

DEWA

GIP Report

NPS Guardwall/Rail Inventory Program Delaware Water Gap National Recreation Area



**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

Delaware Water Gap National Recreation Area in New Jersey and Pennsylvania



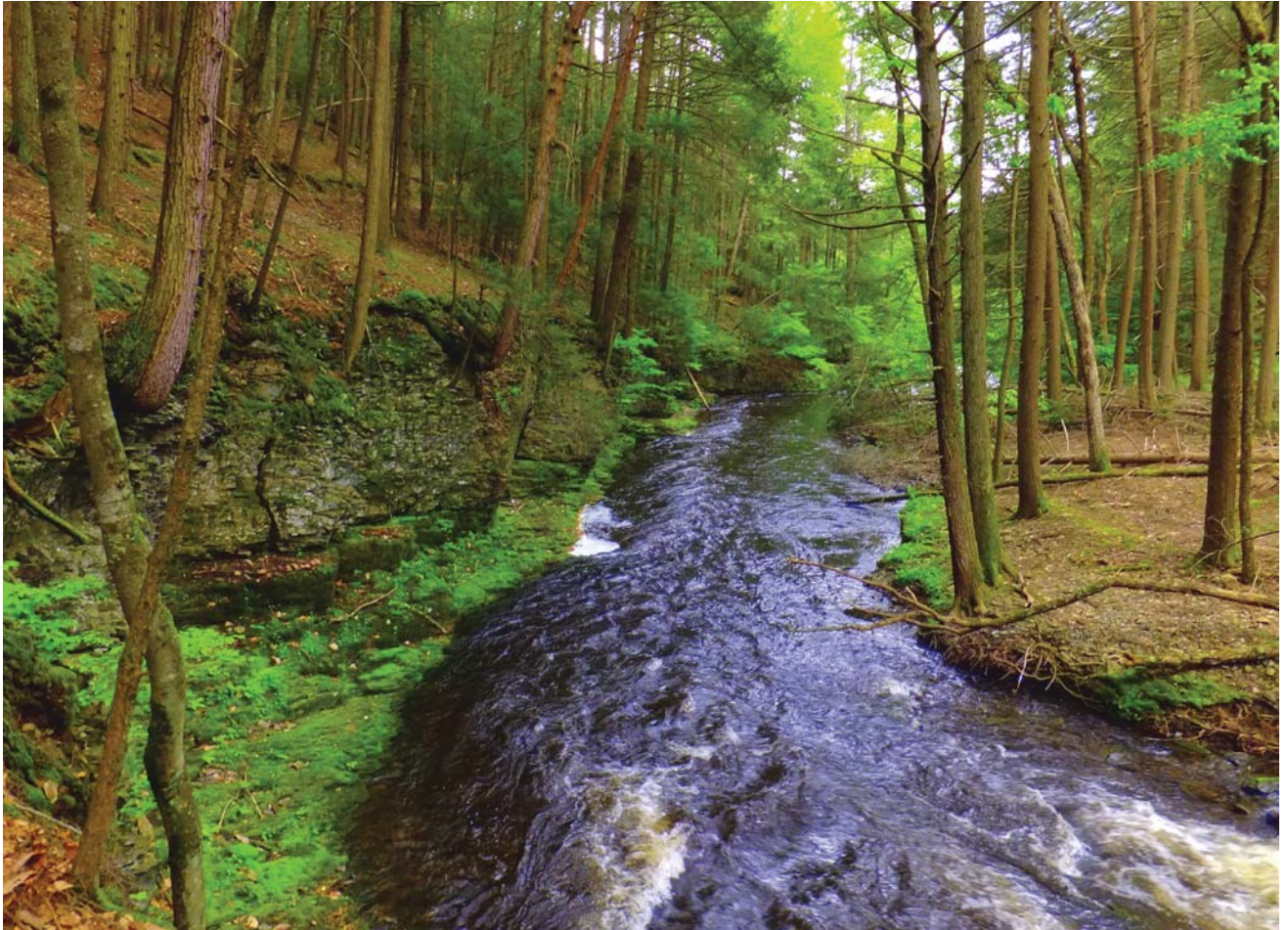
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Introduction



Delaware Water Gap National Recreation Area



**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



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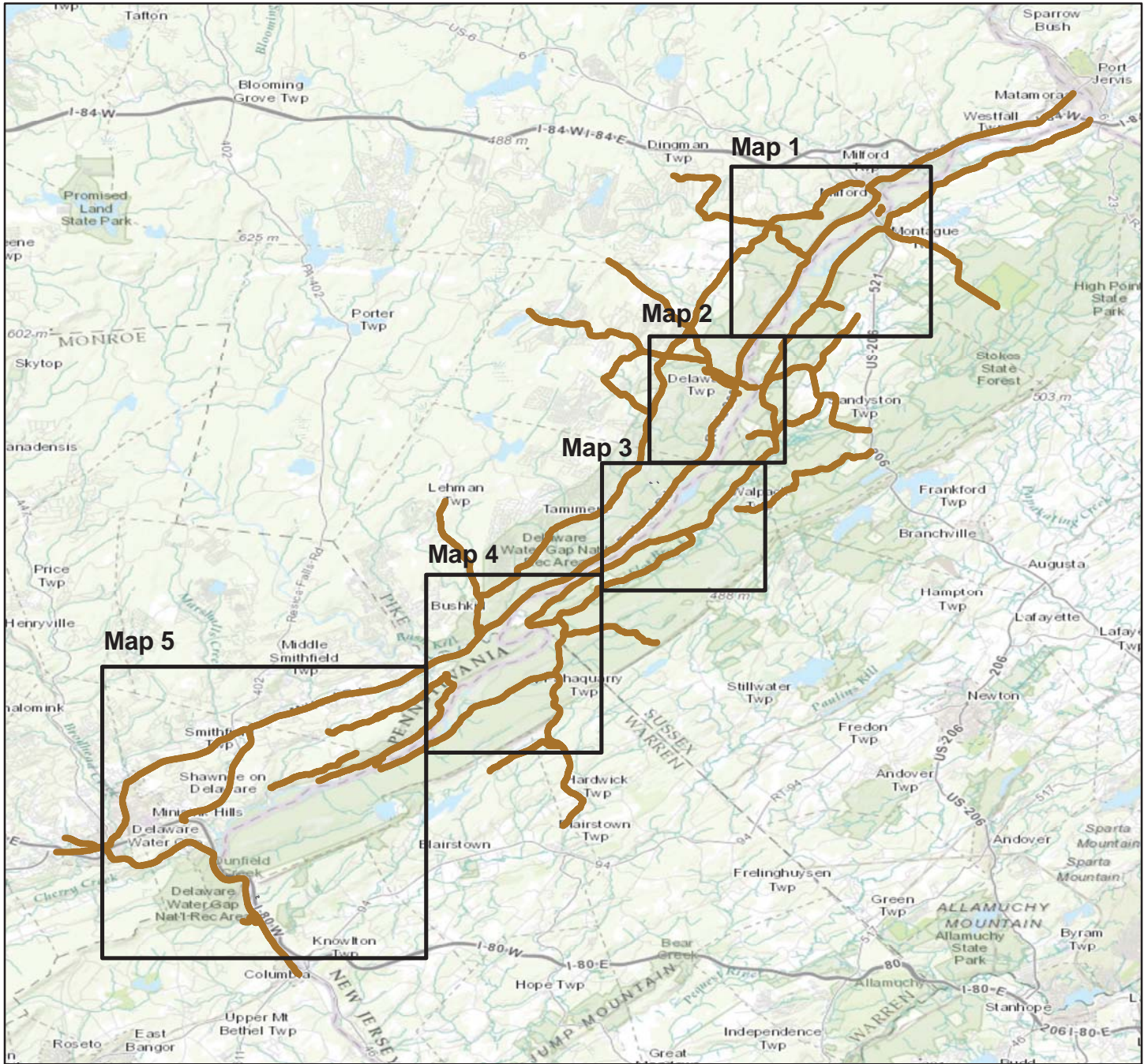


**Federal Lands Highway
Road Inventory Program**

Delaware Water Gap National Recreation Area

BARRIER LOCATION MAP

Key Map



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

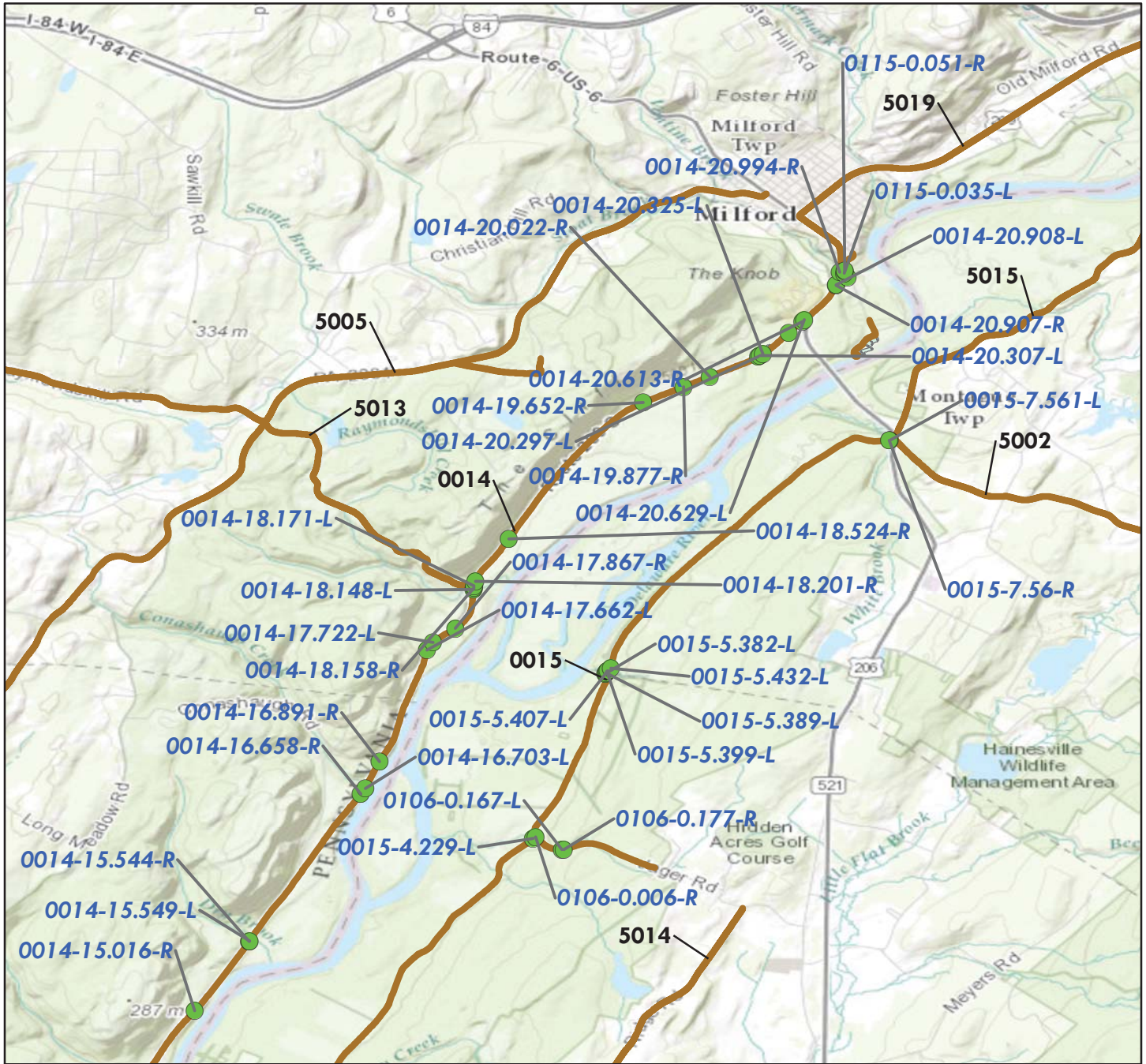
 RIP Collected Routes



Delaware Water Gap National Recreation Area

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

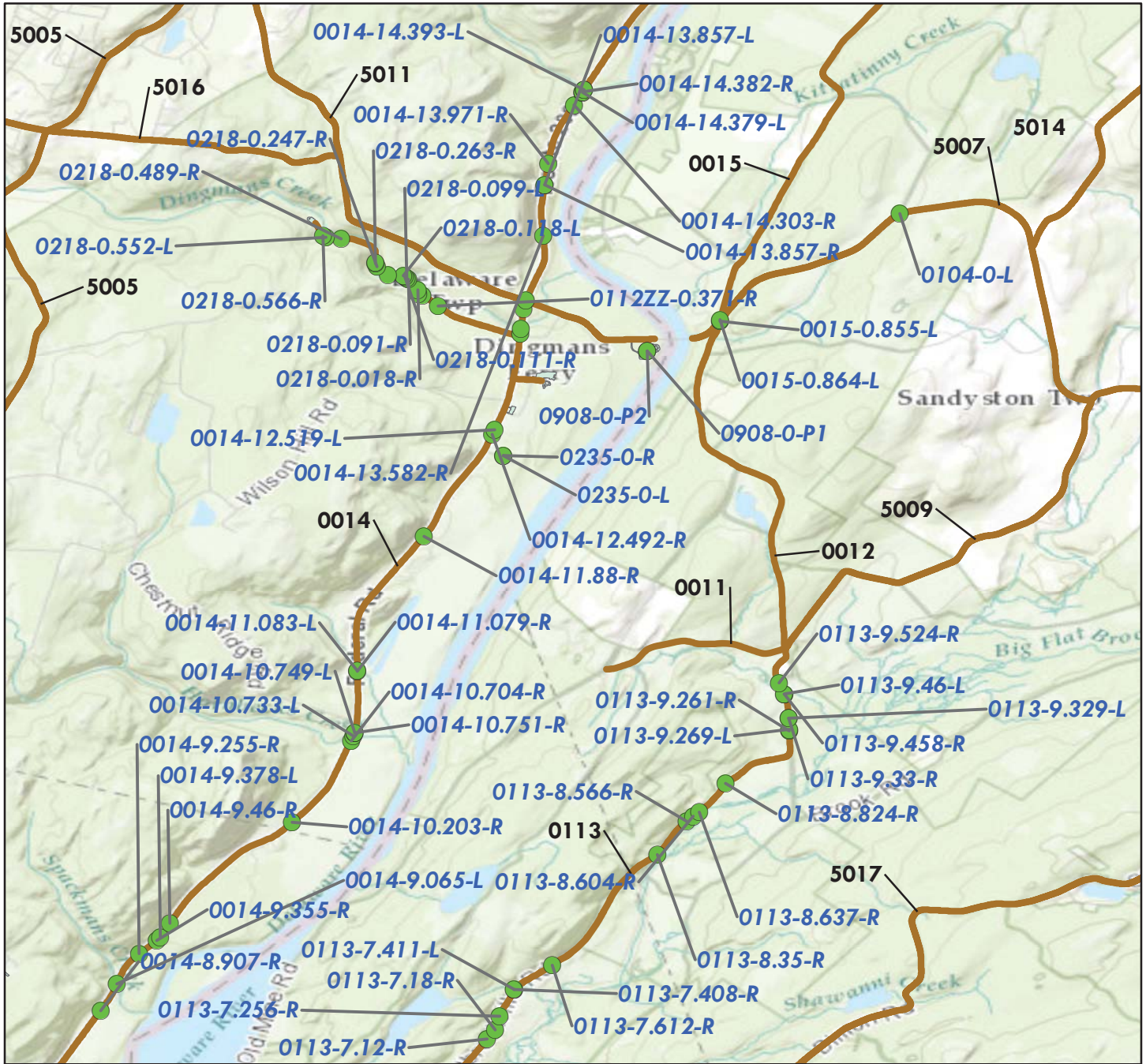
— RIP Collected Routes



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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)

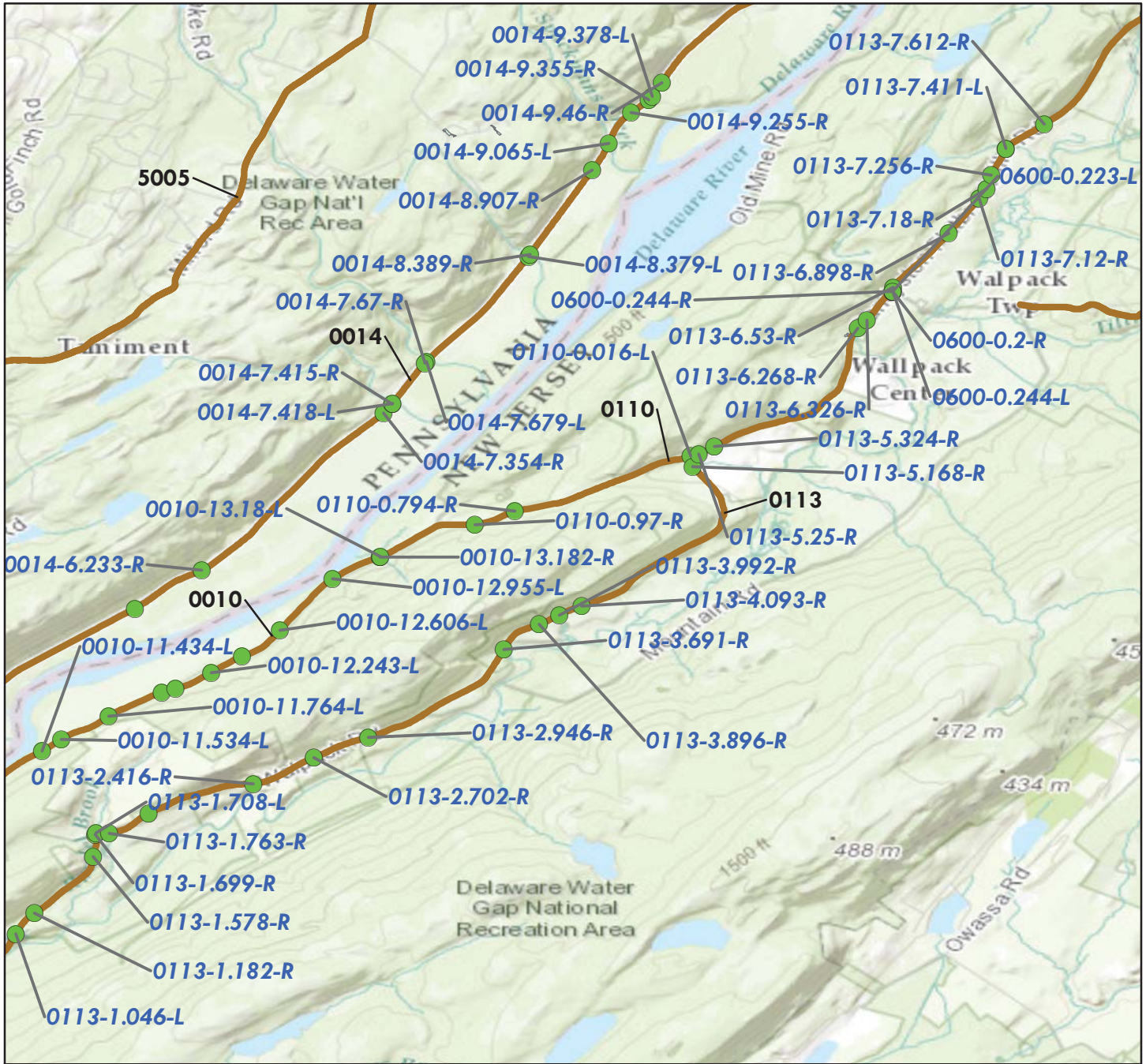
— RIP Collected Routes



Delaware Water Gap National Recreation Area

BARRIER LOCATION MAP

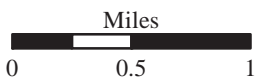
Map 3



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)

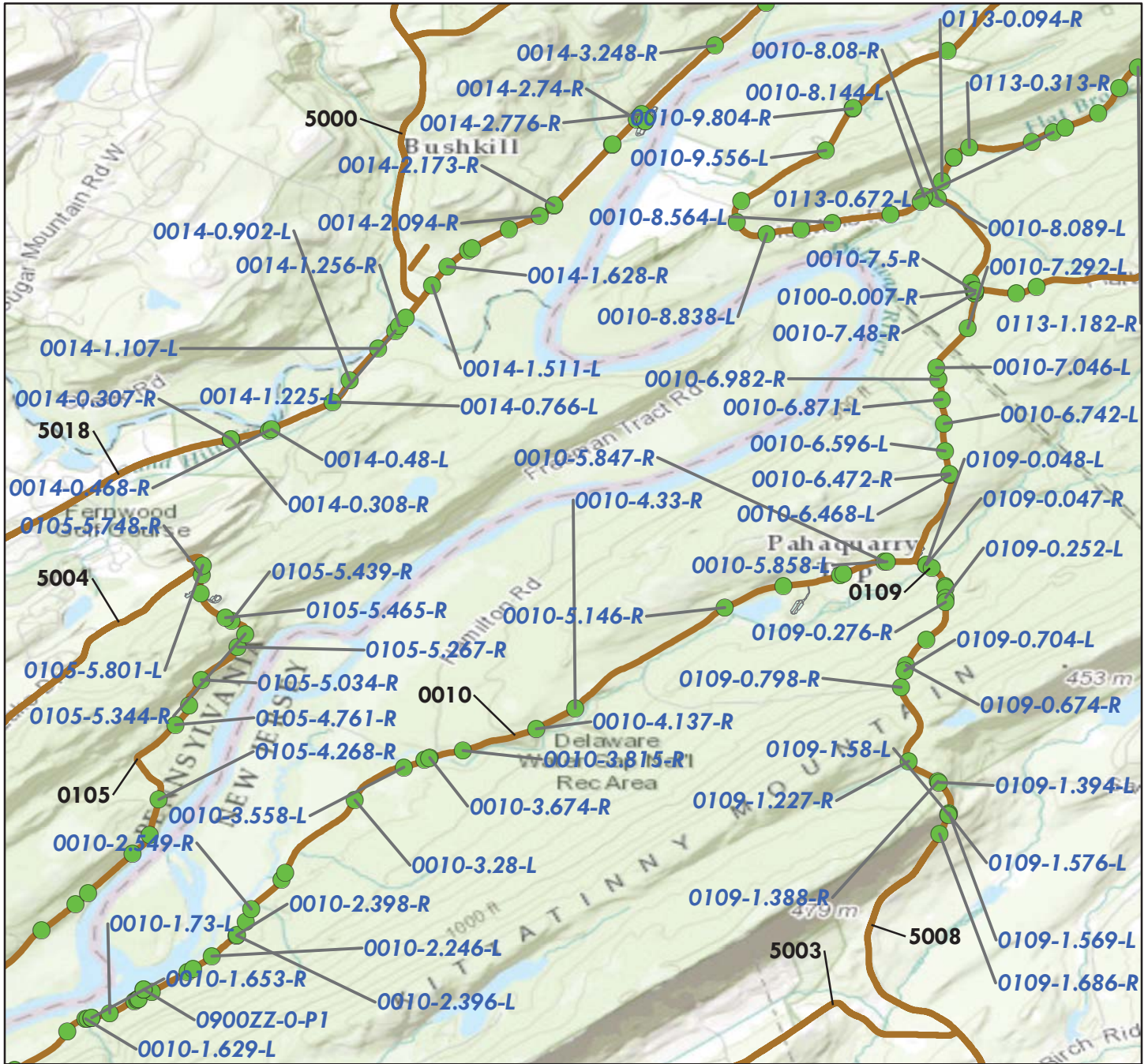
— RIP Collected Routes



Delaware Water Gap National Recreation Area

BARRIER LOCATION MAP

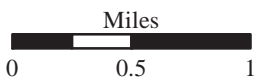
Map 4



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 (Not all labeled)

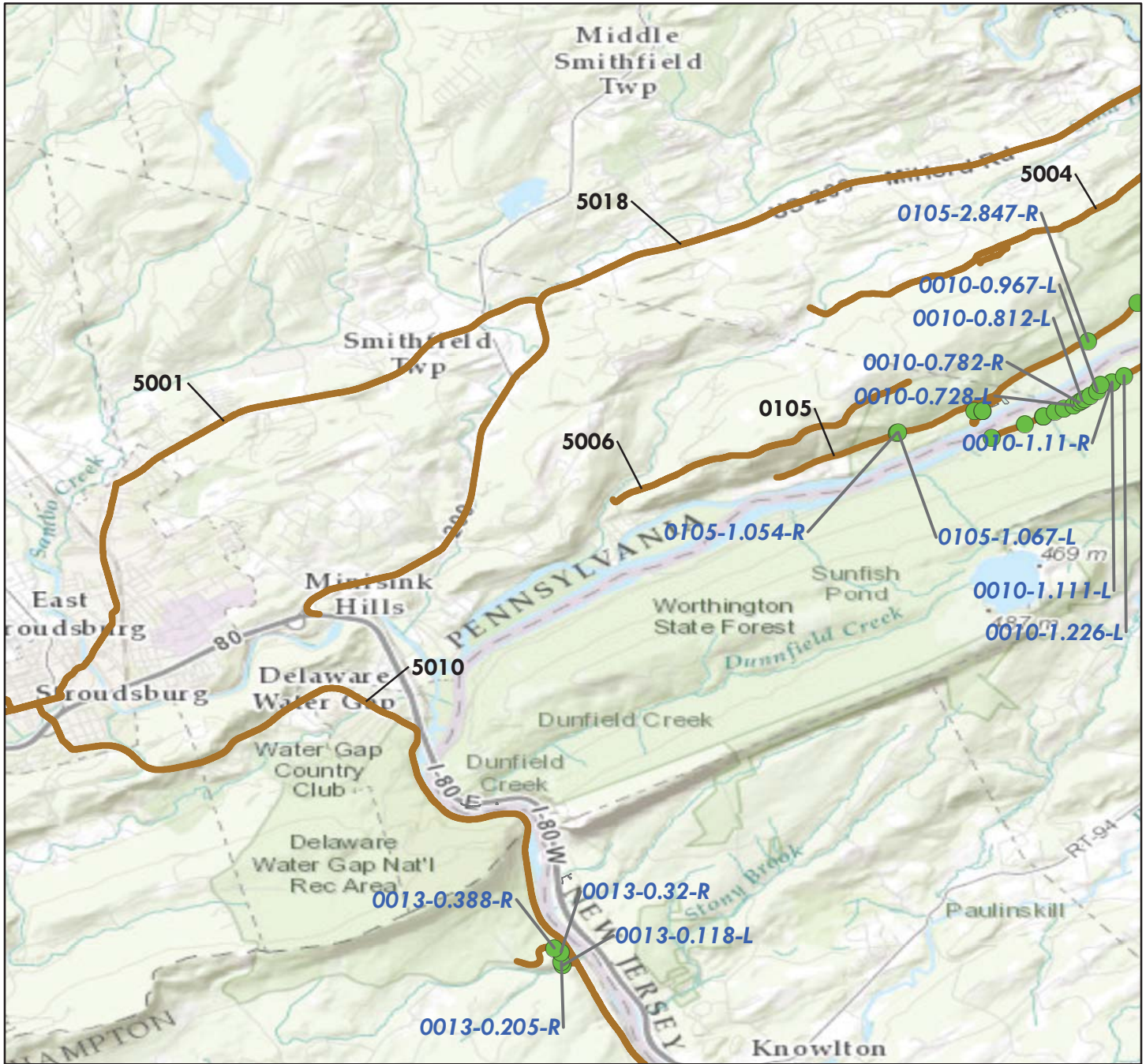
— RIP Collected Routes



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BARRIER LOCATION MAP

Map 5



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



Tier 1 Park Barrier Overview



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Parkwide Summary: Delaware Water Gap National Recreation Area

Initial barrier inspections were conducted at Delaware Water Gap National Recreation Area in 2010, and encompassed all known barriers associated with Park roadways. In general, walls are not included in this assessment, but were inspected for Delaware Water Gap National Recreation Area 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, 324 barriers were inventoried on the routes listed below.

Table 1: Number of Barriers by Route

Route Number	Route Name	No. of Barriers
0010	OLD MINE ROAD (SOUTH SECTION)	88
0013	NATIONAL PARK DRIVE	4
0014	US ROUTE 209	92
0015	OLD MINE ROAD (NORTH SECTION)	10
0100	BLUE MOUNTAIN LAKE ROAD	4
0104	UPPER RIDGE ROAD	1
0105	RIVER ROAD	18
0106	JAGER ROAD	3
0109	NPS 602	18
0110	POMPEY RIDGE ROAD	3
0112ZZ	JOHNNY BEE ROADS	3
0113	NPS ROUTE 615	47
0115	ICE HOUSE ROAD	4
0218	DINGMANS FALLS ROAD	12
0233ZZ	SMITHFIELD BEACH ACCESS ROADS	3
0235	DINGMAN'S CAMPGROUND ENTRY DRIVE	2
0423	HEADQUARTER SERVICE ROAD	1
0600	MAIN STREET (WALPACK)	4
0900ZZ	POXONO BOAT LAUNCH PARKING AREAS	2
0908	DINGMAN'S FERRY ACCESS PARKING AREA	2
0910	BUSHKILL ACCESS PARKING AREA	2
0980	TURTLE BEACH PARKING	1

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	309
NON-TRAFFIC	15

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
Concrete Barrier	7
W-Beam Strong Post	93
Stone Masonry Without Concrete Core Wall	2
Other: 2-Strand Cable	83
Steel-Backed Timber Without Blockout	8
W-Beam Weak Post	32
Steel-Backed Timber With Blockout	85
Other: Timber Rail On Timber Posts	14

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	91
Monitor	\$0	0
Repair	\$765,361	138
Replace	\$4,434,671	95
Totals	\$5,200,032	324

*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	91
\$1 - \$25,000	173
\$25,001 - \$50,000	31
\$50,001 - \$100,000	20
\$100,001 - \$250,000	8
\$250,001 - \$500,000	1
\$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	324

*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 266 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



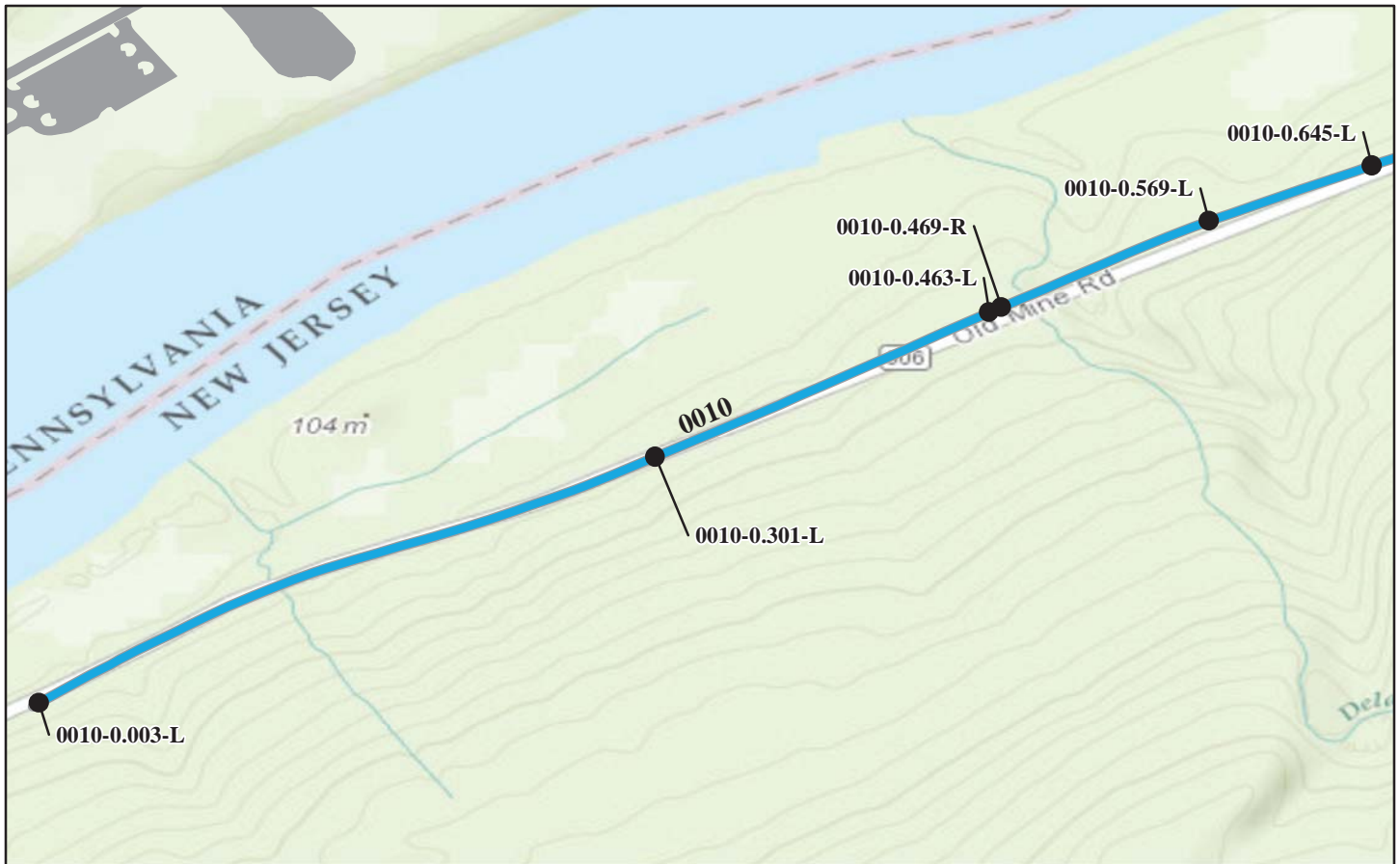
Delaware Water Gap National Recreation Area



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ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



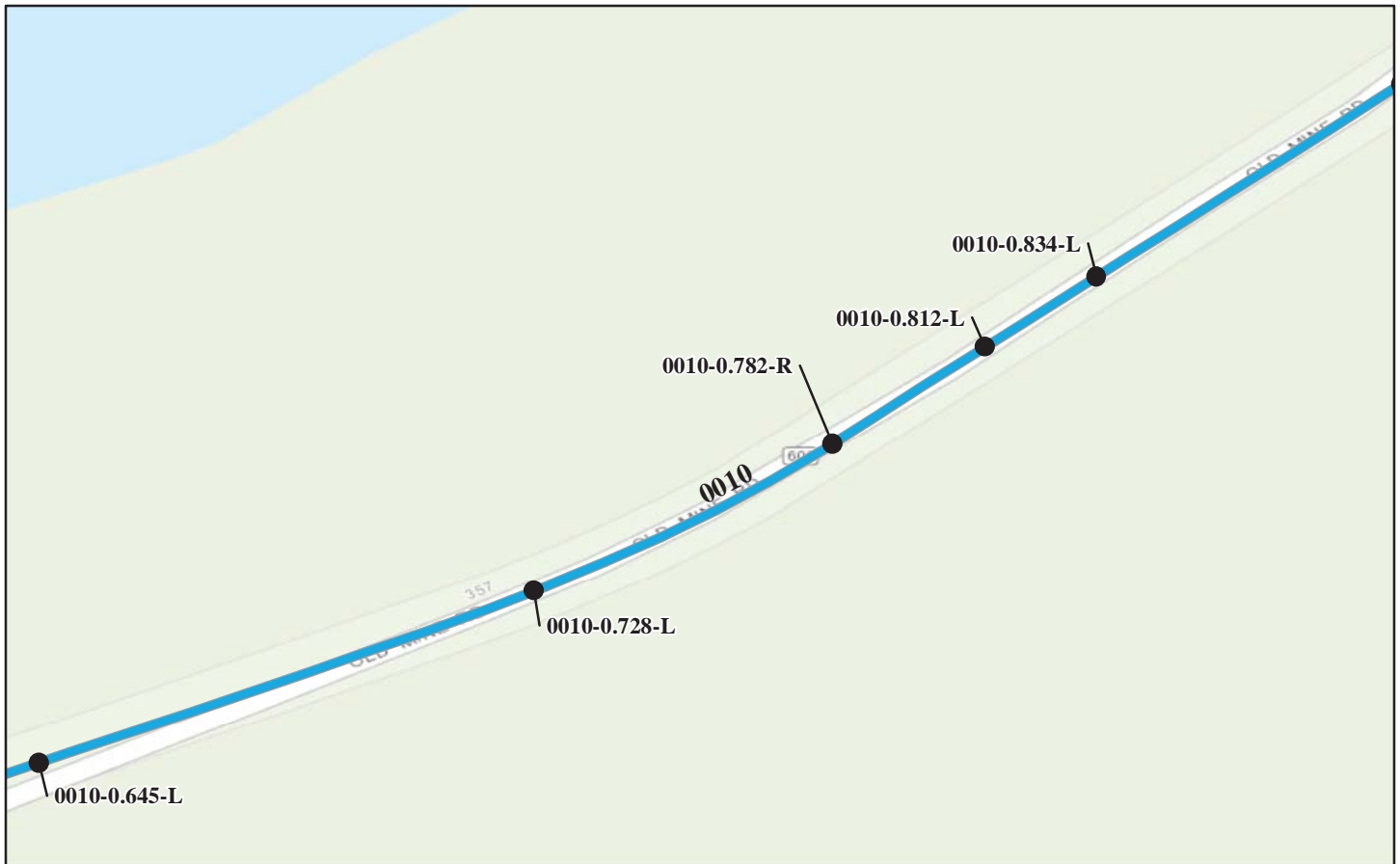
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-0.003-L 10/4/2010	1,440	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0010-0.301-L 10/4/2010	495	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0010-0.463-L 10/4/2010	292	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG BURIED	\$0.00
DEWA-0010-0.469-R 10/4/2010	227	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG BURIED	SBT/LOG BURIED	\$0.00
DEWA-0010-0.569-L 10/4/2010	396	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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



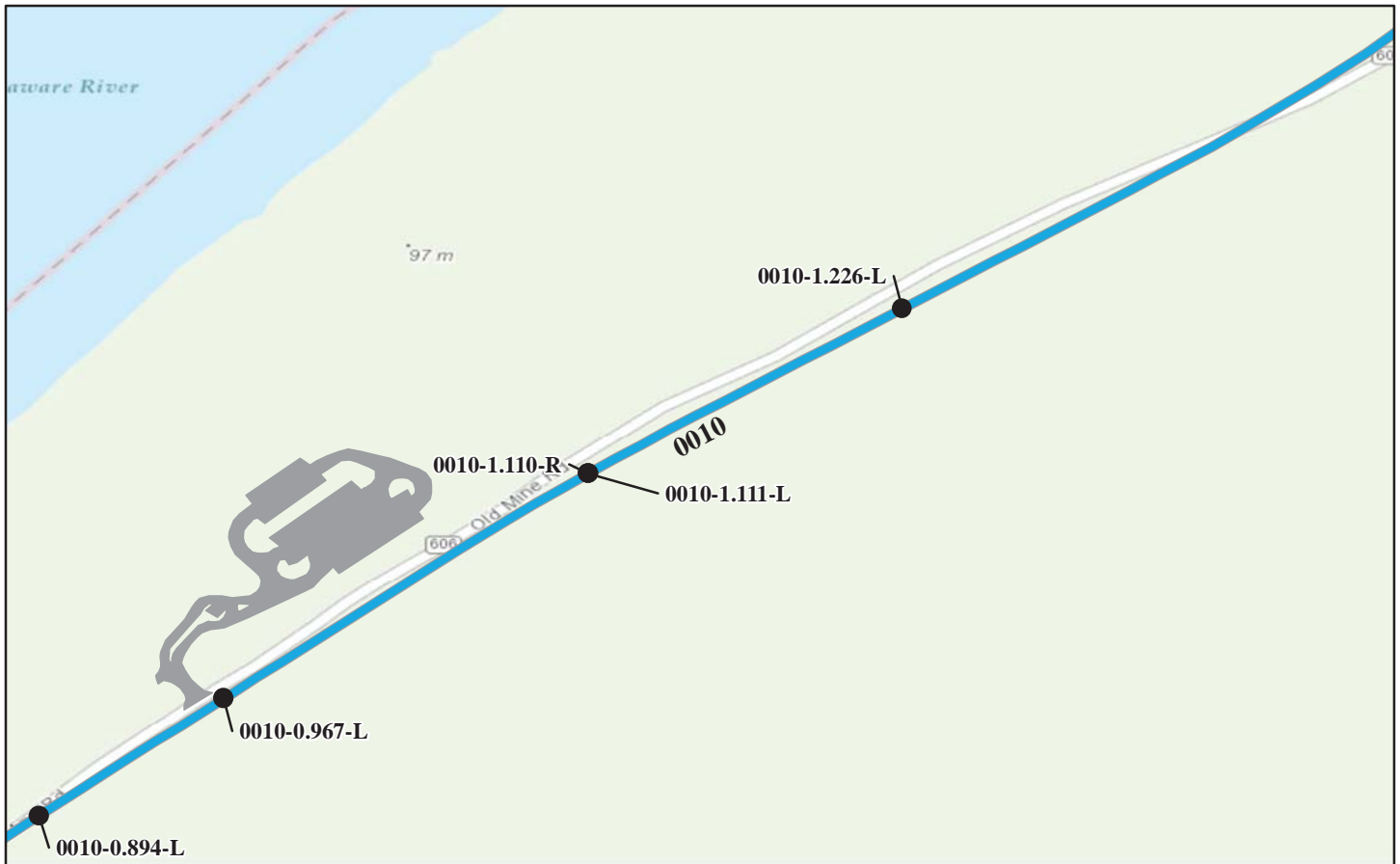
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-0.645-L 10/4/2010	420	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$0.00
DEWA-0010-0.728-L 10/4/2010	455	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$0.00
DEWA-0010-0.782-R 10/4/2010	130	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG BURIED	SBT/LOG FLARED	\$2,392.00
DEWA-0010-0.812-L 10/4/2010	140	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$0.00
DEWA-0010-0.834-L 10/4/2010	280	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$2,612.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



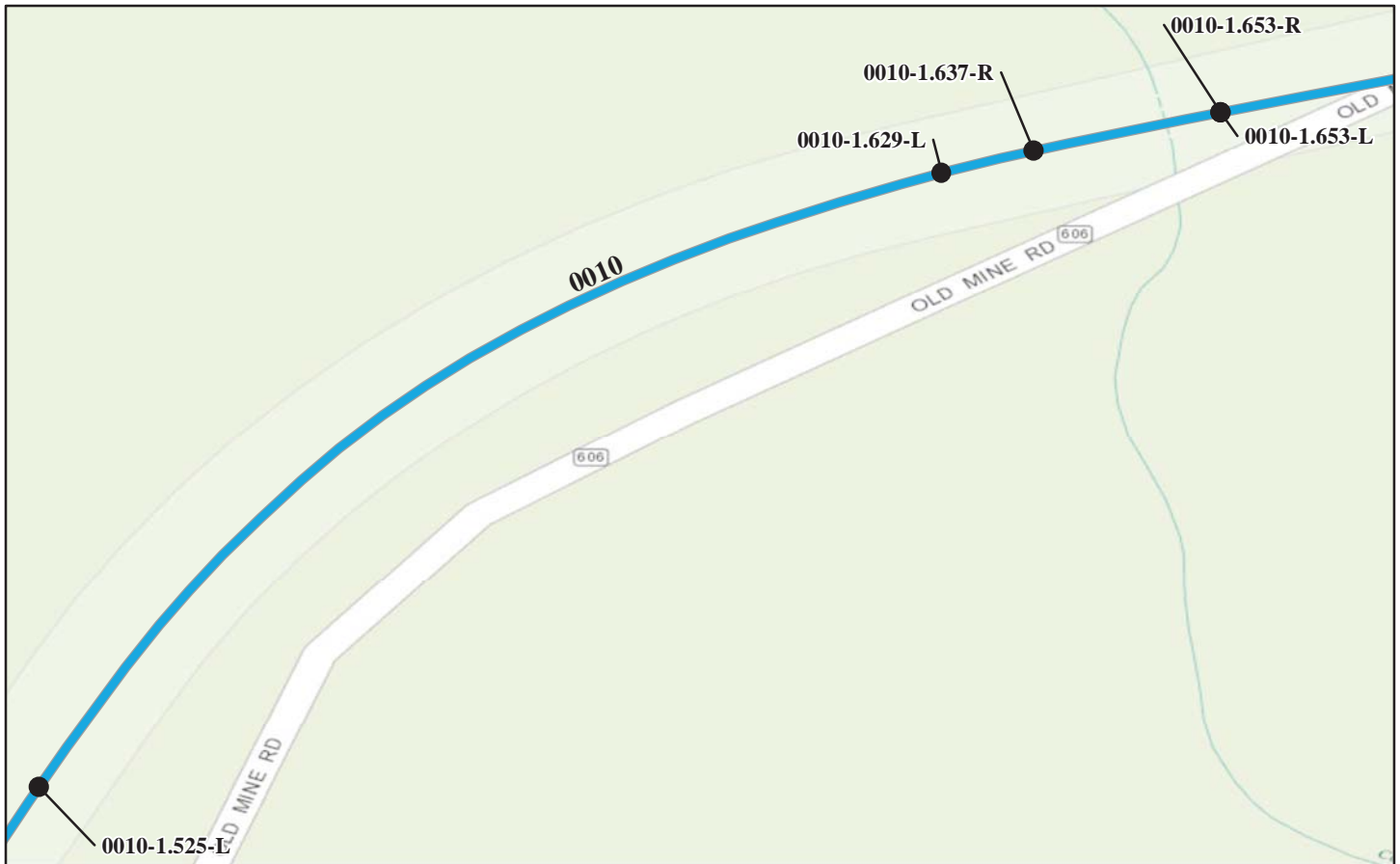
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-0.894-L 10/4/2010	310	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$0.00
DEWA-0010-0.967-L 10/4/2010	550	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0010-1.110-R 10/4/2010	231	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG BURIED	SBT/LOG FLARED	\$0.00
DEWA-0010-1.111-L 10/4/2010	260	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG BURIED	SBT/LOG FLARED	\$0.00
DEWA-0010-1.226-L 10/4/2010	910	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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



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	
DEWA-0010-1.525-L 10/4/2010	535	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$0.00
DEWA-0010-1.629-L 10/5/2010	82	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$0.00
DEWA-0010-1.637-R 10/5/2010	45	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$0.00
DEWA-0010-1.653-L 10/5/2010	156	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$0.00
DEWA-0010-1.653-R 10/5/2010	50	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG BURIED	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



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	
DEWA-0010-1.730-L 10/5/2010	920	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$0.00
DEWA-0010-1.852-L 10/5/2010	55	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
DEWA-0010-1.863-L 10/5/2010	19	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
DEWA-0010-1.868-L 10/5/2010	40	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$2,282.00
DEWA-0010-1.872-R 10/5/2010	170	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG BURIED	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



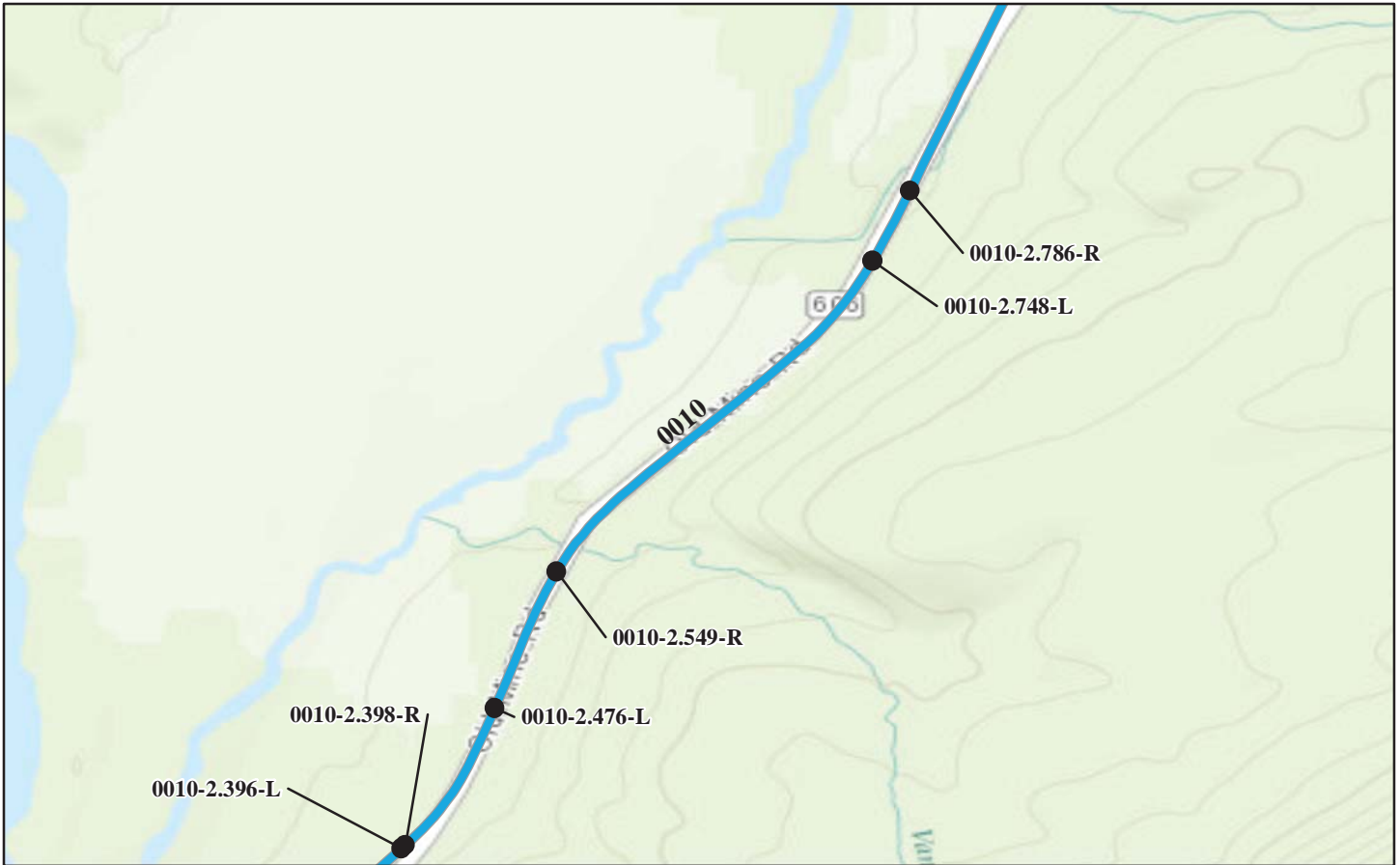
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Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-1.935-L 10/4/2010	925	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$0.00
DEWA-0010-2.116-R 10/5/2010	140	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG BURIED	SBT/LOG BURIED	\$0.00
DEWA-0010-2.145-L 10/5/2010	378	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0010-2.246-L 10/5/2010	255	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0010-2.396-L 10/5/2010	170	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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



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Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-2.398-R 10/5/2010	150	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG BURIED	SBT/LOG FLARED	\$0.00
DEWA-0010-2.476-L 10/5/2010	555	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0010-2.549-R 10/5/2010	143	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG BURIED	SBT/LOG BURIED	\$0.00
DEWA-0010-2.748-L 10/5/2010	400	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0010-2.786-R 10/5/2010	493	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00

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Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



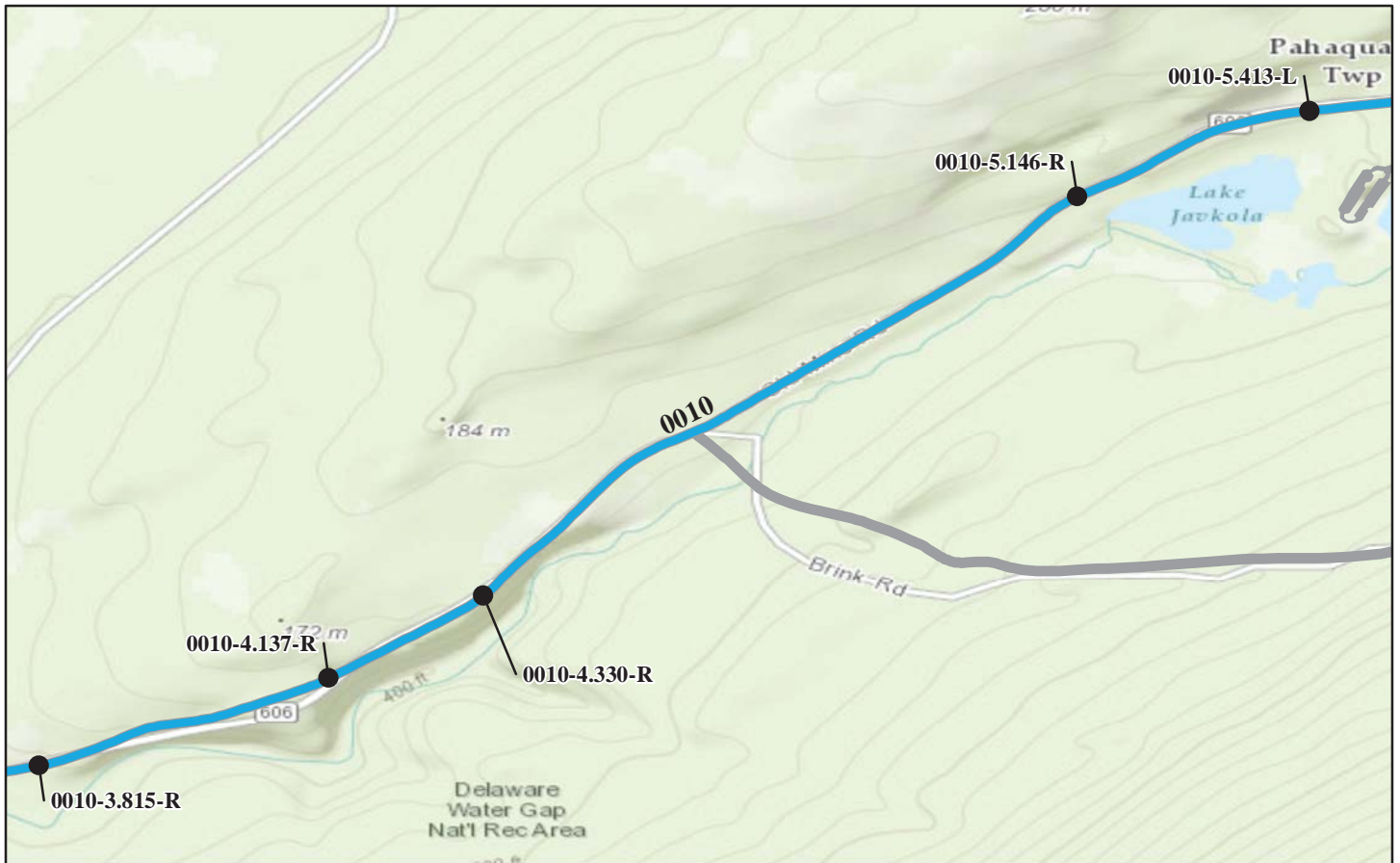
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Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-3.280-L 10/6/2010	556	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0010-3.558-L 10/6/2010	594	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$2,612.00
DEWA-0010-3.650-R 10/6/2010	80	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$0.00
DEWA-0010-3.670-L 10/6/2010	146	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$0.00
DEWA-0010-3.674-R 10/6/2010	330	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$4,482.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



