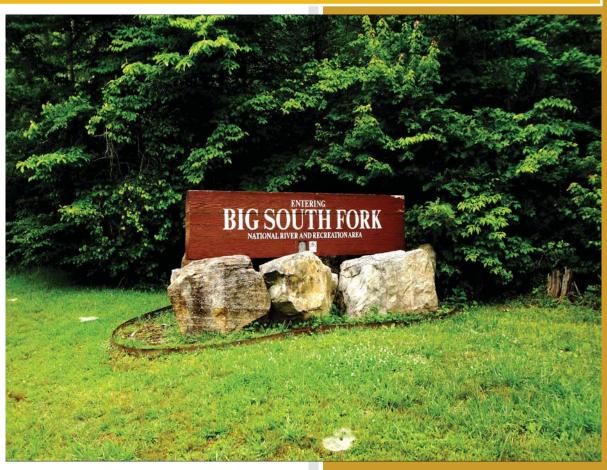
BISO

GIP Report

NPS Guardwall/Rail Inventory Program Big South Fork National River and Recreation Area





Prepared By:

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

Data Collection Date: October 2010 Report Date: November 2015

Big South Fork National River and Recreation Area in Kentucky and Tennessee

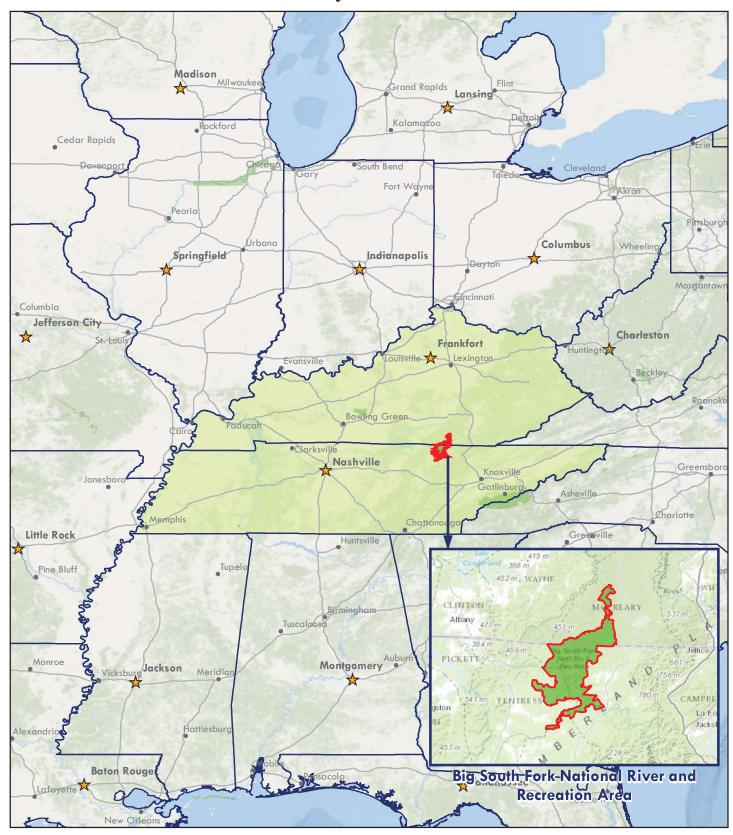
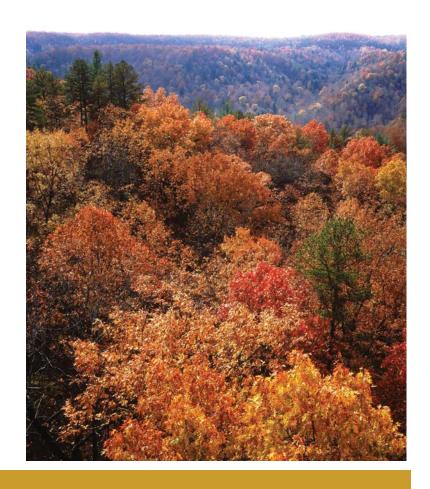




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Introduction



Big South Fork National River and Recreation Area



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.

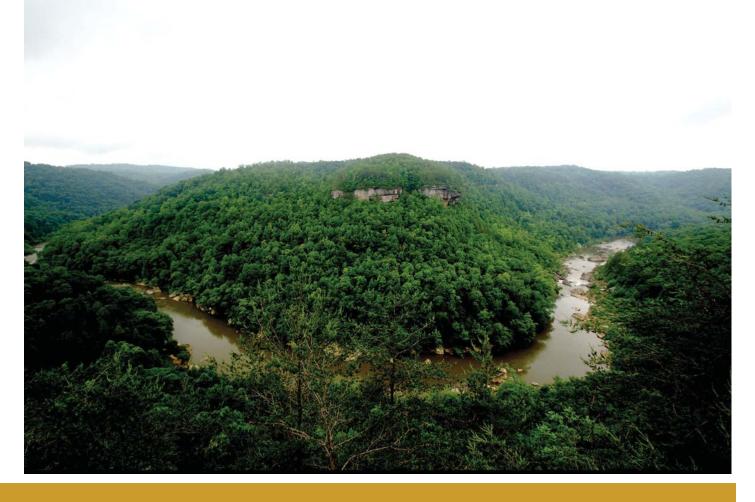
Drafted work orders have been classified as being either deferred maintenance or capital improvement. This classification is based on the type of work recommended, as defined below.

- *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.

