/2010	289	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,235.00
BAWA-0002-0.457-R 10/17/2010	501	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,783.00
BAWA-0002-0.712-R 10/17/2010	807	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,640.00
BAWA-0002-1.062-R 10/17/2010	252	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



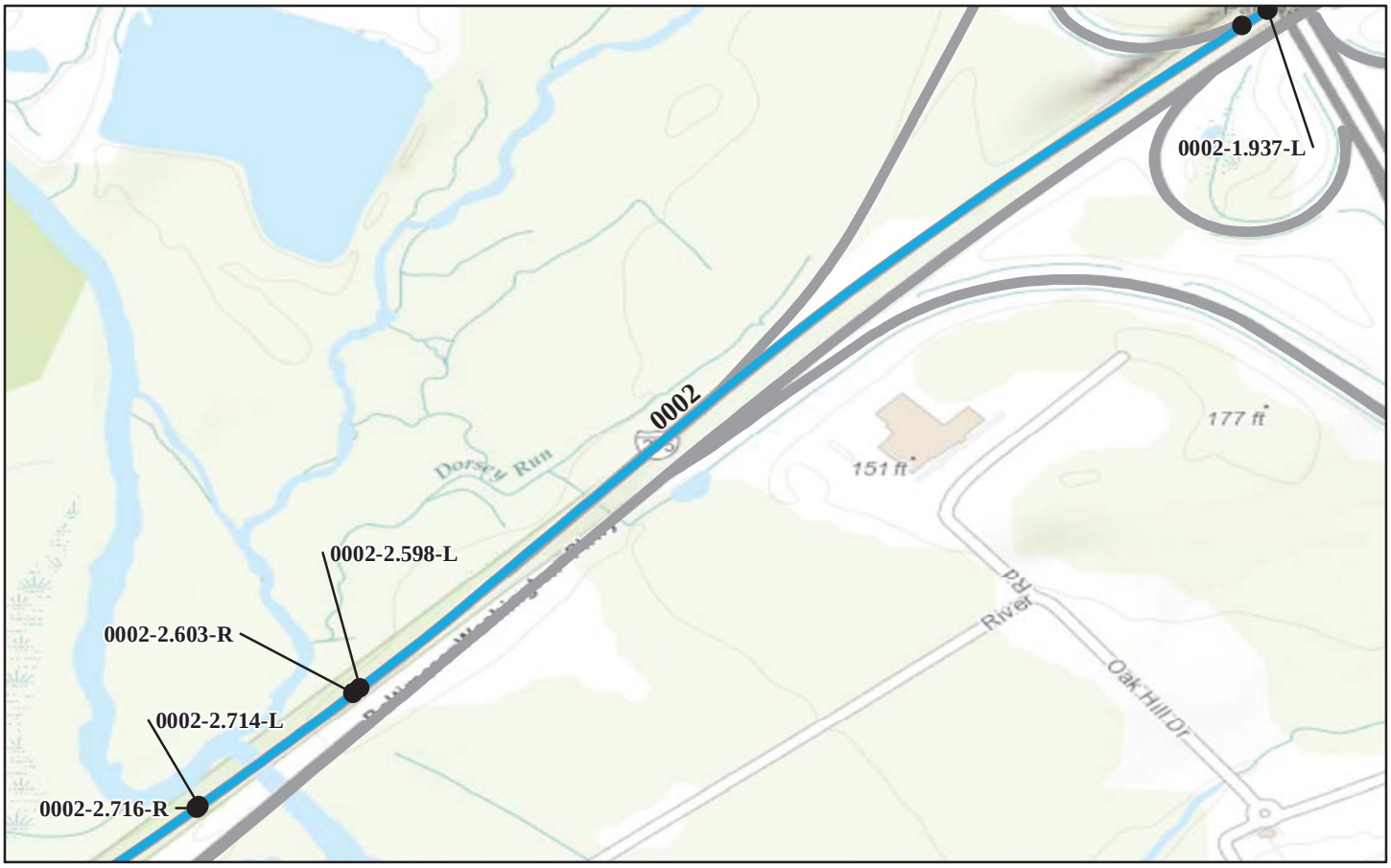
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0002-1.327-R 10/17/2010	754	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,783.00
BAWA-0002-1.700-L 10/20/2010	1044	W-BEAM DOUBLE FACE STRONG POST	W-BEAM TANGENT 350 COMPLIANT	NONE	$0.00
BAWA-0002-1.898-L 10/20/2010	79	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-1.922-L 10/13/2010	28	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-1.937-L 10/20/2010	87	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,640.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



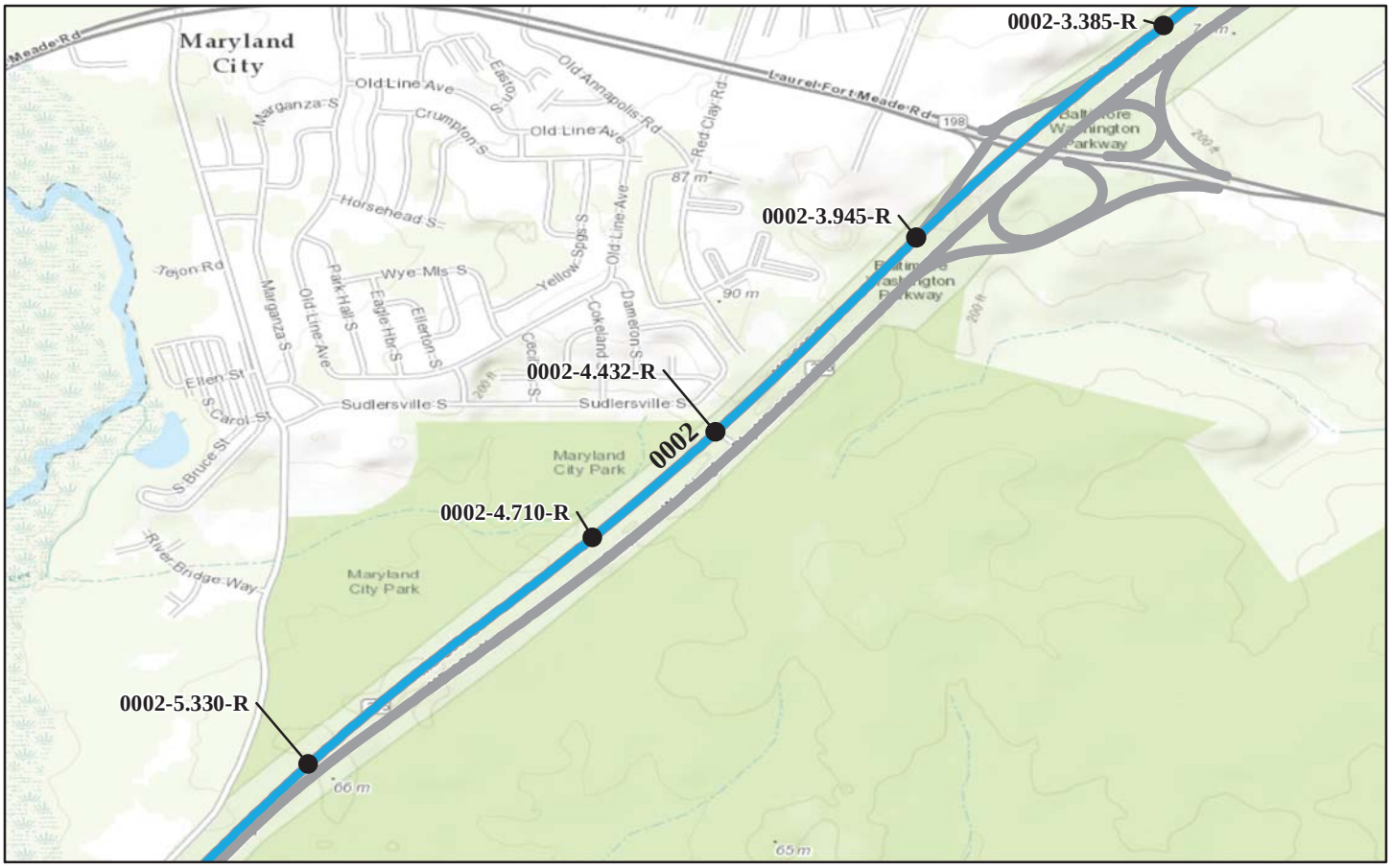
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0002-1.954-L 10/20/2010	496	W-BEAM DOUBLE FACE STRONG POST	NONE	W-BEAM TANGENT 350 COMPLIANT	$0.00
BAWA-0002-2.598-L 10/20/2010	171	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-2.603-R 10/18/2010	172	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$5,698.00
BAWA-0002-2.714-L 10/20/2010	173	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-2.716-R 10/18/2010	175	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0002-3.385-R 10/18/2010	833	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,640.00
BAWA-0002-3.945-R 10/18/2010	1000	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$5,236.00
BAWA-0002-4.432-R 10/18/2010	609	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,849.00
BAWA-0002-4.710-R 10/18/2010	688	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,454.00
BAWA-0002-5.330-R 10/18/2010	1047	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,640.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

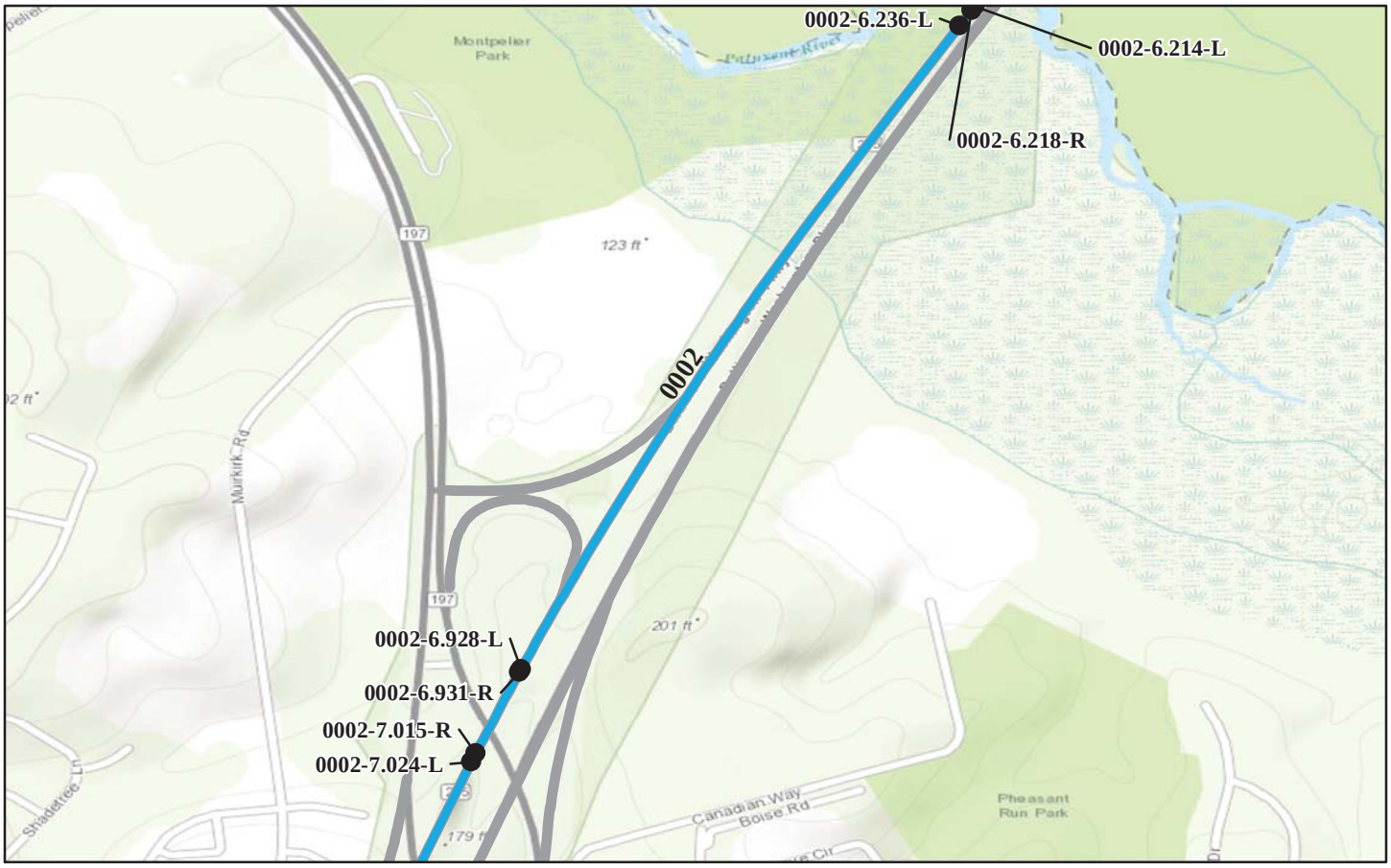
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0002-5.821-L 10/20/2010	1,290	W-BEAM DOUBLE FACE STRONG POST	W-BEAM TANGENT 350 COMPLIANT	NONE	$2,651.00
BAWA-0002-6.065-L 10/20/2010	374	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-6.067-R 10/18/2010	374	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$7,524.00
BAWA-0002-6.214-L 10/20/2010	117	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,290.00
BAWA-0002-6.218-R 10/18/2010	94	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,651.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



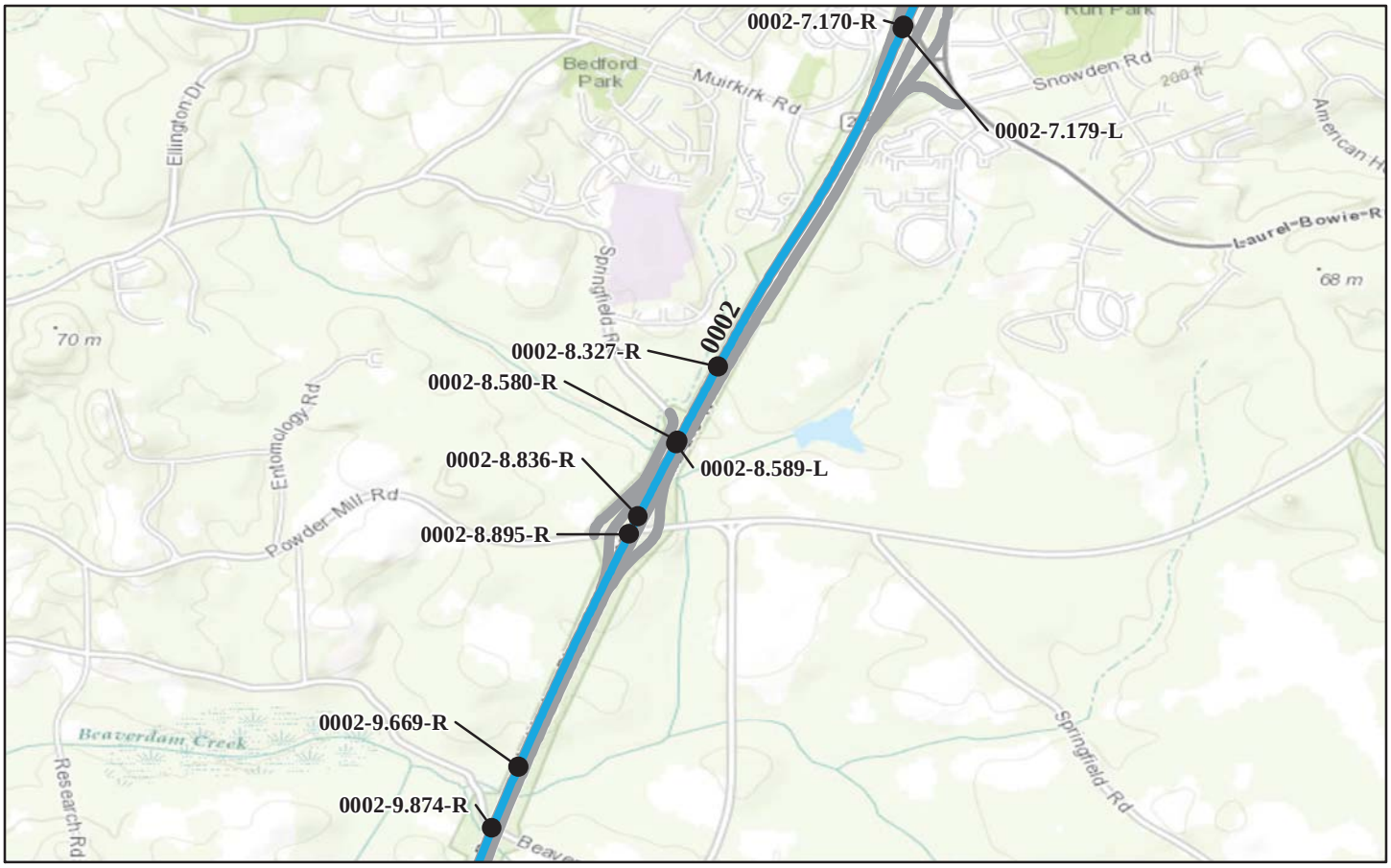
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0002-6.236-L 10/20/2010	649	W-BEAM DOUBLE FACE STRONG POST	NONE	W-BEAM TANGENT 350 COMPLIANT	$0.00
BAWA-0002-6.928-L 10/20/2010	212	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-6.931-R 10/18/2010	171	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-7.015-R 10/18/2010	405	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-7.024-L 10/20/2010	427	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$7,403.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



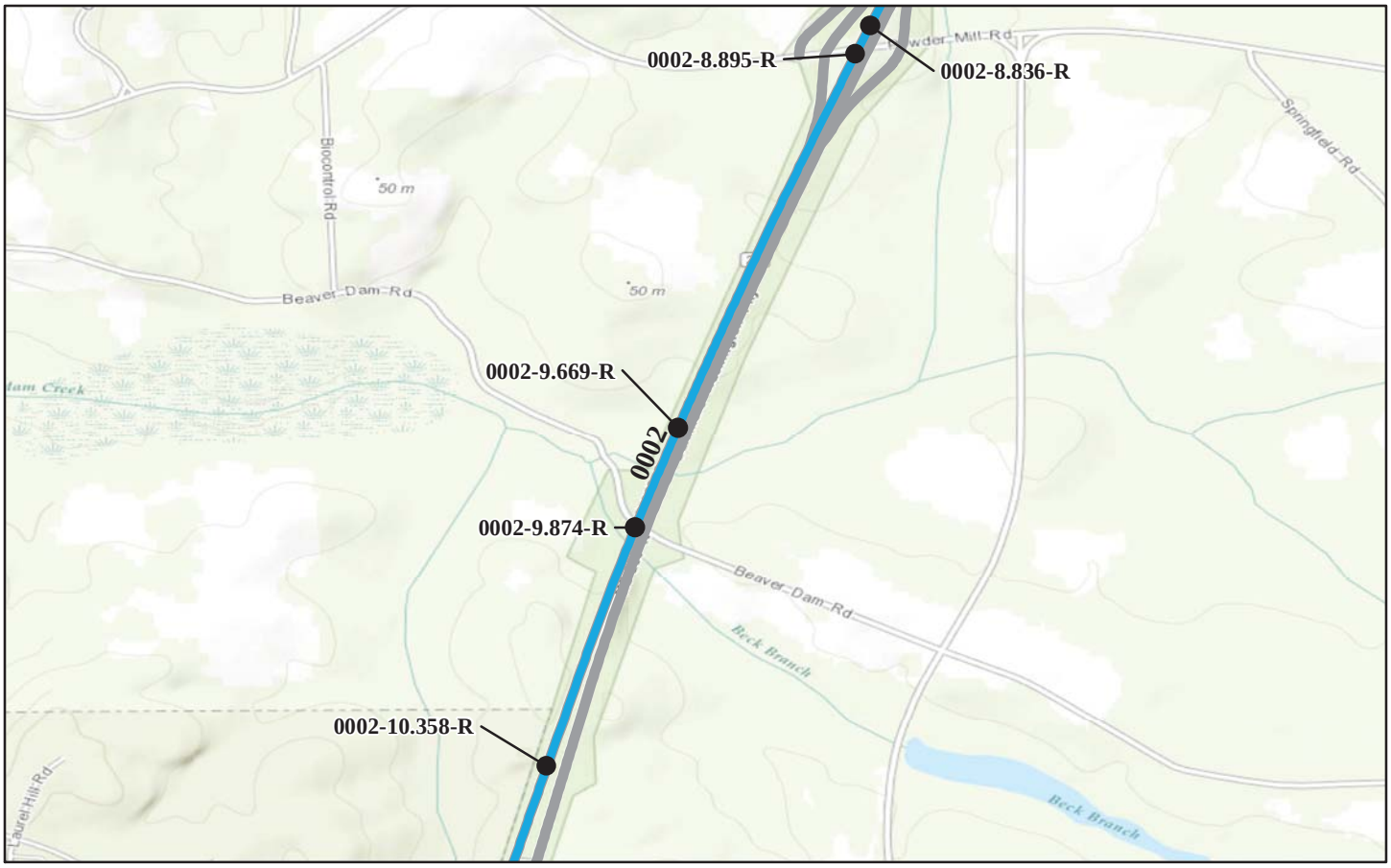
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0002-7.170-R 10/18/2010	150	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-7.179-L 10/20/2010	102	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,783.00
BAWA-0002-8.327-R 10/18/2010	303	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,685.00
BAWA-0002-8.580-R 10/18/2010	484	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,367.00
BAWA-0002-8.589-L 10/20/2010	7014	W-BEAM DOUBLE FACE STRONG POST	W-BEAM TANGENT 350 COMPLIANT	W-BEAM TANGENT 350 COMPLIANT	$7,145.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



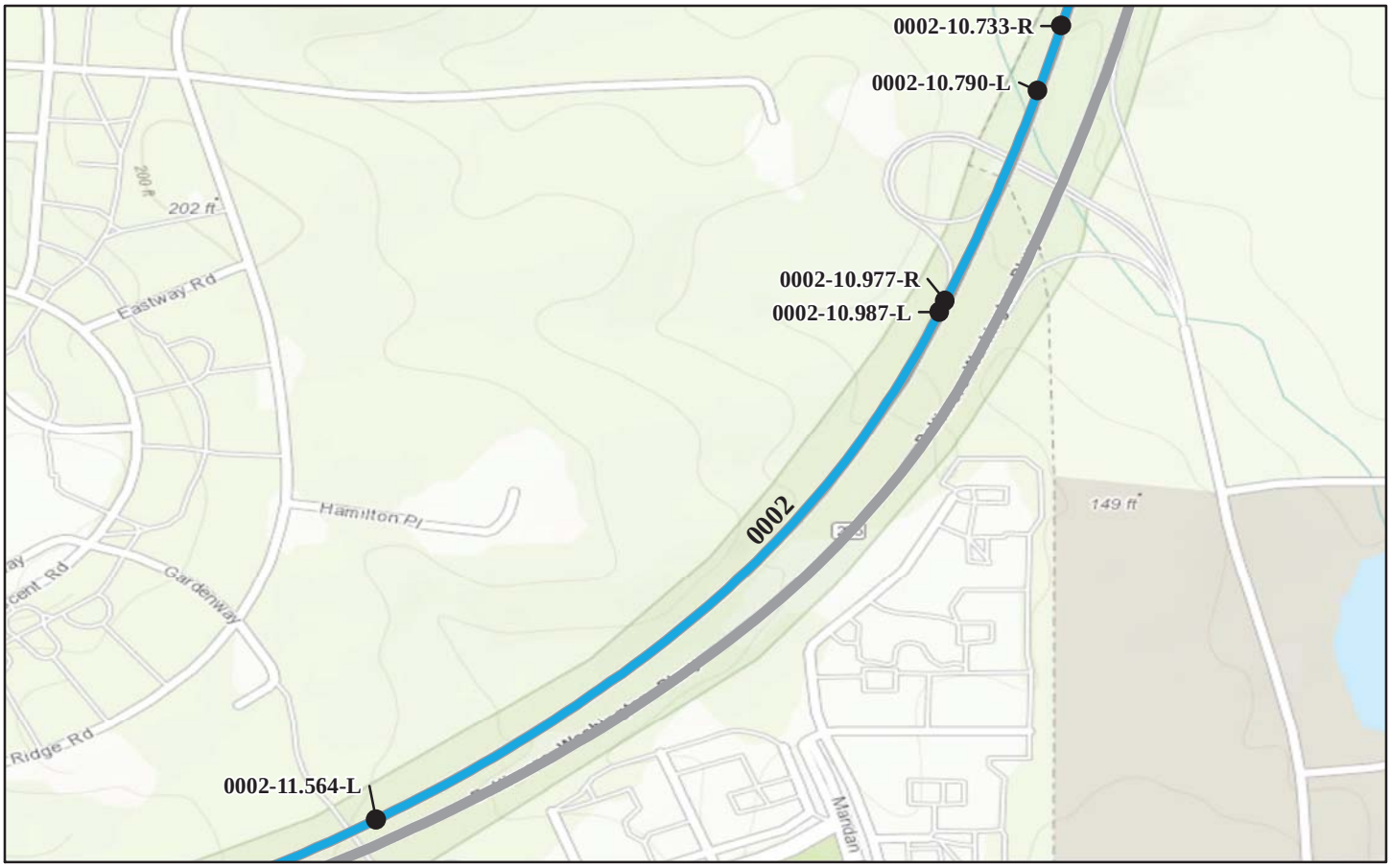
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0002-8.836-R 10/18/2010	201	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-8.895-R 10/18/2010	240	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-9.669-R 10/18/2010	1020	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,290.00
BAWA-0002-9.874-R 10/18/2010	910	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,717.00
BAWA-0002-10.358-R 10/18/2010	809	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,817.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



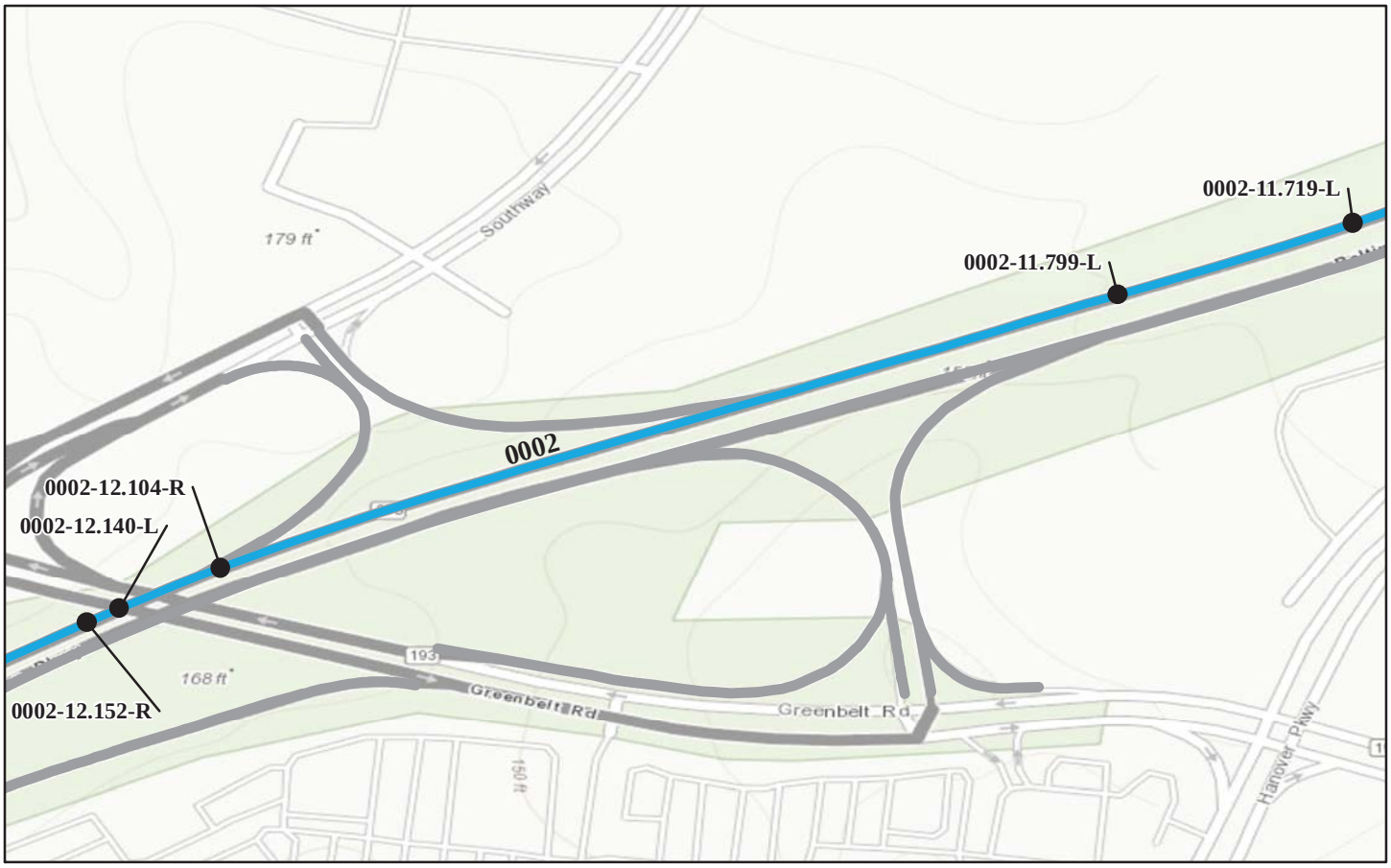
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0002-10.733-R 10/19/2010	818	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-10.790-L 10/20/2010	554	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-10.977-R 10/19/2010	362	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-10.987-L 10/20/2010	405	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-11.564-L 10/20/2010	202	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0002-11.719-L 10/21/2010	421	W-BEAM DOUBLE FACE STRONG POST	W-BEAM TANGENT 350 COMPLIANT	NONE	$9,064.00
BAWA-0002-11.799-L 10/21/2010	1660	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,840.00
BAWA-0002-12.104-R 10/19/2010	124	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-12.140-L 10/21/2010	997	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,290.00
BAWA-0002-12.152-R 10/19/2010	85	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0002-12.237-R 10/19/2010	160	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-12.437-R 10/19/2010	161	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-12.438-L 10/21/2010	104	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-12.511-R 10/19/2010	28	W-BEAM STRONG POST	NONE	W-BEAM BCT	$0.00
BAWA-0002-12.537-L 10/21/2010	609	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,290.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

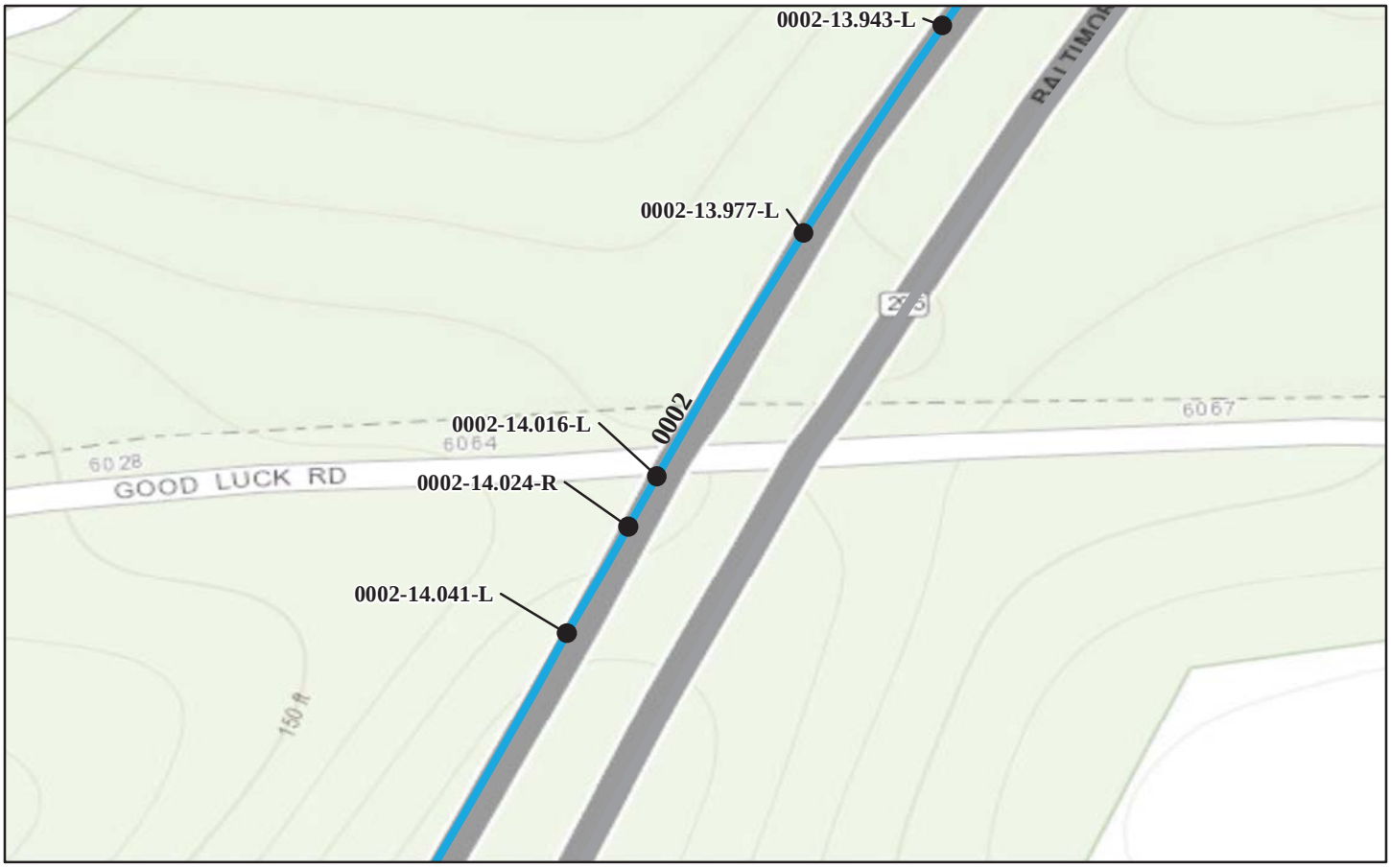
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0002-12.838-R 10/19/2010	842	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,785.00
BAWA-0002-12.858-L 10/21/2010	608	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$12,727.00
BAWA-0002-13.079-R 10/19/2010	1311	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,290.00
BAWA-0002-13.171-L 10/21/2010	755	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,849.00
BAWA-0002-13.678-R 10/19/2010	1787	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$7,953.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