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	
DEWA-0010-3.815-R 10/6/2010	1,510	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG BURIED	\$22,302.00
DEWA-0010-4.137-R 10/6/2010	610	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$12,238.00
DEWA-0010-4.330-R 10/6/2010	600	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$5,692.00
DEWA-0010-5.146-R 10/6/2010	1895	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$11,165.00
DEWA-0010-5.413-L 10/6/2010	270	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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



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	
DEWA-0010-5.651-R 10/6/2010	540	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG BURIED	\$12,018.00
DEWA-0010-5.666-L 10/6/2010	410	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG BURIED	SBT/LOG BURIED	\$3,052.00
DEWA-0010-5.847-R 10/6/2010	450	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$7,535.00
DEWA-0010-5.858-L 10/6/2010	410	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG BURIED	\$0.00
DEWA-0010-6.468-L 10/7/2010	155	W-BEAM WEAK POST	NONE	NONE	\$3,328.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



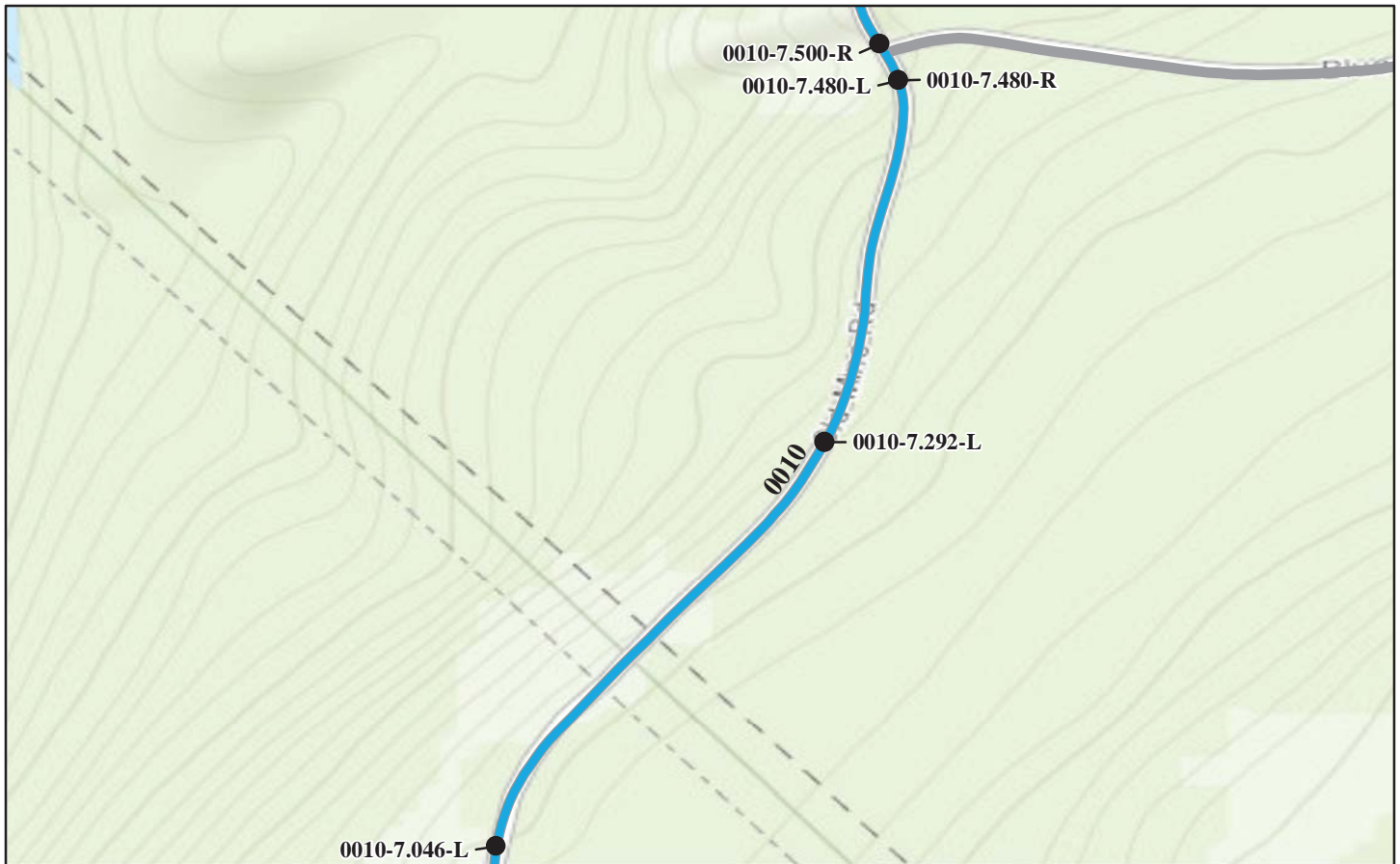
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-6.472-R 10/7/2010	130	W-BEAM WEAK POST	NONE	NONE	\$3,052.00
DEWA-0010-6.596-L 10/7/2010	85	W-BEAM WEAK POST	NONE	NONE	\$2,558.00
DEWA-0010-6.742-L 10/7/2010	145	W-BEAM WEAK POST	NONE	NONE	\$3,218.00
DEWA-0010-6.871-L 10/7/2010	680	W-BEAM WEAK POST	NONE	NONE	\$12,348.00
DEWA-0010-6.982-R 10/7/2010	92	W-BEAM WEAK POST	NONE	NONE	\$3,322.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



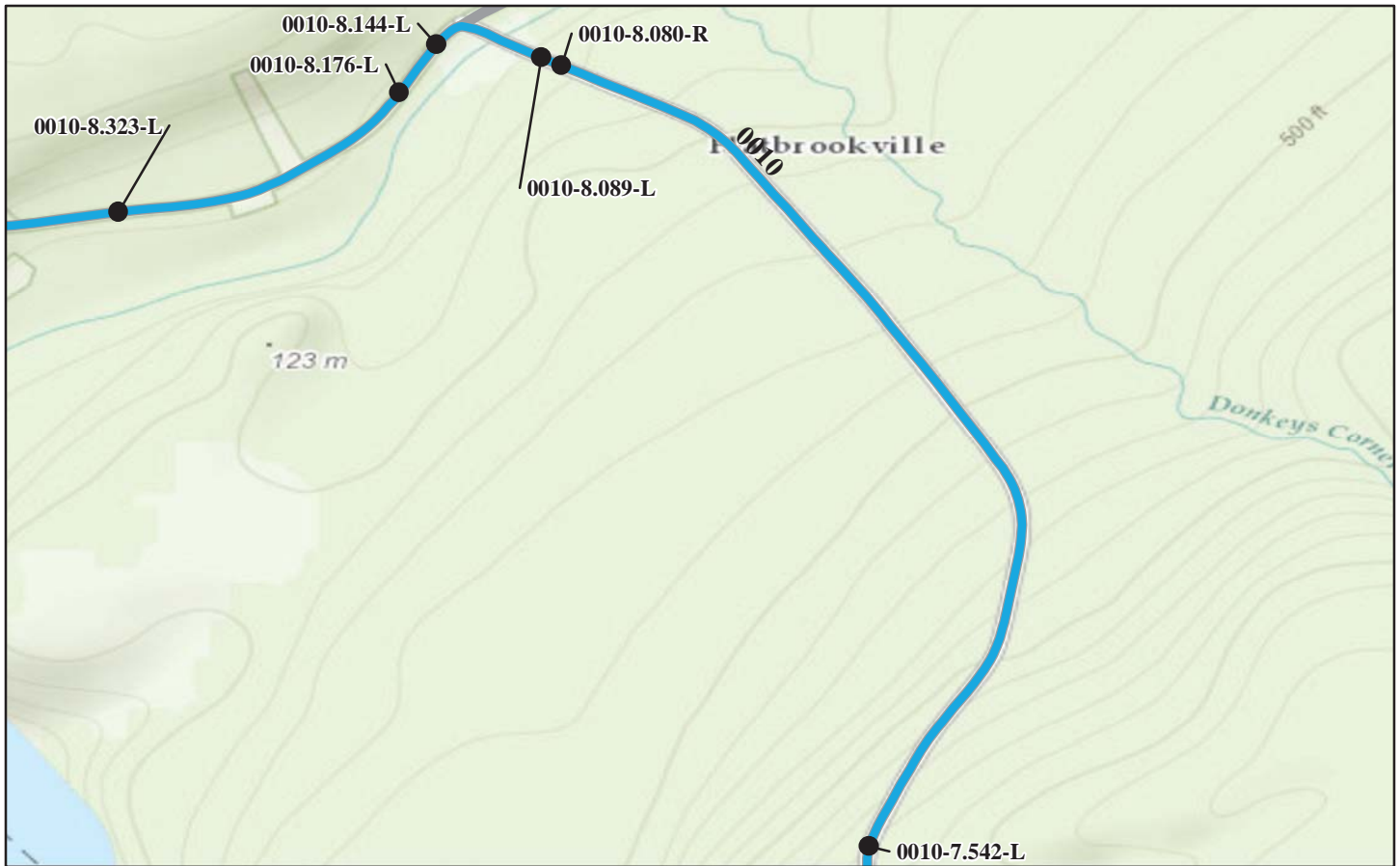
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-7.046-L 10/7/2010	315	W-BEAM WEAK POST	NONE	NONE	\$6,710.00
DEWA-0010-7.292-L 10/7/2010	270	OTHER: 2-STRAND CABLE	NONE	NONE	\$32,835.00
DEWA-0010-7.480-L 10/7/2010	180	W-BEAM WEAK POST	NONE	NONE	\$3,190.00
DEWA-0010-7.480-R 10/7/2010	60	W-BEAM WEAK POST	NONE	NONE	\$2,282.00
DEWA-0010-7.500-R 10/7/2010	58	W-BEAM WEAK POST	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



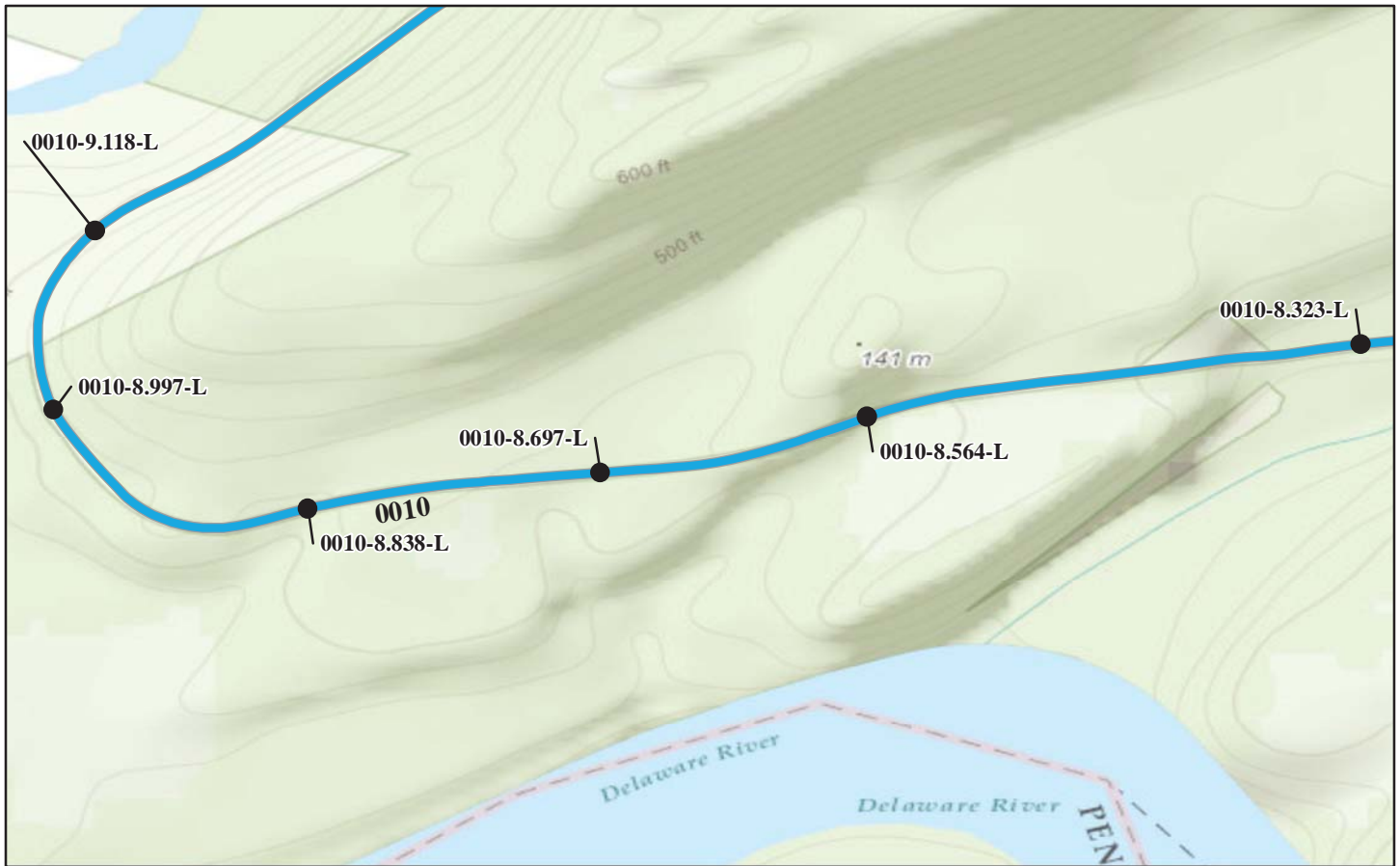
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-7.542-L 10/7/2010	755	OTHER: 2-STRAND CABLE	NONE	NONE	\$74,002.00
DEWA-0010-8.080-R 10/7/2010	118	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	SBT/LOG BURIED	NONE	\$2,920.00
DEWA-0010-8.089-L 10/7/2010	89	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	SBT/LOG FLARED	NONE	\$2,602.00
DEWA-0010-8.144-L 10/8/2010	265	OTHER: 2-STRAND CABLE	NONE	NONE	\$32,478.00
DEWA-0010-8.176-L 10/8/2010	98	CONCRETE BARRIER	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



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	
DEWA-0010-8.323-L 10/8/2010	128	OTHER: 2-STRAND CABLE	NONE	NONE	\$19,437.00
DEWA-0010-8.564-L 10/8/2010	308	OTHER: 2-STRAND CABLE	NONE	NONE	\$35,552.00
DEWA-0010-8.697-L 10/8/2010	95	OTHER: 2-STRAND CABLE	NONE	NONE	\$17,078.00
DEWA-0010-8.838-L 10/8/2010	120	OTHER: 2-STRAND CABLE	NONE	NONE	\$18,865.00
DEWA-0010-8.997-L 10/8/2010	188	OTHER: 2-STRAND CABLE	NONE	NONE	\$23,727.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



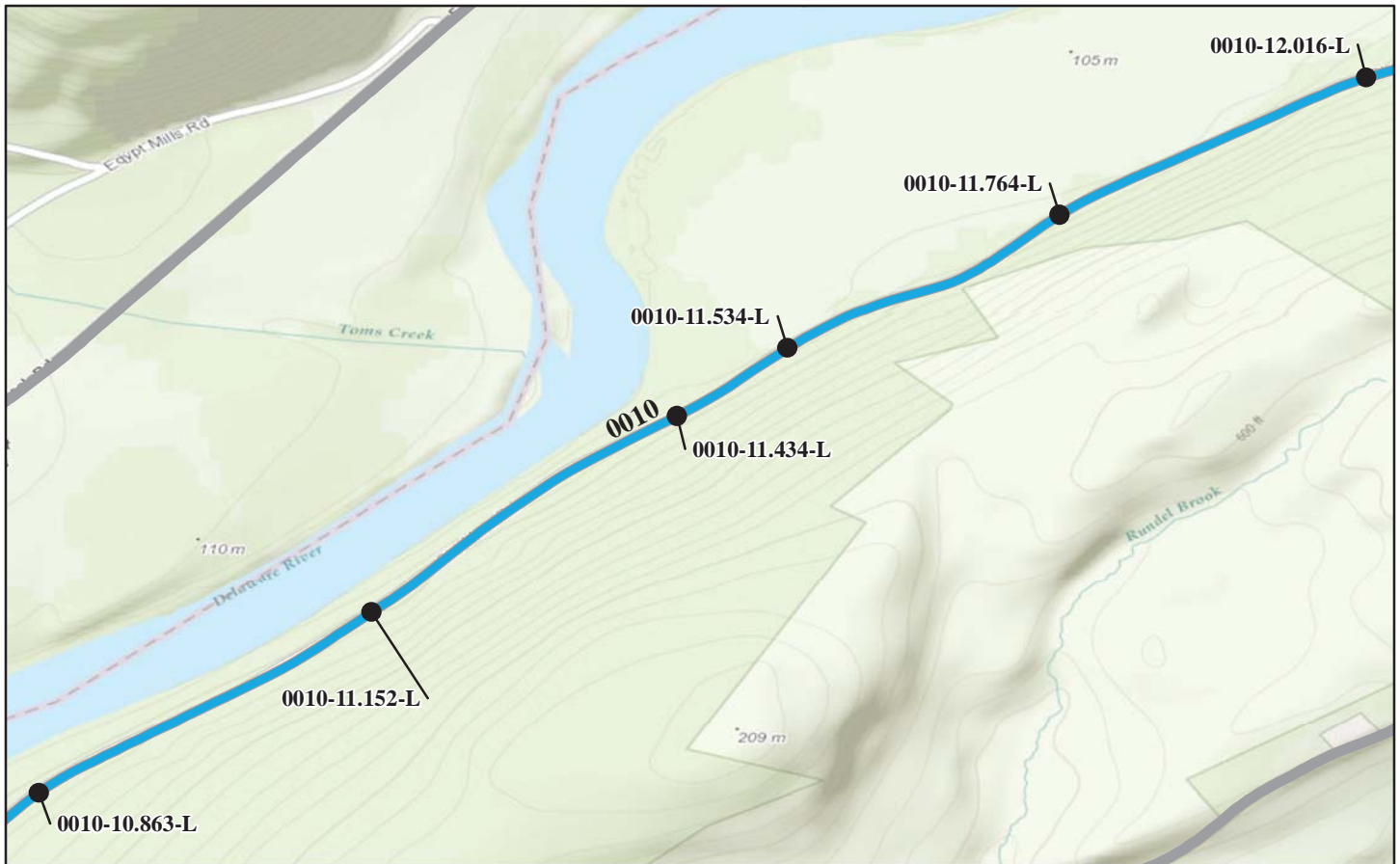
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-9.118-L 10/7/2010	1,680	OTHER: 2-STRAND CABLE	NONE	NONE	\$149,875.00
DEWA-0010-9.556-L 10/7/2010	230	OTHER: 2-STRAND CABLE	NONE	NONE	\$26,730.00
DEWA-0010-9.804-R 10/7/2010	125	OTHER: 2-STRAND CABLE	NONE	NONE	\$19,222.00
DEWA-0010-9.808-L 10/7/2010	155	OTHER: 2-STRAND CABLE	NONE	NONE	\$21,368.00
DEWA-0010-10.306-L 10/7/2010	500	OTHER: 2-STRAND CABLE	NONE	NONE	\$49,280.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



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	
DEWA-0010-10.863-L 10/7/2010	1,520	W-BEAM WEAK POST	NONE	NONE	\$28,078.00
DEWA-0010-11.152-L 10/7/2010	1184	OTHER: 2-STRAND CABLE	NONE	NONE	\$70,928.00
DEWA-0010-11.434-L 10/7/2010	480	OTHER: 2-STRAND CABLE	NONE	NONE	\$47,850.00
DEWA-0010-11.534-L 10/7/2010	1103	OTHER: 2-STRAND CABLE	NONE	NONE	\$102,130.00
DEWA-0010-11.764-L 10/7/2010	1308	OTHER: 2-STRAND CABLE	NONE	NONE	\$120,032.00
*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.					

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



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	
DEWA-0010-12.016-L 10/7/2010	210	OTHER: 2-STRAND CABLE	NONE	NONE	\$25,300.00
DEWA-0010-12.074-L 10/7/2010	582	OTHER: 2-STRAND CABLE	NONE	NONE	\$58,388.00
DEWA-0010-12.243-L 10/7/2010	238	OTHER: 2-STRAND CABLE	NONE	NONE	\$27,302.00
DEWA-0010-12.396-L 10/7/2010	690	OTHER: 2-STRAND CABLE	NONE	NONE	\$77,720.00
DEWA-0010-12.606-L 10/7/2010	505	OTHER: 2-STRAND CABLE	NONE	NONE	\$52,882.00

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)



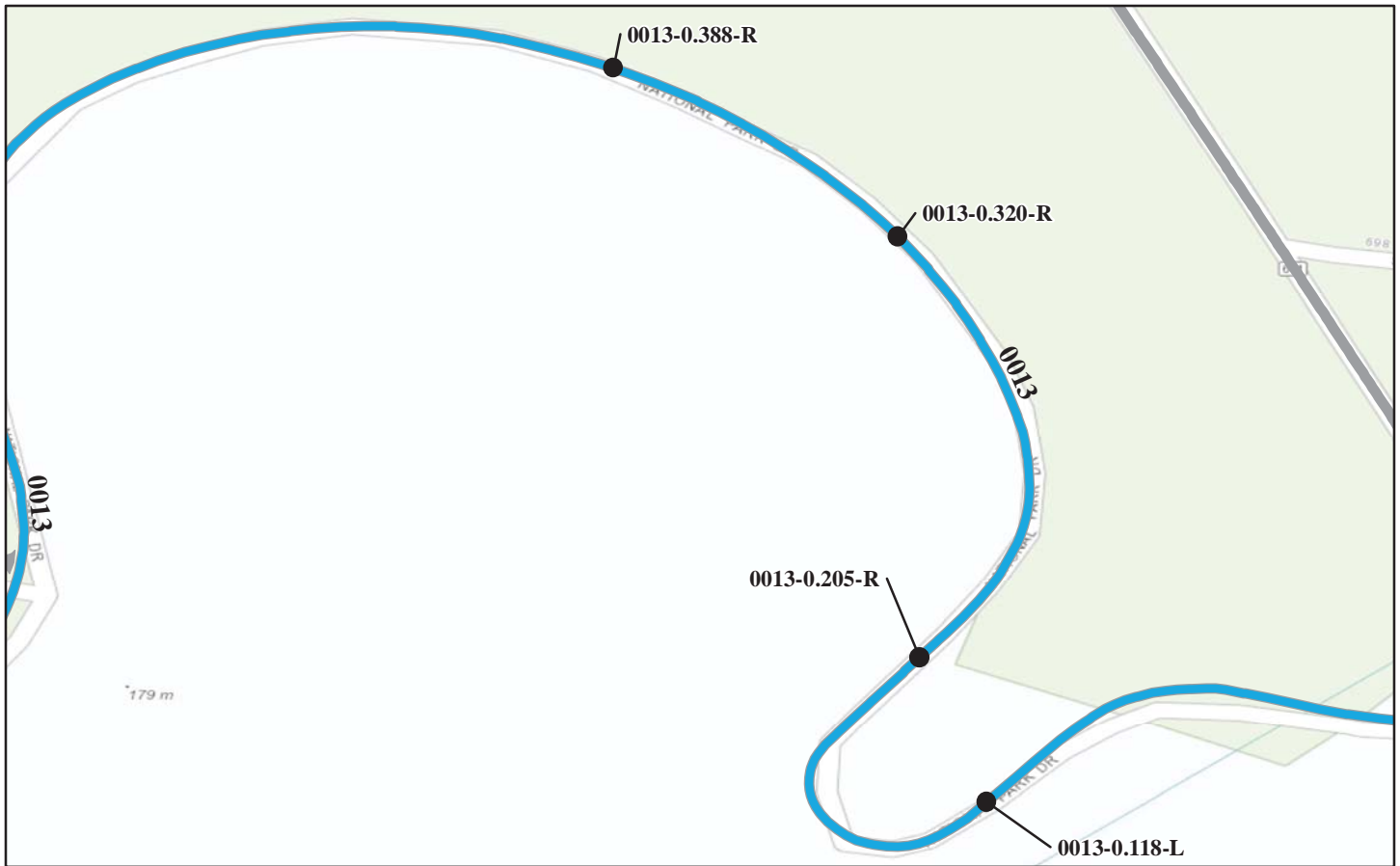
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0010-12.955-L 10/7/2010	531	W-BEAM WEAK POST	NONE	NONE	\$11,038.00
DEWA-0010-13.180-L 10/7/2010	66	W-BEAM STRONG POST	NONE	NONE	\$2,348.00
DEWA-0010-13.182-R 10/7/2010	66	W-BEAM STRONG POST	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0013: NATIONAL PARK DRIVE



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	
DEWA-0013-0.118-L 10/1/2010	128	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG BURIED	\$1,733.00
DEWA-0013-0.205-R 10/1/2010	200	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG BURIED	\$1,952.00
DEWA-0013-0.320-R 10/1/2010	200	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$4,043.00
DEWA-0013-0.388-R 10/1/2010	250	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$1,656.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



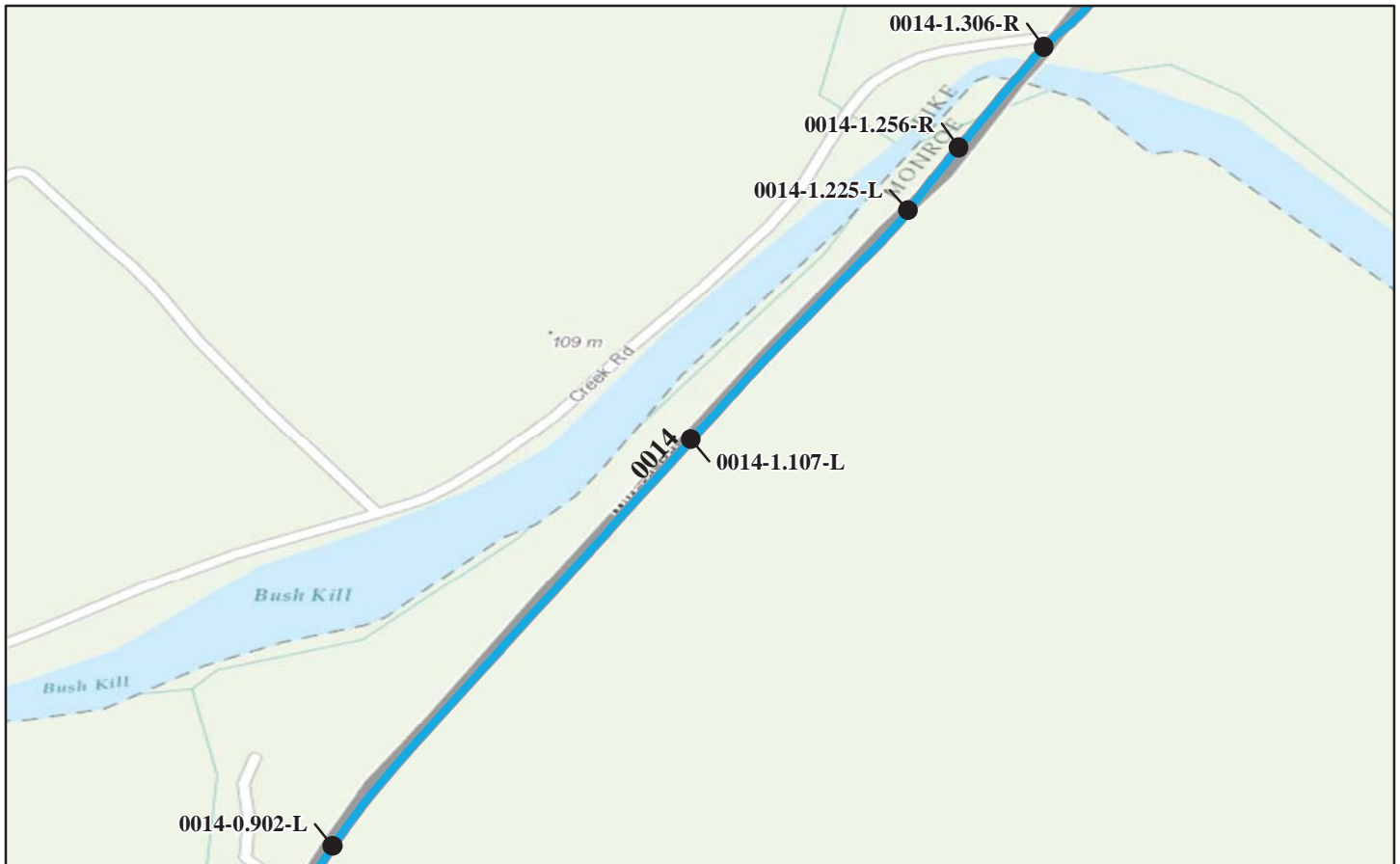
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-0.307-R 10/6/2010	233	CONCRETE BARRIER	NONE	NONE	\$1,688.00
DEWA-0014-0.308-R 10/6/2010	154	CONCRETE BARRIER	NONE	NONE	\$0.00
DEWA-0014-0.468-R 10/6/2010	1815	W-BEAM WEAK POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$6,270.00
DEWA-0014-0.480-L 10/6/2010	192	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$2,172.00
DEWA-0014-0.766-L 10/6/2010	278	W-BEAM WEAK POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



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	
DEWA-0014-0.902-L 10/6/2010	180	W-BEAM WEAK POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$2,502.00
DEWA-0014-1.107-L 10/6/2010	244	W-BEAM STRONG POST	OTHER: W-BEAM FLARED	OTHER: W-BEAM FLARED	\$0.00
DEWA-0014-1.225-L 10/6/2010	218	W-BEAM STRONG POST	W-BEAM BCT	NONE	\$0.00
DEWA-0014-1.256-R 10/6/2010	79	W-BEAM STRONG POST	W-BEAM BCT	NONE	\$66.00
DEWA-0014-1.306-R 10/6/2010	54	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



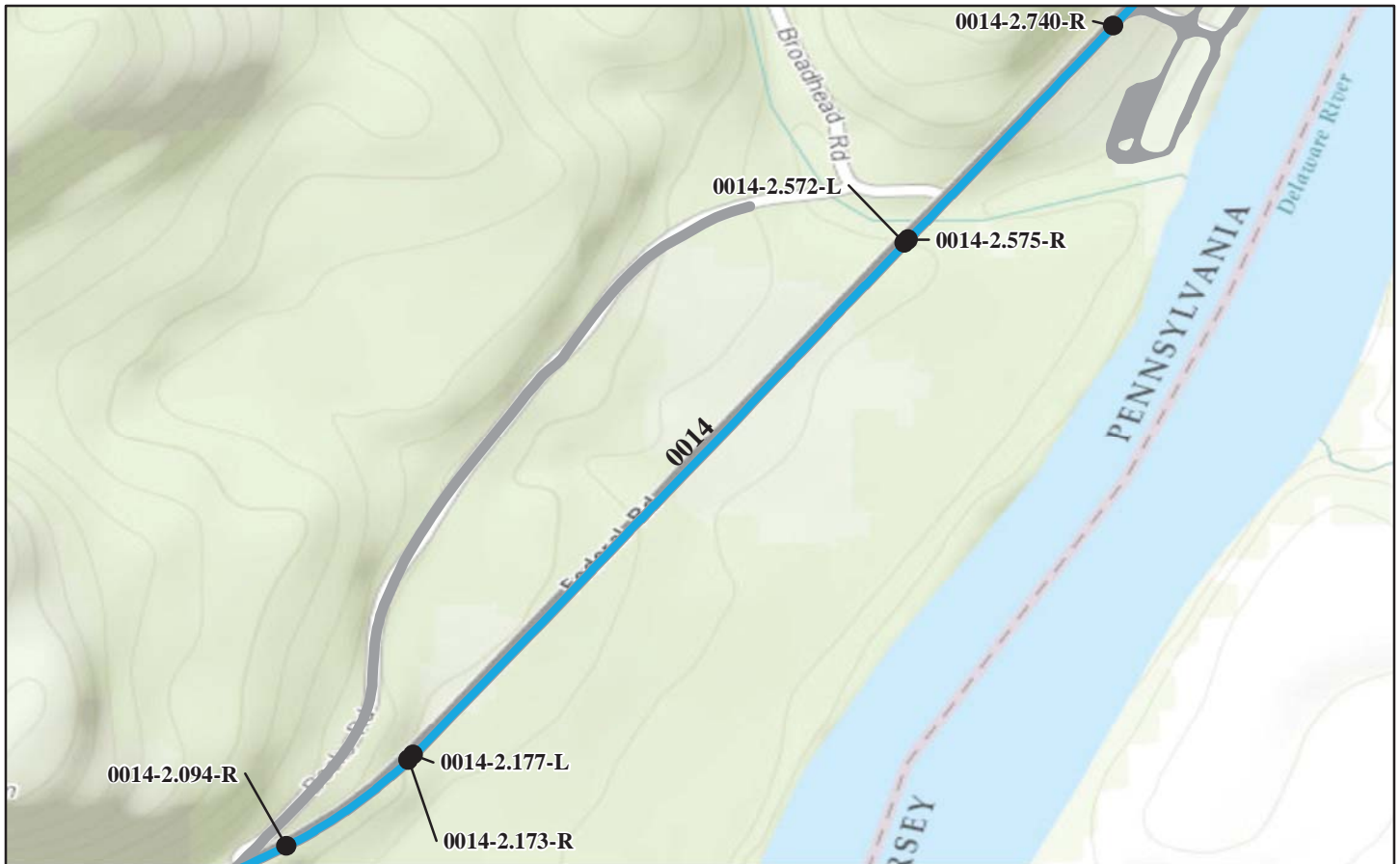
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Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-1.511-L 10/6/2010	136	W-BEAM STRONG POST	NONE	W-BEAM TURN DOWN	\$2,700.00
DEWA-0014-1.628-R 10/7/2010	290	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$11,946.00
DEWA-0014-1.748-L 10/7/2010	347	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$6,226.00
DEWA-0014-1.771-R 10/7/2010	315	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$16,472.00
DEWA-0014-1.949-R 10/7/2010	538	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM BURIED END	\$18,100.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



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	
DEWA-0014-2.094-R 10/7/2010	160	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$16,308.00
DEWA-0014-2.173-R 10/7/2010	89	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$10,802.00
DEWA-0014-2.177-L 10/7/2010	100	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$2,723.00
DEWA-0014-2.572-L 10/7/2010	153	W-BEAM STRONG POST	W-BEAM TURN DOWN	NONE	\$3,360.00
DEWA-0014-2.575-R 10/7/2010	872	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TRAILING END	\$19,349.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



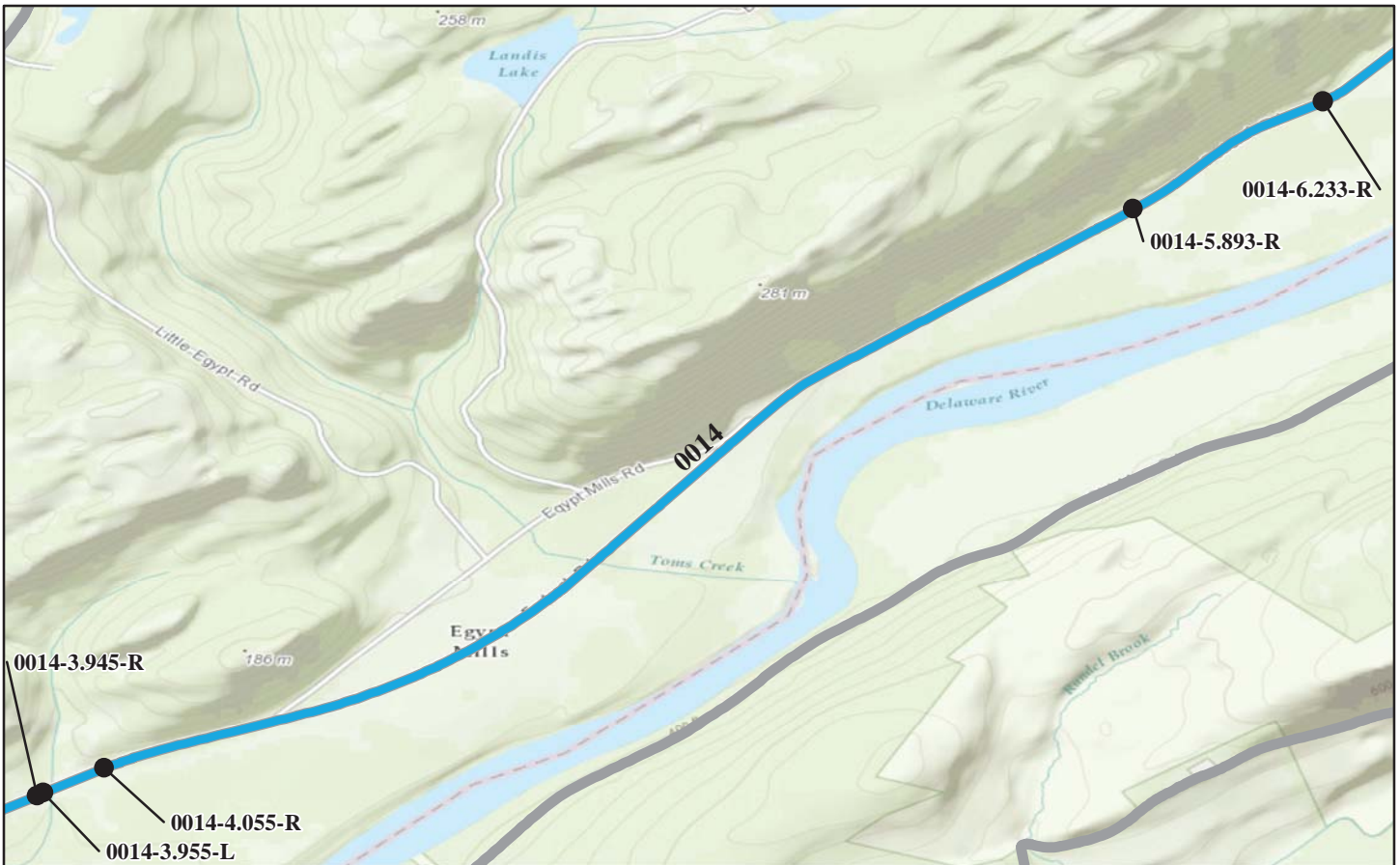
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-2.740-R 10/7/2010	106	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$2,502.00
DEWA-0014-2.764-R 10/7/2010	92	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$2,634.00
DEWA-0014-2.776-R 10/7/2010	2322	W-BEAM STRONG POST	W-BEAM TRAILING END	W-BEAM TURN DOWN	\$42,752.00
DEWA-0014-3.248-R 10/7/2010	691	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$11,632.00
DEWA-0014-3.558-R 10/8/2010	1218	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$23,243.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



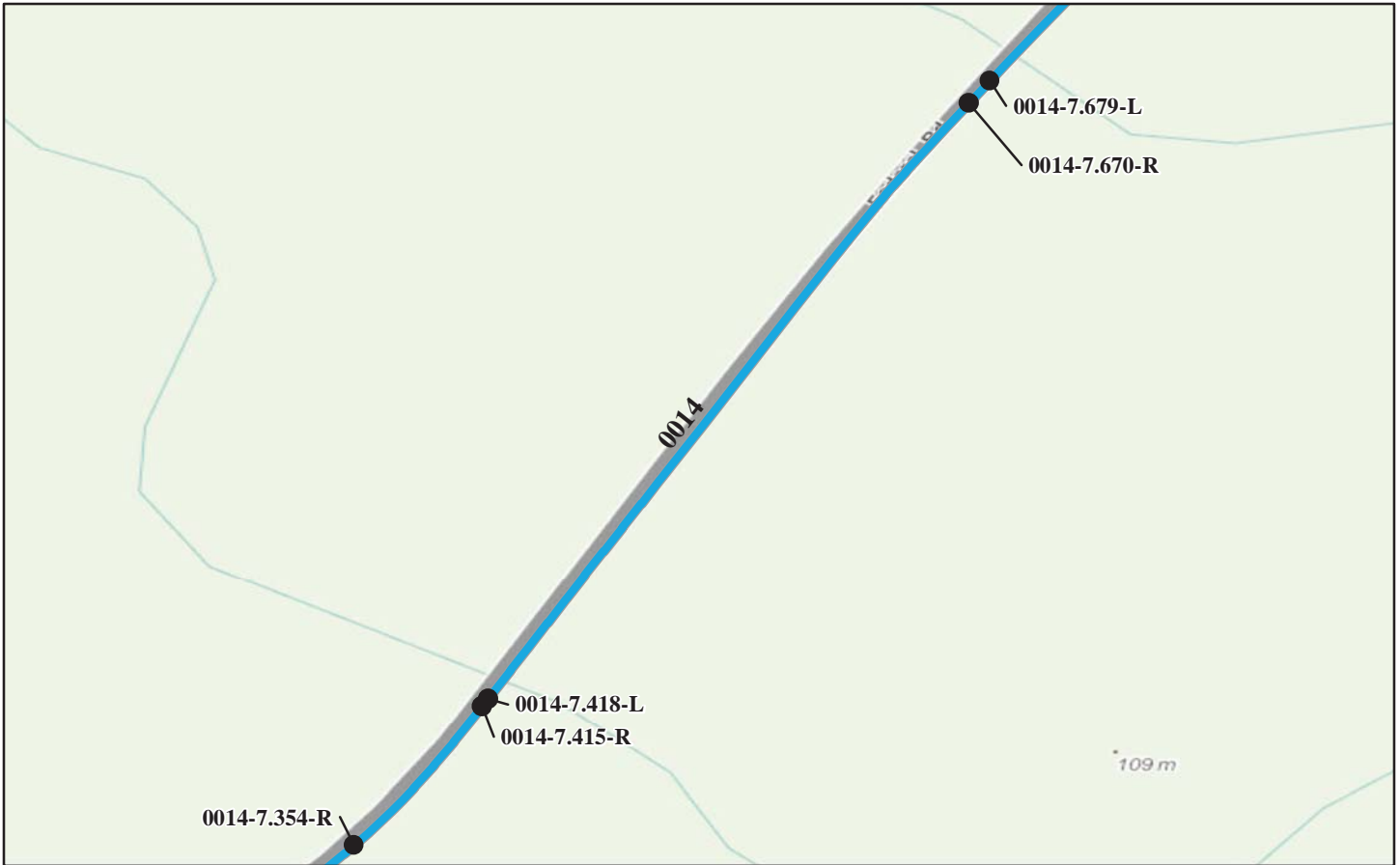
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-3.945-R 10/8/2010	254	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$13,739.00
DEWA-0014-3.955-L 10/8/2010	230	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$3,382.00
DEWA-0014-4.055-R 10/8/2010	1483	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$24,420.00
DEWA-0014-5.893-R 10/8/2010	677	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$0.00
DEWA-0014-6.233-R 10/8/2010	378	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$6,000.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



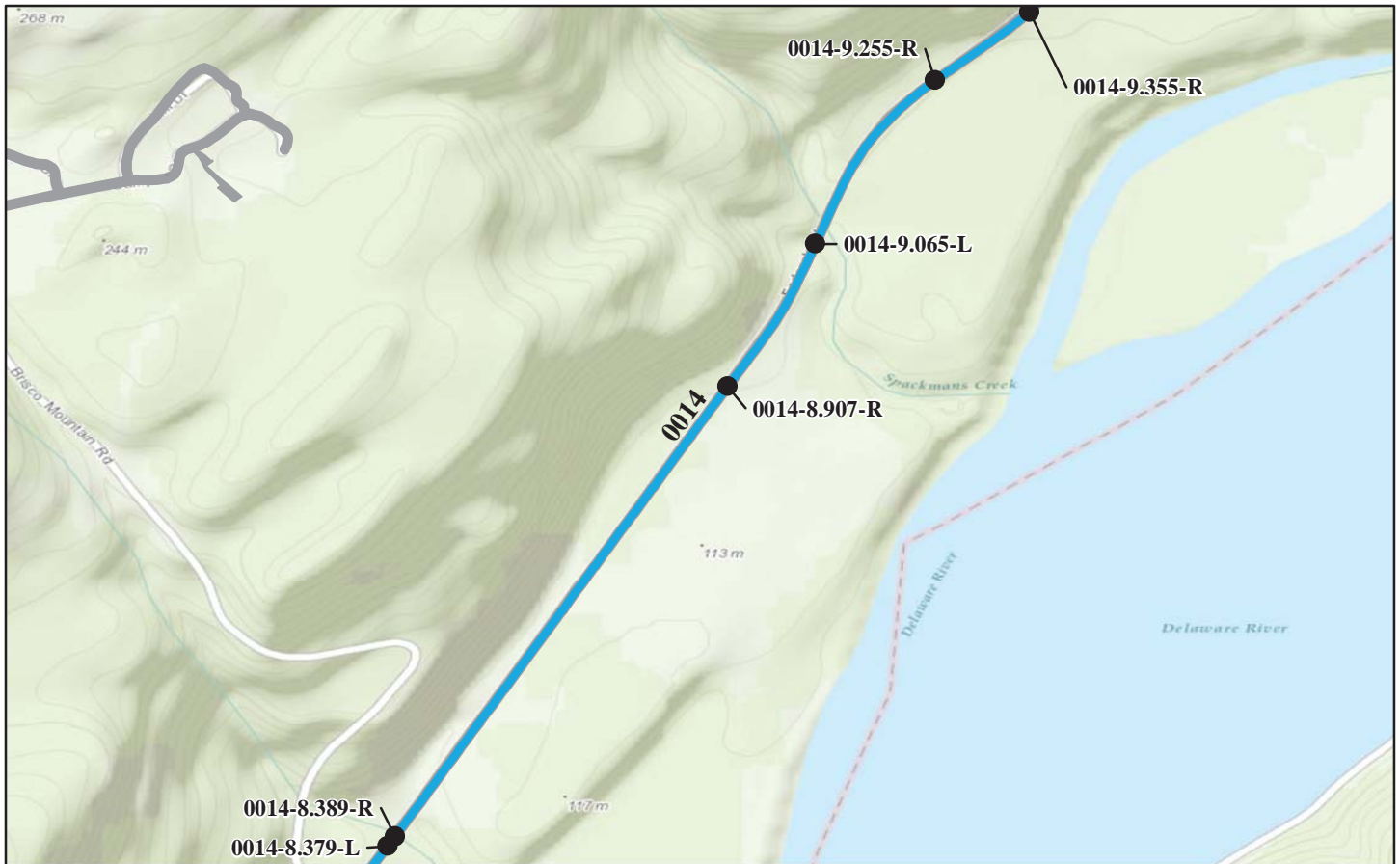
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-7.354-R 10/11/2010	310	W-BEAM STRONG POST	W-BEAM TURN DOWN	OTHER: W-BEAM FLARED	\$1,688.00
DEWA-0014-7.415-R 10/11/2010	207	W-BEAM STRONG POST	OTHER: W-BEAM FLARED	W-BEAM TURN DOWN	\$0.00
DEWA-0014-7.418-L 10/11/2010	141	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$4,790.00
DEWA-0014-7.670-R 10/11/2010	206	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM FLARED 350 COMPLIANT	\$2,436.00
DEWA-0014-7.679-L 10/11/2010	141	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM FLARED 350 COMPLIANT	\$2,096.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

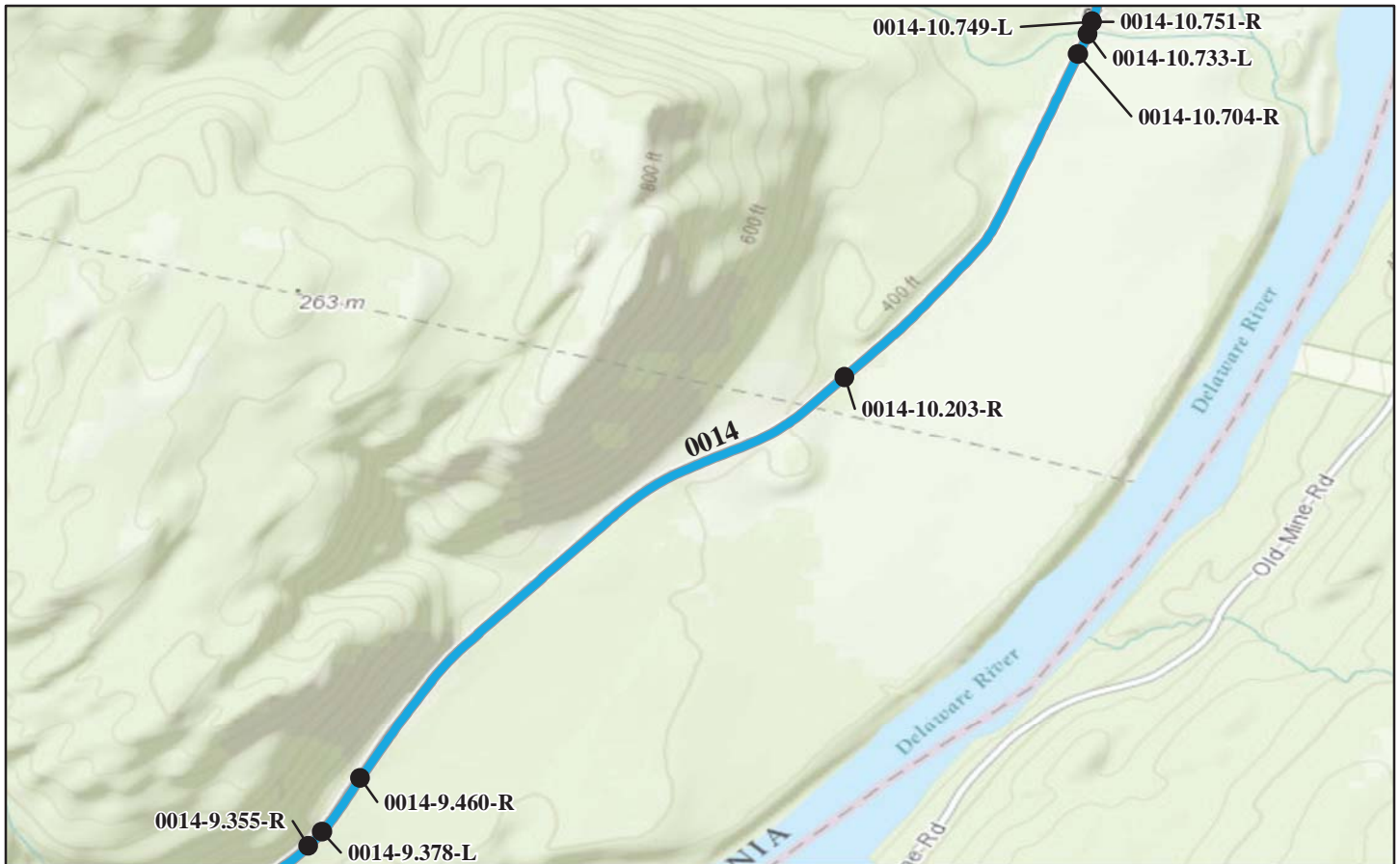


Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-8.379-L 10/11/2010	243	W-BEAM STRONG POST	W-BEAM BURIED END	W-BEAM BURIED END	\$1,908.00
DEWA-0014-8.389-R 10/11/2010	170	W-BEAM STRONG POST	W-BEAM TURN DOWN	OTHER: W-BEAM FLARED	\$3,432.00
DEWA-0014-8.907-R 10/11/2010	1055	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$23,474.00
DEWA-0014-9.065-L 10/11/2010	255	W-BEAM STRONG POST	W-BEAM BURIED END	W-BEAM TURN DOWN	\$10,016.00
DEWA-0014-9.255-R 10/11/2010	429	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$2,420.00
*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.					