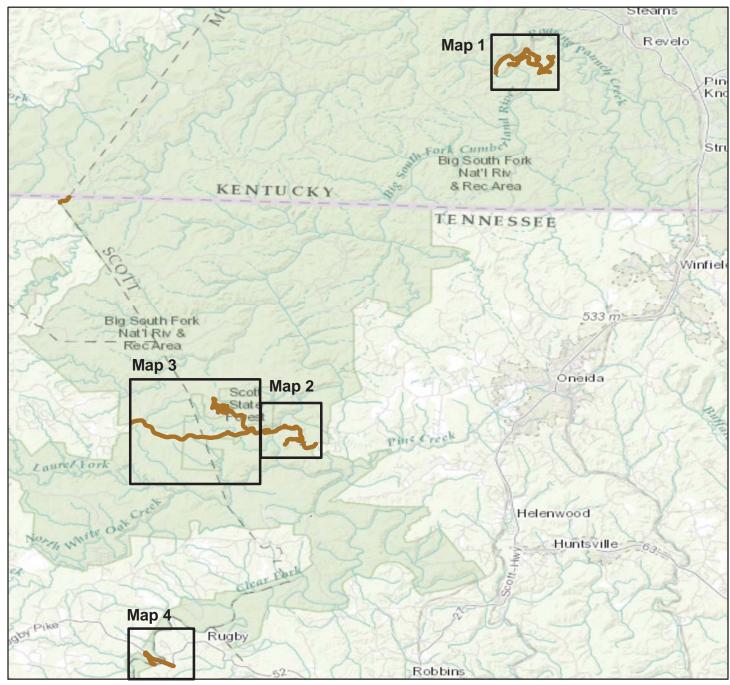
Park Barrier Location Maps



Big South Fork National River and Recreation Area



BARRIER LOCATION MAP Key Map

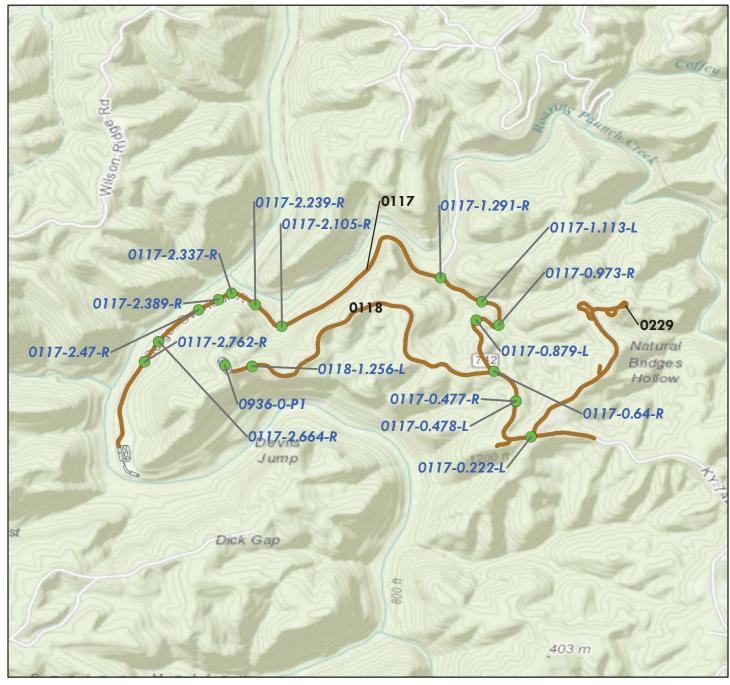


Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community





BARRIER LOCATION MAP Map 1



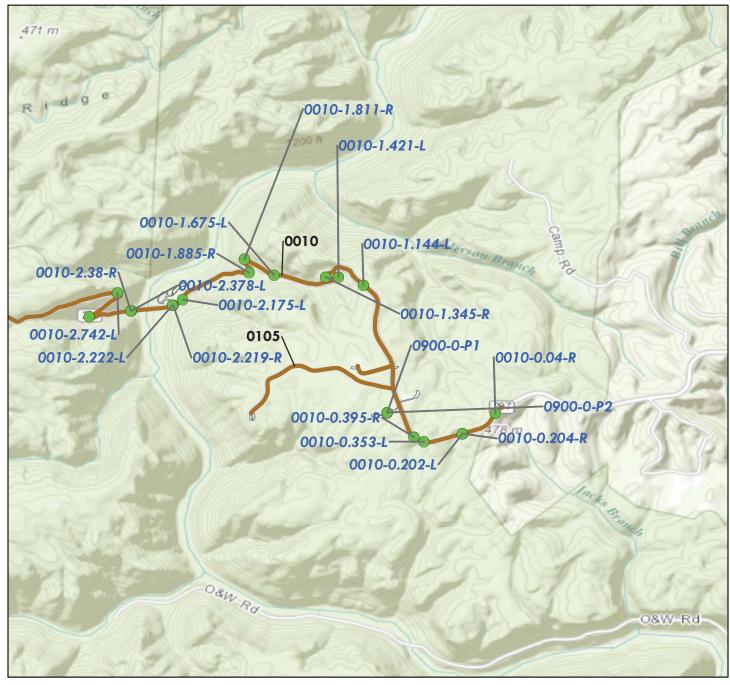
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations





BARRIER LOCATION MAP Map 2



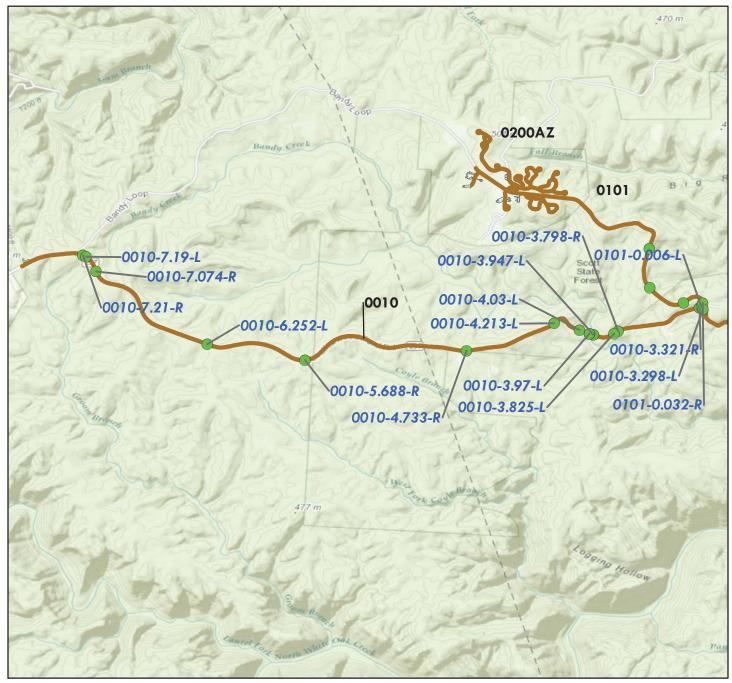
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations