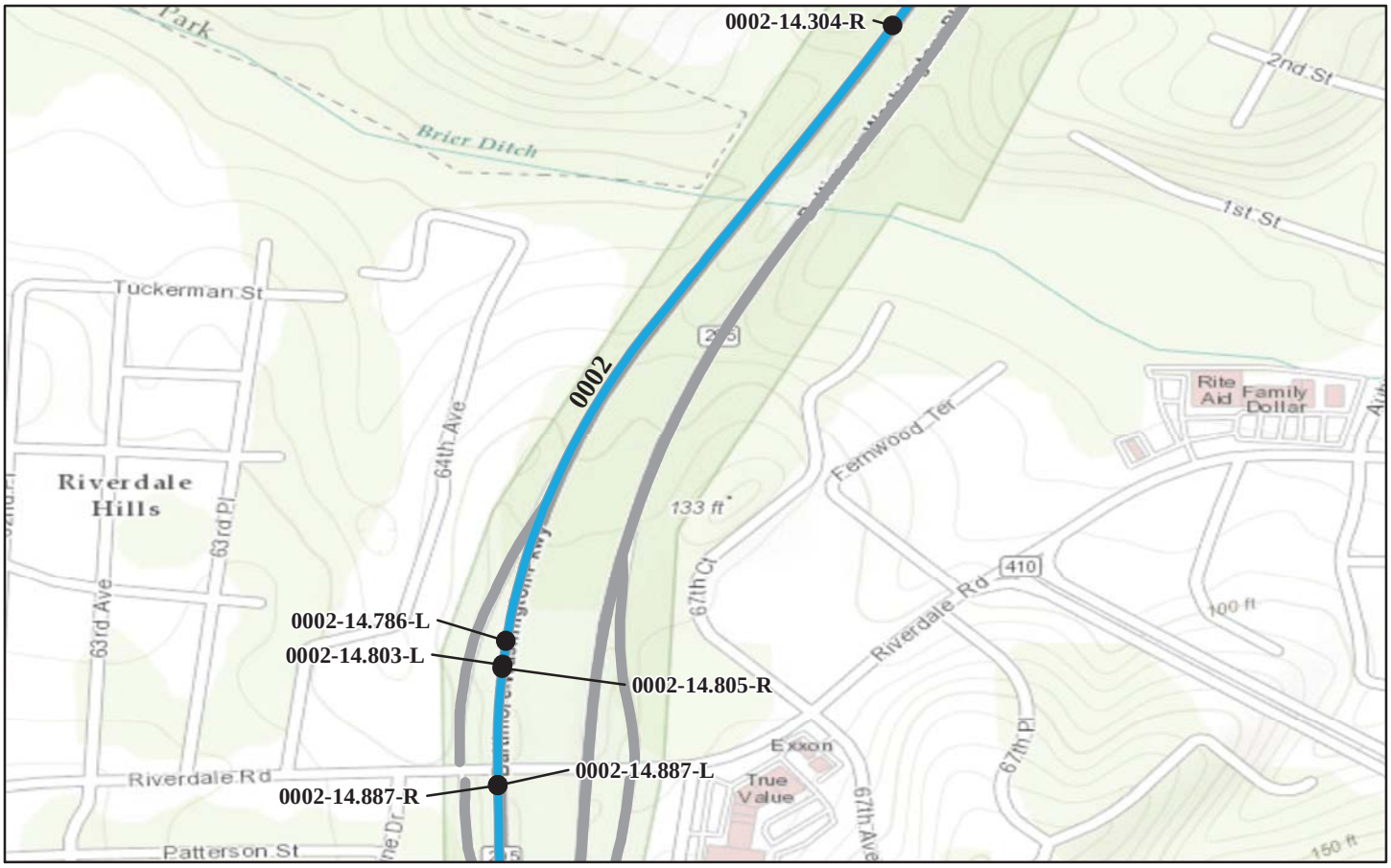
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0002-13.943-L 10/21/2010	177	W-BEAM DOUBLE FACE STRONG POST	W-BEAM TANGENT 350 COMPLIANT	NONE	$0.00
BAWA-0002-13.977-L 10/21/2010	133	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-14.016-L 10/21/2010	133	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-14.024-R 10/19/2010	102	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-14.041-L 10/21/2010	174	W-BEAM DOUBLE FACE STRONG POST	NONE	W-BEAM TANGENT 350 COMPLIANT	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



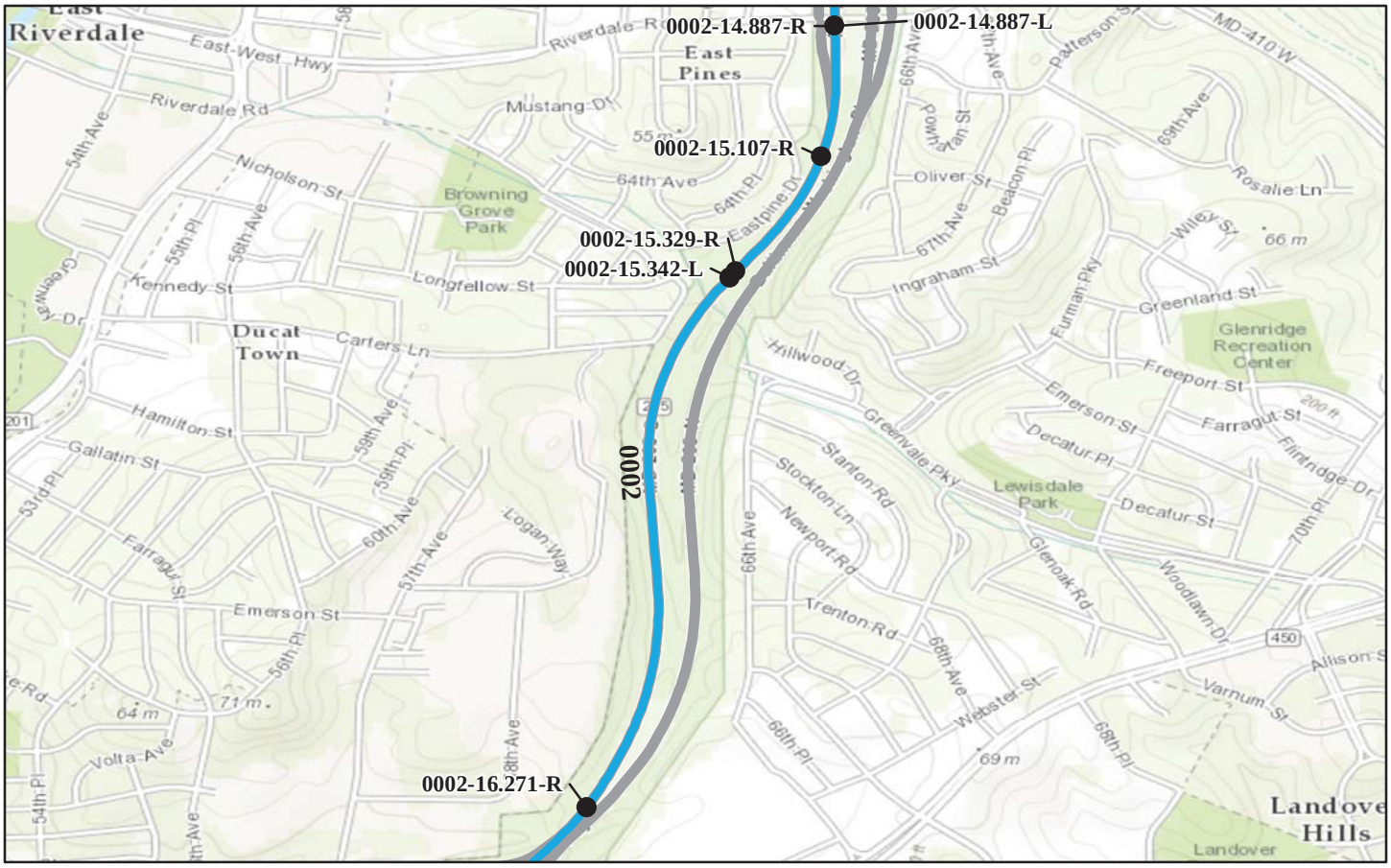
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0002-14.304-R 10/19/2010	997	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,640.00
BAWA-0002-14.786-L 10/21/2010	90	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM TRAILING END	$2,717.00
BAWA-0002-14.803-L 10/21/2010	293	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-14.805-R 10/19/2010	291	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-14.887-L 10/21/2010	161	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$4,499.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



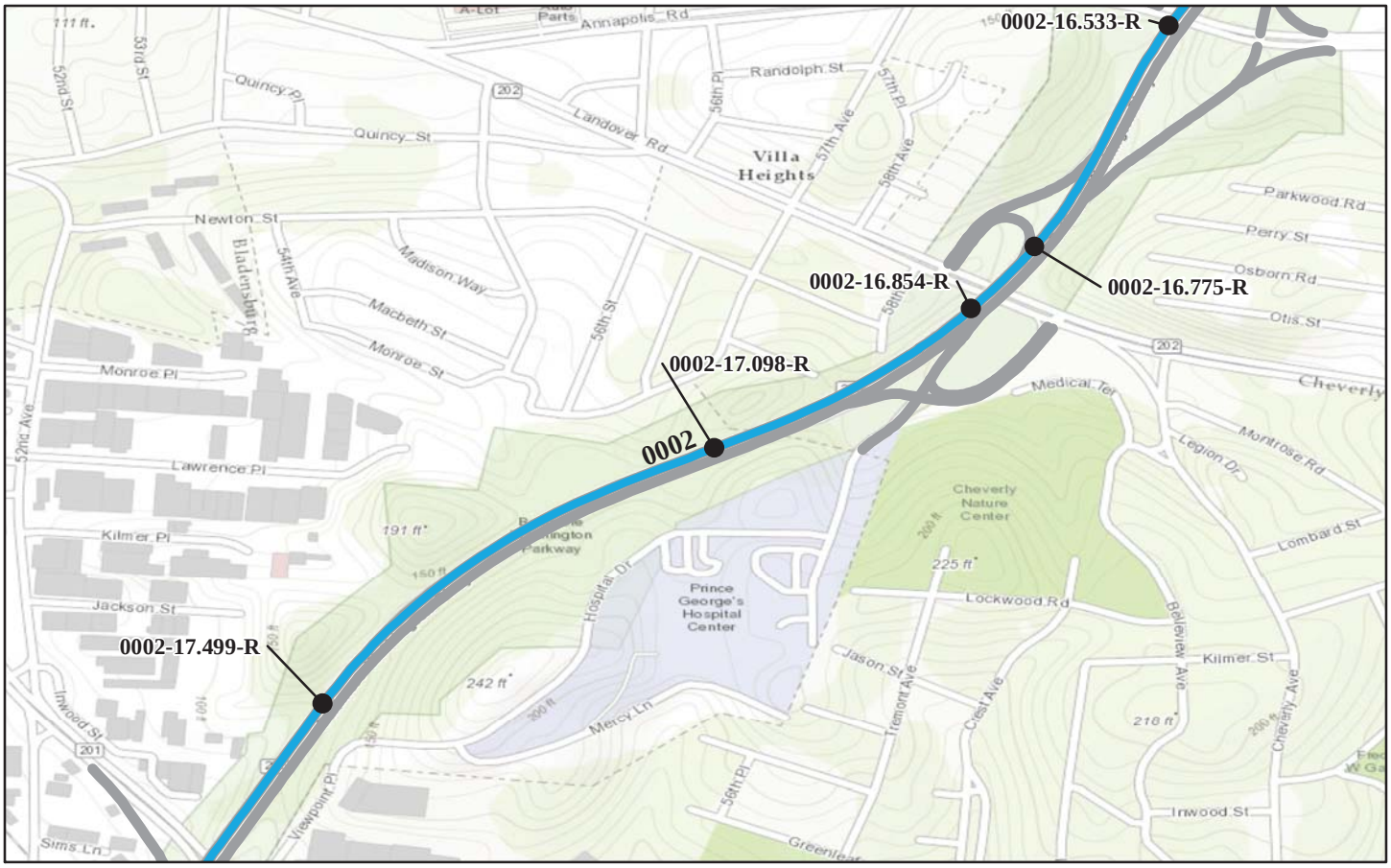
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0002-14.887-R 10/19/2010	162	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-15.107-R 10/19/2010	649	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-15.329-R 10/19/2010	728	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$2,640.00
BAWA-0002-15.342-L 10/21/2010	530	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-16.271-R 10/19/2010	370	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



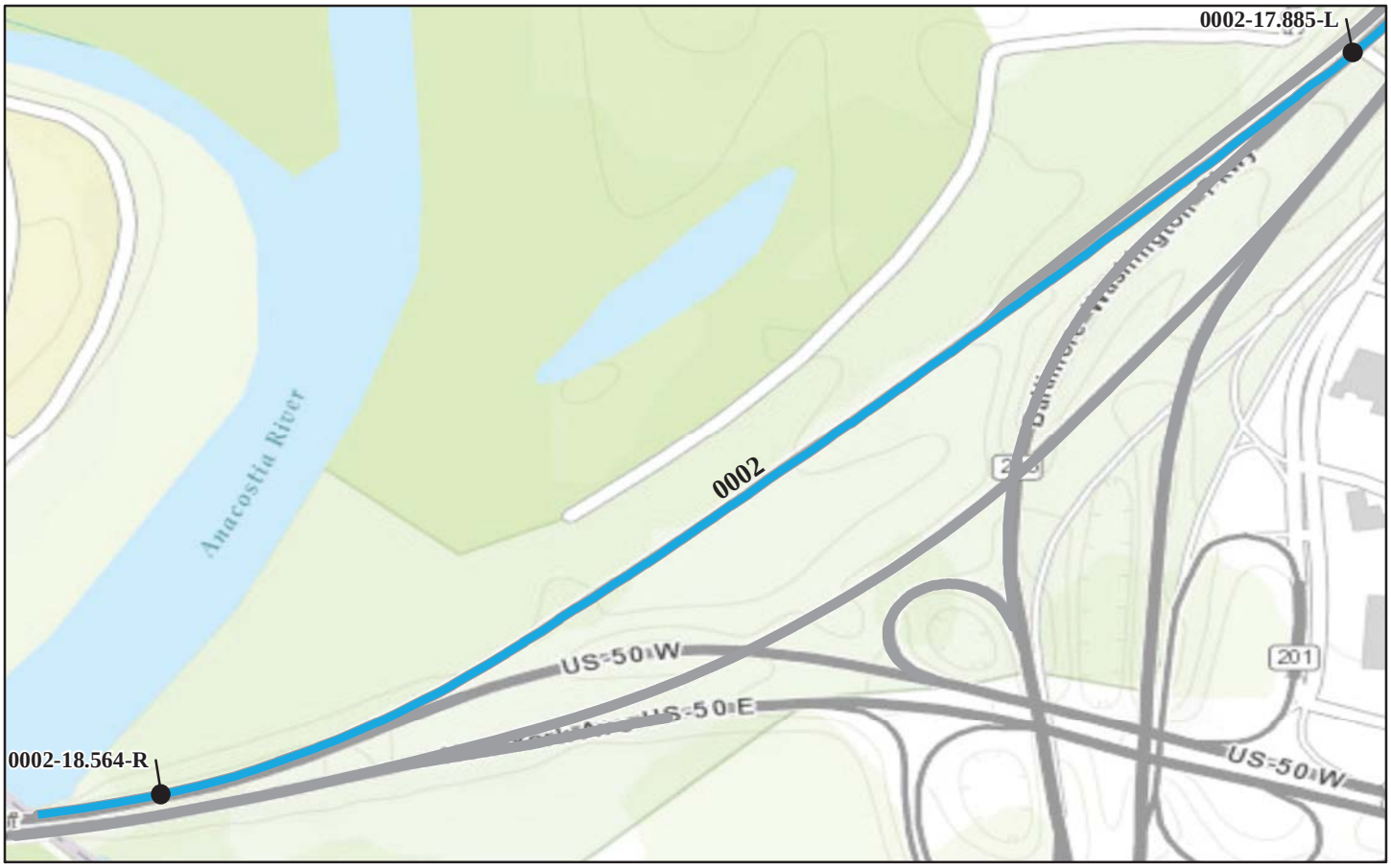
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0002-16.533-R 10/19/2010	156	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-16.775-R 10/19/2010	205	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-16.854-R 10/19/2010	643	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-17.098-R 10/19/2010	325	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0002-17.499-R 10/19/2010	853	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,823.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0002-17.885-L 10/21/2010	250	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$6,930.00
BAWA-0002-18.564-R 10/19/2010	315	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,273.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0003: SPRINGFIELD ROAD WEST

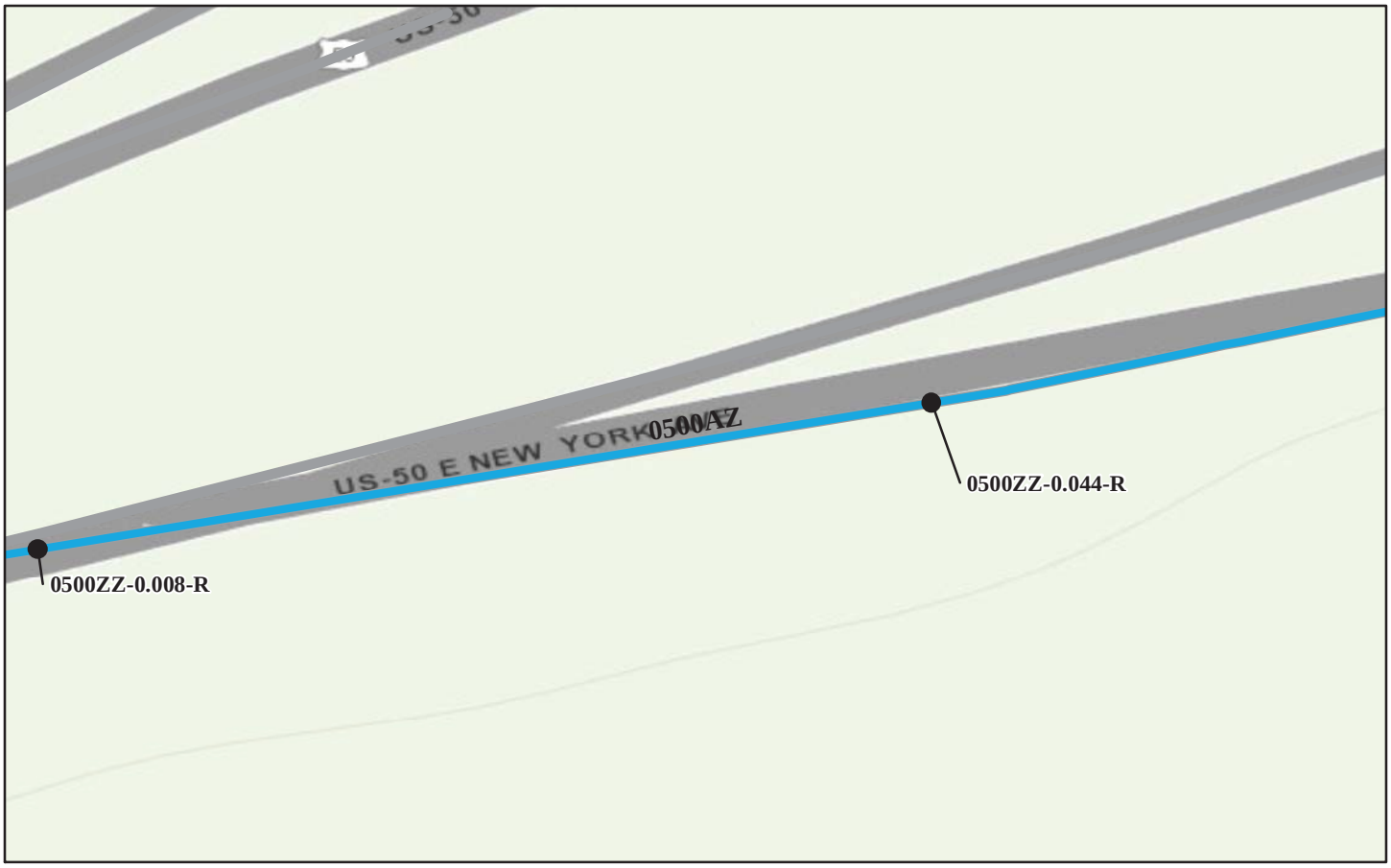
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0003-0.265-R 10/21/2010	203	W-BEAM STRONG POST	NONE	NONE	$0.00
BAWA-0003-0.276-L 10/21/2010	204	W-BEAM STRONG POST	NONE	W-BEAM BCT	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0500ZZ: U.S. ROUTE 50, MD ROUTE 201 INTERCHANGE RAMPS



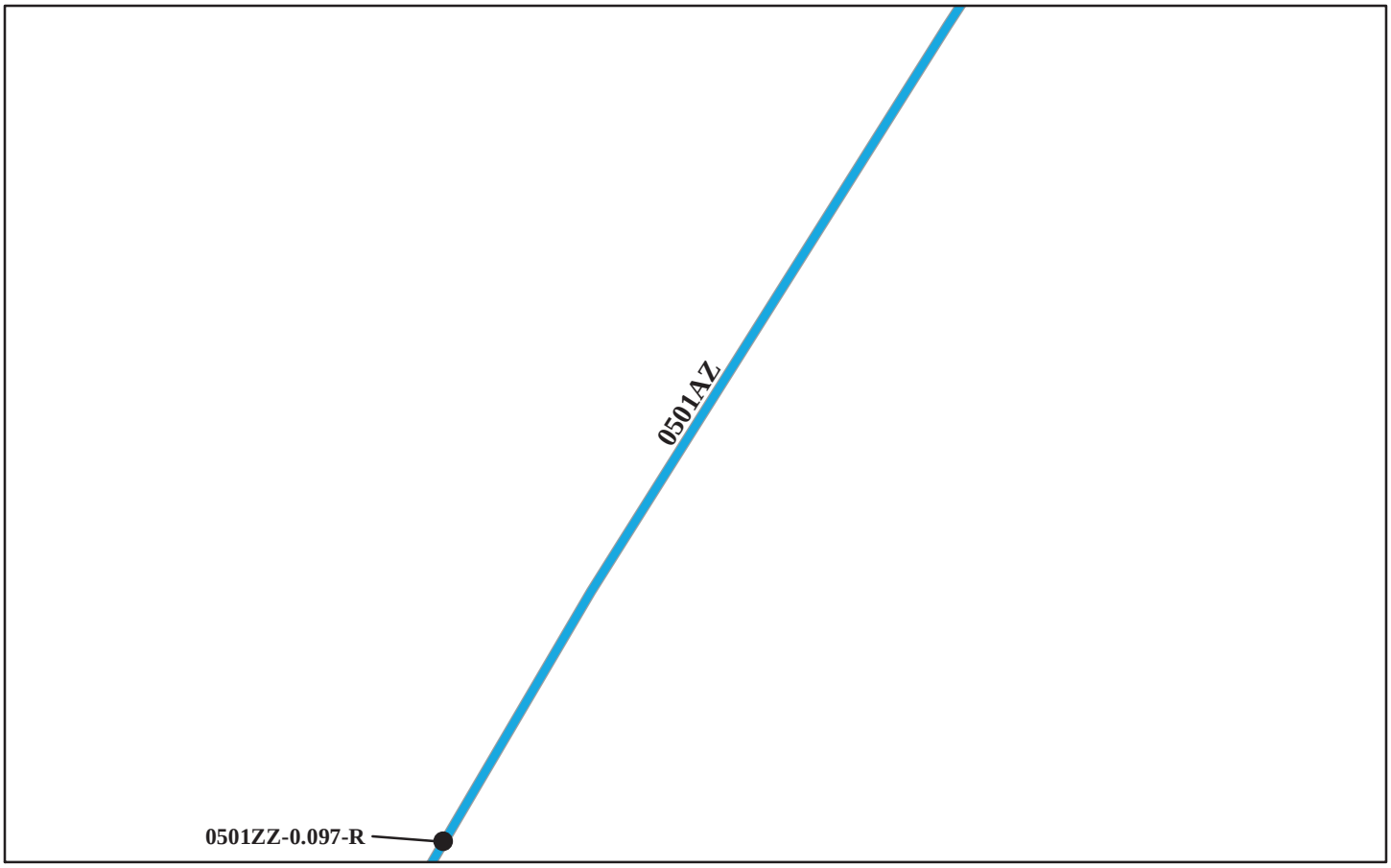
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0500ZZ-0.008-R 10/18/2010	495	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$1,755.00
BAWA-0500ZZ-0.044-R 10/18/2010	158	W-BEAM STRONG POST	NONE	NONE	$3,405.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS



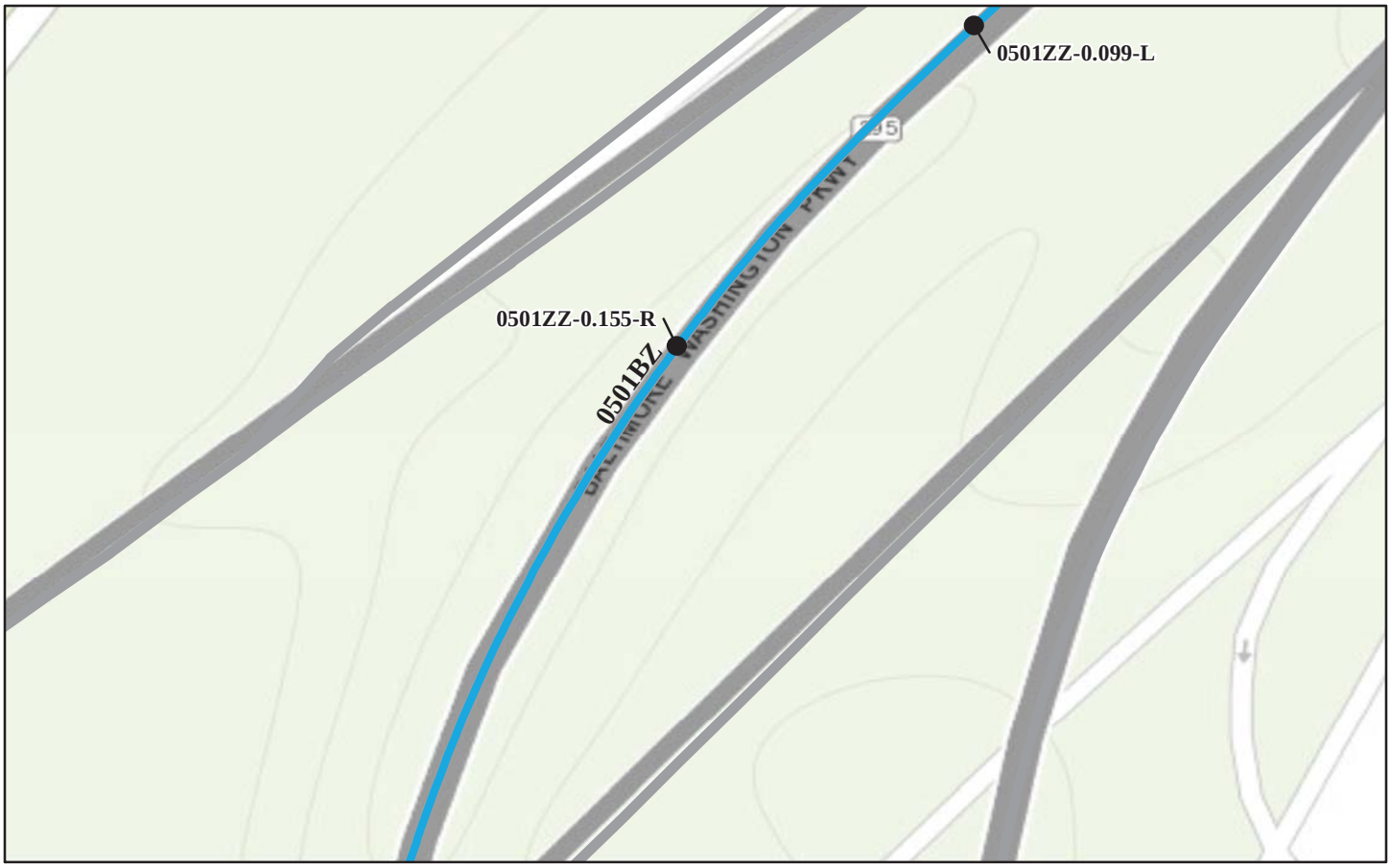
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	Barrier End Treatment End	*Repair Cost
BAWA-0501ZZ-0.097-R 10/18/2010	353	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS



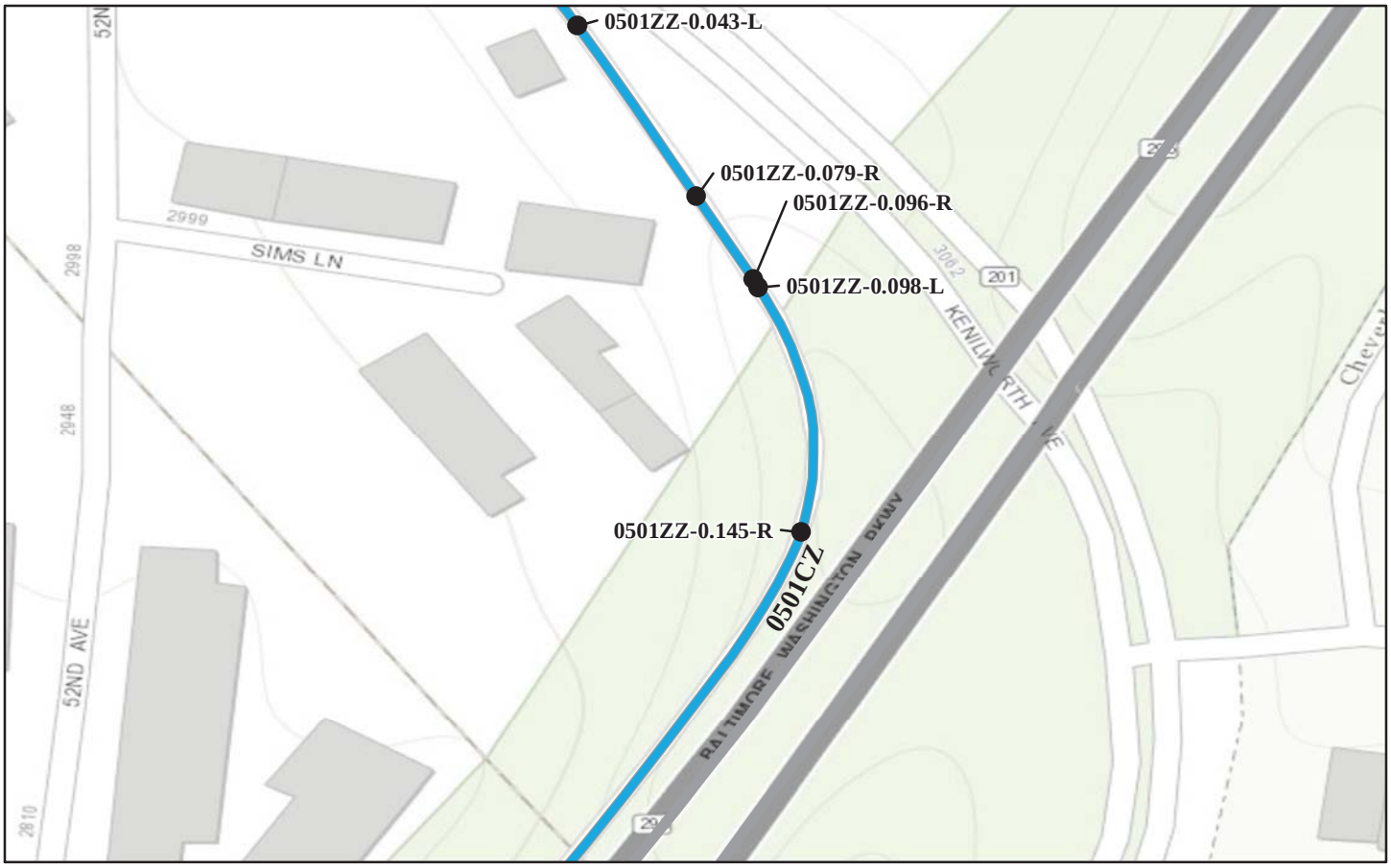
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0501ZZ-0.099-L 10/18/2010	645	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0501ZZ-0.155-R 10/18/2010	445	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$1,887.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS



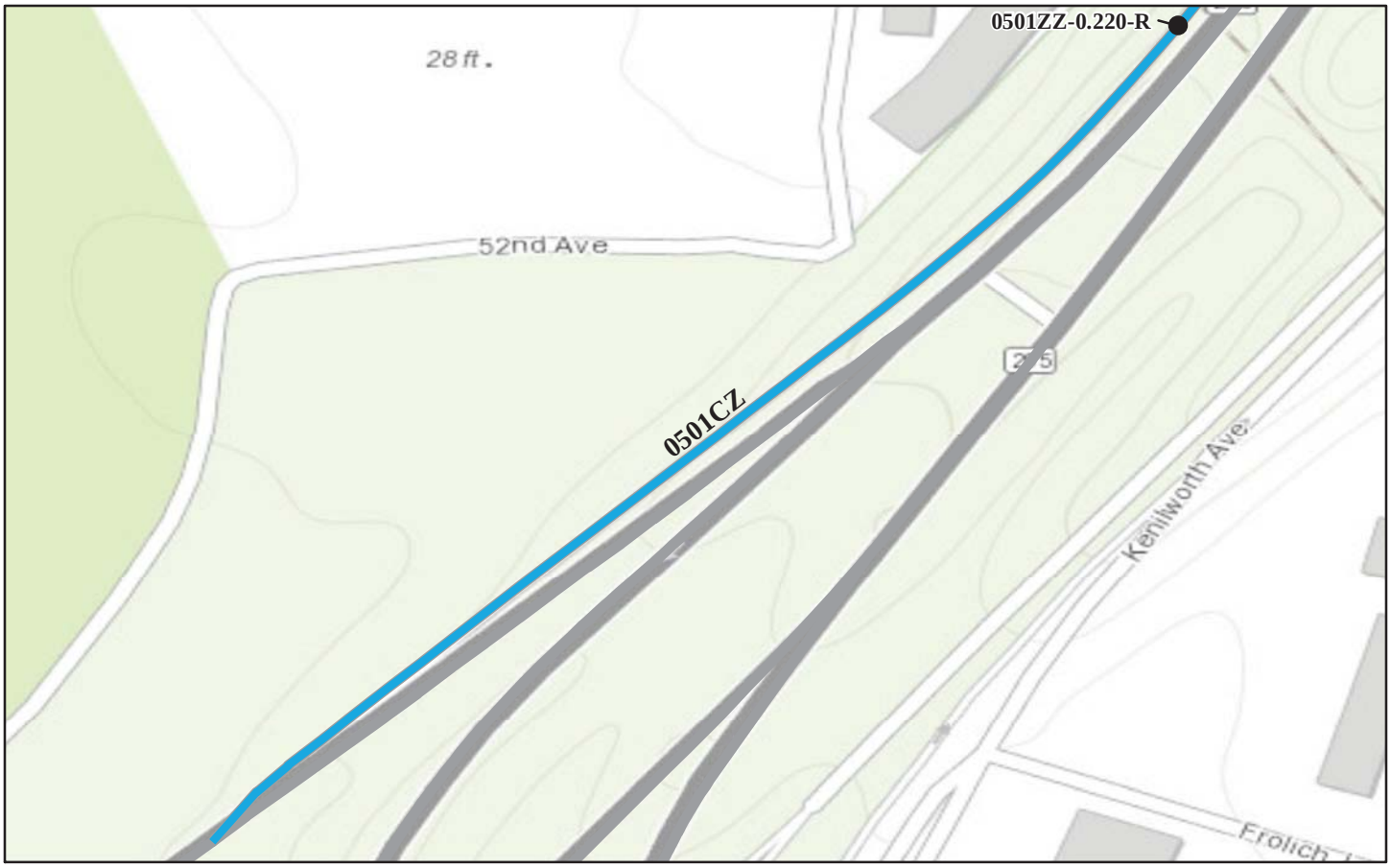
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0501ZZ-0.043-L 10/17/2010	478	W-BEAM STRONG POST	NONE	NONE	$1,980.00
BAWA-0501ZZ-0.079-R 10/18/2010	290	W-BEAM STRONG POST	W-BEAM TURN DOWN	NONE	$2,778.00
BAWA-0501ZZ-0.096-R 10/17/2010	273	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	$6,248.00
BAWA-0501ZZ-0.098-L 10/17/2010	225	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	$0.00
BAWA-0501ZZ-0.145-R 10/18/2010	343	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS