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



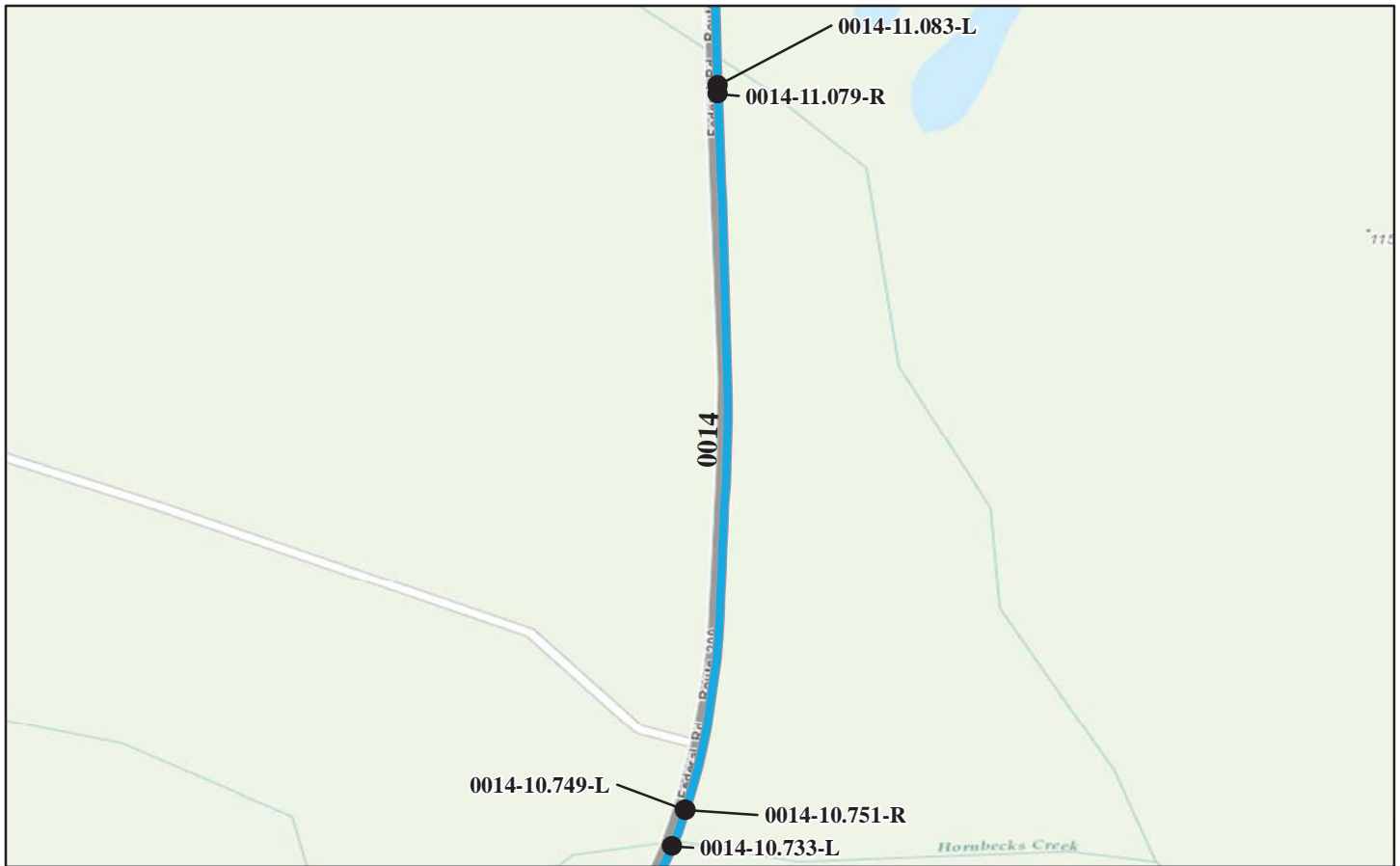
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-9.355-R 10/11/2010	290	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$6,248.00
DEWA-0014-9.378-L 10/11/2010	205	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM FLARED 350 COMPLIANT	\$2,376.00
DEWA-0014-9.460-R 10/11/2010	855	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$3,548.00
DEWA-0014-10.203-R 10/11/2010	1477	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$4,218.00
DEWA-0014-10.704-R 10/11/2010	217	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



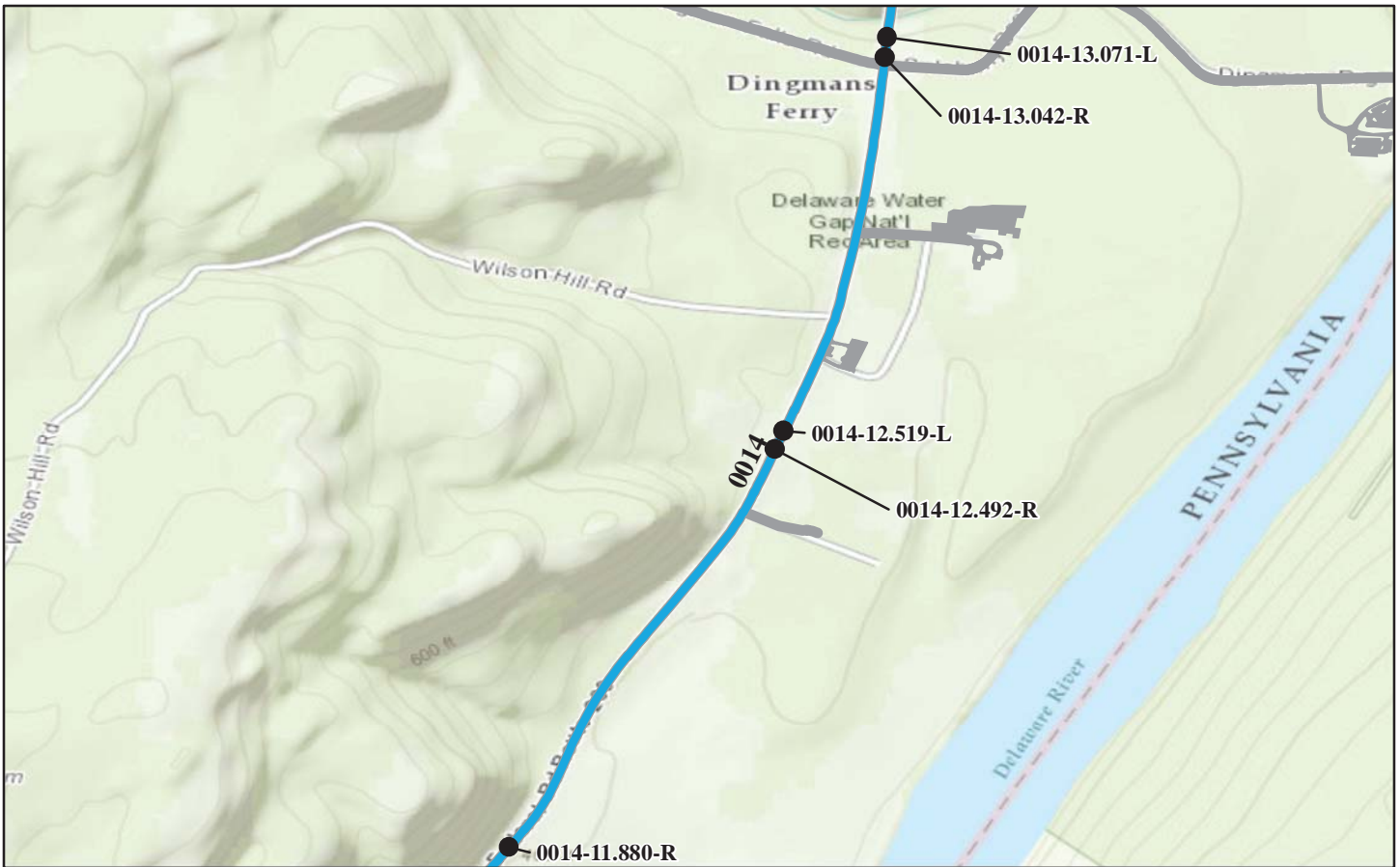
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-10.733-L 10/11/2010	53	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	NONE	\$0.00
DEWA-0014-10.749-L 10/4/2010	68	W-BEAM STRONG POST	NONE	W-BEAM FLARED 350 COMPLIANT	\$0.00
DEWA-0014-10.751-R 10/11/2010	42	W-BEAM STRONG POST	NONE	W-BEAM FLARED 350 COMPLIANT	\$0.00
DEWA-0014-11.079-R 10/11/2010	145	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$3,218.00
DEWA-0014-11.083-L 10/11/2010	155	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$3,328.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



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	
DEWA-0014-11.880-R 10/11/2010	590	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$2,832.00
DEWA-0014-12.492-R 10/11/2010	369	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM FLARED 350 COMPLIANT	\$0.00
DEWA-0014-12.519-L 10/11/2010	155	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM FLARED 350 COMPLIANT	\$0.00
DEWA-0014-13.042-R 10/11/2010	80	W-BEAM STRONG POST	W-BEAM TANGENT 350 COMPLIANT	NONE	\$0.00
DEWA-0014-13.071-L 10/11/2010	80	W-BEAM STRONG POST	NONE	W-BEAM TANGENT 350 COMPLIANT	\$2,502.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



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	
DEWA-0014-13.176-R 10/11/2010	213	W-BEAM STRONG POST	NONE	NONE	\$0.00
DEWA-0014-13.226-R 10/8/2010	270	W-BEAM STRONG POST	NONE	NONE	\$0.00
DEWA-0014-13.582-R 10/8/2010	618	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$2,998.00
DEWA-0014-13.857-L 10/8/2010	91	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$2,624.00
DEWA-0014-13.857-R 10/8/2010	118	W-BEAM WEAK POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



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	
DEWA-0014-13.971-R 10/8/2010	702	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$2,612.00
DEWA-0014-14.303-R 10/8/2010	215	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$2,750.00
DEWA-0014-14.379-L 10/8/2010	65	W-BEAM STRONG POST	W-BEAM TURN DOWN	NONE	\$0.00
DEWA-0014-14.382-R 10/8/2010	80	W-BEAM STRONG POST	NONE	NONE	\$2,063.00
DEWA-0014-14.393-L 10/8/2010	49	W-BEAM STRONG POST	NONE	W-BEAM TURN DOWN	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

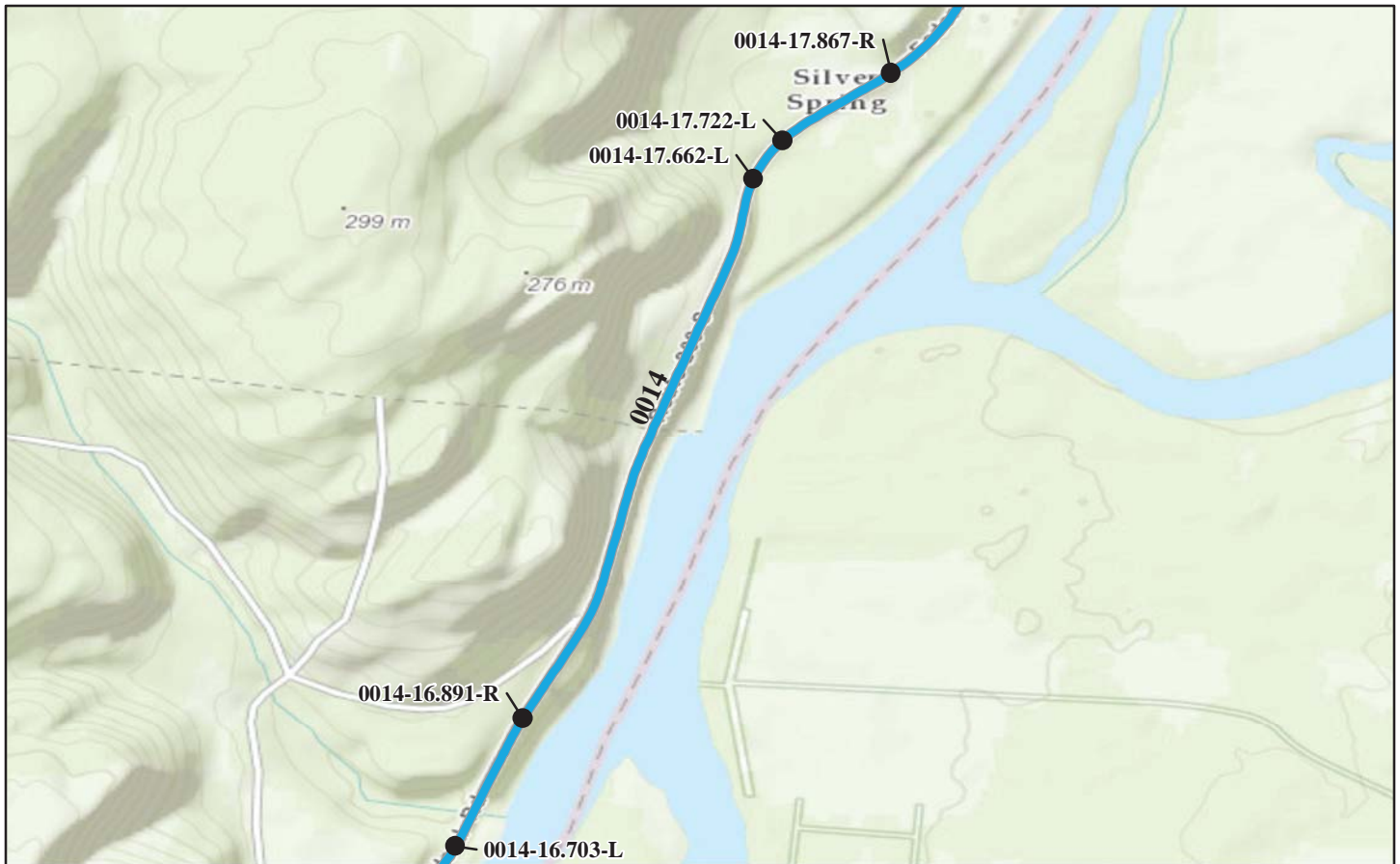


Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-14.393-R 10/8/2010	165	W-BEAM STRONG POST	NONE	W-BEAM TURN DOWN	\$0.00
DEWA-0014-15.016-R 10/8/2010	1250	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$6,765.00
DEWA-0014-15.544-R 10/8/2010	245	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$4,785.00
DEWA-0014-15.549-L 10/8/2010	237	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$4,450.00
DEWA-0014-16.658-R 10/8/2010	642	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$3,822.00
*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.					

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



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	
DEWA-0014-16.703-L 10/8/2010	387	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$7,227.00
DEWA-0014-16.891-R 10/8/2010	4586	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$20,273.00
DEWA-0014-17.662-L 10/8/2010	87	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$0.00
DEWA-0014-17.722-L 10/8/2010	85	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$1,952.00
DEWA-0014-17.867-R 10/8/2010	439	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM FLARED 350 COMPLIANT	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



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	
DEWA-0014-18.148-L 10/8/2010	73	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	NONE	\$0.00
DEWA-0014-18.158-R 10/8/2010	45	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	NONE	\$2,118.00
DEWA-0014-18.171-L 10/8/2010	110	W-BEAM STRONG POST	NONE	NONE	\$2,458.00
DEWA-0014-18.201-R 10/8/2010	84	W-BEAM STRONG POST	NONE	W-BEAM FLARED 350 COMPLIANT	\$2,546.00
DEWA-0014-18.524-R 10/8/2010	2333	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM TANGENT 350 COMPLIANT	\$17,298.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



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	
DEWA-0014-19.652-R 10/8/2010	1,170	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM BCT	\$12,375.00
DEWA-0014-19.877-R 10/8/2010	617	W-BEAM STRONG POST	W-BEAM TANGENT 350 COMPLIANT	W-BEAM BCT	\$3,492.00
DEWA-0014-20.022-R 10/8/2010	838	W-BEAM STRONG POST	W-BEAM FLARED 350 COMPLIANT	W-BEAM FLARED 350 COMPLIANT	\$16,038.00
DEWA-0014-20.297-L 10/8/2010	220	CONCRETE BARRIER	NONE	NONE	\$0.00
DEWA-0014-20.307-L 10/8/2010	49	CONCRETE BARRIER	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



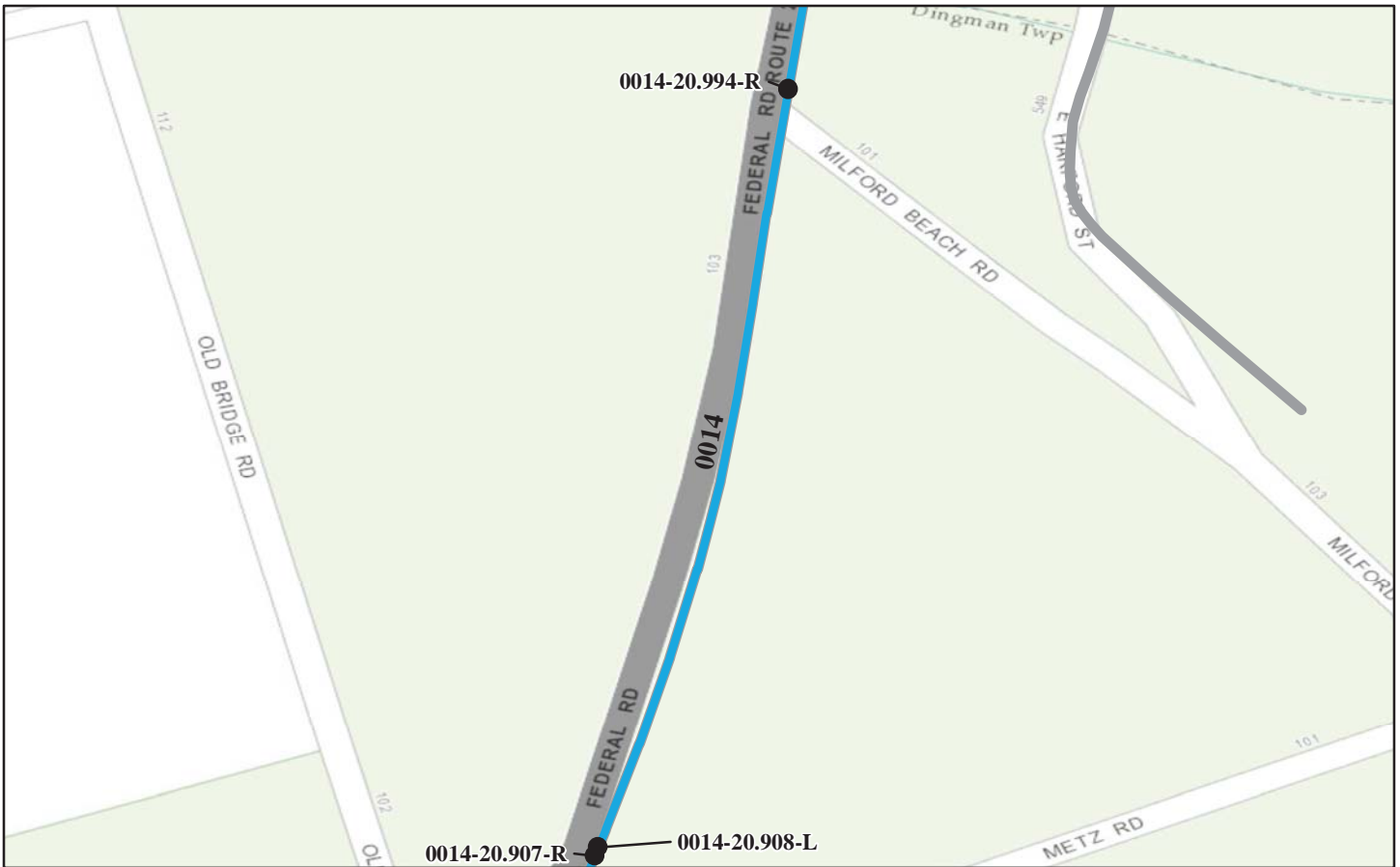
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-20.325-L 10/8/2010	80	CONCRETE BARRIER	NONE	NONE	\$0.00
DEWA-0014-20.515-R 10/8/2010	117	W-BEAM STRONG POST	NONE	NONE	\$0.00
DEWA-0014-20.613-R 10/8/2010	155	W-BEAM STRONG POST	W-BEAM TURN DOWN	NONE	\$0.00
DEWA-0014-20.629-L 10/8/2010	153	W-BEAM STRONG POST	NONE	W-BEAM TURN DOWN	\$2,502.00
DEWA-0014-20.907-R 10/8/2010	298	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209



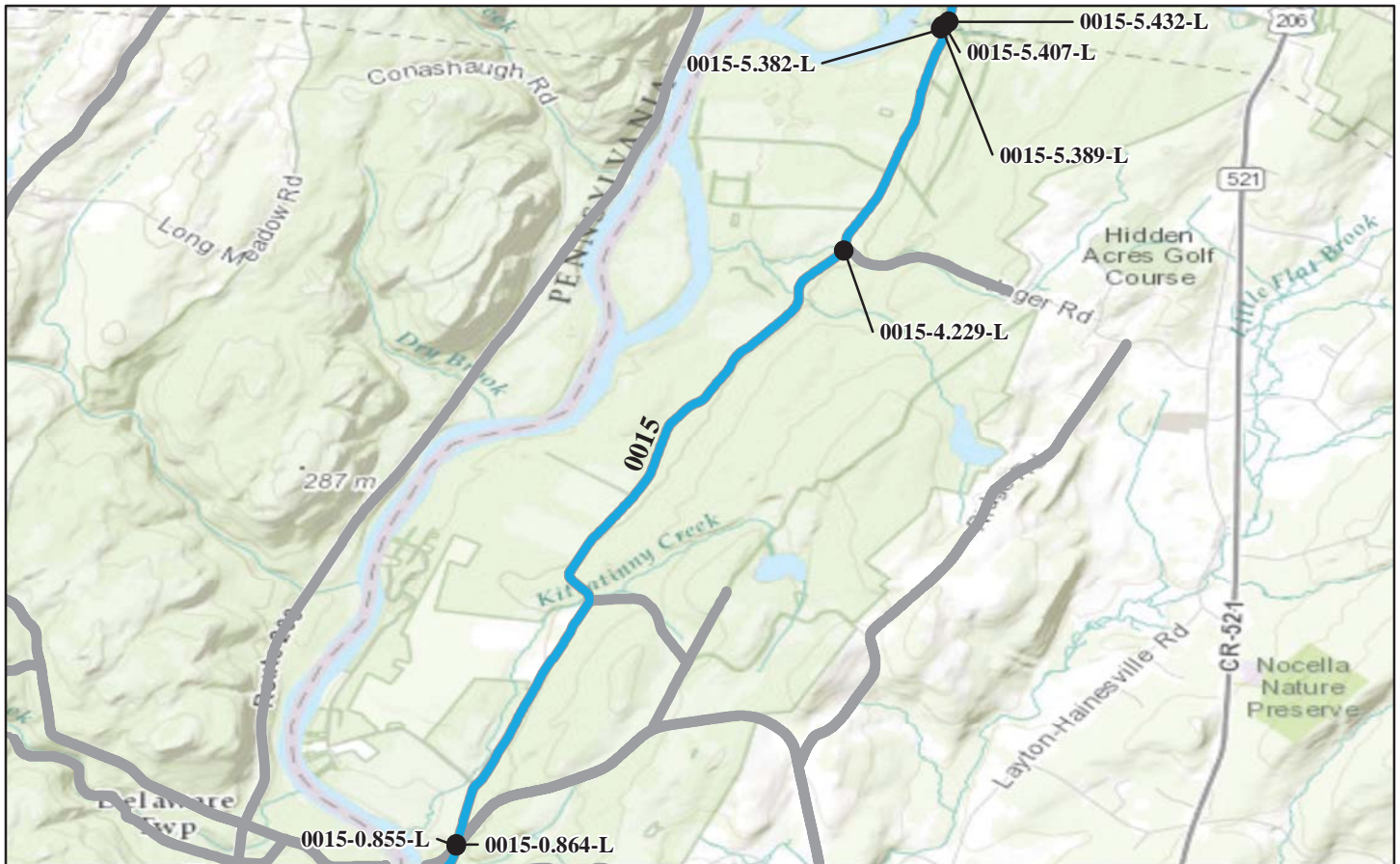
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0014-20.908-L 10/8/2010	296	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM TURN DOWN	\$0.00
DEWA-0014-20.994-R 10/8/2010	30	W-BEAM STRONG POST	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)



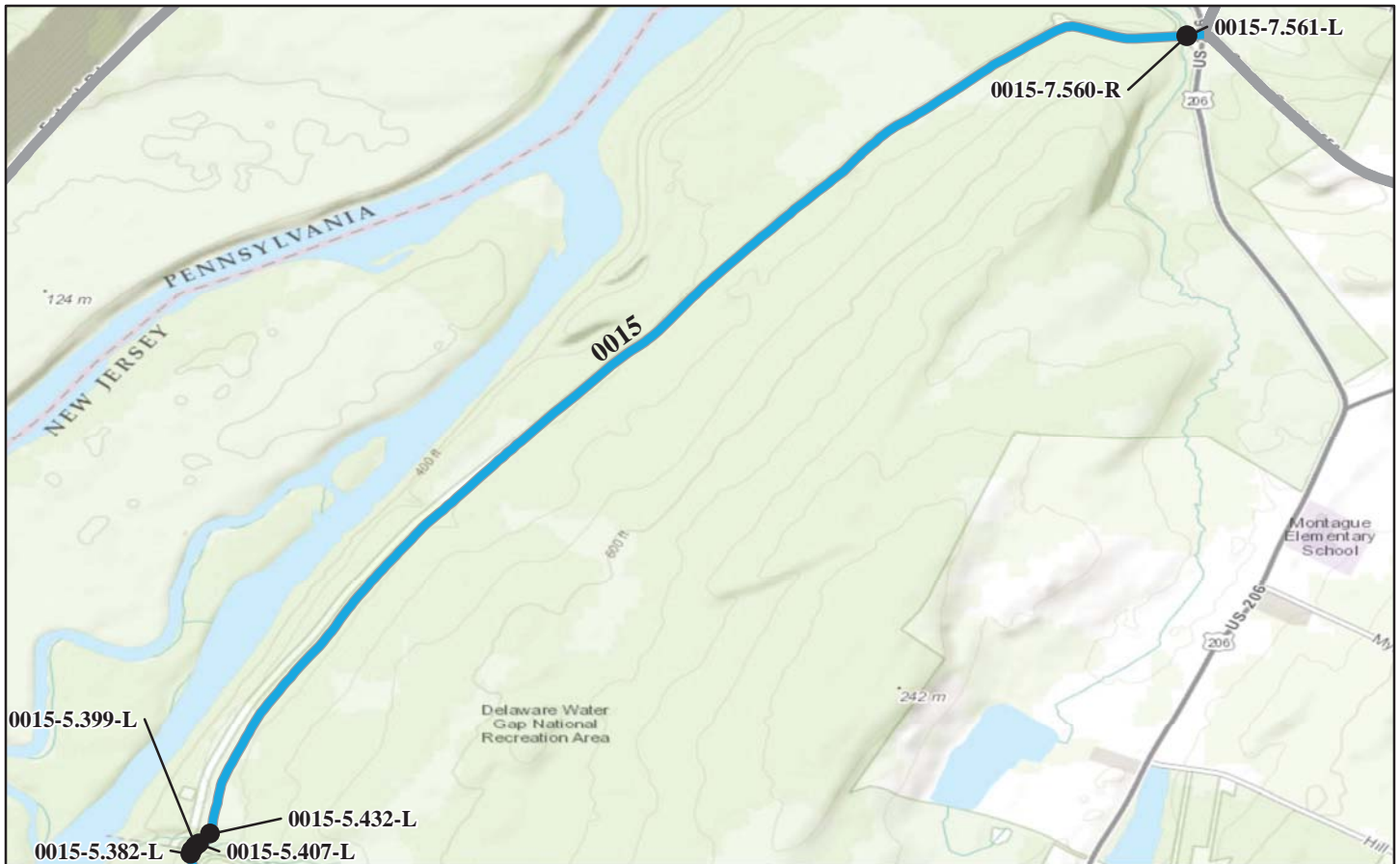
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0015-0.855-L 10/4/2010	78	W-BEAM WEAK POST	NONE	NONE	\$2,172.00
DEWA-0015-0.864-L 10/4/2010	170	OTHER: 2-STRAND CABLE	NONE	NONE	\$22,440.00
DEWA-0015-4.229-L 10/4/2010	32	W-BEAM WEAK POST	NONE	NONE	\$0.00
DEWA-0015-5.382-L 10/4/2010	35	OTHER: 2-STRAND CABLE	NONE	NONE	\$9,268.00
DEWA-0015-5.389-L 10/4/2010	54	OTHER: 2-STRAND CABLE	NONE	NONE	\$12,606.00

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

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)



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	
DEWA-0015-5.399-L 10/4/2010	40	OTHER: 2-STRAND CABLE	NONE	NONE	\$9,625.00
DEWA-0015-5.407-L 10/4/2010	85	W-BEAM WEAK POST	NONE	NONE	\$2,392.00
DEWA-0015-5.432-L 10/4/2010	55	STONE MASONRY WITHOUT CONCRETE CORE WALL	NONE	NONE	\$40,618.00
DEWA-0015-7.560-R 10/4/2010	91	W-BEAM WEAK POST	NONE	NONE	\$2,624.00
DEWA-0015-7.561-L 10/4/2010	103	W-BEAM WEAK POST	NONE	NONE	\$3,443.00

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

Delaware Water Gap National Recreation Area

ROUTE 0100: BLUE MOUNTAIN LAKE ROAD



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	
DEWA-0100-0.006-L 10/1/2010	75	W-BEAM WEAK POST	NONE	NONE	\$2,448.00
DEWA-0100-0.007-R 10/1/2010	38	W-BEAM WEAK POST	NONE	NONE	\$2,090.00
DEWA-0100-0.178-L 10/1/2010	415	W-BEAM WEAK POST	NONE	NONE	\$7,810.00
DEWA-0100-0.267-L 10/1/2010	763	W-BEAM WEAK POST	NONE	NONE	\$15,240.00

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

Delaware Water Gap National Recreation Area

ROUTE 0104: UPPER RIDGE ROAD

Barrier location is unknown.

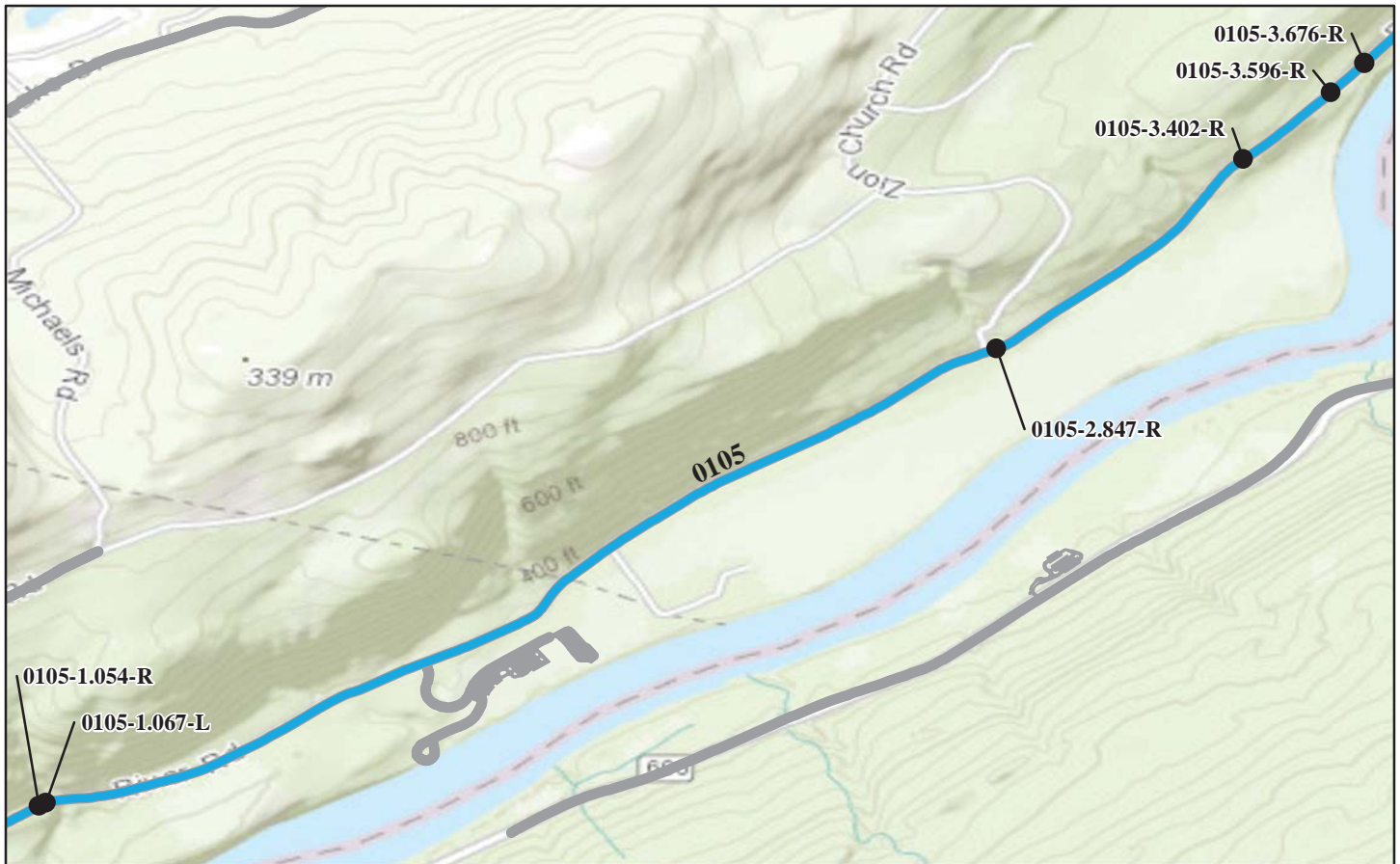
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0104-0.000-L 10/4/2010	80	W-BEAM STRONG POST	NONE	W-BEAM TANGENT 350 COMPLIANT	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD



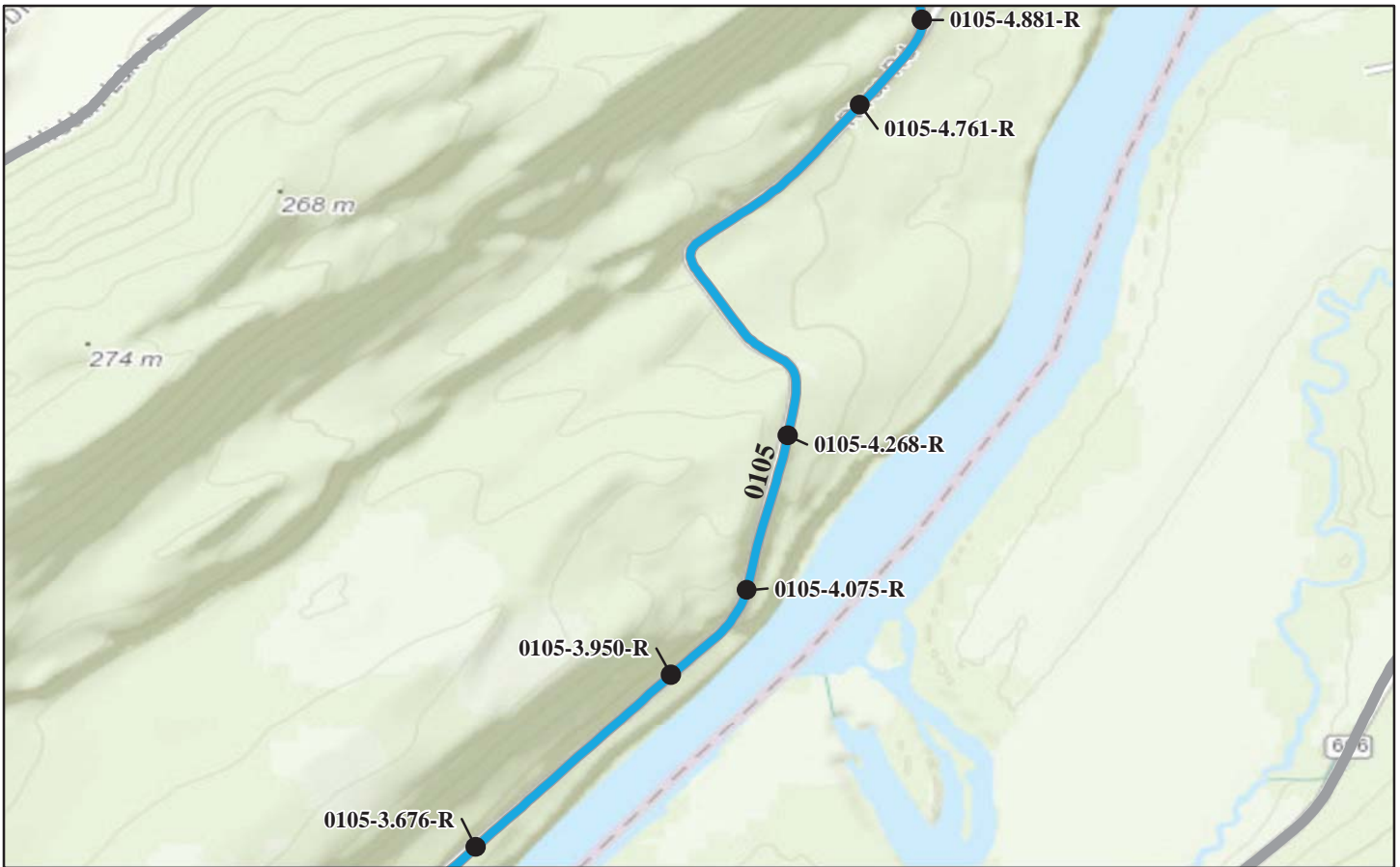
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0105-1.054-R 10/5/2010	133	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$3,526.00
DEWA-0105-1.067-L 10/5/2010	41	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	NONE	NONE	\$2,239.00
DEWA-0105-2.847-R 10/5/2010	949	OTHER: 2-STRAND CABLE	NONE	NONE	\$87,874.00
DEWA-0105-3.402-R 10/5/2010	983	OTHER: 2-STRAND CABLE	NONE	NONE	\$90,304.00
DEWA-0105-3.596-R 10/5/2010	373	OTHER: 2-STRAND CABLE	NONE	NONE	\$40,200.00

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD



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	
DEWA-0105-3.676-R 10/5/2010	639	OTHER: 2-STRAND CABLE	NONE	NONE	\$62,464.00
DEWA-0105-3.950-R 10/6/2010	608	OTHER: 2-STRAND CABLE	NONE	NONE	\$60,247.00
DEWA-0105-4.075-R 10/6/2010	495	OTHER: 2-STRAND CABLE	NONE	NONE	\$48,922.00
DEWA-0105-4.268-R 10/6/2010	606	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$11,314.00
DEWA-0105-4.761-R 10/6/2010	597	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$12,568.00

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD



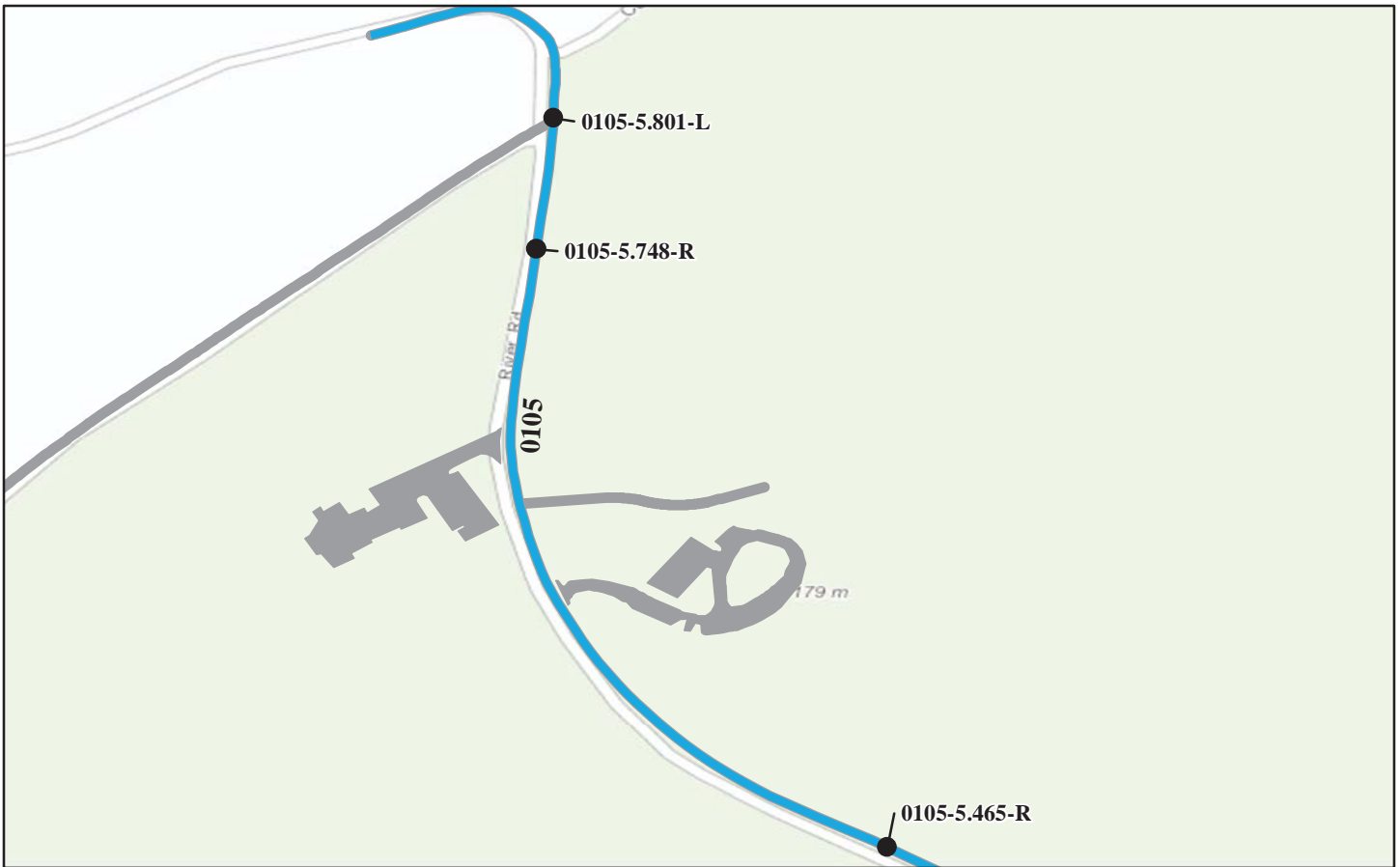
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0105-4.881-R 10/6/2010	302	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$6,941.00
DEWA-0105-5.034-R 10/6/2010	312	OTHER: 2-STRAND CABLE	NONE	NONE	\$36,498.00
DEWA-0105-5.267-R 10/6/2010	353	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$7,568.00
DEWA-0105-5.344-R 10/6/2010	338	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$7,106.00
DEWA-0105-5.439-R 10/6/2010	88	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$2,150.00

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD



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	
DEWA-0105-5.465-R 10/6/2010	605	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$2,722.00
DEWA-0105-5.748-R 10/6/2010	212	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$3,954.00
DEWA-0105-5.801-L 10/6/2010	176	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$3,558.00

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

Delaware Water Gap National Recreation Area

ROUTE 0106: JAGER ROAD



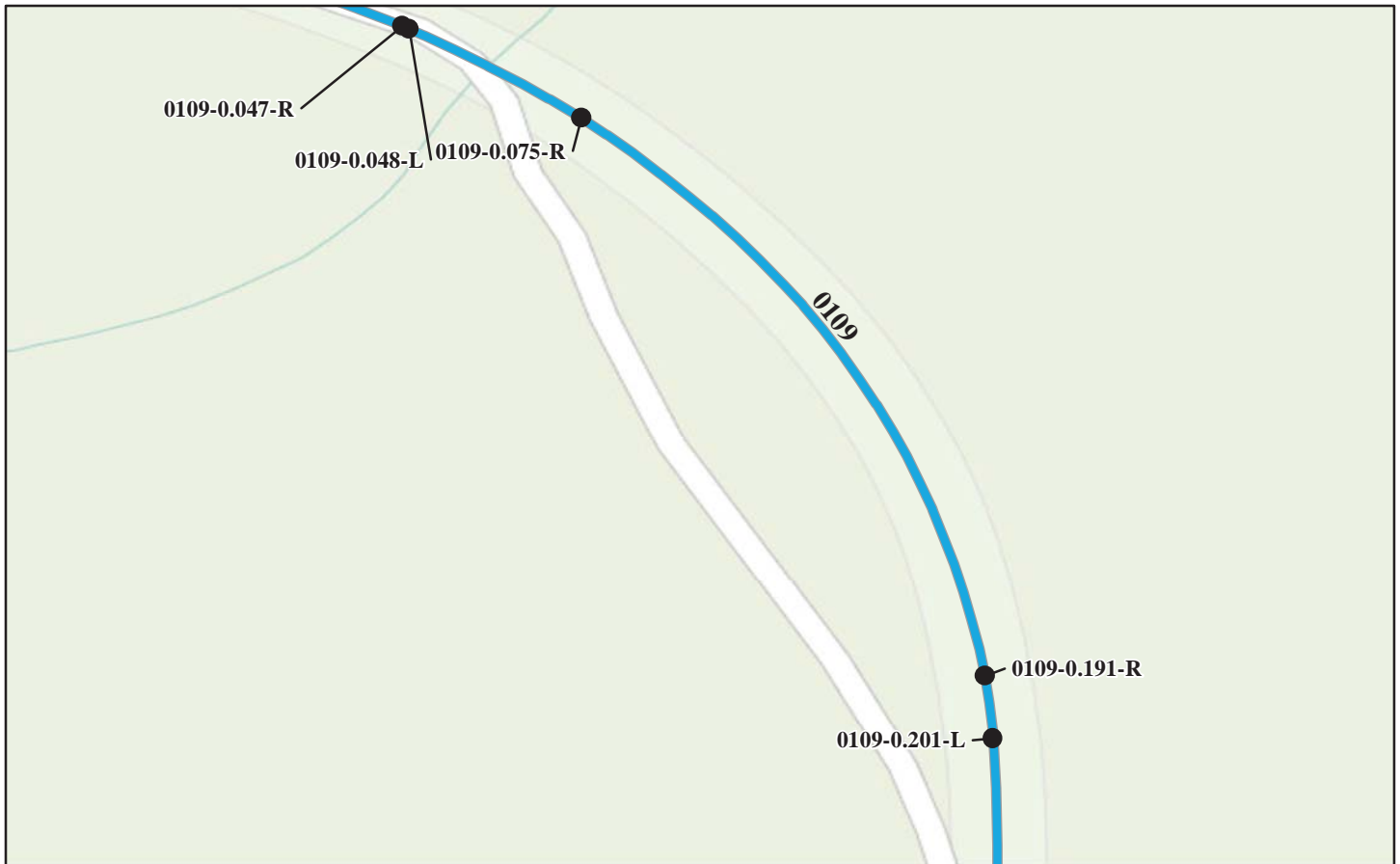
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0106-0.006-R 10/4/2010	18	W-BEAM WEAK POST	NONE	NONE	\$2,282.00
DEWA-0106-0.167-L 10/4/2010	62	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	NONE	NONE	\$2,084.00
DEWA-0106-0.177-R 10/4/2010	133	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	NONE	NONE	\$3,086.00

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

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602



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	
DEWA-0109-0.047-R 10/7/2010	182	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$2,942.00
DEWA-0109-0.048-L 10/7/2010	180	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0109-0.075-R 10/7/2010	90	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0109-0.191-R 10/7/2010	155	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$2,722.00
DEWA-0109-0.201-L 10/7/2010	100	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$1,842.00

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

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602



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	
DEWA-0109-0.252-L 10/7/2010	320	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$3,162.00
DEWA-0109-0.276-R 10/7/2010	130	OTHER: 2-STRAND CABLE	NONE	NONE	\$19,580.00
DEWA-0109-0.508-R 10/7/2010	758	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$13,206.00
DEWA-0109-0.674-R 10/7/2010	618	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00
DEWA-0109-0.704-L 10/7/2010	182	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602



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	
DEWA-0109-0.798-R 10/7/2010	180	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$2,338.00
DEWA-0109-1.227-R 10/7/2010	278	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$1,898.00
DEWA-0109-1.388-R 10/6/2010	102	OTHER: 2-STRAND CABLE	NONE	NONE	\$17,578.00
DEWA-0109-1.394-L 10/6/2010	825	OTHER: 2-STRAND CABLE	NONE	NONE	\$79,008.00
DEWA-0109-1.569-L 10/6/2010	26	W-BEAM WEAK POST	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602



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	
DEWA-0109-1.576-L 10/6/2010	26	W-BEAM WEAK POST	NONE	NONE	\$0.00
DEWA-0109-1.580-L 10/6/2010	280	OTHER: 2-STRAND CABLE	NONE	NONE	\$33,550.00
DEWA-0109-1.686-R 10/6/2010	151	OTHER: 2-STRAND CABLE	NONE	NONE	\$21,082.00

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

Delaware Water Gap National Recreation Area

ROUTE 0110: POMPEY RIDGE ROAD



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	
DEWA-0110-0.016-L 10/4/2010	1,491	W-BEAM WEAK POST	NONE	NONE	\$24,596.00
DEWA-0110-0.794-R 10/4/2010	526	W-BEAM WEAK POST	NONE	NONE	\$10,654.00
DEWA-0110-0.970-R 10/4/2010	40	W-BEAM WEAK POST	NONE	NONE	\$2,062.00

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

Delaware Water Gap National Recreation Area

ROUTE 0112ZZ: JOHNNY BEE ROADS



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	
DEWA-0112ZZ-0.371-R 10/5/2010	448	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$0.00
DEWA-0112ZZ-0.456-R 10/5/2010	84	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$66.00
DEWA-0112ZZ-0.475-L 10/5/2010	43	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$2,018.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



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	
DEWA-0113-0.094-R 10/5/2010	688	OTHER: 2-STRAND CABLE	NONE	NONE	\$65,967.00
DEWA-0113-0.226-L 10/5/2010	464	CONCRETE BARRIER	NONE	NONE	\$0.00
DEWA-0113-0.227-R 10/5/2010	454	W-BEAM STRONG POST	NONE	NONE	\$6,545.00
DEWA-0113-0.313-R 10/5/2010	229	OTHER: 2-STRAND CABLE	NONE	NONE	\$26,658.00
DEWA-0113-0.572-R 10/5/2010	484	OTHER: 2-STRAND CABLE	NONE	NONE	\$48,136.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



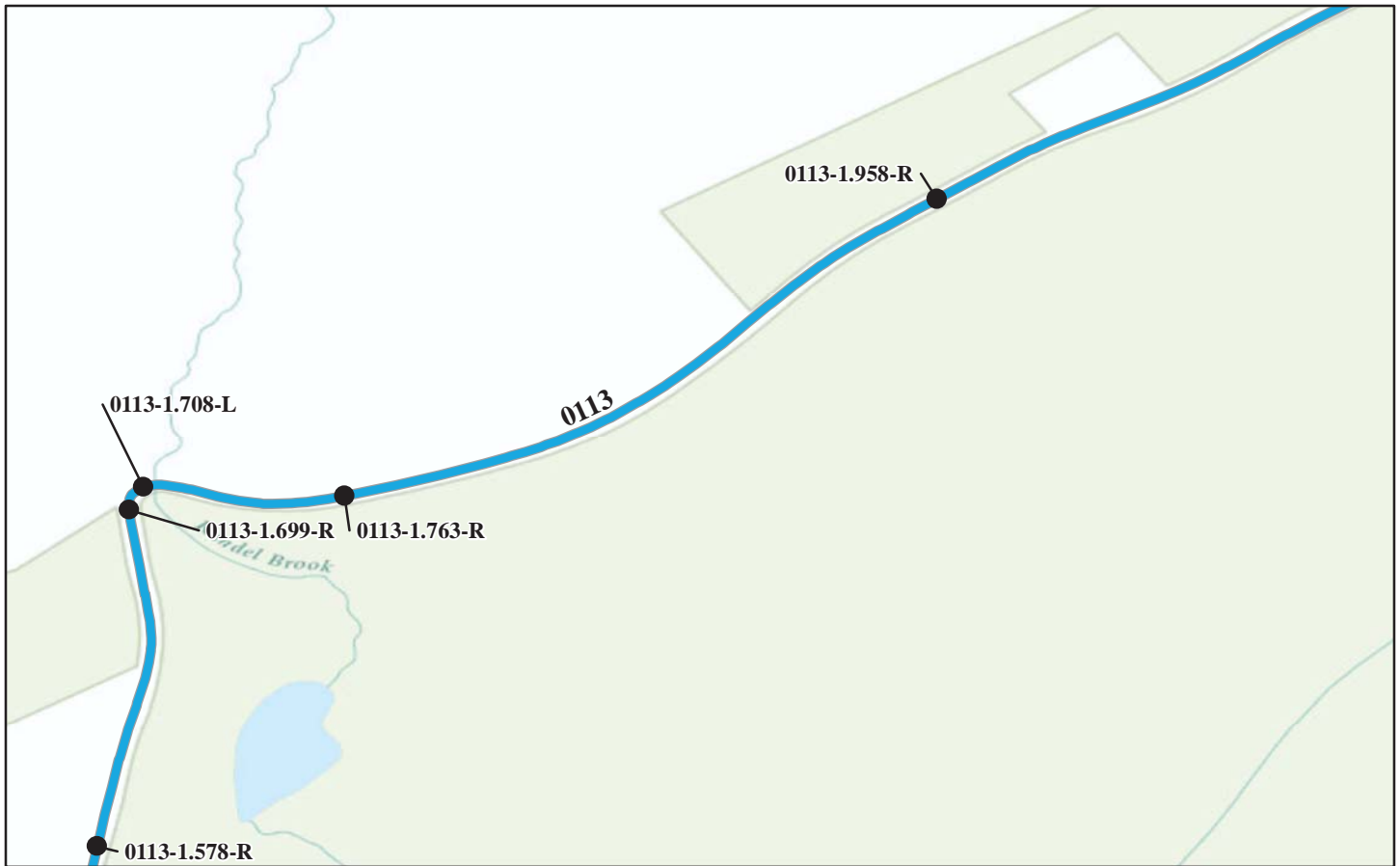
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Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0113-0.672-L 10/5/2010	110	STONE MASONRY WITHOUT CONCRETE CORE WALL	NONE	NONE	\$2,590.00
DEWA-0113-0.727-R 10/5/2010	777	OTHER: 2-STRAND CABLE	NONE	NONE	\$75,576.00
DEWA-0113-0.882-R 10/5/2010	513	OTHER: 2-STRAND CABLE	NONE	NONE	\$53,454.00
DEWA-0113-1.046-L 10/5/2010	487	OTHER: 2-STRAND CABLE	NONE	NONE	\$48,350.00
DEWA-0113-1.182-R 10/5/2010	2034	OTHER: 2-STRAND CABLE	NONE	NONE	\$181,676.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



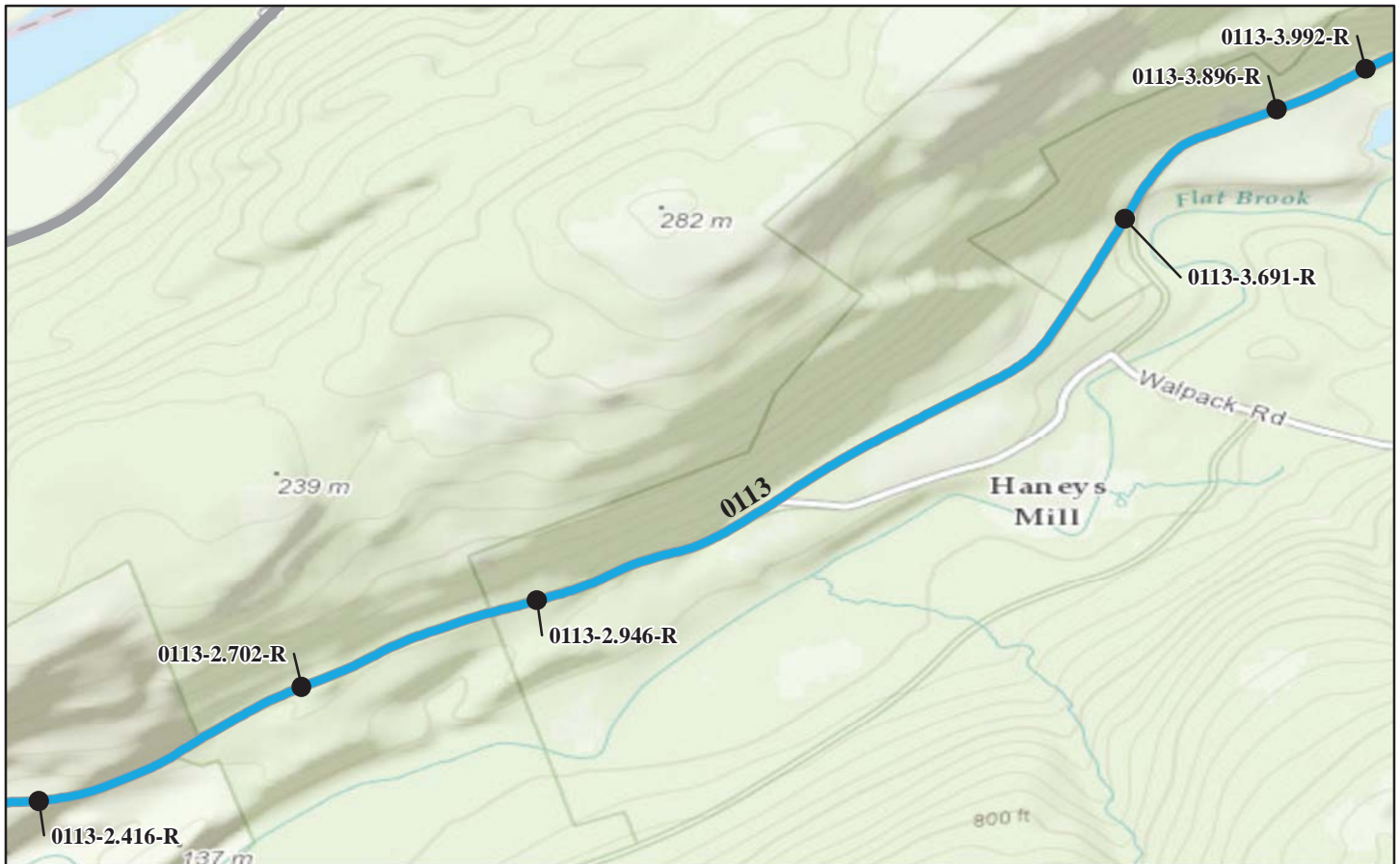
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Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0113-1.578-R 10/5/2010	640	OTHER: 2-STRAND CABLE	NONE	NONE	\$52,305.00
DEWA-0113-1.699-R 10/5/2010	228	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$5,142.00
DEWA-0113-1.708-L 10/5/2010	87	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$0.00
DEWA-0113-1.763-R 10/5/2010	362	OTHER: 2-STRAND CABLE	NONE	NONE	\$39,413.00
DEWA-0113-1.958-R 10/5/2010	1845	OTHER: 2-STRAND CABLE	NONE	NONE	\$164,918.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