BARRIER LOCATION MAP Map 3



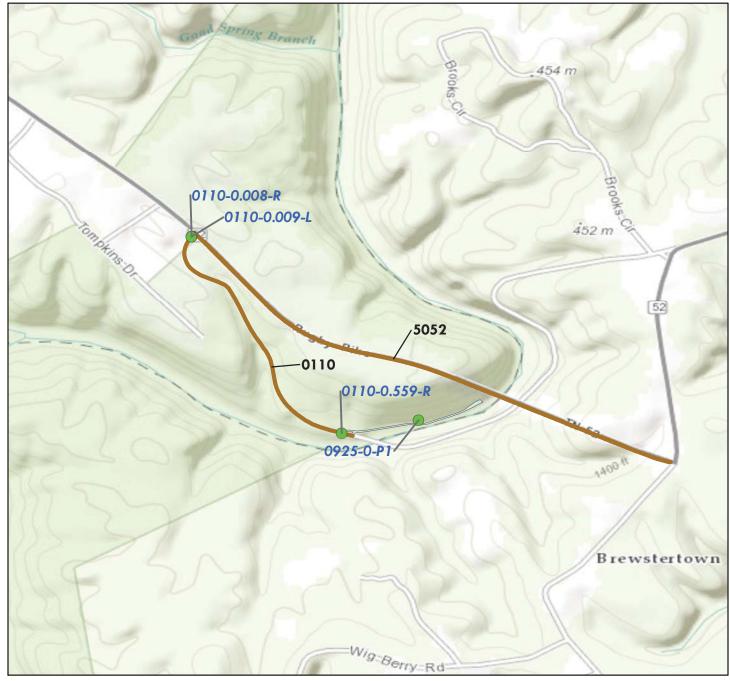
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations





BARRIER LOCATION MAP Map 4



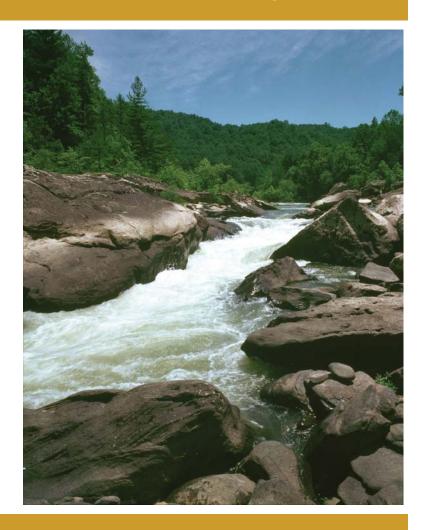
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier Locations





Tier 1 Park Barrier Overview



Big South Fork National River and Recreation Area



Parkwide Summary: Big South Fork National River and Recreation Area

Initial barrier inspections were conducted at Big South Fork National River and 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 Big South Fork National River and 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, 67 barriers were inventoried on the routes listed below.

Table 1: Number of Barriers by Route

Route Number	Route Name	No. of Barriers
0010	LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)	34
0101	BANDY CREEK ROAD	5
0110	BREWSTER BRIDGE ROAD	3
0117	BLUE HERON ROAD (HWY 742)	15
0118	BLUE HERON OVERLOOK ROAD	1
0700	UNKNOWN ROUTE	4
0900	LEATHERWOOD DAY USE PARKING	2
0925	BREWSTER BRIDGE TRAILHEAD PARKING	1
0936	BLUE HERON OVERLOOK PARKING	1
0972	BEAR CREEK HORSE CAMP DUMP STATION	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
NON-TRAFFIC	2
TRAFFIC	65

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
Other: Timber Rail On Timber Posts	7
W-Beam Strong Post	60

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	43
Monitor	\$0	0
Repair	\$188,768	22
Replace	\$15,846	2
Total	\$204,614	67

^{*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	43
\$1 - \$25,000	23
\$25,001 - \$50,000	0
\$50,001 - \$100,000	1
\$100,001 - \$250,000	0
\$250,001 - \$500,000	0
\$500,001 - \$1,000,000	0
\$1,000,001 - \$2,000,000	0
\$2,000,001 - \$3,000,000	0
\$3,000,001 - \$4,000,000	0
Total Number of Barriers	67

^{*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 96 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.