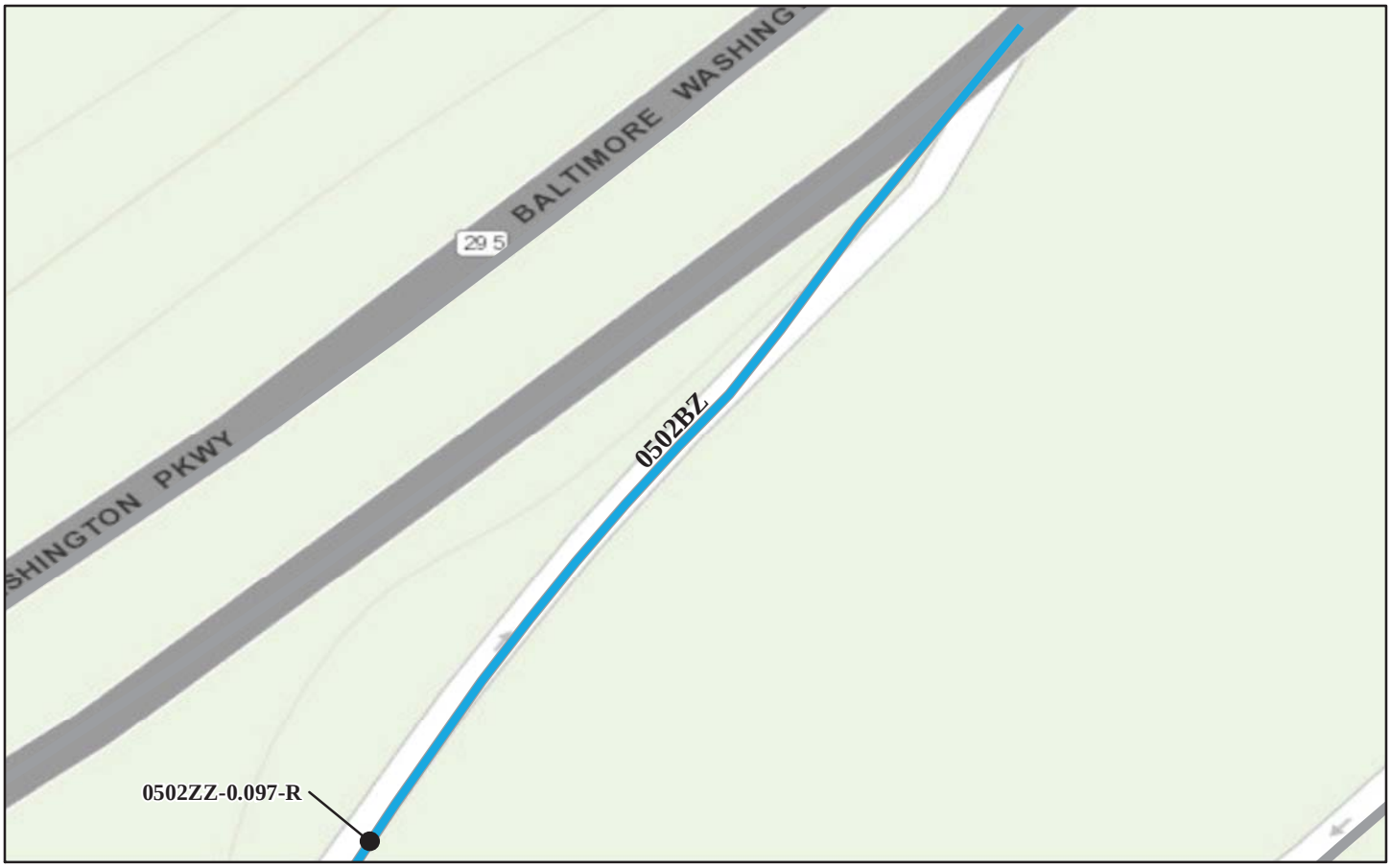
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0501ZZ-0.220-R 10/18/2010	1,592	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0502ZZ: LANDOVER ROAD RAMPS (MD ROUTE 202 INTERCHANGE)



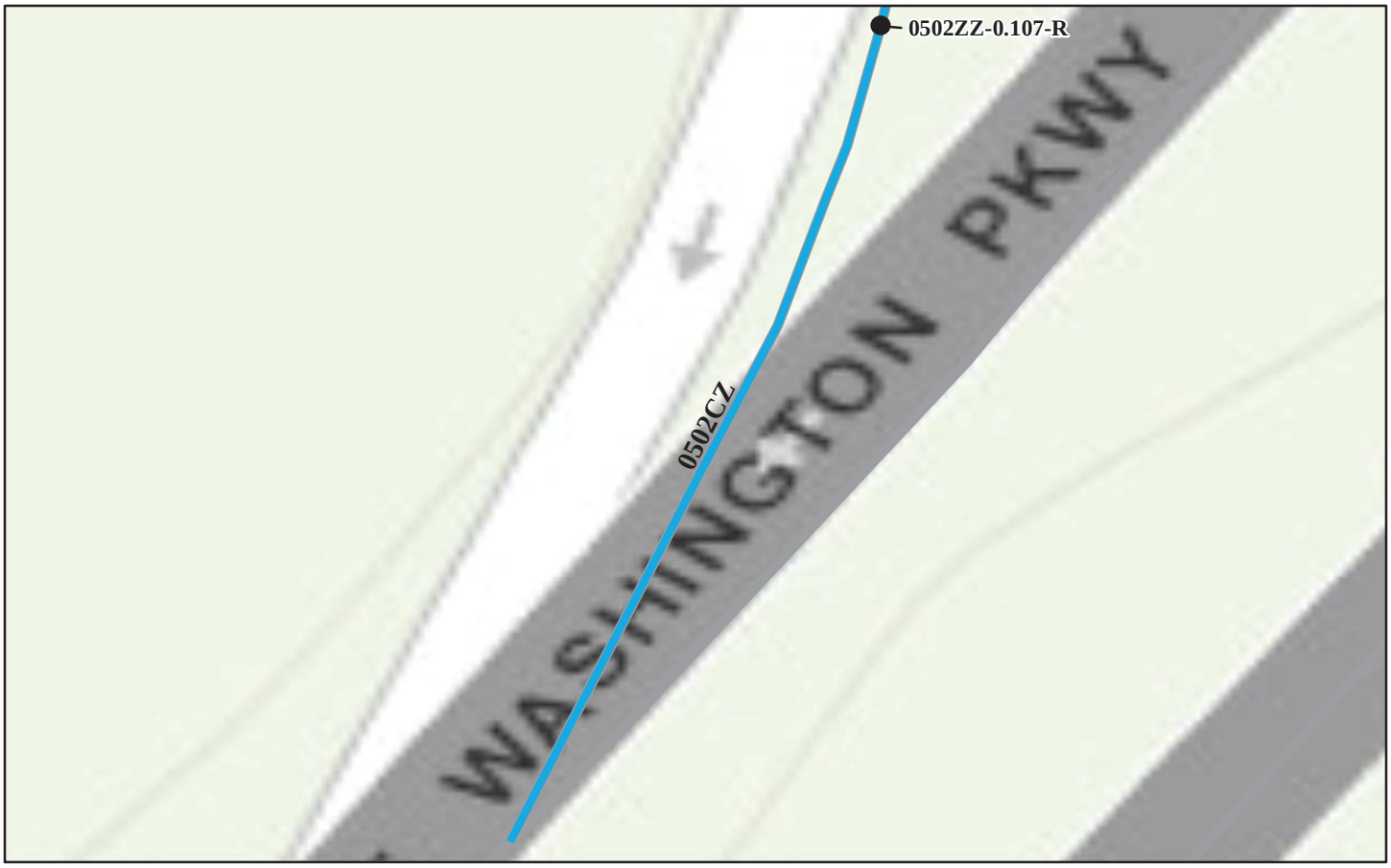
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0502ZZ-0.097-R 10/19/2010	385	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0502ZZ: LANDOVER ROAD RAMPS (MD ROUTE 202 INTERCHANGE)



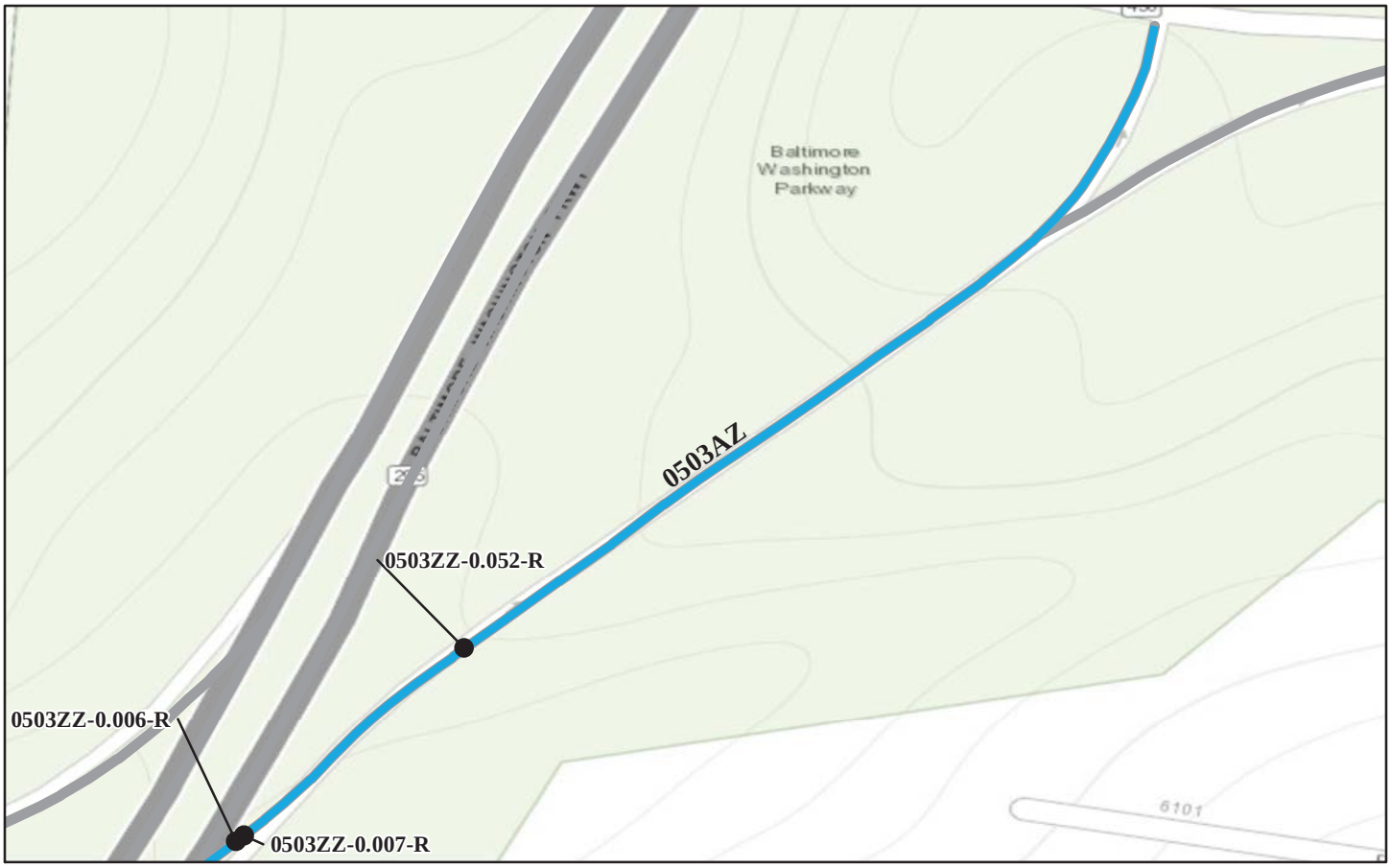
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0502ZZ-0.107-R 10/18/2010	50	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0503ZZ: ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0503ZZ-0.006-R 10/18/2010	250	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$1,755.00
BAWA-0503ZZ-0.007-R 10/17/2010	267	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0503ZZ-0.052-R 10/17/2010	848	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	$5,088.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0503ZZ: ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0503ZZ-0.102-R 10/18/2010	250	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0504ZZ: RIVERDALE ROAD RAMPS (MD ROUTE 410 INTERCHANGE)

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0504ZZ-0.006-R 10/18/2010	32	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0504ZZ: RIVERDALE ROAD RAMPS (MD ROUTE 410 INTERCHANGE)

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0504ZZ-0.098-R 10/17/2010	441	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0506ZZ: POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0506ZZ-0.046-R 10/18/2010	501	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	$2,756.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0506ZZ: POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)

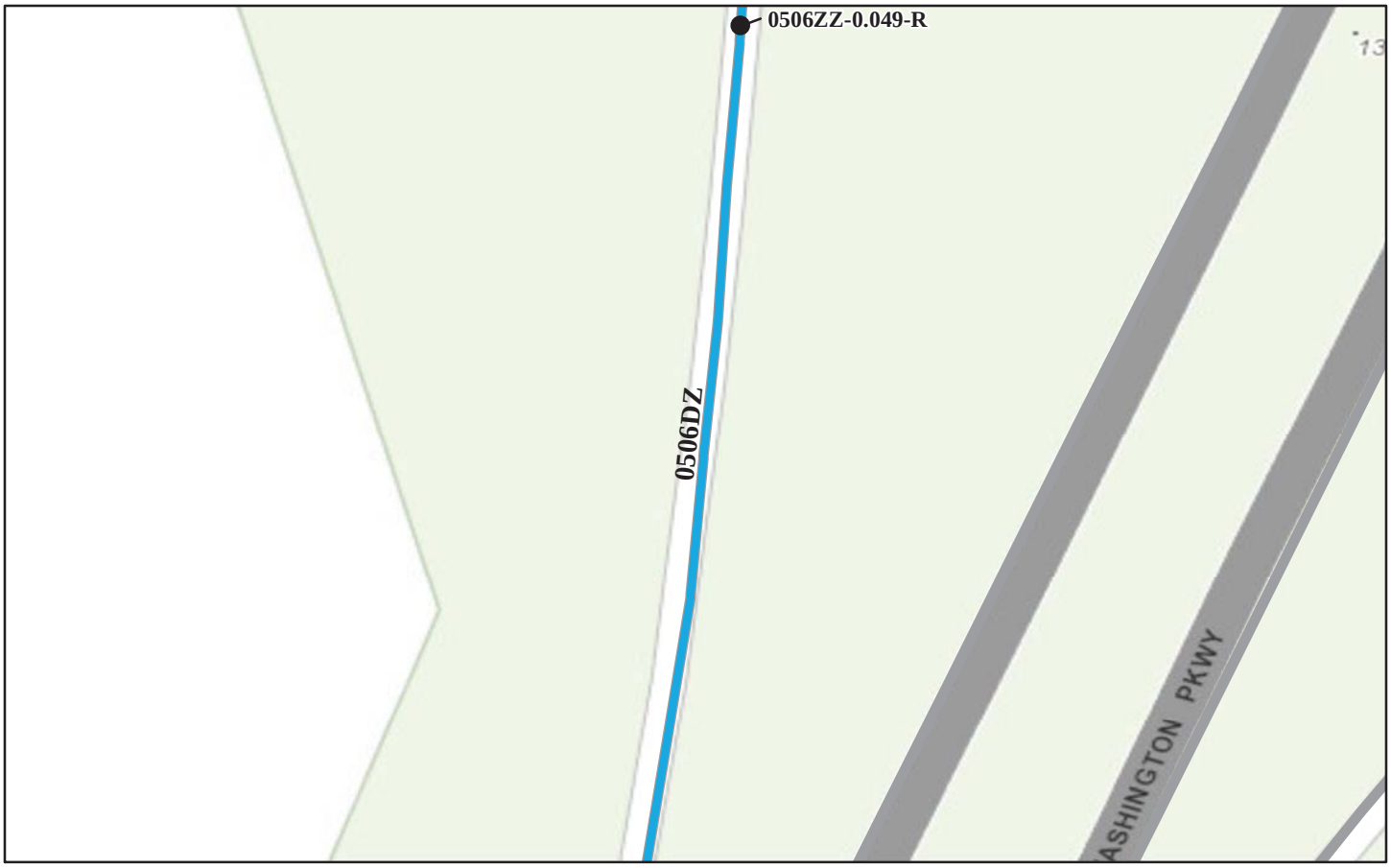
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0506ZZ-0.062-R 10/18/2010	650	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0506ZZ: POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0506ZZ-0.049-R 10/21/2010	312	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0507ZZ: LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)

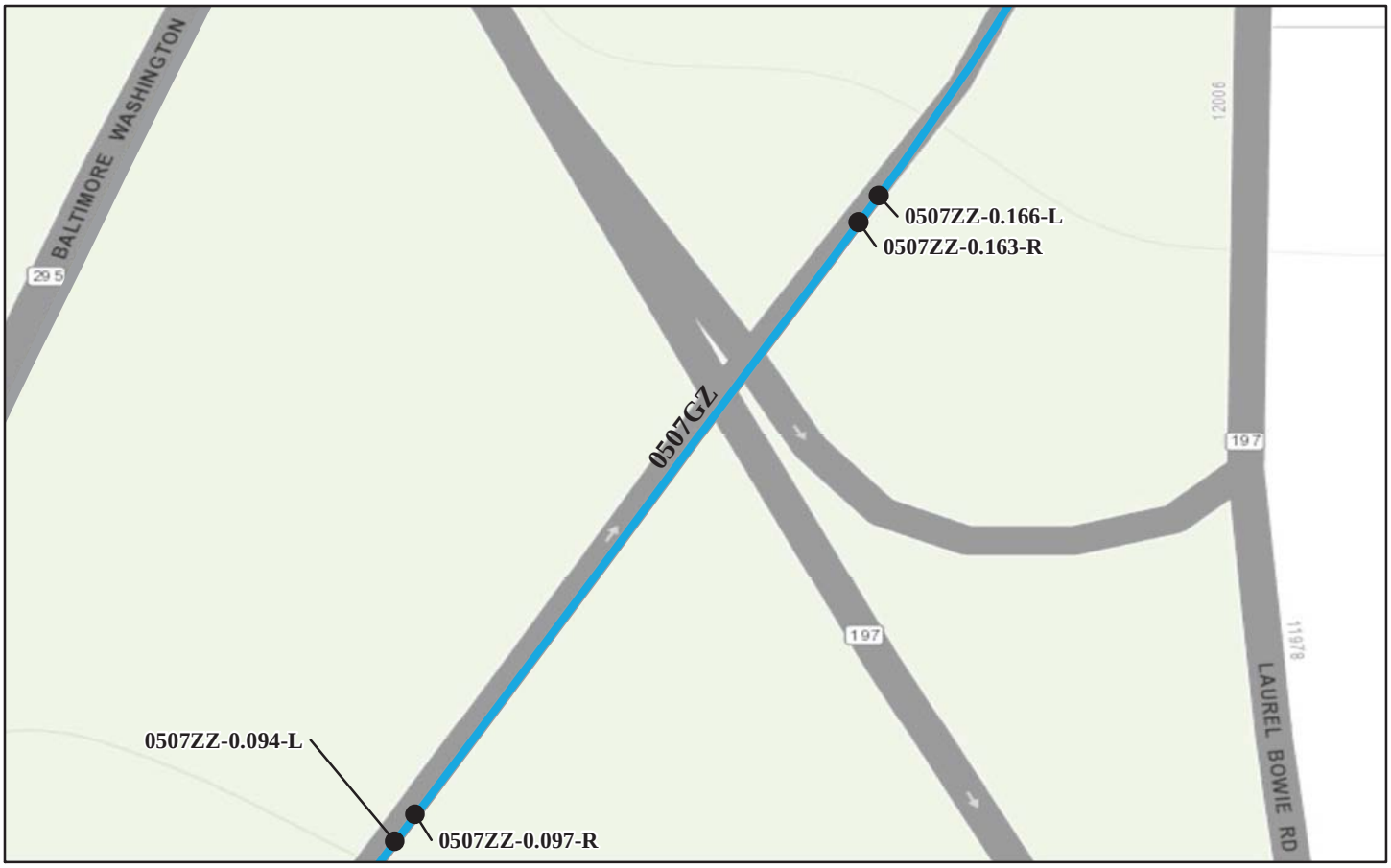
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0507ZZ-0.005-R 10/19/2010	37	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0507ZZ-0.062-L 10/19/2010	237	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0507ZZ: LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0507ZZ-0.094-L 10/19/2010	145	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0507ZZ-0.097-R 10/19/2010	130	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$3,658.00
BAWA-0507ZZ-0.163-R 10/19/2010	60	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0507ZZ-0.166-L 10/19/2010	101	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

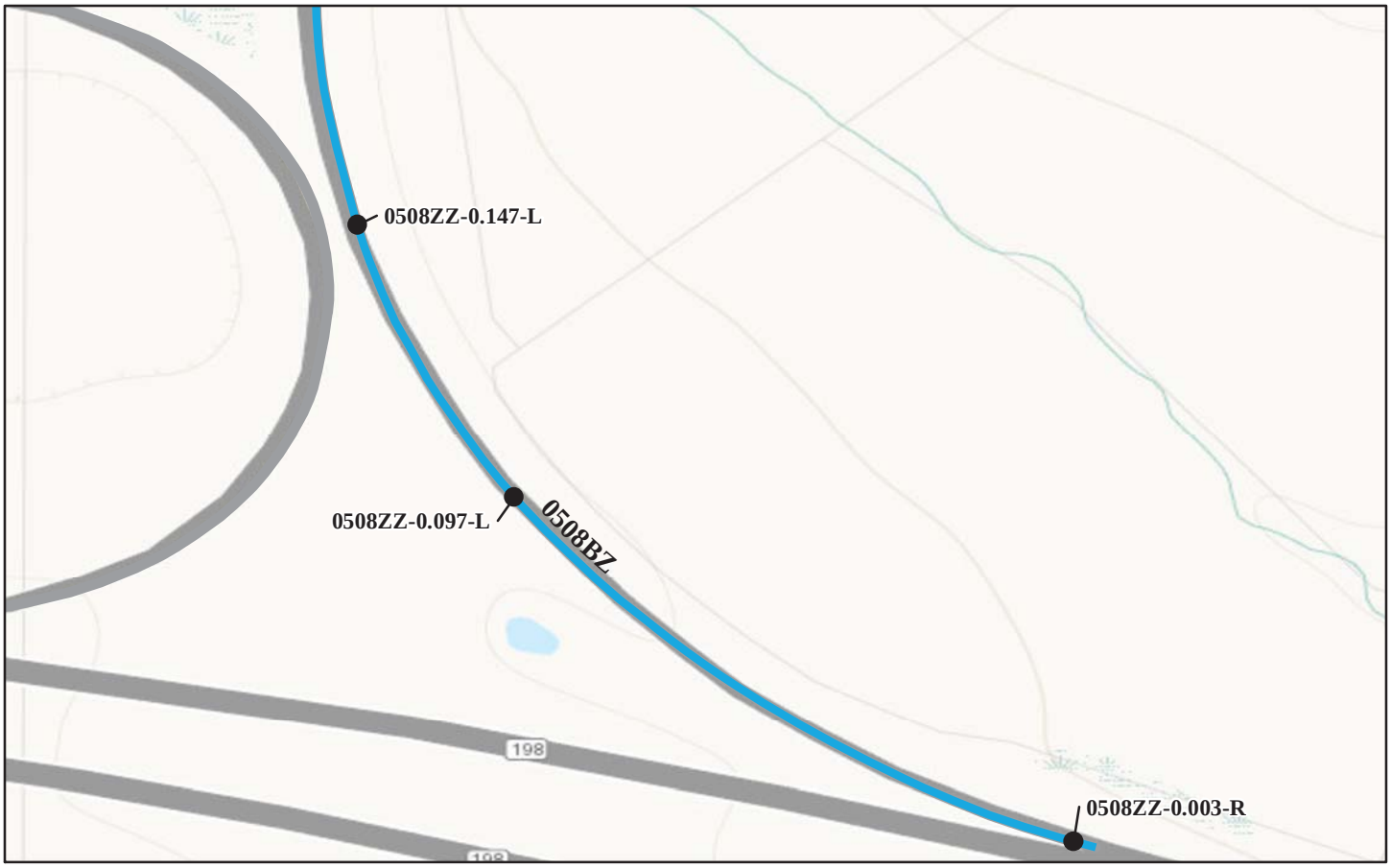
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0508ZZ-0.053-L 10/19/2010	418	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	$0.00
BAWA-0508ZZ-0.123-R 10/18/2010	562	W-BEAM STRONG POST	NONE	NONE	$13,052.00
BAWA-0508ZZ-0.181-L 10/19/2010	255	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	$2,019.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0508ZZ-0.003-R 10/19/2010	228	W-BEAM STRONG POST	NONE	NONE	$0.00
BAWA-0508ZZ-0.097-L 10/19/2010	280	W-BEAM STRONG POST	NONE	NONE	$1,766.00
BAWA-0508ZZ-0.147-L 10/19/2010	180	W-BEAM DOUBLE FACE STRONG POST	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

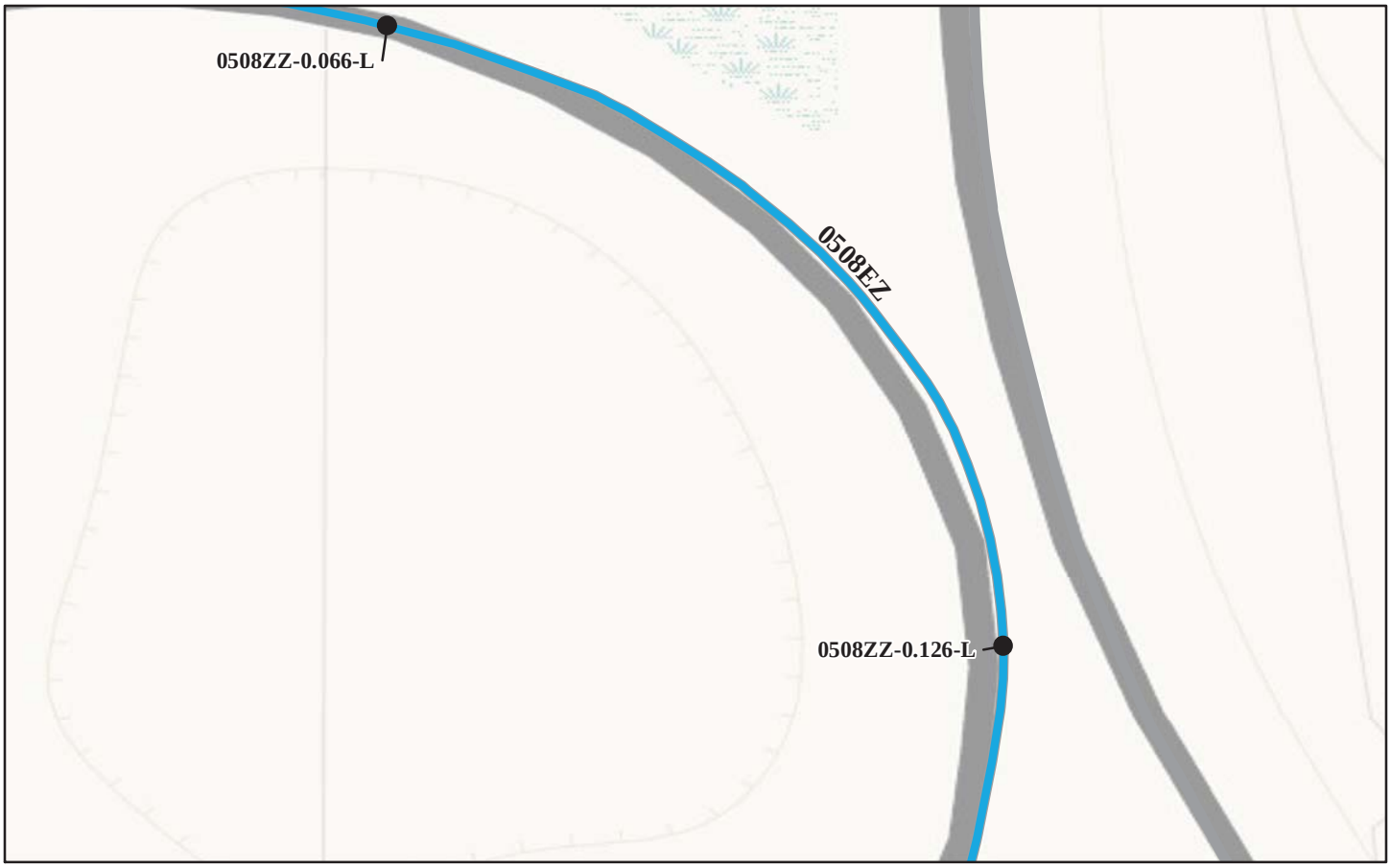
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0508ZZ-0.016-R 10/19/2010	810	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	NONE	NONE	$16,115.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)



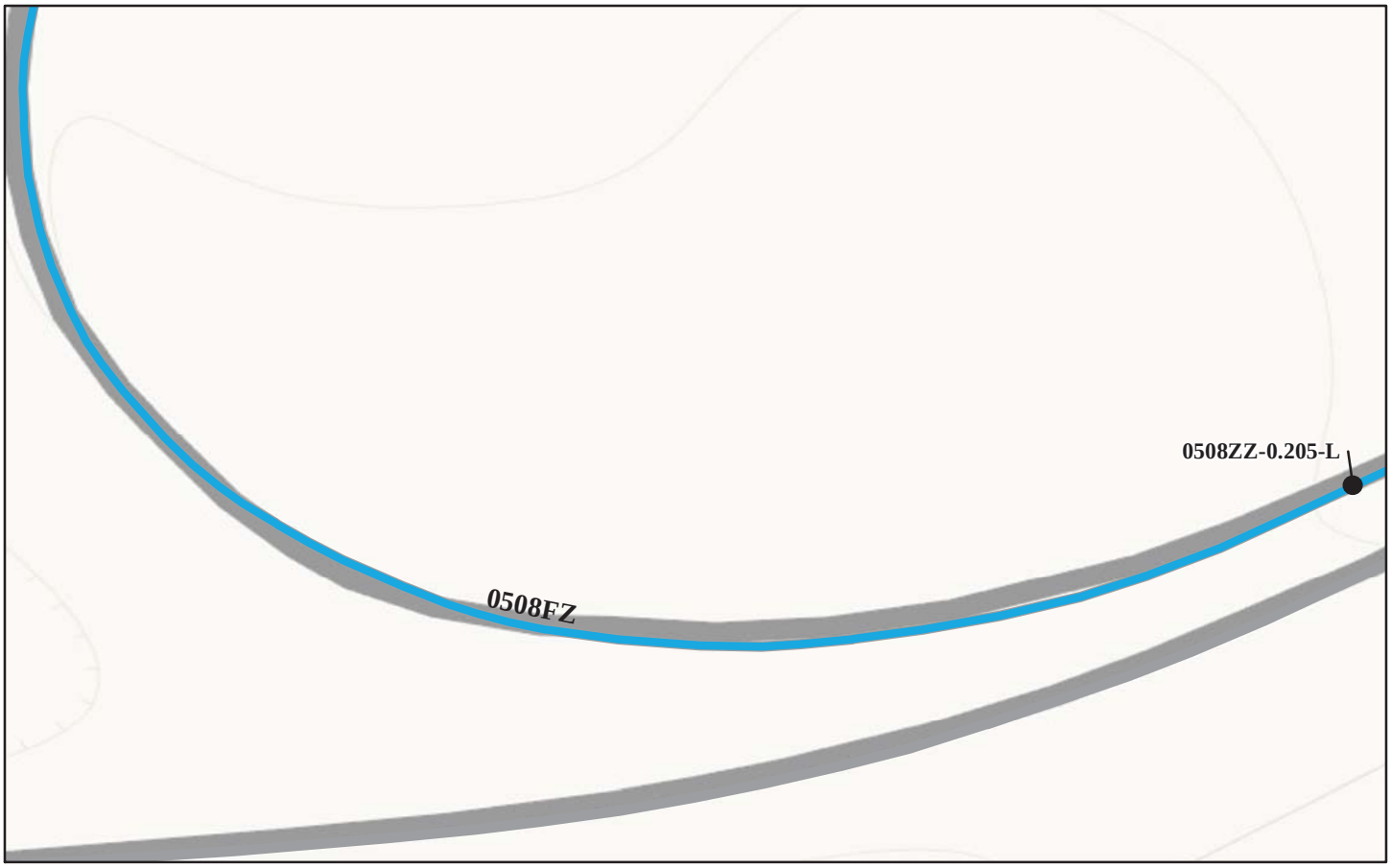
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0508ZZ-0.066-L 10/19/2010	138	W-BEAM STRONG POST	NONE	NONE	$143.00
BAWA-0508ZZ-0.126-L 10/19/2010	122	W-BEAM STRONG POST	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)



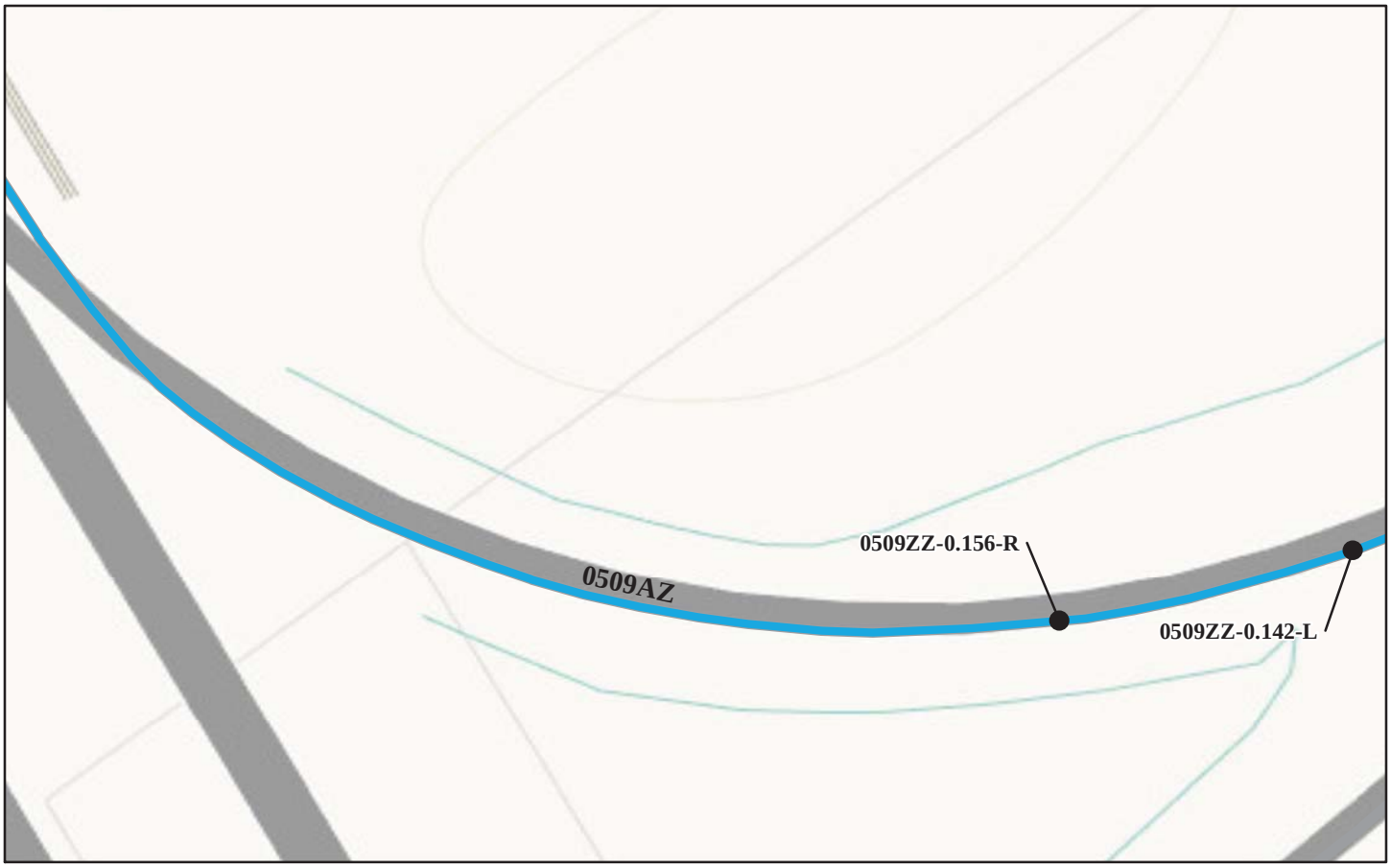
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0508ZZ-0.205-L 10/19/2010	575	W-BEAM STRONG POST	W-BEAM BCT	NONE	$13,200.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)