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	
DEWA-0113-2.416-R 10/5/2010	1,032	OTHER: 2-STRAND CABLE	NONE	NONE	\$97,053.00
DEWA-0113-2.702-R 10/5/2010	550	OTHER: 2-STRAND CABLE	NONE	NONE	\$56,100.00
DEWA-0113-2.946-R 10/5/2010	689	OTHER: 2-STRAND CABLE	NONE	NONE	\$66,038.00
DEWA-0113-3.691-R 10/5/2010	217	OTHER: 2-STRAND CABLE	NONE	NONE	\$25,800.00
DEWA-0113-3.896-R 10/5/2010	478	OTHER: 2-STRAND CABLE	NONE	NONE	\$47,707.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



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	
DEWA-0113-3.992-R 10/5/2010	57	OTHER: 2-STRAND CABLE	NONE	NONE	\$14,558.00
DEWA-0113-4.093-R 10/6/2010	3005	OTHER: 2-STRAND CABLE	NONE	NONE	\$264,082.00
DEWA-0113-5.168-R 10/6/2010	99	OTHER: 2-STRAND CABLE	NONE	NONE	\$17,364.00
DEWA-0113-5.250-R 10/6/2010	256	OTHER: 2-STRAND CABLE	NONE	NONE	\$31,834.00
DEWA-0113-5.324-R 10/6/2010	2030	OTHER: 2-STRAND CABLE	NONE	NONE	\$181,390.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



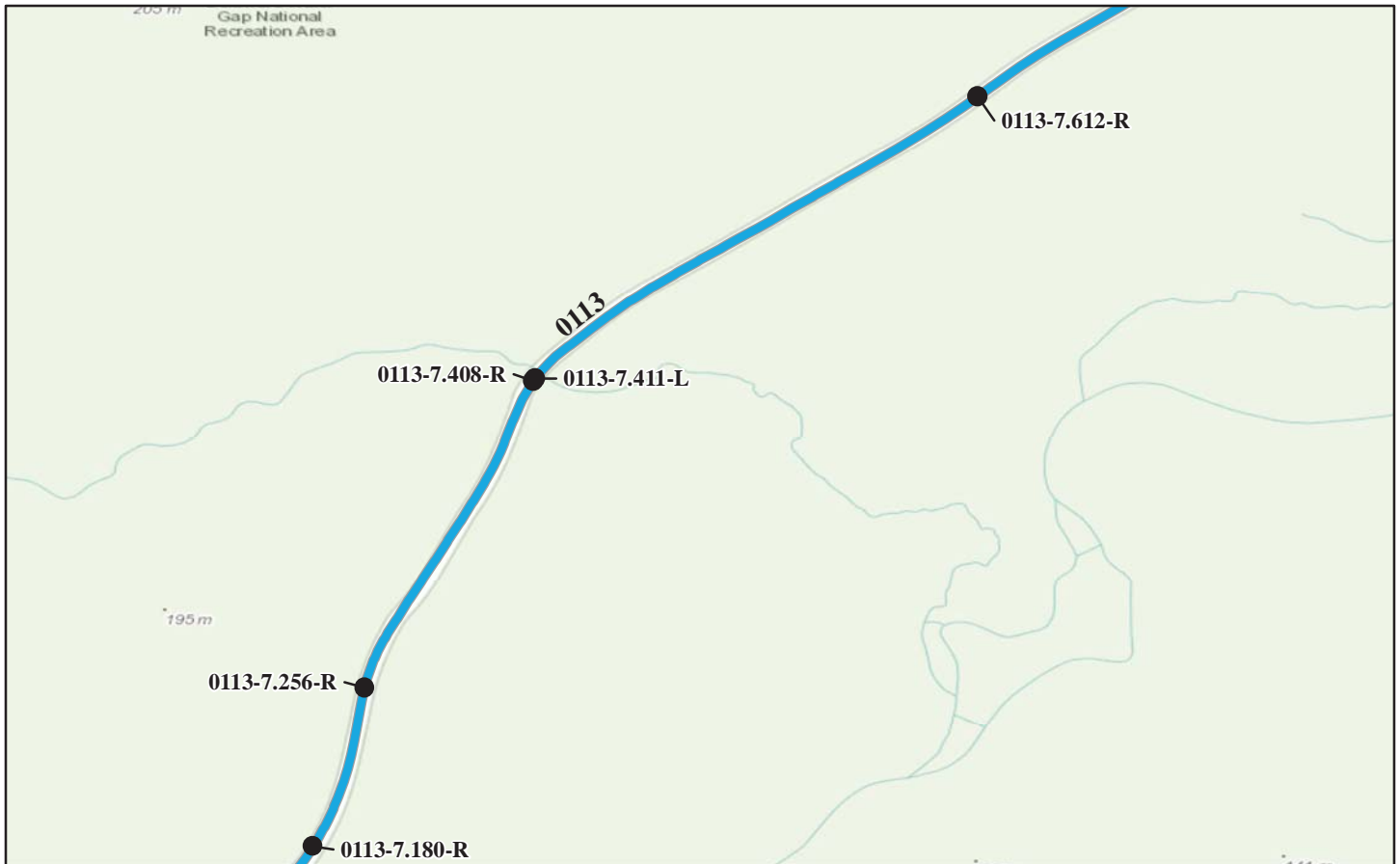
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0113-6.268-R 10/6/2010	244	OTHER: 2-STRAND CABLE	NONE	NONE	\$27,731.00
DEWA-0113-6.326-R 10/6/2010	408	OTHER: 2-STRAND CABLE	NONE	NONE	\$42,702.00
DEWA-0113-6.530-R 10/6/2010	1718	OTHER: 2-STRAND CABLE	NONE	NONE	\$152,592.00
DEWA-0113-6.898-R 10/6/2010	352	OTHER: 2-STRAND CABLE	NONE	NONE	\$38,698.00
DEWA-0113-7.120-R 10/6/2010	232	OTHER: 2-STRAND CABLE	NONE	NONE	\$26,873.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



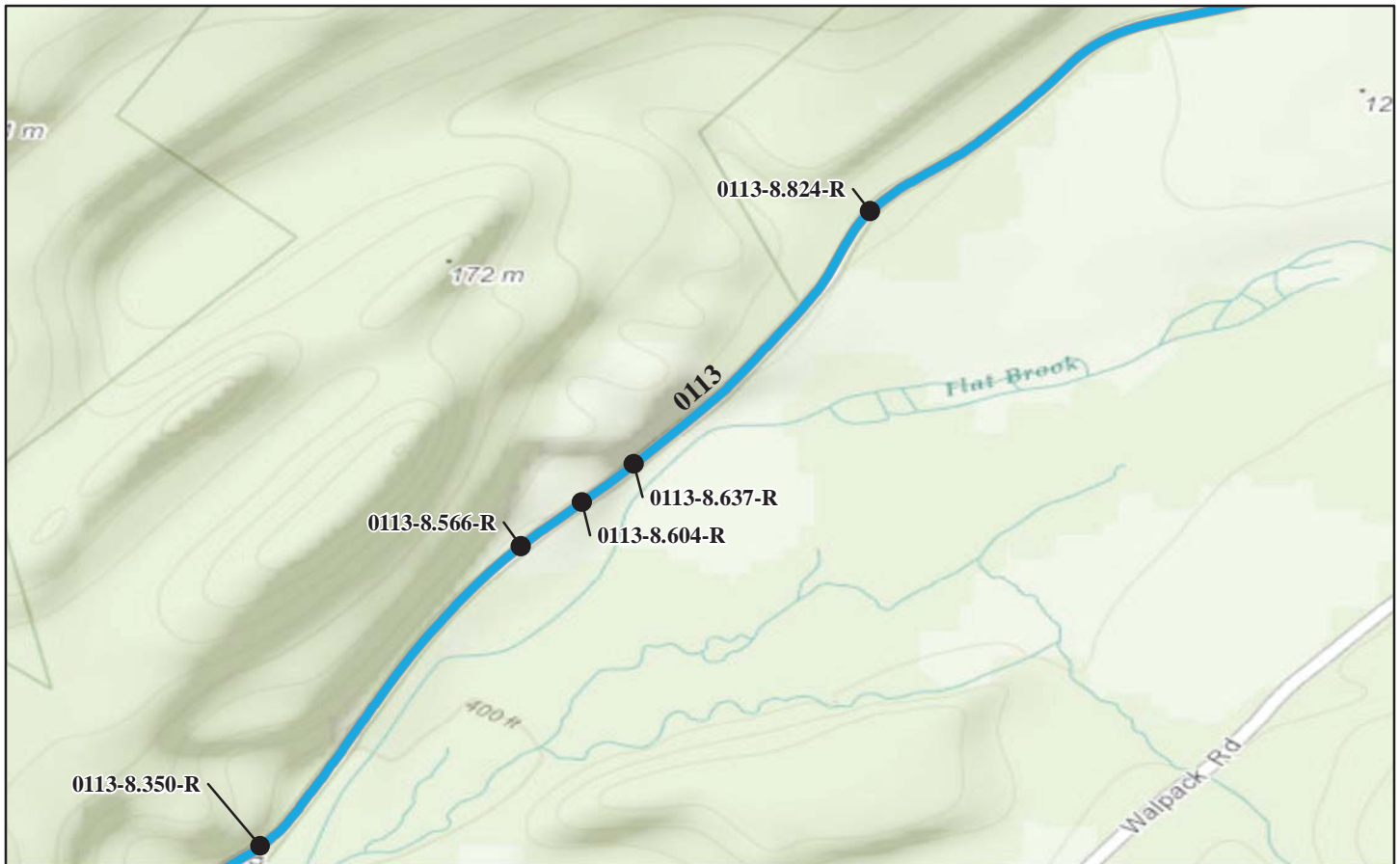
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Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0113-7.180-R 10/6/2010	150	OTHER: 2-STRAND CABLE	NONE	NONE	\$21,010.00
DEWA-0113-7.256-R 10/6/2010	772	OTHER: 2-STRAND CABLE	NONE	NONE	\$75,218.00
DEWA-0113-7.408-R 10/6/2010	171	OTHER: 2-STRAND CABLE	NONE	NONE	\$22,512.00
DEWA-0113-7.411-L 10/6/2010	45	OTHER: 2-STRAND CABLE	NONE	NONE	\$14,493.00
DEWA-0113-7.612-R 10/6/2010	264	OTHER: 2-STRAND CABLE	NONE	NONE	\$32,406.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



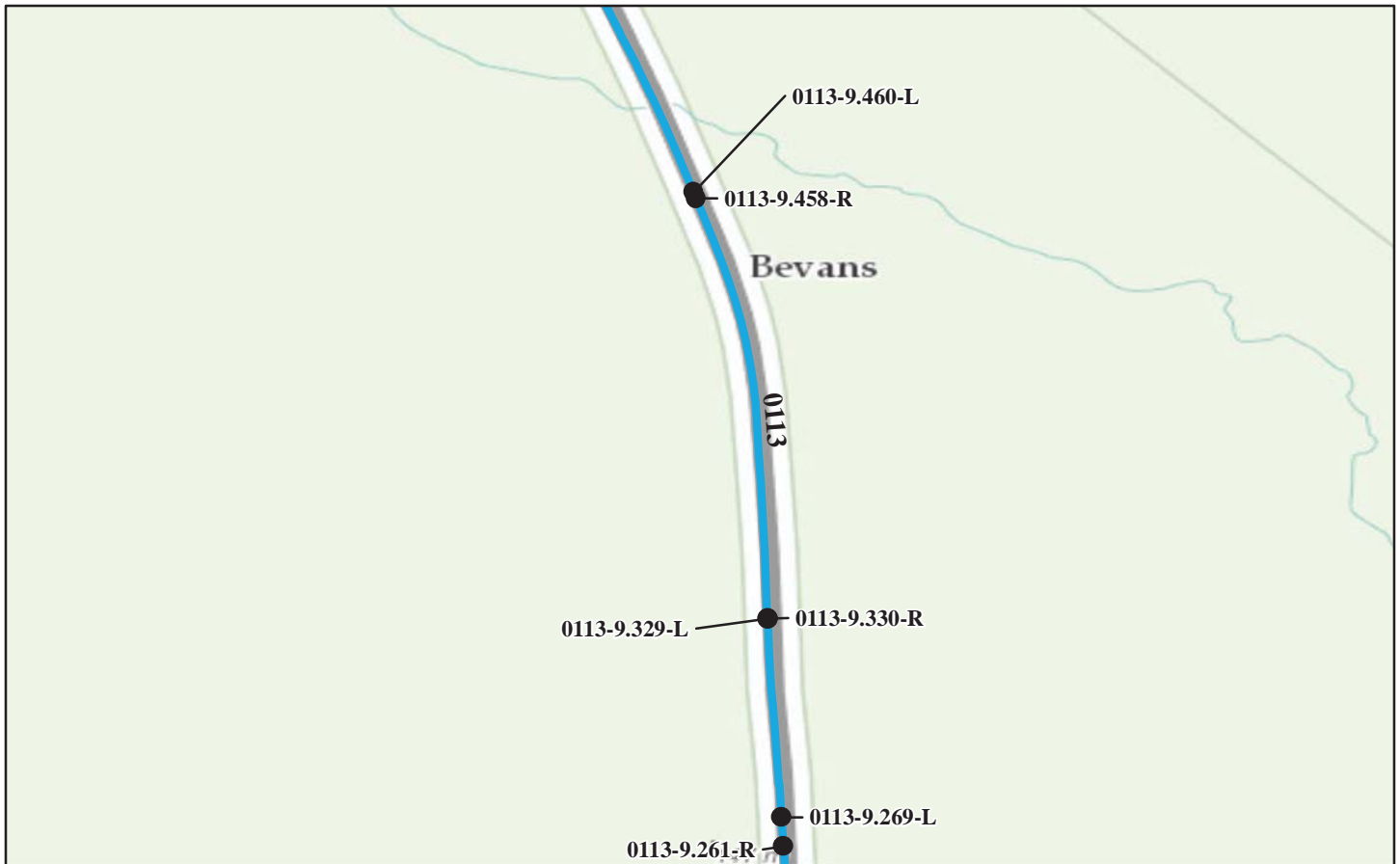
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Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0113-8.350-R 10/6/2010	1,140	OTHER: 2-STRAND CABLE	NONE	NONE	\$111,925.00
DEWA-0113-8.566-R 10/6/2010	125	OTHER: 2-STRAND CABLE	NONE	NONE	\$21,202.00
DEWA-0113-8.604-R 10/6/2010	173	OTHER: 2-STRAND CABLE	NONE	NONE	\$19,134.00
DEWA-0113-8.637-R 10/6/2010	501	OTHER: 2-STRAND CABLE	NONE	NONE	\$45,832.00
DEWA-0113-8.824-R 10/6/2010	877	OTHER: 2-STRAND CABLE	NONE	NONE	\$82,726.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



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	
DEWA-0113-9.261-R 10/6/2010	236	OTHER: 2-STRAND CABLE	NONE	NONE	\$27,159.00
DEWA-0113-9.269-L 10/6/2010	162	OTHER: 2-STRAND CABLE	NONE	NONE	\$21,868.00
DEWA-0113-9.329-L 10/6/2010	190	OTHER: 2-STRAND CABLE	NONE	NONE	\$23,870.00
DEWA-0113-9.330-R 10/6/2010	232	OTHER: 2-STRAND CABLE	NONE	NONE	\$26,873.00
DEWA-0113-9.458-R 10/7/2010	291	OTHER: 2-STRAND CABLE	NONE	NONE	\$34,336.00

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615



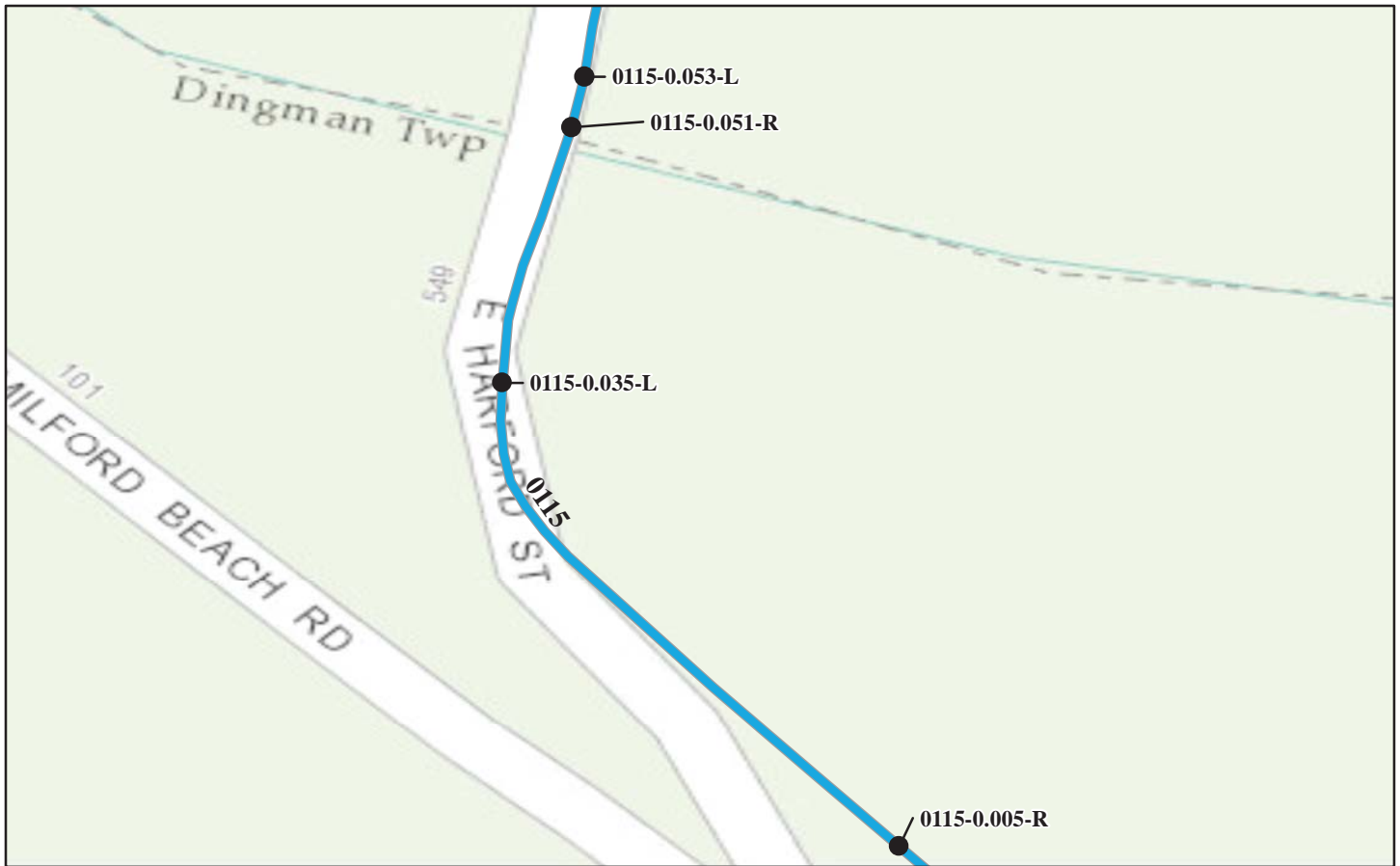
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Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0113-9.460-L 10/7/2010	436	OTHER: 2-STRAND CABLE	NONE	NONE	\$51,194.00
DEWA-0113-9.524-R 10/7/2010	101	OTHER: 2-STRAND CABLE	NONE	NONE	\$17,506.00

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

Delaware Water Gap National Recreation Area

ROUTE 0115: ICE HOUSE ROAD



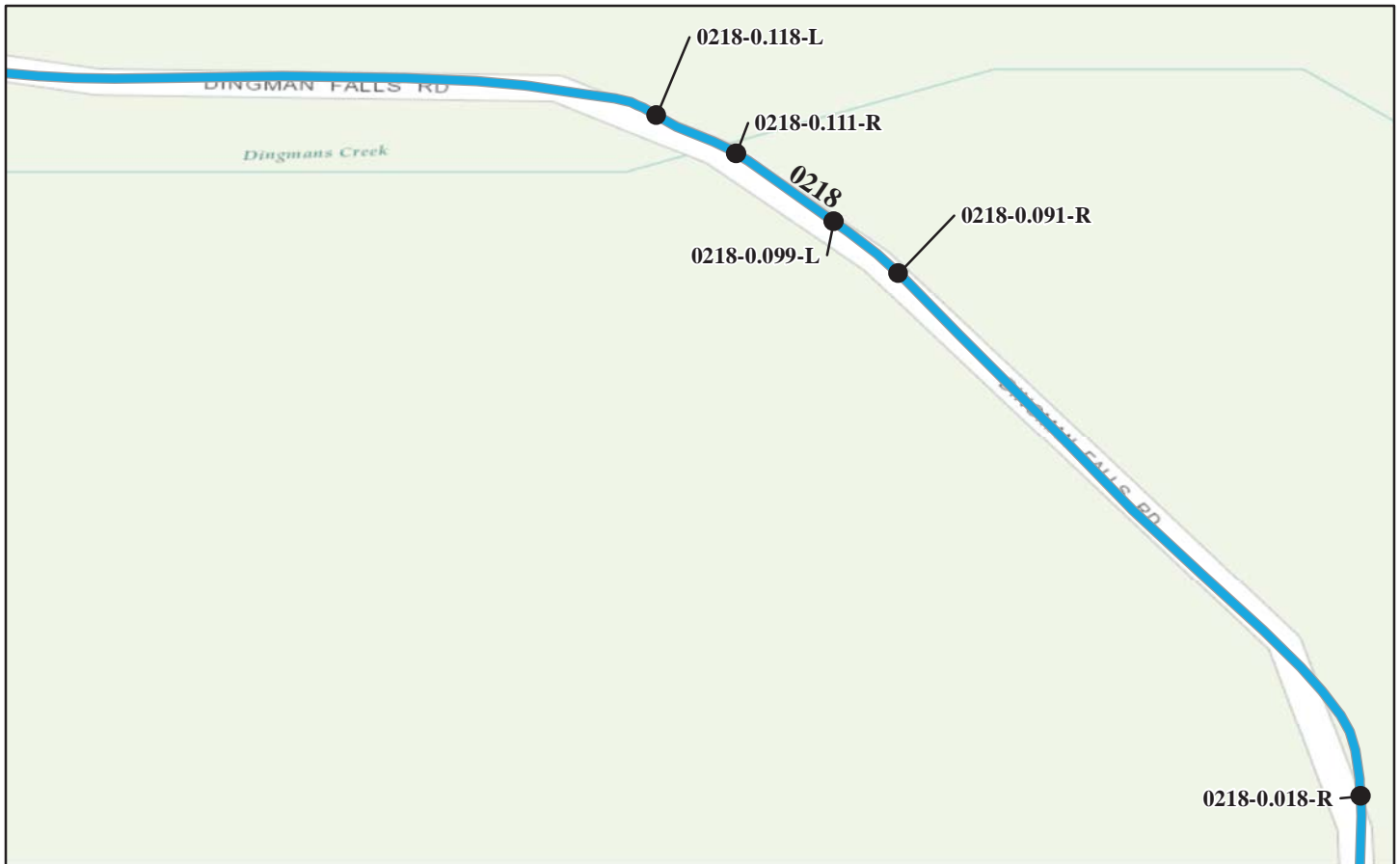
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0115-0.005-R 10/1/2010	175	W-BEAM WEAK POST	W-BEAM TRAILING END	NONE	\$1,898.00
DEWA-0115-0.035-L 10/1/2010	42	OTHER: 2-STRAND CABLE	NONE	NONE	\$7,788.00
DEWA-0115-0.051-R 10/1/2010	82	OTHER: 2-STRAND CABLE	NONE	NONE	\$9,548.00
DEWA-0115-0.053-L 10/1/2010	40	OTHER: 2-STRAND CABLE	NONE	NONE	\$9,625.00

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

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD



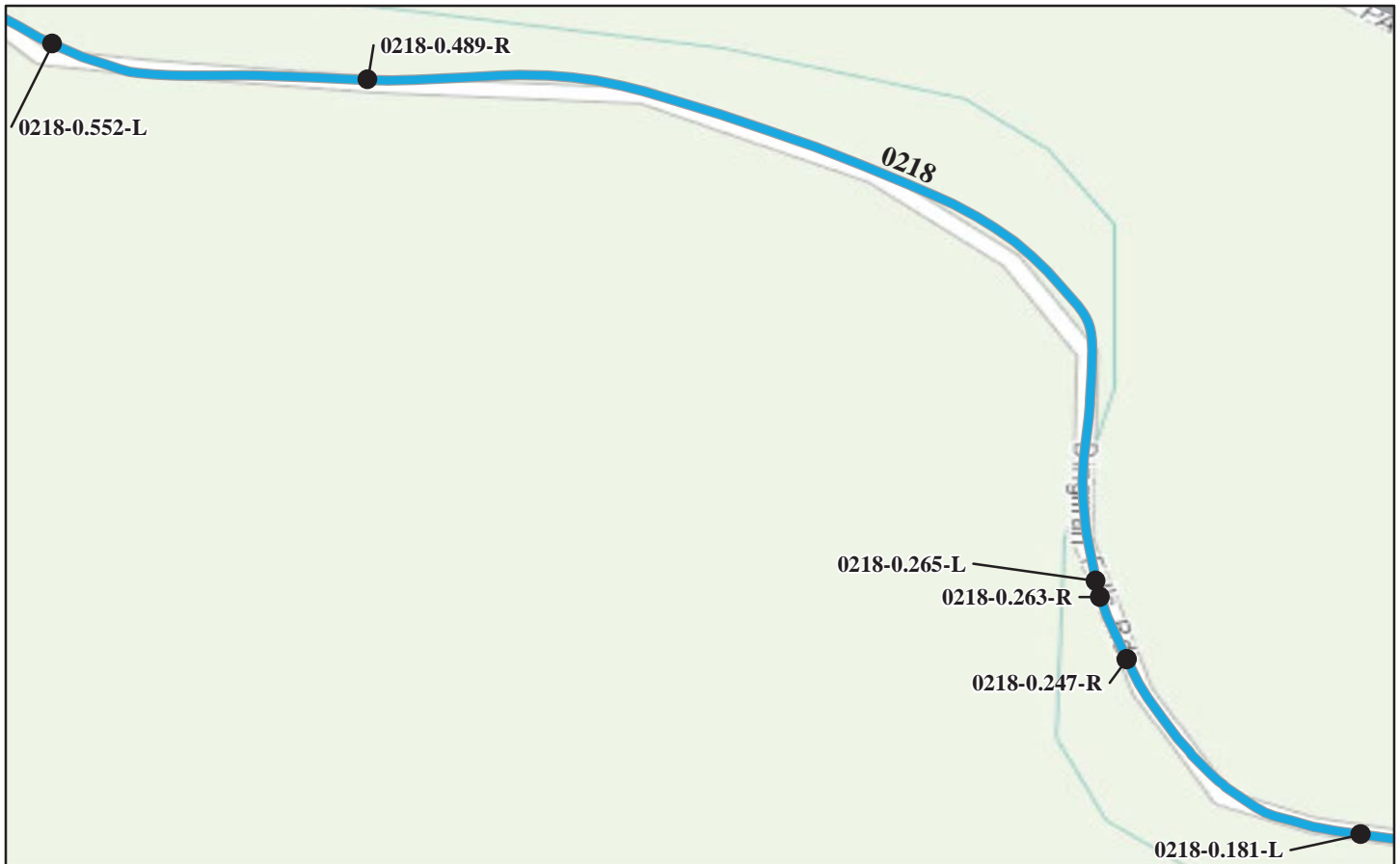
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0218-0.018-R 10/5/2010	194	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$3,316.00
DEWA-0218-0.091-R 10/5/2010	50	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$2,173.00
DEWA-0218-0.099-L 10/5/2010	52	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$1,842.00
DEWA-0218-0.111-R 10/5/2010	45	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$2,118.00
DEWA-0218-0.118-L 10/5/2010	275	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD



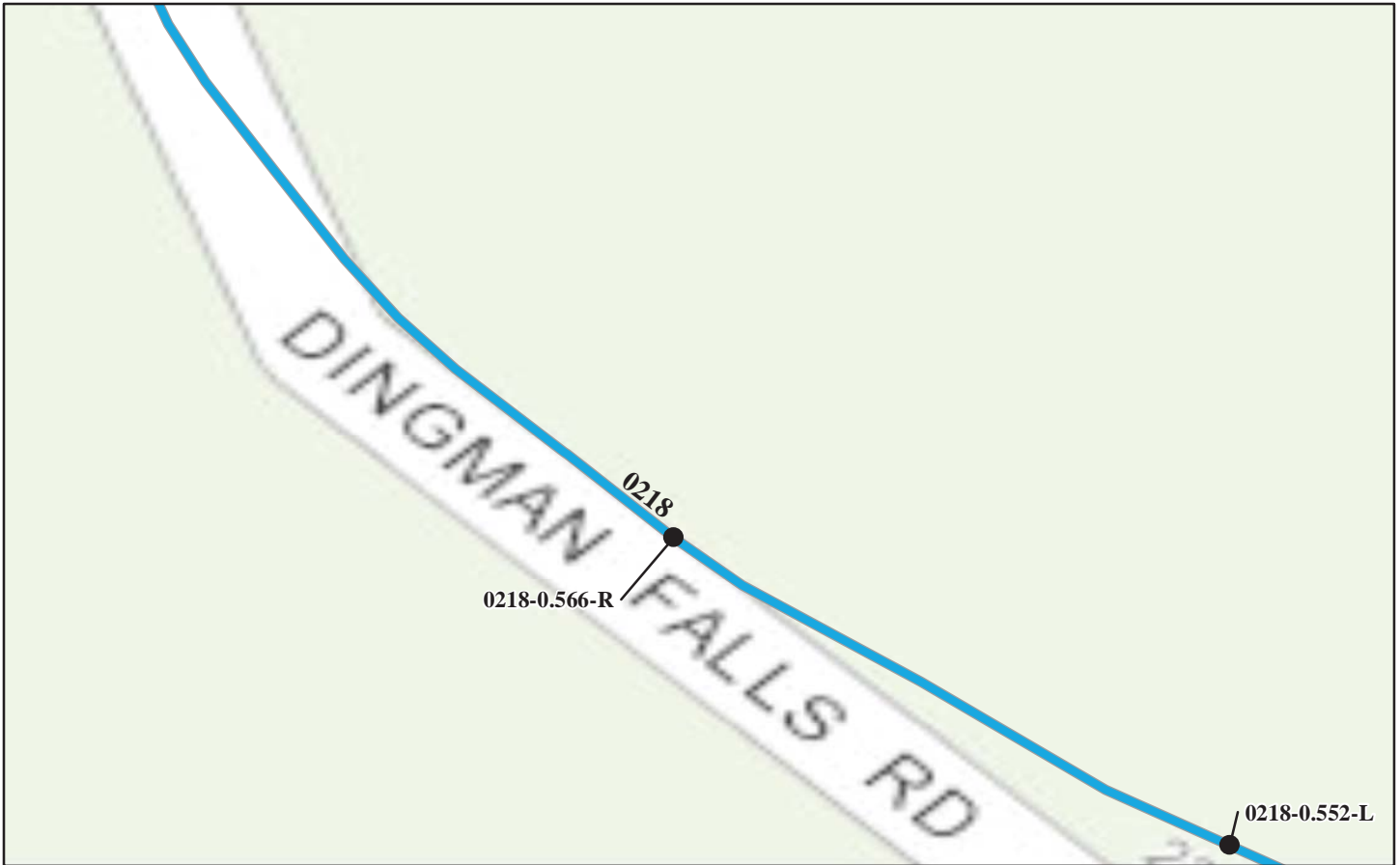
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0218-0.181-L 10/5/2010	397	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$6,611.00
DEWA-0218-0.247-R 10/5/2010	35	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$0.00
DEWA-0218-0.263-R 10/5/2010	90	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	NONE	SBT/LOG FLARED	\$2,282.00
DEWA-0218-0.265-L 10/5/2010	108	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$0.00
DEWA-0218-0.489-R 10/5/2010	357	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	SBT/LOG FLARED	\$2,789.00

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

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD



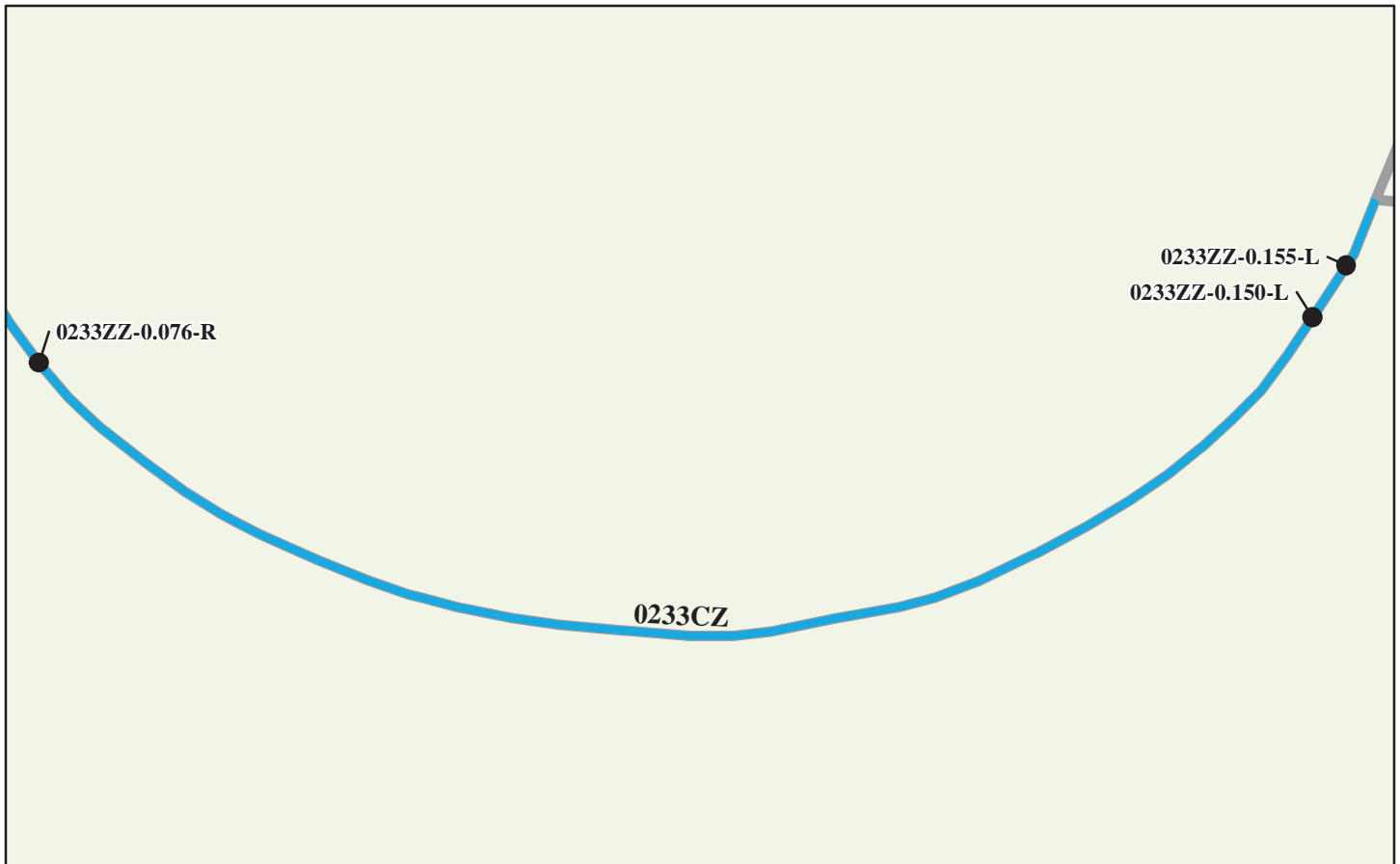
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0218-0.552-L 10/4/2010	35	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$1,788.00
DEWA-0218-0.566-R 10/4/2010	88	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$2,282.00

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

Delaware Water Gap National Recreation Area

ROUTE 0233ZZ: SMITHFIELD BEACH ACCESS ROADS



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	
DEWA-0233ZZ-0.076-R 10/4/2010	346	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	SBT/LOG FLARED	\$3,658.00
DEWA-0233ZZ-0.150-L 10/4/2010	42	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	NONE	NONE	\$2,084.00
DEWA-0233ZZ-0.155-L 10/4/2010	13	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0235: DINGMAN'S CAMPGROUND ENTRY DRIVE

Barrier location is unknown.

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	
DEWA-0235-0.000-L 10/1/2010	72	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$2,448.00
DEWA-0235-0.000-R 10/1/2010	84	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$2,546.00

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

Delaware Water Gap National Recreation Area

ROUTE 0423: HEADQUARTER SERVICE ROAD

Barrier location is unknown.

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	
DEWA-0423-0.000-L 10/4/2010	193	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$2,062.00

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

Delaware Water Gap National Recreation Area

ROUTE 0600: MAIN STREET (WALPACK)

Barrier location is unknown.

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	
DEWA-0600-0.200-R 10/4/2010	164	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$3,426.00
DEWA-0600-0.223-L 10/4/2010	40	STEEL-BACKED TIMBER WITH BLOCKOUT	SBT/LOG FLARED	NONE	\$2,063.00
DEWA-0600-0.244-L 10/4/2010	55	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$1,952.00
DEWA-0600-0.244-R 10/4/2010	50	STEEL-BACKED TIMBER WITH BLOCKOUT	NONE	NONE	\$1,898.00

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

Delaware Water Gap National Recreation Area

ROUTE 0900ZZ: POXONO BOAT LAUNCH PARKING AREAS



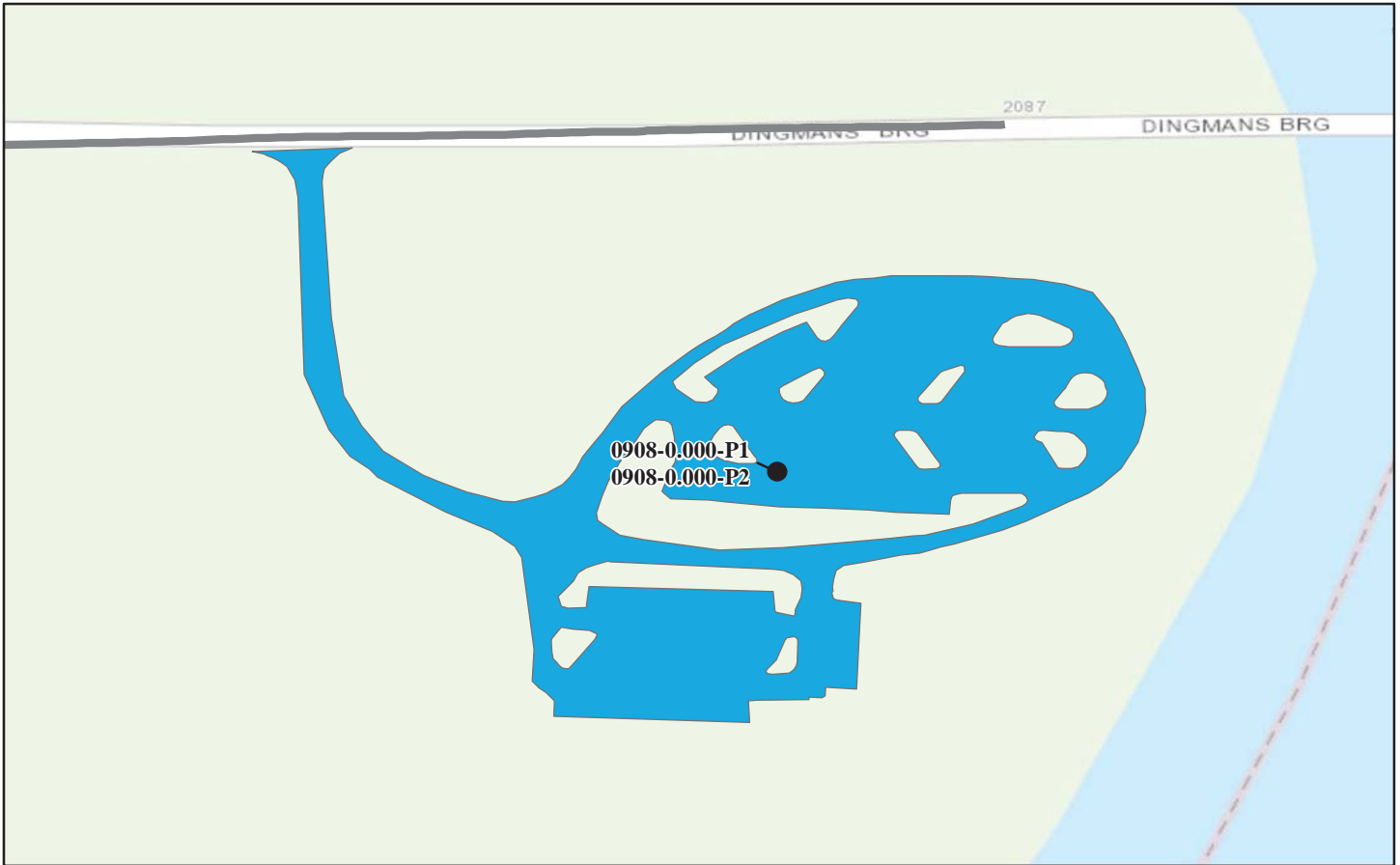
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0900ZZ-0.000-P1 10/5/2010	73	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
DEWA-0900ZZ-0.000-P2 10/5/2010	88	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0908: DINGMAN'S FERRY ACCESS PARKING AREA



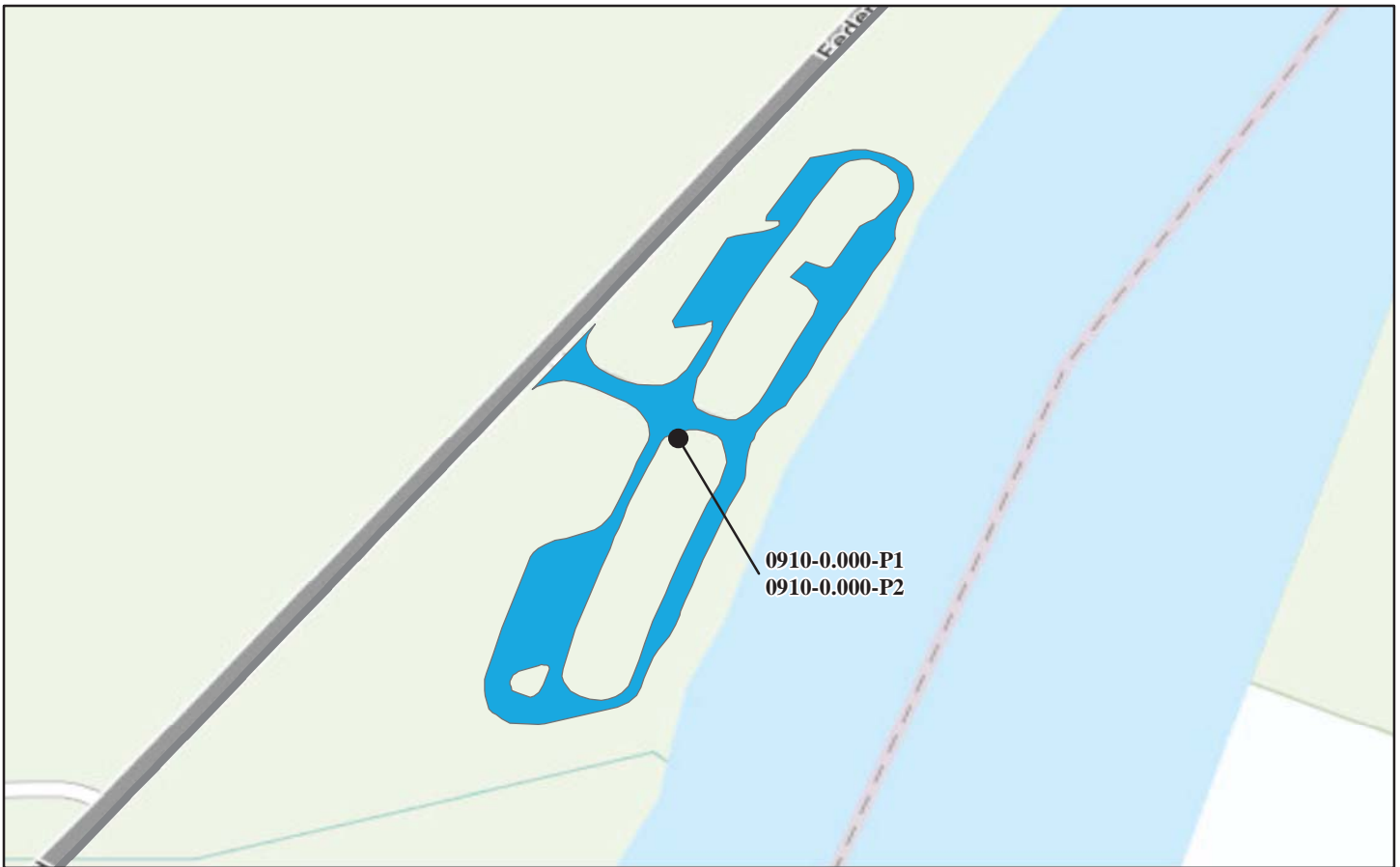
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0908-0.000-P1 10/4/2010	46	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$2,129.00
DEWA-0908-0.000-P2 10/4/2010	43	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$2,096.00

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

Delaware Water Gap National Recreation Area

ROUTE 0910: BUSHKILL ACCESS PARKING AREA



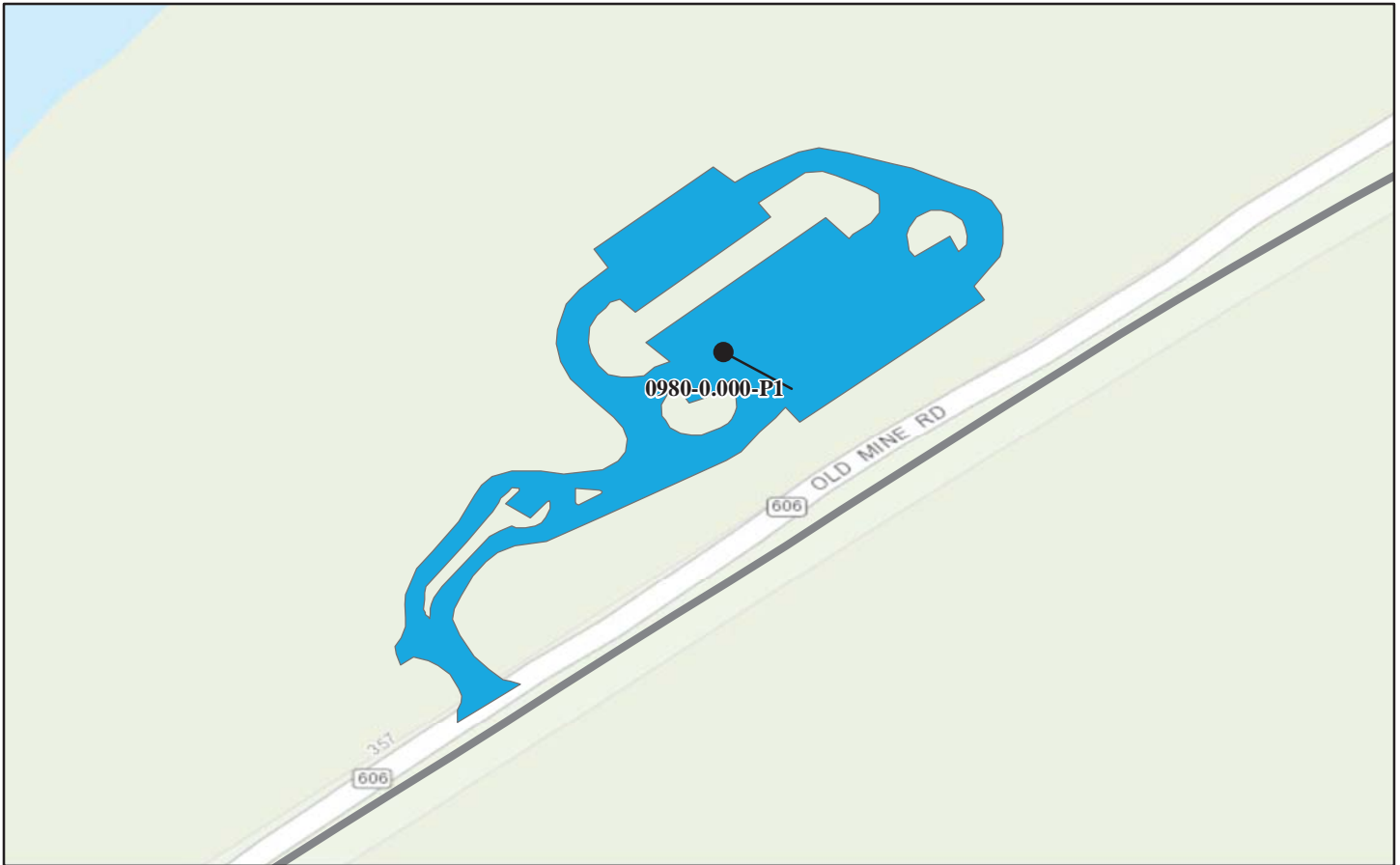
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0910-0.000-P1 10/1/2010	136	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
DEWA-0910-0.000-P2 10/1/2010	180	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00

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

Delaware Water Gap National Recreation Area

ROUTE 0980: TURTLE BEACH PARKING

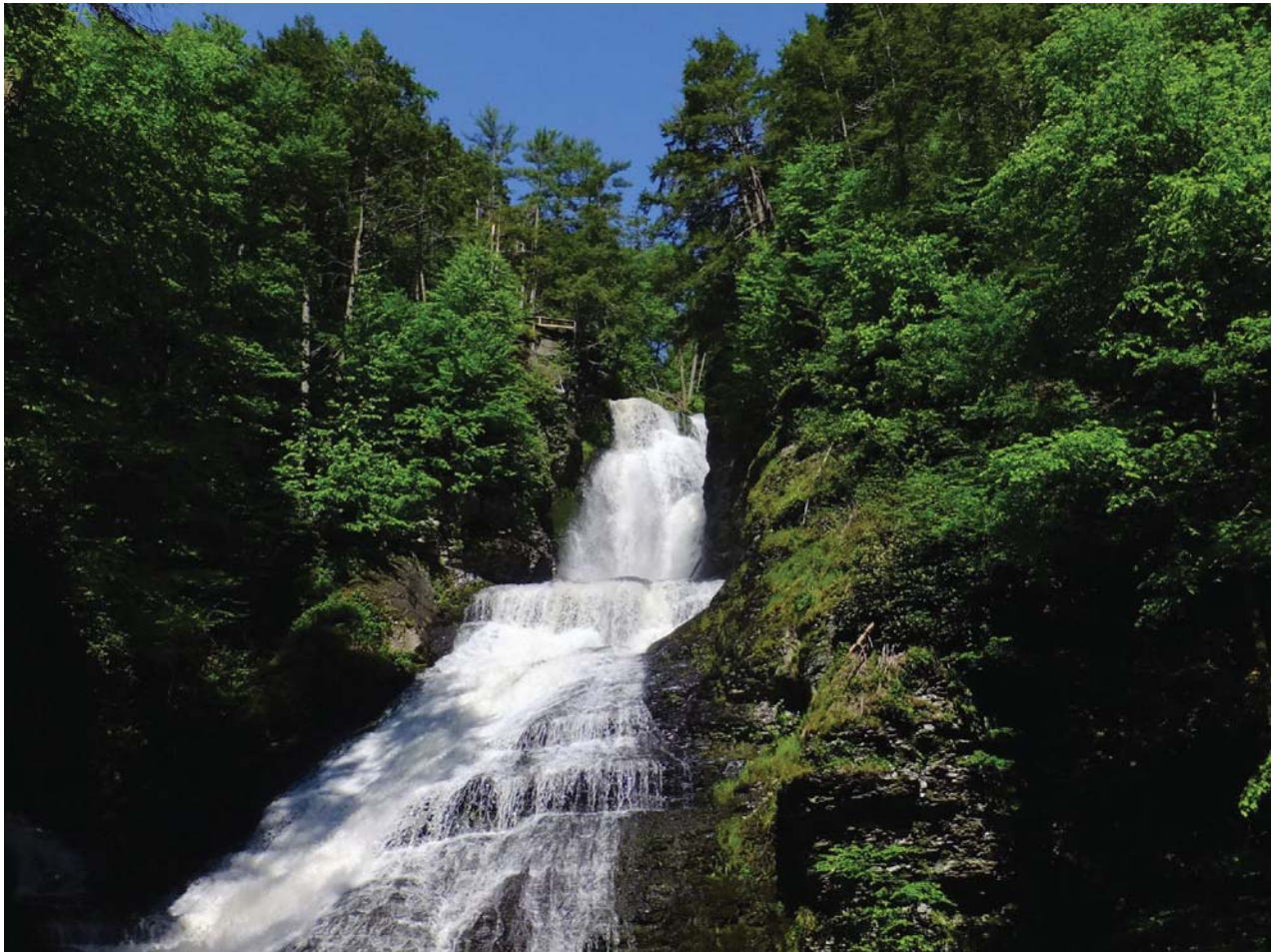


Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID Inspection Date	Barrier Length (Ft.)	Barrier Type	Barrier End Treatment		*Repair Cost
			Begin	End	
DEWA-0980-0.000-P1 10/4/2010	486	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.