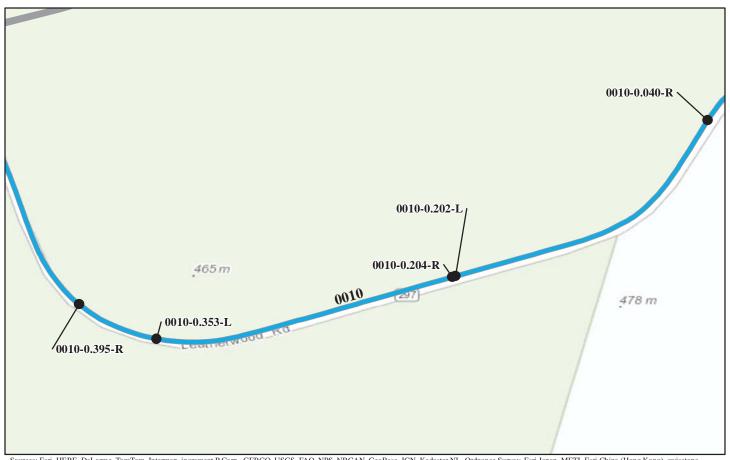
Tier 2 Route Barrier Overview



Big South Fork National River and Recreation Area

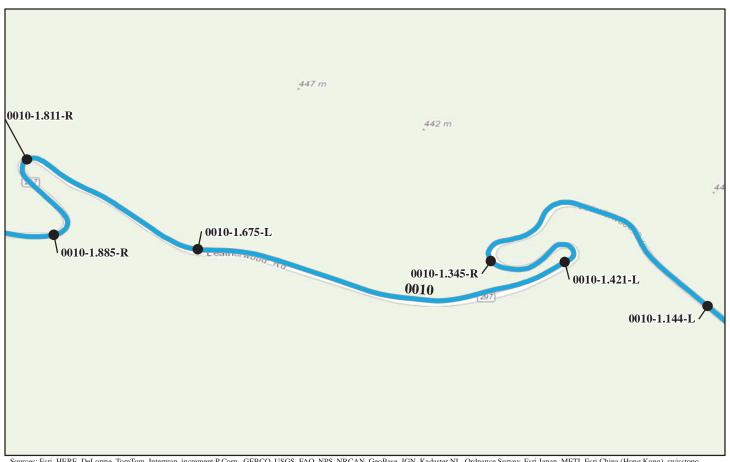


ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



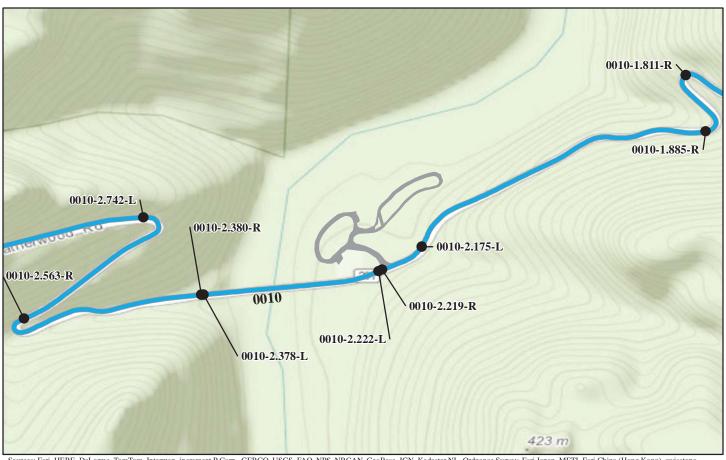
Barrier ID	Barrier Length	Barrier	Barrier End	d Treatment *Repair	*Repair	
Inspection Date	(Ft.)	Type	Begin	End	Cost	
BISO-0010-0.040-R	533	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$10,731.00	
10/1/2010						
BISO-0010-0.202-L	354	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/1/2010						
BISO-0010-0.204-R	290	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/1/2010						
BISO-0010-0.353-L	203	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/1/2010						
BISO-0010-0.395-R	330	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$2,690.00	
10/1/2010						
*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.						

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



Barrier ID	Barrier Length	Barrier	Barrier End	l Treatment	*Repair	
Inspection Date	(Ft.)	Type	Begin	End	Cost	
BISO-0010-1.144-L	869	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$7,667.00	
10/1/2010						
BISO-0010-1.345-R	301	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/1/2010						
BISO-0010-1.421-L	1177	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/1/2010						
BISO-0010-1.675-L	653	W-BEAM STRONG POST	W-BEAM BCT	NONE	\$9,933.00	
10/1/2010						
BISO-0010-1.811-R	325	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$3,471.00	
10/1/2010						
*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.						

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



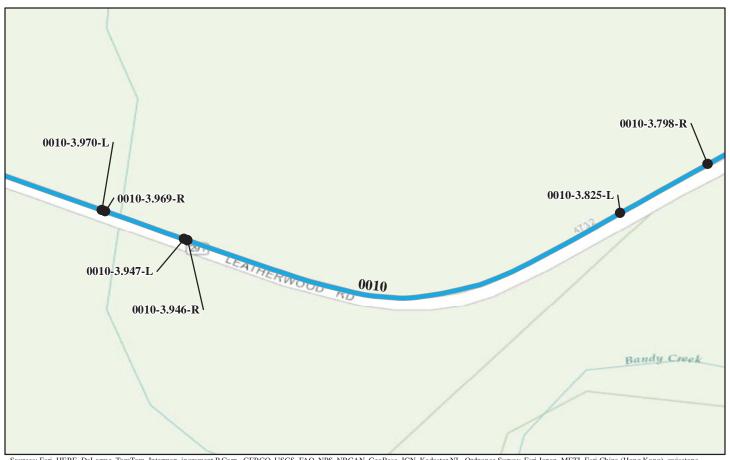
(Ft.) 1,729	Type W-BEAM STRONG POST	Begin W-BEAM BCT	End NONE	\$8,525.00
,		W-BEAM BCT	NONE	\$8,525.00
79	WI DE LANGER ONG DOGE			
	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00
246	W-BEAM STRONG POST	NONE	NONE	\$0.00
219	W-BEAM STRONG POST	W-BEAM BCT	NONE	\$0.00
888	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$0.00
3	219	219 W-BEAM STRONG POST 888 W-BEAM STRONG POST	219 W-BEAM STRONG POST W-BEAM BCT 888 W-BEAM STRONG POST NONE	219 W-BEAM STRONG POST W-BEAM BCT NONE

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



Barrier ID	Barrier Length	Barrier	Barrier End Treatment	*Repair		
Inspection Date	(Ft.)	Type	Begin	End	Cost	
BISO-0010-2.380-R	33	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$0.00	
10/1/2010						
BISO-0010-2.563-R	912	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$0.00	
10/2/2010						
BISO-0010-2.742-L	2196	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/2/2010						
BISO-0010-3.298-L	207	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/2/2010						
BISO-0010-3.321-R	74	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$1,953.00	
10/2/2010						
*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.						