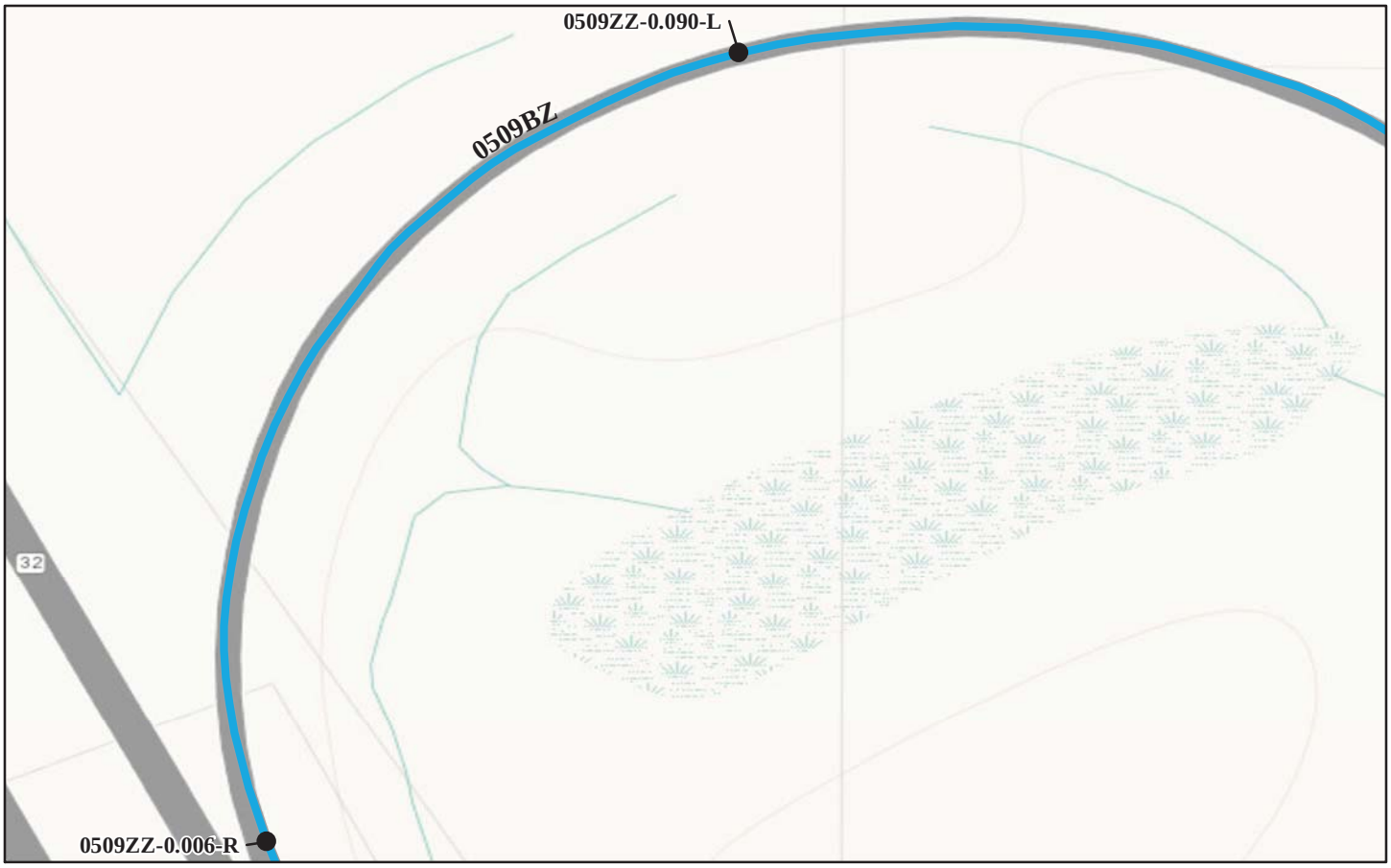
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0509ZZ-0.142-L 10/20/2010	50	W-BEAM STRONG POST	NONE	NONE	$2,811.00
BAWA-0509ZZ-0.156-R 10/20/2010	282	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	NONE	$2,217.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)



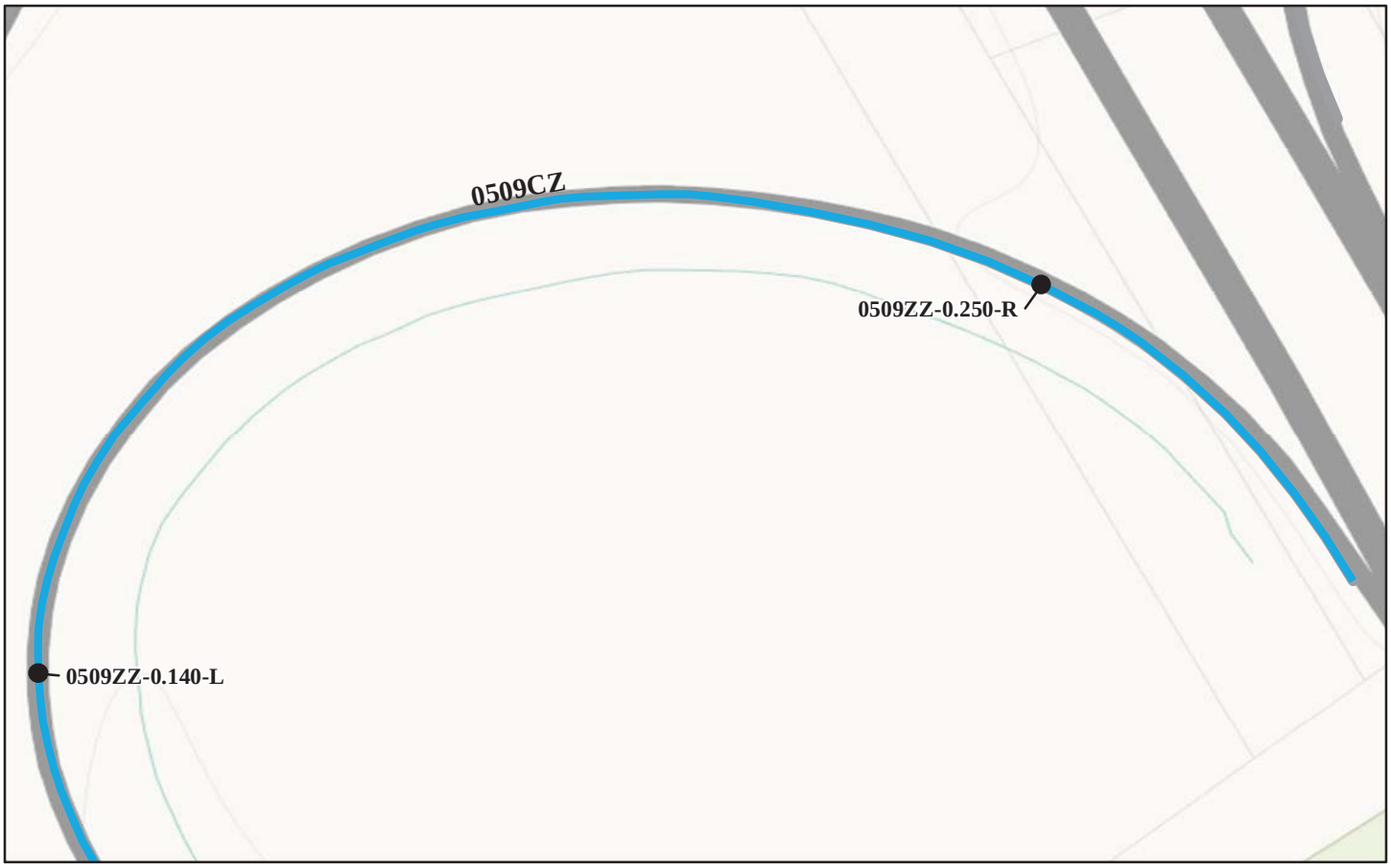
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0509ZZ-0.006-R 10/20/2010	260	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	$0.00
BAWA-0509ZZ-0.090-L 10/20/2010	165	W-BEAM STRONG POST	W-BEAM TANGENT 350 COMPLIANT	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)



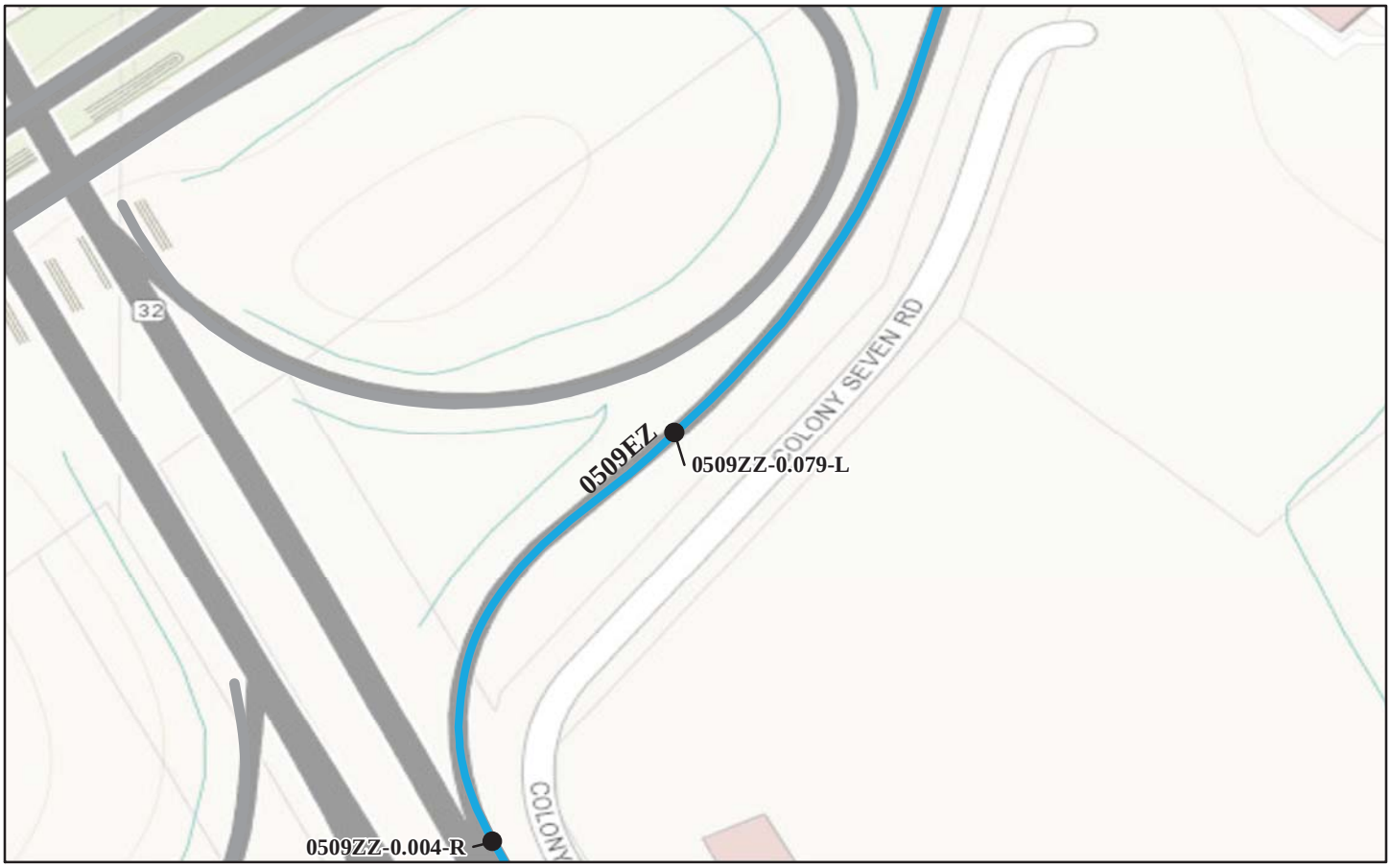
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0509ZZ-0.140-L 10/20/2010	280	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	$0.00
BAWA-0509ZZ-0.250-R 10/20/2010	250	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	SBT/LOG FLARED	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)



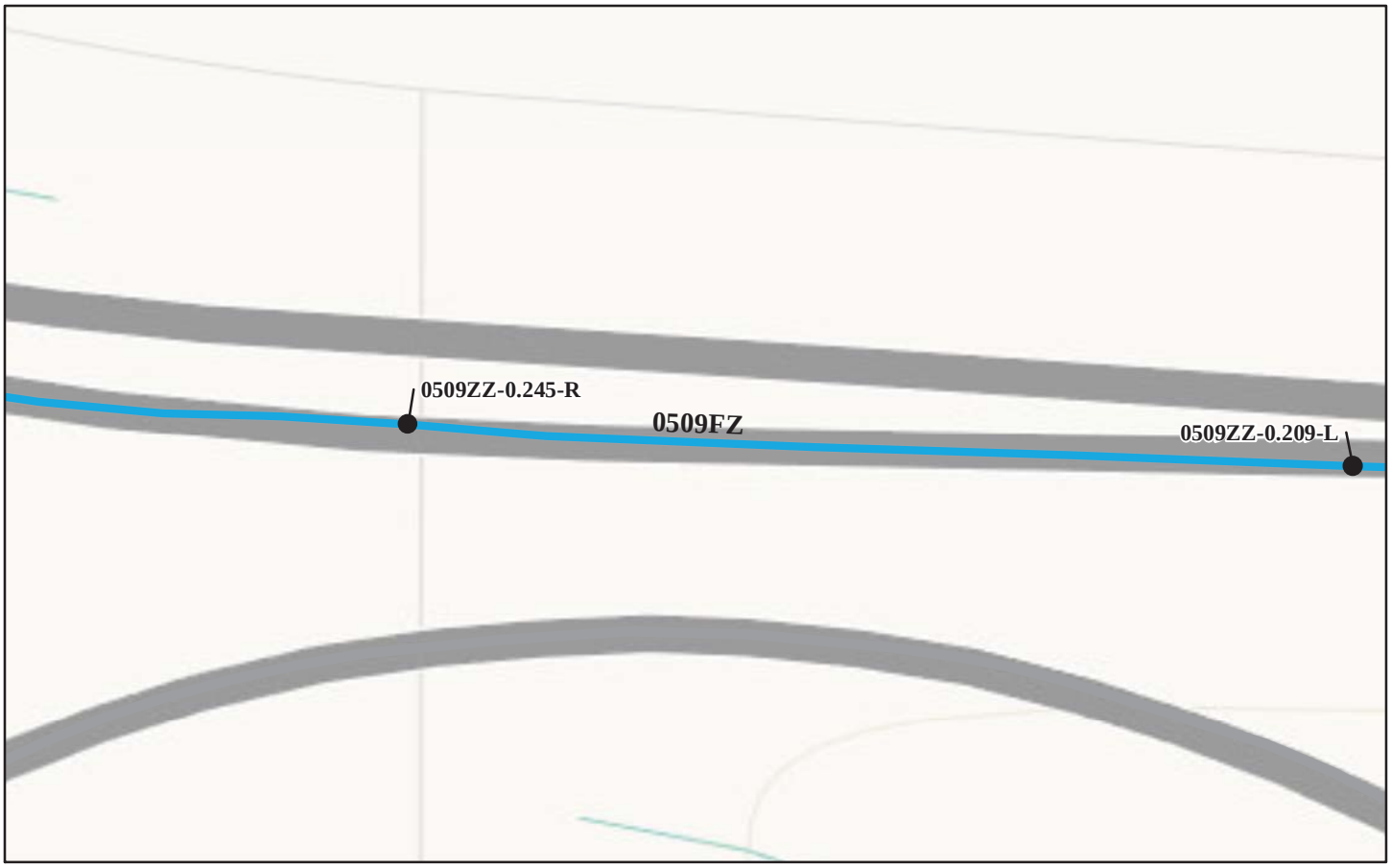
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0509ZZ-0.004-R 10/20/2010	120	W-BEAM STRONG POST	NONE	NONE	$0.00
BAWA-0509ZZ-0.079-L 10/20/2010	379	W-BEAM DOUBLE FACE STRONG POST	NONE	MEDIAN TREATMENTS	$2,712.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)



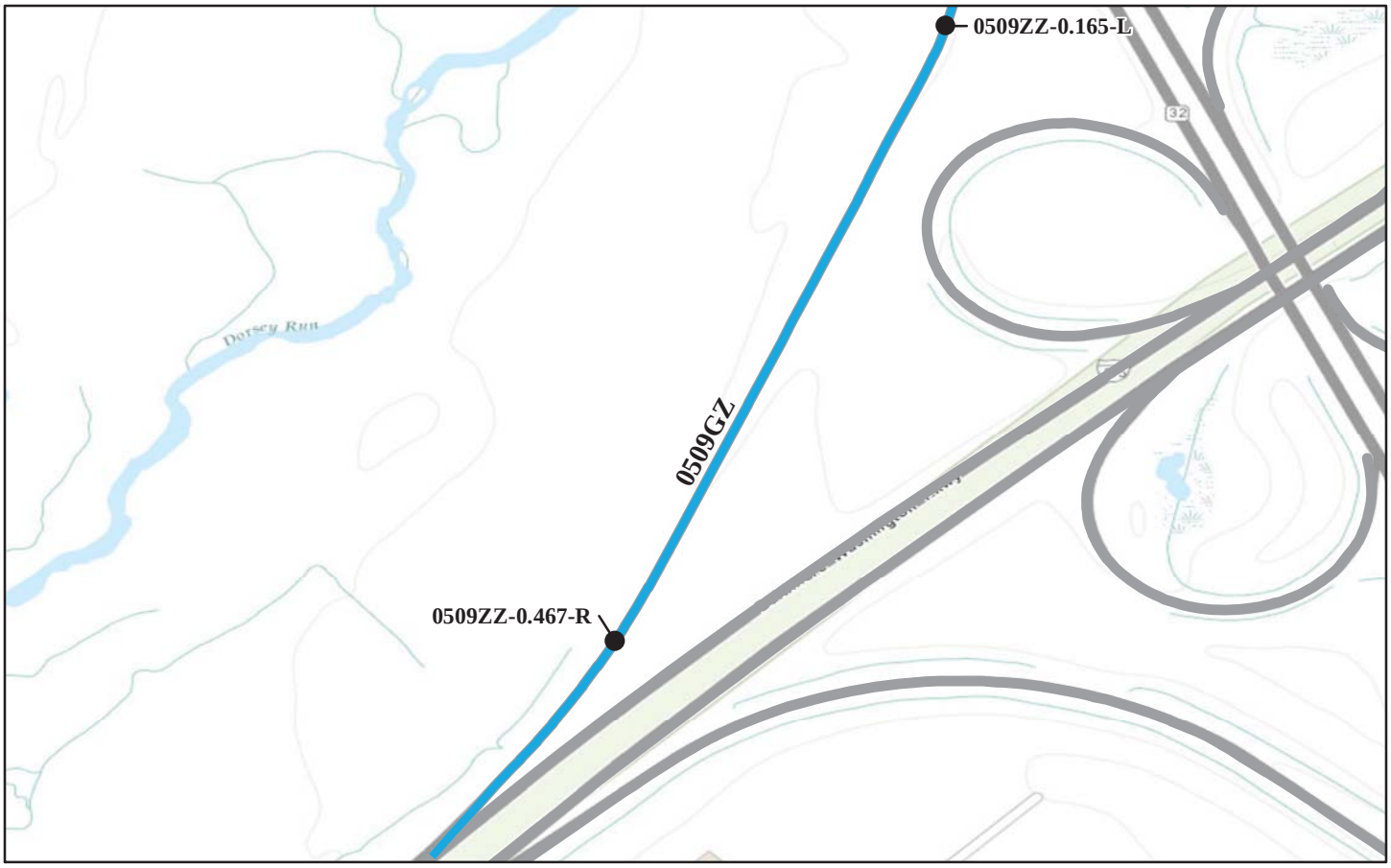
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0509ZZ-0.209-L 10/20/2010	140	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	NONE	$0.00
BAWA-0509ZZ-0.245-R 10/20/2010	72	W-BEAM STRONG POST	CRASH	NONE	$2,195.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)



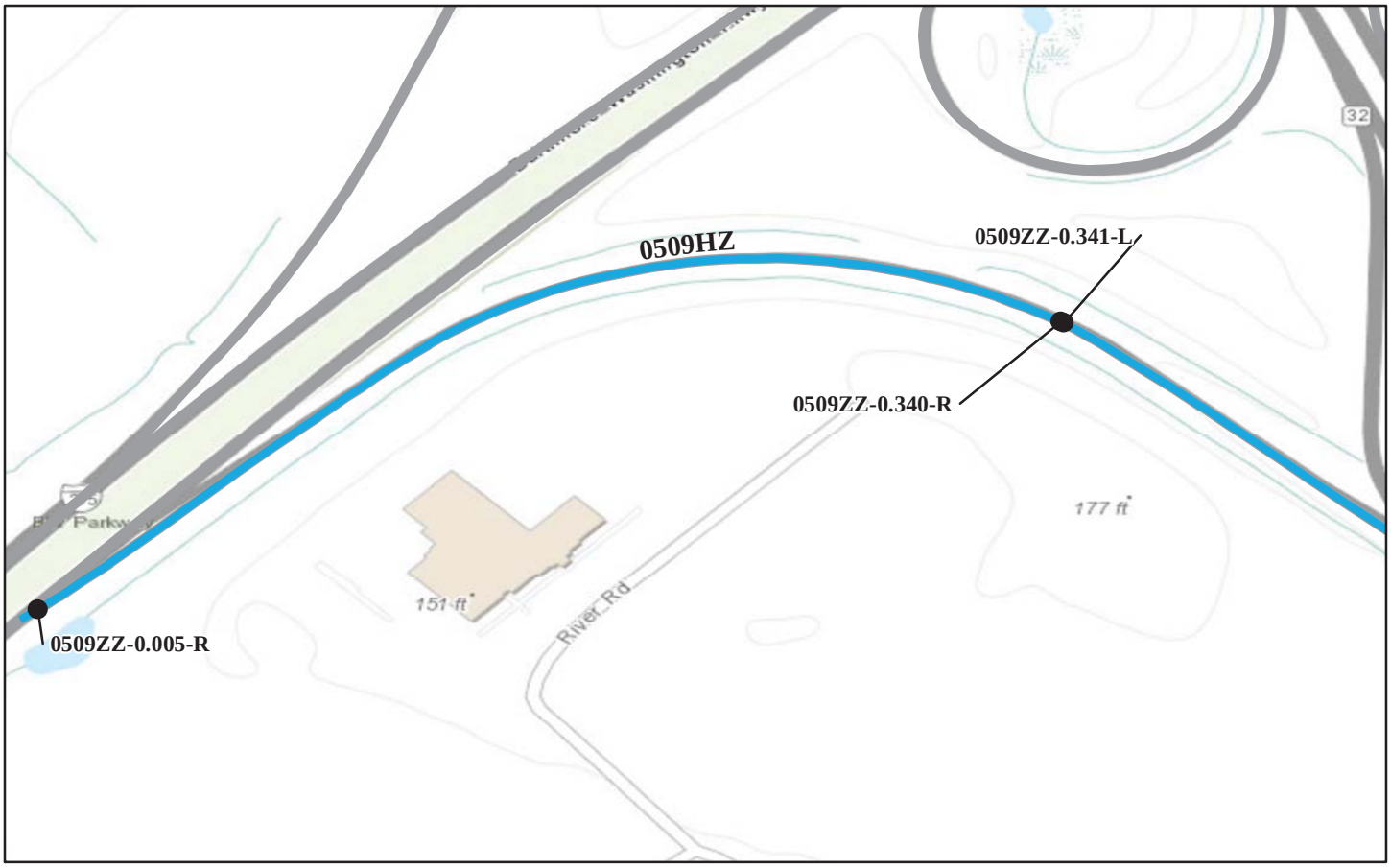
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0509ZZ-0.165-L 10/21/2010	1,438	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	$0.00
BAWA-0509ZZ-0.467-R 10/21/2010	565	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)



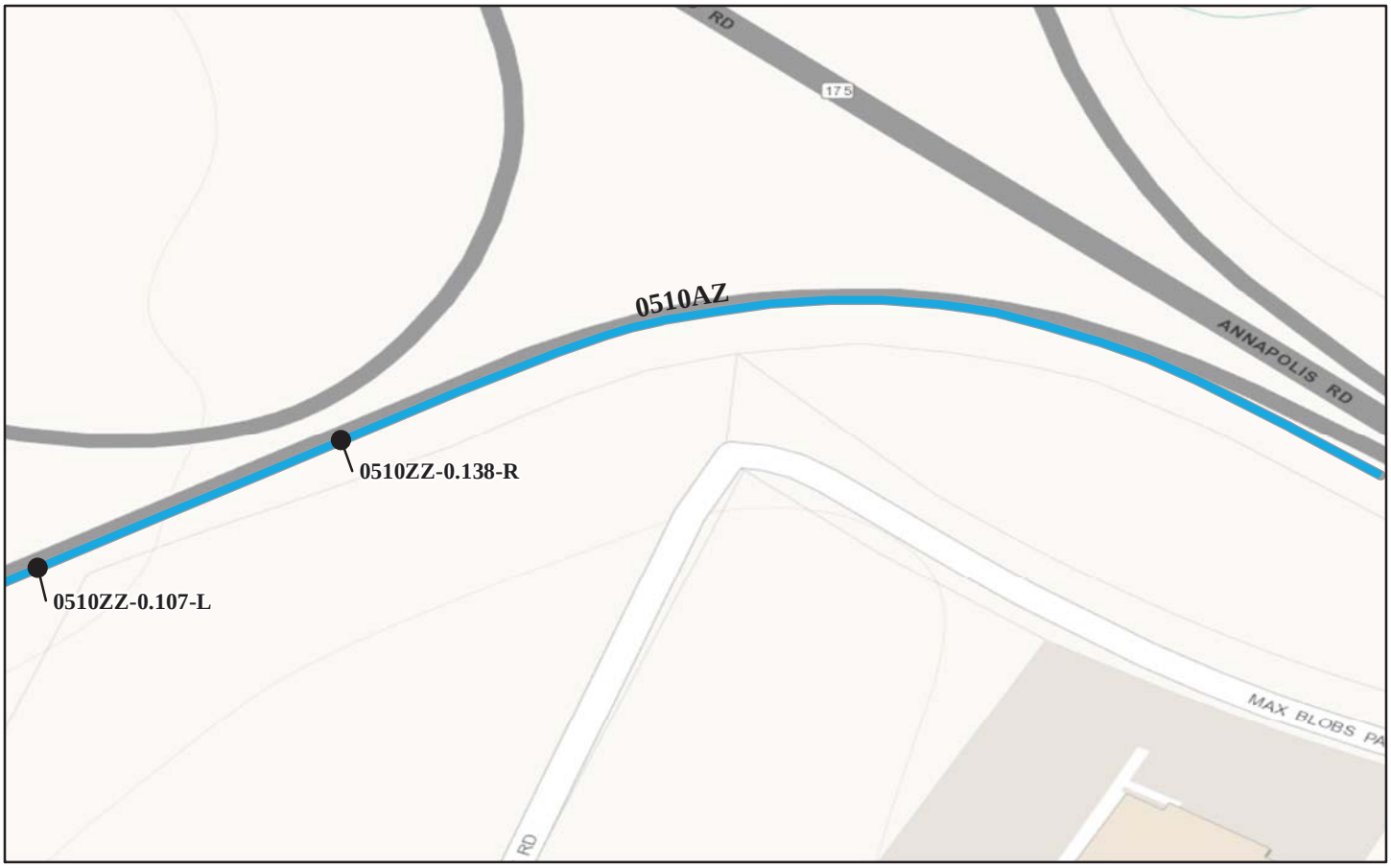
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0509ZZ-0.005-R 10/20/2010	185	CONCRETE WITH SIMULATED STONE FACE	NONE	NONE	$0.00
BAWA-0509ZZ-0.340-R 10/20/2010	1018	W-BEAM STRONG POST	W-BEAM TANGENT 350 COMPLIANT	NONE	$0.00
BAWA-0509ZZ-0.341-L 10/20/2010	572	W-BEAM STRONG POST	W-BEAM TANGENT 350 COMPLIANT	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0510ZZ: JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
BAWA-0510ZZ-0.107-L 10/20/2010	255	W-BEAM STRONG POST	W-BEAM TURN DOWN	NONE	$0.00
BAWA-0510ZZ-0.138-R 10/20/2010	522	W-BEAM STRONG POST	W-BEAM TURN DOWN	NONE	$2,090.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0510ZZ: JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment Begin	 End	*Repair Cost
BAWA-0510ZZ-0.028-R 10/20/2010	932	W-BEAM STRONG POST	W-BEAM TURN DOWN	NONE	$8,745.00
BAWA-0510ZZ-0.045-L 10/20/2010	220	W-BEAM DOUBLE FACE STRONG POST	W-BEAM TURN DOWN	NONE	$3,201.00
BAWA-0510ZZ-0.086-L 10/20/2010	566	W-BEAM STRONG POST	NONE	NONE	$0.00

*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Tier 3
Barrier Details

Baltimore - Washington Parkway

Federal Lands Highway
Road Inventory Program

Barrier ID:	**BAWA-0001-0.005-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	63.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	983
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	EXTREME		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.6	**Lateral Offset (In.):**	42.7	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is within 1 in of 27-in design height along entire length.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	The final 10-ft section of the departure end is gone due to impact.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-0.005-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	63.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$11220
Brief Workorder:	Replace 10-feet of departure end of barrier.				
Workorder:	Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 10 LF = $1350. Replace 10-feet of departure end of barrier. Low Speed Traffic Control at $1475- per -Day for 6 Day(s) = $8850.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.005_L_1.jpg

Barrier ID:	**BAWA-0001-0.006-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	64.30

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1347
Speed Limit (MPH):	45	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	28.8	**Lateral Offset (In.):**	101.0	**Road Grade (%):**	0.50

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection less than 6 in along entire length. Height is 1 - 3 in above 27-in design height.
	Breaking and Cracking:	4 10-ft concrete caps were broken with exposed rebar and/or missing pieces greater than 3 in. 3 10-ft sections of cap were displaced but intact.
	Missing Elements:	2 10-ft cap sections were gone.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-0.006-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	64.30

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$6419
Brief Workorder:	Reset 3 displaced 10 feet of concrete caps and replace 6 broken concrete caps.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 40 LF = $2000. Remove 40 feet of broken concrete cap. Structural Concrete at $1000- per -Cu. Yd. for 2 CY = $2000. [(10ft)(0.33ft)(2.2ft)] /27 = 1.6 SY. 6 caps - 2 missing and 4 broken. Labor at $60- per -Hour for 6 Hrs = $360. Two workers to reset 3 concrete caps @ 1 cap/hr. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.006_R_1.jpg

Barrier ID:	**BAWA-0001-0.296-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	314
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	30.2	**Lateral Offset (In.):**	82.3	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 1 to 5 in above 27 in design height.
	Breaking and Cracking:	Beginning end of barrier is shifted and cracked for 10 ft.
	Missing Elements:	The final 10 ft section of the departure end is gone due to impact.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-0.296-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.40

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$6765
Brief Workorder:	Remove and replace beginning end (10 feet) of barrier. Install missing 10 feet at departure end of barrier.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 1 - 10 foot section at beginning end. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 20 LF = $2700. 10 feet of departure end of barrier. 10 feet of beginning end. Low Speed Traffic Control at $1475- per -Day for 2 Day(s) = $2950. 1 day removal 1 day installation.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.296_L_1.jpg

Barrier ID:	**BAWA-0001-0.310-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	57.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	333
Speed Limit (MPH):	45	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	33.7	**Lateral Offset (In.):**	126.3	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 10 in above 27 in design height.
	Breaking and Cracking:	Twenty ft of the concrete cap is displaced.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-0.310-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	57.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$1887
Brief Workorder:	Reset two 10-ft concrete caps.				
Workorder:	Labor at $60- per -Hour for 4 Hrs = $240. Two workers to reset 2 concrete caps @ 1 cap/hour. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.310_R_1.jpg

Barrier ID:	**BAWA-0001-0.460-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	57.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	307
Speed Limit (MPH):	45	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	26.7	**Lateral Offset (In.):**	161.0	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0 to 2 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-0.460-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	57.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	n/a				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.460_R_1.jpg

Barrier ID:	**BAWA-0001-0.466-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	319
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	104.0	**Road Grade (%):**	1.60

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 2 in above 27 in design height.
	Breaking and Cracking:	A 3 ft section of barrier appears to be separated by a 1 in crack.
	Missing Elements:	Last 10 ft of departure end is missing due to impact.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-0.466-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.40

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3163
Brief Workorder:	Replace 10 feet of departure end. Repair 7 square feet of simulated stone face.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. [(3ft)(2.3ft)] /9 = .8 SY. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 10 LF = $1350. Replace departure end that is missing. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.466_L_1.jpg

Barrier ID:	**BAWA-0001-0.674-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	977
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	31.0	**Lateral Offset (In.):**	112.4	**Road Grade (%):**	3.20

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is 0 to 6 in above 27-in design height along entire length.
	Breaking and Cracking:	1 10-ft concrete cap section has been displaced due to impact.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-0.674-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$1755
Brief Workorder:	Reset one 10-ft section of concrete cap.				
Workorder:	Labor at $60- per -Hour for 2 Hrs = $120. Two workers to reset 1 10-ft section of concrete cap. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.674_R_1.jpg

Barrier ID:	**BAWA-0001-0.817-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	173
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.7	**Lateral Offset (In.):**	296.0	**Road Grade (%):**	3.10

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is within 1 in of 27-in design height.
	Breaking and Cracking:	A 10-ft section of concrete cap is displaced.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-0.817-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$1755
Brief Workorder:	Reset 1 10-ft concrete cap section.				
Workorder:	Labor at $60- per -Hour for 2 Hrs = $120. Two workers to reset 1 10-ft concrete cap section Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.817_L_1.jpg

Barrier ID:	**BAWA-0001-0.860-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	54.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	460
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	EXTREME		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	31.7	**Lateral Offset (In.):**	93.0	**Road Grade (%):**	2.30

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is within 1 in of 27-in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-0.860-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	54.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.860_L_1.jpg

Barrier ID:	**BAWA-0001-0.865-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	460
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	27.7	**Lateral Offset (In.):**	153.0	**Road Grade (%):**	2.90

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 4 in to 5 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-0.865-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_0.865_R_1.jpg

Barrier ID:	**BAWA-0001-1.000-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	423
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	31.7	**Lateral Offset (In.):**	105.6	**Road Grade (%):**	2.70

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 4 in to 5 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-1.000-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_1.000_R_1.jpg

Barrier ID:	**BAWA-0001-1.001-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	4331
Speed Limit (MPH):	45	**Placement with Respect to Road:**	BOTH INSIDE AND OUTSIDE
Hazard Behind Barrier:	EXTREME		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.2	**Post Spacing (In.):**	0.0
Height (In.):	27.1	**Lateral Offset (In.):**	77.6	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height ranges from 1 in below to 2 in above 27-in design height.
	Breaking and Cracking:	One 10-ft concrete cap section is chipped on the edge with pieces of less than 3 in broken off.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-1.001-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4235
Brief Workorder:	Replace one 10-foot concrete cap section.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10 foot broken concrete cap. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_1.001_L_1.jpg

Barrier ID:	**BAWA-0001-1.803-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	56.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	119
Speed Limit (MPH):	45	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	31.2	**Lateral Offset (In.):**	107.3	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 4 to 5 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-1.803-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	56.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_1.803_R_1.jpg

Barrier ID:	**BAWA-0001-1.861-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1502
Speed Limit (MPH):	45	**Placement with Respect to Road:**	BOTH INSIDE AND OUTSIDE
Hazard Behind Barrier:	EXTREME		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.6	**Post Spacing (In.):**	0.0
Height (In.):	27.1	**Lateral Offset (In.):**	77.3	**Road Grade (%):**	1.90

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is within 1 in of 27-in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-1.861-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_1.861_L_1.jpg

Barrier ID:	**BAWA-0001-1.861-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	61.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	743
Speed Limit (MPH):	45	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.5	**Post Spacing (In.):**	0.0
Height (In.):	30.5	**Lateral Offset (In.):**	97.5	**Road Grade (%):**	1.80

Physical Condition

Barrier	**Alignment and Height:**	Alignment is deviated by 6-12 in for 20 ft. Height is 2-5 in greater than 27-in design height.
	Breaking and Cracking:	4 10-ft caps are displaced but intact.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-1.861-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	61.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$6221
Brief Workorder:	Reset 4 10-foot sections of concrete cap and remove/replace 20 feet of barrier.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 20 LF = $1000. Remove 20-ft that is out of alignment. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 20 LF = $2700. Install 20-ft of concrete with simulated stone face barrier. Labor at $60- per -Hour for 8 Hrs = $480. Two workers to reset 4 10-foot sections of concrete cap. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_1.861_R_1.jpg