Tier 3 Barrier Details



Delaware Water Gap National Recreation Area



Federal Lands Highway
Road Inventory Program

Barrier ID:	DEWA-0010-0.003-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	35.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	1440		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	27.7	Lateral Offset (In.):	41.0	Road Grade (%):	3.70
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 3 in.			
	Breaking and Cracking:	3 broken barrier reflectors observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-0.003-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	35.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.003_L_1.JPG

Barrier ID:	DEWA-0010-0.301-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	19.30		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	495		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	28.2	Lateral Offset (In.):	40.2	Road Grade (%):	1.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 2 in.			
	Breaking and Cracking:	No breaking or cracking observed in barrier. 8 broken and missing reflectors.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-0.301-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	19.30

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.301_L_1.JPG

Barrier ID:	DEWA-0010-0.463-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	19.30		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	292		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	28.2	Lateral Offset (In.):	40.2	Road Grade (%):	1.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 2 in.			
	Breaking and Cracking:	1 broken reflector observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-0.463-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	19.30

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.463_L_1.JPG

Barrier ID:	DEWA-0010-0.469-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	16.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	227		
Speed Limit (MPH):	35	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:	SBT/LOG BURIED	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.5
Height (In.):	27.2	Lateral Offset (In.):	43.5	Road Grade (%):	1.20
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-0.469-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	16.50

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.469_R_1.JPG

Barrier ID:	DEWA-0010-0.569-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	23.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	396		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.5
Height (In.):	26.2	Lateral Offset (In.):	41.2	Road Grade (%):	4.20
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-0.569-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.569_L_1.JPG

Barrier ID:	DEWA-0010-0.645-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	20.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	420		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.5
Height (In.):	27.6	Lateral Offset (In.):	49.2	Road Grade (%):	5.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by 1 in.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-0.645-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:		20.70	
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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.645_L_1.JPG

Barrier ID:	DEWA-0010-0.728-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	19.30		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	455		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.6
Height (In.):	27.0	Lateral Offset (In.):	46.2	Road Grade (%):	2.90
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed. 7 broken and missing reflectors on barrier.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-0.728-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	19.30

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.728_L_1.JPG

Barrier ID:	DEWA-0010-0.782-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	35.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	130		
Speed Limit (MPH):	35	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:	SBT/LOG BURIED	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.3
Height (In.):	24.0	Lateral Offset (In.):	38.2	Road Grade (%):	7.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. 50 ft of the barrier is 1 to 3 in below 27 in design height and 20 ft is greater than 3 in below 27 in design height down to 22 ins.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-0.782-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	35.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2392
Brief Workorder:	Raise 70-ft. of barrier up to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 70 LF = \$700. Raise 70-ft. of barrier up to 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.782_R_1.JPG

Barrier ID:	DEWA-0010-0.812-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	8.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	NON-TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	140		
Speed Limit (MPH):	35	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-3	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	28.2	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 2 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-0.812-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	8.50

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.812_L_1.JPG

Barrier ID:	DEWA-0010-0.834-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	19.30		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	280		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	26.2	Lateral Offset (In.):	39.0	Road Grade (%):	6.30
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The barrier is 1 to 3 in below 27 in design height for 90 ft.			
	Breaking and Cracking:	No breaking or cracking observed. 4 broken and missing reflector elements.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-0.834-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	19.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2612
Brief Workorder:	Raise 90-ft. of barrier up to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 90 LF = \$900. Raise 90-ft. of barrier up to 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.834_L_1.JPG

Barrier ID:	DEWA-0010-0.894-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	19.30		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	310		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.6
Height (In.):	28.7	Lateral Offset (In.):	45.7	Road Grade (%):	5.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed. 3 broken and missing barrier reflector elements.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-0.894-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:		19.30	
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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.894_L_1.JPG

Barrier ID:	DEWA-0010-0.967-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	16.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	550		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.5
Height (In.):	27.6	Lateral Offset (In.):	50.5	Road Grade (%):	1.50
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment.. The height is at or above the design of 27 in by up to 2 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	8 missing barrier reflectors observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-0.967-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	16.50

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_0.967_L_1.JPG

Barrier ID:	DEWA-0010-1.110-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	13.60		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	231		
Speed Limit (MPH):	35	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:	SBT/LOG BURIED	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.5
Height (In.):	26.2	Lateral Offset (In.):	51.0	Road Grade (%):	1.50
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.110-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	13.60

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.110_R_1.JPG

Barrier ID:	DEWA-0010-1.111-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	16.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	260		
Speed Limit (MPH):	35	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:	SBT/LOG BURIED	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.6
Height (In.):	29.0	Lateral Offset (In.):	50.2	Road Grade (%):	1.70
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.111-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	16.50

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.111_L_1.JPG

Barrier ID:	DEWA-0010-1.226-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	22.20		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	910		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.4
Height (In.):	27.7	Lateral Offset (In.):	46.4	Road Grade (%):	1.20
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 2 in.			
	Breaking and Cracking:	No breaking or cracking observed. 5 broken reflector elements.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.226-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:		22.20	
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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.226_L_1.JPG

Barrier ID:	DEWA-0010-1.525-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	28.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	535		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.5
Height (In.):	27.6	Lateral Offset (In.):	42.5	Road Grade (%):	2.90
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	3 missing barrier reflectors observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.525-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	28.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.525_L_1.JPG

Barrier ID:	DEWA-0010-1.629-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	13.60		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	82		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	CONC/MASON SBT
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	80.0
Height (In.):	29.2	Lateral Offset (In.):	99.3	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 4 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-1.629-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	13.60

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.629_L_1.JPG

Barrier ID:	DEWA-0010-1.637-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	13.60		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	45		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	CONC/MASON SBT
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	79.0
Height (In.):	30.2	Lateral Offset (In.):	91.0	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in up to 4 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.637-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	13.60

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.637_R_1.JPG

Barrier ID:	DEWA-0010-1.653-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	16.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	156		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	CONC/MASON SBT
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	100.6
Height (In.):	28.2	Lateral Offset (In.):	47.7	Road Grade (%):	1.00
Physical Condition					
Barrier	Alignment and Height:	The alignment has one impact zone 1-4 in out of alignment the height is at or above the design of 27 in by up to 3 ins.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.653-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:		16.50	
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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.653_L_1.JPG

Barrier ID:	DEWA-0010-1.653-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	13.60		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	50		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	CONC/MASON SBT
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	80.3
Height (In.):	27.2	Lateral Offset (In.):	66.6	Road Grade (%):	1.70
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.653-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:		13.60	
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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.653_R_1.JPG

Barrier ID:	DEWA-0010-1.730-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	30.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	920		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	27.2	Lateral Offset (In.):	42.2	Road Grade (%):	1.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or 1 in above the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.730-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	30.70

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.730_L_1.JPG

Barrier ID:	DEWA-0010-1.852-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	8.50		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	NON-TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	55		
Speed Limit (MPH):	35	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	28.6	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 2 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-1.852-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	8.50

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.852_L_1.JPG

Barrier ID:	DEWA-0010-1.863-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	8.50		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	NON-TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	19		
Speed Limit (MPH):	35	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	28.2	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-1.863-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	8.50

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.863_L_1.JPG

Barrier ID:	DEWA-0010-1.868-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	8.50		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	NON-TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	40		
Speed Limit (MPH):	35	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	27.6	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	24 ft of rails have a loss of 25% of cross section and rotting.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-1.868-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	8.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2282
Brief Workorder:	Replace 24 feet of timber rail.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 24 LF = \$600. Replace rotten and weathered timber 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.868_L_1.JPG

Barrier ID:	DEWA-0010-1.872-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	14.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	170		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	28.0	Lateral Offset (In.):	44.7	Road Grade (%):	1.50
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or up to 2 in above the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No corrosion or weathering observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.872-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	14.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.872_R_1.JPG

Barrier ID:	DEWA-0010-1.935-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	22.20		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	925		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	26.6	Lateral Offset (In.):	44.2	Road Grade (%):	0.50
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 breaking or cracking observed.			
	Missing Elements:	8 barrier reflectors observed missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-1.935-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	22.20

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_1.935_L_1.JPG

Barrier ID:	DEWA-0010-2.116-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	14.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	140		
Speed Limit (MPH):	35	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:	SBT/LOG BURIED	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.0
Height (In.):	28.6	Lateral Offset (In.):	39.5	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 2 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-2.116-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	14.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_2.116_R_1.JPG

Barrier ID:	DEWA-0010-2.145-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	22.20		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	378		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	26.2	Lateral Offset (In.):	41.5	Road Grade (%):	0.20
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or below the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-2.145-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	22.20

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_2.145_L_1.JPG

Barrier ID:	DEWA-0010-2.246-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	19.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	255		
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 Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.5
Height (In.):	26.6	Lateral Offset (In.):	37.0	Road Grade (%):	0.50
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 breaking or cracking observed.			
	Missing Elements:	One broken/missing barrier reflector.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-2.246-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	19.70

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_2.246_L_1.JPG

Barrier ID:	DEWA-0010-2.396-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	14.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	170		
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 Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.6
Height (In.):	28.2	Lateral Offset (In.):	48.7	Road Grade (%):	0.27
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or up to 3 in above the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-2.396-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	14.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_2.396_L_1.JPG

Barrier ID:	DEWA-0010-2.398-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	19.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	150		
Speed Limit (MPH):	35	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:	SBT/LOG BURIED	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	27.0	Lateral Offset (In.):	50.0	Road Grade (%):	0.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is 1 in or less below at or above 27 in design height by up to 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-2.398-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	19.70

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_2.398_R_1.JPG

Barrier ID:	DEWA-0010-2.476-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	25.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	555		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.5
Height (In.):	27.2	Lateral Offset (In.):	38.5	Road Grade (%):	1.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier height is 1 in or less below at or above 27 in design height by up to 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	7 barrier reflectors observed missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-2.476-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_2.476_L_1.JPG

Barrier ID:	DEWA-0010-2.549-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	14.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	143		
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 BURIED	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	108.0
Height (In.):	26.6	Lateral Offset (In.):	52.2	Road Grade (%):	1.10
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-2.549-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	14.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_2.549_R_1.JPG

Barrier ID:	DEWA-0010-2.748-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	14.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	400		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.3
Height (In.):	28.2	Lateral Offset (In.):	49.2	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	3 barrier reflectors observed as broken or missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-2.748-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	14.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_2.748_L_1.JPG

Barrier ID:	DEWA-0010-2.786-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/05/2010	Barrier Rating:	19.30		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	493		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.5
Height (In.):	26.6	Lateral Offset (In.):	43.5	Road Grade (%):	0.40
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 breaking or cracking observed.			
	Missing Elements:	8 barrier reflectors are missing or broken.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-2.786-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/05/2010	Barrier Rating:	19.30

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_2.786_R_1.JPG

Barrier ID:	DEWA-0010-3.280-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	32.20		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	556		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.3
Height (In.):	28.2	Lateral Offset (In.):	36.5	Road Grade (%):	5.80
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 2 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	2 missing barrier reflectors observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-3.280-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_3.280_L_1.JPG

Barrier ID:	DEWA-0010-3.558-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	32.40		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	594		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	27.0	Lateral Offset (In.):	37.2	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. 504 ft was 1 in below to 3 in above the 27 in design height 40 ft was 1-3 in below the design height and 50 ft was more than 3 in below the design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	5 barrier reflectors observed as missing or broken.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-3.558-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	32.40

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2612
Brief Workorder:	Raise 90 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 90 LF = \$900. Raise 90-ft. of barrier up to 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_3.558_L_1.JPG

Barrier ID:	DEWA-0010-3.650-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	16.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	80		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.6
Height (In.):	27.2	Lateral Offset (In.):	32.0	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is 1 in below at or up to 2 in above the 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed. 2 missing reflector elements.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-3.650-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:		16.50	
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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_3.650_R_1.JPG

Barrier ID:	DEWA-0010-3.670-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	25.10		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	146		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	26.2	Lateral Offset (In.):	42.0	Road Grade (%):	2.90
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 breaking or cracking observed.			
	Missing Elements:	4 barrier reflectors observed as missing or broken.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	1 barrier reflector observed as missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-3.670-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	25.10

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_3.670_L_1.JPG

Barrier ID:	DEWA-0010-3.674-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	31.10		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	330		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.3
Height (In.):	25.2	Lateral Offset (In.):	42.0	Road Grade (%):	5.30
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 60 ft and 3 to 4 in below for 120 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	8 missing reflector elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-3.674-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	31.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$4482
Brief Workorder:	Raise 180 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 180 LF = \$1800. Raise 180ft. of barrier to 27 inch design height. Barrier reflectors @ \$100 Each for 8 = \$800. Replace 8 missing 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_3.674_R_1.JPG

Barrier ID:	DEWA-0010-3.815-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	43.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	1510		
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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	25.1	Lateral Offset (In.):	34.7	Road Grade (%):	7.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 1000 ft and 3 to 5 in below for 50 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	24 missing barrier reflectors observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-3.815-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	43.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$22302
Brief Workorder:	Raise 1050 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 1050 LF = \$10500. Raise 1050ft. of barrier to 27 inch design height. Barrier reflectors @ \$100 Each for 24 = \$2400. Replace 24 missing barrier reflectors. Low Speed Traffic Control at \$1475- per -Day for 5 Day(s) = \$7375.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_3.815_R_1.JPG

Barrier ID:	DEWA-0010-4.137-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	46.90		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	610		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.3
Height (In.):	22.2	Lateral Offset (In.):	39.2	Road Grade (%):	2.70
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 4 to 5 in from the design of 27 in for 610 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	6 missing barrier reflectors observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-4.137-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	46.90

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$12238
Brief Workorder:	Raise 610 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 610 LF = \$6100. Raise 610ft. of barrier to 27 inch design height. Barrier reflectors @ \$100 Each for 6 = \$600. Replace 6 missing barrier reflectors. 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_4.137_R_1.JPG

Barrier ID:	DEWA-0010-4.330-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	32.40		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	600		
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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.6
Height (In.):	27.0	Lateral Offset (In.):	43.7	Road Grade (%):	2.50
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Height is 2 in lower than design height of 27 in for 250 ft while the remaining height ranges up to 1 in above.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed. All reflector elements are broken and missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-4.330-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	32.40

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$5692
Brief Workorder:	Raise 250 feet of guardrail to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 250 LF = \$2500. Raise 250ft. of barrier to 27 inch design height. Barrier reflectors @ \$100 Each for 12 = \$1200. Replace 12 missing 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_4.330_R_1.JPG

Barrier ID:	DEWA-0010-5.146-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	39.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	1895		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	25.7	Lateral Offset (In.):	36.7	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 410 ft and 3 to 5 in below for 100 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	21 missing reflector elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-5.146-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	39.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$11165
Brief Workorder:	Raise 510 feet of guardrail to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 510 LF = \$5100. Raise 510ft. of barrier to 27 inch design height. Barrier reflectors @ \$100 Each for 21 = \$2100. Replace 21 missing barrier reflectors. 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_5.146_R_1.JPG

Barrier ID:	DEWA-0010-5.413-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	16.80		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	270		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	27.0	Lateral Offset (In.):	38.5	Road Grade (%):	1.40
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 and up to 1 in above.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	5 missing barrier reflectors observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-5.413-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	16.80

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_5.413_L_1.JPG

Barrier ID:	DEWA-0010-5.651-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	22.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	540		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	25.0	Lateral Offset (In.):	50.0	Road Grade (%):	3.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 2 in from the design height of 27 in for the entire barrier.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	11 missing barrier reflectors observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment as designed. Ending end treatment is up to 12 in higher than 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-5.651-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	22.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$12018
Brief Workorder:	Raise 540 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 540 LF = \$5400. Raise 540ft. of barrier to 27 inch design height. Barrier reflectors @ \$100 Each for 11 = \$1100. Replace 11 missing barrier reflectors. 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_5.651_R_1.JPG

Barrier ID:	DEWA-0010-5.666-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	25.60		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	410		
Speed Limit (MPH):	35	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:	SBT/LOG BURIED	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.3
Height (In.):	27.2	Lateral Offset (In.):	42.2	Road Grade (%):	5.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Entire barrier is between 1in. below to 2in. above the 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	7 reflectors observed as missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	Ending end treatment is 7 above the 27-in. design height for 60 linear ft. Alignment as designed.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-5.666-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	25.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3052
Brief Workorder:	Lower 60 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 60 LF = \$600. Lower 60 feet of ending end treatment to 27 inch design height. Barrier reflectors @ \$100 Each for 7 = \$700. Replace 7 missing 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_5.666_L_1.JPG

Barrier ID:	DEWA-0010-5.847-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	28.10		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	450		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	28.0	Lateral Offset (In.):	41.7	Road Grade (%):	3.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 320 ft and at or up to 2 in above for 130 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	7 missing reflector elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-5.847-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	28.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$7535
Brief Workorder:	Raise 320 feet of barrier up to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 320 LF = \$3200. Raise 320ft. of barrier to 27 inch design height. Barrier reflectors @ \$100 Each for 7 = \$700. Replace 7 missing barrier reflectors. 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_5.847_R_1.JPG

Barrier ID:	DEWA-0010-5.858-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/06/2010	Barrier Rating:	16.80		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	410		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.6
Height (In.):	27.0	Lateral Offset (In.):	39.0	Road Grade (%):	2.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	7 missing reflector elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-5.858-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/06/2010	Barrier Rating:	16.80

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_5.858_L_1.JPG

Barrier ID:	DEWA-0010-6.468-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	35.50		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	155		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	158.3
Height (In.):	22.0	Lateral Offset (In.):	45.0	Road Grade (%):	3.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 4 to 6 in below 27 in design height for 155 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-6.468-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	35.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3328
Brief Workorder:	Raise 155 feet of barrier up to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 155 LF = \$1550. Raise 155 feet of barrier up 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_6.468_L_1.JPG

Barrier ID:	DEWA-0010-6.472-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	28.30		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	130		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	22.0	Lateral Offset (In.):	52.0	Road Grade (%):	2.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 4 to 6 in below 27 in design height for 130 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-6.472-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	28.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3052
Brief Workorder:	Raise 130 feet of barrier up to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 130 LF = \$1300. Raise 130 feet of barrier up 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_6.472_R_1.JPG

Barrier ID:	DEWA-0010-6.596-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	28.30		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	85		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.6
Height (In.):	21.0	Lateral Offset (In.):	53.2	Road Grade (%):	3.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 5 to 7 in below 27 in design height for 85 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-6.596-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	28.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2558
Brief Workorder:	Raise 85 feet of barrier up to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 85 LF = \$850. Raise 85 feet of barrier up 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_6.596_L_1.JPG

Barrier ID:	DEWA-0010-6.742-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	25.70		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	145		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.6
Height (In.):	23.0	Lateral Offset (In.):	36.2	Road Grade (%):	1.90
Physical Condition					
Barrier	Alignment and Height:	1 possible impact zone out of alignment by 6 in. Barrier is 4 in below 27 in design height for 145 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-6.742-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	25.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3218
Brief Workorder:	Raise 145 feet of barrier up to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 145 LF = \$1450. Raise 145 feet of barrier up 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_6.742_L_1.JPG

Barrier ID:	DEWA-0010-6.871-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	56.20		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	680		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	19.7	Lateral Offset (In.):	33.7	Road Grade (%):	2.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 6 to 9 in below 27 in design height for 680 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-6.871-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	56.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$12348
Brief Workorder:	Raise 680 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 680 LF = \$6800. Raise 680ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_6.871_L_1.JPG

Barrier ID:	DEWA-0010-6.982-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	28.30		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	92		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	20.6	Lateral Offset (In.):	61.5	Road Grade (%):	0.70
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 4 to 9 in below 27 in design height for 92 ft.			
	Breaking and Cracking:	25ft. of bent rail due to tree impact.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-6.982-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	28.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3322
Brief Workorder:	Replace 25 feet of rail and raise 92 feet of barrier to 27 inch design height.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 25 LF = \$625. Replace 25ft. section of bent rail. Adjust Guardrail at \$10- per -Lin. Ft. for 92 LF = \$920. Raise 92ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_6.982_R_1.JPG

Barrier ID:	DEWA-0010-7.046-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	44.00		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	315		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	22.6	Lateral Offset (In.):	69.3	Road Grade (%):	3.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 4 to 5 in below 27 in design height for 315 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-7.046-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	44.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$6710
Brief Workorder:	Raise 315 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 315 LF = \$3150. Raise 315ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_7.046_L_1.JPG

Barrier ID:	DEWA-0010-7.292-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	31.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	270		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	116.3
Height (In.):	0.0	Lateral Offset (In.):	50.2	Road Grade (%):	2.30
Physical Condition					
Barrier	Alignment and Height:	Barrier alignment is deflected 1 to 13 in. 2 strand cable missing. Height is 27 in below 27 in design height.			
	Breaking and Cracking:	Severe cracking of 3 concrete posts exposing rebar.			
	Missing Elements:	Both strands of cable are missing along entire barrier.			
	Corrosion and Weathering:	Moderate to severe weathering of all concrete posts observed exposing rebar and causing a loss of about 20% of cross section.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-7.292-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	31.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$32835
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 270 LF = \$1350. Remove existing cable guardrail. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 210 LF = \$12600. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30ft each Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_7.292_L_1.JPG

Barrier ID:	DEWA-0010-7.480-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	25.60		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	180		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	25.2	Lateral Offset (In.):	42.5	Road Grade (%):	10.50
Physical Condition					
Barrier	Alignment and Height:	The alignment is deflected by 6 in for 62 ft. The height is low by 3 in or less from design height of 27 in for 110 linear ft.			
	Breaking and Cracking:	13 ft torn rail section.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-7.480-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	25.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3190
Brief Workorder:	Raise 110 feet of guardrail up to 27 inch design height and replace 13 feet of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 110 LF = \$1100. Raise 110 feet of guardrail up to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 13 LF = \$325. Replace 13 foot rail 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_7.480_L_1.JPG

Barrier ID:	DEWA-0010-7.480-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	35.50		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	60		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.5
Height (In.):	24.0	Lateral Offset (In.):	43.2	Road Grade (%):	13.80
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 1 to 3 in from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-7.480-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	35.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2282
Brief Workorder:	Raise 60 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 60 LF = \$600. Raise 60ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_7.480_R_1.JPG

Barrier ID:	DEWA-0010-7.500-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	11.10		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	58		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	148.6
Height (In.):	26.2	Lateral Offset (In.):	55.5	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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-7.500-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	11.10

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_7.500_R_1.JPG

Barrier ID:	DEWA-0010-7.542-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	45.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	755		
Speed Limit (MPH):	35	Placement with Respect to Road:	INSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	128.8
Height (In.):	5.5	Lateral Offset (In.):	48.5	Road Grade (%):	10.40
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is 8 to 36 in deflected. The height is 5 to 27 in low from design height of 27 ines with the majority of cable missing.			
	Breaking and Cracking:	4 posts were observed to be broken and lying down.			
	Missing Elements:	4 posts and 600 feet of 2 strands of cable were observed to be missing.			
	Corrosion and Weathering:	Moderate to severe corrosion of cable and weathering of concrete posts exposing rebar.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-7.542-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	45.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$74002
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 755 LF = \$3775. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 695 LF = \$41700. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30ft each Low Speed Traffic Control at \$1475- per -Day for 8 Day(s) = \$11800. 4 days removal and 4 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_7.542_L_1.JPG

Barrier ID:	DEWA-0010-8.080-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	39.50		
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.):	118		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	SBT/LOG BURIED	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	CONC/MASON SBT
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	20.2	Lateral Offset (In.):	78.3	Road Grade (%):	8.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 6 to 7 in from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	The alignment is as designed. The height is low by 7 in from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-8.080-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	39.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2920
Brief Workorder:	Raise 118 feet of barrier to design height of 27 inches.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 118 LF = \$1180. Raise 118 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_8.080_R_1.JPG

Barrier ID:	DEWA-0010-8.089-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	42.40		
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.):	89		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	CONC/MASON SBT
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	22.2	Lateral Offset (In.):	47.2	Road Grade (%):	7.20
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 4 to 5 in from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	The alignment is as designed the height is low by 4 in from design height (27 in).			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0010-8.089-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	42.40

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2602
Brief Workorder:	Raise 89 feet of barrier up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 89 LF = \$890. Raise 89 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_8.089_L_1.JPG

Barrier ID:	DEWA-0010-8.144-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/08/2010	Barrier Rating:	41.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	265		
Speed Limit (MPH):	35	Placement with Respect to Road:	BOTH INSIDE AND OUTSIDE		
Hazard Behind Barrier:	HIGH				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.0
Height (In.):	19.2	Lateral Offset (In.):	70.3	Road Grade (%):	1.30
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is deflected up to 8 in. The height is low by 4 to 10 in from the design of 27 in.			
	Breaking and Cracking:	7 posts observed to be broken and cracked.			
	Missing Elements:	4 posts observed missing.			
	Corrosion and Weathering:	Cables and posts were rusted and corroding. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-8.144-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/08/2010	Barrier Rating:	41.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$32478
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 265 LF = \$1325. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 205 LF = \$12300. Replace with new barrier construction. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30ft each Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_8.144_L_1.JPG

Barrier ID:	DEWA-0010-8.176-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/08/2010	Barrier Rating:	29.70		
Barrier Description					
Type:	CONCRETE BARRIER	Barrier Function:	TRAFFIC		
Barrier Material:	CONCRETE	Post Material:	N/A		
Blockout Type:	N/A	Length (ft.):	98		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE 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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	32	Width (In.):	6.0	Post Spacing (In.):	0.0
Height (In.):	31.0	Lateral Offset (In.):	0.0	Road Grade (%):	0.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 2 in or less from the design of 32 in.			
	Breaking and Cracking:	No cracks greater than 1/4 in width observed. No broken pieces or exposed rebar observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No spalling erosion or undermining around base observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-8.176-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/08/2010	Barrier Rating:	29.70

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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_8.176_L_1.JPG

Barrier ID:	DEWA-0010-8.323-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/08/2010	Barrier Rating:	28.30		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	128		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.0
Height (In.):	0.0	Lateral Offset (In.):	44.7	Road Grade (%):	4.80
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is deflected up to 10 in. Cable is missing so the height is low by 27 in from the design of 27 in.			
	Breaking and Cracking:	3 post were observed to have severe cracking and 2 other post were cracked in half.			
	Missing Elements:	4 concrete posts and entire 2 strands of cable were observed to be missing.			
	Corrosion and Weathering:	All remaining posts were observed to have about 25% loss of cross section and some exposed rebar.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-8.323-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/08/2010	Barrier Rating:	28.30

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$19437
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 128 LF = \$640. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 68 LF = \$4080. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30ft each. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_8.323_L_1.JPG

Barrier ID:	DEWA-0010-8.564-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/08/2010	Barrier Rating:	33.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	308		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.0
Height (In.):	12.6	Lateral Offset (In.):	31.0	Road Grade (%):	2.70
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is deflected 12 in or more. The height is low by 8 to 13 in from the design of 27 ins.			
	Breaking and Cracking:	7 broken or cracked posts observed.			
	Missing Elements:	1 missing post observed.			
	Corrosion and Weathering:	Cables and posts had losses up to 25% of cross section. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-8.564-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/08/2010	Barrier Rating:	33.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$35552
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 308 LF = \$1540. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 248 LF = \$14880. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30ft each Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_8.564_L_1.JPG

Barrier ID:	DEWA-0010-8.697-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/08/2010	Barrier Rating:	26.60		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	95		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.0
Height (In.):	15.6	Lateral Offset (In.):	34.5	Road Grade (%):	0.90
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 10 to 13 in from the design of 27 in for 95 linear ft.			
	Breaking and Cracking:	3 posts observed as breaking and cracking.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	Cables and posts had losses up to 15% of cross section. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-8.697-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/08/2010	Barrier Rating:	26.60

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$17078
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30ft each Remove Cable Guardrail at \$5- per -Lin. Ft. for 95 LF = \$475. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 35 LF = \$2100. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_8.697_L_1.JPG

Barrier ID:	DEWA-0010-8.838-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/08/2010	Barrier Rating:	27.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	120		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	121.3
Height (In.):	14.0	Lateral Offset (In.):	34.7	Road Grade (%):	0.50
Physical Condition					
Barrier	Alignment and Height:	The barrier is deflected up to 10 in. Height is low by 12 to 14 in from design of 27 in.			
	Breaking and Cracking:	Approach end post is broken and lying on ground.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	Cables and posts had losses up to 15% of cross section. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-8.838-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/08/2010	Barrier Rating:	27.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$18865
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 120 LF = \$600. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 60 LF = \$3600. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30ft each Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_8.838_L_1.JPG

Barrier ID:	DEWA-0010-8.997-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/08/2010	Barrier Rating:	29.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	188		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	128.3
Height (In.):	21.0	Lateral Offset (In.):	48.2	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is deflected up to 12 in. The height is 4 to 8 in below 27 in design height.			
	Breaking and Cracking:	6 posts observed to be broken and cracked.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	Cables and posts had losses up to 15% of cross section. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-8.997-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/08/2010	Barrier Rating:	29.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$23727
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 188 LF = \$940. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 128 LF = \$7680. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30ft each Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_8.997_L_1.JPG

Barrier ID:	DEWA-0010-9.118-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	55.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	1680		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	121.8
Height (In.):	17.6	Lateral Offset (In.):	26.1	Road Grade (%):	2.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 300 ft of barrier. Height ranges between 5 and 17 in below the 27 in design height along the entire length.			
	Breaking and Cracking:	2 posts are broken and have exposed rebar.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-9.118-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	55.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$149875
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 1680 LF = \$8400. Remove 1680 feet of cable guardrail. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 1620 LF = \$97200. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 14 Day(s) = \$20650. 7 days removal 7 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_9.118_L_1.jpg

Barrier ID:	DEWA-0010-9.556-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	31.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	230		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.3
Height (In.):	13.0	Lateral Offset (In.):	39.2	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects greater than 12 in for the entire 230ft of barrier. Height ranges from 12 in to 17 in below 27 in design height.			
	Breaking and Cracking:	Top cable is disconnected from one post and another post is destroyed from a possible impact.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-9.556-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	31.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$26730
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 230 LF = \$1150. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 170 LF = \$10200. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_9.556_L_1.jpg

Barrier ID:	DEWA-0010-9.804-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	28.30		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	125		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.0
Height (In.):	18.7	Lateral Offset (In.):	42.0	Road Grade (%):	3.60
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 80 ft of barrier. Height ranges from 4 to 13 in below the 27 in design height along the entire length.			
	Breaking and Cracking:	40 ft of barrier and 4 posts have fallen due to a fallen tree.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0010-9.804-R		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	28.30

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$19222
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 125 LF = \$625. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 65 LF = \$3900. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_9.804_R_1.jpg

Barrier ID:	DEWA-0010-9.808-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	23.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	155		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	112.0
Height (In.):	20.0	Lateral Offset (In.):	53.0	Road Grade (%):	2.20
Physical Condition					
Barrier	Alignment and Height:	Barrier is out of alignment by 6 - 12 in along 85 ft and by more than 12 in along 70 ft. Height is 6 - 8 in below 27-in design height.			
	Breaking and Cracking:	No posts were cracked or broken. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-9.808-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	23.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$21368
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 155 LF = \$775. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 95 LF = \$5700. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_9.808_L_1.jpg

Barrier ID:	DEWA-0010-10.306-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	35.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	500		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	129.3
Height (In.):	18.7	Lateral Offset (In.):	59.0	Road Grade (%):	1.00
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 100 ft and greater than 12 in for 250 ft. Height ranges from 4 in to 9 in below 27 in design height.			
	Breaking and Cracking:	Posts are laying on ground for approximately 100ft. The last 80 ft of barrier is mostly buried.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	Ten posts are weathered and rotten.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-10.306-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	35.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$49280
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 500 LF = \$2500. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 440 LF = \$26400. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_10.306_L_1.jpg

Barrier ID:	DEWA-0010-10.863-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	65.10		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	1520		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	149.8
Height (In.):	21.3	Lateral Offset (In.):	40.9	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is 3 - 8 in below 27-in design height for 1350 ft and is 2 - 3 in below for 170 ft.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-10.863-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	65.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$28078
Brief Workorder:	Raise 1520 feet of guardrail to 27-inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 1520 LF = \$15200. Raise 1520ft. of guardrail to 27-inch design height Low Speed Traffic Control at \$1475- per -Day for 7 Day(s) = \$10325.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_10.863_L_1.jpg

Barrier ID:	DEWA-0010-11.152-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	58.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	1184		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	121.3
Height (In.):	20.0	Lateral Offset (In.):	40.0	Road Grade (%):	2.50
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 400 ft of barrier. Height ranges between 2 and 11 in below 27 in design height along entire length.			
	Breaking and Cracking:	80 ft of barrier and 8 posts are broken and on the ground due to a tree impact.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0010-11.152-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	58.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$70928
Brief Workorder:	Remove cable guardrail and install 1154 feet of weak post w-beam and flared w-beam end treatment. Tie into adjacent existing w-beam.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 1184 LF = \$5920. Remove 1184 feet of cable guardrail W-Beam Weak Post at \$35- per -Lin. Ft. for 1154 LF = \$40310. W-beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Low Speed Traffic Control at \$1475- per -Day for 10 Day(s) = \$14750.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_11.152_L_1.jpg

Barrier ID:	DEWA-0010-11.434-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	32.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	480		
Speed Limit (MPH):	35	Placement with Respect to Road:	BOTH INSIDE AND OUTSIDE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.6
Height (In.):	25.7	Lateral Offset (In.):	49.0	Road Grade (%):	1.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 200 ft and greater than 12 in for 50 ft. Height as low as 2 in below 27 in design height.			
	Breaking and Cracking:	No posts are cracked or broken. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-11.434-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	32.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$47850
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 480 LF = \$2400. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 420 LF = \$25200. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_11.434_L_1.jpg

Barrier ID:	DEWA-0010-11.534-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	50.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	1103		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	122.0
Height (In.):	23.2	Lateral Offset (In.):	55.5	Road Grade (%):	0.40
Physical Condition					
Barrier	Alignment and Height:	110 ft of barrier is 6 - 12 in out of alignment and 200 ft is deflected more than 12 in. 350 ft of barrier is 3 - 7 ins below 27-in design height and the remainder is 1 - 3 ins below.			
	Breaking and Cracking:	6 posts are broken and knocked down.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-11.534-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	50.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$102130
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 1103 LF = \$5515. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 1043 LF = \$62580. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 10 Day(s) = \$14750. 5 days removal and 5 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_11.534_L_1.jpg

Barrier ID:	DEWA-0010-11.764-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	58.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	1308		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.0
Height (In.):	20.1	Lateral Offset (In.):	43.9	Road Grade (%):	2.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 600 ft of barrier. Height ranges between 6 and 9 in below 27 in design height along entire length.			
	Breaking and Cracking:	10 posts are broken.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0010-11.764-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	58.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$120032
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 1308 LF = \$6540. Remove 1308 feet of cable barrier Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 1248 LF = \$74880. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 12 Day(s) = \$17700. 6 days removal and 6 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_11.764_L_1.jpg

Barrier ID:	DEWA-0010-12.016-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	41.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	210		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	116.6
Height (In.):	17.7	Lateral Offset (In.):	36.0	Road Grade (%):	3.60
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 100 ft and greater than 12 in for 20 ft. Height ranges from 8 in to 10 in below 27 in design height.			
	Breaking and Cracking:	No posts are cracked or broken. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-12.016-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	41.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$25300
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 210 LF = \$1050. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 150 LF = \$9000. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_12.016_L_1.jpg

Barrier ID:	DEWA-0010-12.074-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	38.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	582		
Speed Limit (MPH):	35	Placement with Respect to Road:	INSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	122.0
Height (In.):	22.2	Lateral Offset (In.):	72.0	Road Grade (%):	1.30
Physical Condition					
Barrier	Alignment and Height:	80 ft of barrier is deflected between 6 and 12 in. Height ranges from 3 - 6 in below 27-in design height along entire length.			
	Breaking and Cracking:	40 ft of barrier has collapsed due to broken posts.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-12.074-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	38.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$58388
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 582 LF = \$2910. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 522 LF = \$31320. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 6 Day(s) = \$8850. 3 days removal and 3 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_12.074_L_1.jpg

Barrier ID:	DEWA-0010-12.243-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	21.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	238		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.6
Height (In.):	23.0	Lateral Offset (In.):	78.0	Road Grade (%):	6.20
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height is between 1 and 3 in below 27 in design height along 60 ft and between 3 and 7 in below design height along 120 ft of barrier.			
	Breaking and Cracking:	No posts are cracked or broken. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0010-12.243-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	21.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$27302
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 238 LF = \$1190. Remove 238 feet of cable guardrail Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 178 LF = \$10680. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_12.243_L_1.jpg

Barrier ID:	DEWA-0010-12.396-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	38.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	690		
Speed Limit (MPH):	35	Placement with Respect to Road:	INSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.5
Height (In.):	29.2	Lateral Offset (In.):	59.2	Road Grade (%):	0.90
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 240 ft and greater than 12 in for 250 ft. Height ranges from 6 in below 27 in design height to 9 in over.			
	Breaking and Cracking:	Five posts broken and laying on ground.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-12.396-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	38.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$77720
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 807 LF = \$4035. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 747 LF = \$44820. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 8 Day(s) = \$11800. 4 days removal and 4 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_12.396_L_1.jpg

Barrier ID:	DEWA-0010-12.606-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	28.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	505		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	116.0
Height (In.):	24.0	Lateral Offset (In.):	49.2	Road Grade (%):	1.20
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height ranges from 0 to 5 in below 27-in design height.			
	Breaking and Cracking:	No posts are cracked or broken. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-12.606-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	28.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$52882
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 505 LF = \$2525. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 445 LF = \$26700. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 6 Day(s) = \$8850. 3 days removal and 3 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_12.606_L_1.jpg

Barrier ID:	DEWA-0010-12.955-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	45.50		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	531		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	149.6
Height (In.):	22.2	Lateral Offset (In.):	20.0	Road Grade (%):	1.00
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges between 4 and 5 in below the 27 in design height along entire length.			
	Breaking and Cracking:	1 rail has been damaged from a fallen tree.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0010-12.955-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	45.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$11038
Brief Workorder:	Raise 531 ft of guardrail to 27-in. design height and replace 12ft. of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 531 LF = \$5310. Raise 531 feet of guardrail to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 12 LF = \$300. Replace one 12 foot section of rail 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_12.955_L_1.jpg

Barrier ID:	DEWA-0010-13.180-L				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	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.):	66		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	151.3
Height (In.):	29.0	Lateral Offset (In.):	42.7	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is between 4.5 and 6.5 in below 27-in design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-13.180-L		
Route Name:	OLD MINE ROAD (SOUTH SECTION)		
Inspection Date:	10/07/2010	Barrier Rating:	33.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2348
Brief Workorder:	Raise 66 feet of guardrail to 27-inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 66 LF = \$660. Raise guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_13.180_L_1.jpg

Barrier ID:	DEWA-0010-13.182-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:	14.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	66		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	151.3
Height (In.):	21.2	Lateral Offset (In.):	30.2	Road Grade (%):	0.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 0 in to 4 in above 27 in design height.			
	Breaking and Cracking:	No twisting bending tears, or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0010-13.182-R				
Route Name:	OLD MINE ROAD (SOUTH SECTION)				
Inspection Date:	10/07/2010	Barrier Rating:		14.00	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action.				

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

Delaware Water Gap National Recreation Area

ROUTE 0010: OLD MINE ROAD (SOUTH SECTION)

Barrier Condition Photos



DEWA_0010_13.182_R_1.jpg

Barrier ID:	DEWA-0013-0.118-L				
Route Name:	NATIONAL PARK DRIVE				
Inspection Date:	10/01/2010	Barrier Rating:	28.20		
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.):	128		
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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.0
Height (In.):	26.0	Lateral Offset (In.):	61.2	Road Grade (%):	11.40
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	1 post at beginning end was rotten.			

Barrier ID:	DEWA-0013-0.118-L		
Route Name:	NATIONAL PARK DRIVE		
Inspection Date:	10/01/2010	Barrier Rating:	28.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1733
Brief Workorder:	Replace one post.				
Workorder:	Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace one 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.

Delaware Water Gap National Recreation Area

ROUTE 0013: NATIONAL PARK DRIVE

Barrier Condition Photos



DEWA_0013_0.118_L_1.JPG

Barrier ID:	DEWA-0013-0.205-R				
Route Name:	NATIONAL PARK DRIVE				
Inspection Date:	10/01/2010	Barrier Rating:	28.00		
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.):	200		
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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG BURIED	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.6
Height (In.):	27.0	Lateral Offset (In.):	16.2	Road Grade (%):	11.90
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No corrosion observed. Slight weathering about 1/4 to 1/2 in observed.			
End Treatments	Alignment and Height:	The alignment is as designed. Ending end is low by 5 in from the design of 27 ins.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0013-0.205-R		
Route Name:	NATIONAL PARK DRIVE		
Inspection Date:	10/01/2010	Barrier Rating:	28.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1952
Brief Workorder:	Raise 30 L.F. of ending end barrier to design height of 27 inches.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 30 LF = \$300. Raise 30ft. of ending end 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.

Delaware Water Gap National Recreation Area

ROUTE 0013: NATIONAL PARK DRIVE

Barrier Condition Photos



DEWA_0013_0.205_R_1.JPG

Barrier ID:	DEWA-0013-0.320-R				
Route Name:	NATIONAL PARK DRIVE				
Inspection Date:	10/01/2010	Barrier Rating:	29.60		
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.):	200		
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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	24.0	Lateral Offset (In.):	46.5	Road Grade (%):	6.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 3 in from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	Some weathering of the barrier observed. 2 Posts observed as rotten and hollow.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0013-0.320-R		
Route Name:	NATIONAL PARK DRIVE		
Inspection Date:	10/01/2010	Barrier Rating:	29.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$4043
Brief Workorder:	Replace 2 posts and raise 200 feet of barrier to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 200 LF = \$2000. Raise 200ft. of barrier to 27-in. design height. Replace Post at \$100- per -Each for 2 Post(s) = \$200. Replace two rotten posts. 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.

Delaware Water Gap National Recreation Area

ROUTE 0013: NATIONAL PARK DRIVE

Barrier Condition Photos



DEWA_0013_0.320_R_1.JPG

Barrier ID:	DEWA-0013-0.388-R				
Route Name:	NATIONAL PARK DRIVE				
Inspection Date:	10/01/2010	Barrier Rating:	20.70		
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.):	250		
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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.0
Height (In.):	26.0	Lateral Offset (In.):	47.2	Road Grade (%):	9.30
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No corrosion observed. Slight weathering of 1/4 to 1/2 in observed in one block.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0013-0.388-R		
Route Name:	NATIONAL PARK DRIVE		
Inspection Date:	10/01/2010	Barrier Rating:	20.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1656
Brief Workorder:	Replace 1 cracked/weathered blockout.				
Workorder:	Replace Block at \$30- per -Each for 1 Block(s) = \$30. Replace 1 cracked/weathered blockout. 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.

Delaware Water Gap National Recreation Area

ROUTE 0013: NATIONAL PARK DRIVE

Barrier Condition Photos



DEWA_0013_0.388_R_1.JPG

Barrier ID:	DEWA-0014-0.307-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	34.20		
Barrier Description					
Type:	CONCRETE BARRIER	Barrier Function:	TRAFFIC		
Barrier Material:	CONCRETE	Post Material:	N/A		
Blockout Type:	N/A	Length (ft.):	233		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	32	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	28.2	Lateral Offset (In.):	74.3	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	8 ft of the barrier had a deflection of 16 in. The entire barrier was more than 3 in below design height (32 in).			
	Breaking and Cracking:	Minor cracks less than 1/4 in observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Surface corrosion on less than 5% of the barrier. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment and height as designed.			
	Breaking and Cracking:	Minor cracks less than 1/4 in observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Surface corrosion on less than 5% of the end treatment.			

Barrier ID:	DEWA-0014-0.307-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/06/2010	Barrier Rating:	34.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1688
Brief Workorder:	Re-align nose section of barrier.				
Workorder:	Labor at \$60- per -Hour for 1 Hrs = \$60. Re-align impacted end treatment 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_0.307_R_1.jpg

Barrier ID:	DEWA-0014-0.308-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	35.70		
Barrier Description					
Type:	CONCRETE BARRIER	Barrier Function:	TRAFFIC		
Barrier Material:	CONCRETE	Post Material:	N/A		
Blockout Type:	N/A	Length (ft.):	154		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	32	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	29.5	Lateral Offset (In.):	22.2	Road Grade (%):	0.10
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 5 ft of the barrier was 1 to 3 in below design height (32 ines). 99 ft of the barrier was greater than 3 ines below design height (32 ines).			
	Breaking and Cracking:	Minor cracks less than 1/4 in observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Surface corrosion on less than 5% of the barrier. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment and height as designed.			
	Breaking and Cracking:	Minor cracks less than 1/4 in observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Surface corrosion on less than 5% of the end treatment.			

Barrier ID:	DEWA-0014-0.308-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:		35.70	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_0.308_R_1.jpg

Barrier ID:	DEWA-0014-0.468-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	44.20		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	1815		
Speed Limit (MPH):	35	Placement with Respect to Road:	BOTH INSIDE AND OUTSIDE		
Hazard Behind Barrier:	HIGH				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	149.8
Height (In.):	29.1	Lateral Offset (In.):	121.0	Road Grade (%):	1.80
Physical Condition					
Barrier	Alignment and Height:	There was 1 bent post that was disconnected from the rail. Entire barrier exceeds 27 in design height by 1/2 to 3.5 in.			
	Breaking and Cracking:	There were 10 posts and 10 rails (125 ft) that were broken and knocked over due to impact.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Erosion around posts has caused 4 in or less of post to be exposed below original ground line.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting tearing bending or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No erosion was observed around posts.			

Barrier ID:	DEWA-0014-0.468-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/06/2010	Barrier Rating:	44.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$6270
Brief Workorder:	Replace 11 posts and 125 feet of rail.				
Workorder:	Replace Post at \$100- per -Each for 11 Post(s) = \$1100. Replace 11 damaged and bent posts. Replace Rail at \$25- per -Lin. Ft. for 125 LF = \$3125. Replace 125 feet of rails that were damaged. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_0.468_R_1.jpg

Barrier ID:	DEWA-0014-0.480-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	25.60		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	192		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	30.2	Lateral Offset (In.):	69.6	Road Grade (%):	1.20
Physical Condition					
Barrier	Alignment and Height:	There was an 8 in deflection in the alignment for 50 ft. The barrier height was greater than or equal to the 27 in design height for the entire length. 50ft. was 5-9 in above the design height.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed in the barrier.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0014-0.480-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/06/2010	Barrier Rating:	25.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2172
Brief Workorder:	Lower 50 feet of guardrail to the 27 inch design height and correct horizontal deflection.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 50 LF = \$500. Lower 50 feet of guardrail to the 27 inch design height and correct the horizontal deflection. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_0.480_L_1.jpg

Barrier ID:	DEWA-0014-0.766-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	29.60		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	278		
Speed Limit (MPH):	35	Placement with Respect to Road:	INSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	149.0
Height (In.):	30.7	Lateral Offset (In.):	138.3	Road Grade (%):	5.40
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The entire barrier exceeded design height (27 in) by 2 to 4.5 in.			
	Breaking and Cracking:	No twisting tearing breaking or cracking in the metal observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Loss of less than 5% cross section observed. Erosion of 5 in below original ground line observed at base of posts.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting tearing breaking or cracking in the metal observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Loss of less than 5% cross section observed.			

Barrier ID:	DEWA-0014-0.766-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:		29.60	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_0.766_L_1.jpg

Barrier ID:	DEWA-0014-0.902-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	36.70		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	180		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	25.7	Lateral Offset (In.):	127.3	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 within 1 in of the 27 in design height for 60 ft and between 1 in and 3 in below the design height for 80 ft.			
	Breaking and Cracking:	No twisting bending tears, or cracking were observed in the barrier.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Some rust was showing but less than 5 percent of the cross section was lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears, or cracking were observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0014-0.902-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/06/2010	Barrier Rating:	36.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2502
Brief Workorder:	Raise 80 feet of guardrail to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 80 LF = \$800. Raise 80 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_0.902_L_1.jpg

Barrier ID:	DEWA-0014-1.107-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	25.60		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	PLASTIC	Length (ft.):	244		
Speed Limit (MPH):	35	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:	OTHER: W-BEAM FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	OTHER: W-BEAM FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	73.3
Height (In.):	27.0	Lateral Offset (In.):	87.0	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No deflections in alignment observed. Entire barrier is 1 in or less below meets or exceeds 27 in design height by 1 in.			
	Breaking and Cracking:	No twisting tearing bending or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting tearing bending or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-1.107-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:		25.60	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_1.107_L_1.jpg

Barrier ID:	DEWA-0014-1.225-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	23.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	218		
Speed Limit (MPH):	35	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:	W-BEAM BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	BRIDGE RAIL W-BEAM
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	76.1
Height (In.):	28.2	Lateral Offset (In.):	72.1	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	Barrier showed signs of impact but deflection was only 4 in. The entire barrier was at or exceeded design height (27 in) up to 2.5 in.			
	Breaking and Cracking:	No twisting bending tears or cracking in the metal were observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% of cross section was lost. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 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.			
	Corrosion and Weathering:	Less than 5% of cross section was lost. No erosion around posts observed.			

Barrier ID:	DEWA-0014-1.225-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:		23.70	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_1.225_L_1.jpg

Barrier ID:	DEWA-0014-1.256-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	23.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	79		
Speed Limit (MPH):	35	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:	W-BEAM BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	BRIDGE RAIL W-BEAM
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	54.0
Height (In.):	27.5	Lateral Offset (In.):	118.8	Road Grade (%):	0.70
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in were observed in the alignment. The height was up to 1.5 in above to 1 in below of the 27 in design height for the entire length.			
	Breaking and Cracking:	No twisting bending tears, or cracking were observed in the barrier.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears, or cracking were observed.			
	Missing Elements:	No elements were observed to be missing. End treatment cable was loose.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0014-1.256-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/06/2010	Barrier Rating:	23.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$66
Brief Workorder:	Repair End Treatment				
Workorder:	Labor at \$60- per -Hour for 1 Hrs = \$60. Tighten cable in the end treatment.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_1.256_R_1.jpg

Barrier ID:	DEWA-0014-1.306-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	23.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	54		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	BRIDGE RAIL W-BEAM
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	54.2
Height (In.):	27.0	Lateral Offset (In.):	122.5	Road Grade (%):	0.40
Physical Condition					
Barrier	Alignment and Height:	No deflections in alignment observed. Barrier is 1 in or less or exceeds 27 in design height up to 2.5 in except in the transition area.			
	Breaking and Cracking:	No twisting tearing bending or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting tearing bending or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			

Barrier ID:	DEWA-0014-1.306-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:		23.70	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_1.306_R_1.jpg

Barrier ID:	DEWA-0014-1.511-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/06/2010	Barrier Rating:	45.40		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	136		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.8
Height (In.):	22.7	Lateral Offset (In.):	85.1	Road Grade (%):	3.40
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 98 ft of the barrier was between 3-5.5in. below design height (27 in).			
	Breaking and Cracking:	No twisting tearing bending or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting tearing bending or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-1.511-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/06/2010	Barrier Rating:	45.40

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2700
Brief Workorder:	Raise 98 feet of barrier to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 98 LF = \$980. Raise 98 ft 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_1.511_L_1.jpg

Barrier ID:	DEWA-0014-1.628-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	42.50		
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):	35	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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	24.0	Lateral Offset (In.):	80.0	Road Grade (%):	1.00
Physical Condition					
Barrier	Alignment and Height:	There was a 50 ft section with deflections ranging between 12 in and 24 in. The barrier height was within 1 in of the 27 in design height for 34 ft between 1 in and 3 in below the design height for 50 ft and more than 3 in below for 130 ft.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed in the barrier.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	The ending end treatment was deflected between 4 in and 8 in. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	The rails on the ending end treatment were bent in several places.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	More than 25 percent of the cross section was lost on the ending end treatment due to rust and weathering.			

Barrier ID:	DEWA-0014-1.628-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	42.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$11946
Brief Workorder:	Replace 58 feet of w-beam strong post and replace ending end treatment. Raise 150 feet of guardrail up to the 27 inch design height.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 88 LF = \$880. Remove 88 feet of guardrail including the ending end treatment. W-beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Install a W-Beam Flared end treatment. W-Beam Strong Post at \$35- per -Lin. Ft. for 58 LF = \$2030. Install 58 feet of W-Beam strong post guardrail. Adjust Guardrail at \$10- per -Lin. Ft. for 150 LF = \$1500. Raise 150 feet of guardrail to the design height of 27 inches. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_1.628_R_1.jpg

Barrier ID:	DEWA-0014-1.748-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	58.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	347		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	20.7	Lateral Offset (In.):	83.6	Road Grade (%):	4.10
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 271 ft of the barrier was greater than 3 in below design height (27 in) down to 7.5 in below.			
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed. 2 isolated posts were bent.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% or less of cross section observed.			

Barrier ID:	DEWA-0014-1.748-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	58.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$6226
Brief Workorder:	Raise 271 feet of barrier to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 271 LF = \$2710. Raise 271 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_1.748_L_1.jpg

Barrier ID:	DEWA-0014-1.771-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	48.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	315		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.3
Height (In.):	22.7	Lateral Offset (In.):	82.3	Road Grade (%):	4.00
Physical Condition					
Barrier	Alignment and Height:	A 50 ft section was deflected between 6 in and 12 in. The barrier height was 3.5 to 5.5 in below the 27 in design height for the entire length.			
	Breaking and Cracking:	25 ft of guardrail had tears due to rust. 50 ft of barrier was severely bent. 1 blockout was also observed to be bent.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering but 25 ft of guardrail had tears from rusting. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	There were tears in both end treatments from rust.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Between 5 percent and 25 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0014-1.771-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	48.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$16472
Brief Workorder:	Replace 75 feet of rail. Raise 239 feet of guardrail to 27-in. design height and replace both end treatments.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 76 LF = \$760. Remove both end treatments (76 feet). W-beam flared 350 compliant at \$3500- per -Each for 2 Unit(s) = \$7000. Install 2 W-Beam flared end treatments. Replace Rail at \$25- per -Lin. Ft. for 75 LF = \$1875. Replace 75 feet of rail due to tearing and bending. Adjust Guardrail at \$10- per -Lin. Ft. for 239 LF = \$2390. Raise 239 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_1.771_R_1.jpg

Barrier ID:	DEWA-0014-1.949-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	52.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	538		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BURIED END	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.5
Height (In.):	22.2	Lateral Offset (In.):	65.8	Road Grade (%):	0.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 462 ft of the barrier was 4.5 to 5 in below design height (27 in).			
	Breaking and Cracking:	1 rail showed signs of impact. 1 rail was rusted and showed tears.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	Beginning end treatment showed rust and tears ending end treatment showed signs of impact.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-1.949-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:		52.50	
Repair Recommendations					
Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$18100
Brief Workorder:	Raise 462 feet of guardrail to 27-in. design height replace both end treatments and replace 26 feet of rail.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 76 LF = \$760. Remove both end treatments W-beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Replace beginning end treatment W-beam Buried End at \$2500- per -Each for 1 Unit(s) = \$2500. Replace ending end treatment Adjust Guardrail at \$10- per -Lin. Ft. for 462 LF = \$4620. Raise 462ft. of barrier to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 26 LF = \$650. Replace 26ft. of rail. 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.					