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



Barrier ID	Barrier Length	Barrier	Barrier End	*Repair		
Inspection Date	(Ft.)	Туре	Begin	End	Cost	
BISO-0010-3.798-R	279	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/2/2010						
BISO-0010-3.825-L	264	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/2/2010						
BISO-0010-3.946-R	77	W-BEAM STRONG POST	W-BEAM BCT	NONE	\$0.00	
10/2/2010						
BISO-0010-3.947-L	60	W-BEAM STRONG POST	W-BEAM BCT	NONE	\$2,283.00	
10/2/2010						
BISO-0010-3.969-R	119	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$1,953.00	
10/2/2010						
*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.						

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



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	Barrier Length	Barrier	Barrier En	*Repair		
Inspection Date	(Ft.)	Type	Begin	End	Cost	
BISO-0010-3.970-L	121	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$0.00	
10/2/2010						
BISO-0010-4.030-L	489	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/2/2010						
BISO-0010-4.213-L	227	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/2/2010						
BISO-0010-4.733-R	230	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/2/2010						
BISO-0010-5.688-R	167	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00	
10/2/2010						
*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.						

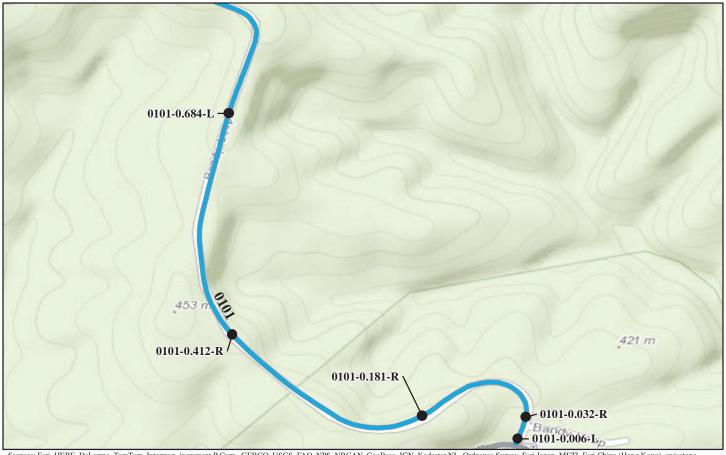
ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



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	Barrier Length	Length Barrier Barrier End Treatme		d Treatment	*Repair				
Inspection Date	(Ft.)	Туре	Begin	End	Cost				
BISO-0010-6.252-L	278	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00				
10/2/2010									
BISO-0010-7.074-R	379	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00				
10/2/2010									
BISO-0010-7.190-L	116	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00				
10/2/2010									
BISO-0010-7.210-R	267	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00				
10/2/2010									
	*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.								

ROUTE 0101: BANDY CREEK ROAD



Barrier ID	Barrier Length	Barrier	Barrier Barrier End Treatment		*Repair			
Inspection Date	(Ft.)	Туре	Begin	End	Cost			
BISO-0101-0.006-L 10/5/2010	54	W-BEAM STRONG POST	NONE	NONE	\$2,217.00			
BISO-0101-0.032-R 10/5/2010	754	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$3,273.00			
BISO-0101-0.181-R 10/5/2010	333	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$6,908.00			
BISO-0101-0.412-R 10/5/2010	444	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$8,129.00			
BISO-0101-0.684-L 10/5/2010	658	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$12,106.00			
*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.								

ROUTE 0110: BREWSTER BRIDGE 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	Barrier Length	Barrier	Barrier End	d Treatment	*Repair
Inspection Date	(Ft.)	Type	Begin	End	Cost
BISO-0110-0.008-R	1,163	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$3,405.00
10/4/2010					
BISO-0110-0.009-L	700	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$5,913.00
10/4/2010					
BISO-0110-0.559-R	125	W-BEAM STRONG POST	W-BEAM BCT	NONE	\$0.00
10/4/2010					
k	\$2008 cost estimate (A.	STM Class D), preliminary for co	omparison to other repair co	sts only.	

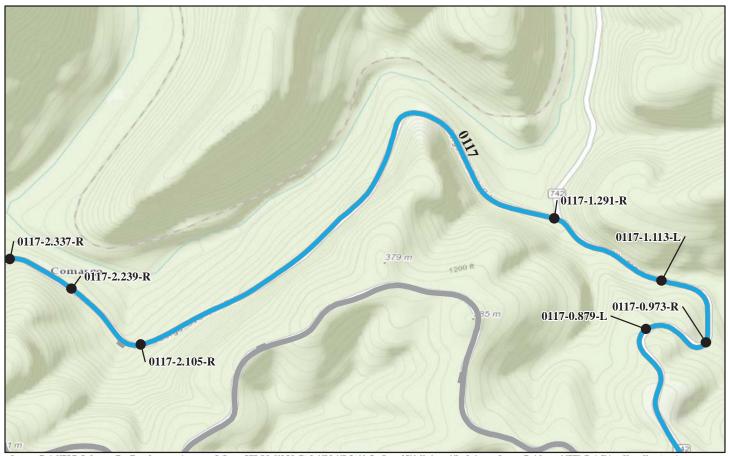
ROUTE 0117: BLUE HERON ROAD (HWY 742)