Barrier ID:	**BAWA-0001-2.110-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	186
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	25.2	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	208.0	**Road Grade (%):**	1.20

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 1 in below 27 in design height to 6 in above.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-2.110-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_2.110_R_1.jpg

Barrier ID:	**BAWA-0001-2.155-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1277
Speed Limit (MPH):	45	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	EXTREME		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	28.2	**Post Spacing (In.):**	0.0
Height (In.):	27.2	**Lateral Offset (In.):**	96.0	**Road Grade (%):**	0.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0 to 2 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-2.155-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_2.155_L_1.jpg

Barrier ID:	**BAWA-0001-2.160-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	52.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	139
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	25.2	**Lateral Offset (In.):**	225.3	**Road Grade (%):**	1.00

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 30 ft. Otherwise height is 1 in or less below 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-2.160-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	52.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	n/a				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_2.160_R_1.jpg

Barrier ID:	**BAWA-0001-2.317-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	362
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	113.3	**Road Grade (%):**	0.70

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 3-4 in above 27-in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-2.317-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_2.317_R_1.jpg

Barrier ID:	**BAWA-0001-2.776-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	57.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	281
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	27.7	**Lateral Offset (In.):**	148.8	**Road Grade (%):**	2.30

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 1 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-2.776-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	57.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_2.776_R_1.jpg

Barrier ID:	**BAWA-0001-3.149-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	54.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	872
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	30.5	**Lateral Offset (In.):**	129.3	**Road Grade (%):**	1.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 3 to 4 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-3.149-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	54.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_3.149_R_1.jpg

Barrier ID:	**BAWA-0001-3.194-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.80

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	659
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	50.0	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 2-4 in above 27-in design height.
	Breaking and Cracking:	4 10-ft concrete cap sections have broken pieces of 3 in or greater. 2 additional cap sections have 1-in pieces missing from the top with exposed rebar.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-3.194-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.80

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$8085
Brief Workorder:	Replace 6 10-foot concrete cap sections.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 60 LF = $3000. Remove 60 feet of broken concrete caps. Structural Concrete at $1000- per -Cu. Yd. for 2 CY = $2000. [(10ft)(0.33ft)(2.2ft)] /27 x 6 caps = 1.6 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_3.194_L_1.jpg

Barrier ID:	**BAWA-0001-3.475-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	57.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	684
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.5	**Post Spacing (In.):**	0.0
Height (In.):	29.2	**Lateral Offset (In.):**	156.5	**Road Grade (%):**	1.80

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 0 - 3 in above 27-in design height.
	Breaking and Cracking:	No breaking or cracking was observed.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-3.475-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	57.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_3.475_R_1.jpg

Barrier ID:	**BAWA-0001-3.720-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	92
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	RIGID W-BEAM - W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	76.3
Height (In.):	29.2	**Lateral Offset (In.):**	252.0	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is 0 to 5 in above 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0001-3.720-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_3.720_L_1.jpg

Barrier ID:	**BAWA-0001-3.733-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	275
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	29.2	**Lateral Offset (In.):**	85.6	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0 to 6 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-3.733-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_3.733_L_1.jpg

Barrier ID:	**BAWA-0001-3.735-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	292
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.2	**Post Spacing (In.):**	0.0
Height (In.):	26.7	**Lateral Offset (In.):**	139.3	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 1 in below 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-3.735-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_3.735_R_1.jpg

Barrier ID:	**BAWA-0001-3.813-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	63.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	490
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	EXTREME		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	30.2	**Lateral Offset (In.):**	49.0	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 1 - 5 in above 27-in design height.
	Breaking and Cracking:	One 10-ft cap section has a 5-in broken piece.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-3.813-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	63.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4235
Brief Workorder:	Replace one 10-foot broken concrete cap section.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove a 10 foot section of broken concrete cap. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_3.813_L_1.jpg

Barrier ID:	**BAWA-0001-3.813-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	312
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	32.2	**Lateral Offset (In.):**	110.3	**Road Grade (%):**	1.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 4 to 7 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-3.813-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_3.813_R_1.jpg

Barrier ID:	**BAWA-0001-4.104-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	54.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1407
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	25.1	**Post Spacing (In.):**	0.0
Height (In.):	30.3	**Lateral Offset (In.):**	114.9	**Road Grade (%):**	1.80

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 0 - 5 in above 27-in design height.
	Breaking and Cracking:	No breaking or cracking was observed.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-4.104-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	54.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_4.104_R_1.jpg

Barrier ID:	**BAWA-0001-4.623-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	143
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	26.0	**Lateral Offset (In.):**	196.0	**Road Grade (%):**	2.20

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is 1 in below 27 in design height.
	Breaking and Cracking:	Ten ft of top concrete cap is cracked due to impact. A simulated stone is cracked (1ft x 1ft).
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-4.623-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4290
Brief Workorder:	Replace one cracked concrete cap. Repair 1 ft x 1 ft simulated stone.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. (1ft)(1ft) /9 = 0.1 SY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove a 10-foot broken section of concrete cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_4.623_R_1.jpg

Barrier ID:	**BAWA-0001-4.660-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	54.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1356
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.6	**Post Spacing (In.):**	0.0
Height (In.):	29.3	**Lateral Offset (In.):**	102.3	**Road Grade (%):**	1.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height ranges from 1 in below to 4 in above the 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-4.660-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	54.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_4.660_R_1.jpg

Barrier ID:	**BAWA-0001-5.356-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1318
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.3	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	108.4	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 1 - 5 in above 27-in design height.
	Breaking and Cracking:	One square ft of simulated stone face is loose/broken from impact.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-5.356-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.20

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2640
Brief Workorder:	Repair 1 square foot simulated stone masonry surface treatment.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_5.356_R_1.jpg

Barrier ID:	**BAWA-0001-5.360-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	54.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1054
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.2	**Post Spacing (In.):**	0.0
Height (In.):	31.2	**Lateral Offset (In.):**	44.2	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is 2 to 5 in above 27-in design height along entire length.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-5.360-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	54.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_5.360_L_1.jpg

Barrier ID:	**BAWA-0001-5.767-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	248
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	27.7	**Lateral Offset (In.):**	147.6	**Road Grade (%):**	1.80

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 1 in below to 2 in over 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-5.767-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_5.767_R_1.jpg

Barrier ID:	**BAWA-0001-6.096-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	71.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	162
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	23.0	**Post Spacing (In.):**	0.0
Height (In.):	20.6	**Lateral Offset (In.):**	220.3	**Road Grade (%):**	2.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is low by 7 to 8 in from the 27 in design.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-6.096-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	71.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_6.096_L_1.jpg

Barrier ID:	**BAWA-0001-6.099-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	157
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	27.2	**Lateral Offset (In.):**	102.3	**Road Grade (%):**	1.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0 to 1 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-6.099-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2849
Brief Workorder:	Remove small trees growing out of the bottom of the barrier.				
Workorder:	Labor at $60- per -Hour for 4 Hrs = $240. Remove small trees growing out of the bottom of the barrier. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_6.099_R_1.jpg

Barrier ID:	**BAWA-0001-6.485-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	120
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	25.0	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	169.0	**Road Grade (%):**	1.60

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height was equal to 27-in design height.
	Breaking and Cracking:	No breaking or cracking was observed.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-6.485-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_6.485_R_1.jpg

Barrier ID:	**BAWA-0001-6.532-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	86
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	25.0	**Post Spacing (In.):**	0.0
Height (In.):	29.2	**Lateral Offset (In.):**	146.6	**Road Grade (%):**	1.50

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 1 in to 3 in over 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-6.532-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_6.532_R_1.jpg

Barrier ID:	**BAWA-0001-7.495-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	59.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	600
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	31.0	**Lateral Offset (In.):**	143.0	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 1 to 6 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	1 10 ft cap section missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-7.495-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	59.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3685
Brief Workorder:	Replace 1 10-foot cap section.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_7.495_R_1.jpg

Barrier ID:	**BAWA-0001-7.499-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	607
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	29.0	**Lateral Offset (In.):**	74.0	**Road Grade (%):**	1.50

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is 0 to 3 in above 27-in design height along entire length.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-7.499-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_7.499_L_1.jpg

Barrier ID:	**BAWA-0001-7.720-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	51.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	503
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	76.3	**Road Grade (%):**	0.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0 to 2 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-7.720-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	51.40

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_7.720_L_1.jpg

Barrier ID:	**BAWA-0001-7.736-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	432
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	23.2	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	197.0	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 6 in above 27 in design height.
	Breaking and Cracking:	One 10-ft concrete cap is cracked.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-7.736-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4235
Brief Workorder:	Replace a 10 foot section of cracked concrete cap.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10 ft cracked concrete cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_7.736_R_1.jpg

Barrier ID:	**BAWA-0001-8.132-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	657
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	115.3	**Road Grade (%):**	0.70

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 1 - 5 in above 27-in design height.
	Breaking and Cracking:	No breaking or cracking was observed.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-8.132-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_8.132_R_1.jpg

Barrier ID:	**BAWA-0001-8.590-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	54.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	999
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	31.0	**Lateral Offset (In.):**	127.0	**Road Grade (%):**	1.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 1 to 5 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-8.590-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	54.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_8.590_R_1.jpg

Barrier ID:	**BAWA-0001-8.792-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	930
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.3	**Post Spacing (In.):**	0.0
Height (In.):	32.7	**Lateral Offset (In.):**	105.5	**Road Grade (%):**	0.50

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 5 in to 7 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-8.792-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_8.792_R_1.jpg

Barrier ID:	**BAWA-0001-9.356-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	456
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	31.0	**Lateral Offset (In.):**	148.3	**Road Grade (%):**	1.00

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 1 - 6 in above 27-in design height.
	Breaking and Cracking:	No breaking or cracking was observed.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-9.356-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_9.356_R_1.jpg

Barrier ID:	**BAWA-0001-9.734-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	177
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	28.2	**Lateral Offset (In.):**	146.0	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 1 in below to 5 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-9.734-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_9.734_R_1.jpg

Barrier ID:	**BAWA-0001-9.790-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	199
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	31.7	**Lateral Offset (In.):**	104.3	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 4 in to 5 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-9.790-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_9.790_R_1.jpg

Barrier ID:	**BAWA-0001-10.001-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	90
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	31.0	**Lateral Offset (In.):**	67.3	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 0 - 6 in above 27-in design height.
	Breaking and Cracking:	No breaking or cracking was observed.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-10.001-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_10.001_R_1.jpg

Barrier ID:	**BAWA-0001-10.216-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	355
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	29.7	**Lateral Offset (In.):**	145.0	**Road Grade (%):**	0.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height ranges from 1 in below to 5 in above the 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-10.216-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_10.216_R_1.jpg

Barrier ID:	**BAWA-0001-10.601-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	241
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	73.3	**Road Grade (%):**	1.60

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height was equal to 27-in design height throughout.
	Breaking and Cracking:	No breaking or cracking was observed.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-10.601-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_10.601_L_1.jpg

Barrier ID:	**BAWA-0001-11.124-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	200
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	29.2	**Lateral Offset (In.):**	116.3	**Road Grade (%):**	0.50

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 7 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-11.124-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_11.124_R_1.jpg

Barrier ID:	**BAWA-0001-11.413-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	203
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	27.2	**Lateral Offset (In.):**	86.3	**Road Grade (%):**	2.20

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is within 1 in of 27-in design height.
	Breaking and Cracking:	A 26-in wide section of concrete cap has been impacted and broken.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-11.413-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4235
Brief Workorder:	Replace one 10-foot section of broken concrete cap.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10 feet of broken concrete cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_11.413_L_1.jpg

Barrier ID:	**BAWA-0001-11.415-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	171
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	28.7	**Lateral Offset (In.):**	157.6	**Road Grade (%):**	2.80

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 5 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-11.415-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_11.415_R_1.jpg

Barrier ID:	**BAWA-0001-11.498-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	527
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	33.0	**Lateral Offset (In.):**	103.0	**Road Grade (%):**	1.70

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is 0 to 6 in above the 27-in design height along entire length.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-11.498-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_11.498_R_1.jpg

Barrier ID:	**BAWA-0001-11.505-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	51.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	522
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	29.0	**Lateral Offset (In.):**	40.7	**Road Grade (%):**	1.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 1 to 4 in above 27 in design height.
	Breaking and Cracking:	Some breaking and cracking of some joints and one 10-ft top cap was cracked.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-11.505-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	51.40

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4367
Brief Workorder:	Replace one 10-foot broken section of concrete cap.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10 feet of broken concrete cap. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. Labor at $60- per -Hour for 2 Hrs = $120. Patch epoxy in some real joint locations. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_11.505_L_1.jpg

Barrier ID:	**BAWA-0001-11.654-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	151
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	110.3	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0 to 5 in above 27 in design height.
	Breaking and Cracking:	Some breaking and cracking under 1/2 in observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	Some weathering and corrosion observed in the joints that should be monitored.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-11.654-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	MONITOR	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	Monitor epoxy in real joints.				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_11.654_R_1.jpg

Barrier ID:	**BAWA-0001-11.662-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	51.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	100
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	EXTREME		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	28.6	**Lateral Offset (In.):**	54.7	**Road Grade (%):**	1.10

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is 0 - 4 in above 27-in design height.
	Breaking and Cracking:	2 joints between precast sections have separated such that a gap of 1 - 2 in exists. No discontinuity of face was observed.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-11.662-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	51.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2717
Brief Workorder:	Re-caulk 2 separated joints between precast sections				
Workorder:	Labor at $60- per -Hour for 2 Hrs = $120. Re-caulk 2 separated joints between precast sections High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_11.662_L_1.jpg

Barrier ID:	**BAWA-0001-12.423-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	95
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	25.0	**Post Spacing (In.):**	0.0
Height (In.):	29.2	**Lateral Offset (In.):**	103.0	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 5 in above 27 in design height.
	Breaking and Cracking:	A concrete cap for the first 3 ft of barrier has been impacted and showing rebar.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-12.423-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3850
Brief Workorder:	Replace a 3-foot section of concrete cap.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(3ft)(0.33ft)(2.2ft)] /27 = 0.1 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350. Remove Concrete Barrier at $50- per -Lin. Ft. for 3 LF = $150. Remove a 3 foot broken concrete cap.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_12.423_R_1.jpg

Barrier ID:	**BAWA-0001-12.521-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	377
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.7	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	98.3	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is within 1 in of 27 in design height along entire length.
	Breaking and Cracking:	A 4 in x 12 inch section of concrete cap has broken off.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-12.521-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4235
Brief Workorder:	Replace one 10-foot section of concrete cap.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove a 10 foot section of broken concrete cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_12.521_R_1.jpg

Barrier ID:	**BAWA-0001-13.146-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	906
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	120.8	**Road Grade (%):**	1.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height ranges from 1 in below to 4 in above the 27 in design height.
	Breaking and Cracking:	Two 1 ft sections are severely cracked and broken.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	Minimal surface corrosion was observed. No spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-13.146-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.20

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3685
Brief Workorder:	Patch two 1-foot holes in concrete.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. Patch two 1 foot holes in the concrete. [(2ft)(2.2ft)(0.33ft)] /27 = 0.1 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_13.146_R_1.jpg

Barrier ID:	**BAWA-0001-13.827-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	59.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	447
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	29.0	**Lateral Offset (In.):**	119.0	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 3 in above 27 in design height.
	Breaking and Cracking:	A 4 ft section of top concrete cap is cracked and showing rebar.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-13.827-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	59.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3905
Brief Workorder:	Replace a 4-foot section of concrete cap.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(4ft)(0.33ft)(2ft)] /27 = 0.1 CY. Remove Concrete Barrier at $50- per -Lin. Ft. for 4 LF = $200. Remove a 4 foot section of broken concrete cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_13.827_R_1.jpg

Barrier ID:	**BAWA-0001-14.090-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	57.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	665
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	31.0	**Lateral Offset (In.):**	118.6	**Road Grade (%):**	2.40

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is 0 to 6 in above 27-in design height.
	Breaking and Cracking:	A 24x18 in section of barrier is missing due to impact.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-14.090-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	57.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$7205
Brief Workorder:	Replace 10 foot section of precast concrete barrier.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10-ft section of damaged concrete barrier. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 10 LF = $1350. Install 10-ft section of new barrier. High Speed Traffic Control at $2350- per -Day for 2 Day(s) = $4700. 1 day removal 1 day installation.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_14.090_R_1.jpg

Barrier ID:	**BAWA-0001-14.489-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	729
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	28.5	**Lateral Offset (In.):**	120.3	**Road Grade (%):**	0.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0 to 4 in above 27 in design height.
	Breaking and Cracking:	Some breaking and cracking of less than 1/4 in of the joints observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	Weathering of epoxy observed in joints. No spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-14.489-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_14.489_R_1.jpg

Barrier ID:	**BAWA-0001-14.724-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	499
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	29.2	**Lateral Offset (In.):**	111.3	**Road Grade (%):**	1.70

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 1 in below 27 in design height to 4 in over.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-14.724-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_14.724_R_1.jpg

Barrier ID:	**BAWA-0001-15.545-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	182
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.7	**Post Spacing (In.):**	0.0
Height (In.):	26.7	**Lateral Offset (In.):**	116.3	**Road Grade (%):**	3.90

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is within 1 in of 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-15.545-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_15.545_R_1.jpg

Barrier ID:	**BAWA-0001-15.715-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1167
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.5	**Post Spacing (In.):**	0.0
Height (In.):	30.2	**Lateral Offset (In.):**	118.8	**Road Grade (%):**	2.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height ranges from 1 in below to 4 in above 27 in design height.
	Breaking and Cracking:	Severe cracking and breaking of a total of 10 ft to the top caps.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	Some joints had weathering of epoxy. No spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-15.715-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4235
Brief Workorder:	Remove and replace 10 feet of broken concrete cap.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. Repair a total of 10 feet of top caps. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10 feet of broken concrete cap.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_15.715_R_1.jpg

Barrier ID:	**BAWA-0001-15.881-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.80

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	272
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	24.5	**Lateral Offset (In.):**	179.0	**Road Grade (%):**	1.00

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is between 3 and 6 in below 27-in design height along 100 ft.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No corrosion or weathering observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-15.881-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	65.80

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_15.881_L_1.jpg

Barrier ID:	**BAWA-0001-16.014-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	62.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	174
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	20.0	**Lateral Offset (In.):**	138.3	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is low by 7 in from the 27 in design for entire barrier.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-16.014-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	62.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$59114
Brief Workorder:	Remove and replace 174 feet of barrier to the 27 inch design height on 7 inches of structural backfill.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 174 LF = $8700. Structural Backfill at $50- per -Cu. Yd. for 8 CY = $400. [(174ft)(0.6ft)(2ft)] /27 = 7.7 CY. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 174 LF = $23490. Install 174 feet of concrete with simulated stone face barrier. High Speed Traffic Control at $2350- per -Day for 9 Day(s) = $21150. 2 days removal 7 days installation.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_16.014_L_1.jpg

Barrier ID:	**BAWA-0001-16.016-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	172
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	155.3	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is within 1 in of 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-16.016-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_16.016_R_1.jpg

Barrier ID:	**BAWA-0001-16.207-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	396
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	145.3	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height is 0 to 6 in above 27 in design height along entire length.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0001-16.207-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_16.207_R_1.jpg

Barrier ID:	**BAWA-0001-17.689-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	62.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1252
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	114.3	**Road Grade (%):**	0.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height ranges from 1 in below to 5 in above 27 in design height.
	Breaking and Cracking:	Breaking and cracking of 1/4 in or less in the joints observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	Some corrosion and weathering of the joints observed causing cracks less than 1/4 in width.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-17.689-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	62.40

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_17.689_R_1.jpg

Barrier ID:	**BAWA-0001-18.150-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	52.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	307
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	78.0	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection was observed. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	One 4-in piece of concrete cap is broken and rebar is exposed.
	Missing Elements:	No missing elements were observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-18.150-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	52.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4235
Brief Workorder:	Replace one 10 foot concrete cap.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10 feet of damaged concrete cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_18.150_L_1.jpg

Barrier ID:	**BAWA-0001-18.154-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	61.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	502
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	105.6	**Road Grade (%):**	0.70

Physical Condition

Barrier	**Alignment and Height:**	No alignment deflection observed. Height ranges from 0 in to 2 in above 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0001-18.154-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (NB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	61.40

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0001: BALTIMORE-WASHINGTON PARKWAY (NB)

Barrier Condition Photos

BAWA_0001_18.154_R_1.jpg

Barrier ID:	**BAWA-0002-0.136-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	53.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	602
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.3	**Post Spacing (In.):**	0.0
Height (In.):	30.5	**Lateral Offset (In.):**	130.6	**Road Grade (%):**	1.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in observed in the alignment. The barrier height was greater than the 27 in design height for the entire length by 2 to 4 in.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	Minor spalling less than 3 in deep was observed in 2 locations without exposing the rebar. No erosion observed. The epoxy was weathered in several locations at the real joints.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-0.136-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	53.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3036
Brief Workorder:	Patch epoxy and two spalls on barrier. Repair 1 SY. of surface treatment.				
Workorder:	Labor at $60- per -Hour for 6 Hrs = $360. Patch epoxy and spalls. Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. [(.25ft)(.25ft) + (.6ft)(.4ft)] /9 = 0.1 SY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_0.136_R_1.jpg

Barrier ID:	**BAWA-0002-0.443-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	289
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	28.5	**Lateral Offset (In.):**	61.0	**Road Grade (%):**	1.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier was 0-3in above the 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	1 cap had spalling about 2 in deep with no rebar showing. No erosion observed. No surface corrosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-0.443-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4235
Brief Workorder:	Remove concrete cap with spalling and replace.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove concrete cap with spalling. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2ft)] /27 = 0.3 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_0.443_L_1.jpg

Barrier ID:	**BAWA-0002-0.457-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	501
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	135.6	**Road Grade (%):**	0.50

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflections was less than 6 in. The entire barrier exceeded design height by 0- 3 in.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	Epoxy at real joints is weathered. No surface corrosion or spalling observed. No erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-0.457-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2783
Brief Workorder:	Repair real joints on barrier.				
Workorder:	Labor at $60- per -Hour for 3 Hrs = $180. Patch epoxy. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_0.457_R_1.jpg

Barrier ID:	**BAWA-0002-0.712-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	807
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	121.0	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections in alignment observed. Entire barrier meets or exceeds 27 in design height by 3 to 5 in.
	Breaking and Cracking:	No impact related cracking or breaking observed.
	Missing Elements:	There were no elements observed to be missing.
	Corrrosion and Weathering:	Approximately 4 square ft of surface spalling was observed. No erosion observed. The epoxy was weathered in several locations at real joints.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-0.712-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2640
Brief Workorder:	Repair 1 square yard of simulated stone masonry surface treatment.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. (4ft)(1ft) /9 = 0.4 SY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_0.712_R_1.jpg

Barrier ID:	**BAWA-0002-1.062-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	48.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	252
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	29.5	**Lateral Offset (In.):**	138.0	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	No deviations in alignment observed. Entire barrier meets or exceeds 27 in design height by 0- 4 in.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	There were no elements observed to be missing.
	Corrrosion and Weathering:	No surface corrosion or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-1.062-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	48.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_1.062_R_1.jpg

Barrier ID:	**BAWA-0002-1.327-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	754
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	29.3	**Lateral Offset (In.):**	131.3	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was 0-4in greater than the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	The epoxy was weathered in several locations at the real joints. No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-1.327-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/17/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2783
Brief Workorder:	Patch epoxy at real joints.				
Workorder:	Labor at $60- per -Hour for 3 Hrs = $180. Patch epoxy at real joints. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_1.327_R_1.jpg

Barrier ID:	**BAWA-0002-1.700-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	55.50

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	CORTEN
Blockout Type:	PLASTIC	**Length (ft.):**	1044
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TANGENT 350	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.3
Height (In.):	29.2	**Lateral Offset (In.):**	283.6	**Road Grade (%):**	1.60

Physical Condition

Barrier	**Alignment and Height:**	No deflecting observed in alignment. The barrier exceeds the 27 in design height by 0 to 3 in.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No loss of cross section or erosion around posts observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No loss of cross section or erosion around posts observed.

Barrier ID:	**BAWA-0002-1.700-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	55.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_1.700_L_1.jpg

Barrier ID:	**BAWA-0002-1.898-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	79
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	33.2	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	212.3	**Road Grade (%):**	1.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was equal to the 27 in design height for the entire length.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-1.898-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_1.898_L_1.jpg

Barrier ID:	**BAWA-0002-1.922-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/13/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	28
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	38.2	**Post Spacing (In.):**	0.0
Height (In.):	26.7	**Lateral Offset (In.):**	211.0	**Road Grade (%):**	0.90

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was within 1 in of the 27-in design height.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-1.922-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/13/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_1.922_L_1.jpg

Barrier ID:	**BAWA-0002-1.937-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	87
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	27.5	**Lateral Offset (In.):**	218.3	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 1 in.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	4 square ft of surface is disintegrating.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-1.937-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2640
Brief Workorder:	Repair 4 square feet of damaged simulated stone masonry surface.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. [(2ft)(2ft)] /9 = 0.5 SY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_1.937_L_1.jpg

Barrier ID:	**BAWA-0002-1.954-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	52.70

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	CORTEN
Blockout Type:	PLASTIC	**Length (ft.):**	496
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	W-BEAM TANGENT 350	**Ending End Trtmt Crashhworthy?:**	YES		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.6
Height (In.):	28.0	**Lateral Offset (In.):**	185.6	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	No deflecting observed in alignment. The barrier is at or above the 27 in design height by 0- 2 in.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No loss of cross section or erosion around posts observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No loss of cross section or erosion around posts observed.

Barrier ID:	**BAWA-0002-1.954-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	52.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_1.954_L_1.jpg

Barrier ID:	**BAWA-0002-2.598-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	171
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	196.6	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was equal to the design height of 27 in for the entire length.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-2.598-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_2.598_L_1.jpg

Barrier ID:	**BAWA-0002-2.603-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	172
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	144.3	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier exceeded the 27 in design height by 0- 2 in.
	Breaking and Cracking:	A 3 ft section had cracking exposing rebar.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	A 2 ft section was corroded through the entire wall. Epoxy at real joints was weathered.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-2.603-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$5698
Brief Workorder:	Remove and replace 2 feet of corroded wall. Repair 3 feet of damaged wall face. Patch weathered epoxy in the real joints.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 2 LF = $100. Remove 2ft of concrete barrier. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 2 LF = $270. Install 2ft of new concrete barrier. Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. Repair 1 sy of barrier surface. Labor at $60- per -Hour for 1 Hrs = $60. 1 hour to patch epoxy at real joints. High Speed Traffic Control at $2350- per -Day for 2 Day(s) = $4700. 1 day removal 1 day installation.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_2.603_R_1.jpg

Barrier ID:	**BAWA-0002-2.714-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	58.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	173
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	27.2	**Lateral Offset (In.):**	187.6	**Road Grade (%):**	1.10

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The height of the entire barrier equaled or exceeded the 27 in design height by 1 in.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-2.714-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	58.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_2.714_L_1.jpg

Barrier ID:	**BAWA-0002-2.716-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	175
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	109.3	**Road Grade (%):**	0.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 2 to 4 in.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion or spalling observed. No erosion observed. Epoxy is cracking in a few locations with cracks no greater than 1/8 in width.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-2.716-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_2.716_R_1.jpg

Barrier ID:	**BAWA-0002-3.385-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	833
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	23.8	**Post Spacing (In.):**	0.0
Height (In.):	29.2	**Lateral Offset (In.):**	96.1	**Road Grade (%):**	1.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 0 to 3 in.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	10 in by 12 inch facing is missing on the front face of surface.
	Corrrosion and Weathering:	No surface corrosion or spalling observed and no erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-3.385-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2640
Brief Workorder:	Repair 1 sq yd of surface treatment.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. 10" x 12" missing High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_3.385_R_1.jpg

Barrier ID:	**BAWA-0002-3.945-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1000
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	23.7	**Post Spacing (In.):**	0.0
Height (In.):	29.1	**Lateral Offset (In.):**	111.3	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in observed in the alignment. The barrier height was greater than the 27 in design height for the entire length by 2-3 in.
	Breaking and Cracking:	Two cap stones are cracked and have exposed rebar. There was also a 9 in by 5 inch break in the simulated stone face.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-3.945-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$5236
Brief Workorder:	Replace 2 cap stones. Repair 1 SY. of surface treatment. Patch epoxy at real joints.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [[(10ft)(0.33ft)(2ft)] /27] (2 caps) = 0.5 CY. Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. (.75ft)(.5ft) /9 = 0.1 SY. Labor at $60- per -Hour for 6 Hrs = $360. Patch epoxy at real joints and base. Remove Concrete Barrier at $50- per -Lin. Ft. for 20 LF = $1000. Remove 20 ft of concrete capstone. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_3.945_R_1.jpg

Barrier ID:	**BAWA-0002-4.432-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	55.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	609
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.5	**Post Spacing (In.):**	0.0
Height (In.):	29.0	**Lateral Offset (In.):**	115.9	**Road Grade (%):**	4.10

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier exceeded the 27 in design height by 0-3 in.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed. The epoxy at the real joints is weathered.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-4.432-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	55.20

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2849
Brief Workorder:	Patch epoxy at real joints.				
Workorder:	Labor at $60- per -Hour for 4 Hrs = $240. Patch epoxy at real joints. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_4.432_R_1.jpg

Barrier ID:	**BAWA-0002-4.710-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	688
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	108.5	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier meets or exceeds 27 in design height by 0-5 in.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	Spalling penetrating through the entire barrier was observed for 4 ft. 1 square ft of surface was disintegrated. No erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-4.710-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3454
Brief Workorder:	Repair 4 feet of barrier where spalling penetrates through barrier. Resurface 1 sy of simulated stone treatment.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. [(1ft)(1ft)] /9 = 0.1 SY. Remove Concrete Barrier at $50- per -Lin. Ft. for 4 LF = $200. Remove 4 ft of concrete barrier. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 4 LF = $540. Install 4 ft of concrete barrier with simulated stone face. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_4.710_R_1.jpg

Barrier ID:	**BAWA-0002-5.330-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1047
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	29.3	**Lateral Offset (In.):**	117.5	**Road Grade (%):**	2.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier meets or exceeds 27 in design height by 0-3 in.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	1 square yard of missing surface stone on front face.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-5.330-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2640
Brief Workorder:	Repair 1 square yard of surface treatment.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_5.330_R_1.jpg

Barrier ID:	**BAWA-0002-5.821-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	58.50

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	CORTEN
Blockout Type:	PLASTIC	**Length (ft.):**	1290
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TANGENT 350	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.3
Height (In.):	29.7	**Lateral Offset (In.):**	268.7	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier meets or exceeds 27 in design height by 0-4 in.
	Breaking and Cracking:	No twisting tearing bending, or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	There were 3 loose bolts. No erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting tearing bending, or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0002-5.821-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	58.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2651
Brief Workorder:	Tighten loose bolts.				
Workorder:	Labor at $60- per -Hour for 1 Hrs = $60. Tighten loose bolts. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_5.821_L_1.jpg

Barrier ID:	**BAWA-0002-6.065-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	52.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	374
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.5	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	180.8	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	No deflecting observed in alignment. The barrier is at the 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-6.065-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	52.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_6.065_L_1.jpg

Barrier ID:	**BAWA-0002-6.067-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	374
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.7	**Post Spacing (In.):**	0.0
Height (In.):	26.7	**Lateral Offset (In.):**	92.0	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in observed in the alignment. The barrier height was within 1 in of the 27 in design height for the entire length. 10 ft of wall exhibited vertical displacement of more than 6 in.
	Breaking and Cracking:	Minor cracks less than 1/4 in present in the beginning end. 4 separate breaks were observed in the simulated stone face.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed. The epoxy has been weathered at several locations.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-6.067-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$7524
Brief Workorder:	Patch epoxy at real joints. Remove and replace 10 feet of barrier. Repair surface treatment at 4 breaks.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove and replace 10 feet of barrier. Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 10 LF = $1350. Install 10 feet of concrete with simulated stone face barrier. Labor at $60- per -Hour for 4 Hrs = $240. Reapply epoxy at several real joints. High Speed Traffic Control at $2350- per -Day for 2 Day(s) = $4700.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_6.067_R_1.jpg

Barrier ID:	**BAWA-0002-6.214-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	117
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.2	**Post Spacing (In.):**	0.0
Height (In.):	27.7	**Lateral Offset (In.):**	166.6	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was 0-2in greater than the 27 in design height for the entire length.
	Breaking and Cracking:	There were 2 breaks in the simulated stone face. There was 1 break in a cap stone.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-6.214-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4290
Brief Workorder:	2 areas of surface treatment need repair and 1 cap stone needs patched.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. Repair 2 breaks in the simulated stone face. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. Repair 1 break in a cap stone. (10ft)(0.33ft)(2.3ft)] /27 = 0.3 CY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10 foot concrete cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_6.214_L_1.jpg

Barrier ID:	**BAWA-0002-6.218-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	94
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.7	**Post Spacing (In.):**	0.0
Height (In.):	28.2	**Lateral Offset (In.):**	110.3	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier exceeded design height by 0- 2 in.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	The epoxy at the real joints was weathered. No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-6.218-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2651
Brief Workorder:	Repair weathered epoxy in real joints.				
Workorder:	Labor at $60- per -Hour for 1 Hrs = $60. Patch epoxy at real joints. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_6.218_R_1.jpg

Barrier ID:	**BAWA-0002-6.236-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	52.70

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	CORTEN
Blockout Type:	PLASTIC	**Length (ft.):**	649
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	W-BEAM TANGENT 350	**Ending End Trtmt Crashhworthy?:**	YES		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.5
Height (In.):	27.6	**Lateral Offset (In.):**	105.4	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was within 1 in of the 27 in design height.
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No cross section loss or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No cross section loss observed.