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_1.949_R_1.jpg

Barrier ID:	DEWA-0014-2.094-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	54.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	160		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.8
Height (In.):	21.2	Lateral Offset (In.):	67.0	Road Grade (%):	5.90
Physical Condition					
Barrier	Alignment and Height:	There was an 8 in deflection observed for a 10 ft section. Otherwise no other deflections were observed. The barrier height was between 3-7 in below the 27 in design height for the entire length.			
	Breaking and Cracking:	13 ft of guardrail was bent and torn. No other twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering but a 13 ft section had tears from rusting. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	Both end treatments had tears in the rails.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Between 5 percent and 25 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0014-2.094-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	54.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$16308
Brief Workorder:	Raise 84 feet of guardrail to 27-in. design height replace both end treatments and replace 13 feet of rail.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 76 LF = \$760. Remove both end treatments (76 feet). W-beam flared 350 compliant at \$3500- per -Each for 2 Unit(s) = \$7000. Install 2 W-Beam flared end treatments. Replace Rail at \$25- per -Lin. Ft. for 13 LF = \$325. Replace 13ft. of rail due to bending and tearing. Adjust Guardrail at \$10- per -Lin. Ft. for 84 LF = \$840. Raise 84 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_2.094_R_1.jpg

Barrier ID:	DEWA-0014-2.173-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	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.):	89		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	73.0
Height (In.):	28.7	Lateral Offset (In.):	64.8	Road Grade (%):	0.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was greater than 1 ft. The entire barrier exceeded design height (27 in) by 1 to 3.5 in.			
	Breaking and Cracking:	13 ft of rail showed signs of twisting and bending. 5 posts and 2 blockouts were bent.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	Both end treatments had tears due to rusting.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-2.173-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	28.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$10802
Brief Workorder:	Replace existing barrier with W-beam strong post guardrail and install two end treatments.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 89 LF = \$890. Remove guardrail. W-beam flared 350 compliant at \$3500- per -Each for 2 Unit(s) = \$7000. Install 2 new end treatments. W-Beam Strong Post at \$35- per -Lin. Ft. for 13 LF = \$455. Install 13 ft of new W-Beam strong post 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_2.173_R_1.jpg

Barrier ID:	DEWA-0014-2.177-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	31.10		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	100		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	23.5	Lateral Offset (In.):	27.2	Road Grade (%):	1.50
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in were observed in the alignment. The barrier height was more than 3 in below the 27 in design height for the entire length down to 3.5 in below.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed in the barrier.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting tears or cracking was observed. There was a small bend in the ending end treatment.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	The ending end treatment showed some rust but less than 5 percent of the cross section was lost.			

Barrier ID:	DEWA-0014-2.177-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	31.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2723
Brief Workorder:	Raise 100 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 100 LF = \$1000. Raise 100 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_2.177_L_1.jpg

Barrier ID:	DEWA-0014-2.572-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	38.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	PLASTIC	Length (ft.):	153		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	25.0	Lateral Offset (In.):	11.3	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 5 ft of the barrier was between 1 and 3 in below design height (27 in). 20 ft of the barrier was greater than 3 in below design height (27 in).			
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed.			
	Missing Elements:	38 ft of the barrier was missing assumed to be impacted.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-2.572-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	38.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3360
Brief Workorder:	Raise 25 feet of barrier to 27-in. design height and install 38ft. of missing guardrail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 25 LF = \$250. Raise 25 ft of guardrail to 27-in. design height. W-Beam Strong Post at \$35- per -Lin. Ft. for 38 LF = \$1330. Install 38 ft of missing 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_2.572_L_1.jpg

Barrier ID:	DEWA-0014-2.575-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	65.60		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	872		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TRAILING END	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.3
Height (In.):	21.6	Lateral Offset (In.):	49.4	Road Grade (%):	0.40
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 53 ft between 1 and 3 in below the design height for 20 ft and more than 3 in below the design height for 761 ft.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed in the barrier.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	There were tears and severe bending in the beginning end treatment.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0014-2.575-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	65.60

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$19349
Brief Workorder:	Replace the beginning end treatment and raise 781 feet of guardrail up to the 27 inch design height.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 38 LF = \$380. Remove the beginning end treatment (38 feet). W-beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Install a W-Beam flared end treatment. Adjust Guardrail at \$10- per -Lin. Ft. for 781 LF = \$7810. Raise 781 feet of guardrail to 27 inch design height. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_2.575_R_1.jpg

Barrier ID:	DEWA-0014-2.740-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	30.10		
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.):	106		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.5
Height (In.):	24.2	Lateral Offset (In.):	138.0	Road Grade (%):	1.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 35 ft of the barrier was 1 to 3 in below design height (27 ines). 45 ft of the barrier was between 3 and 5 ines below design height (27 ines).			
	Breaking and Cracking:	No impact related breaking/cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0014-2.740-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	30.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2502
Brief Workorder:	Raise 80 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 80 LF = \$800. Raise 80ft. of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_2.740_R_1.jpg

Barrier ID:	DEWA-0014-2.764-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	32.50		
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.):	92		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.6
Height (In.):	23.7	Lateral Offset (In.):	130.3	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 between 1 in and 3 in below the 27 in design height for 40 ft and more than 3 in below the design height for 52 ft.			
	Breaking and Cracking:	No impact related breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section has been lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0014-2.764-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	32.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2634
Brief Workorder:	Raise 92 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 92 LF = \$920. Raise 92ft. of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_2.764_R_1.jpg

Barrier ID:	DEWA-0014-2.776-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	66.80		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	2322		
Speed Limit (MPH):	35	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:	W-BEAM TRAILING END	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.8
Height (In.):	20.7	Lateral Offset (In.):	37.4	Road Grade (%):	0.20
Physical Condition					
Barrier	Alignment and Height:	26ft. had 18 in of deflection. Smaller deflections will be corrected when barrier adjusted for height. 150 ft of barrier was 1 to 3 in below design height (27 in). 2134 ft of the barrier was greater than 3 in below down to 16.5 in.			
	Breaking and Cracking:	A 13 ft section of rail has tearing. 3 isolated posts were bent.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting/bending tearing or cracking in metal observed.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-2.776-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	66.80

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$42752
Brief Workorder:	Replace 39 feet of rail raise 2284 feet of barrier to 27-in. design height and replace 3 posts.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 39 LF = \$975. Adjust Guardrail at \$10- per -Lin. Ft. for 2284 LF = \$22840. Raise 2284ft. of barrier to 27-in. design height. Replace Post at \$100- per -Each for 3 Post(s) = \$300. Replace three posts. Low Speed Traffic Control at \$1475- per -Day for 10 Day(s) = \$14750.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_2.776_R_1.jpg

Barrier ID:	DEWA-0014-3.248-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/07/2010	Barrier Rating:	64.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	691		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.8
Height (In.):	22.8	Lateral Offset (In.):	35.0	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 between 1 in and 3 in below the 27 in design height for 108 ft and 3 to 5 in below the design height for 507 ft.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0014-3.248-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/07/2010	Barrier Rating:	64.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$11632
Brief Workorder:	Raise 615 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 615 LF = \$6150. Raise 615 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_3.248_R_1.jpg

Barrier ID:	DEWA-0014-3.558-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	72.80		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	1218		
Speed Limit (MPH):	35	Placement with Respect to Road:	BOTH INSIDE AND OUTSIDE		
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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	22.7	Lateral Offset (In.):	44.0	Road Grade (%):	0.60
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 430 ft of the barrier was 1 to 3 in below design height (27 ines). 712 ft of the barrier was 3-9 ines below design height (27 ines).			
	Breaking and Cracking:	91 ft of rail and 2 blockouts were bent. 4 isolated posts and 2 isolated blockouts were bent.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting/bending tears or cracking in the metal observed.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-3.558-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	72.80

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$23243
Brief Workorder:	Raise 1142 feet of guardrail up to the 27 inch design height. Replace 91 feet of rail and 2 blockouts.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 91 LF = \$2275. Replace 91 feet of rail. Replace Block at \$30- per -Each for 2 Block(s) = \$60. Replace 2 blockouts. Adjust Guardrail at \$10- per -Lin. Ft. for 1142 LF = \$11420. Raise 1142 feet of guardrail up to the 27 inch design height. Low Speed Traffic Control at \$1475- per -Day for 5 Day(s) = \$7375.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_3.558_R_1.jpg

Barrier ID:	DEWA-0014-3.945-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	42.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	254		
Speed Limit (MPH):	35	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	23.2	Lateral Offset (In.):	41.2	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in were observed in the alignment. The barrier height was between 1 in and 3 in below the 27 in design height for 15 ft and 3 to 4.5 in below the design height for 163 ft.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section has been lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	Both end treatments had bending and tears in the rails.			
	Missing Elements:	The beginning end treatment was missing 2 posts.			
	Corrosion and Weathering:	Between 5 percent and 25 percent of the cross section has been lost due to rusting.			

Barrier ID:	DEWA-0014-3.945-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	42.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$13739
Brief Workorder:	Replace both end treatments and raise 178 feet of guardrail up to the 27 inch design height.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 76 LF = \$760. Remove both end treatments (76 feet). W-beam flared 350 compliant at \$3500- per -Each for 2 Unit(s) = \$7000. Install 2 W-Beam flared end treatments. Adjust Guardrail at \$10- per -Lin. Ft. for 178 LF = \$1780. Raise 178 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_3.945_R_1.jpg

Barrier ID:	DEWA-0014-3.955-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	37.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	230		
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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.3
Height (In.):	25.2	Lateral Offset (In.):	33.5	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 154 ft of the barrier was 1 to 3 in below design height (27 in).			
	Breaking and Cracking:	No twisting/bending tearing or cracking in the metal observed.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	A minor 3 in dent in ending end treatment was observed.			
	Missing Elements:	Bolts are loose on ending end treatment.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-3.955-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	37.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3382
Brief Workorder:	Raise 154 feet of barrier to 27-in. design height. Tighten bolts on ending end treatment.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 154 LF = \$1540. Raise 154 ft of guardrail to 27-in. design height. Labor at \$60- per -Hour for 1 Hrs = \$60. Tighten bolt on ending end treatment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_3.955_L_1.jpg

Barrier ID:	DEWA-0014-4.055-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	56.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	1483		
Speed Limit (MPH):	35	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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	23.8	Lateral Offset (In.):	34.5	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 within 1 in of the 27 in design height for 75 ft between 1 in and 3 in below the design height for 745 ft and 3 to 5 in below the design height for 587 ft.			
	Breaking and Cracking:	1 isolated blockout was bent. No other bending twisting tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	There was a minor 6 in bend in the beginning end treatment.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0014-4.055-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	56.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$24420
Brief Workorder:	Raise 1332 feet of guardrail up to the 27 inch design height and replace one blockout.				
Workorder:	Replace Block at \$30- per -Each for 1 Block(s) = \$30. Replace bent blockout. Adjust Guardrail at \$10- per -Lin. Ft. for 1332 LF = \$13320. Raise 1332 feet of guardrail to 27 inch design height. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_4.055_R_1.jpg

Barrier ID:	DEWA-0014-5.893-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	42.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	677		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.5
Height (In.):	28.3	Lateral Offset (In.):	29.6	Road Grade (%):	0.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The barrier ranged from 2.5 in above to 0.5in. below design height (27 ines).			
	Breaking and Cracking:	No twisting/bending tearing or cracking in the metal observed.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting/bending tearing or cracking in the metal observed.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-5.893-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	42.50

Repair Recommendations

Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_5.893_R_1.jpg

Barrier ID:	DEWA-0014-6.233-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	44.40		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	378		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.6
Height (In.):	28.5	Lateral Offset (In.):	26.7	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 greater than the 27 in design height for the entire length up to 2 in above.			
	Breaking and Cracking:	1 post was broken. No other twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	The ending end treatment had broken posts severe bending and tears and twisting of the rails.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Between 5 percent and 25 percent of the cross section was lost due to rust on the ending end treatment.			

Barrier ID:	DEWA-0014-6.233-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	44.40

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$6000
Brief Workorder:	Replace ending end treatment and replace 1 post.				
Workorder:	Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace 1 broken post. Remove Guardrail at \$10- per -Lin. Ft. for 38 LF = \$380. Remove ending end treatment (38 feet). W-beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Install 1 W-Beam Flared end treatment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_6.233_R_1.jpg

Barrier ID:	DEWA-0014-7.354-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	42.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	310		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	OTHER: W-BEAM FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	26.7	Lateral Offset (In.):	22.2	Road Grade (%):	2.70
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 0.5 in.			
	Breaking and Cracking:	No twisting tearing breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting tearing breaking or cracking observed.			
	Missing Elements:	Rail was separating from post on beginning end due to missing bolt.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			

Barrier ID:	DEWA-0014-7.354-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	42.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1688
Brief Workorder:	Replace missing bolt on beginning end treatment.				
Workorder:	Labor at \$60- per -Hour for 1 Hrs = \$60. Replace missing bolt on beginning end treatment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_7.354_R_1.jpg

Barrier ID:	DEWA-0014-7.415-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	31.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	207		
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:	OTHER: W-BEAM FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.5
Height (In.):	27.5	Lateral Offset (In.):	30.2	Road Grade (%):	1.40
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 2 in observed in alignment. Entire barrier meets or exceeds 27 in design height by 1 in.			
	Breaking and Cracking:	No twisting tearing breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting tearing breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			

Barrier ID:	DEWA-0014-7.415-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:		31.00	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_7.415_R_1.jpg

Barrier ID:	DEWA-0014-7.418-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	42.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	141		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	26.5	Lateral Offset (In.):	19.5	Road Grade (%):	3.10
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 3 in observed in alignment. Entire barrier is 1 in or less below or exceeds 27 in design height by 0.5 in.			
	Breaking and Cracking:	No twisting tearing breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	Beginning end treatment is twisted and bent due to an impact event.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			

Barrier ID:	DEWA-0014-7.418-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	42.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$4790
Brief Workorder:	Replace beginning end treatment with a W-beam trailing end treatment.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 38 LF = \$380. Remove beginning end treatment (38 feet). W-beam Trailing End at \$2500- per -Each for 1 Unit(s) = \$2500. Install W-beam trailing end treatment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_7.418_L_1.jpg

Barrier ID:	DEWA-0014-7.670-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	28.10		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	206		
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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	80.6
Height (In.):	26.2	Lateral Offset (In.):	65.0	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 68 ft of the barrier was 1 to 3 in below design height (27 in). The remaining length was 1 in below to 1 in above 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.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	1 isolated block was twisted.			
	Missing Elements:	Both end treatment cables are loose.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-7.670-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	28.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2436
Brief Workorder:	Raise 68 feet of barrier to 27-in. design height and tighten cables on both end treatments.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 68 LF = \$680. Raise 68ft. of barrier to 27-in. design height. Labor at \$60- per -Hour for 1 Hrs = \$60. Tighten both cables on end treatments. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_7.670_R_1.jpg

Barrier ID:	DEWA-0014-7.679-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	28.10		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	141		
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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.8
Height (In.):	26.0	Lateral Offset (In.):	93.3	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 equal to the design height of 27 in for 29 ft and between 1 in and 3 in below the design height for 37 ft.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed in the barrier.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section has been lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were missing but the cables were loose on both end treatments.			
	Corrosion and Weathering:	Less than 5 percent of the cross section has been lost due to weathering.			

Barrier ID:	DEWA-0014-7.679-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	28.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2096
Brief Workorder:	Raise 37 feet of guardrail up to the 27 inch design height and tighten the cables on both end treatments.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 37 LF = \$370. Raise 37 feet of the guardrail to the 27 inch design height. Labor at \$60- per -Hour for 1 Hrs = \$60. Tighten the cables on both end treatments. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_7.679_L_1.jpg

Barrier ID:	DEWA-0014-8.379-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	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.):	243		
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:	W-BEAM BURIED END	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BURIED END	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.5
Height (In.):	28.2	Lateral Offset (In.):	13.3	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 greater than the 27 in design height for the entire length by 1/2 in to 2 in.			
	Breaking and Cracking:	2 posts and 2 blockouts were bent and twisted. No other twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Rust was observed on several rails posts and blockouts, but less than 5 percent of the cross section was lost. The barrier should be monitored for further rusting. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0014-8.379-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	33.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1908
Brief Workorder:	Replace 2 posts and 2 blockouts.				
Workorder:	Replace Post at \$100- per -Each for 2 Post(s) = \$200. Replace 2 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_8.379_L_1.jpg

Barrier ID:	DEWA-0014-8.389-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	48.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	170		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	OTHER: W-BEAM FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.3
Height (In.):	20.2	Lateral Offset (In.):	42.5	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 132 ft of the barrier was greater than 3 in below design height (27 in) ranging from 19.5 to 21.5 in.			
	Breaking and Cracking:	No twisting/bending tearing or cracking in the metal observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment as designed. 38 ft of the end treatment was greater than 3 in below design height (27 in).			
	Breaking and Cracking:	1 rail had bending and tearing.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-8.389-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	48.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3432
Brief Workorder:	Raise 132 feet of barrier to 27-in. design height and replace 13 feet of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 132 LF = \$1320. Raise 132ft. of barrier to 27-in. design height. Replace Rail at \$25- per -Lin. Ft. for 13 LF = \$325. Replace 13ft. of rail due to bending and tearing. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_8.389_R_1.jpg

Barrier ID:	DEWA-0014-8.907-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	58.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	1055		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.4
Height (In.):	24.6	Lateral Offset (In.):	33.0	Road Grade (%):	1.80
Physical Condition					
Barrier	Alignment and Height:	1 rail was deflected 14 in due to an impact. Entire barrier is 1 to 3 in below 27 in design height.			
	Breaking and Cracking:	1 rail was twisted and bent due to impact. 1 post was bent 90 degrees due to impact.			
	Missing Elements:	There were no elements observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. Erosion around posts has exposed 2 to 3 in of post below original ground line.			
End Treatments	Alignment and Height:	Beginning end treatment is deflected 10 in due to impact. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	Beginning end treatment is twisted and cracked with a tear about 15 ft by 2 in width.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			

Barrier ID:	DEWA-0014-8.907-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	58.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$23474
Brief Workorder:	Remove and replace beginning end treatment. Raise 966 feet of guardrail up to the 27 inch design height. Replace 13 feet of rail and 1 post.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 38 LF = \$380. Remove beginning end treatment. Replace Rail at \$25- per -Lin. Ft. for 13 LF = \$325. Replace 13 feet of impacted rail. Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace 1 bent post. W-beam tangent 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Install crashworthy beginning end treatment. Adjust Guardrail at \$10- per -Lin. Ft. for 966 LF = \$9660. Raise 966 feet of barrier to 27 inch design height. Low Speed Traffic Control at \$1475- per -Day for 5 Day(s) = \$7375.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_8.907_R_1.jpg

Barrier ID:	DEWA-0014-9.065-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	42.50		
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):	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:	W-BEAM BURIED END	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.1
Height (In.):	27.7	Lateral Offset (In.):	29.2	Road Grade (%):	3.10
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 (27 in).			
	Breaking and Cracking:	130 ft of rail was tearing. 5 posts were bent.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	Ending end treatment had bending and tearing.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-9.065-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	42.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$10016
Brief Workorder:	Replace 130 feet of rail and 5 posts. Replace torn ending end treatment with W-beam flared end treatment.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 130 LF = \$3250. Replace 130ft. of rail due to tearing. Replace Post at \$100- per -Each for 5 Post(s) = \$500. Replace 5 posts due to bending. W-beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Replace ending end treatment due to tearing. Remove Guardrail at \$10- per -Lin. Ft. for 38 LF = \$380. Remove 38 feet of end treatment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_9.065_L_1.jpg

Barrier ID:	DEWA-0014-9.255-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	33.90		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	429		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	27.7	Lateral Offset (In.):	32.7	Road Grade (%):	0.50
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 0.5 to 1 in.			
	Breaking and Cracking:	25 ft of rail and 1 post had severe twisting and bending. No other twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section has been lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	The was minor bending on 1 rail on the ending end treatment.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section has been lost due to weathering.			

Barrier ID:	DEWA-0014-9.255-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	33.90

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2420
Brief Workorder:	Replace 25 feet of rail and 1 bent post.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 25 LF = \$625. Replace 25 feet of rail due to severe bending and twisting. Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace 1 post due to severe bending and twisting. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_9.255_R_1.jpg

Barrier ID:	DEWA-0014-9.355-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	46.90		
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):	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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.5
Height (In.):	28.5	Lateral Offset (In.):	26.5	Road Grade (%):	1.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Entire barrier meets or exceeds 27 in design height by up to 2 in.			
	Breaking and Cracking:	13 ft of rail had tearing 2 ft long.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	Beginning end treatment is twisted and bent throughout.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			

Barrier ID:	DEWA-0014-9.355-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	46.90

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$6248
Brief Workorder:	Remove and replace beginning end treatment with flared 350 compliant end terminal. Replace 13 feet of rail.				
Workorder:	Remove Guardrail at \$10- per -Lin. Ft. for 38 LF = \$380. Remove beginning end treatment. Replace Rail at \$25- per -Lin. Ft. for 13 LF = \$325. Replace 13 feet of rail. W-beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Install crashworthy end terminal at beginning end. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_9.355_R_1.jpg

Barrier ID:	DEWA-0014-9.378-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	31.30		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	205		
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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.1
Height (In.):	26.2	Lateral Offset (In.):	45.2	Road Grade (%):	2.00
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 30 ft of the barrier was between 1 to 3 in below design height (27 in) while the remaining length ranged from 1 in below to 1/2 in above.			
	Breaking and Cracking:	13 ft of rail had tearing.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting/bending tearing or cracking in the metal observed.			
	Missing Elements:	Both end treatment cables are loose.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0014-9.378-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	31.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2376
Brief Workorder:	Raise 30 feet of barrier to 27-in. design height. Replace 13 feet of rail and tighten cable on both end treatments.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 30 LF = \$300. Raise 30ft. of barrier to 27-in. design height. Replace Rail at \$25- per -Lin. Ft. for 13 LF = \$325. Replace 13ft. of rail due to tearing. Labor at \$60- per -Hour for 1 Hrs = \$60. Tighten cables on both end treatments. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_9.378_L_1.jpg

Barrier ID:	DEWA-0014-9.460-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	41.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	855		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	26.2	Lateral Offset (In.):	30.6	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in were observed in alignment. The height was 1 in greater than or equal to the 27 in design height for 604 ft between 1 and 3 in below the design height for 137ft and more than 3 in below the design height for 38ft.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed in the barrier.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section has been lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears, or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section has been lost due to weathering.			

Barrier ID:	DEWA-0014-9.460-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	41.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3548
Brief Workorder:	Raise 175 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 175 LF = \$1750. Raise 175 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_9.460_R_1.jpg

Barrier ID:	DEWA-0014-10.203-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	52.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	1477		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.9
Height (In.):	27.1	Lateral Offset (In.):	22.1	Road Grade (%):	0.70
Physical Condition					
Barrier	Alignment and Height:	1 rail was deflected up to 8 in. 115 ft of barrier is 1 to 3 in below 27 in design height. 1286 ft of barrier meets or exceeds 27 in design height up to 1 in above.			
	Breaking and Cracking:	2 posts and 2 blockouts were bent 60 degrees torsionally. 25 ft of rail was bent and torn.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No twisting tearing breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section observed. No erosion around posts observed.			

Barrier ID:	DEWA-0014-10.203-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	52.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$4218
Brief Workorder:	Replace 2 posts 2 blockouts and 3 rails. Raise 115 feet of barrier to 27 inch design height.				
Workorder:	Replace Post at \$100- per -Each for 2 Post(s) = \$200. Replace 2 damaged posts. Replace Block at \$30- per -Each for 2 Block(s) = \$60. Replace 2 damaged blockouts. Adjust Guardrail at \$10- per -Lin. Ft. for 115 LF = \$1150. Raise 115 feet of barrier to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 38 LF = \$950. Replace 38ft. of damaged 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_10.203_R_1.jpg

Barrier ID:	DEWA-0014-10.704-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	36.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	217		
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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	76.5
Height (In.):	26.0	Lateral Offset (In.):	85.0	Road Grade (%):	1.00
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-10.704-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_10.704_R_1.JPG

Barrier ID:	DEWA-0014-10.733-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	31.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	53		
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 FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	26.2	Lateral Offset (In.):	95.0	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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-10.733-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:		31.00	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_10.733_L_1.JPG

Barrier ID:	DEWA-0014-10.749-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/04/2010	Barrier Rating:	31.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	68		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	72.0
Height (In.):	27.6	Lateral Offset (In.):	98.0	Road Grade (%):	1.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in up to 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-10.749-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/04/2010	Barrier Rating:	31.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_10.749_L_1.JPG

Barrier ID:	DEWA-0014-10.751-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	37.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	WOOD		
Blockout Type:	WOOD	Length (ft.):	42		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	49.0
Height (In.):	26.2	Lateral Offset (In.):	36.0	Road Grade (%):	0.80
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-10.751-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:		37.00	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_10.751_R_1.JPG

Barrier ID:	DEWA-0014-11.079-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	39.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	145		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.5
Height (In.):	24.6	Lateral Offset (In.):	35.0	Road Grade (%):	1.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 1 to 3 in from the design of 27 in for 145 linear ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-11.079-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	39.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3218
Brief Workorder:	Raise 145 feet of barrier to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 145 LF = \$1450. Raise 145 feet of barrier to 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_11.079_R_1.JPG

Barrier ID:	DEWA-0014-11.083-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	39.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	155		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	76.0
Height (In.):	24.0	Lateral Offset (In.):	44.0	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 3 in from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-11.083-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	39.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3328
Brief Workorder:	Raise 155 feet of barrier to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 155 LF = \$1550. Raise 155ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_11.083_L_1.JPG

Barrier ID:	DEWA-0014-11.880-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	46.90		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	590		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.3
Height (In.):	25.6	Lateral Offset (In.):	34.0	Road Grade (%):	2.80
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 1 to 3 in from the design of 27 in for 110 LF.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-11.880-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	46.90

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2832
Brief Workorder:	Raise 110 feet of barrier to 27-in. design height.				
Workorder:	Raise Guardrail at \$10- per -Lin. Ft. for 110 LF = \$1100. Raise 110 feet of barrier to 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_11.880_R_1.JPG

Barrier ID:	DEWA-0014-12.492-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	32.40		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	369		
Speed Limit (MPH):	35	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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	76.0
Height (In.):	27.6	Lateral Offset (In.):	20.0	Road Grade (%):	0.50
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-12.492-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:		32.40	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_12.492_R_1.JPG

Barrier ID:	DEWA-0014-12.519-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	26.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	155		
Speed Limit (MPH):	35	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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.3
Height (In.):	27.7	Lateral Offset (In.):	34.2	Road Grade (%):	0.50
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-12.519-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:		26.70	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_12.519_L_1.JPG

Barrier ID:	DEWA-0014-13.042-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	23.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	80		
Speed Limit (MPH):	35	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:	W-BEAM TANGENT 350	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	26.0	Lateral Offset (In.):	102.5	Road Grade (%):	0.00
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-13.042-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_13.042_R_1.JPG

Barrier ID:	DEWA-0014-13.071-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	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.):	80		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	CONC/MASON W-BEAM
Ending End Trtmt Type:	W-BEAM TANGENT 350	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	24.6	Lateral Offset (In.):	113.3	Road Grade (%):	1.50
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 1 to 3 in from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-13.071-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/11/2010	Barrier Rating:	28.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2502
Brief Workorder:	Raise 80 feet of barrier to design height of 27 inches.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 80 LF = \$800. Raise 80 feet of barrier to design height of 27 inches. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_13.071_L_1.JPG

Barrier ID:	DEWA-0014-13.176-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:	24.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	PLASTIC	Length (ft.):	213		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.0
Height (In.):	28.0	Lateral Offset (In.):	28.2	Road Grade (%):	1.50
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0014-13.176-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/11/2010	Barrier Rating:		24.20	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_13.176_R_1.JPG

Barrier ID:	DEWA-0014-13.226-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	27.10		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	PLASTIC	Length (ft.):	270		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	26.7	Lateral Offset (In.):	43.0	Road Grade (%):	3.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or below the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0014-13.226-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:		27.10	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_13.226_R_1.JPG

Barrier ID:	DEWA-0014-13.582-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	33.90		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	618		
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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	27.2	Lateral Offset (In.):	71.5	Road Grade (%):	0.60
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment was deflected up to 10 in for 50 ft. The height was 1 in below at or 1 in above the 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-13.582-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	33.90

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2998
Brief Workorder:	Reset 50 feet of barrier to correct for out of alignment.				
Workorder:	Remove & Reset Guardrail at \$25- per -Lin. Ft. for 50 LF = \$1250. Reset 50ft. of barrier to correct for out of alignment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_13.582_R_1.JPG

Barrier ID:	DEWA-0014-13.857-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	30.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	91		
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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	25.0	Lateral Offset (In.):	66.3	Road Grade (%):	0.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 2 in from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-13.857-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	30.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2624
Brief Workorder:	Raise 91 feet of guardrail to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 91 LF = \$910. Raise 91ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_13.857_L_1.JPG

Barrier ID:	DEWA-0014-13.857-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	25.60		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	118		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	26.7	Lateral Offset (In.):	72.3	Road Grade (%):	0.90
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or below the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-13.857-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:		25.60	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_13.857_R_1.JPG

Barrier ID:	DEWA-0014-13.971-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	42.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	702		
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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.5
Height (In.):	28.5	Lateral Offset (In.):	76.0	Road Grade (%):	5.00
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is deflected in 3 separate areas from 6 to 15 in at impact zones. The height is at or above the design of 27 in by up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-13.971-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	42.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2612
Brief Workorder:	Adjust 90 feet of barrier for alignment at impact zones.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 90 LF = \$900. Adjust 90ft. of barrier for alignment at impact zones. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_13.971_R_1.JPG

Barrier ID:	DEWA-0014-14.303-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	28.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	215		
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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.5
Height (In.):	26.6	Lateral Offset (In.):	44.2	Road Grade (%):	0.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or low by 1 in or less from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	The alignment and height are as designed.			
	Breaking and Cracking:	4 posts and 25 ft linear ft are bent/cracked from impact.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-14.303-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	28.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2750
Brief Workorder:	Replace 4 posts and 25 feet of rail in end treatment.				
Workorder:	Replace Post at \$100- per -Each for 4 Post(s) = \$400. Replace 4 galvanized steel posts. Replace Rail at \$25- per -Lin. Ft. for 25 LF = \$625. Replace 25 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_14.303_R_1.JPG

Barrier ID:	DEWA-0014-14.379-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	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.):	65		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	50.5
Height (In.):	28.6	Lateral Offset (In.):	22.6	Road Grade (%):	3.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-14.379-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_14.379_L_1.JPG

Barrier ID:	DEWA-0014-14.382-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	32.40		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	PLASTIC	Length (ft.):	80		
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 Crashworthy?:	N/A	Approach Transition Type:	CONC/MASON W-BEAM
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	62.7
Height (In.):	30.7	Lateral Offset (In.):	64.0	Road Grade (%):	5.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in with 40 ft more than 5 in above the design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-14.382-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	32.40

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2063
Brief Workorder:	Lower 40 feet of barrier to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 40 LF = \$400. Lower 40ft. of barrier to 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_14.382_R_1.JPG

Barrier ID:	DEWA-0014-14.393-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	28.10		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	49		
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 Crashworthy?:	N/A	Approach Transition Type:	CONC/MASON W-BEAM
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	37.2
Height (In.):	26.6	Lateral Offset (In.):	53.2	Road Grade (%):	5.20
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-14.393-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:		28.10	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_14.393_L_1.JPG

Barrier ID:	DEWA-0014-14.393-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	35.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	165		
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 Crashworthy?:	N/A	Approach Transition Type:	CONC/MASON W-BEAM
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	62.7
Height (In.):	26.7	Lateral Offset (In.):	35.2	Road Grade (%):	3.30
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or below the design of 27 in by 1 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-14.393-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	35.20

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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_14.393_R_1.JPG

Barrier ID:	DEWA-0014-15.016-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	55.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	1250		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	25.5	Lateral Offset (In.):	53.5	Road Grade (%):	3.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 1 to 3 in from the design of 27 in for 320 linear ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-15.016-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	55.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$6765
Brief Workorder:	Raise 320 linear feet of barrier to design height of 27 inches.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 320 LF = \$3200. Raise 320ft.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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_15.016_R_1.JPG

Barrier ID:	DEWA-0014-15.544-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	39.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	245		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	24.0	Lateral Offset (In.):	41.0	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 160 ft and is 3 to 4 in below for 85 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	1 section of rail broken and cracked in ending end treatment.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-15.544-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	39.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$4785
Brief Workorder:	Raise 245 feet of barrier to design height of 27 inches and replace 1 post and 13ft. of rail in ending end treatment.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 245 LF = \$2450. Raise 245 feet of barrier to 27 inch design height. Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace broken post in end ending treatment. Replace Rail at \$25- per -Lin. Ft. for 13 LF = \$325. Replace 13ft. of rail in end ending treatment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_15.544_R_1.JPG

Barrier ID:	DEWA-0014-15.549-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	37.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	237		
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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	73.0
Height (In.):	23.7	Lateral Offset (In.):	40.2	Road Grade (%):	0.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 152 ft and is 3 to 4 in below for 85 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	2 posts broken in approach end treatment.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-15.549-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	37.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$4450
Brief Workorder:	Raise 237 feet of barrier to 27 inch design height and replace 2 posts in end treatment.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 237 LF = \$2370. Raise 237ft. of barrier to 27 inch design height. Replace Post at \$100- per -Each for 2 Post(s) = \$200. Replace 2 posts in approach end treatment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_15.549_L_1.JPG

Barrier ID:	DEWA-0014-16.658-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	48.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	642		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	26.0	Lateral Offset (In.):	86.3	Road Grade (%):	3.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges between 1 and 3 in below 27 in design height along 200 ft of barrier.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-16.658-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	48.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3822
Brief Workorder:	Raise 200 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 200 LF = \$2000. Raise 200 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_16.658_R_1.jpg

Barrier ID:	DEWA-0014-16.703-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	45.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	387		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	23.7	Lateral Offset (In.):	64.3	Road Grade (%):	1.70
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 1 in to 6 in below 27in design height.			
	Breaking and Cracking:	A 10ft section of rail is bent on top possibly due to a falling tree branch.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-16.703-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	45.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$7227
Brief Workorder:	Raise 337 feet of guardrail to 27 inch design height. Replace 10ft section of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 337 LF = \$3370. Raise 337ft. of guardrail to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 10 LF = \$250. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_16.703_L_1.jpg

Barrier ID:	DEWA-0014-16.891-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	55.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	4586		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	26.6	Lateral Offset (In.):	84.0	Road Grade (%):	0.70
Physical Condition					
Barrier	Alignment and Height:	Barrier is deflected by more than 12 in along 70 ft. Height varies between 3 and 4 in below 27-in design height along 340 ft and 1 - 3 in below along 670 ft. The rest varies between 1 in below and 4 in above design height.			
	Breaking and Cracking:	25 ft of rail and 1 post are torn from impact. One block is broken.			
	Missing Elements:	No missing elements were observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-16.891-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	55.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$20273
Brief Workorder:	Raise 1030 feet of guardrail to 27-inch design height and replace 25 feet of rail 1 post and 1block.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 1030 LF = \$10300. Raise 1030ft. of guardrail to 27-inch design height Replace Rail at \$25- per -Lin. Ft. for 25 LF = \$625. Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace Block at \$30- per -Each for 1 Block(s) = \$30. Low Speed Traffic Control at \$1475- per -Day for 5 Day(s) = \$7375.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_16.891_R_1.jpg

Barrier ID:	DEWA-0014-17.662-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	36.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	87		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.0
Height (In.):	26.2	Lateral Offset (In.):	83.6	Road Grade (%):	5.60
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 twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-17.662-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:		36.70	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_17.662_L_1.jpg

Barrier ID:	DEWA-0014-17.722-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	34.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	85		
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:	W-BEAM TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.0
Height (In.):	27.0	Lateral Offset (In.):	95.0	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 20 ft of barrier. Height is within 1 in of 27 in design height along entire length.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	1 post is missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-17.722-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	34.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1952
Brief Workorder:	Replace 1 post. Re-align 20 feet of guardrail.				
Workorder:	Replace Post at \$100- per -Each for 1 Post(s) = \$100. Adjust Guardrail at \$10- per -Lin. Ft. for 20 LF = \$200. Re-align 20 feet 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_17.722_L_1.jpg

Barrier ID:	DEWA-0014-17.867-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	39.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	439		
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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	26.7	Lateral Offset (In.):	68.6	Road Grade (%):	1.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Barrier height is 0 - 1 in below 27-in design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-17.867-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:		39.50	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_17.867_R_1.jpg

Barrier ID:	DEWA-0014-18.148-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	29.80		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	73		
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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.3
Height (In.):	26.2	Lateral Offset (In.):	138.6	Road Grade (%):	0.50
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 twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-18.148-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	29.80

Repair Recommendations

Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_18.148_L_1.jpg

Barrier ID:	DEWA-0014-18.158-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	32.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	45		
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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	61.7
Height (In.):	25.0	Lateral Offset (In.):	74.0	Road Grade (%):	0.20
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges between 1 and 3 in below the 27 in design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-18.158-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	32.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2118
Brief Workorder:	Raise 45 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 45 LF = \$450. Raise 45 feet of barrier to 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_18.158_R_1.jpg

Barrier ID:	DEWA-0014-18.171-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	34.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	110		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	78.3
Height (In.):	27.7	Lateral Offset (In.):	112.3	Road Grade (%):	3.10
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects greater than 12 in for a 20 ft section due to impact. Height ranges from 1 in below 27 in design height to 2in over.			
	Breaking and Cracking:	A 20ft section has been impacted causing two rails and two posts to bend. Two blockouts are also bent.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0014-18.171-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	34.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2458
Brief Workorder:	Replace 20 feet of rail 2 posts and 2 blockouts.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 20 LF = \$500. Replace Post at \$100- per -Each for 2 Post(s) = \$200. Replace Block at \$30- per -Each for 2 Block(s) = \$60. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_18.171_L_1.jpg

Barrier ID:	DEWA-0014-18.201-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	32.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	84		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.3
Height (In.):	24.7	Lateral Offset (In.):	63.0	Road Grade (%):	1.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges between 1 and 3 in below the 27 in design height along the entire length.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-18.201-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	32.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2546
Brief Workorder:	Raise 84 feet of guardrail to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 84 LF = \$840. Raise 84 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_18.201_R_1.jpg

Barrier ID:	DEWA-0014-18.524-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	41.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	2333		
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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TANGENT 350	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.5
Height (In.):	26.0	Lateral Offset (In.):	40.2	Road Grade (%):	0.20
Physical Condition					
Barrier	Alignment and Height:	Barrier is deflected by more than 12 in along 30 ft and by 6 - 12 in along 30 ft. 730 ft was 1-3in. below the 27-in. design height.			
	Breaking and Cracking:	75 ft of rail and five posts are broken and deformed from impact.			
	Missing Elements:	No missing elements were observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-18.524-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	41.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$17298
Brief Workorder:	Raise 730 feet of rail to 27 inch design height. Replace 75 feet of rail 5 posts and 5 blockouts.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 730 LF = \$7300. Raise guardrail to 27-inch design height Replace Rail at \$25- per -Lin. Ft. for 75 LF = \$1875. Replace Post at \$100- per -Each for 5 Post(s) = \$500. Replace Block at \$30- per -Each for 5 Block(s) = \$150. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_18.524_R_1.jpg

Barrier ID:	DEWA-0014-19.652-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	41.50		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	1170		
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:	W-BEAM FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	26.0	Lateral Offset (In.):	37.7	Road Grade (%):	2.20
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. 200 ft of barrier are between 1 and 3 in below the 27 in design height.			
	Breaking and Cracking:	100 ft of rail has been gouged and bent due to impact.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	Beginning end treatment has been impacted.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-19.652-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	41.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$12375
Brief Workorder:	Raise 200 feet of barrier to 27 inch design height and replace beginning end treatment and 100 feet of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 200 LF = \$2000. Raise 200 feet of barrier to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 100 LF = \$2500. Replace 100ft. of rail. W-beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Remove Guardrail at \$10- per -Lin. Ft. for 30 LF = \$300. Remove impacted end treatment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_19.652_R_1.jpg

Barrier ID:	DEWA-0014-19.877-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	38.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	617		
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:	W-BEAM TANGENT 350	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	26.2	Lateral Offset (In.):	38.0	Road Grade (%):	0.90
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects greater than 12 in for a 24ft section that has been impacted. 100 ft is 1-3 in below 27 in design height.			
	Breaking and Cracking:	24 ft of rail has been impacted and bent. The supporting post was also bent.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-19.877-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	38.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3492
Brief Workorder:	Raise 100 feet of guardrail to 27 inch design height. Replace 1 post and a 24 foot section of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 100 LF = \$1000. Raise 100 ft of guardrail to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 24 LF = \$600. Replace Post at \$100- per -Each for 1 Post(s) = \$100. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_19.877_R_1.jpg

Barrier ID:	DEWA-0014-20.022-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	38.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	838		
Speed Limit (MPH):	35	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 FLARED 350 COMPLIANT	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM FLARED 350 COMPLIANT	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.3
Height (In.):	25.0	Lateral Offset (In.):	42.0	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height is between 1 and 3 in below 27 in design height along entire length.			
	Breaking and Cracking:	A 12 ft section of rail has been damaged from impact.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-20.022-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	38.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$16038
Brief Workorder:	Raise 838 feet of guardrail to 27 inch design height and replace 12 feet of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 838 LF = \$8380. Raise 838 feet of barrier to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 12 LF = \$300. Replace a 12 foot section 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.022_R_1.jpg

Barrier ID:	DEWA-0014-20.297-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	31.30		
Barrier Description					
Type:	CONCRETE BARRIER	Barrier Function:	TRAFFIC		
Barrier Material:	CONCRETE	Post Material:	N/A		
Blockout Type:	N/A	Length (ft.):	220		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	32	Width (In.):	6.0	Post Spacing (In.):	0.0
Height (In.):	30.0	Lateral Offset (In.):	14.6	Road Grade (%):	0.60
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height was 2 in below 32-in design height.			
	Breaking and Cracking:	No cracks greater than 1/4 in width observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No surface corrosion or spalling observed. No erosion or undermining around base observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0014-20.297-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:		31.30	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.297_L_1.jpg

Barrier ID:	DEWA-0014-20.307-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	27.00		
Barrier Description					
Type:	CONCRETE BARRIER	Barrier Function:	TRAFFIC		
Barrier Material:	CONCRETE	Post Material:	N/A		
Blockout Type:	N/A	Length (ft.):	49		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	32	Width (In.):	6.0	Post Spacing (In.):	0.0
Height (In.):	31.0	Lateral Offset (In.):	16.7	Road Grade (%):	0.70
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Entire barrier is 1 in below 32-in design height.			
	Breaking and Cracking:	No cracks greater than 1/4 in width observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No surface corrosion or spalling observed. No erosion or undermining around base observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0014-20.307-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:		27.00	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.307_L_1.jpg

Barrier ID:	DEWA-0014-20.325-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	27.00		
Barrier Description					
Type:	CONCRETE BARRIER	Barrier Function:	TRAFFIC		
Barrier Material:	CONCRETE	Post Material:	N/A		
Blockout Type:	N/A	Length (ft.):	80		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	32	Width (In.):	6.0	Post Spacing (In.):	0.0
Height (In.):	31.0	Lateral Offset (In.):	20.2	Road Grade (%):	0.60
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height is 31 in which is 1 in below 32-in design height.			
	Breaking and Cracking:	No cracks greater than 1/4 in width observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No surface corrosion or spalling observed. No erosion or undermining around base observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0014-20.325-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:		27.00	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.325_L_1.jpg

Barrier ID:	DEWA-0014-20.515-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	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.):	117		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	32.0	Lateral Offset (In.):	151.3	Road Grade (%):	0.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is 5 in above 27-in design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0014-20.515-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.515_R_1.jpg

Barrier ID:	DEWA-0014-20.613-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	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.):	155		
Speed Limit (MPH):	35	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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	31.7	Lateral Offset (In.):	115.6	Road Grade (%):	0.30
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height is between 4 and 5 in above 27 in design height along entire length.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-20.613-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.613_R_1.jpg

Barrier ID:	DEWA-0014-20.629-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	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.):	153		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	31.2	Lateral Offset (In.):	98.0	Road Grade (%):	0.30
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects greater than 12 in for 24 ft due to impact. Height ranges from 3 in to 5 in above 27 in design height.			
	Breaking and Cracking:	Two rails and two posts are bent from impact.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-20.629-L		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	21.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2502
Brief Workorder:	Replace 24 feet of rail and two posts.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 24 LF = \$600. Replace Post at \$100- per -Each for 2 Post(s) = \$200. 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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.629_L_1.jpg

Barrier ID:	DEWA-0014-20.907-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	35.20		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	298		
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 TURN DOWN	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	73.6
Height (In.):	26.2	Lateral Offset (In.):	75.0	Road Grade (%):	4.40
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is 0 - 1 in below 27-in design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-20.907-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:		35.20	
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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.907_R_1.jpg

Barrier ID:	DEWA-0014-20.908-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	Barrier Rating:	22.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	296		
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 Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TURN DOWN	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.3
Height (In.):	26.0	Lateral Offset (In.):	67.0	Road Grade (%):	4.20
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 twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0014-20.908-L				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.908_L_1.jpg

Barrier ID:	DEWA-0014-20.994-R				
Route Name:	US ROUTE 209				
Inspection Date:	10/08/2010	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.):	30		
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:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	34.0
Height (In.):	28.7	Lateral Offset (In.):	94.0	Road Grade (%):	0.00
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:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0014-20.994-R		
Route Name:	US ROUTE 209		
Inspection Date:	10/08/2010	Barrier Rating:	21.20

Repair Recommendations

Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action.				

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

Delaware Water Gap National Recreation Area

ROUTE 0014: US ROUTE 209

Barrier Condition Photos



DEWA_0014_20.994_R_1.jpg

Barrier ID:	DEWA-0015-0.855-L				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	19.80		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	78		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	149.0
Height (In.):	24.7	Lateral Offset (In.):	57.2	Road Grade (%):	1.40
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 1 to 4 in below 27 in design height along 50 ft of barrier.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0015-0.855-L		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	19.80

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2172
Brief Workorder:	Raise 50 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 50 LF = \$500. Raise 50 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.

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_0.855_L_1.jpg

Barrier ID:	DEWA-0015-0.864-L				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	21.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	170		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	125.3
Height (In.):	25.0	Lateral Offset (In.):	78.6	Road Grade (%):	4.20
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 40 ft of barrier and greater than 12 in for 100 ft. Height ranges from 4 in below 27 in design height to 1 in over.			
	Breaking and Cracking:	Two posts have been impacted and destroyed. Seven posts are laying on the ground. Excessive slack in both cables.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0015-0.864-L		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	21.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$22440
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts a flared end treatment and a transition section into W-beam.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 170 LF = \$850. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 110 LF = \$6600. SBT / Log Flared at \$5000- per -Each for 1 Unit(s) = \$5000. One end terminal Install Steel-Backed Timber W-beam transition at \$5000- per -each for 1 = \$5000. Install transition section into W-Beam. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_0.864_L_1.jpg

Barrier ID:	DEWA-0015-4.229-L				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	14.00		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	32		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	29.7	Lateral Offset (In.):	99.3	Road Grade (%):	0.20
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.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0015-4.229-L		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	14.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_4.229_L_1.jpg

Barrier ID:	DEWA-0015-5.382-L				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	32.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	35		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.3
Height (In.):	20.7	Lateral Offset (In.):	158.6	Road Grade (%):	3.10
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 4 - 8 in below 27-in design height.			
	Breaking and Cracking:	Cables were observed to have a moderate amount of slack. Approximately 4 in of sag between posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0015-5.382-L		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	32.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$9268
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 1 flared Steel-Backed Timber end treatment.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 35 LF = \$175. SBT / Log Flared at \$5000- per -Each for 1 Unit(s) = \$5000. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 5 LF = \$300. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_5.382_L_1.jpg

Barrier ID:	DEWA-0015-5.389-L				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	12.80		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	NON-TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	54		
Speed Limit (MPH):	35	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	104.0
Height (In.):	23.0	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection 6 - 12 in for 20 ft of barrier. Height ranges from 3 - 5 in below 27-in design height.			
	Breaking and Cracking:	Cables were observed to have a moderate amount of slack. Approximately 4 in of sag between posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0015-5.389-L		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	12.80

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$12606
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 1 flared Steel-Backed Timber end treatment.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 54 LF = \$270. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 54 LF = \$3240. SBT / Log Flared at \$5000- per -Each for 1 Unit(s) = \$5000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_5.389_L_1.jpg

Barrier ID:	DEWA-0015-5.399-L				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	29.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	40		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	115.0
Height (In.):	27.7	Lateral Offset (In.):	122.0	Road Grade (%):	2.40
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along entire length. Height meets or exceeds 27 in design height by 1 in throughout.			
	Breaking and Cracking:	Cables are not under tension and have approximately 6 in of sag between posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0015-5.399-L		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	29.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$9625
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 1 flared Steel-Backed Timber end treatment.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 40 LF = \$200. Remove 40 feet of guardrail SBT / Log Flared at \$5000- per -Each for 1 Unit(s) = \$5000. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 10 LF = \$600. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_5.399_L_1.jpg

Barrier ID:	DEWA-0015-5.407-L				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	25.70		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	85		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	76.3
Height (In.):	24.2	Lateral Offset (In.):	33.2	Road Grade (%):	2.40
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects between 6 and 12 in along 30 ft of guardrail. Height ranges from 2 to 7 in below 27 in design height along 70 ft of guardrail.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0015-5.407-L		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	25.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2392
Brief Workorder:	Raise and realign 70 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 70 LF = \$700. Raise 70 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.

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_5.407_L_1.jpg

Barrier ID:	DEWA-0015-5.432-L				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	44.90		
Barrier Description					
Type:	STONE MASONRY WITHOUT CONCRETE CORE WALL	Barrier Function:	TRAFFIC		
Barrier Material:	STONE	Post Material:	N/A		
Blockout Type:	N/A	Length (ft.):	55		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	24	Width (In.):	22.7	Post Spacing (In.):	0.0
Height (In.):	13.0	Lateral Offset (In.):	75.3	Road Grade (%):	5.10
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. 23 ft of barrier is 6 in below 24-in design height. 32 ft of barrier is collapsed; height is not applicable.			
	Breaking and Cracking:	32 ft of barrier is collapsed; some breaking may be due to impact. A metal reinforcing bar is protruding from barrier section.			
	Missing Elements:	32 feet of barrier is missing. Stones are piled up along this length but are not functioning as intended.			
	Corrosion and Weathering:	23-ft section of barrier that is intact is not missing mortar. Collapsed section may be partially due to aging.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0015-5.432-L		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	44.90

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$40618
Brief Workorder:	Raise guardwall 6-in. Remove and reset 32-ft. of stone masonry guardwall on concrete footer to adjacent 18-in. height.				
Workorder:	Remove & Reset Stone Masonry Guardwall at \$250- per -Cu. Ft. for 122 CF = \$30500. $[(2ft)(1.9ft)(32ft)] = 121.6 CF$. Structural Concrete at \$1000- per -Cu. Yd. for 2 CY = \$2000. $[(1.9ft)(0.5ft)(32ft)] / 27 = 1.1 CY$. Low Speed Traffic Control at \$1475- per -Day for 3 Day(s) = \$4425. 1 day removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_5.432_L_1.jpg

Barrier ID:	DEWA-0015-7.560-R				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	34.90		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	91		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	151.3
Height (In.):	19.5	Lateral Offset (In.):	55.7	Road Grade (%):	0.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height is 6-9 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0015-7.560-R		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	34.90

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2624
Brief Workorder:	Raise 91 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 91 LF = \$910. Raise 91 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.

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_7.560_R_1.jpg

Barrier ID:	DEWA-0015-7.561-L				
Route Name:	OLD MINE ROAD (NORTH SECTION)				
Inspection Date:	10/04/2010	Barrier Rating:	33.70		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	103		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	151.3
Height (In.):	21.7	Lateral Offset (In.):	33.2	Road Grade (%):	0.70
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 5 in to 6 in below 27 in design height.			
	Breaking and Cracking:	25 ft of rail has been impacted and are bent.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0015-7.561-L		
Route Name:	OLD MINE ROAD (NORTH SECTION)		
Inspection Date:	10/04/2010	Barrier Rating:	33.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3443
Brief Workorder:	Raise 103 feet of barrier to 27 inch design height. Replace 25 feet of W-beam.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 103 LF = \$1030. Raise 103ft. of barrier up to 27-in. design height. Replace Rail at \$25- per -Lin. Ft. for 25 LF = \$625 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.

Delaware Water Gap National Recreation Area

ROUTE 0015: OLD MINE ROAD (NORTH SECTION)

Barrier Condition Photos



DEWA_0015_7.561_L_1.jpg

Barrier ID:	DEWA-0100-0.006-L				
Route Name:	BLUE MOUNTAIN LAKE ROAD				
Inspection Date:	10/01/2010	Barrier Rating:	31.30		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	75		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	23.7	Lateral Offset (In.):	29.0	Road Grade (%):	7.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is 3 to 4 in below design height of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0100-0.006-L		
Route Name:	BLUE MOUNTAIN LAKE ROAD		
Inspection Date:	10/01/2010	Barrier Rating:	31.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2448
Brief Workorder:	Raise 75 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 75 LF = \$750. Raise 75ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0100: BLUE MOUNTAIN LAKE ROAD

Barrier Condition Photos



DEWA_0100_0.006_L_1.JPG

Barrier ID:	DEWA-0100-0.007-R				
Route Name:	BLUE MOUNTAIN LAKE ROAD				
Inspection Date:	10/01/2010	Barrier Rating:	14.00		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	38		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.5
Height (In.):	28.2	Lateral Offset (In.):	49.0	Road Grade (%):	1.80
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is 1 in below at or up to 3 in above the 27 in design height.			
	Breaking and Cracking:	Impact zone to 13 ft of rail and one post.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0100-0.007-R		
Route Name:	BLUE MOUNTAIN LAKE ROAD		
Inspection Date:	10/01/2010	Barrier Rating:	14.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2090
Brief Workorder:	Replace 13 feet of rail and 1 post.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 13 LF = \$325. Replace 13 foot section of w-beam. Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace one impacted galvanized steel 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.