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	Barrier Length	Barrier	Barrier End	l Treatment	*Repair
Inspection Date	(Ft.)	Туре	Begin	End	Cost
BISO-0117-0.222-L 10/3/2010	257	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM BCT	\$2,877.00
BISO-0117-0.477-R 10/3/2010	498	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM BCT	\$0.00
BISO-0117-0.478-L 10/3/2010	532	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM BCT	\$3,658.00
BISO-0117-0.640-R 10/3/2010	113	W-BEAM STRONG POST	W-BEAM TURN DOWN	W-BEAM BCT	\$0.00
BISO-0117-0.879-L 10/3/2010	157	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$0.00
,	*2008 cost estimate (A	STM Class D), preliminary for co	omparison to other repair cos	ets only.	•

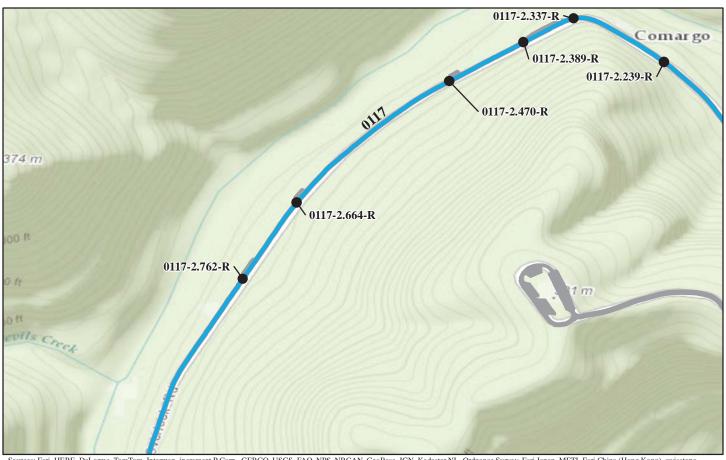
ROUTE 0117: BLUE HERON ROAD (HWY 742)



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	rrier ID Barrier Length Barrier Barrier End Treatment		Treatment	*Repair	
Inspection Date	(Ft.)	Туре	Begin	End	Cost
BISO-0117-0.973-R 10/3/2010	818	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$12,458.00
BISO-0117-1.113-L 10/3/2010	964	W-BEAM STRONG POST	W-BEAM BURIED END	W-BEAM BCT	\$15,334.00
BISO-0117-1.291-R 10/3/2010	4069	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$64,906.00
BISO-0117-2.105-R 10/3/2010	295	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$6,490.00
BISO-0117-2.239-R 10/3/2010	444	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$3,669.00
	*2008 cost estimate (A	STM Class D), preliminary for co	omparison to other repair cos	ts only.	

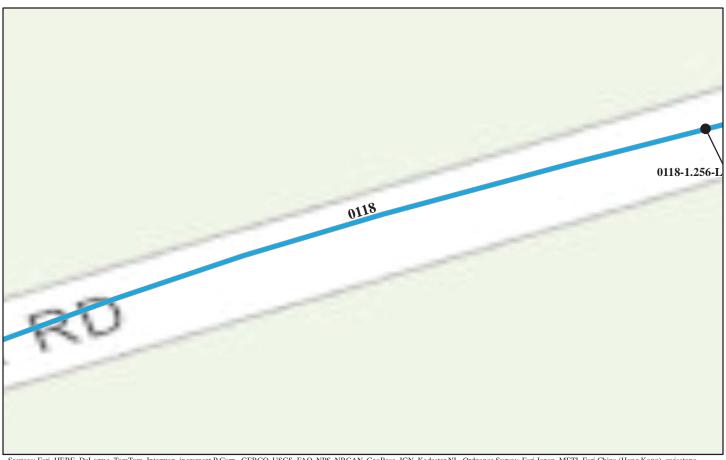
ROUTE 0117: BLUE HERON ROAD (HWY 742)



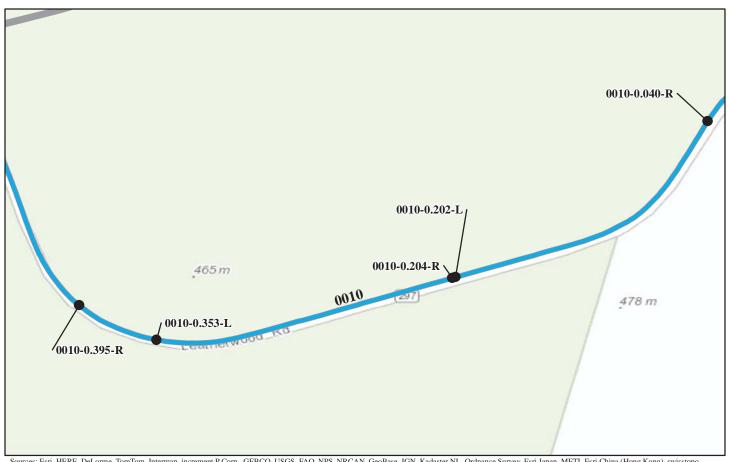
Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Barrier ID	Barrier Length	Barrier	Barrier End	l Treatment	*Repair
Inspection Date	(Ft.)	Туре	Begin	End	Cost
BISO-0117-2.337-R 10/3/2010	47	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
BISO-0117-2.389-R 10/3/2010	349	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
BISO-0117-2.470-R 10/3/2010	938	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
BISO-0117-2.664-R 10/3/2010	378	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
BISO-0117-2.762-R 10/3/2010	1070	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
	*2008 cost estimate (A.	STM Class D), preliminary for cor	nparison to other repair co	sts only.	,