Barrier ID:	**BAWA-0002-6.236-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	52.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_6.236_L_1.jpg

Barrier ID:	**BAWA-0002-6.928-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	212
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	28.7	**Lateral Offset (In.):**	79.3	**Road Grade (%):**	2.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier meets or exceeds 27 in design height by 0-4 in.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion surface corrosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-6.928-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_6.928_L_1.jpg

Barrier ID:	**BAWA-0002-6.931-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	171
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	31.2	**Lateral Offset (In.):**	119.0	**Road Grade (%):**	2.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections in alignment observed. Entire barrier exceeds 27 in design height by 4 to 5 in.
	Breaking and Cracking:	No breaks or cracks observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion or spalling observed. No erosion observed. Cracking in epoxy observed with cracks no greater than 1/8 in width observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-6.931-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_6.931_R_1.jpg

Barrier ID:	**BAWA-0002-7.015-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	405
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	32.0	**Lateral Offset (In.):**	99.0	**Road Grade (%):**	2.90

Physical Condition

Barrier	**Alignment and Height:**	No deflection in alignment observed. Entire barrier exceeds the 27 in design height by 4 to 5 in.
	Breaking and Cracking:	No breaks or cracks observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion or spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-7.015-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_7.015_R_1.jpg

Barrier ID:	**BAWA-0002-7.024-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	53.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	427
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	39.7	**Road Grade (%):**	2.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections in alignment. Entire barrier exceeds the 27 in design height by 3 to 4 in.
	Breaking and Cracking:	One joint section has a crack up to 3 in due to earth settling. 3 joint sections have epoxy cracked up to 1/2 in wide.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion surface corrosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-7.024-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	53.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$7403
Brief Workorder:	Remove and replace 10 feet of barrier and add epoxy to 3 joint sections.				
Workorder:	Labor at $60- per -Hour for 3 Hrs = $180. Patch epoxy at real joints. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10ft cracked section of barrier. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 10 LF = $1350. High Speed Traffic Control at $2350- per -Day for 2 Day(s) = $4700. 1 day removal 1 day installation.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_7.024_L_1.jpg

Barrier ID:	**BAWA-0002-7.170-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	150
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	28.2	**Lateral Offset (In.):**	49.0	**Road Grade (%):**	3.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was greater than the 27 in design height for the entire length by 3 to 5 in.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-7.170-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_7.170_R_1.jpg

Barrier ID:	**BAWA-0002-7.179-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	102
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	108.0	**Road Grade (%):**	2.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was 0-3 in above the 27 in design height throughout.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	Epoxy was missing in 1 real joint. No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-7.179-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2783
Brief Workorder:	Patch epoxy at 1 real joint.				
Workorder:	Labor at $60- per -Hour for 3 Hrs = $180. Apply epoxy to 1 real joint. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_7.179_L_1.jpg

Barrier ID:	**BAWA-0002-8.327-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	55.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	303
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.5	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	147.8	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier exceeded the 27 in design height by 1 to 5 in.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	30 feet of the barrier was missing a cap.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-8.327-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	55.40

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3685
Brief Workorder:	Replace 30 feet of missing concrete cap.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(30ft)(0.33ft)(2.2ft)] /27 = 0.7 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_8.327_R_1.jpg

Barrier ID:	**BAWA-0002-8.580-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	52.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	484
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	YES		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	0.0
Height (In.):	30.2	**Lateral Offset (In.):**	129.0	**Road Grade (%):**	0.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier was 0-5in above the 27 in design height.
	Breaking and Cracking:	1 cap is broken for about a 6 in diameter by 2 inch depth showing rebar.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	1 cap about 4 ft in length was loose due to cracking in the epoxy at the real joint. No erosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-8.580-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	52.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4367
Brief Workorder:	Reset 1 loose cap and re-epoxy joint. Remove and replace broken cap.				
Workorder:	Labor at $60- per -Hour for 2 Hrs = $120. Two workder to reset 1 cap (4 feet) and re-epoxy joint. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove broken concrete cap. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_8.580_R_1.jpg

Barrier ID:	**BAWA-0002-8.589-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	62.90

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	CORTEN
Blockout Type:	PLASTIC	**Length (ft.):**	7014
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TANGENT 350	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	W-BEAM TANGENT 350	**Ending End Trtmt Crashhworthy?:**	YES		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	29.8	**Lateral Offset (In.):**	350.7	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was 1 in below or up to 5 in above the 27 in design height.
	Breaking and Cracking:	6 posts 14 blockouts and 125 ft of rail have been impacted and are bent.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface loss or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting/bending tearing or cracking in the metal observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface loss observed.

Barrier ID:	**BAWA-0002-8.589-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	62.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$7145
Brief Workorder:	Replace 6 posts 14 blocks and 125ft. of rail.				
Workorder:	Replace Post at $100- per -Each for 6 Post(s) = $600. Replace 6 bent posts. Replace Block at $30- per -Each for 14 Block(s) = $420. Replace 14 bent blocks. Replace Rail at $25- per -Lin. Ft. for 125 LF = $3125. Replace 125ft. of rail. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_8.589_L_1.jpg

Barrier ID:	**BAWA-0002-8.836-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	201
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	30.2	**Lateral Offset (In.):**	126.0	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections in alignment observed. Entire barrier exceeds the 27 in design height by 0-5 in.
	Breaking and Cracking:	No breaks or cracks observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion or spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-8.836-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_8.836_R_1.jpg

Barrier ID:	**BAWA-0002-8.895-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	240
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	31.2	**Lateral Offset (In.):**	107.1	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in observed in the alignment. The barrier height was greater than the 27 in design height for the entire length by 1 to 7 in.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-8.895-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_8.895_R_1.jpg

Barrier ID:	**BAWA-0002-9.669-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	62.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1020
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	31.8	**Lateral Offset (In.):**	120.5	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier exceeded the 27 in design height by 4-5 in.
	Breaking and Cracking:	A 2 ft section of the barrier surface is crumbling.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	A 5 ft section of the cap was starting to expose rebar.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-9.669-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	62.40

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4290
Brief Workorder:	Repair a small 2 foot section of damaged barrier face. Replace 1 concrete cap.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. [(1.5ft)(0.8ft)] /9 = 0.1 SY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10-foot concrete cap. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. Repour cap. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_9.669_R_1.jpg

Barrier ID:	**BAWA-0002-9.874-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	910
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.3	**Post Spacing (In.):**	0.0
Height (In.):	32.2	**Lateral Offset (In.):**	102.8	**Road Grade (%):**	1.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections in alignment observed. Entire barrier exceeds 27 in design height by 5 to 6 in.
	Breaking and Cracking:	No breaks or cracks were observed.
	Missing Elements:	1 cap stone was observed to be missing (lying behind the barrier).
	Corrrosion and Weathering:	No erosion observed. No surface corrosion or spalling observed. Epoxy had cracking due to weathering no greater than 1/8 in width.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-9.874-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2717
Brief Workorder:	Reset 1 cap stone.				
Workorder:	Labor at $60- per -Hour for 2 Hrs = $120. Two workers to reset 1 cap stone (laying behind barrier). High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_9.874_R_1.jpg

Barrier ID:	**BAWA-0002-10.358-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	809
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	31.0	**Lateral Offset (In.):**	113.5	**Road Grade (%):**	0.90

Physical Condition

Barrier	**Alignment and Height:**	No deflection in alignment observed. Entire barrier exceeds 27 in design height by 0-5 in.
	Breaking and Cracking:	No breaks or cracks were observed.
	Missing Elements:	1 cap stone was observed to be missing. 1 cap stone was observed to be shifted 5 ines from original location.
	Corrrosion and Weathering:	No erosion observed. No surface corrosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-10.358-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/18/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3817
Brief Workorder:	Replace 1 cap stone and reset 1 cap stone.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. Labor at $60- per -Hour for 2 Hrs = $120. Two workers to reset displaced cap stone. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_10.358_R_1.jpg

Barrier ID:	**BAWA-0002-10.733-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	818
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.7	**Post Spacing (In.):**	0.0
Height (In.):	29.8	**Lateral Offset (In.):**	85.0	**Road Grade (%):**	1.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was 0-6in above the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-10.733-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_10.733_R_1.jpg

Barrier ID:	**BAWA-0002-10.790-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	59.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	554
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	31.0	**Lateral Offset (In.):**	74.3	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 1 to 6 in.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion surface corrosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-10.790-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	59.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_10.790_L_1.jpg

Barrier ID:	**BAWA-0002-10.977-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	362
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	32.5	**Lateral Offset (In.):**	95.5	**Road Grade (%):**	1.10

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier exceeded design height by 5 to 6 in.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-10.977-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_10.977_R_1.jpg

Barrier ID:	**BAWA-0002-10.987-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	59.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	405
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	29.7	**Lateral Offset (In.):**	79.1	**Road Grade (%):**	1.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier was 0-6in above the 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion surface corrosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-10.987-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	59.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_10.987_L_1.jpg

Barrier ID:	**BAWA-0002-11.564-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	58.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	202
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	30.7	**Post Spacing (In.):**	0.0
Height (In.):	26.7	**Lateral Offset (In.):**	340.0	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was within 1 in of the 27 in design height for the entire length.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-11.564-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/20/2010	**Barrier Rating:**	58.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_11.564_L_1.jpg

Barrier ID:	**BAWA-0002-11.719-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	65.80

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	CORTEN
Blockout Type:	PLASTIC	**Length (ft.):**	421
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TANGENT 350	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.6
Height (In.):	27.2	**Lateral Offset (In.):**	148.1	**Road Grade (%):**	1.10

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was within 1 in of the 27-in design height.
	Breaking and Cracking:	50 ft of rail 13 posts and 33 blockouts have been impacted and are breaking/cracking.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface loss or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface loss observed.

Barrier ID:	**BAWA-0002-11.719-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	65.80

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$9064
Brief Workorder:	Replace 50ft of rail 13 posts and 33 blockouts.				
Workorder:	Replace Post at $100- per -Each for 13 Post(s) = $1300. Replace 13 bent posts Replace Block at $30- per -Each for 33 Block(s) = $990. Replace 33 bent blockouts Replace Rail at $25- per -Lin. Ft. for 50 LF = $1250. Replace 4 bent rails (4 x 12.5 ft) High Speed Traffic Control at $2350- per -Day for 2 Day(s) = $4700.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_11.719_L_1.jpg

Barrier ID:	**BAWA-0002-11.799-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	60.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1660
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	EXTREME		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	23.8	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	120.8	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier is within 1 in of the 27 in design height.
	Breaking and Cracking:	1 cap had cracking about 6 in by 4 in not showing rebar. 1 cap had cracking about 10 in in diameter by 1 in deep showing rebar.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	2 square ft of surface is disintegrated. 1 area of spalling about 1 in deep with no rebar showing. 1 cap had exposed. No erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-11.799-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	60.20

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4840
Brief Workorder:	Repair 2 square feet of simulated stone masonry surface. Replace two caps.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. [(2ft)(1ft)] /9 = 0.2 SY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350. Remove Concrete Barrier at $50- per -Lin. Ft. for 20 LF = $1000. Remove two 10-foot caps. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. Repour two 10-foot caps. [(10ft)(0.33ft)(2ft)] /27 * (2 caps) = 0.6 CY.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_11.799_L_1.jpg

Barrier ID:	**BAWA-0002-12.104-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	124
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	25.0	**Post Spacing (In.):**	0.0
Height (In.):	27.2	**Lateral Offset (In.):**	139.6	**Road Grade (%):**	2.00

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier meets or exceeds 27 in design height by 1 in.
	Breaking and Cracking:	No breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion observed. No surface corrosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-12.104-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.104_R_1.jpg

Barrier ID:	**BAWA-0002-12.140-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	73.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	997
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	EXTREME		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	26.7	**Lateral Offset (In.):**	114.5	**Road Grade (%):**	1.00

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier is at or 1 in below the 27 in design height.
	Breaking and Cracking:	4 square ft of stone surface is broken off. 0.5 cubic ft of stone cap is cracked and broken off.
	Missing Elements:	0.5 cubic feet of stone cap is broken off at bridge column.
	Corrrosion and Weathering:	No surface loss or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-12.140-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	73.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4290
Brief Workorder:	Replace 1 capstone and repair 1 SY of stone surface treatment.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. Repair broken cap stone. [(10ft)(0.33ft)(2ft)] /27 = 0.3 CY. Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. (2ft)(2ft) /9 = 0.4 SY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove broken concrete cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.140_L_1.jpg

Barrier ID:	**BAWA-0002-12.152-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	54.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	85
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.7	**Post Spacing (In.):**	0.0
Height (In.):	26.7	**Lateral Offset (In.):**	158.6	**Road Grade (%):**	1.80

Physical Condition

Barrier	**Alignment and Height:**	No deflection in alignment observed. Entire barrier is within 1 in of the 27 in design height.
	Breaking and Cracking:	No breaks or cracks were observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No erosion observed. No surface corrosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-12.152-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	54.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.152_R_1.jpg

Barrier ID:	**BAWA-0002-12.237-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	160
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	23.7	**Post Spacing (In.):**	0.0
Height (In.):	26.2	**Lateral Offset (In.):**	200.0	**Road Grade (%):**	0.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was within 1 in of the 27 in design height for the entire length.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-12.237-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.237_R_1.jpg

Barrier ID:	**BAWA-0002-12.437-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	161
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	28.2	**Lateral Offset (In.):**	94.0	**Road Grade (%):**	1.50

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was 0-4in above the 27 in design height.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	Cracking of less than 3 in on cap observed. No rebar was exposed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-12.437-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.437_R_1.jpg

Barrier ID:	**BAWA-0002-12.438-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	104
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	23.5	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	201.3	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was equal to the 27 in design height for the entire length.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-12.438-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.438_L_1.jpg

Barrier ID:	**BAWA-0002-12.511-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	28
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	W-BEAM BCT	**Ending End Trtmt Crashhworthy?:**	NO		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	69.6
Height (In.):	27.7	**Lateral Offset (In.):**	128.8	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was either 1 in below or exceeded design height by up to 2 in.
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No cross section loss or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No cross section loss or erosion observed.

Barrier ID:	**BAWA-0002-12.511-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.511_R_1.jpg

Barrier ID:	**BAWA-0002-12.537-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	53.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	609
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	28.3	**Lateral Offset (In.):**	68.9	**Road Grade (%):**	1.30

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was 0-3 in above the 27 in design height.
	Breaking and Cracking:	A 6 in area of the cap was cracked. 5 sq ft of the face was spalling and showing rebar.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-12.537-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	53.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4290
Brief Workorder:	Repair 5 sf of damaged wall face and replace one concrete cap.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. (2.5ft)(2ft) /9 = 0.6 SY. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2ft)] /27 = 0.3 CY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10 ft of barrier cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.537_L_1.jpg

Barrier ID:	**BAWA-0002-12.838-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	64.10

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	842
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	30.3	**Lateral Offset (In.):**	120.8	**Road Grade (%):**	2.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier is 1 in or less below or exceeds 27 in design height by 4 to 5 in.
	Breaking and Cracking:	Four cracks observed in caps: 22in long and 4in wide crack showing rebar; 14in long and 5in wide showing rebar; 28in long and 6in wide not showing rebar; and 6in diameter crack not showing rebar.
	Missing Elements:	There were no elements observed to be missing.
	Corrrosion and Weathering:	1 area of spalling without rebar showing about 12 in by 12 in was observed. No erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-12.838-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	64.10

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4785
Brief Workorder:	Replace two 10-foot concrete caps.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 20 LF = $1000. Remove 20ft of concrete cap with exposed rebar. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [[(10ft)(0.33ft)(2.2ft)] /27] (2caps) = 0.5 CY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.838_R_1.jpg

Barrier ID:	**BAWA-0002-12.858-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	58.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	608
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	28.3	**Lateral Offset (In.):**	61.0	**Road Grade (%):**	2.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier meets or exceeds 27 in design height by 1 to 4 in.
	Breaking and Cracking:	1 section (10 ft) of barrier and cap is spalling and flaking beyond repair on the back side.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	3 caps have cracking 4 in deep showing rebar that. 2 real joints had epoxy that was completely disintegrated. 6 square ft of surface was disintegrated.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-12.858-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	58.20

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$12727
Brief Workorder:	Replace 10ft of barrier and 3 caps. Repair 6 square feet of simulated stone masonry surface. Re-epoxy 2 real joints.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 40 LF = $2000. 30ft cap + 10ft barrier w/ cap. Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. (3ft)(2ft) /9 = 0.7 SY. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 10 LF = $1350. Install 10ft of barrier w/ cap. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. Install 3 caps. [[(10ft)(0.33ft)(2ft)] /27] (3 caps) = 0.7 CY. Labor at $60- per -Hour for 2 Hrs = $120. Re-epoxy 2 real joints. High Speed Traffic Control at $2350- per -Day for 3 Day(s) = $7050.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_12.858_L_1.jpg

Barrier ID:	**BAWA-0002-13.079-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	64.10

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1311
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	23.8	**Post Spacing (In.):**	0.0
Height (In.):	30.1	**Lateral Offset (In.):**	113.4	**Road Grade (%):**	1.00

Physical Condition

Barrier	**Alignment and Height:**	No deflection in alignment observed. Entire barrier meets or exceeds the 27 in design height by 2 to 4 in.
	Breaking and Cracking:	0.75 square ft of surface of stone face is missing.
	Missing Elements:	0.2 cubic feet of concrete either on cap stone or behind stone surface is missing.
	Corrrosion and Weathering:	No erosion observed. No surface corrosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-13.079-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	64.10

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4290
Brief Workorder:	Repair 1 square yard of surface treatment. Replace 1 cap stone.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2ft)] /27 = 0.2 CY. Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. [(1ft)(1ft)] /9 = 0.1 SY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10ft of cap. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_13.079_R_1.jpg

Barrier ID:	**BAWA-0002-13.171-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	56.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	755
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.6	**Post Spacing (In.):**	0.0
Height (In.):	29.6	**Lateral Offset (In.):**	57.4	**Road Grade (%):**	1.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds the 27 in design height by 0-4in.
	Breaking and Cracking:	4 joint areas have epoxy cracking up to 2 in.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface loss or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-13.171-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	56.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2849
Brief Workorder:	4 joint areas need epoxy repair due to cracking.				
Workorder:	Labor at $60- per -Hour for 4 Hrs = $240. 4 joint areas need epoxy repair due to cracking High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_13.171_L_1.jpg

Barrier ID:	**BAWA-0002-13.678-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1787
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	23.7	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	113.1	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was greater than the 27 in design height for the entire length by 1 to 5 in.
	Breaking and Cracking:	There were 15 breaks in the simulated stone face. There was also a break in the structural concrete. A piece of the cap stone has shifted.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed. Epoxy is weathering along the front base of the wall at the beginning end for 100 ft.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-13.678-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$7953
Brief Workorder:	Repair surface treatment in 15 locations (4 SY total). Remove and replace 10ft of barrier. Reset 1 cap stone. Patch epoxy at base of wall at beginning end.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 4 SY = $200. Repair 15 breaks in the simulated stone face. Treatment surface areas were: 2SF 2SF 1.5SF 1.3SF 3SF 3SF 2SF 3SF 2SF 3SF 3SF .5SF 2SF 1SF 3SF. 32SF / 9 = 3.6 SY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10ft of barrier with break in structural concrete. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 10 LF = $1350. Replace 10ft section of barrier. Labor at $60- per -Hour for 8 Hrs = $480. Reset cap stone and apply epoxy to base of wall at the beginning end. High Speed Traffic Control at $2350- per -Day for 2 Day(s) = $4700.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_13.678_R_1.jpg

Barrier ID:	**BAWA-0002-13.943-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	52.70

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	CORTEN
Blockout Type:	PLASTIC	**Length (ft.):**	177
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TANGENT 350	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.3
Height (In.):	29.7	**Lateral Offset (In.):**	203.6	**Road Grade (%):**	1.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was 0-5in greater than the 27 in design height for the entire length.
	Breaking and Cracking:	No twisting/bending tears or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No loss of the cross section or erosion was observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting/bending tears or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No loss of cross section or erosion was observed.

Barrier ID:	**BAWA-0002-13.943-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	52.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_13.943_L_1.jpg

Barrier ID:	**BAWA-0002-13.977-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	133
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	25.2	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	208.6	**Road Grade (%):**	2.10

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was at the 27-in design height .
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-13.977-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_13.977_L_1.jpg

Barrier ID:	**BAWA-0002-14.016-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	133
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	27.5	**Lateral Offset (In.):**	203.0	**Road Grade (%):**	2.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 1 in.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion surface corrosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-14.016-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_14.016_L_1.jpg

Barrier ID:	**BAWA-0002-14.024-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	102
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.0	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	176.0	**Road Grade (%):**	2.80

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was at the 27 in design height .
	Breaking and Cracking:	No impact related breaking/cracking was observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	A small 6 in section of the cap face was weathered to expose rebar.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-14.024-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_14.024_R_1.jpg

Barrier ID:	**BAWA-0002-14.041-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	49.90

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	CORTEN
Blockout Type:	PLASTIC	**Length (ft.):**	174
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	W-BEAM TANGENT 350	**Ending End Trtmt Crashhworthy?:**	YES		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.3
Height (In.):	28.5	**Lateral Offset (In.):**	204.8	**Road Grade (%):**	2.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 0-3 in.
	Breaking and Cracking:	No twisting or tearing observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion or loss of cross section observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting or tearing observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion or loss of cross section observed.

Barrier ID:	**BAWA-0002-14.041-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	49.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_14.041_L_1.jpg

Barrier ID:	**BAWA-0002-14.304-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	56.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	997
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	24.2	**Post Spacing (In.):**	0.0
Height (In.):	30.2	**Lateral Offset (In.):**	107.3	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 1 to 4 in.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	4 square ft of surface is damaged. No erosion observed. No spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-14.304-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	56.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2640
Brief Workorder:	Repair 1 square yard of simulated stone masonry surface.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. (2ft)(2ft) /9 = 0.4 SY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_14.304_R_1.jpg

Barrier ID:	**BAWA-0002-14.786-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	CORTEN
Blockout Type:	PLASTIC	**Length (ft.):**	90
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	W-BEAM TRAILING END	**Ending End Trtmt Crashhworthy?:**	YES		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.8
Height (In.):	29.2	**Lateral Offset (In.):**	224.6	**Road Grade (%):**	1.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was 0-3in above the 27 in design height for the entire length.
	Breaking and Cracking:	No twisting/bending tears or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No loss of cross section or erosion was observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting/bending tears or cracking was observed.
	Missing Elements:	No elements were observed to be missing but several bolts were loose on the beginning end treatment.
	Corrrosion and Weathering:	No loss of cross section or erosion was observed.

Barrier ID:	**BAWA-0002-14.786-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2717
Brief Workorder:	Tighten bolts on end treatment.				
Workorder:	Labor at $60- per -Hour for 2 Hrs = $120. Tighten loose bolts on beginning end treatment. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_14.786_L_1.jpg

Barrier ID:	**BAWA-0002-14.803-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	53.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	293
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	28.5	**Lateral Offset (In.):**	87.3	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier exceeded design height by 0- 2 in.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-14.803-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	53.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_14.803_L_1.jpg

Barrier ID:	**BAWA-0002-14.805-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	59.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	291
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	29.7	**Lateral Offset (In.):**	120.0	**Road Grade (%):**	0.50

Physical Condition

Barrier	**Alignment and Height:**	No deflecting observed in alignment. The barrier is 0-4in above the 27 in design height for the entire length.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion observed and no spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-14.805-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	59.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_14.805_R_1.jpg

Barrier ID:	**BAWA-0002-14.887-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	161
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	45.2	**Road Grade (%):**	0.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 2 to 5 in.
	Breaking and Cracking:	Epoxy was cracked entirely on 4 real joints.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	1 cap was heaved causing longitudinal cracking throughout.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-14.887-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$4499
Brief Workorder:	Re-epoxy 4 real joints. Replace 1 cap.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 1 cap. Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. Labor at $60- per -Hour for 4 Hrs = $240. Re-epoxy 4 real joints. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_14.887_L_1.jpg

Barrier ID:	**BAWA-0002-14.887-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	162
Speed Limit (MPH):	55	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	97.8	**Road Grade (%):**	1.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was 0-5in above the 27 in design height for the entire length.
	Breaking and Cracking:	No impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-14.887-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_14.887_R_1.jpg

Barrier ID:	**BAWA-0002-15.107-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	649
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	30.6	**Lateral Offset (In.):**	132.3	**Road Grade (%):**	2.10

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier exceeded design height by 3 to 4 in.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-15.107-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_15.107_R_1.jpg

Barrier ID:	**BAWA-0002-15.329-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	61.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	728
Speed Limit (MPH):	55	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	29.0	**Lateral Offset (In.):**	116.8	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier was 0-3in above the 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion observed. 3 SF had spalling 2 in deep not showing rebar.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-15.329-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	61.40

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2640
Brief Workorder:	Repair 3sf of simulated stone masonry surface treatment.				
Workorder:	Simulated Stone Masonry Surface Treatment at $50- per -Sq. Yd. for 1 SY = $50. [(2ft)(1.5ft)] /9 = 0.3 SY. High Speed Traffic Control at $2350- per -Day for 1 Day(s) = $2350.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_15.329_R_1.jpg

Barrier ID:	**BAWA-0002-15.342-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	53.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	530
Speed Limit (MPH):	55	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-3	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	26.7	**Lateral Offset (In.):**	74.5	**Road Grade (%):**	0.00

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in the alignment. The height is within 1 in of the 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion surface corrosion or spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-15.342-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	53.90

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_15.342_L_1.jpg

Barrier ID:	**BAWA-0002-16.271-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	370
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	102.1	**Road Grade (%):**	0.70

Physical Condition

Barrier	**Alignment and Height:**	No deflecting observed in alignment. The barrier is 2 to 5 in above the 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion observed and no spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-16.271-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_16.271_R_1.jpg

Barrier ID:	**BAWA-0002-16.533-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	156
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	26.2	**Lateral Offset (In.):**	154.3	**Road Grade (%):**	1.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was within 1 in of the 27 in design height for the entire length.
	Breaking and Cracking:	No impact related breaking or cracking was observed. 2 cap stones had minor cracks of less than 1/4 in.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-16.533-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	45.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_16.533_R_1.jpg

Barrier ID:	**BAWA-0002-16.775-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	205
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	28.7	**Lateral Offset (In.):**	183.1	**Road Grade (%):**	0.50

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier was 0-4in above the 27-in design height.
	Breaking and Cracking:	No impact related breaking/cracking observed.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-16.775-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	48.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_16.775_R_1.jpg

Barrier ID:	**BAWA-0002-16.854-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	55.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	643
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.5	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	100.5	**Road Grade (%):**	1.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 3 to 4 in.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion observed. No spalling observed. 1 area on cap about 1 ft long by 2 ft wide was chipping showing rebar.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-16.854-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	55.70

Repair Recommendations

Repair Action:	MONITOR	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	Monitor chipping in 1 cap.				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_16.854_R_1.jpg

Barrier ID:	**BAWA-0002-17.098-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	325
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.5	**Post Spacing (In.):**	0.0
Height (In.):	28.7	**Lateral Offset (In.):**	171.8	**Road Grade (%):**	1.70

Physical Condition

Barrier	**Alignment and Height:**	No deflecting observed in alignment. The barrier exceeds the 27 in design height by 0-4 in.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No erosion observed and no spalling observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-17.098-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	51.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_17.098_R_1.jpg

Barrier ID:	**BAWA-0002-17.499-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	853
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.7	**Post Spacing (In.):**	0.0
Height (In.):	31.1	**Lateral Offset (In.):**	115.1	**Road Grade (%):**	1.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was 0-5in above the 27 in design height.
	Breaking and Cracking:	The were 2 cap stones with broken pieces less than 3 in deep with no exposure of the rebar. No other impact related breaking or cracking was observed.
	Missing Elements:	No elements were observed to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion was observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-17.499-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3823
Brief Workorder:	Remove and replace two broken cap stones.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)]/27 * (2 caps) = 0.5 CY Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475. Remove Concrete Barrier at $50- per -Lin. Ft. for 20 LF = $1000. Remove 2 10-foot concrete caps.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_17.499_R_1.jpg

Barrier ID:	**BAWA-0002-17.885-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	56.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	250
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.2	**Post Spacing (In.):**	0.0
Height (In.):	27.2	**Lateral Offset (In.):**	85.8	**Road Grade (%):**	3.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections greater than 6 in were observed in the alignment. The barrier height was within 1 in of the 27 in design height for the entire length.
	Breaking and Cracking:	4 cap stones were knocked off and broken. No other impact related breaking or cracking was observed.
	Missing Elements:	A 10 ft section of wall was missing at the ending end of the barrier.
	Corrrosion and Weathering:	No surface corrosion or erosion was observed. Minor spalling less than 3 in was present on 1 cap stone.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0002-17.885-L**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/21/2010	**Barrier Rating:**	56.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$6930
Brief Workorder:	Replace 40 feet of missing cap stone. Replace 10 feet of missing wall on ending end.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 2 CY = $2000. [[(10ft)(0.33ft)(2.2ft)] /27] (4 caps) = 1.1 CY. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 10 LF = $1350. Install a 10 foot section of barrier on the ending end that is missing. Low Speed Traffic Control at $1475- per -Day for 2 Day(s) = $2950.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_17.885_L_1.jpg

Barrier ID:	**BAWA-0002-18.564-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.90

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	315
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.5	**Post Spacing (In.):**	0.0
Height (In.):	29.7	**Lateral Offset (In.):**	124.6	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	Alignment deflection was less than 6 in. The entire barrier exceeded design height by 0-3 in.
	Breaking and Cracking:	A 10 ft section of cap was crumbling and exposed rebar. A 3 in by 8 inch area was crumbling.
	Missing Elements:	No elements appeared to be missing.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0002-18.564-R**		
Route Name:	BALTIMORE-WASHINGTON PARKWAY (SB)		
Inspection Date:	10/19/2010	**Barrier Rating:**	53.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3273
Brief Workorder:	Replace a 10 foot cap.				
Workorder:	Structural Concrete at $1000- per -Cu. Yd. for 1 CY = $1000. [(10ft)(0.33ft)(2.2ft)] /27 = 0.3 CY. Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10 ft of cap. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0002: BALTIMORE-WASHINGTON PARKWAY (SB)

Barrier Condition Photos

BAWA_0002_18.564_R_1.jpg

Barrier ID:	**BAWA-0003-0.265-R**		
Route Name:	SPRINGFIELD ROAD WEST		
Inspection Date:	10/21/2010	**Barrier Rating:**	19.20

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	203
Speed Limit (MPH):	30	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	26.2	**Lateral Offset (In.):**	21.0	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0003-0.265-R**		
Route Name:	SPRINGFIELD ROAD WEST		
Inspection Date:	10/21/2010	**Barrier Rating:**	19.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0003: SPRINGFIELD ROAD WEST

Barrier Condition Photos

BAWA_0003_0.265_R_1.jpg

Barrier ID:	**BAWA-0003-0.276-L**		
Route Name:	SPRINGFIELD ROAD WEST		
Inspection Date:	10/21/2010	**Barrier Rating:**	19.20

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	204
Speed Limit (MPH):	30	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	W-BEAM BCT	**Ending End Trtmt Crashhworthy?:**	NO		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.6
Height (In.):	26.7	**Lateral Offset (In.):**	20.2	**Road Grade (%):**	0.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is within 1 in of design height of 27 in for entire length.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0003-0.276-L**		
Route Name:	SPRINGFIELD ROAD WEST		
Inspection Date:	10/21/2010	**Barrier Rating:**	19.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0003: SPRINGFIELD ROAD WEST

Barrier Condition Photos

BAWA_0003_0.276_L_1.jpg

Barrier ID:	**BAWA-0500ZZ-0.008-R**		
Route Name:	U.S. ROUTE 50, MD ROUTE 201 INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	59.40

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	495
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	29.0	**Lateral Offset (In.):**	98.6	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is at or above the design height of 27 in by 2 in.
	Breaking and Cracking:	8 L.F. of cap rock separated from wall approximately 2 in (at 202 ft from approach end).
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion or spalling observed. No erosion or undermining of base observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0500ZZ-0.008-R**		
Route Name:	U.S. ROUTE 50, MD ROUTE 201 INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	59.40

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$1755
Brief Workorder:	Reset 8 L.F. of cap.				
Workorder:	Labor at $60- per -Hour for 2 Hrs = $120. Two workers to reset 1 cap. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0500ZZ: U.S. ROUTE 50, MD ROUTE 201 INTERCHANGE RAMPS

Barrier Condition Photos

Condition photos are not available for BAWA-0500ZZ-0.008-R.

Barrier ID:	**BAWA-0500ZZ-0.044-R**		
Route Name:	U.S. ROUTE 50, MD ROUTE 201 INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	60.90

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	158
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	30.0	**Lateral Offset (In.):**	159.6	**Road Grade (%):**	1.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections in alignment except for impact area of 36 ft which pushed alignment off by more than 12 in. Height exceeds 27 in design height by up to 4 in.
	Breaking and Cracking:	36 ft of barrier was damaged due to impact.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	NA
	Corrrosion and Weathering:	NA

Barrier ID:	**BAWA-0500ZZ-0.044-R**		
Route Name:	U.S. ROUTE 50, MD ROUTE 201 INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	60.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3405
Brief Workorder:	Remove and replace 36 feet of w-beam guardrail.				
Workorder:	W-Beam Strong Post at $35- per -Lin. Ft. for 36 LF = $1260. Replace impacted guardrail with W-beam strong post. Remove Guardrail at $10- per -Lin. Ft. for 36 LF = $360. Remove 36 feet of impacted guardrail. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0500ZZ: U.S. ROUTE 50, MD ROUTE 201 INTERCHANGE RAMPS

Barrier Condition Photos

Condition photos are not available for BAWA-0500ZZ-0.044-R.