Delaware Water Gap National Recreation Area

ROUTE 0100: BLUE MOUNTAIN LAKE ROAD

Barrier Condition Photos



DEWA_0100_0.007_R_1.JPG

Barrier ID:	DEWA-0100-0.178-L				
Route Name:	BLUE MOUNTAIN LAKE ROAD				
Inspection Date:	10/01/2010	Barrier Rating:	56.40		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	415		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	149.3
Height (In.):	17.6	Lateral Offset (In.):	26.6	Road Grade (%):	4.90
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 9 to 10 in from the design of 27 in for 415 linear ft.			
	Breaking and Cracking:	Minor impact zone possibly from a fallen tree 1-3 in of bending.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0100-0.178-L		
Route Name:	BLUE MOUNTAIN LAKE ROAD		
Inspection Date:	10/01/2010	Barrier Rating:	56.40

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$7810
Brief Workorder:	Raise 415 ft of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 415 LF = \$4150. Entire length needs raised 10 inches or less 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.

Delaware Water Gap National Recreation Area

ROUTE 0100: BLUE MOUNTAIN LAKE ROAD

Barrier Condition Photos



DEWA_0100_0.178_L_1.JPG

Barrier ID:	DEWA-0100-0.267-L				
Route Name:	BLUE MOUNTAIN LAKE ROAD				
Inspection Date:	10/01/2010	Barrier Rating:	78.60		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	763		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	18.2	Lateral Offset (In.):	18.2	Road Grade (%):	11.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 6 to 11 in from the design of 27 in.			
	Breaking and Cracking:	No breaking or cracking observed. 13 ft of bent rail at impact zone.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0100-0.267-L		
Route Name:	BLUE MOUNTAIN LAKE ROAD		
Inspection Date:	10/01/2010	Barrier Rating:	78.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$15240
Brief Workorder:	Raise 763 feet of barrier to 27 inch design height. Replace 13 feet of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 763 LF = \$7630. Raise 763ft. of barrier to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 13 LF = \$325. Replace 13ft. of bent 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.

Delaware Water Gap National Recreation Area

ROUTE 0100: BLUE MOUNTAIN LAKE ROAD

Barrier Condition Photos



DEWA_0100_0.267_L_1.JPG

Barrier ID:	DEWA-0104-0.000-L				
Route Name:	UPPER RIDGE ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	14.10		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	WEATHERING STEEL/CORTEN	Post Material:	GALVANIZED STEEL		
Blockout Type:	PLASTIC	Length (ft.):	80		
Speed Limit (MPH):	35	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM TANGENT 350	Ending End Trtmt Crashworthy?:	YES		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	72.6
Height (In.):	29.0	Lateral Offset (In.):	40.0	Road Grade (%):	4.10
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height is above design height for barrier length (27 in) by 1 to 4 in.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0104-0.000-L		
Route Name:	UPPER RIDGE ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	14.10

Repair Recommendations

Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0104: UPPER RIDGE ROAD

Barrier Condition Photos



DEWA_0104_0.000_L_1.jpg

Barrier ID:	DEWA-0105-1.054-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	45.00		
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.):	133		
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-3	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	17.5	Lateral Offset (In.):	33.2	Road Grade (%):	2.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The entire barrier was 8-11 in below design height (27 in).			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	4 reflectors were missing from the barrier.			
	Corrosion and Weathering:	Erosion at the base of the posts has caused the barrier to deflect when pushed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-1.054-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	45.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3526
Brief Workorder:	Raise 133 feet of barrier to 27 inch design height and monitor the erosion at the base of the posts.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 133 LF = \$1330. Raise 133ft. of barrier to 27-in. design height. Barrier Reflectors at \$100- per -Each for 4 Unit(s) = \$400. Replace 4 missing 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_1.054_R_1.jpg

Barrier ID:	DEWA-0105-1.067-L				
Route Name:	RIVER ROAD				
Inspection Date:	10/05/2010	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.):	41		
Speed Limit (MPH):	30	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:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.5
Height (In.):	24.7	Lateral Offset (In.):	11.1	Road Grade (%):	2.70
Physical Condition					
Barrier	Alignment and Height:	2 rails were deflected approximately 6 in. 10 ft of barrier is 1 to 3 in below 27 in design height. 20 ft of barrier is 3 to 4 in below 27 in design height.			
	Breaking and Cracking:	No breaks or cracks were observed.			
	Missing Elements:	There were 2 reflectors observed to be missing.			
	Corrosion and Weathering:	About 4 bolts are loose at one location due to twisting of steel.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-1.067-L		
Route Name:	RIVER ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	32.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2239
Brief Workorder:	Raise 30 feet of barrier to 27 inch design height and tighten loose bolts.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 30 LF = \$300. Raise 30 feet of barrier to 27 inch design height. Barrier Reflectors at \$100- per -Each for 2 Unit(s) = \$200. Replace 2 missing barrier reflectors. Labor at \$60- per -Hour for 1 Hrs = \$60. Tighten loose bolts. 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_1.067_L_1.jpg

Barrier ID:	DEWA-0105-2.847-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	55.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	949		
Speed Limit (MPH):	30	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	188.0
Height (In.):	19.0	Lateral Offset (In.):	39.7	Road Grade (%):	0.90
Physical Condition					
Barrier	Alignment and Height:	4 individual posts were observed to be bent. The cables had no tension. The barrier height was more than 3 in below the 27 in design height for the entire length ranging from 16 to 21.5 in.			
	Breaking and Cracking:	No breaking or cracking was observed in the posts and the cables were not frayed broken or severed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	The upper cable was showing severe rust.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-2.847-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	55.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$87874
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 949 LF = \$4745. Remove 949 feet of Two-Strand Cable guardrail. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Install two 30 foot Steel-Backed Timber Flared end treatments. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 889 LF = \$53340. Install 889 feet of Steel-Backed Timber guardrail without blockout. Low Speed Traffic Control at \$1475- per -Day for 8 Day(s) = \$11800. 4 days removal and 4 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_2.847_R_1.jpg

Barrier ID:	DEWA-0105-3.402-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	59.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	983		
Speed Limit (MPH):	30	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	HIGH				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	183.1
Height (In.):	17.7	Lateral Offset (In.):	24.0	Road Grade (%):	1.80
Physical Condition					
Barrier	Alignment and Height:	10 posts were observed to be bent. The cables had little tension. The entire barrier was 7 to 12 in below design height (27 in). A 30 ft section was deflected 1 ft.			
	Breaking and Cracking:	No breaking or cracking observed in the posts. No fraying breaking or severing of cables observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Sections of the cables were rusting.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-3.402-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	59.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$90304
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 983 LF = \$4915. Remove 983 ft of 2 strand cable. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Install 2 flared steel backed timber end treatments. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 923 LF = \$55380. Install 923 ft of steel backed timber without blockouts Low Speed Traffic Control at \$1475- per -Day for 8 Day(s) = \$11800. 4 days removal and 4 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_3.402_R_1.jpg

Barrier ID:	DEWA-0105-3.596-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	38.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	373		
Speed Limit (MPH):	30	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	184.6
Height (In.):	15.5	Lateral Offset (In.):	33.7	Road Grade (%):	5.40
Physical Condition					
Barrier	Alignment and Height:	Cables had very little tension throughout. 6 posts were bent and twisted. Entire barrier is 7.5 to 16 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed in posts. No fraying breaking or severing of cables observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Cables had no losses more than 5% of cross section. Posts had signs of severe rusting.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-3.596-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	38.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$40200
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 373 LF = \$1865. Remove 373 feet of 2-strand cable barrier. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Install 2 SBT flared end terminals. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 313 LF = \$18780. Install 313 of Steel-Backed Timber w/o blockouts guardrail. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_3.596_R_1.jpg

Barrier ID:	DEWA-0105-3.676-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	45.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	639		
Speed Limit (MPH):	30	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	181.0
Height (In.):	17.0	Lateral Offset (In.):	21.2	Road Grade (%):	1.60
Physical Condition					
Barrier	Alignment and Height:	5 posts were bent and several posts were out of the ground. 110 ft of barrier was laying on the ground. The cables have no tension. The barrier height was 3.5 to 15.5 in below the 27 in design height for the entire length.			
	Breaking and Cracking:	No breaking or cracking was observed in the posts. The cables were disconnected in two places.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	The posts and cables were showing rust.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-3.676-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	45.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$62464
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 639 LF = \$3195. Remove 639 feet of cable guardrail. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Install 2 Steel-Backed Timber Flared end treatments. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 579 LF = \$34740. Install 579 feet of steel backed timer guardrail without blockout. Low Speed Traffic Control at \$1475- per -Day for 6 Day(s) = \$8850. 3 days removal and 3 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_3.676_R_1.jpg

Barrier ID:	DEWA-0105-3.950-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	42.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	608		
Speed Limit (MPH):	30	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	192.0
Height (In.):	18.3	Lateral Offset (In.):	26.8	Road Grade (%):	2.50
Physical Condition					
Barrier	Alignment and Height:	4 posts were bent and the cable was sagging. The entire barrier was 7 to 10 in below design height (27 in).			
	Breaking and Cracking:	No posts were cracked or broken. No fraying breaking or severing of cables observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Cables had rust but less than 5% of cable cross section was lost.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-3.950-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	42.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$60247
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 608 LF = \$3040. Remove 608 ft of 2 strand cable. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Install 2 Steel-Backed Timber end treatments. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 548 LF = \$32880. Install 548 ft of SBT. Low Speed Traffic Control at \$1475- per -Day for 6 Day(s) = \$8850. 3 days removal and 3 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_3.950_R_1.jpg

Barrier ID:	DEWA-0105-4.075-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	46.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	495		
Speed Limit (MPH):	30	Placement with Respect to Road:	BOTH INSIDE AND OUTSIDE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	185.3
Height (In.):	15.8	Lateral Offset (In.):	30.7	Road Grade (%):	7.50
Physical Condition					
Barrier	Alignment and Height:	There was no tension in either cable. No posts were bent. Entire barrier is 8 to 14 in below 27 in design height.			
	Breaking and Cracking:	There were no cracked or broken posts. The cable is separated from the posts for a 20 ft section.			
	Missing Elements:	There were no elements observed to be missing.			
	Corrosion and Weathering:	There was no loss of cable cross section. Erosion around posts has only exposed 1 to 2 in of post below original ground line.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-4.075-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	46.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$48922
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 495 LF = \$2475. Remove 495 feet of 2-strand cable barrier. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Install 2 Steel-Backed Timber flared end terminals. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 435 LF = \$26100. Install 435ft. of Steel-Backed Timber w/o blockouts. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_4.075_R_1.jpg

Barrier ID:	DEWA-0105-4.268-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	49.50		
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.):	606		
Speed Limit (MPH):	30	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.5
Height (In.):	24.1	Lateral Offset (In.):	40.0	Road Grade (%):	3.60
Physical Condition					
Barrier	Alignment and Height:	A 90 ft section was deflected more than 18 in due to impact. No other deflections were observed. The barrier height was within 1 in of the 27 in design height for 30 ft between 1 and 3 in below for 50 ft, and more than 3 in below for 506 ft.			
	Breaking and Cracking:	No impact related breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No erosion or loss of cross section was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No erosion or loss of cross section was observed.			

Barrier ID:	DEWA-0105-4.268-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	49.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$11314
Brief Workorder:	Raise 586 feet of guardrail to the 27 inch design height and correct for horizontal deflection deficiencies.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 586 LF = \$5860. Raise 586 feet of guardrail to 27-in. design height and correct horizontal deflection deficiencies. 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_4.268_R_1.jpg

Barrier ID:	DEWA-0105-4.761-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	41.00		
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.):	597		
Speed Limit (MPH):	30	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	23.7	Lateral Offset (In.):	29.1	Road Grade (%):	0.40
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 327 ft of the barrier was between 1 and 3 in below design height (27 ines). 270 ft of the barrier was 3 to 4.5 ines below design height (27 ines).			
	Breaking and Cracking:	1 rail showed signs of impact and a damaged blockout.			
	Missing Elements:	10 reflectors on the barrier were broke and missing.			
	Corrosion and Weathering:	Loss of less than 5% of cross section observed. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-4.761-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	41.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$12568
Brief Workorder:	Raise 597 feet of barrier to 27 inch design height and replace 1 blockout.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 597 LF = \$5970. Raise 597ft. of guardrail to 27 inch design height. Replace Block at \$30- per -Each for 1 Block(s) = \$30. Replace one broken block out Barrier reflectors @ \$100 Each for 10 = \$1000. Replace 10 missing barrier reflectors. 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_4.761_R_1.jpg

Barrier ID:	DEWA-0105-4.881-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	46.50		
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.):	302		
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:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	22.0	Lateral Offset (In.):	19.5	Road Grade (%):	15.00
Physical Condition					
Barrier	Alignment and Height:	40 ft of barrier was deflected up to 16 in due to impact. 237 ft of barrier is more than 3 in below 27 in design height. 30 ft of barrier is 1 to 3 in below 27 in design height.			
	Breaking and Cracking:	There were 3 consecutive blockouts observed to be broken. There were 3 consecutive rails with surface cracking possibly caused by plowing. 20 ft of rail was broken due to impact.			
	Missing Elements:	There were no elements observed to be missing.			
	Corrosion and Weathering:	Loss of less than 5% of cross section observed. Erosion around posts exposed 1 to 2 in of post below original ground line.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Loss of less than 5% of cross section observed.			

Barrier ID:	DEWA-0105-4.881-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	46.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$6941
Brief Workorder:	Raise 247 feet of barrier to 27 inch design height. Replace 3 blocks 3 posts and 20 feet of impacted rails.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 247 LF = \$2470. Raise 247 feet of barrier to 27 inch design height. 267ft - 20ft (rails being replaced). Replace Block at \$30- per -Each for 3 Block(s) = \$90. Replace 3 broken blockouts. Replace Post at \$100- per -Each for 3 Post(s) = \$300. Replace 3 damaged posts at impacted area. Replace Rail at \$25- per -Lin. Ft. for 20 LF = \$500. Replace 20 feet of impacted rails. 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_4.881_R_1.jpg

Barrier ID:	DEWA-0105-5.034-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	35.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	312		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	197.6
Height (In.):	17.5	Lateral Offset (In.):	59.7	Road Grade (%):	9.60
Physical Condition					
Barrier	Alignment and Height:	4 consecutive posts were bent and the cables had very little tension causing sagging. The barrier height was 3.5 to 13 in below the 27 in design height for the entire length.			
	Breaking and Cracking:	No posts were cracked or broken. No fraying breaking or severing of cables observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	The cables were showing rust but less than 5 percent of the cable cross section was deteriorated.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-5.034-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	35.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$36498
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 312 LF = \$1560. Remove 312 feet of cable guardrail. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Install 2 SBT Flared end treatments. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 262 LF = \$15720. Install 262 feet of SBT guardrail without blockouts. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_5.034_R_1.jpg

Barrier ID:	DEWA-0105-5.267-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	43.70		
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.):	353		
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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.1
Height (In.):	21.7	Lateral Offset (In.):	17.0	Road Grade (%):	2.60
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The entire barrier was 4-7 in below design height (27 in).			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	4 reflectors on the barrier were broke and missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section was observed. No erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section was observed.			

Barrier ID:	DEWA-0105-5.267-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	43.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$7568
Brief Workorder:	Raise 353-ft. of barrier up to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 353 LF = \$3530. Raise 353 ft of guardrail to 27-in. design height. Barrier reflectors @ \$100 Each for 4 = \$400. Replace 4 missing barrier reflectors. 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_5.267_R_1.jpg

Barrier ID:	DEWA-0105-5.344-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	41.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	338		
Speed Limit (MPH):	30	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.1
Height (In.):	23.7	Lateral Offset (In.):	37.0	Road Grade (%):	6.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. 110 ft of barrier is 1 to 3 in below 27 in design height. 190 ft of barrier is more than 3 in below 27 in design height.			
	Breaking and Cracking:	There was 30 ft of rail with cracking and rotting up to 2 in width. 1 blockout is broken in half.			
	Missing Elements:	There were no elements observed to be missing.			
	Corrosion and Weathering:	The 3 rails that were rotted had a loss of about 15% of cross section. Otherwise the barrier had less than 5% loss of cross section.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Loss of less than 5% of cross section observed.			

Barrier ID:	DEWA-0105-5.344-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	41.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$7106
Brief Workorder:	Replace 30 feet of rail and 1 blockout. Raise 273 feet of barrier to 27 inch design height.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 30 LF = \$750. Replace 30 feet of damaged rail. Replace Block at \$30- per -Each for 1 Block(s) = \$30. Replace 1 broken blockout. Adjust Guardrail at \$10- per -Lin. Ft. for 273 LF = \$2730. Raise 273ft 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_5.344_R_1.jpg

Barrier ID:	DEWA-0105-5.439-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	23.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	88		
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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.3
Height (In.):	24.0	Lateral Offset (In.):	18.2	Road Grade (%):	9.80
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in were observed in the alignment. The barrier height was between 1 in and 3 in below 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.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0105-5.439-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	23.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2150
Brief Workorder:	Raise 48 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 48 LF = \$480. Raise 48 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos

Condition photos are not available for DEWA-0105-5.439-R.

Barrier ID:	DEWA-0105-5.465-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	25.10		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	605		
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 Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.4
Height (In.):	27.2	Lateral Offset (In.):	23.2	Road Grade (%):	0.20
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 100 ft of the barrier was between 1 and 3 in below design height (27 in) while the remaining height was 1 in below to 2.5 in above.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed.			

Barrier ID:	DEWA-0105-5.465-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	25.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2722
Brief Workorder:	Raise 100 ft of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 100 LF = \$1000. Raise 100 ft of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos

Condition photos are not available for DEWA-0105-5.465-R.

Barrier ID:	DEWA-0105-5.748-R				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	25.20		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	212		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.1
Height (In.):	25.2	Lateral Offset (In.):	24.0	Road Grade (%):	5.70
Physical Condition					
Barrier	Alignment and Height:	No deflections in alignment observed. 142 ft of barrier is 1 to 3 in below 27 in design height. 70 ft of barrier is more than 3 in below 27 in design height.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0105-5.748-R		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	25.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3954
Brief Workorder:	Raise 212 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 212 LF = \$2120. Raise 212 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_5.748_R_1.jpg

Barrier ID:	DEWA-0105-5.801-L				
Route Name:	RIVER ROAD				
Inspection Date:	10/06/2010	Barrier Rating:	36.70		
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.):	176		
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 Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.1
Height (In.):	20.2	Lateral Offset (In.):	28.2	Road Grade (%):	7.20
Physical Condition					
Barrier	Alignment and Height:	A 30 ft section was observed to have approximately 12 in of horizontal deflection. No other deflections were observed. The barrier height was more than 3 in below the 27 in design height for the entire length down to 10.5 in below.			
	Breaking and Cracking:	No impact related breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section has been lost due to weathering. No erosion was observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5 percent of the cross section was lost due to weathering.			

Barrier ID:	DEWA-0105-5.801-L		
Route Name:	RIVER ROAD		
Inspection Date:	10/06/2010	Barrier Rating:	36.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3558
Brief Workorder:	Raise 176 feet of guardrail up to the 27 inch design height and to correct horizontal alignment deficiencies.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 176 LF = \$1760. Raise 176 feet of barrier to 27-in. design height and correct horizontal alignment deficiencies. 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.

Delaware Water Gap National Recreation Area

ROUTE 0105: RIVER ROAD

Barrier Condition Photos



DEWA_0105_5.801_L_1.jpg

Barrier ID:	DEWA-0106-0.006-R				
Route Name:	JAGER ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	33.40		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	18		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	144.0
Height (In.):	17.2	Lateral Offset (In.):	64.6	Road Grade (%):	3.20
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height is 9-10 in below the 27 in design height.			
	Breaking and Cracking:	A 4 ft section of barrier is damaged due to impact from a fallen tree.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0106-0.006-R		
Route Name:	JAGER ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	33.40

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2282
Brief Workorder:	Raise 18 feet of guardrail to 27 inch design height and replace 12 feet of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 18 LF = \$180. Raise 18ft. of guardrail to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 12 LF = \$300. Replace 12 feet of damaged rail. Labor at \$60- per -Hour for 2 Hrs = \$120. Remove brush and tree from 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.

Delaware Water Gap National Recreation Area

ROUTE 0106: JAGER ROAD

Barrier Condition Photos



DEWA_0106_0.006_R_1.jpg

Barrier ID:	DEWA-0106-0.167-L				
Route Name:	JAGER ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	40.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	N/A	Length (ft.):	62		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	123.3
Height (In.):	25.2	Lateral Offset (In.):	7.3	Road Grade (%):	8.60
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. 20 ft was between 1 and 3-in. below the 27-in. design height and 22 ft was more than 3-in. below the design height.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0106-0.167-L		
Route Name:	JAGER ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	40.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2084
Brief Workorder:	Raise 42 feet of barrier up to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 42 LF = \$420. Raise 42 feet of barrier up 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.

Delaware Water Gap National Recreation Area

ROUTE 0106: JAGER ROAD

Barrier Condition Photos



DEWA_0106_0.167_L_1.jpg

Barrier ID:	DEWA-0106-0.177-R				
Route Name:	JAGER ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	31.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITHOUT BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	N/A	Length (ft.):	133		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	124.0
Height (In.):	24.2	Lateral Offset (In.):	10.0	Road Grade (%):	5.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is 2 - 3 in below 27-in design height along entire length.			
	Breaking and Cracking:	No impact related breaking or cracking was observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0106-0.177-R		
Route Name:	JAGER ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	31.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3086
Brief Workorder:	Raise 133 feet of guardrail to 27-inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 133 LF = \$1330. Raise 133ft. of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0106: JAGER ROAD

Barrier Condition Photos



DEWA_0106_0.177_R_1.jpg

Barrier ID:	DEWA-0109-0.047-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	26.60		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	182		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	25.2	Lateral Offset (In.):	21.0	Road Grade (%):	6.30
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 120 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.047-R		
Route Name:	NPS 602		
Inspection Date:	10/07/2010	Barrier Rating:	26.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2942
Brief Workorder:	Raise 120 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 120 LF = \$1200. Raise 120ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.047_R_1.JPG

Barrier ID:	DEWA-0109-0.048-L				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	29.30		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	180		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.3
Height (In.):	26.6	Lateral Offset (In.):	32.2	Road Grade (%):	5.10
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.048-L		
Route Name:	NPS 602		
Inspection Date:	10/07/2010	Barrier Rating:	29.30

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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.048_L_1.JPG

Barrier ID:	DEWA-0109-0.075-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	16.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	90		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	111.5
Height (In.):	28.0	Lateral Offset (In.):	65.3	Road Grade (%):	8.20
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is 1 in or less below at or above the design of 27 in by up to 4 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.075-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:		16.50	
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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.075_R_1.JPG

Barrier ID:	DEWA-0109-0.191-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	25.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	155		
Speed Limit (MPH):	40	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:	W-BEAM BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	25.2	Lateral Offset (In.):	28.6	Road Grade (%):	9.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 72 ft. The remaining height ranges from 1 in below to 1 in above the 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	No deflections observed in alignment. The height is low by 3 to 5 in from 27 in design at both ends.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.191-R		
Route Name:	NPS 602		
Inspection Date:	10/07/2010	Barrier Rating:	25.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2722
Brief Workorder:	Raise 100 feet of barrier to 27 inch design height				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 100 LF = \$1000. Raise 100ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.191_R_1.JPG

Barrier ID:	DEWA-0109-0.201-L				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	30.70		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	100		
Speed Limit (MPH):	40	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:	W-BEAM BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	77.6
Height (In.):	27.7	Lateral Offset (In.):	62.7	Road Grade (%):	9.10
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 in or less below at or above 27 in design height by up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	No deflections observed in alignment. 20 ft of the ending end is more than 3 in below the 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.201-L		
Route Name:	NPS 602		
Inspection Date:	10/07/2010	Barrier Rating:	30.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1842
Brief Workorder:	Raise 20 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 20 LF = \$200. Raise 20 feet of barrier up 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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.201_L_1.JPG

Barrier ID:	DEWA-0109-0.252-L				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	31.30		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	320		
Speed Limit (MPH):	40	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 BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	25.6	Lateral Offset (In.):	50.2	Road Grade (%):	13.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 50 ft and is 3 to 5 in below for 90 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment as designed. End treatment is greater than 3 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.252-L		
Route Name:	NPS 602		
Inspection Date:	10/07/2010	Barrier Rating:	31.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3162
Brief Workorder:	Raise 140 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 140 LF = \$1400. Raise 140 feet of barrier to 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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.252_L_1.JPG

Barrier ID:	DEWA-0109-0.276-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	21.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	130		
Speed Limit (MPH):	40	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.0
Height (In.):	16.6	Lateral Offset (In.):	66.5	Road Grade (%):	13.30
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is deflected more than 12 in. The height is low by 6 to 16 in from the design of 27 in.			
	Breaking and Cracking:	6 broken posts observed.			
	Missing Elements:	6 posts observed missing.			
	Corrosion and Weathering:	Cables and posts had losses up to 25% of cross section. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0109-0.276-R		
Route Name:	NPS 602		
Inspection Date:	10/07/2010	Barrier Rating:	21.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$19580
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 130 LF = \$650. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 70 LF = \$4200. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.276_R_1.JPG

Barrier ID:	DEWA-0109-0.508-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	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.):	758		
Speed Limit (MPH):	40	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:	W-BEAM BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.5
Height (In.):	23.5	Lateral Offset (In.):	40.0	Road Grade (%):	13.70
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is 1 to 3 in below 27 in design height for 198 ft and is 3 to 4 in below for 560 ft.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment as designed. End treatments are more than 3 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.508-R		
Route Name:	NPS 602		
Inspection Date:	10/07/2010	Barrier Rating:	45.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$13206
Brief Workorder:	Raise 758 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 758 LF = \$7580. Raise 758ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.508_R_1.JPG

Barrier ID:	DEWA-0109-0.674-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	28.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	618		
Speed Limit (MPH):	40	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:	W-BEAM BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.1
Height (In.):	26.2	Lateral Offset (In.):	38.7	Road Grade (%):	13.80
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.674-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:		28.00	
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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.674_R_1.JPG

Barrier ID:	DEWA-0109-0.704-L				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	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.):	182		
Speed Limit (MPH):	40	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:	W-BEAM BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.5
Height (In.):	27.0	Lateral Offset (In.):	36.0	Road Grade (%):	13.50
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 1 in at or 1 in above the 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.704-L				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.704_L_1.JPG

Barrier ID:	DEWA-0109-0.798-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	27.00		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	180		
Speed Limit (MPH):	40	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:	W-BEAM BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.6
Height (In.):	26.2	Lateral Offset (In.):	41.0	Road Grade (%):	14.80
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is low by 3 to 5 in for 65 ft from the 27-in. design height. The remaining height is 0-3in. above the design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment as designed. Height is lower than 27 in design by 5 in at approach end.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-0.798-R		
Route Name:	NPS 602		
Inspection Date:	10/07/2010	Barrier Rating:	27.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2338
Brief Workorder:	Raise 65 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 65 LF = \$650. Raise 65ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_0.798_R_1.JPG

Barrier ID:	DEWA-0109-1.227-R				
Route Name:	NPS 602				
Inspection Date:	10/07/2010	Barrier Rating:	25.10		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	STEEL	Length (ft.):	278		
Speed Limit (MPH):	40	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:	W-BEAM BCT	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	75.0
Height (In.):	26.6	Lateral Offset (In.):	59.5	Road Grade (%):	2.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is greater than 3 in below 27 in design height for 25 ft with the majority of the barrier at or 1 in below the 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0109-1.227-R		
Route Name:	NPS 602		
Inspection Date:	10/07/2010	Barrier Rating:	25.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1898
Brief Workorder:	Raise 25 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 25 LF = \$250. Raise 25ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_1.227_R_1.JPG

Barrier ID:	DEWA-0109-1.388-R				
Route Name:	NPS 602				
Inspection Date:	10/06/2010	Barrier Rating:	35.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	102		
Speed Limit (MPH):	40	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	121.5
Height (In.):	17.6	Lateral Offset (In.):	39.2	Road Grade (%):	8.30
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is deflected up to 7 in. The height is low by 7 to 12 in from the design of 27 in.			
	Breaking and Cracking:	1 broken and cracked post.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	Cables and posts had losses up to 25% of cross section.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0109-1.388-R		
Route Name:	NPS 602		
Inspection Date:	10/06/2010	Barrier Rating:	35.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$17578
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 102 LF = \$510. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 42 LF = \$2520. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30 feet each. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_1.388_R_1.JPG

Barrier ID:	DEWA-0109-1.394-L				
Route Name:	NPS 602				
Inspection Date:	10/06/2010	Barrier Rating:	58.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	825		
Speed Limit (MPH):	40	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.0
Height (In.):	16.6	Lateral Offset (In.):	45.2	Road Grade (%):	10.40
Physical Condition					
Barrier	Alignment and Height:	Alignment is deflected up to 11 in. The height is low by 6 to 16 in from the design of 27 ines.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No breaking or cracking observed. No missing elements observed.			
	Corrosion and Weathering:	Cables and posts had losses up to 15% of cross section. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0109-1.394-L		
Route Name:	NPS 602		
Inspection Date:	10/06/2010	Barrier Rating:	58.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$79008
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 825 LF = \$4125. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 765 LF = \$45900. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. 30ft each Low Speed Traffic Control at \$1475- per -Day for 8 Day(s) = \$11800. 4 days removal and 4 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_1.394_L_1.JPG

Barrier ID:	DEWA-0109-1.569-L				
Route Name:	NPS 602				
Inspection Date:	10/06/2010	Barrier Rating:	8.50		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	NON-TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	26		
Speed Limit (MPH):	40	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.3
Height (In.):	26.6	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
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 breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0109-1.569-L				
Route Name:	NPS 602				
Inspection Date:	10/06/2010	Barrier Rating:		8.50	
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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_1.569_L_1.JPG

Barrier ID:	DEWA-0109-1.576-L				
Route Name:	NPS 602				
Inspection Date:	10/06/2010	Barrier Rating:	8.50		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	NON-TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	26		
Speed Limit (MPH):	40	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	28.0	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0109-1.576-L				
Route Name:	NPS 602				
Inspection Date:	10/06/2010	Barrier Rating:		8.50	
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.

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_1.576_L_1.JPG

Barrier ID:	DEWA-0109-1.580-L				
Route Name:	NPS 602				
Inspection Date:	10/06/2010	Barrier Rating:	33.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	280		
Speed Limit (MPH):	40	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.5
Height (In.):	22.2	Lateral Offset (In.):	40.5	Road Grade (%):	4.10
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is deflected up to 11 in. The height is low by 8 in or less from the design of 27 in.			
	Breaking and Cracking:	2 broken and cracked posts observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	Cables and posts had losses up to 25% of cross section. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0109-1.580-L		
Route Name:	NPS 602		
Inspection Date:	10/06/2010	Barrier Rating:	33.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$33550
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 280 LF = \$1400. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 220 LF = \$13200. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_1.580_L_1.JPG

Barrier ID:	DEWA-0109-1.686-R				
Route Name:	NPS 602				
Inspection Date:	10/06/2010	Barrier Rating:	26.60		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	151		
Speed Limit (MPH):	40	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	115.0
Height (In.):	25.6	Lateral Offset (In.):	45.5	Road Grade (%):	7.70
Physical Condition					
Barrier	Alignment and Height:	The barrier alignment is deflected up to 11 in. The height is low by 5 in or less from the design of 27 in.			
	Breaking and Cracking:	1 possible impact zone 4 posts were observed as breaking and cracking.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	Posts had losses up to 15% of cross section exposing rebar in some locations.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0109-1.686-R		
Route Name:	NPS 602		
Inspection Date:	10/06/2010	Barrier Rating:	26.60

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$21082
Brief Workorder:	Replace existing guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 151 LF = \$755. Remove old 2 strand cable barrier. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 91 LF = \$5460. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Install beginning end and ending end treatments. 30 feet each. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0109: NPS 602

Barrier Condition Photos



DEWA_0109_1.686_R_1.JPG

Barrier ID:	DEWA-0110-0.016-L				
Route Name:	POMPEY RIDGE ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	71.30		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	1491		
Speed Limit (MPH):	35	Placement with Respect to Road:	BOTH INSIDE AND OUTSIDE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.1
Height (In.):	22.2	Lateral Offset (In.):	33.4	Road Grade (%):	8.40
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height is 2 in above the 27 in design height to 1 in below for 200 ft between 1 to 3 in below for 200 ft and between 3 to 9 in below for 1091 ft.			
	Breaking and Cracking:	24 ft of barrier is damaged due to tree impact.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0110-0.016-L		
Route Name:	POMPEY RIDGE ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	71.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$24596
Brief Workorder:	Raise 1291 feet of barrier to 27 inch design height and replace 24 feet of rail.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 1291 LF = \$12910. Raise 1291 feet of barrier to 27 inch design height. Replace Rail at \$25- per -Lin. Ft. for 24 LF = \$600. Replace 24 feet of damaged rail. 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.

Delaware Water Gap National Recreation Area

ROUTE 0110: POMPEY RIDGE ROAD

Barrier Condition Photos



DEWA_0110_0.016_L_1.jpg

Barrier ID:	DEWA-0110-0.794-R				
Route Name:	POMPEY RIDGE ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	65.10		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	526		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	149.6
Height (In.):	20.0	Lateral Offset (In.):	20.2	Road Grade (%):	7.00
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 6 in to 8 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0110-0.794-R		
Route Name:	POMPEY RIDGE ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	65.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$10654
Brief Workorder:	Raise 526 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 526 LF = \$5260. Raise 526ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0110: POMPEY RIDGE ROAD

Barrier Condition Photos



DEWA_0110_0.794_R_1.jpg

Barrier ID:	DEWA-0110-0.970-R				
Route Name:	POMPEY RIDGE ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	40.20		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	40		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	TL-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	150.0
Height (In.):	17.0	Lateral Offset (In.):	27.2	Road Grade (%):	0.60
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is 9-10 in below 27-in design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0110-0.970-R		
Route Name:	POMPEY RIDGE ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	40.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2062
Brief Workorder:	Raise 40 feet of guardrail to 27-inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 40 LF = \$400. Raise 40 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0110: POMPEY RIDGE ROAD

Barrier Condition Photos



DEWA_0110_0.970_R_1.jpg

Barrier ID:	DEWA-0112ZZ-0.371-R				
Route Name:	JOHNNY BEE ROADS				
Inspection Date:	10/05/2010	Barrier Rating:	35.50		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	448		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE 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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	27.2	Lateral Offset (In.):	32.0	Road Grade (%):	5.80
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:	No impact related breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0112ZZ-0.371-R				
Route Name:	JOHNNY BEE ROADS				
Inspection Date:	10/05/2010	Barrier Rating:		35.50	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0112ZZ: JOHNNY BEE ROADS

Barrier Condition Photos



DEWA_0112ZZ_0.371_R_1.jpg

Barrier ID:	DEWA-0112ZZ-0.456-R				
Route Name:	JOHNNY BEE ROADS				
Inspection Date:	10/05/2010	Barrier Rating:	27.80		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	84		
Speed Limit (MPH):	35	Placement with Respect to Road:	INSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	94.1
Height (In.):	28.2	Lateral Offset (In.):	48.5	Road Grade (%):	2.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Entire barrier is less than 1 in below or exceeds 27 in design height by up to 4 in.			
	Breaking and Cracking:	No breaks or cracks were observed.			
	Missing Elements:	There were 3 bolts observed to be missing. There were 5 nuts/washers observed to be missing.			
	Corrosion and Weathering:	Barrier hardware is loose at 5 locations.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0112ZZ-0.456-R		
Route Name:	JOHNNY BEE ROADS		
Inspection Date:	10/05/2010	Barrier Rating:	27.80

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$66
Brief Workorder:	Replace 3 bolts and 5 nuts/washers and tighten loose hardware.				
Workorder:	Labor at \$60- per -Hour for 1 Hrs = \$60. Replace 3 bolts and 5 nuts/washers and tighten loose hardware.				

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

Delaware Water Gap National Recreation Area

ROUTE 0112ZZ: JOHNNY BEE ROADS

Barrier Condition Photos



DEWA_0112ZZ_0.456_R_1.jpg

Barrier ID:	DEWA-0112ZZ-0.475-L				
Route Name:	JOHNNY BEE ROADS				
Inspection Date:	10/05/2010	Barrier Rating:	26.70		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	43		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	95.8
Height (In.):	30.2	Lateral Offset (In.):	69.0	Road Grade (%):	5.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The entire barrier exceeded design height (27 in) by 1/2 in to 7 in.			
	Breaking and Cracking:	3 posts showed severe cracking.			
	Missing Elements:	All bolts are loose.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0112ZZ-0.475-L		
Route Name:	JOHNNY BEE ROADS		
Inspection Date:	10/05/2010	Barrier Rating:	26.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2018
Brief Workorder:	Replace 3 posts and tighten all the bolts on the barrier.				
Workorder:	Replace Post at \$100- per -Each for 3 Post(s) = \$300. Replace 3 posts due to cracking. Labor at \$60- per -Hour for 1 Hrs = \$60. 1 hour to tighten bolts. 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.

Delaware Water Gap National Recreation Area

ROUTE 0112ZZ: JOHNNY BEE ROADS

Barrier Condition Photos



DEWA_0112ZZ_0.475_L_1.jpg

Barrier ID:	DEWA-0113-0.094-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	42.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	688		
Speed Limit (MPH):	15	Placement with Respect to Road:	INSIDE OF CURVE		
Hazard Behind Barrier:	HIGH				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	127.0
Height (In.):	17.6	Lateral Offset (In.):	43.5	Road Grade (%):	2.60
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 350 ft. Height ranges from 3 to 14.5 in below 27 in design height. Cable has sufficient tension and no posts were observed to be bent.			
	Breaking and Cracking:	No breaking or cracking observed in posts. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-0.094-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	42.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$65967
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 688 LF = \$3440. Remove 688 feet of cable guardrail Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 628 LF = \$37680. Install 628 feet of new barrier. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 6 Day(s) = \$8850. 3 days removal and 3 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_0.094_R_1.jpg

Barrier ID:	DEWA-0113-0.226-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	24.00		
Barrier Description					
Type:	CONCRETE BARRIER	Barrier Function:	TRAFFIC		
Barrier Material:	CONCRETE	Post Material:	N/A		
Blockout Type:	N/A	Length (ft.):	464		
Speed Limit (MPH):	15	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	32	Width (In.):	6.0	Post Spacing (In.):	0.0
Height (In.):	31.0	Lateral Offset (In.):	12.6	Road Grade (%):	0.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height was 1 in below the 32 in design height throughout.			
	Breaking and Cracking:	No cracks greater than 1/4 in width observed. No broken pieces or exposed rebar observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	Less than 5% surface corrosion observed. No spalling erosion or undermining around base observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-0.226-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	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.

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_0.226_L_1.jpg

Barrier ID:	DEWA-0113-0.227-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	29.60		
Barrier Description					
Type:	W-BEAM STRONG POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	PLASTIC	Length (ft.):	454		
Speed Limit (MPH):	15	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	74.6
Height (In.):	24.7	Lateral Offset (In.):	12.6	Road Grade (%):	0.30
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is 1 - 3 in below 27-in design height along 300 ft.			
	Breaking and Cracking:	No twisting bending tears or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-0.227-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	29.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$6545
Brief Workorder:	Raise 300 feet of barrier to 27-inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 300 LF = \$3000. Raise 300ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_0.227_R_1.jpg

Barrier ID:	DEWA-0113-0.313-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	29.30		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	229		
Speed Limit (MPH):	15	Placement with Respect to Road:	INSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	130.6
Height (In.):	18.7	Lateral Offset (In.):	41.2	Road Grade (%):	0.20
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in for 100 ft of barrier. Height ranges from 7 in to 10 in below 27 in design height.			
	Breaking and Cracking:	Excessive amount of slack in cable. Cable is touching the ground along 40 ft.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-0.313-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	29.30

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$26658
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 229 LF = \$1145. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 169 LF = \$10140. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_0.313_R_1.jpg

Barrier ID:	DEWA-0113-0.572-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	35.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	484		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	122.6
Height (In.):	27.0	Lateral Offset (In.):	53.2	Road Grade (%):	0.90
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 100 ft and greater than 12 in for 250 ft of barrier. Height ranges from 2 in below 27 in design height to 2 in above.			
	Breaking and Cracking:	Five posts are broken and no longer effective. Top strand of cable is split in two places.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-0.572-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	35.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$48136
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 484 LF = \$2420. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 424 LF = \$25440. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_0.572_R_1.jpg

Barrier ID:	DEWA-0113-0.672-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	16.70		
Barrier Description					
Type:	STONE MASONRY WITHOUT CONCRETE CORE WALL	Barrier Function:	TRAFFIC		
Barrier Material:	STONE	Post Material:	N/A		
Blockout Type:	N/A	Length (ft.):	110		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	24	Width (In.):	17.2	Post Spacing (In.):	0.0
Height (In.):	33.7	Lateral Offset (In.):	53.2	Road Grade (%):	0.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Entire barrier exceeds assumed 32 in design height by up to 4 in.			
	Breaking and Cracking:	No cracks greater than 1/4 in width observed. No broken stones observed.			
	Missing Elements:	Sixty stones approximately 6 ins by 6 inches are missing throughout the barrier length at various locations.			
	Corrosion and Weathering:	No cracks in mortar erosion or undermining around base observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-0.672-L		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	16.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2590
Brief Workorder:	Repoint 2 square yards of stone masonry barrier and replace 60 stones.				
Workorder:	Re-Point Masonry Barrier at \$140- per -Sq. Yd. for 2 SY = \$280. 60 x .25 sq ft / 9 = 2 sq yards. Stones at \$10 per Each for 60 Unit(s) = \$600. Replace 60 stones. 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.

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_0.672_L_1.jpg

Barrier ID:	DEWA-0113-0.727-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	53.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	777		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.8
Height (In.):	18.0	Lateral Offset (In.):	37.0	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	Barrier is 6 - 12 in out of alignment along 110 ft. Entire barrier is 7 - 11 in below 27-in design height.			
	Breaking and Cracking:	20 posts are broken and have exposed rebar. Two posts are knocked down.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-0.727-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	53.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$75576
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 777 LF = \$3885. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 717 LF = \$43020. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 8 Day(s) = \$11800. 4 days removal and 4 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_0.727_R_1.jpg

Barrier ID:	DEWA-0113-0.882-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	48.40		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	513		
Speed Limit (MPH):	35	Placement with Respect to Road:	BOTH INSIDE AND OUTSIDE		
Hazard Behind Barrier:	HIGH				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	127.0
Height (In.):	17.5	Lateral Offset (In.):	40.7	Road Grade (%):	9.60
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 200 ft and greater than 12 in for 150 ft. Height ranges from 6 in to 13 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed in posts. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-0.882-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	48.40

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$53454
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 513 LF = \$2565. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 453 LF = \$27180. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 6 Day(s) = \$8850. 3 days removal and 3 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_0.882_R_1.jpg

Barrier ID:	DEWA-0113-1.046-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	44.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	487		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	131.0
Height (In.):	19.7	Lateral Offset (In.):	35.0	Road Grade (%):	2.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 150 ft of barrier. Height is 1-13 in below 27 in design height along entire barrier length.			
	Breaking and Cracking:	No breaking or cracking observed in posts. No fraying breaking or severing of cables observed.			
	Missing Elements:	Bottom cable along 50 feet of barrier has detached and is lying on the ground.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-1.046-L		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	44.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$48350
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 487 LF = \$2435. Remove 487 feet of cable guardrail Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 427 LF = \$25620. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_1.046_L_1.jpg

Barrier ID:	DEWA-0113-1.182-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	58.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	2034		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	127.3
Height (In.):	19.7	Lateral Offset (In.):	30.0	Road Grade (%):	2.00
Physical Condition					
Barrier	Alignment and Height:	150 ft of barrier is out of alignment by 6 - 12 in. 345 ft is deflected by more than 12 in. Height is 1 - 3 in below 27-in design height for 150 ft and 3 - 13 in below along the rest of the barrier.			
	Breaking and Cracking:	18 posts are broken and have exposed rebar.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-1.182-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	58.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$181676
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 2034 LF = \$10170. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 1974 LF = \$118440. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 18 Day(s) = \$26550. 9 days removal and 9 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_1.182_R_1.jpg

Barrier ID:	DEWA-0113-1.578-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	48.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	640		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	112.6
Height (In.):	19.2	Lateral Offset (In.):	34.2	Road Grade (%):	2.20
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 90 ft of barrier. Height ranges from 6.5 to 9 in below the 27 in design height along entire barrier length.			
	Breaking and Cracking:	No breaking or cracking observed in posts. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-1.578-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	48.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$52305
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/ blockouts and a flared end treatment.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 640 LF = \$3200. Remove 640 feet of cable guardrail. Steel-Backed Timber w/ Blockout at \$50- per -Lin. Ft. for 610 LF = \$30500. SBT / Log Flared at \$5000- per -Each for 1 Unit(s) = \$5000. Low Speed Traffic Control at \$1475- per -Day for 6 Day(s) = \$8850. 3 days removal and 3 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_1.578_R_1.jpg

Barrier ID:	DEWA-0113-1.699-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	34.20		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	228		
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:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.3
Height (In.):	24.7	Lateral Offset (In.):	30.2	Road Grade (%):	3.30
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is 1 - 3 in below 27-in design height throughout length.			
	Breaking and Cracking:	80 ft of rail is damaged from impact. Rails have 1-in longitudinal cracks and steel backing is deformed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0113-1.699-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	34.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$5142
Brief Workorder:	Replace 80 feet of rail and raise 120 feet of guardrail to 27-inch design height.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 80 LF = \$2000. Adjust Guardrail at \$10- per -Lin. Ft. for 120 LF = \$1200. Raise 120ft. of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_1.699_R_1.jpg

Barrier ID:	DEWA-0113-1.708-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	25.10		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	87		
Speed Limit (MPH):	35	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.6
Height (In.):	26.7	Lateral Offset (In.):	35.0	Road Grade (%):	2.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 1 in below 27 in design height to 1 in over.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0113-1.708-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:		25.10	
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.

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_1.708_L_1.jpg

Barrier ID:	DEWA-0113-1.763-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	42.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	362		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	121.3
Height (In.):	19.7	Lateral Offset (In.):	29.0	Road Grade (%):	2.40
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 250 ft of barrier. Height is between 4 and 12 in below 27 in design height along entire length.			
	Breaking and Cracking:	No breaking or cracking observed in posts. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-1.763-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	42.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$39413
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 362 LF = \$1810. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 302 LF = \$18120. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_1.763_R_1.jpg

Barrier ID:	DEWA-0113-1.958-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	62.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	1845		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	122.8
Height (In.):	22.7	Lateral Offset (In.):	39.5	Road Grade (%):	3.60
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 - 12 in for 500 ft and greater than 12 in for 1000 ft. Height drops as low as 9 in below 27 in design height.			
	Breaking and Cracking:	Two posts and 40 ft of cable is laying on the ground.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-1.958-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	62.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$164918
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 1845 LF = \$9225. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 1785 LF = \$107100. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 16 Day(s) = \$23600. 8 days removal and 8 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_1.958_R_1.jpg

Barrier ID:	DEWA-0113-2.416-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	58.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	1032		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.5
Height (In.):	20.3	Lateral Offset (In.):	43.0	Road Grade (%):	1.60
Physical Condition					
Barrier	Alignment and Height:	160 ft of barrier is out of alignment by 6 - 12 in. 380 ft is deflected by more than 12 in. Height is 4 - 9 in below 27-in design height.			
	Breaking and Cracking:	14 posts are broken and have exposed rebar.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-2.416-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	58.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$97053
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 1032 LF = \$5160. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 972 LF = \$58320. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 10 Day(s) = \$14750. 5 days removal and 5 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_2.416_R_1.jpg

Barrier ID:	DEWA-0113-2.702-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	44.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	550		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.3
Height (In.):	18.0	Lateral Offset (In.):	37.7	Road Grade (%):	1.40
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 150 ft of barrier. Height ranges from 5 to 11 in below the 27 in design height along the entire length.			
	Breaking and Cracking:	15 posts are broken down and have exposed rebar.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-2.702-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	44.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$56100
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 550 LF = \$2750. Remove 550 feet of cable guardrail Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 490 LF = \$29400. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 6 Day(s) = \$8850. 3 days removal and 3 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_2.702_R_1.jpg

Barrier ID:	DEWA-0113-2.946-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	50.90		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	689		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	128.0
Height (In.):	23.5	Lateral Offset (In.):	42.0	Road Grade (%):	5.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 150 ft and greater than 12 in for 400 ft. Height ranges from 1 in to 7 in below 27 in design height.			
	Breaking and Cracking:	First 30 ft section of barrier has been impacted and destroyed. Eighteen posts are cracked on top and showing rebar.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-2.946-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	50.90

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$66038
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 689 LF = \$3445. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 629 LF = \$37740. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 6 Day(s) = \$8850. 3 days removal and 3 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_2.946_R_1.jpg

Barrier ID:	DEWA-0113-3.691-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	28.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	217		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	123.6
Height (In.):	22.7	Lateral Offset (In.):	38.2	Road Grade (%):	4.90
Physical Condition					
Barrier	Alignment and Height:	150 ft of barrier is tipping backward out of alignment by more than 12 in. Barrier is 3 - 6 in below 27-in. design height			
	Breaking and Cracking:	No breaking or cracking was observed in posts. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-3.691-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	28.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$25800
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 217 LF = \$1085. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 157 LF = \$9420. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_3.691_R_1.jpg

Barrier ID:	DEWA-0113-3.896-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	35.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	478		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	123.3
Height (In.):	14.0	Lateral Offset (In.):	32.0	Road Grade (%):	2.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 300 ft of barrier. Height ranges from 9 to 17 in below the 27 in design height along entire length.			
	Breaking and Cracking:	No breaking or cracking observed in posts. No fraying breaking or severing of cables observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-3.896-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	35.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$47707
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 478 LF = \$2390. Remove 478 feet of cable guardrail Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 418 LF = \$25080. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_3.896_R_1.jpg

Barrier ID:	DEWA-0113-3.992-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/05/2010	Barrier Rating:	24.10		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	57		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	107.3
Height (In.):	19.2	Lateral Offset (In.):	47.7	Road Grade (%):	2.30
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 20 ft of barrier. Height ranges from 6 to 11 in below 27 in design height along entire barrier length.			
	Breaking and Cracking:	No breaking or cracking observed in posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-3.992-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/05/2010	Barrier Rating:	24.10

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$14558
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 57 LF = \$285. Remove 57 feet of cable guardrail SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_3.992_R_1.jpg

Barrier ID:	DEWA-0113-4.093-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	58.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	3005		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.5
Height (In.):	16.7	Lateral Offset (In.):	35.0	Road Grade (%):	3.00
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 1600 ft of barrier. Alignment deflects 6 to 12 in along 600 of barrier. Height ranges from 2 to 20 in below the 27 in design height.			
	Breaking and Cracking:	25 posts have broken and fallen down.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-4.093-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	58.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$264082
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 3005 LF = \$15025. Remove 3005 feet of guardrail Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 2945 LF = \$176700. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 26 Day(s) = \$38350. 13 days removal and 13 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_4.093_R_1.jpg

Barrier ID:	DEWA-0113-5.168-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	27.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	99		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	104.3
Height (In.):	20.2	Lateral Offset (In.):	35.7	Road Grade (%):	0.30
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 5 in to 8 in below 27 in design height.			
	Breaking and Cracking:	Excessive slack in bottom cable it is touching the ground for 10 ft.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-5.168-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	27.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$17364
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 99 LF = \$495. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 39 LF = \$2340. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_5.168_R_1.jpg

Barrier ID:	DEWA-0113-5.250-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	28.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	256		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.3
Height (In.):	21.0	Lateral Offset (In.):	48.2	Road Grade (%):	1.90
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is 4 - 8 in below 27-in design height throughout length.			
	Breaking and Cracking:	7 posts are broken and have exposed rebar.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-5.250-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	28.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$31834
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 256 LF = \$1280. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 196 LF = \$11760. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_5.250_R_1.jpg

Barrier ID:	DEWA-0113-5.324-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	58.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	2030		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	118.0
Height (In.):	19.7	Lateral Offset (In.):	34.2	Road Grade (%):	2.30
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 to 12 in along 700 ft of barrier. Alignment deflects more than 12 in along 1000 ft of barrier. Height ranges from 4 to 11 in below the 27 in design height along 1800 ft of barrier.			
	Breaking and Cracking:	One 30 ft section and one 70 ft section of barrier has fallen down due to tree impacts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-5.324-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	58.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$181390
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 2030 LF = \$10150. Remove 2030 feet of guardrail Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 1970 LF = \$118200. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 18 Day(s) = \$26550. 9 days removal and 9 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_5.324_R_1.jpg

Barrier ID:	DEWA-0113-6.268-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	31.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	244		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	98.3
Height (In.):	19.2	Lateral Offset (In.):	41.0	Road Grade (%):	9.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 40 ft and greater than 12 in for 150 ft. Height ranges from 3 in to 12 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed in posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-6.268-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	31.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$27731
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 244 LF = \$1220. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 184 LF = \$11040. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_6.268_R_1.jpg

Barrier ID:	DEWA-0113-6.326-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	35.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	408		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.3
Height (In.):	19.7	Lateral Offset (In.):	44.0	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	Alignment is off by 6 - 12 in over 80 ft and more than 12 in over 110 ft. Height is 6 - 10 in below 27-in design height along entire length.			
	Breaking and Cracking:	No breaking or cracking was observed in posts. No fraying breaking or severing in cables observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-6.326-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	35.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$42702
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 408 LF = \$2040. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 348 LF = \$20880. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_6.326_R_1.jpg

Barrier ID:	DEWA-0113-6.530-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	46.90		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	1718		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	123.9
Height (In.):	17.7	Lateral Offset (In.):	31.3	Road Grade (%):	2.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 1400 ft of barrier. Height ranges from 4 to 13 in below 27 in design height along entire length.			
	Breaking and Cracking:	50 ft of guardrail and 5 posts are broken and on the ground due to a fallen tree.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-6.530-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	46.90

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$152592
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 1718 LF = \$8590. Remove 1718 feet of cable guardrail. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 1658 LF = \$99480. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 14 Day(s) = \$20650. 7 days removal and 7 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_6.530_R_1.jpg

Barrier ID:	DEWA-0113-6.898-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	31.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	352		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	124.6
Height (In.):	20.0	Lateral Offset (In.):	26.0	Road Grade (%):	1.50
Physical Condition					
Barrier	Alignment and Height:	Barrier is out of alignment by 6 - 12 in along 200 ft and more than 12 in along 70 ft. Barrier is collapsed along 30 ft. Height is 5 - 9 in below 27-in design height along entire length.			
	Breaking and Cracking:	No breaking or cracking was observed in posts.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-6.898-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	31.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$38698
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 352 LF = \$1760. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 292 LF = \$17520. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_6.898_R_1.jpg

Barrier ID:	DEWA-0113-7.120-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	28.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	232		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	126.3
Height (In.):	16.7	Lateral Offset (In.):	28.7	Road Grade (%):	2.30
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 200 ft and greater than 12 in for 30 ft. Height ranges from 9 in to 12 in below 27 in design height.			
	Breaking and Cracking:	Three posts are cracked and showing rebar.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-7.120-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	28.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$26873
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 232 LF = \$1160. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 172 LF = \$10320. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_7.120_R_1.jpg

Barrier ID:	DEWA-0113-7.180-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	24.10		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	150		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	129.0
Height (In.):	18.7	Lateral Offset (In.):	44.0	Road Grade (%):	0.50
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 100 ft of barrier. Height ranges between 8 and 9 in below 27 in design height along entire length.			
	Breaking and Cracking:	2 posts have broken and fallen down.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-7.180-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	24.10

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$21010
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 150 LF = \$750. Remove 150 feet of cable guardrail. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 90 LF = \$5400. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_7.180_R_1.jpg

Barrier ID:	DEWA-0113-7.256-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	51.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	772		
Speed Limit (MPH):	35	Placement with Respect to Road:	BOTH INSIDE AND OUTSIDE		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	127.8
Height (In.):	18.5	Lateral Offset (In.):	33.5	Road Grade (%):	3.30
Physical Condition					
Barrier	Alignment and Height:	Height is 4 - 17 in below 27-in. design height along entire length. Alignment is off by 6 - 12 in for 190 ft and more than 12 in for 300 ft of which 130 ft has collapsed.			
	Breaking and Cracking:	10 posts are broken and have exposed rebar.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-7.256-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	51.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$75218
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 772 LF = \$3860. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 712 LF = \$42720. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 8 Day(s) = \$11800. 4 days removal and 4 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_7.256_R_1.jpg

Barrier ID:	DEWA-0113-7.408-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	24.10		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	171		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	125.0
Height (In.):	19.7	Lateral Offset (In.):	49.0	Road Grade (%):	2.30
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects more than 12 in along 100 ft of barrier. Height ranges between 4 and 11 in below 27 in design height along entire length.			
	Breaking and Cracking:	40 ft of barrier and 4 posts are broken and on the ground.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-7.408-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	24.10

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$22512
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 171 LF = \$855. Remove 171 feet of cable guardrail. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 111 LF = \$6660. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_7.408_R_1.jpg

Barrier ID:	DEWA-0113-7.411-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	32.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	45		
Speed Limit (MPH):	35	Placement with Respect to Road:	OUTSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	94.6
Height (In.):	18.2	Lateral Offset (In.):	74.3	Road Grade (%):	1.30
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 7 in to 11 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed in posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-7.411-L		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	32.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$14493
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 45 LF = \$225. (45ft)(\$5/ft) SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. (2)(\$5000) 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.