ROUTE 0118: BLUE HERON OVERLOOK ROAD

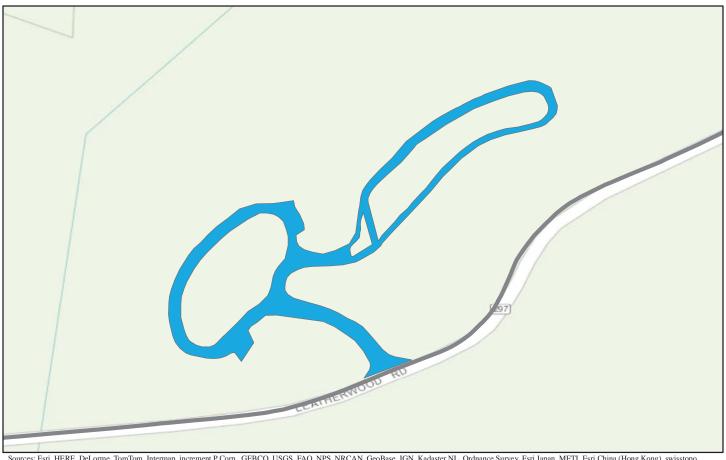


Barrier Length	Barrier	Barrier End	Treatment	*Repair
(Ft.)	Туре	Begin	End	Cost
105	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
	(Ft.)	(Ft.) Type 105 OTHER: TIMBER RAIL	(Ft.) Type Begin 105 OTHER: TIMBER RAIL NONE	(Ft.) Type Begin End 105 OTHER: TIMBER RAIL NONE NONE



Barrier ID	Barrier Length	Barrier			*Repair				
Inspection Date	(Ft.)	Туре	Begin	End	Cost				
BISO-0700-0.084-L	2	W-BEAM STRONG POST	W-BEAM BCT	NONE	\$0.00				
10/5/2010									
BISO-0700-0.124-R	16	W-BEAM STRONG POST	NONE	NONE	\$0.00				
10/5/2010									
BISO-0700-0.179-L	61	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$0.00				
10/5/2010									
BISO-0700-0.181-R	93	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$0.00				
10/5/2010									
3	*2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.								

ROUTE 0900: LEATHERWOOD DAY USE PARKING



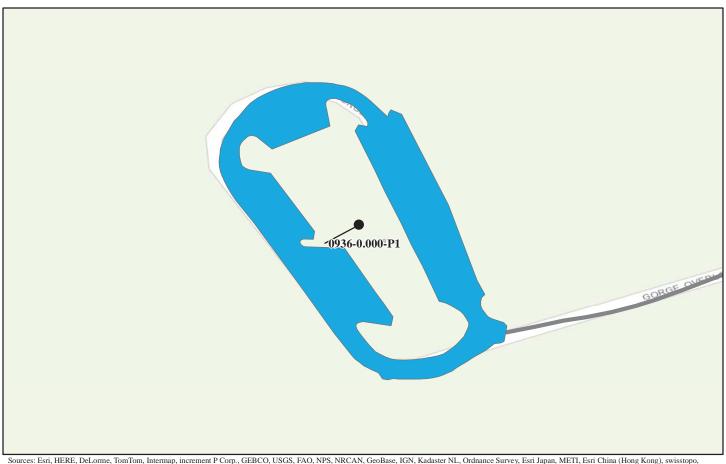
Barrier ID	Barrier Length	Barrier	Barrier En	d Treatment	*Repair
Inspection Date	(Ft.)	Туре	Begin	End	Cost
BISO-0900-0.000-P1	138	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$0.00
BISO-0900-0.000-P2	144	W-BEAM STRONG POST	NONE	W-BEAM BCT	\$0.00
10/1/2010					
	*2008 cost estimate (A	STM Class D), preliminary for co	omparison to other repair co	ests only.	

ROUTE 0925: BREWSTER BRIDGE TRAILHEAD PARKING



Barrier ID	Barrier Length	Barrier	Barrier End Treatment		*Repair
Inspection Date	(Ft.)	Туре	Begin	End	Cost
BISO-0925-0.000-P1 10/4/2010	351	W-BEAM STRONG POST	W-BEAM BCT	W-BEAM BCT	\$4,065.00
	*2008 cost estimate (A	STM Class D), preliminary for co	omparison to other repair co	sts only.	

ROUTE 0936: BLUE HERON OVERLOOK PARKING



Barrier ID	Barrier Length	Barrier	Barrier End	d Treatment	*Repair
Inspection Date	(Ft.)	Type	Begin	End	Cost
BISO-0936-0.000-P1 10/3/2010	544	OTHER: TIMBER RAIL ON TIMBER POSTS	NONE	NONE	\$0.00
	*2008 cost estimate (A.	STM Class D), preliminary for co	omparison to other repair co	sts only.	

Tier 3 Barrier Details



Big South Fork National River and Recreation Area



В	arrier ID:	BISO-0010-0.040-R						
Rou	ite Name:	LEATHE	RWOOD FORD ROA	D (STATE HIGHWAY	7 297)			
Inspec	tion Date:	10/01/201	0	Barrier Rating:		54.50		
Barrier Descripti	ion							
	Type:	W-BEAM	STRONG POST	Barrier	Function:	TRAFFIC		
Barrier	Material:	WEATHER STEEL/CO		Post	Material:	CORTEN		
	Blockout Type:	STEEL		Le	ngth (ft.):	533		
Speed Lim	it (MPH):	35			ment with to Road:	INSIDE OF	FCURVE	
Hazard Behind	d Barrier:	MEDIUM						
Barrier Crashwo	rthiness							
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES	
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE	
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:	NO				
Average Measure	ements							
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	75.0	
Height (In.):	19.6		Lateral Offset (In.):	37.5	Road G	rade (%):	0.60	
Physical Condition	on							
	Align	ment and Height:	Alignment has no deviation	n and height is low by 5 to 1	0 in below the	design height	of 27 in.	
Barrier		aking and Cracking:	No breaking or cracking of	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		rosion and eathering:	No corrosion or weathering	g observed.				
	Align	ment and Height:						
End Treatments	1	Breaking and Cracking: No breaking or cracking observed.						
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				
			L					

Barrier ID:		BISO-0010-0.040-R					
Route Name:		LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)					
Inspection Date:		10/01/2010		Barrier Rating:		54.50	
Repair Recommendations							
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$10731
Brief Workorder:	Raise 533 feet of guardrail to 27-in design height.						
Workorder:	Adjust Guardrail at \$10- per -Lin. Ft. for 533 LF = \$5330. Raise 533 feet of guardrail to 27-in 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.							