Barrier ID:	**BAWA-0501ZZ-0.097-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	36.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	353
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	30.7	**Lateral Offset (In.):**	107.3	**Road Grade (%):**	2.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 3-4in above design height of 27 in for entire length.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No surface corrosion or spalling observed. No erosion or undermining of base observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0501ZZ-0.097-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	36.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS

Barrier Condition Photos

BAWA_0501ZZ_0.097_R_1.JPG

Barrier ID:	**BAWA-0501ZZ-0.099-L**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	34.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	645
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	27.0	**Post Spacing (In.):**	0.0
Height (In.):	27.7	**Lateral Offset (In.):**	70.0	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is within 1in of the 27 in design height
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0501ZZ-0.099-L**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	34.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS

Barrier Condition Photos

BAWA_0501ZZ_0.099_L_1.JPG

Barrier ID:	**BAWA-0501ZZ-0.155-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	42.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	445
Speed Limit (MPH):	45	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.7	**Lateral Offset (In.):**	122.0	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is 0-2in above the 27 in design height
	Breaking and Cracking:	20 L.F of cap has twisted and separated from wall.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0501ZZ-0.155-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	42.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$1887
Brief Workorder:	Reset 2 caps.				
Workorder:	Labor at $60- per -Hour for 4 Hrs = $240. Two workers to reset 2 caps. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS

Barrier Condition Photos

BAWA_0501ZZ_0.155_R_1.JPG

Barrier ID:	**BAWA-0501ZZ-0.043-L**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/17/2010	**Barrier Rating:**	28.20

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	478
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.6
Height (In.):	27.2	**Lateral Offset (In.):**	86.0	**Road Grade (%):**	3.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is within 1in of the 27 in design height
	Breaking and Cracking:	There was 13ft of bent rail that was observed to be impacted.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0501ZZ-0.043-L**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/17/2010	**Barrier Rating:**	28.20

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$1980
Brief Workorder:	Replace 13 feet of rail.				
Workorder:	Replace Rail at $25- per -Lin. Ft. for 13 LF = $325. Replace 13 feet of rail. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS

Barrier Condition Photos

BAWA_0501ZZ_0.043_L_1.JPG

Barrier ID:	**BAWA-0501ZZ-0.079-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	27.10

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	290
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TURN DOWN	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.6
Height (In.):	27.0	**Lateral Offset (In.):**	63.0	**Road Grade (%):**	5.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is within 1in of the 27 in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	The alignment 40 ft. from approach end is out more than 1 ft. Height is within 1in of the 27 in design height.
	Breaking and Cracking:	26 ft of guardrail has been impacted.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0501ZZ-0.079-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	27.10

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2778
Brief Workorder:	Replace 26 feet of guardrail and realign 40 feet of barrier.				
Workorder:	Replace Rail at $25- per -Lin. Ft. for 26 LF = $650. Replace 26ft of guardrail. Adjust Guardrail at $10- per -Lin. Ft. for 40 LF = $400. Realign 40ft of misaligned end terminal. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS

Barrier Condition Photos

BAWA_0501ZZ_0.079_R_1.JPG

Barrier ID:	**BAWA-0501ZZ-0.096-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/17/2010	**Barrier Rating:**	39.90

Barrier Description

Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	273
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	120.0
Height (In.):	24.6	**Lateral Offset (In.):**	29.0	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is below design height of 27 in by 1 to 3 in.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0501ZZ-0.096-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/17/2010	**Barrier Rating:**	39.90

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$6248
Brief Workorder:	Raise 273 feet of barrier up to the 27-in design height.				
Workorder:	Adjust Guardrail at $10- per -Lin. Ft. for 273 LF = $2730. Raise 273ft of barrier up to the 27-in design height. Low Speed Traffic Control at $1475- per -Day for 2 Day(s) = $2950.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS

Barrier Condition Photos

BAWA_0501ZZ_0.096_R_1.JPG

Barrier ID:	**BAWA-0501ZZ-0.098-L**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/17/2010	**Barrier Rating:**	35.70

Barrier Description

Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	225
Speed Limit (MPH):	25	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	**Ending End Trtmt Crashhworthy?:**	NO		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	120.0
Height (In.):	27.2	**Lateral Offset (In.):**	33.0	**Road Grade (%):**	1.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is within 1in of the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0501ZZ-0.098-L**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/17/2010	**Barrier Rating:**	35.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:	No work needed.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS

Barrier Condition Photos

BAWA_0501ZZ_0.098_L_1.JPG

Barrier ID:	**BAWA-0501ZZ-0.145-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	32.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	343
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.7	**Lateral Offset (In.):**	52.2	**Road Grade (%):**	3.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-2in above the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0501ZZ-0.145-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	32.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS

Barrier Condition Photos

BAWA_0501ZZ_0.145_R_1.JPG

Barrier ID:	**BAWA-0501ZZ-0.220-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	38.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	1592
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	42.7	**Road Grade (%):**	3.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier is within 1in of the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0501ZZ-0.220-R**		
Route Name:	KENILWORTH AVENUE INTERCHANGE RAMPS		
Inspection Date:	10/18/2010	**Barrier Rating:**	38.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0501ZZ: KENILWORTH AVENUE INTERCHANGE RAMPS

Barrier Condition Photos

BAWA_0501ZZ_0.220_R_1.JPG

Barrier ID:	**BAWA-0502ZZ-0.097-R**		
Route Name:	LANDOVER ROAD RAMPS (MD ROUTE 202 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	28.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	385
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.2	**Lateral Offset (In.):**	92.3	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is within 1in of the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0502ZZ-0.097-R**		
Route Name:	LANDOVER ROAD RAMPS (MD ROUTE 202 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	28.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0502ZZ: LANDOVER ROAD RAMPS (MD ROUTE 202 INTERCHANGE)

Barrier Condition Photos

BAWA_0502ZZ_0.097_R_1.jpg

Barrier ID:	**BAWA-0502ZZ-0.107-R**		
Route Name:	LANDOVER ROAD RAMPS (MD ROUTE 202 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	22.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	50
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	30.0	**Lateral Offset (In.):**	225.3	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-3in above the 27 in design height.
	Breaking and Cracking:	No impact breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	Corrosion of polyurethane caulk less than 1/2 in wide cracks in 1 expansion joint.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0502ZZ-0.107-R**		
Route Name:	LANDOVER ROAD RAMPS (MD ROUTE 202 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	22.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0502ZZ: LANDOVER ROAD RAMPS (MD ROUTE 202 INTERCHANGE)

Barrier Condition Photos

BAWA_0502ZZ_0.107_R_1.jpg

Barrier ID:	**BAWA-0503ZZ-0.006-R**		
Route Name:	ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	22.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	250
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	30.2	**Lateral Offset (In.):**	75.0	**Road Grade (%):**	2.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 2-4in above the 27 in design height.
	Breaking and Cracking:	10 L.F. of cap rock section separated from wall.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0503ZZ-0.006-R**		
Route Name:	ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	22.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$1755
Brief Workorder:	Reset a 10 foot section of capstone.				
Workorder:	Labor at $60- per -Hour for 2 Hrs = $120. Two workers to reset 10 L.F. of caprock section. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0503ZZ: ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)

Barrier Condition Photos

BAWA_0503ZZ_0.006_R_1.JPG

Barrier ID:	**BAWA-0503ZZ-0.007-R**		
Route Name:	ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)		
Inspection Date:	10/17/2010	**Barrier Rating:**	38.50

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	267
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	31.0	**Lateral Offset (In.):**	82.0	**Road Grade (%):**	1.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is 0-4in above the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0503ZZ-0.007-R**		
Route Name:	ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)		
Inspection Date:	10/17/2010	**Barrier Rating:**	38.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0503ZZ: ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)

Barrier Condition Photos

BAWA_0503ZZ_0.007_R_1.jpg

Barrier ID:	**BAWA-0503ZZ-0.052-R**		
Route Name:	ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)		
Inspection Date:	10/17/2010	**Barrier Rating:**	52.50

Barrier Description

Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	848
Speed Limit (MPH):	45	**Placement with Respect to Road:**	BOTH INSIDE AND OUTSIDE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	120.0
Height (In.):	27.0	**Lateral Offset (In.):**	38.0	**Road Grade (%):**	1.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-2 in above the design height of 27 in for 608 LF. Height is 1 to 3 ines below design height of 27 ines for 240 LF.
	Breaking and Cracking:	30 ft of rail is damaged by impacts 3-in deep gouge.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0503ZZ-0.052-R**		
Route Name:	ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)		
Inspection Date:	10/17/2010	**Barrier Rating:**	52.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$5088
Brief Workorder:	Raise 240 feet of barrier up to the 27-in design height and replace 30 feet of rail.				
Workorder:	Adjust Guardrail at $10- per -Lin. Ft. for 240 LF = $2400. Raise 240ft of barrier up to the 27-in design height. Replace Rail at $25- per -Lin. Ft. for 30 LF = $750. Replace 3 10-foot rails. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0503ZZ: ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)

Barrier Condition Photos

BAWA_0503ZZ_0.052_R_1.JPG

BAWA_0503ZZ_0.052_R_2.JPG

Barrier ID:	**BAWA-0503ZZ-0.102-R**		
Route Name:	ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	22.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	250
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	104.0	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-1in above the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0503ZZ-0.102-R**		
Route Name:	ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	22.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0503ZZ: ANNAPOLIS ROAD RAMPS (MD ROUTE 450 INTERCHANGE)

Barrier Condition Photos

BAWA_0503ZZ_0.102_R_1.jpg

Barrier ID:	**BAWA-0504ZZ-0.006-R**		
Route Name:	RIVERDALE ROAD RAMPS (MD ROUTE 410 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	19.80

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	32
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	190.3	**Road Grade (%):**	1.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-1in above the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0504ZZ-0.006-R**		
Route Name:	RIVERDALE ROAD RAMPS (MD ROUTE 410 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	19.80

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0504ZZ: RIVERDALE ROAD RAMPS (MD ROUTE 410 INTERCHANGE)

Barrier Condition Photos

BAWA_0504ZZ_0.006_R_1.jpg

Barrier ID:	**BAWA-0504ZZ-0.098-R**		
Route Name:	RIVERDALE ROAD RAMPS (MD ROUTE 410 INTERCHANGE)		
Inspection Date:	10/17/2010	**Barrier Rating:**	25.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	441
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.6	**Lateral Offset (In.):**	74.0	**Road Grade (%):**	2.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is at or above 27 in design height by 1 in.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0504ZZ-0.098-R**		
Route Name:	RIVERDALE ROAD RAMPS (MD ROUTE 410 INTERCHANGE)		
Inspection Date:	10/17/2010	**Barrier Rating:**	25.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0504ZZ: RIVERDALE ROAD RAMPS (MD ROUTE 410 INTERCHANGE)

Barrier Condition Photos

BAWA_0504ZZ_0.098_R_1.JPG

Barrier ID:	**BAWA-0506ZZ-0.046-R**		
Route Name:	POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	52.50

Barrier Description

Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	501
Speed Limit (MPH):	30	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	SBT/LOG FLARED	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	120.0
Height (In.):	26.2	**Lateral Offset (In.):**	34.2	**Road Grade (%):**	2.00

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 1 to 3 in below design height of 27 in for 103 LF with the remaining height ranging from 1 in below to 1 in above.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0506ZZ-0.046-R**		
Route Name:	POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	52.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2756
Brief Workorder:	Raise 103 feet of guardrail to 27 inch design height.				
Workorder:	Adjust Guardrail at $10- per -Lin. Ft. for 103 LF = $1030. Raise 103 feet of barrier to 27 inch design height. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0506ZZ: POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)

Barrier Condition Photos

BAWA_0506ZZ_0.046_R_1.jpg

Barrier ID:	**BAWA-0506ZZ-0.062-R**		
Route Name:	POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	42.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	650
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	55.5	**Road Grade (%):**	1.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is above design height of 27 in by 1 in.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0506ZZ-0.062-R**		
Route Name:	POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	42.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0506ZZ: POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)

Barrier Condition Photos

BAWA_0506ZZ_0.062_R_1.jpg

Barrier ID:	**BAWA-0506ZZ-0.049-R**		
Route Name:	POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)		
Inspection Date:	10/21/2010	**Barrier Rating:**	42.40

Barrier Description

Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	312
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	SBT/LOG FLARED	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	120.0
Height (In.):	28.2	**Lateral Offset (In.):**	161.3	**Road Grade (%):**	1.50

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 1 to 2 in above 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0506ZZ-0.049-R**		
Route Name:	POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)		
Inspection Date:	10/21/2010	**Barrier Rating:**	42.40

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0506ZZ: POWDER MILL ROAD RAMPS (MD ROUTE 212 INTERCHANGE)

Barrier Condition Photos

BAWA_0506ZZ_0.049_R_1.jpg

Barrier ID:	**BAWA-0507ZZ-0.005-R**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	19.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	37
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	96.3	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-2in above the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0507ZZ-0.005-R**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	19.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0507ZZ: LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)

Barrier Condition Photos

BAWA_0507ZZ_0.005_R_1.jpg

Barrier ID:	**BAWA-0507ZZ-0.062-L**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	13.80

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	237
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.7	**Lateral Offset (In.):**	89.6	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-2 in above the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	Polyurethane caulk deteriorated causing cracks less than 1/2 in wide.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0507ZZ-0.062-L**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	13.80

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0507ZZ: LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)

Barrier Condition Photos

BAWA_0507ZZ_0.062_L_1.jpg

Barrier ID:	**BAWA-0507ZZ-0.094-L**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	18.20

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	145
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	110.0	**Road Grade (%):**	3.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height was at the 27 in design height for entire length.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0507ZZ-0.094-L**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	18.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0507ZZ: LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)

Barrier Condition Photos

BAWA_0507ZZ_0.094_L_1.jpg

Barrier ID:	**BAWA-0507ZZ-0.097-R**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	20.70

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	130
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.2	**Lateral Offset (In.):**	160.3	**Road Grade (%):**	4.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-1in above the 27 in design height for entire length.
	Breaking and Cracking:	10 ft of wall is rotated and separated from rest of barrier/broken off.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0507ZZ-0.097-R**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	20.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3658
Brief Workorder:	Remove and replace 10 feet of guardwall.				
Workorder:	Remove Concrete Barrier at $50- per -Lin. Ft. for 10 LF = $500. Remove 10ft of rotated barrier. Concrete with Simulated Stone Face at $135- per -Lin. Ft. for 10 LF = $1350. Install 10 feet of concrete with simulated stone face barrier. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0507ZZ: LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)

Barrier Condition Photos

BAWA_0507ZZ_0.097_R_1.jpg

Barrier ID:	**BAWA-0507ZZ-0.163-R**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	44.00

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	60
Speed Limit (MPH):	25	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	166.0	**Road Grade (%):**	6.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-3in above the 27 in design height.
	Breaking and Cracking:	Deterioration of polyurethane caulk causing cracks less than 1/2 in wide.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0507ZZ-0.163-R**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	44.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0507ZZ: LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)

Barrier Condition Photos

BAWA_0507ZZ_0.163_R_1.jpg

Barrier ID:	**BAWA-0507ZZ-0.166-L**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	25.30

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	101
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	27.0	**Lateral Offset (In.):**	58.2	**Road Grade (%):**	6.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is at design height of 27 in for entire length.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0507ZZ-0.166-L**		
Route Name:	LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	25.30

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0507ZZ: LAUREL-BOWIE ROAD RAMPS (MD ROUTE 197 INTERCHANGE)

Barrier Condition Photos

BAWA_0507ZZ_0.166_L_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.053-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	28.30

Barrier Description

Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	418
Speed Limit (MPH):	35	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	SBT/LOG FLARED	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	**Ending End Trtmt Crashhworthy?:**	NO		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	120.0
Height (In.):	28.2	**Lateral Offset (In.):**	41.7	**Road Grade (%):**	0.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-2in above the 27 in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0508ZZ-0.053-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	28.30

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.053_L_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.123-R**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	59.50

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	562
Speed Limit (MPH):	35	**Placement with Respect to Road:**	BOTH INSIDE AND OUTSIDE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.5
Height (In.):	22.6	**Lateral Offset (In.):**	104.5	**Road Grade (%):**	1.30

Physical Condition

Barrier	**Alignment and Height:**	52 LF of rail is out of alignment by 12 in. 562 ft was 4-5in below the 27 in design height.
	Breaking and Cracking:	52 ft of barrier damaged by impact.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0508ZZ-0.123-R**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/18/2010	**Barrier Rating:**	59.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$13052
Brief Workorder:	Remove and replace 52 feet of damaged w-beam guardrail and raise the remaining 510 feet up to the 27 inch design height.				
Workorder:	Remove Guardrail at $10- per -Lin. Ft. for 52 LF = $520. Remove 52 feet of damaged w-beam barrier. W-Beam Strong Post at $35- per -Lin. Ft. for 52 LF = $1820. Install 52 feet of new w-beam barrier at impact area. Adjust Guardrail at $10- per -Lin. Ft. for 510 LF = $5100. Raise 510 feet of barrier to 27 inch design height. Low Speed Traffic Control at $1475- per -Day for 3 Day(s) = $4425.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.123_R_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.181-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	32.70

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	255
Speed Limit (MPH):	35	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM BCT	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	W-BEAM BCT	**Ending End Trtmt Crashhworthy?:**	NO		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	26.7	**Lateral Offset (In.):**	29.2	**Road Grade (%):**	3.80

Physical Condition

Barrier	**Alignment and Height:**	12 LF of rail is out of alignment by 6 to 12 in. Height is within 1 in of the 27 in design height for entire length.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0508ZZ-0.181-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	32.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2019
Brief Workorder:	Adjust 12 feet of deflected guardrail back to the original alignment and remove the excess vegetation in front of the guardrail.				
Workorder:	Adjust Guardrail at $10- per -Lin. Ft. for 12 LF = $120. Adjust 12 feet of deflected guardrail back to alignment. Labor at $60- per -Hour for 4 Hrs = $240. 4 hrs to remove vegetation in front of guardrail. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.181_L_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.003-R**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	18.20

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	228
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	77.6
Height (In.):	28.2	**Lateral Offset (In.):**	193.3	**Road Grade (%):**	3.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 0-2in above the 27 in design height for entire length.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0508ZZ-0.003-R**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	18.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.003_R_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.097-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	26.80

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	280
Speed Limit (MPH):	25	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	27.0	**Lateral Offset (In.):**	148.6	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is at the design height of 27 in for entire length.
	Breaking and Cracking:	One broken wooden post and blockout observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0508ZZ-0.097-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	26.80

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$1766
Brief Workorder:	Replace 1 post and 1 block.				
Workorder:	Replace Post at $100- per -Each for 1 Post(s) = $100. Replace 1 broken post. Replace Block at $30- per -Each for 1 Block(s) = $30. Replace 1 block. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.097_L_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.147-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	28.20

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	180
Speed Limit (MPH):	25	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.6
Height (In.):	28.0	**Lateral Offset (In.):**	243.3	**Road Grade (%):**	0.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is 0-2in above the 27 in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0508ZZ-0.147-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	28.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.147_L_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.016-R**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	62.50

Barrier Description

Type:	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	N/A	**Length (ft.):**	810
Speed Limit (MPH):	30	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-2	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	120.0
Height (In.):	21.0	**Lateral Offset (In.):**	101.3	**Road Grade (%):**	3.40

Physical Condition

Barrier	**Alignment and Height:**	50 LF out of alignment more than 12 in. 30 LF out of alignment by 6 to 12 in. Height is 4 to 8 ines below design height of 27 ines for 750 LF. Height is 1 to 3 ines below for 60 LF.
	Breaking and Cracking:	10 ft of rail has 2-in gouge from impact. 4 posts are bent from an impact.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0508ZZ-0.016-R**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	62.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$16115
Brief Workorder:	Raise 810 feet of barrier to design height of 27 inches. Replace 4 posts and 1 rail.				
Workorder:	Adjust Guardrail at $10- per -Lin. Ft. for 810 LF = $8100. Raise 810 feet of barrier up to the 27-in design height and correct 80 feet of misaligned barrier. Replace Post at $100- per -Each for 4 Post(s) = $400. Replace 4 posts. Replace Rail at $25- per -Lin. Ft. for 10 LF = $250. Replace 10 feet of rail. Low Speed Traffic Control at $1475- per -Day for 4 Day(s) = $5900.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.016_R_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.066-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	26.50

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	138
Speed Limit (MPH):	25	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.3
Height (In.):	30.0	**Lateral Offset (In.):**	346.0	**Road Grade (%):**	1.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The eight is 2-4in above the 27 in design height.
	Breaking and Cracking:	One broken post and blockout at 120 ft. from approach end.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0508ZZ-0.066-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	26.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$143
Brief Workorder:	Replace one post and one blockout.				
Workorder:	Replace Post at $100- per -Each for 1 Post(s) = $100. One wood post. Replace Block at $30- per -Each for 1 Block(s) = $30. One wood blockout.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.066_L_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.126-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	31.20

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	WEATHERING STEEL/CORTEN	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	122
Speed Limit (MPH):	25	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.6
Height (In.):	32.0	**Lateral Offset (In.):**	29.7	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is 5 in above the 27 in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0508ZZ-0.126-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	31.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.126_L_1.jpg

Barrier ID:	**BAWA-0508ZZ-0.205-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	33.70

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	575
Speed Limit (MPH):	25	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM BCT	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.5
Height (In.):	26.2	**Lateral Offset (In.):**	117.3	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	60 ft of rail was out of alignment by 6 to 12 in. 130 ft of was 1-3in below 27 in design height.
	Breaking and Cracking:	60 ft of rail is bent from impact while 100 ft of barrier is completely destroyed with ending end gone.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	Ending end has been completely destroyed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0508ZZ-0.205-L**		
Route Name:	LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)		
Inspection Date:	10/19/2010	**Barrier Rating:**	33.70

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$13200
Brief Workorder:	Raise 130 feet of guardrail up to the 27 inch design height replace 60 feet of bent rail and remove and replace 100 feet of w-beam strong post including an ending end treatment.				
Workorder:	Adjust Guardrail at $10- per -Lin. Ft. for 130 LF = $1300. Raise 130 feet of barrier up to the 27 inch design height. Replace Rail at $25- per -Lin. Ft. for 60 LF = $1500. Replace 60 feet of impacted rails. W-beam tangent 350 compliant at $3500- per -Each for 1 Unit(s) = $3500. Replace destroyed ending end treatment. W-Beam Strong Post at $35- per -Lin. Ft. for 50 LF = $1750. Install 50 feet of new w-beam where destroyed. Remove Guardrail at $10- per -Lin. Ft. for 100 LF = $1000. Remove 100 feet of impacted guardrail. Low Speed Traffic Control at $1475- per -Day for 2 Day(s) = $2950.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0508ZZ: LAUREL FORT MEADE ROAD RAMPS (MD ROUTE 198 INTERCHANGE)

Barrier Condition Photos

BAWA_0508ZZ_0.205_L_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.142-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	28.20

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	50
Speed Limit (MPH):	20	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	29.0	**Lateral Offset (In.):**	49.0	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height was 1-3in above the 27 in design height.
	Breaking and Cracking:	24 ft of barrier impacted bent and torn.
	Missing Elements:	No observed missing elements.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0509ZZ-0.142-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	28.20

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2811
Brief Workorder:	Remove and replace 24 feet of impacted w-beam strong post guardrail.				
Workorder:	Remove Guardrail at $10- per -Lin. Ft. for 24 LF = $240. Remove 24 feet of impacted guardrail. W-Beam Strong Post at $35- per -Lin. Ft. for 24 LF = $840. Replace 24 feet of impacted guardrail with w-beam strong post. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.142_L_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.156-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	24.10

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	282
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	27.0	**Lateral Offset (In.):**	28.7	**Road Grade (%):**	1.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height was within 1 in of the 27 in design height.
	Breaking and Cracking:	3 broken barrier reflectors.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed. Vegetation in front of barrier.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.156-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	24.10

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2217
Brief Workorder:	Remove excess vegetation in front of the guardrail and replace 3 reflectors.				
Workorder:	Labor at $60- per -Hour for 4 Hrs = $240. 4 hrs to remove vegetation in front of guardrail. Barrier Reflectors at $100- per -Each for 3 Unit(s) = $300. Install 3 barrier reflectors. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.156_R_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.006-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	26.80

Barrier Description

Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	260
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	BRIDGE RAIL SBT
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	119.3
Height (In.):	26.6	**Lateral Offset (In.):**	17.0	**Road Grade (%):**	1.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height was within 1 in of 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0509ZZ-0.006-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	26.80

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.006_R_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.090-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	33.70

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	165
Speed Limit (MPH):	25	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TANGENT 350	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.6
Height (In.):	30.0	**Lateral Offset (In.):**	24.0	**Road Grade (%):**	3.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 0-3 in.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.090-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	33.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.090_L_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.140-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	32.20

Barrier Description

Type:	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	N/A	**Length (ft.):**	280
Speed Limit (MPH):	25	**Placement with Respect to Road:**	OUTSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-2	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	SBT/LOG FLARED	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	**Ending End Trtmt Crashhworthy?:**	NO		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	119.6
Height (In.):	29.0	**Lateral Offset (In.):**	35.7	**Road Grade (%):**	2.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is 0-2in above the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.140-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	32.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.140_L_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.250-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	21.20

Barrier Description

Type:	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	N/A	**Length (ft.):**	250
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-2	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	SBT/LOG FLARED	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	120.0
Height (In.):	26.0	**Lateral Offset (In.):**	29.2	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is low by1 in or less from the design of 27 in.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.250-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	21.20

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.250_R_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.004-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	24.00

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	120
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.6
Height (In.):	26.2	**Lateral Offset (In.):**	23.7	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is low by 1 in or less from the design of 27 in.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0509ZZ-0.004-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	24.00

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.004_R_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.079-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	34.20

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	379
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	MEDIAN TREATMENTS	**Ending End Trtmt Crashhworthy?:**	NO		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	25.7	**Lateral Offset (In.):**	129.6	**Road Grade (%):**	0.80

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is 1 to 3 in below design height of 27 in for 47 LF and is more than 3 ines below for 52 LF.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.079-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	34.20

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2712
Brief Workorder:	Raise 99 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at $10- per -Lin. Ft. for 99 LF = $990. Raise 99 feet of barrier up to the 27-in design height. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.079_L_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.209-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	22.60

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	WOOD	**Length (ft.):**	140
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.6
Height (In.):	29.0	**Lateral Offset (In.):**	26.2	**Road Grade (%):**	0.30

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is 0-2in above the 27 in design height for entire length.
	Breaking and Cracking:	1 barrier reflector broken.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.209-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	22.60

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.209_L_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.245-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	25.50

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	WOOD	**Length (ft.):**	72
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	CRASH CUSHIONS/ATTEN	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	25.2	**Lateral Offset (In.):**	23.2	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is low by 1 to 2 in from the 27 in design height for 52 ft and is within 1 in below for 20 ft.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.245-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	25.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2195
Brief Workorder:	Raise 52 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at $10- per -Lin. Ft. for 52 LF = $520. Raise 52 feet of barrier to 27 inch design height. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.245_R_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.165-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/21/2010	**Barrier Rating:**	23.60

Barrier Description

Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	1438
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	SBT/LOG FLARED	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	**Ending End Trtmt Crashhworthy?:**	NO		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	119.5
Height (In.):	27.7	**Lateral Offset (In.):**	197.0	**Road Grade (%):**	0.20

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height was 0-2in above the 27 in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.165-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/21/2010	**Barrier Rating:**	23.60

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.165_L_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.467-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/21/2010	**Barrier Rating:**	23.70

Barrier Description

Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	**Barrier Function:**	TRAFFIC
Barrier Material:	STEEL-BACKED TIMBER/LOG	**Post Material:**	WOOD
Blockout Type:	WOOD	**Length (ft.):**	565
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	SBT/LOG FLARED	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	**Ending End Trtmt Crashhworthy?:**	NO		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	119.3
Height (In.):	26.7	**Lateral Offset (In.):**	271.2	**Road Grade (%):**	1.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is within 1 in of the 27 in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No impact related breaking or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.467-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/21/2010	**Barrier Rating:**	23.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.467_R_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.005-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	26.80

Barrier Description

Type:	CONCRETE WITH SIMULATED STONE FACE	**Barrier Function:**	TRAFFIC
Barrier Material:	CONCRETE	**Post Material:**	N/A
Blockout Type:	N/A	**Length (ft.):**	185
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	26.0	**Post Spacing (In.):**	0.0
Height (In.):	28.0	**Lateral Offset (In.):**	101.3	**Road Grade (%):**	0.10

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is 0-1in above the 27 in design height.
	Breaking and Cracking:	Deterioration of polyurethane caulk causing cracks less than 1/4 in wide.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No surface corrosion spalling or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0509ZZ-0.005-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	26.80

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.005_R_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.340-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	40.70

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	PLASTIC	**Length (ft.):**	1018
Speed Limit (MPH):	45	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TANGENT 350	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	CONC/MASON THRIE BEAM
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.1
Height (In.):	27.0	**Lateral Offset (In.):**	16.8	**Road Grade (%):**	0.60

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Height is at 27 in design height for entire length.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.340-R**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	40.70

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.340_R_1.jpg

Barrier ID:	**BAWA-0509ZZ-0.341-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	26.80

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	PLASTIC	**Length (ft.):**	572
Speed Limit (MPH):	45	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-2	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TANGENT 350	**Is Beg. End Trtmt Crashhworthy?:**	YES	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	28.2	**Lateral Offset (In.):**	119.6	**Road Grade (%):**	2.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is 0-2in above the 27 in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0509ZZ-0.341-L**		
Route Name:	PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	26.80

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0509ZZ: PATUXENT FREEWAY RAMPS (MD ROUTE 32 INTERCHANGE)

Barrier Condition Photos

BAWA_0509ZZ_0.341_L_1.jpg

Barrier ID:	**BAWA-0510ZZ-0.107-L**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	25.50

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	255
Speed Limit (MPH):	25	**Placement with Respect to Road:**	TANGENT
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TURN DOWN	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	27.0	**Lateral Offset (In.):**	24.0	**Road Grade (%):**	4.70

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height is at the design height of 27 in.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0510ZZ-0.107-L**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	25.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0510ZZ: JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)

Barrier Condition Photos

BAWA_0510ZZ_0.107_L_1.jpg

Barrier ID:	**BAWA-0510ZZ-0.138-R**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	21.20

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	522
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	LOW		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TURN DOWN	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	29.0	**Lateral Offset (In.):**	134.3	**Road Grade (%):**	1.90

Physical Condition

Barrier	**Alignment and Height:**	13 ft of rail is out of alignment for 6 to 12 in. 1 post is crooked. Height is 1 in below to 4 in above design height of 27 ines for entire length.
	Breaking and Cracking:	13 ft of rail bent from impact and 1 post bent from impact.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0510ZZ-0.138-R**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	21.20

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$2090
Brief Workorder:	Replace 1 damaged rail and 1 bent post.				
Workorder:	Replace Rail at $25- per -Lin. Ft. for 13 LF = $325. Replace 13 feet of rail. Replace Post at $100- per -Each for 1 Post(s) = $100. Replace 1 crooked post has been impacted Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0510ZZ: JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)

Barrier Condition Photos

BAWA_0510ZZ_0.138_R_1.jpg

Barrier ID:	**BAWA-0510ZZ-0.028-R**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.50

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	932
Speed Limit (MPH):	25	**Placement with Respect to Road:**	BOTH INSIDE AND OUTSIDE
Hazard Behind Barrier:	MEDIUM		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TURN DOWN	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	25.7	**Lateral Offset (In.):**	112.0	**Road Grade (%):**	4.00

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. The height was within 1 in of the 27 in design height for 582 ft 1 to 3 in below for 200 ft and 3 to 5 in below for 150 ft.
	Breaking and Cracking:	60 ft of rail impacted and damaged.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0510ZZ-0.028-R**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	49.50

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$8745
Brief Workorder:	Raise 350 feet of low guardrail up to the 27 inch design height and replace 60 feet of rail.				
Workorder:	Replace Rail at $25- per -Lin. Ft. for 60 LF = $1500. Replace 60 feet of impacted rail. Adjust Guardrail at $10- per -Lin. Ft. for 350 LF = $3500. Raise 350 feet of barrier to 27 inch design height. Low Speed Traffic Control at $1475- per -Day for 2 Day(s) = $2950.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0510ZZ: JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)

Barrier Condition Photos

BAWA_0510ZZ_0.028_R_1.jpg

Barrier ID:	**BAWA-0510ZZ-0.045-L**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	26.80

Barrier Description

Type:	W-BEAM DOUBLE FACE STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	220
Speed Limit (MPH):	25	**Placement with Respect to Road:**	INSIDE OF CURVE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	W-BEAM TURN DOWN	**Is Beg. End Trtmt Crashhworthy?:**	NO	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	74.6
Height (In.):	28.0	**Lateral Offset (In.):**	84.3	**Road Grade (%):**	4.90

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier is between 1-in below to 4-in above the 27-in design height.
	Breaking and Cracking:	One rail section one post and 2 blockouts bent from impact.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	Alignment acceptable. Height is within 1-in of the 27-in design height.
	Breaking and Cracking:	26 ft of rail and 3 posts are severely bent.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.

Barrier ID:	**BAWA-0510ZZ-0.045-L**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	26.80

Repair Recommendations

Repair Action:	REPAIR	**FMSS Work Type:**	DEFERRED MAINTENANCE	**Repair Cost:**	$3201
Brief Workorder:	Replace 39 feet of rail 4 posts and 2 blockouts.				
Workorder:	Replace Rail at $25- per -Lin. Ft. for 39 LF = $975. Replace 2 rails at beginning end and 1 within barrier. Replace Post at $100- per -Each for 4 Post(s) = $400. Replace 4 approach and barrier posts. Replace Block at $30- per -Each for 2 Block(s) = $60. Replace 2 blockouts. Low Speed Traffic Control at $1475- per -Day for 1 Day(s) = $1475.				

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0510ZZ: JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)

Barrier Condition Photos

BAWA_0510ZZ_0.045_L_1.jpg

Barrier ID:	**BAWA-0510ZZ-0.086-L**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	35.50

Barrier Description

Type:	W-BEAM STRONG POST	**Barrier Function:**	TRAFFIC
Barrier Material:	GALVANIZED STEEL	**Post Material:**	GALVANIZED STEEL
Blockout Type:	STEEL	**Length (ft.):**	566
Speed Limit (MPH):	25	**Placement with Respect to Road:**	BOTH INSIDE AND OUTSIDE
Hazard Behind Barrier:	HIGH		

Barrier Crashworthiness

Appropriate Test Level:	TL-1	**Barrier Test Level:**	TL-3	**Is Barrier Crashworthy?:**	YES
Beg. End Trtmt Type:	NONE	**Is Beg. End Trtmt Crashhworthy?:**	N/A	**Approach Transition Type:**	NONE
Ending End Trtmt Type:	NONE	**Ending End Trtmt Crashhworthy?:**	N/A		

Average Measurements

Design Height (In.):	27	**Width (In.):**	0.0	**Post Spacing (In.):**	75.0
Height (In.):	27.2	**Lateral Offset (In.):**	124.0	**Road Grade (%):**	3.40

Physical Condition

Barrier	**Alignment and Height:**	No deflections observed in alignment. Entire barrier is between 1-in below to 3-in above the 27-in design height.
	Breaking and Cracking:	No twisting bending tears or cracking observed.
	Missing Elements:	No missing elements observed.
	Corrrosion and Weathering:	No loss of cross section or erosion observed.
End Treatments	**Alignment and Height:**	
	Breaking and Cracking:	
	Missing Elements:	
	Corrrosion and Weathering:	

Barrier ID:	**BAWA-0510ZZ-0.086-L**		
Route Name:	JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)		
Inspection Date:	10/20/2010	**Barrier Rating:**	35.50

Repair Recommendations

Repair Action:	NO ACTION	**FMSS Work Type:**	N/A	**Repair Cost:**	$0
Brief Workorder:	N/A				
Workorder:					

2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.

Baltimore - Washington Parkway

ROUTE 0510ZZ: JESSUP ROAD INTERCHANGE RAMPS (MD ROUTE 175 INTERCHANGE)

Barrier Condition Photos

BAWA_0510ZZ_0.086_L_1.jpg

Appendix A
Summary of GIP Definitions and Assessment

Baltimore - Washington Parkway

Federal Lands Highway
Road Inventory Program

Appendix A:
Guardwall/Rail Inventory Program (GIP)
EXPLANATION OF REPORT TERMS

The Guardwall/rail Inventory Program (GIP) was commissioned by WASO to identify deferred maintenance related to barriers in National Parks that have more than one mile of guardwall or guardrail. GIP was designed jointly by the NPS and FHWA and the inventory process records both static characteristics of the barrier (e.g., length, height, etc.) as well as dynamic information about the condition of the barrier.

Barriers that traverse bridges are not included in this inventory, these barriers are covered in FHWA's Bridge Inventory Program (BIP); however, barriers that are approaches to bridges were part of this inventory.

The following discussion highlights each of the elements found in the reports.

Static Barrier Characteristics

BARRIER TYPE

Refers to both the design and the construction materials used:

- W-Beam, Strong Post
- W-Beam, Weak Post
- Thrie Beam/Modified Thrie Beam
- Box Beam
- Steel-Backed Timber, w/ Blockout
- Steel-Backed Timber, w/o Blockout
- Steel-Backed Log Rail
- High Tension Cable
- Three-Strand Cable
- Stone Masonry, w/o Concrete Core Wall
- Stone Masonry, w/ Concrete Core Wall
- Random Rubble Cavity Wall
- Concrete Barrier
- Concrete, with Simulated Stone Face
- W-Beam (Double Face), Strong Post
- Steel-Backed Timber (Double Face)
- Other: *Completed by field crew*

BARRIER MATERIAL

The type of material of which the barrier is composed:

- Cable
- Concrete
- Galvanized Steel
- Log/Timber/Wood
- Steel-Backed Timber/Log
- Weathering Steel/Corten
- Stone
- Other: *Completed by field crew*

LENGTH

The longitudinal distance between the beginning and end of the barrier. It should include the length of end treatments in the overall length of the barrier. For roadside barriers, this can be calculated from the start and end locations.

BARRIER FUNCTION: Traffic or Non-Traffic Barrier.
Due to the different GIP assessment criteria of barriers based on their intended use, barriers were classified as being either traffic barriers or non-traffic barriers.

> *Traffic barriers* are physical devices intended to keep vehicles or people from straying into dangerous or off-limits areas. For the purpose of this inventory and assessment, a traffic barrier is categorized as roadside hardware placed longitudinally, excluding pedestrian railing and fencing.
>
> *Non-traffic barriers* provide a physical delineation between public access areas and restricted or protected areas in locations such as a parking lot, viewpoint or turnout. Non-traffic barriers which inhibit access of vehicles are included in this report; non-traffic barriers which only inhibit access of pedestrians or bicyclists are not included. For the purpose of this inventory, non-traffic barriers are guidewalls and guiderails. Note: rocks, stones, boulders, fences or curbs were excluded from this inventory.

There are instances in parks where a single barrier can switch between being classified as a traffic barrier and a non-traffic barrier. Such instances typically occur at pullouts, where a traffic barrier along the road will continue through the pullout without interruption. In such instances, the traffic barrier and non-traffic barrier were assessed using different criteria. Due to the different criteria, the GIP database was designed to record the traffic barrier and non-traffic barrier as two distinct barriers, even though to the eye, they appear as one barrier. Other instances where a single barrier is split into multiple barriers would be when the barrier is placed continuously along two legs of an intersection, so that one portion of the barrier may be on one road and the remaining portion of the barrier is on a different road.

POST MATERIAL
The type or material that the barrier's supporting posts are made of:

- Galvanized Steel
- Wood
- Corten
- Other: *Completed by field crew*
- N/A

BLOCKOUT TYPE

The type of blockout or of what it is comprised:

- Wood
- Plastic
- Steel
- N/A

BARRIER PLACEMENT WITH RESPECT TO ROADWAY
To identify the roadway alignment the barrier is located upon:

- Tangent
- Inside of Curve
- Both Inside and Outside of Curve
- Outside of Curve

POSTED SPEED LIMIT
The posted speed limit of the roadway section.