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_7.411_L_1.jpg

Barrier ID:	DEWA-0113-7.612-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	34.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	264		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	102.0
Height (In.):	13.6	Lateral Offset (In.):	33.7	Road Grade (%):	0.20
Physical Condition					
Barrier	Alignment and Height:	60 ft of barrier is collapsed. Deflection of remaining barrier is less than 6 in. Height ranges between 11 and 15 in below 27-in design height.			
	Breaking and Cracking:	2 posts are broken and have exposed rebar.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-7.612-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	34.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$32406
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 264 LF = \$1320. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 204 LF = \$12240. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_7.612_R_1.jpg

Barrier ID:	DEWA-0113-8.350-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	55.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	1140		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	123.5
Height (In.):	16.0	Lateral Offset (In.):	79.0	Road Grade (%):	0.30
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 700 ft and greater than 12 in for 150 ft. Height ranges from 9 in to 15 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No corrosion or weathering observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-8.350-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	55.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$111925
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 1240 LF = \$6200. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 1180 LF = \$70800. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 10 Day(s) = \$14750. 5 days removal and 5 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_8.350_R_1.jpg

Barrier ID:	DEWA-0113-8.566-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	15.50		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	NON-TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	125		
Speed Limit (MPH):	35	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.3
Height (In.):	27.2	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 7 in below 27 in design height to 5 in over.			
	Breaking and Cracking:	No breaking or cracking observed in posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-8.566-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	15.50

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$21202
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 125 LF = \$625. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 95 LF = \$5700. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_8.566_R_1.jpg

Barrier ID:	DEWA-0113-8.604-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	18.60		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	NON-TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	173		
Speed Limit (MPH):	35	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.0
Height (In.):	19.2	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects less than 3 in throughout barrier length. Height ranges between 7 and 9 in below 27 in design height along entire length.			
	Breaking and Cracking:	1 post is broken and has exposed rebar.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-8.604-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	18.60

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$19134
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and one flared end treatment. Tie in to adjacent traffic barrier.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 173 LF = \$865. Remove cable guardrail Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 143 LF = \$8580. SBT / Log Flared at \$5000- per -Each for 1 Unit(s) = \$5000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_8.604_R_1.jpg

Barrier ID:	DEWA-0113-8.637-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	35.00		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	501		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	121.6
Height (In.):	20.0	Lateral Offset (In.):	68.6	Road Grade (%):	2.30
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 to 12 in along 200 ft of barrier. Height ranges between 3 and 11 in below 27 in design height along entire length.			
	Breaking and Cracking:	11 posts are broken and have exposed rebar.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-8.637-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	35.00

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$45832
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and one flared end treatment. Tie into adjacent non-traffic barrier in the pullout.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 501 LF = \$2505. Remove cable guardrail Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 471 LF = \$28260. SBT / Log Flared at \$5000- per -Each for 1 Unit(s) = \$5000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_8.637_R_1.jpg

Barrier ID:	DEWA-0113-8.824-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	49.40		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	877		
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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	23.2	Lateral Offset (In.):	43.5	Road Grade (%):	0.90
Physical Condition					
Barrier	Alignment and Height:	250 ft of barrier is 3 - 12 in below 27-in design height. Remainder of barrier ranges from 1 in above to 3 in below the design height. 80ft. of barrier is out of alignment by 6 - 12 ines 140ft. is out of alignment by 12 ines or more.			
	Breaking and Cracking:	5 posts are broken and have exposed rebar.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-8.824-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	49.40

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$82726
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 877 LF = \$4385. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 817 LF = \$49020. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 8 Day(s) = \$11800. 4 days removal and 4 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_8.824_R_1.jpg

Barrier ID:	DEWA-0113-9.261-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	25.30		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	236		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	121.3
Height (In.):	20.2	Lateral Offset (In.):	58.0	Road Grade (%):	2.00
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects less than 6 in along entire length. Height ranges between 5 and 9 in below 27 in design height along entire length.			
	Breaking and Cracking:	No breaking or cracking observed in posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-9.261-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	25.30

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$27159
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 236 LF = \$1180. Remove cable guardrail. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 176 LF = \$10560. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_9.261_R_1.jpg

Barrier ID:	DEWA-0113-9.269-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	21.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	162		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.6
Height (In.):	21.7	Lateral Offset (In.):	74.3	Road Grade (%):	2.50
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 2 in to 8 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed in posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-9.269-L		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	21.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$21868
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 162 LF = \$810. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 102 LF = \$6120. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_9.269_L_1.jpg

Barrier ID:	DEWA-0113-9.329-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	21.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	190		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	122.3
Height (In.):	21.2	Lateral Offset (In.):	51.7	Road Grade (%):	1.00
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects 6 in to 12 in for 20 ft. Height ranges from 5 in to 6 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed in posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-9.329-L		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	21.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$23870
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 190 LF = \$950. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 130 LF = \$7800. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_9.329_L_1.jpg

Barrier ID:	DEWA-0113-9.330-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/06/2010	Barrier Rating:	25.30		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	232		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.3
Height (In.):	19.0	Lateral Offset (In.):	68.3	Road Grade (%):	1.20
Physical Condition					
Barrier	Alignment and Height:	Alignment deflects less than 6 in along entire length. Height ranges between 6 and 11 in below 27 in design height along entire length.			
	Breaking and Cracking:	2 posts are broken and on the ground.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-9.330-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/06/2010	Barrier Rating:	25.30

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$26873
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 232 LF = \$1160. Remove cable guardrail. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 172 LF = \$10320. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_9.330_R_1.jpg

Barrier ID:	DEWA-0113-9.458-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/07/2010	Barrier Rating:	30.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	291		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.6
Height (In.):	21.0	Lateral Offset (In.):	61.2	Road Grade (%):	1.10
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 5 in to 7 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed in posts.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-9.458-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/07/2010	Barrier Rating:	30.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$34336
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 291 LF = \$1455. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 231 LF = \$13860. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900. 2 days removal and 2 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_9.458_R_1.jpg

Barrier ID:	DEWA-0113-9.460-L				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/07/2010	Barrier Rating:	28.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	436		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	122.3
Height (In.):	23.0	Lateral Offset (In.):	61.2	Road Grade (%):	2.50
Physical Condition					
Barrier	Alignment and Height:	30 ft of barrier is tipping backwards out of alignment by more than 12 in. 220 ft of barrier is 3 - 6 in below 27-in design height. The rest of the barrier has no deflection and is 3 in below design height.			
	Breaking and Cracking:	1 post is broken and has exposed rebar.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0113-9.460-L		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/07/2010	Barrier Rating:	28.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$51194
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 436 LF = \$2180. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 376 LF = \$22560. SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Low Speed Traffic Control at \$1475- per -Day for 8 Day(s) = \$11800. 4 days removal and 4 days installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_9.460_L_1.jpg

Barrier ID:	DEWA-0113-9.524-R				
Route Name:	NPS ROUTE 615				
Inspection Date:	10/07/2010	Barrier Rating:	21.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	OTHER: CONCRETE		
Blockout Type:	N/A	Length (ft.):	101		
Speed Limit (MPH):	35	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-2	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	124.6
Height (In.):	21.0	Lateral Offset (In.):	58.2	Road Grade (%):	5.00
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges between 4 and 8 in below 27 in design height along entire length.			
	Breaking and Cracking:	1 post is broken and leaning over.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cable cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	NA			
	Breaking and Cracking:	NA			
	Missing Elements:	NA			
	Corrosion and Weathering:	NA			

Barrier ID:	DEWA-0113-9.524-R		
Route Name:	NPS ROUTE 615		
Inspection Date:	10/07/2010	Barrier Rating:	21.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$17506
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 2 flared Steel-Backed Timber end treatments.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 101 LF = \$505. Remove 101 feet of cable guardrail SBT / Log Flared at \$5000- per -Each for 2 Unit(s) = \$10000. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 41 LF = \$2460. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0113: NPS ROUTE 615

Barrier Condition Photos



DEWA_0113_9.524_R_1.jpg

Barrier ID:	DEWA-0115-0.005-R				
Route Name:	ICE HOUSE ROAD				
Inspection Date:	10/01/2010	Barrier Rating:	25.50		
Barrier Description					
Type:	W-BEAM WEAK POST	Barrier Function:	TRAFFIC		
Barrier Material:	GALVANIZED STEEL	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	175		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	W-BEAM TRAILING END	Is Beg. End Trtmt Crashworthy?:	YES	Approach Transition Type:	RIGID W-BEAM - W-BEAM
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	124.5
Height (In.):	26.5	Lateral Offset (In.):	30.2	Road Grade (%):	6.70
Physical Condition					
Barrier	Alignment and Height:	No deflections in alignment observed. 150 ft of barrier is 1 in or less below or exceeds 27 in design height by 1 in. 25 ft of barrier is 1 to 3 in below 27 in design height.			
	Breaking and Cracking:	No broken or cracked posts observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	2 posts had significant erosion around them which should be monitored.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaks or cracks were observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0115-0.005-R		
Route Name:	ICE HOUSE ROAD		
Inspection Date:	10/01/2010	Barrier Rating:	25.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1898
Brief Workorder:	Raise 25 feet of guardrail to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 25 LF = \$250. Raise 25 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0115: ICE HOUSE ROAD

Barrier Condition Photos



DEWA_0115_0.005_R_1.jpg

Barrier ID:	DEWA-0115-0.035-L				
Route Name:	ICE HOUSE ROAD				
Inspection Date:	10/01/2010	Barrier Rating:	22.20		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	42		
Speed Limit (MPH):	25	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	OTHER: 2-STRAND CABLE/RIGID
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	162.3
Height (In.):	20.2	Lateral Offset (In.):	28.7	Road Grade (%):	8.60
Physical Condition					
Barrier	Alignment and Height:	No posts were observed to be bent. The cables had sufficient tension. The barrier height was 4.5 to 9 in below the 27 in design height for the entire length.			
	Breaking and Cracking:	No breaking or cracking was observed in the posts and the cables were not frayed broken or severed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	The galvanized steel posts were showing rust.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0115-0.035-L		
Route Name:	ICE HOUSE ROAD		
Inspection Date:	10/01/2010	Barrier Rating:	22.20

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$7788
Brief Workorder:	Replace cable guardrail with W-beam weak-post guardrail and 1 W-beam non-flared/tangent end treatment.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 42 LF = \$210. Remove 42 feet of two-strand cable guardrail. W-Beam Weak Post at \$35- per -Lin. Ft. for 12 LF = \$420. Install 12ft. of W-beam weak post guardrail. W-beam tangent 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Install 1 end treatment. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0115: ICE HOUSE ROAD

Barrier Condition Photos



DEWA_0115_0.035_L_1.jpg

Barrier ID:	DEWA-0115-0.051-R				
Route Name:	ICE HOUSE ROAD				
Inspection Date:	10/01/2010	Barrier Rating:	23.70		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	82		
Speed Limit (MPH):	25	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	OTHER: 2-STRAND CABLE/RIGID
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	185.3
Height (In.):	17.7	Lateral Offset (In.):	53.7	Road Grade (%):	5.10
Physical Condition					
Barrier	Alignment and Height:	No bent posts were observed. Both cables are tensioned sufficiently. Entire barrier is 8 to 11 in below 27 in design height.			
	Breaking and Cracking:	No posts were observed to be broken or cracked. The cables were not frayed or broken.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Posts are showing signs of rusting but has not caused a loss of cross section. There were no losses of cable cross section observed. Sediment buildup observed causing 30 ft of lower cable to become buried.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0115-0.051-R		
Route Name:	ICE HOUSE ROAD		
Inspection Date:	10/01/2010	Barrier Rating:	23.70

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$9548
Brief Workorder:	Replace cable guardrail with W-beam weak post guardrail and 1 W-beam non-flared/tangent end treatment.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 82 LF = \$410. Remove 82 feet of 2-strand cable barrier. W-Beam Weak Post at \$35- per -Lin. Ft. for 52 LF = \$1820. Install 52ft. of W-beam weak post guardrail. W-beam tangent 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. Install 1 end treatment. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0115: ICE HOUSE ROAD

Barrier Condition Photos



DEWA_0115_0.051_R_1.jpg

Barrier ID:	DEWA-0115-0.053-L				
Route Name:	ICE HOUSE ROAD				
Inspection Date:	10/01/2010	Barrier Rating:	19.30		
Barrier Description					
Type:	OTHER: 2-STRAND CABLE	Barrier Function:	TRAFFIC		
Barrier Material:	CABLE	Post Material:	GALVANIZED STEEL		
Blockout Type:	N/A	Length (ft.):	40		
Speed Limit (MPH):	25	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	OTHER: 2-STRAND CABLE/RIGID
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	187.3
Height (In.):	21.0	Lateral Offset (In.):	105.0	Road Grade (%):	8.00
Physical Condition					
Barrier	Alignment and Height:	No posts were observed to be bent. The cables had no tension. The barrier was 4 to 8 in below the 27 in design height for the entire length.			
	Breaking and Cracking:	No breaking or cracking was observed in the posts and the cables were not frayed broken or severed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	The galvanized steel posts were showing rust.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0115-0.053-L		
Route Name:	ICE HOUSE ROAD		
Inspection Date:	10/01/2010	Barrier Rating:	19.30

Repair Recommendations

Repair Action:	REPLACE	FMSS Work Type:	CAPITAL IMPROVEMENT	Repair Cost:	\$9625
Brief Workorder:	Replace cable guardrail with Steel-Backed Timber w/o blockouts and 1 flared Steel-Backed Timber end treatment.				
Workorder:	Remove Cable Guardrail at \$5- per -Lin. Ft. for 40 LF = \$200. Remove 40 feet of two-strand cable guardrail. SBT / Log Flared at \$5000- per -Each for 1 Unit(s) = \$5000. Install a 30 foot SBT Flared end treatment. Steel-Backed Timber w/o Blockout at \$60- per -Lin. Ft. for 10 LF = \$600. Install 10 feet of SBT guardrail w/out blockout. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950. 1 day removal and 1 day installation.				

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

Delaware Water Gap National Recreation Area

ROUTE 0115: ICE HOUSE ROAD

Barrier Condition Photos



DEWA_0115_0.053_L_1.jpg

Barrier ID:	DEWA-0218-0.018-R				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	46.90		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	194		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	121.1
Height (In.):	22.7	Lateral Offset (In.):	25.5	Road Grade (%):	4.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 20 ft of the barrier was between 1 and 3 in below design height (27 in). 124 ft of the barrier was 3 to 8 in below design height (27 in).			
	Breaking and Cracking:	No impact related breaking or cracking was observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	1 post was severely eroded.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0218-0.018-R		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	46.90

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3316
Brief Workorder:	Raise 144 ft of the barrier to 27 inch design height and replace 1 post.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 144 LF = \$1440. Raise 144ft. of barrier up to 27-in. design height. Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace 1 post due to erosion. 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.

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.018_R_1.jpg

Barrier ID:	DEWA-0218-0.091-R				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	13.80		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	50		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.5
Height (In.):	36.7	Lateral Offset (In.):	57.2	Road Grade (%):	1.60
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 6 to 13 in.			
	Breaking and Cracking:	No breaks or cracks were observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0218-0.091-R		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	13.80

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2173
Brief Workorder:	Lower 50 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 50 LF = \$500. Lower 50ft. of barrier to 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.

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos

Condition photos are not available for DEWA-0218-0.091-R.

Barrier ID:	DEWA-0218-0.099-L				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	19.60		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	52		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	116.0
Height (In.):	28.2	Lateral Offset (In.):	33.0	Road Grade (%):	1.20
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in were observed in the alignment. The height ranged from 3.5 in above to 1 in below the 27 in design height for 32 ft and between 1 and 3 in below the design height for 20 ft.			
	Breaking and Cracking:	No impact related breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0218-0.099-L		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	19.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1842
Brief Workorder:	Raise 20 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 20 LF = \$200. Raise 20 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos

Condition photos are not available for DEWA-0218-0.099-L.

Barrier ID:	DEWA-0218-0.111-R				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	22.70		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	45		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.8
Height (In.):	37.0	Lateral Offset (In.):	38.2	Road Grade (%):	1.30
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Entire barrier exceeds 27 in design height by 9 to 11 in.			
	Breaking and Cracking:	No breaks or cracks were observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0218-0.111-R		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	22.70

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2118
Brief Workorder:	Lower 45 feet of barrier to 27-in. design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 45 LF = \$450. Lower 45ft. of barrier to 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.

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.111_R_1.jpg

Barrier ID:	DEWA-0218-0.118-L				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	29.60		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	275		
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.0
Height (In.):	26.2	Lateral Offset (In.):	23.7	Road Grade (%):	5.60
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in were observed in the alignment. The barrier height was equal to or 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.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0218-0.118-L		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	29.60

Repair Recommendations

Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.118_L_1.jpg

Barrier ID:	DEWA-0218-0.181-L				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	41.20		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	397		
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 Crashworthy?:	N/A	Approach Transition Type:	OTHER: SBT-SBT
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.6
Height (In.):	24.0	Lateral Offset (In.):	31.2	Road Grade (%):	1.70
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. 120 ft of the barrier was 1 to 3 in below design height (27 ines). 180 ft of the barrier was 3 to 5.5 ines below design height (27 ines).			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	1 bolt was missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0218-0.181-L		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	41.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$6611
Brief Workorder:	Raise 300 feet of the barrier to 27 inch design height replace 1 missing bolt.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 300 LF = \$3000. Raise 300ft. of barrier to 27 inch design height. Labor at \$60- per -Hour for 1 Hrs = \$60. 1 hour to replace missing bolt. 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.

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.181_L_1.jpg

Barrier ID:	DEWA-0218-0.247-R				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	26.70		
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.):	35		
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 Crashworthy?:	NO	Approach Transition Type:	OTHER: SBT-SBT
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	51.2
Height (In.):	23.7	Lateral Offset (In.):	23.7	Road Grade (%):	0.40
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. Barrier is end treatment for bridge approach so height transition is as designed.			
	Breaking and Cracking:	No breaks or cracks were observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height within 1 in of 27 in design height.			
	Breaking and Cracking:	No breaks or cracks were observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0218-0.247-R				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:		26.70	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.247_R_1.jpg

Barrier ID:	DEWA-0218-0.263-R				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	31.10		
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.):	90		
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-2	Is Barrier Crashworthy?:	YES
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	OTHER: SBT-SBT
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.1
Height (In.):	25.5	Lateral Offset (In.):	21.7	Road Grade (%):	3.10
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in observed in alignment. 60 ft of barrier is 1 to 3 in below 27 in design height. 30 ft of barrier is 1 in or less below 27 in design height.			
	Breaking and Cracking:	No breaks or cracks observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height within 1 in of 27 in design height.			
	Breaking and Cracking:	No breaks or cracks were observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0218-0.263-R		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	31.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2282
Brief Workorder:	Raise 60 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 60 LF = \$600. Raise 60 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.

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.263_R_1.jpg

Barrier ID:	DEWA-0218-0.265-L				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	22.70		
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.):	108		
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 Crashworthy?:	N/A	Approach Transition Type:	OTHER: SBT-SBT
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.8
Height (In.):	26.7	Lateral Offset (In.):	41.7	Road Grade (%):	2.40
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The entire barrier exceeded by 1 in or was within 1 in below design height (27 in).			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0218-0.265-L		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	22.70

Repair Recommendations

Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.265_L_1.jpg

Barrier ID:	DEWA-0218-0.489-R				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/05/2010	Barrier Rating:	35.40		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	357		
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:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.5
Height (In.):	27.7	Lateral Offset (In.):	22.7	Road Grade (%):	1.80
Physical Condition					
Barrier	Alignment and Height:	An approximately 18 in deflection was observed for 40 ft in the horizontal alignment. Otherwise no deflections greater than 6 in observed. The barrier height was 1 in greater than or equal to the 27 in design height for the entire length.			
	Breaking and Cracking:	A tree appears to have fallen on the guardrail and caused 20 ft of damage to one rail a post and two blockouts. No other impact related breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0218-0.489-R		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/05/2010	Barrier Rating:	35.40

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2789
Brief Workorder:	Adjust 40 feet of unaligned guardrail to the proper alignment and replace 20 feet of rail 1 post and 2 blocks.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 20 LF = \$500. Replace 20ft. of rail damaged by tree impact. Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace post damaged by tree impact. Replace Block at \$30- per -Each for 2 Block(s) = \$60. Replace 2 blockouts damaged by tree impact. Adjust Guardrail at \$10- per -Lin. Ft. for 40 LF = \$400. Adjust 40 feet of rail that is out of horizontal alignment. 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.

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.489_R_1.jpg

Barrier ID:	DEWA-0218-0.552-L				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	14.10		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	35		
Speed Limit (MPH):	15	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.0
Height (In.):	26.2	Lateral Offset (In.):	26.7	Road Grade (%):	0.40
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 10 ft and between 1 and 3 in below the design height for 15 ft.			
	Breaking and Cracking:	No impact related breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0218-0.552-L		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	14.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1788
Brief Workorder:	Raise 15 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 15 LF = \$150. Raise 15 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.552_L_1.jpg

Barrier ID:	DEWA-0218-0.566-R				
Route Name:	DINGMANS FALLS ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	28.30		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	GALVANIZED STEEL		
Blockout Type:	WOOD	Length (ft.):	88		
Speed Limit (MPH):	15	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 Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	120.6
Height (In.):	24.5	Lateral Offset (In.):	27.0	Road Grade (%):	5.30
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in observed in alignment. Barrier is 1 to 3 in below 27 in design height for 40 ft. Barrier is 3 to 6 in below 27 in design height for 20 ft.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaks or cracks were observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0218-0.566-R		
Route Name:	DINGMANS FALLS ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	28.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2282
Brief Workorder:	Raise 60 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 60 LF = \$600. Raise 60 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.

Delaware Water Gap National Recreation Area

ROUTE 0218: DINGMANS FALLS ROAD

Barrier Condition Photos



DEWA_0218_0.566_R_1.jpg

Barrier ID:	DEWA-0233ZZ-0.076-R				
Route Name:	SMITHFIELD BEACH ACCESS ROADS				
Inspection Date:	10/04/2010	Barrier Rating:	39.50		
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.):	346		
Speed Limit (MPH):	15	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	122.0
Height (In.):	25.0	Lateral Offset (In.):	12.6	Road Grade (%):	6.00
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 101 ft and between 1 and 3 in below the design height for 175 ft.			
	Breaking and Cracking:	No impact related breaking or cracking was observed. 1 rail had very minor damage from a rub impact.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	1 post was hollowed out. No erosion around posts observed.			
End Treatments	Alignment and Height:	Alignment acceptable. Height is within 1-in. of 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0233ZZ-0.076-R		
Route Name:	SMITHFIELD BEACH ACCESS ROADS		
Inspection Date:	10/04/2010	Barrier Rating:	39.50

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3658
Brief Workorder:	Raise 175 feet of guardrail up to the 27 inch design height and replace 1 post.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 175 LF = \$1750. Raise 175 feet of guardrail to 27 inch design height. Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace 1 hollowed out 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.

Delaware Water Gap National Recreation Area

ROUTE 0233ZZ: SMITHFIELD BEACH ACCESS ROADS

Barrier Condition Photos



DEWA_0233ZZ_0.076_R_1.jpg

Barrier ID:	DEWA-0233ZZ-0.150-L				
Route Name:	SMITHFIELD BEACH ACCESS ROADS				
Inspection Date:	10/04/2010	Barrier Rating:	16.80		
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.):	42		
Speed Limit (MPH):	15	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	52.7
Height (In.):	26.2	Lateral Offset (In.):	0.0	Road Grade (%):	2.20
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The entire barrier was 1 to 3 in below design height (27 in).			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0233ZZ-0.150-L		
Route Name:	SMITHFIELD BEACH ACCESS ROADS		
Inspection Date:	10/04/2010	Barrier Rating:	16.80

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2084
Brief Workorder:	Raise 42 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 42 LF = \$420. Raise 42 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.

Delaware Water Gap National Recreation Area

ROUTE 0233ZZ: SMITHFIELD BEACH ACCESS ROADS

Barrier Condition Photos



DEWA_0233ZZ_0.150_L_1.jpg

Barrier ID:	DEWA-0233ZZ-0.155-L				
Route Name:	SMITHFIELD BEACH ACCESS ROADS				
Inspection Date:	10/04/2010	Barrier Rating:	12.50		
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.):	13		
Speed Limit (MPH):	15	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	108.0
Height (In.):	24.5	Lateral Offset (In.):	0.0	Road Grade (%):	2.90
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The entire barrier was equal to or was within 1 in below the design height (27 in).			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0233ZZ-0.155-L		
Route Name:	SMITHFIELD BEACH ACCESS ROADS		
Inspection Date:	10/04/2010	Barrier Rating:	12.50

Repair Recommendations

Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0233ZZ: SMITHFIELD BEACH ACCESS ROADS

Barrier Condition Photos



DEWA_0233ZZ_0.155_L_1.jpg

Barrier ID:	DEWA-0235-0.000-L				
Route Name:	DINGMAN'S CAMPGROUND ENTRY DRIVE				
Inspection Date:	10/01/2010	Barrier Rating:	11.10		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	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:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	94.6
Height (In.):	25.0	Lateral Offset (In.):	47.2	Road Grade (%):	4.10
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 27 ft and between 1 in and 3 in below the design height for 45 ft.			
	Breaking and Cracking:	8 ft of rail was severely cracked due to impact. 1 post had impact damage.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	Less than 5% loss of cross section observed. No erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0235-0.000-L		
Route Name:	DINGMAN'S CAMPGROUND ENTRY DRIVE		
Inspection Date:	10/01/2010	Barrier Rating:	11.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2448
Brief Workorder:	Raise 45 feet of guardrail to 27 inch design height replace 8 feet of rail and 1 post.				
Workorder:	Replace Rail at \$25- per -Lin. Ft. for 8 LF = \$200. Replace cracked rail. Replace Post at \$100- per -Each for 1 Post(s) = \$100. Replace 1 post. Adjust Guardrail at \$10- per -Lin. Ft. for 45 LF = \$450. Raise 45 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0235: DINGMAN'S CAMPGROUND ENTRY DRIVE

Barrier Condition Photos



DEWA_0235_0.000_L_1.jpg

Barrier ID:	DEWA-0235-0.000-R				
Route Name:	DINGMAN'S CAMPGROUND ENTRY DRIVE				
Inspection Date:	10/01/2010	Barrier Rating:	12.60		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	84		
Speed Limit (MPH):	25	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	98.6
Height (In.):	25.5	Lateral Offset (In.):	74.3	Road Grade (%):	4.20
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in observed in alignment. Entire barrier is 1 to 3 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0235-0.000-R		
Route Name:	DINGMAN'S CAMPGROUND ENTRY DRIVE		
Inspection Date:	10/01/2010	Barrier Rating:	12.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2546
Brief Workorder:	Raise 84 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 84 LF = \$840. Raise 84 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.

Delaware Water Gap National Recreation Area

ROUTE 0235: DINGMAN'S CAMPGROUND ENTRY DRIVE

Barrier Condition Photos



DEWA_0235_0.000_R_1.jpg

Barrier ID:	DEWA-0423-0.000-L				
Route Name:	HEADQUARTER SERVICE ROAD				
Inspection Date:	10/04/2010	Barrier Rating:	20.80		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	193		
Speed Limit (MPH):	15	Placement with Respect to Road:	INSIDE OF CURVE		
Hazard Behind Barrier:	MEDIUM				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	94.5
Height (In.):	31.2	Lateral Offset (In.):	40.7	Road Grade (%):	5.00
Physical Condition					
Barrier	Alignment and Height:	No deflections in alignment observed. Entire barrier exceeds 27 in design height by 3 to 5 in.			
	Breaking and Cracking:	Cracking in several posts with cracks up to 1/4 in width observed. 3 posts have severe cracking/rotting up to 2 in width.			
	Missing Elements:	There was 1 post observed to be missing.			
	Corrosion and Weathering:	Weathering of posts has caused minor cracking in several posts and severe cracking in 3 posts. Barrier hardware is in like new condition.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0423-0.000-L		
Route Name:	HEADQUARTER SERVICE ROAD		
Inspection Date:	10/04/2010	Barrier Rating:	20.80

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2062
Brief Workorder:	Replace 3 cracked posts and 1 missing post.				
Workorder:	Replace Post at \$100- per -Each for 4 Post(s) = \$400. Replace 3 cracked posts and 1 missing 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.

Delaware Water Gap National Recreation Area

ROUTE 0423: HEADQUARTER SERVICE ROAD

Barrier Condition Photos



DEWA_0423_0.000_L_1.jpg

Barrier ID:	DEWA-0600-0.200-R				
Route Name:	MAIN STREET (WALPACK)				
Inspection Date:	10/04/2010	Barrier Rating:	34.00		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	164		
Speed Limit (MPH):	15	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	122.0
Height (In.):	23.7	Lateral Offset (In.):	27.7	Road Grade (%):	7.00
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. Height ranges from 3 to 4 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0600-0.200-R		
Route Name:	MAIN STREET (WALPACK)		
Inspection Date:	10/04/2010	Barrier Rating:	34.00

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$3426
Brief Workorder:	Raise 164 ft of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 164 LF = \$1640. Raise 164ft 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.

Delaware Water Gap National Recreation Area

ROUTE 0600: MAIN STREET (WALPACK)

Barrier Condition Photos



DEWA_0600_0.200_R_1.jpg

Barrier ID:	DEWA-0600-0.223-L				
Route Name:	MAIN STREET (WALPACK)				
Inspection Date:	10/04/2010	Barrier Rating:	34.20		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	40		
Speed Limit (MPH):	15	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:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	113.3
Height (In.):	22.0	Lateral Offset (In.):	16.7	Road Grade (%):	1.00
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Height is 5 in below 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0600-0.223-L		
Route Name:	MAIN STREET (WALPACK)		
Inspection Date:	10/04/2010	Barrier Rating:	34.20

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2063
Brief Workorder:	Raise 40 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 40 LF = \$400. Raise 40ft of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0600: MAIN STREET (WALPACK)

Barrier Condition Photos



DEWA_0600_0.223_L_1.jpg

Barrier ID:	DEWA-0600-0.244-L				
Route Name:	MAIN STREET (WALPACK)				
Inspection Date:	10/04/2010	Barrier Rating:	12.80		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	55		
Speed Limit (MPH):	15	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	109.0
Height (In.):	25.7	Lateral Offset (In.):	29.2	Road Grade (%):	7.90
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection was observed. Barrier is 1 to 2 in below 27 in design height for 30 ft.			
	Breaking and Cracking:	No breaking or cracking was observed.			
	Missing Elements:	No missing elements were observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0600-0.244-L		
Route Name:	MAIN STREET (WALPACK)		
Inspection Date:	10/04/2010	Barrier Rating:	12.80

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1952
Brief Workorder:	Raise 30 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 30 LF = \$300. Raise 30ft 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.

Delaware Water Gap National Recreation Area

ROUTE 0600: MAIN STREET (WALPACK)

Barrier Condition Photos



DEWA_0600_0.244_L_1.jpg

Barrier ID:	DEWA-0600-0.244-R				
Route Name:	MAIN STREET (WALPACK)				
Inspection Date:	10/04/2010	Barrier Rating:	25.60		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	50		
Speed Limit (MPH):	15	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 Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	119.6
Height (In.):	25.0	Lateral Offset (In.):	15.6	Road Grade (%):	4.30
Physical Condition					
Barrier	Alignment and Height:	No alignment deflection observed. 25-ft. was within 1-in. of the 27-in. design height 10-ft. was between 1 and 3-in. below and 15-ft. was more than 3-in. below the design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0600-0.244-R		
Route Name:	MAIN STREET (WALPACK)		
Inspection Date:	10/04/2010	Barrier Rating:	25.60

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$1898
Brief Workorder:	Raise 25 feet of guardrail up to the 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 25 LF = \$250. Raise 25 feet of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0600: MAIN STREET (WALPACK)

Barrier Condition Photos



DEWA_0600_0.244_R_1.jpg

Barrier ID:	DEWA-0900ZZ-0.000-P1				
Route Name:	POXONO BOAT LAUNCH PARKING AREAS				
Inspection Date:	10/05/2010	Barrier Rating:	0.00		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	NON-TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	73		
Speed Limit (MPH):	15	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	31.0	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in up to 9 in above.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0900ZZ-0.000-P1		
Route Name:	POXONO BOAT LAUNCH PARKING AREAS		
Inspection Date:	10/05/2010	Barrier Rating:	0.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0900ZZ: POXONO BOAT LAUNCH PARKING AREAS

Barrier Condition Photos



DEWA_0900ZZ_0.000_P1_1.JPG

Barrier ID:	DEWA-0900ZZ-0.000-P2				
Route Name:	POXONO BOAT LAUNCH PARKING AREAS				
Inspection Date:	10/05/2010	Barrier Rating:	0.00		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	NON-TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	88		
Speed Limit (MPH):	15	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	28.2	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0900ZZ-0.000-P2		
Route Name:	POXONO BOAT LAUNCH PARKING AREAS		
Inspection Date:	10/05/2010	Barrier Rating:	0.00

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.

Delaware Water Gap National Recreation Area

ROUTE 0900ZZ: POXONO BOAT LAUNCH PARKING AREAS

Barrier Condition Photos



DEWA_0900ZZ_0.000_P2_1.JPG

Barrier ID:	DEWA-0908-0.000-P1				
Route Name:	DINGMAN'S FERRY ACCESS PARKING AREA				
Inspection Date:	10/04/2010	Barrier Rating:	8.30		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	NON-TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	46		
Speed Limit (MPH):	15	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	34.2	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The entire barrier exceeded design height (27 in) by 6.5 to 8 in.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements appear to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0908-0.000-P1		
Route Name:	DINGMAN'S FERRY ACCESS PARKING AREA		
Inspection Date:	10/04/2010	Barrier Rating:	8.30

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2129
Brief Workorder:	Lower 46 feet of barrier to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 46 LF = \$460. Lower 46ft. 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.

Delaware Water Gap National Recreation Area

ROUTE 0908: DINGMAN'S FERRY ACCESS PARKING AREA

Barrier Condition Photos



DEWA_0908_0.000_P1_1.jpg

Barrier ID:	DEWA-0908-0.000-P2				
Route Name:	DINGMAN'S FERRY ACCESS PARKING AREA				
Inspection Date:	10/04/2010	Barrier Rating:	11.10		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	43		
Speed Limit (MPH):	15	Placement with Respect to Road:	TANGENT		
Hazard Behind Barrier:	LOW				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	NCW	Is Barrier Crashworthy?:	NO
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	93.6
Height (In.):	34.0	Lateral Offset (In.):	45.5	Road Grade (%):	0.80
Physical Condition					
Barrier	Alignment and Height:	Alignment deflection was less than 6 in. The entire barrier exceeded design height (27 in) by 6 to 9 in.			
	Breaking and Cracking:	No impact related breaking or cracking observed.			
	Missing Elements:	No elements appeared to be missing.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0908-0.000-P2		
Route Name:	DINGMAN'S FERRY ACCESS PARKING AREA		
Inspection Date:	10/04/2010	Barrier Rating:	11.10

Repair Recommendations

Repair Action:	REPAIR	FMSS Work Type:	DEFERRED MAINTENANCE	Repair Cost:	\$2096
Brief Workorder:	Lower 43 feet of guardrail to 27 inch design height.				
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 43 LF = \$430. Lower 43ft. of guardrail 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.

Delaware Water Gap National Recreation Area

ROUTE 0908: DINGMAN'S FERRY ACCESS PARKING AREA

Barrier Condition Photos



DEWA_0908_0.000_P2_1.jpg

Barrier ID:	DEWA-0910-0.000-P1				
Route Name:	BUSHKILL ACCESS PARKING AREA				
Inspection Date:	10/01/2010	Barrier Rating:	0.00		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	NON-TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	136		
Speed Limit (MPH):	15	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	117.0
Height (In.):	28.7	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in were observed in the alignment. Entire barrier is 1 in below to 4in. above the 27 in design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No elements were observed to be missing.			
	Corrosion and Weathering:	4 rails were disconnected from each other at the 2 corner locations. The separation at one corner appears to be due to a 3-in deflection of a nearby post.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0910-0.000-P1				
Route Name:	BUSHKILL ACCESS PARKING AREA				
Inspection Date:	10/01/2010	Barrier Rating:		0.00	
Repair Recommendations					
Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0910: BUSHKILL ACCESS PARKING AREA

Barrier Condition Photos



DEWA_0910_0.000_P1_1.jpg

Barrier ID:	DEWA-0910-0.000-P2				
Route Name:	BUSHKILL ACCESS PARKING AREA				
Inspection Date:	10/01/2010	Barrier Rating:	0.00		
Barrier Description					
Type:	OTHER: TIMBER RAIL ON TIMBER POSTS	Barrier Function:	NON-TRAFFIC		
Barrier Material:	LOG/TIMBER/WOOD	Post Material:	WOOD		
Blockout Type:	N/A	Length (ft.):	180		
Speed Limit (MPH):	15	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	N/A	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	NONE	Is Beg. End Trtmt Crashworthy?:	N/A	Approach Transition Type:	NONE
Ending End Trtmt Type:	NONE	Ending End Trtmt Crashworthy?:	N/A		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	110.0
Height (In.):	30.2	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections greater than 6 in were observed in the alignment. Barrier height was 1-5in. greater than 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.			
	Corrosion and Weathering:	Typical weathering observed.			
End Treatments	Alignment and Height:				
	Breaking and Cracking:				
	Missing Elements:				
	Corrosion and Weathering:				

Barrier ID:	DEWA-0910-0.000-P2		
Route Name:	BUSHKILL ACCESS PARKING AREA		
Inspection Date:	10/01/2010	Barrier Rating:	0.00

Repair Recommendations

Repair Action:	NO ACTION	FMSS Work Type:	N/A	Repair Cost:	\$0
Brief Workorder:	N/A				
Workorder:	No action required.				

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

Delaware Water Gap National Recreation Area

ROUTE 0910: BUSHKILL ACCESS PARKING AREA

Barrier Condition Photos



DEWA_0910_0.000_P2_1.jpg

Barrier ID:	DEWA-0980-0.000-P1				
Route Name:	TURTLE BEACH PARKING				
Inspection Date:	10/04/2010	Barrier Rating:	2.90		
Barrier Description					
Type:	STEEL-BACKED TIMBER WITH BLOCKOUT	Barrier Function:	NON-TRAFFIC		
Barrier Material:	STEEL-BACKED TIMBER/LOG	Post Material:	CORTEN		
Blockout Type:	WOOD	Length (ft.):	486		
Speed Limit (MPH):	15	Placement with Respect to Road:	NON-TRAFFIC BARRIER		
Hazard Behind Barrier:	N/A				
Barrier Crashworthiness					
Appropriate Test Level:	TL-1	Barrier Test Level:	TL-3	Is Barrier Crashworthy?:	N/A
Beg. End Trtmt Type:	SBT/LOG FLARED	Is Beg. End Trtmt Crashworthy?:	NO	Approach Transition Type:	NONE
Ending End Trtmt Type:	SBT/LOG FLARED	Ending End Trtmt Crashworthy?:	NO		
Average Measurements					
Design Height (In.):	27	Width (In.):	0.0	Post Spacing (In.):	0.0
Height (In.):	28.2	Lateral Offset (In.):	0.0	Road Grade (%):	0.00
Physical Condition					
Barrier	Alignment and Height:	No deflections observed in alignment. The height is at or above the design of 27 in by up to 3 in.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion 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 27-in. design height.			
	Breaking and Cracking:	No breaking or cracking observed.			
	Missing Elements:	No missing elements observed.			
	Corrosion and Weathering:	No loss of cross section or erosion around posts observed.			

Barrier ID:	DEWA-0980-0.000-P1		
Route Name:	TURTLE BEACH PARKING		
Inspection Date:	10/04/2010	Barrier Rating:	2.90

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.

Delaware Water Gap National Recreation Area

ROUTE 0980: TURTLE BEACH PARKING

Barrier Condition Photos



DEWA_0980_0.000_P1_1.JPG

Appendix A

Summary of GIP Definitions and Assessment



Delaware Water Gap National Recreation Area



**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			
	<ul style="list-style-type: none"> Alignment off by less than 6" 	<ul style="list-style-type: none"> Alignment off by 6"-12" 	<ul style="list-style-type: none"> Alignment off by more than 12"
	<ul style="list-style-type: none"> Within 1" of <i>design height</i> 	<ul style="list-style-type: none"> Less than 3" lower than <i>design height</i> 	<ul style="list-style-type: none"> Greater than 3" lower than <i>design height</i>
Breaking/Cracking, an member, post or rail – due to impact loading			
	<ul style="list-style-type: none"> Metal – no twisting/bending, tears or cracking 	<ul style="list-style-type: none"> Metal – no cracking or tearing (but minor twisting/bending is ok) 	<ul style="list-style-type: none"> Metal – any cracks or tears
	<ul style="list-style-type: none"> Wood – no impact related cracking 	<ul style="list-style-type: none"> Wood – maybe cracked but retains original cross section 	<ul style="list-style-type: none"> Wood – cracks or tears that deform original section
	<ul style="list-style-type: none"> Isolated broken blocks 	<ul style="list-style-type: none"> Two Consecutive broken blocks 	<ul style="list-style-type: none"> Consecutive broken blocks (three or more consecutive)
Missing Elements			
	<ul style="list-style-type: none"> No bolts and nuts missing 	<ul style="list-style-type: none"> One or two bolt/nut missing at one rail/rail connection 	<ul style="list-style-type: none"> Three or more bolts/nuts missing at one rail/rail connection
	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Two consecutive missing blocks 	<ul style="list-style-type: none"> Three or more consecutive missing blocks
	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> One missing rail element or post
Corrosion/Decay/Weathering, all posts, rails and blocks – due to aging			
	<ul style="list-style-type: none"> Loss of 5% or less of cross section 	<ul style="list-style-type: none"> Loss of 5% to 50% of cross section 	<ul style="list-style-type: none"> Loss of 50% or more of cross section
	<ul style="list-style-type: none"> Erosion (less than 8" of post exposed below original groundline) 	<ul style="list-style-type: none"> Erosion around posts (8" or more of post exposed below original groundline) for one 	<ul style="list-style-type: none"> 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															
				<ul style="list-style-type: none"> Alignment off by less than 6" 				<ul style="list-style-type: none"> Alignment off by 6"-12" 				<ul style="list-style-type: none"> Alignment off by more than 12" 			
				<ul style="list-style-type: none"> Within 1" of <i>design height</i> 				<ul style="list-style-type: none"> Less than 3" lower than <i>design height</i> 				<ul style="list-style-type: none"> Greater than 3" lower than <i>design height</i> 			
Breaking/Cracking– due to impact loading															
				<ul style="list-style-type: none"> Minor cracks (less than ¼") present 				<ul style="list-style-type: none"> Cracking present ¼" or greater but no displacement or discontinuity in face 				<ul style="list-style-type: none"> Barrier displaced and/or discontinuous 			
				<ul style="list-style-type: none"> n/a 				<ul style="list-style-type: none"> Pieces broken from barrier 3" deep or less without exposing rebar 				<ul style="list-style-type: none"> Cracking exposes rebar 			
				<ul style="list-style-type: none"> n/a 				<ul style="list-style-type: none"> n/a 				<ul style="list-style-type: none"> Pieces broken from face greater than 3" deep 			
Missing Elements															
				<ul style="list-style-type: none"> n/a 				<ul style="list-style-type: none"> n/a 				<ul style="list-style-type: none"> n/a 			
Corrosion/Decay/Weathering – due to aging															
				<ul style="list-style-type: none"> Surface corrosion on less than 5% of the run 				<ul style="list-style-type: none"> Surface corrosion on between 5-25% of the run 				<ul style="list-style-type: none"> Surface corrosion on more than 25% of the run 			
				<ul style="list-style-type: none"> n/a 				<ul style="list-style-type: none"> Spalling 3" deep or less without exposing rebar 				<ul style="list-style-type: none"> Spalling greater than 3" deep 			
				<ul style="list-style-type: none"> Erosion (less than 8" below groundline) around base 				<ul style="list-style-type: none"> Erosion (8" or more below groundline) around base 				<ul style="list-style-type: none"> Erosion (8" or more below groundline) 			
				<ul style="list-style-type: none"> n/a 				<ul style="list-style-type: none"> Less than 50% undermined (less than half barrier width) 				<ul style="list-style-type: none"> 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			
	<ul style="list-style-type: none"> Alignment (off by less than 6") 	<ul style="list-style-type: none"> Alignment (off by 6"-12") 	<ul style="list-style-type: none"> Alignment (off by more than 12")
	<ul style="list-style-type: none"> Within 3" of <i>design height</i> 	<ul style="list-style-type: none"> Between 3.1 - 6" lower than <i>design height</i> 	<ul style="list-style-type: none"> Greater than 6.1" lower than <i>design height</i>
Breaking/Cracking – due to impact loading			
	<ul style="list-style-type: none"> Minor cracks (less than 1/4") present 	<ul style="list-style-type: none"> Cracks, less than 1/2" present 	<ul style="list-style-type: none"> Cracks greater than 1/2" present
		<ul style="list-style-type: none"> Stones broken/displaced extending less than 1/3 of width of barrier 	<ul style="list-style-type: none"> Stones broken/displaced extending 1/3 width or more through the barrier
Missing Elements			
	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> n/a
Corrosion/Decay/Weathering – due to aging			
	<ul style="list-style-type: none"> Cracks in mortar joints 1/4" or less and/or single loose or missing stones 	<ul style="list-style-type: none"> Mortar joints deteriorated resulting in two - three loose or missing adjacent stones (without impact) 	<ul style="list-style-type: none"> Mortar joints deteriorated resulting in more than three continuous/adjacent loose or missing stones (without impact)
	<ul style="list-style-type: none"> Erosion (less than 8" below groundline) around base 	<ul style="list-style-type: none"> Erosion (8" or more below groundline) around base 	<ul style="list-style-type: none"> Erosion (8" or more below groundline)
	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Less than 50% undermined (less than half barrier width) 	<ul style="list-style-type: none"> 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			
	<ul style="list-style-type: none"> No bent posts 	<ul style="list-style-type: none"> Bent posts; one to three consecutive posts 	<ul style="list-style-type: none"> Bent posts; four or more consecutive posts
	<ul style="list-style-type: none"> Cable has tension 	<ul style="list-style-type: none"> Cable under-tensioned/sagging 	<ul style="list-style-type: none"> No cable tension
	<ul style="list-style-type: none"> Less than 1” too low 	<ul style="list-style-type: none"> 1-3” too low 	<ul style="list-style-type: none"> Greater than 3” too low
Breaking/Cracking			
	<ul style="list-style-type: none"> No cracked or broken posts 	<ul style="list-style-type: none"> One to three isolated broken posts 	<ul style="list-style-type: none"> Four or more consecutive broken posts
	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Cable frayed 	<ul style="list-style-type: none"> Cable broken or severed
Missing Elements			
	<ul style="list-style-type: none"> No bolts and nuts missing at anchors 	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Bolts and nuts missing or loose at anchors
	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Any missing posts or cable for any length of run
Corrosion/Decay/Weathering – due to aging			
	<ul style="list-style-type: none"> Loss of 5% or less of cable cross section 	<ul style="list-style-type: none"> Loss of 5% to 15% of cable cross section 	<ul style="list-style-type: none"> Loss of 15% or more of cross section
	<ul style="list-style-type: none"> Erosion (less than 8” of post exposed below original groundline) 	<ul style="list-style-type: none"> Erosion around one post (8” or more of post exposed below original groundline) 	<ul style="list-style-type: none"> 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			
	<ul style="list-style-type: none"> Alignment off by less than 4" 	<ul style="list-style-type: none"> Alignment off by 4"-8" 	<ul style="list-style-type: none"> Alignment off by more than 8"
	<ul style="list-style-type: none"> Adequate cable tension 	<ul style="list-style-type: none"> Low cable anchor tension 	<ul style="list-style-type: none"> No cable anchor tension
Breaking/Cracking – due to impact loading			
	<ul style="list-style-type: none"> No broken or cracked elements 	<ul style="list-style-type: none"> Minor cable fraying but still with adequate tension 	<ul style="list-style-type: none"> Broken or cracked cables or posts
	<ul style="list-style-type: none"> No damage to posts, cable or anchor 	<ul style="list-style-type: none"> Slight damage to posts without cracking or tearing (<i>but minor twisting/bending on isolated posts is OK</i>) 	<ul style="list-style-type: none"> Cable broken or severed on any cable
Missing Elements			
	<ul style="list-style-type: none"> No bolts and nuts missing at anchors; No missing cables 	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Any missing element (post, cable, bolts, nuts, or anchor)
Corrosion/Decay/Weathering – due to aging			
	<ul style="list-style-type: none"> Loss of 5% or less of cable cross section 	<ul style="list-style-type: none"> Loss of 5% to 15% of cable cross section 	<ul style="list-style-type: none"> Loss of 15% or more of cross section
	<ul style="list-style-type: none"> Connections weathered but still provide element interlock on less than 5% of the end treatment 	<ul style="list-style-type: none"> Connections weathered but still provide element interlock on between 5% to 15% of the end treatment 	<ul style="list-style-type: none"> 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						
	<ul style="list-style-type: none"> Alignment of flares and offsets off by less than 4” 	<ul style="list-style-type: none"> Alignment of flares and offsets off by 4”-8” 	<ul style="list-style-type: none"> Alignment of flares and offsets off by more than 8” 			
	<ul style="list-style-type: none"> Within 1” of <i>design height</i> 	<ul style="list-style-type: none"> Less than 3” lower than <i>design height</i> 	<ul style="list-style-type: none"> Greater than 3” lower than <i>design height</i> 			
For <i>Aesthetic Barriers</i> (i.e. – SBT and SBL guardrail) that do not have crashworthy terminals:	<ul style="list-style-type: none"> Approach barrier terminals are buried, anchored, and flared away from the travel lane 	<ul style="list-style-type: none"> Approach barrier terminals are buried, anchored, and flared away from the travel lane 	<ul style="list-style-type: none"> Approach barrier ends are NOT buried, anchored, nor flared away from the travel lane 			
Breaking/Cracking – due to impact loading						
	<ul style="list-style-type: none"> Metal – no twisting/bending, tears or cracking 	<ul style="list-style-type: none"> Metal – no cracking or tearing (but minor twisting or bending is ok) 	<ul style="list-style-type: none"> Metal – any cracks or tears 			
	<ul style="list-style-type: none"> Wood – no impact related cracking 	<ul style="list-style-type: none"> Wood – maybe cracked but retains original cross section 	<ul style="list-style-type: none"> Wood – cracks or tears that deform original section 			
	<ul style="list-style-type: none"> No broken blocks 	<ul style="list-style-type: none"> One broken block 	<ul style="list-style-type: none"> Two consecutive broken blocks 			
Missing Elements						
	<ul style="list-style-type: none"> No missing elements, including breakaway cables and struts 	<ul style="list-style-type: none"> Isolated bolts, nuts, or blocks loose on non-consecutive posts 	<ul style="list-style-type: none"> Any missing element, including blocks, rails, posts cables, or struts 			
	<ul style="list-style-type: none"> No bolts, nuts, or blocks missing or loose 	<ul style="list-style-type: none"> Breakaway strut present but vertical height off by more than 2” 	<ul style="list-style-type: none"> Missing nuts / bolts on consecutive posts 			
Corrosion/Decay/Weathering – due to aging						
	<ul style="list-style-type: none"> Surface corrosion / decay / connections weathered with a loss of 5% or less of cross section of interlocking elements 	<ul style="list-style-type: none"> Surface corrosion / decay / connections weathered with between 5-25% loss of cross section along transition interlocking elements 	<ul style="list-style-type: none"> Surface corrosion / decay / connections weathered with more than 25% loss of cross section along transition interlocking elements 			
	<ul style="list-style-type: none"> Erosion (less than 8” of post exposed below original groundline) 	<ul style="list-style-type: none"> Erosion around 1 post (8” or more of post exposed below original groundline) 	<ul style="list-style-type: none"> 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
Severity of Hazard behind the Barrier	Both inside and outside of curve	8.6
	Outside of curve	8.6
	Low severity	2.6
	Medium severity	5.1
	High severity	6.9
Longitudinal Length of Barrier	Extreme severity	8.6
	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.