HAZARD BEHIND BARRIER

A qualitative description of the severity of the hazard behind the barrier:

- Low
- Medium
- High
- Extreme

APPROPRIATE TEST LEVEL (TL) FOR ROAD

Based on the posted speed limit, the NCHRP 350 Crashworthiness test level appropriate for the roadway.

- TL-1, 30 mph and lower
- TL-2, 35-45 mph
- TL-3, 50 mph and higher

BARRIER TEST LEVEL (TL)

A traffic barrier is crashworthy if it was successfully crash tested under *NCHRP Report 350* at speeds along the park road or parkway or if it was accepted through analysis by FHWA, based on similarity to other crashworthy critical design element features. Non-traffic barriers are classified at N/A.

- TL-1
- TL-2
- TL-3
- No
- N/A – Non-Traffic Barrier

IS BARRIER CRASHWORTHY

This compared the appropriate crashworthy test level required for the posted speed limit to the barrier's test level.

- Yes
- No

BEGINNING END TREATMENT TYPE

An end treatment is safety hardware that mitigates impacts to the ends of a barrier. Most common end treatments are for w-beam systems. Note that stonemasonry barriers typically do not have end treatments.

The beginning end treatment is based on the travel lane closest to the barrier. A vehicle traveling in the lane closest to the barrier will encounter the barrier's beginning end treatment first. It is not based on the RIP primary direction. Identifies the barrier's beginning end treatment type:

- W-Beam Flared 350 Compliant
- W-Beam Tangent 350 Complaint
- W-Beam Buried End
- W-Beam Trailing End/CRG
- W-Beam BCT, Flared
- W-Beam, Turn Down
- SBT/Log, Flared
- SBT/Log, Buried
- Median Treatments
- Box Beam
- Cable
- Crash Cushions/Attenuator
- Other: *Completed by field crew*
- None

IS BEGINNING END TREATMENT CRASHWORTHY

Identifies if the barrier's beginning end treatment (based on direction of travel for the travel lane closest to barrier) is crashworthy, based on NCHRP-350.

- Yes
- No
- N/A

APPROACH TRANSITION TYPE

A transition is safety hardware designed to be placed between two different types of barrier. Most common transition types are between bridge rail and w-beam systems.

This identifies the barrier's transition type:

- Bridge Rail, W-Beam
- Bridge Rail, SBT
- Rigid W-Beam, W-Beam
- Rigid SBT (Wall), SBT
- Concrete/Masonry, W-Beam
- Concrete/Masonry, SBT
- Concrete/Masonry, Thrie Beam
- Other: *Completed by field crew*
- None

ENDING END TREATMENT TYPE

The ending end treatment is based on the travel lane closest to the barrier. A vehicle traveling in the lane closest to the barrier will encounter the barrier's ending end treatment last, after passing the rest of the barrier. It is not based on the RIP primary direction. Identifies the barrier's ending end treatment type:

- W-Beam Flared 350 Compliant
- W-Beam Tangent 350 Complaint
- W-Beam Buried End
- W-Beam Trailing End/CRG
- W-Beam BCT, Flared
- W-Beam, Turn Down
- SBT/Log, Flared
- SBT/Log, Buried
- Median Treatments
- Box Beam
- Cable
- Crash Cushions/Attenuator
- Other: *Completed by field crew*
- None

IS ENDING END TREATMENT CRASHWORTHY

Identifies if the barrier's ending end treatment (based on direction of travel for the travel lane closest to barrier) is crashworthy, based on NCHRP-350.

- Yes
- No
- N/A

BARRIER DESIGN HEIGHT

Identifies the barrier's original "as-built" design height:

- 27-in, W-beam, Steel-Backed Timber, Stone Masonry w/ Concrete Core Wall
- 24-in, Stone Masonry w/o Concrete Core Wall, Log on Log
- 20-in, Timber on Wood Posts, Timber on Concrete Posts, Timber on Granite Posts
- 18/24-in, Crenellated Stone Masonry Barrier
- 18/24-in, Dry Stack Stone Wall
- 31-in, Steel-Backed Log
- 32-in, Jersey Barrier

AVERAGE MEASUREMENTS

Minimum of three measurements taken on each barrier.

First measurement approximately 50-ft from the beginning of the barrier, measured from the extreme ends of the barrier's end treatment/transition. Do not take a measurement along the end treatment
Measure and record measurement every 200-ft thereafter for the run of barrier

Last measurement approximately 50-ft from the end of the barrier. Do not take a measurement along the end treatment
If a barrier is less than 300-ft, even say 45-ft, a minimum of three measurements were still taken.

AVERAGE WIDTH

The width of the barrier. Only recorded for guardwalls; not guardrail.

AVERAGE POST SPACING

The spacing of the barrier's (not the end treatments') posts. Only recorded for guardrails; not guardwalls or non-traffic barriers.

AVERAGE BARRIER HEIGHT

The average barrier height. If the barrier has crenellations, the height is measured in the non-crenellated sections of the barrier. If the average lateral offset is less than or equal to 4-ft, average barrier height is measured from the roadway; if the average lateral offset is greater than 4-ft, average barrier height is measured at the barrier face.

AVERAGE LATERAL OFFSET

Determine the average distance between the barrier and the edge of roadway. If a white edgeline is present on the roadway, average lateral offset is measured from the outside edge of the white line to the barrier face. If no white edgeline is present, average lateral offset is measured from the edge of pavement to the barrier face.

AVERAGE ROAD GRADE and UPHILL OR DOWNHILL

Determine an average roadway grade at each barrier location, based on the direction of travel in the lane closest to the barrier.

DYNAMIC BARRIER CHARACTERISTICS – CONDITION ASSESSMENT NARRATIVES

Field crews were directed to write a narrative of the barrier's physical condition. To keep consistency between field crews, all narratives were based on severity and distress criteria, which were developed jointly by the NPS and FHWA. Condition assessments were based on barrier type and can be found directly after this description of report elements.

BARRIER ALIGNMENT/HEIGHT

Narrative completed by field crew describing the barrier's alignment and height. Height comments are based on the barrier's original "as-built" design height.

BARRIER BREAKING/CRACKING

Narrative completed by field crew describing any barrier breaking or cracking found during the inspection.

BARRIER MISSING ELEMENTS

Narrative completed by field crew describing any barrier missing elements encountered during the inspection.

BARRIER CORROSION/WEATHERING

Narrative completed by field crew describing and corrosion or weathering issues associated with the barrier.

END TREATMENTS ALIGNMENT/HEIGHT

Narrative completed by field crew describing the barrier end treatment's alignment and height, when present. Height comments are based on the end treatment's original "as-built" design height.

END TREATMENTS BREAKING/CRACKING

Narrative completed by field crew describing any barrier end treatment's breaking or cracking found during the inspection.

END TREATMENTS MISSING ELEMENTS

Narrative completed by field crew describing any barrier end treatment missing elements encountered during the inspection.

END TREATMENTS CORROSION/WEATHERING

Narrative completed by field crew describing and corrosion or weathering issues associated with the barrier's end treatments.

BARRIER PHOTOGRAPHS

During the inspection, the field crews photographed the beginning end (based on the closest lane's direction of travel) of each barrier. Additional photographs were taken of any unusual deficiencies encountered. Up to two photographs of the barrier are included in this report.

CONDITION AND SEVERITY DISTRESS TABLES

Due to the extreme number of possible conditions of the barrier, transition and end treatment, the following descriptions and matrices are guidelines created to help classify the condition of the element. While the distinction between good and fair is needed, the distinction between fair and poor is much more important since this is the threshold that defines if the element is slightly compromised or is not functional.

In all likelihood, according to these guidelines different portions of an element (most likely a barrier) may be classified differently; however, a single classification will need to be provided for the element. The survey team will use their professional judgment to determine this single classification. The single classification of each element should be considered an index value that provides a general indicator of overall performance, but not necessarily indicate that a specific treatment is warranted. The specific work order that is prepared based on the observed deficiencies will be a much more definitive indicator of the appropriate treatment based on existing distresses. The overall condition will be used as part of the risk assessment tool to evaluate the risk to driver safety associated with the physical condition of the barrier.

GOOD

The barrier performs as intended. The barrier is in fairly straight alignment but may have some small amount that is slightly out of alignment. While the height of the barrier may vary over its run, the height is relatively consistent and is close to its original "as-built" design height. Minor cracks may be visually observed on some the posts, though these cracks are neither long nor deep and the only hardware missing are isolated nuts and bolts. Minor surface corrosion on small portions of the surface is visible but there is no decay associated with connections.

The end treatment performs as intended. The end treatment is in good alignment and tension is acceptable. While the end treatment may exhibit some dents, there are no cracked rails, posts, blocks or any missing elements. Corrosion and erosion, while present, are at a minimum.

In general, all distresses observed, either in isolation or in combination, do not seriously affect the ability of the element to serve the intended functions of protecting drivers from a roadside hazard and/or contributing to the cultural value of the roadway corridor. Keep in mind that "intended function" is a relative term. In many cases, older designs were "intended" to protect drivers but would not be considered fully functional in that regard by today's standards.

FAIR

The barrier is slightly compromised. The barrier is noticeably out of alignment and the height along the run of barrier varies considerably. Cracks and broken elements are visible from the roadside. The barrier may be missing elements, such as nuts, bolts, blockouts or even a post. Surface corrosion is visible on a fair amount of the barrier but connections will still provide element interlock. Decay and minor erosion, while not always visible, may begin to reduce element strength and individual post stability.

The end treatment is slightly compromised. The end treatment may be somewhat out of alignment, have low cable anchor tension or isolated broken or cracked rail, posts or blocks. Corrosion and erosion are evident.

In general, the distresses observed, either in isolation or combination, may generate unpredictable outcomes related to the functions of the element stated above.

POOR

The barrier is not functional. The barrier will not function as intended. Any of the following could mean that the barrier is in poor condition: The barrier has fallen out of alignment or its height varies greatly from the designed height. Cracks and broken elements are visible from the roadside. The barrier is missing several elements, such as nuts, bolts, blockouts or consecutive posts. Corrosion, causing structural compromise is significant and obvious. Erosion around posts will reduce the barrier's strength and capacity.

The end treatment is not functional. The end treatment does not function as intended. There is no tension in the cable anchor. A significant portion of the end treatment has broken, cracked or dented elements. Elements are missing and corrosion or erosion is significant.

In general, the distresses observed clearly illustrate the inability of the element to perform the intended functions.

CONDITION AND SEVERITY DISTRESS TABLES – BARRIERS

Condition and Severity Distress Table for Semi-Rigid Barriers (including barriers with posts, rail elements and blocks).

	GOOD	FAIR	POOR
Alignment/Design Height			
	• Alignment off by less than 6”	• Alignment off by 6”-12”	• Alignment off by more than 12”
	• Within 1” of ***design height***	• Less than 3” lower than ***design height***	• Greater than 3” lower than ***design height***
Breaking/Cracking, an member, post or rail – due to impact loading			
	• Metal – no twisting/bending, tears or cracking	• Metal – no cracking or tearing (but minor twisting/bending is ok)	• Metal – any cracks or tears
	• Wood – no impact related cracking	• Wood – maybe cracked but retains original cross section	• Wood – cracks or tears that deform original section
	• Isolated broken blocks	• Two Consecutive broken blocks	• Consecutive broken blocks (three or more consecutive)
Missing Elements			
	• No bolts and nuts missing	• One or two bolt/nut missing at one rail/rail connection	• Three or more bolts/nuts missing at one rail/rail connection
	• n/a	• Two consecutive missing blocks	• Three or more consecutive missing blocks
	• n/a	• n/a	• One missing rail element or post
Corrosion/Decay/Weathering, all posts, rails and blocks – due to aging			
	• Loss of 5% or less of cross section	• Loss of 5% to 50% of cross section	• Loss of 50% or more of cross section
	• Erosion (less than 8” of post exposed below original groundline)	• Erosion around posts (8” or more of post exposed below original groundline) for one	• Erosion around consecutive posts (more than 8” of post exposed below original groundline)

Condition and Severity Distress Table for Rigid Concrete Barriers (including pre-cast).

	GOOD	FAIR	POOR
Alignment/Design Height			
	• Alignment off by less than 6”	• Alignment off by 6”-12”	• Alignment off by more than 12”
	• Within 1” of *design height*	• Less than 3” lower than *design height*	• Greater than 3” lower than *design height*
Breaking/Cracking– due to impact loading			
	• Minor cracks (less than ¼”) present	• Cracking present ¼” or greater but no displacement or discontinuity in face	• Barrier displaced and/or discontinuous
	• n/a	• Pieces broken from barrier 3” deep or less without exposing rebar	• Cracking exposes rebar
	• n/a	• n/a	• Pieces broken from face greater than 3” deep
Missing Elements			
	• n/a	• n/a	• n/a
Corrosion/Decay/Weathering – due to aging			
	• Surface corrosion on less than 5% of the run	• Surface corrosion on between 5-25% of the run	• Surface corrosion on more than 25% of the run
	• n/a	• Spalling 3” deep or less without exposing rebar	• Spalling greater than 3” deep
	• Erosion (less than 8” below groundline) around base	• Erosion (8” or more below groundline) around base	• Erosion (8” or more below groundline)
	• n/a	• Less than 50% undermined (less than half barrier width)	• 50% or more undermined (less than half barrier width)

Condition and Severity Distress Table for Rigid Stone/Masonry Barriers (including all types of stone or masonry barriers).

	GOOD	FAIR	POOR
Alignment/Design Height			
	• Alignment (off by less than 6”)	• Alignment (off by 6”-12”)	• Alignment (off by more than 12”)
	• Within 3” of *design height*	• Between 3.1 - 6” lower than *design height*	• Greater than 6.1” lower than *design height*
Breaking/Cracking – due to impact loading			
	• Minor cracks (less than ¼”) present	• Cracks, less than ½” present	• Cracks greater than ½” present
		• Stones broken/displaced extending less than 1/3 of width of barrier	• Stones broken/displaced extending 1/3 width or more through the barrier
Missing Elements			
	• n/a	• n/a	• n/a
Corrosion/Decay/Weathering – due to aging			
	• Cracks in mortar joints 1/4” or less and/or single loose or missing stones	• Mortar joints deteriorated resulting in two - three loose or missing adjacent stones (without impact)	• Mortar joints deteriorated resulting in more than three continuous/adjacent loose or missing stones (without impact)
	• Erosion (less than 8” below groundline) around base	• Erosion (8” or more below groundline) around base	• Erosion (8” or more below groundline)
	• n/a	• Less than 50% undermined (less than half barrier width)	• 50% or more undermined (less than half barrier width)

Condition and Severity Distress Table for Flexible Barriers, (including cable barriers and weak-post systems designed without blocks).

	GOOD	FAIR	POOR
Alignment/Tension/Design Height			
	• No bent posts	• Bent posts; one to three consecutive posts	• Bent posts; four or more consecutive posts
	• Cable has tension	• Cable under-tensioned/sagging	• No cable tension
	• Less than 1” too low	• 1-3” too low	• Greater than 3” too low
Breaking/Cracking			
	• No cracked or broken posts	• One to three isolated broken posts	• Four or more consecutive broken posts
	• n/a	• Cable frayed	• Cable broken or severed
Missing Elements			
	• No bolts and nuts missing at anchors	• n/a	• Bolts and nuts missing or loose at anchors
	• n/a	• n/a	• Any missing posts or cable for any length of run
Corrosion/Decay/Weathering – due to aging			
	• Loss of 5% or less of cable cross section	• Loss of 5% to 15% of cable cross section	• Loss of 15% or more of cross section
	• Erosion (less than 8” of post exposed below original groundline)	• Erosion around one post (8” or more of post exposed below original groundline)	• Erosion around consecutive posts (more than 8” of post exposed below original groundline)

CONDITION AND SEVERITY DISTRESS TABLES – END TREATMENTS

Condition and Severity Distress Table for Flexible End Treatments, (including cable end terminals).

	GOOD	FAIR	POOR
Alignment/Tension			
	• Alignment off by less than 4”	• Alignment off by 4”-8”	• Alignment off by more than 8”
	• Adequate cable tension	• Low cable anchor tension	• No cable anchor tension
Breaking/Cracking – due to impact loading			
	• No broken or cracked elements	• Minor cable fraying but still with adequate tension	• Broken or cracked cables or posts
	• No damage to posts, cable or anchor	• Slight damage to posts without cracking or tearing (*but minor twisting/bending on isolated posts is OK)*	• Cable broken or severed on any cable
Missing Elements			
	• No bolts and nuts missing at anchors; No missing cables	• n/a	• Any missing element (post, cable, bolts, nuts, or anchor)
Corrosion/Decay/Weathering – due to aging			
	• Loss of 5% or less of cable cross section	• Loss of 5% to 15% of cable cross section	• Loss of 15% or more of cross section
	• Connections weathered but still provide element interlock on less than 5% of the end treatment	• Connections weathered but still provide element interlock on between 5% to 15% of the end treatment	• Connections weathered but still provide element interlock on more than 15% of the end treatment

Condition and Severity Distress Table for Semi-Rigid End Treatments, including Flared and Tangent

	GOOD	FAIR	POOR
Alignment/Tension			
	• Alignment of flares and offsets off by less than 4”	• Alignment of flares and offsets off by 4”-8”	• Alignment of flares and offsets off by more than 8”
	• Within 1” of *design height*	• Less than 3” lower than *design height*	• Greater than 3” lower than *design height*
For *Aesthetic Barriers* (i.e. – SBT and SBL guardrail) that do not have crashworthy terminals:	• Approach barrier terminals are buried, anchored, and flared away from the travel lane	• Approach barrier terminals are buried, anchored, and flared away from the travel lane	• Approach barrier ends are NOT buried, anchored, nor flared away from the travel lane
Breaking/Cracking – due to impact loading			
	• Metal – no twisting/bending, tears or cracking	• Metal – no cracking or tearing (but minor twisting or bending is ok)	• Metal – any cracks or tears
	• Wood – no impact related cracking	• Wood – maybe cracked but retains original cross section	• Wood – cracks or tears that deform original section
	• No broken blocks	• One broken block	• Two consecutive broken blocks
Missing Elements			
	• No missing elements, including breakaway cables and struts	• Isolated bolts, nuts, or blocks loose on non-consecutive posts	• Any missing element, including blocks, rails, posts cables, or struts
	• No bolts, nuts, or blocks missing or loose	• Breakaway strut present but vertical height off by more than 2”	• Missing nuts / bolts on consecutive posts
Corrosion/Decay/Weathering – due to aging			
	• Surface corrosion / decay / connections weathered with a loss of 5% or less of cross section of interlocking elements	• Surface corrosion / decay / connections weathered with between 5-25% loss of cross section along transition interlocking elements	• Surface corrosion / decay / connections weathered with more than 25% loss of cross section along transition interlocking elements
	• Erosion (less than 8” of post exposed below original groundline)	• Erosion around 1 post (8” or more of post exposed below original groundline)	• Erosion around consecutive posts (8” or more of post exposed below original groundline)

SPECIFIC RISK ELEMENTS

The potential risk to a motorist after a vehicle impacts a traffic barrier depends on the crashworthiness of the traffic barrier as well as traffic exposure factors. Variables relating to the roadside, the traffic barrier's crashworthiness and traffic data include the following:

ADT. The number of vehicles (in both directions) that travel the roadway on which the traffic barrier is located.

Barrier Crashworthy. A traffic barrier is crashworthy if it was successfully crash tested under NCHRP Report 350 at speeds along the park road or parkway or if it was accepted through analysis by FHWA, based on similarity to other crashworthy critical design element features. If crashworthy, the appropriate test level also needs to be recorded. For crashworthy barriers, the barrier test level will be compared to the test level appropriate for the roadway (based solely on posted speed limit). The intent is to record situations in which a crashworthy barrier of a lower test level is installed on a roadway which should have a barrier of a higher test level.

Barrier Height. Determined from barrier height as collected in the physical condition assessment. The database will compare this value to the NCHRP test level height that is appropriate for the posted speed of the road and barrier type.

End Treatment Crashworthy. An end treatment is crashworthy if it has been successfully crash tested. This is for the approach end treatment, which is defined as the end treatment which a vehicle will first pass when traveling on the same side of the road as the barrier.

Existing Roadway Features. The list of roadway features is limited to the following, all of which have a documented history of reducing the number of crashes, and are found later in the GIP as possible countermeasures.

Centerline pavement markings	Grooved pavement surface
Edgeline pavement markings	Delineators on curve and tangent
Wider centerline	Chevrons
Wider edgeline	Warning sign
Centerline rumble strips	Flashing beacon on warning sign
Shoulder rumble strips	Lighting
Barrier reflectors	Speed feedback sign

Factored Crash Rate. The average annual number of crashes (on the overall road and by barrier segment), over the last 5 years. If the road has an ADT of less than 1000, evaluate a minimum of
7 to 10 years of crash data, if available.

Lateral Offset of Barrier from Edge of Traveled Way. The distance from the edge of traveled way to the face of the barrier is useful for determining impact to asset during different types of construction. Two or three measurements will be taken – beginning, middle and end of barrier run (not including the end treatments) – and the average will be used.

Posted Speed Limit. The posted speed limit(s) of the roadway section.

Roadway Grade and Uphill or Downhill. Is refers to the grade of the roadway, in the direction of travel closest to the barrier.

Severity of the Hazard behind Barrier. A rating system based on photos will be used to rate the severity of the hazard behind the barrier. Choices include:

- Low
- Medium
- High
- Extreme

RISK ASSESSMENT AND RISK SCORE

The following table shows the variables relating to the overall roadway safety in the vicinity of barriers. In addition, the table illustrates the range of values considered for each variable and associated levels of risk. For categorization purposes, variables have been placed into one of three categories: segment, site or barrier variables. The "Associated Risk" column identifies the relative risk posed by each variable. This looks at the relative risk of the each variable itself and is only a cursory evaluation.

A Risk Score or Rating ("Barrier Rating" on Tier 3 Barrier page) was created for each barrier based on the table values. The level of risk tolerated is dependent on the category of road, which will be discussed in subsequent pages.

Once the inventory has been conducted, a total risk value can be assigned to each barrier. A comparison of the relative risk to an acceptable risk threshold will be performed in order to analyze the overall risk of a given barrier.

Variable and Associated Levels of Risk

VARIABLE	RANGE	ASSOCIATED RISK
SEGMENT VARIABLES		
ADT	0 – 1000	0.0
	1001 – 4000	2.9
	4001 – 8000	5.7
	8001 – 20,000	7.1
	20,001 and greater	8.6
Crash Factor	0	0.0
	0.1 – 5.0	4.2
	5.1 – 20.0	8.7
	20.1 – 30.0	17.1
	30.1 – 75.0	25.8
	75.1 and greater	34.2
Posted Speed Limit	15 – 25 mph	0.0
	30 – 40 mph	4.3
	45 and higher	8.6
SITE VARIABLES		
Barrier Placement w/ Respect to Roadway Geometry	Tangent	0.0
	Inside of curve	2.9
	Both inside and outside of curve	8.6
	Outside of curve	8.6
Severity of Hazard behind the Barrier	Low severity	2.6
	Medium severity	5.1
	High severity	6.9
	Extreme severity	8.6
Longitudinal Length of Barrier	1 – 250-ft	0.0
	251 – 750-ft	2.9
	751 – ft and greater	5.7
Lateral Offset of Barrier from Edge of Traveled Way	4.1 – ft and greater	0.0
	2 – 4-ft	2.9
	less than 2-ft	5.7
Roadway Grade	Uphill/level/downgrade less than 3%	0.0
	Mild downgrade (3 – 6%)	4.3
	Steep downgrade (greater than 6%)	8.6
BARRIER VARIABLES		
Actual Barrier Height (compared to test level height)	0 – 1-in lower	0.0
	1.1 – 4-in lower	4.4
	4.1 – 7-in lower	12.9
	7.1 – 12-in lower	19.4
	12.1-in and greater lower	21.5
Dynamic Barrier Condition Rating (based on design height)	0 – 25	0.0
	26 – 200	4.4
	201 – 400	8.6
	401 – 600	12.9
	601 – 800	17.1
	801 and above	21.5
Barrier Conformance with Current Crashworthiness Criteria	Yes	0.0
	No	5.7
	Maximum Total Possible Risk Score	**100**

REPLACEMENT/REPAIR STRATEGIES

Information is integrated by combining static data on barrier type, materials, dimensions, etc. with the condition and risk assessments, and the asset management roadway categories (which include cultural and historic resource considerations) to come up with actionable repair strategies for barriers. In addition, repair costs are accounted for so that estimates can be made for repair actions identified. Costed repair estimates, or work orders, then form the basis for estimating deferred maintenance associated with roadside barriers.
Repair recommendations generated by this assessment are intended to provide an estimated cost of deferred maintenance of barriers. As such, the evaluation is not rigorous and may be changed when a more detailed review and assessment at a project level is completed. In addition, any repairs or replacements that are recommended by this inventory and assessment process must be vetted through a project selection, planning and design process, including compliance with the National Historic Preservation Act (NHPA) and the National Environmental Policy Act (NEPA).

Many park barriers are located in harsh environments where freeze-thaw cycles, avalanche impacts, surface erosion, rockfall and vehicle impacts damage them; consequently, they are showing signs of fatigue, at times serious. Whenever possible, historic barriers are repaired or rehabilitated in place so that the historic significance can be preserved; however, removal or reconstruction, which is typically the least preferred alternative, is at times necessary.

Barrier deficiencies can generally be categorized into one of two categories:

- Barriers that pose an unacceptable risk to the traveling public (as determined by the risk assessment methods described in Chapter Seven and including standards found in NCHRP Report 350), or
- Damaged barriers, due to either crash impacts, other loadings (e.g., snow / avalanche, etc) or deteriorated parts (from age / weathering).

Outside of the national park system, barriers that do not meet NCHRP Report 350 crashworthiness standards are typically removed and a barrier of a crashworthy design is constructed in its place. However given the sensitive natural and cultural environments found within the national park system, deficient barriers not meeting national crashworthiness standards may warrant no action, particularly where risk is low.

The type of repair strategy is often dependent on the barrier deficiency and its cultural context. Typically barriers that do not meet current crashworthiness criteria may be replaced while damaged or deteriorated barriers can be repaired. However, under unique situations found in certain national parks and as evaluated using the risk assessment and asset management roadway categories, some barriers that do not meet current crashworthiness criteria may warrant no action being taken for their replacement or repair.

Risk assessment and asset management roadway categories are integrated in the following table, which establishes different risk thresholds within each roadway category. In essence, a higher level of risk will be tolerated in Asset Management Roadway Category A, as demonstrated by the higher risk threshold (90), while less risk will be tolerated in Roadway Category B (70) and even less risk in Roadway Category C (50).

Asset Management Roadway Categories, Risk Thresholds and Treatment Recommendations.

ASSET MANAGEMENT ROADWAY CATEGORY	RISK THRESHOLD	PROGRAM-LEVEL TREATMENT RECOMMENDATION
A	90-100	1. Identify measures other than barrier replacement that could be taken to reduce risk (including engineering countermeasures). 2. Corrective action (including reconstruct/replacement, if necessary) needed to reduce risk below 90.
	Below 90	1. Identify measures that could be taken to reduce risk (including engineered countermeasures). 2. Identify repairs needed to improve physical condition/maintain historic integrity. 3. When condition is good and risk is acceptable, no action is necessary.
B	70-100	1. Identify measures that could be taken to reduce risk (including engineered countermeasures). 2. Corrective action (including reconstruct/replacement, if necessary) needed to reduce risk below 70.
	Below 70	1. Identify measures that could be taken to reduce risk (including engineered countermeasures). 2. Identify repairs needed to improve physical condition/maintain historic integrity. 3. When condition is good and risk is acceptable, no action is necessary.
C	50-100	1. Identify measures that could be taken to reduce risk (including engineered countermeasures). 2. Corrective action (including reconstruct/replacement, if necessary) needed to reduce risk below 50.
	Below 50	1. Identify measures that could be taken to reduce risk (including engineered countermeasures). 2. Identify repairs needed to improve physical condition/maintain historic integrity. 3. When condition is good and risk is acceptable, no action is necessary.

Fourteen engineering countermeasures have been specifically selected for use with the GIP risk assessment tool, and are show in the next table. This is an all-inclusive list of available countermeasures for the risk assessment toll; countermeasures not on the list should not be considered.

The concept of employing countermeasures is evident with barriers that have a risk score just above the risk threshold. For such barriers, installing countermeasures should reduce the future number of crashes by a given amount, based on the countermeasure. Depending on the factored crash rate, reducing the number of crashes will lower the overall risk score. Thus, barriers that were classified as “reconstruct/replace” may be able to be reclassified as “repair”.

The decision to include any of the engineering countermeasures can be done only when the risk score is over the risk threshold by three points or less. When countermeasures are employed to reduce the risk score, they must be based on engineering judgment. The GIP database will allow the user to select up to three countermeasures to reduce the risk score under the threshold, based on crash reduction factors from the FHWA publication “Desktop Reference for Crash Reduction Factors” FHWA-SA-07-015.

Proposed Countermeasures.

COUNTERMEASURE	CRASH REDUCTION FACTOR
Speed Feedback Signs	0.46
Flashing Beacons On Warning Signs	0.30
Centerline Pavement Marking	0.30
Lighting	0.25
Chevrons	0.20
Warning Signs	0.20
Barrier Reflectors	0.16
Grooved Pavement Surface	0.15
Edgeline Pavement Marking	0.12
Shoulder Rumble Strips	0.12
Delineators on Curve and Tangent	0.05
Centerline Rumble Strips	0.04
Wider Edgeline	0.02
Wider Centerline	0.02

Maintaining Barriers As Is

Individual barrier elements and roadside conditions are interrelated. Sometimes, barrier deficiencies will be obvious and the best course of action is apparent; however, in context sensitive environments barrier deficiencies may be marginal and a decision will be based on judgment.

If risk is low (as determined by the assessment of variables such as traffic speeds, volumes), it may be acceptable for an historical or culturally significant barrier that does not meet current crashworthiness standards to remain until changes in risk factors would require an upgrading.

If the maintaining barrier as is alternative is the preferred choice through this approach, low cost mitigation measures may be considered to improve safety, such as improving roadside delineation (e.g., pavement markings / rumble strip(e)s, etc.), improving visibility (e.g., advance warning signs, increased sign size, etc.), upgrading the roadway shoulder, or improving skid resistance of the road surface. Although these measures will not reduce crash severity of an errant vehicle impact, these improvements have been tried or proven to reduce the frequency or probability of a vehicle striking the barrier.

Barrier Repair

If a barrier has been damaged due to a crash or there are parts that have deteriorated due to age or weathering but the majority of the barrier meets current crashworthiness standards and is functionally sound, repairing the system can be considered a viable option. Examples of these improvements include replacing damaged timber rail, removing a corroded, weathered steel post and replacing with new, upgraded guardrail blockouts to meet standards on high speed facilities or repointing, resetting or replacing loose or missing stones on the concrete corewalls of stone masonry guardwalls. Pursuing a repair approach should be the first consideration for Roadway Category A and B road assets.

For barriers that do not meet crashworthiness criteria but are functionally sound and have been determined good candidates to be maintained as-is based on the risk assessment and application of asset management roadway categories, repair could include measures such as repointing deteriorated masonry, re-setting or replacing loose, broken or missing stones, restoring walls to their original height (by adding a concrete footing, for example), restoring or improving drainage through or under walls or restoring wall foundations. Alterations to improve safety may also be considered, such as adding or changing end treatments or other mitigation measures as mentioned above.

For historic, stone masonry barriers that have a risk score below the threshold, it is possible that portions of the barrier need to be removed and reset in order increase the height of the barrier. The following guidelines are provided to assist in determining when this should be done and to what height the barrier should be rebuilt:

1. If all or a portion of stone masonry guardwall has a deficient height based upon the Severity Description Charts, that is, at worst, within the fair category, do not raise it. (Other work besides raising the barrier can be specified.)

2. If a portion of a stone masonry guardwall has a deficiency in height based upon the Severity Description Charts, considered "poor" (assumed typically to be less than 18-in) write a work order to raise the poor segment to the height of the adjacent barrier with a non-poor height.

3. If the entire stone masonry guardwall is in poor condition due to height based upon the Severity Description Charts– write a work order to raise the entire segment to its design height (assumed typically to be 24-in).

For aesthetic barrier systems used on many park roads and parkways, there is not a sufficient bid history database for estimating costs to repair or replace individual elements of the system, such as posts or rail. Usually repair of an aesthetic barrier system, such as steel-backed timber guardrail consists of removing and resetting the post or rail section or raising the guardrail to meet standard height requirements.

Barrier Replacement/Reconstruction

If the risk analysis, including the application of asset management roadway categories, indicates the barrier poses an unacceptable safety risk, the first step should be an analysis to determine if there are mitigating measures that can be applied to reduce the risk to an acceptable level without the need to reconstruct the barrier. A second step is to determine if the barrier is needed. If it is practical to eliminate the shielded hazard (by removal, relocation or redesign) removal of the barrier should be considered. However, if the shielded hazard cannot be eliminated or if it is determined inappropriate to remove the barrier (e.g., it is historically significant and/or contributes to the historical or aesthetic significance of the associated road, district or landscape), reconstruction or replacement of the barrier to meet current criteria for crashworthiness may be the appropriate recommended treatment.

The typical reconstruction option used by the NPS for stone masonry guardwalls is to document then dismantle the existing barrier, construct a concrete core and build a stone masonry veneer around the concrete core using the original wall materials and using stone masonry designs that are compatible with the historic road, district or landscape. A number of concrete core stone masonry barrier types have been designed for use in national parks, including 18-in, 22-in, 24-in and 27-in barriers; however, not all have been crash tested or otherwise determined to meet current criteria for crashworthiness.

WORK ORDERS

Work order preparation is essentially determining and documenting the repair actions needed to correct the deficiencies observed during the condition assessment. Barriers are relatively simple structures so this determination can be made by trained inspectors. Keep in mind that this is not a design environment and that more rigorous analysis (if needed) may change the work that is actually performed. The intent of this effort is to prepare a credible estimate of deferred maintenance that may or may not be directly actionable. Simple repairs and/or those that require no compliance with environmental policies (which may be a large percentage of the work orders) can probably be executed without modification.

Once a repair strategy is determined, a cost must be developed for the proposed action. Work orders will be classified as being either deferred maintenance or capital improvement. This classification is based on the type of work recommended, as defined below.

Definition: *Deferred Maintenance* can be classified as repair or replace in kind. Work done to the barrier does not include any upgrading.

Definition: *Capital Improvement* can be classified as upgrading existing barrier. Typically the upgrade will be from a non-crashworthy to a crashworthy device. Other examples of capital improvements would be the addition of a curb to improve drainage or the inclusion of any countermeasure.

There are four types of work:

- No Action
- Monitor
- Repair
- Replace

"No Action" – if risk is low (based on the GIP risk score), a barrier that does not meet current crashworthy performance standards may be acceptable to remain until changes in risk factors would require upgrading.

"Monitor" – if risk is low (based on the GIP risk score), a barrier that does not meet current crashworthy performance standards may be acceptable to remain until changes in risk factors would require upgrading, however, if conditions exist that the park should monitor (e.g., erosion), then "monitor" can be selected as a recommended action.

"Repair" – considered when a barrier damaged by impact deteriorated due to age/weathering and the barrier is functionally sound in a low risk environment. The goal is to bring the barrier back to its "new" condition.

"Replacement/Reconstruction" – when a barrier poses an unacceptable safety risk:

1. If the risk score is less than 3 points above the risk threshold, determine if countermeasures can reduce risk so the barrier can be repaired.
2. Determine if the barrier is warranted and either shielded hazard or barrier itself can be removed (only when barrier NOT considered historically/culturally significant)

For all barrier repair/replace/reconstruction recommendations, the NPS will vet the recommendations through a project selection, planning and design process, including compliance with:

National Historic Preservation Act (NHPA)
National Environmental Policy Act (NEPA)

Aesthetic barriers are commensurate with an approved crashworthy design for the specific conditions at the barrier site as the basis for selecting a crashworthy structure. Types of barriers are generally selected based on emulating the existing types of barriers in the park.