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_0.040_R_1.JPG

Route Name: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)	Ba	arrier ID:	BISO-0010	-0.202-L						
Barrier Description	Rou	ite Name:	LEATHER	RWOOD FORD ROAL	D (STATE HIGHV	WAY 297)				
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL_CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with TANGENT Respect to Road: TANGENT RESPECT RESPECT TO	Inspec	tion Date:	10/01/2010	0	Ba	arrier Rating:	18.20			
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL_CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with TANGENT Respect to Road: TANGENT RESPECT RESPECT TO	Barrier Descripti	ion								
STEEL/CORTEN STEEL Length (ft.): 354			W-BEAM S	STRONG POST	Barı	eier Function:	TRAFFIC			
Type: Speed Limit (MPH): 35	Barrier	Material:			Post Material: CORTEN					
Respect to Road:			STEEL			Length (ft.):	354			
Appropriate Test Level: Appropriate Test Level: Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Test Level: Ending End Trtmt Type: Ending End Trtmt Type: Average Measurements Design Height (In.): 27	Speed Lim	it (MPH):	35				TANGENT			
Appropriate Test TL-2 Barrier Test Level: Crashworthy?: Seg. End Trtmt Type: Is Beg. End Trtmt Type: Is Beg. End Trtmt Crashhworthy?: NO Approach NONE Ending End Trtmt Type: Ending End Trtmt Crashhworthy?: Ending End Trtmt Type: NO Approach Transition Type: Ending End Trtmt Type: NO Post Spacing (In.): 74.6 Height (In.): 27 Width (In.): 59.2 Road Grade (%): 2.40 Physical Condition Alignment and Height: Breaking and Cracking: No breaking or cracking observed. Missing Elements: No missing elements observed.	Hazard Behind	d Barrier:	HIGH							
Level: Test Level: Crashworthy?:	Barrier Crashwo	rthiness								
Beg. End Trtmt Type: Is Beg. End Trtmt Crashhworthy?: NO Approach Transition Type:		TL-2			TL-3			YES		
Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.6 Height (In.): 27.2 Lateral Offset (In.): 59.2 Road Grade (%): 2.40 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Corrrosion and Weathering: Alignment and Height: Breaking and Corrosion or weathering observed. Corrosion and Height: Breaking and Corrosion or weathering observed. Breaking and Corrosion or weathering observed. Breaking and Corrosion or weathering observed. Corrosion and Height: Breaking and Corrosion or weathering observed.	Beg. End Trtmt	W-BEAM I	ВСТ	Is Beg. End Trtmt	NO	1	Approach	NONE		
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.6	Ending End Trtmt	W-BEAM I	ВСТ		NO					
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.6	Average Measure	ements								
Height (In.): 27.2 Lateral Offset (In.): 59.2 Road Grade (%): 2.40 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: No corrosion or weathering observed. Alignment is acceptable. Height is within 1-in of 27-in design height. Alignment observed. Alignment and Height: Breaking and Cracking: No breaking or cracking observed. No missing elements observed. No missing elements observed. No missing elements observed. No breaking or cracking observed.			Width (In.): 0.0 Post Spacing (In.): 74.6							
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. No missing elements observed. Alignment and Height: Breaking and Cracking: No corrosion or weathering observed. Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: No breaking or cracking observed.		27.2		80 7						
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. No missing elements observed. Alignment and Height: Breaking and Cracking: No corrosion or weathering observed. Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: No breaking or cracking observed.	Physical Condition	on								
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: No breaking or cracking observed. No breaking or cracking observed.		Align								
Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: No corrosion or weathering observed. Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking:	Barrier		_	No breaking or cracking ob	oserved.					
Weathering: Alignment and Height: Breaking and Cracking: No breaking or cracking observed.		Missing 1	Elements:	No missing elements obser	ved.					
Height: Breaking and Cracking: No breaking or cracking observed. Cracking:				No corrosion or weathering	g observed.					
End Treatments Cracking:		Align		" 						
Missing Elements: No missing elements observed.	End Treatments	1	_							
		Missing 1	Elements:	No missing elements obser	ved.					
Corrrosion and Weathering: No corrosion or weathering observed.				No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010	-0.202-L				
Rou	ite Name:	LEATHER	RWOOD FORD ROA	HWAY 297)			
Inspec	tion Date:	10/01/2010)]	Barrier Rating:	18.20	
Repair Recomme	endations						
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A						
Workorder:							
	2008 co	st estimate (A	STM Class D), prelimin	ary for comparison	n to other repair co	sts only.	

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_0.202_L_1.JPG

Route Name: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297) Inspection Date: 10/01/2010 Barrier Rating: 18 20 Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING Post Material: CORTEN STEEL Length (ft.): 290 Type: Speed Limit (MPH): 35 Placement with Respect to Road: TANGENT Hazard Behind Barrier: HIGH Barrier Crashworthiness HIGH Barrier Crashworthiness TL-2 Barrier TL-3 Is Barrier YES Level: Test Level: Crashworthy?: Beg. End Trtmt Type: Transition Type: Transition Type: Ending End Trumt Type: Crashworthy?: Transition Type: Ending End Trumt Crashhworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Height: Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.	Barrie	: BISO-0010-0.204-R	r ID: BISO-0010-0.204-R							
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: TANGENT Hazard Behind Barrier: HIGH Barrier Crashworthiness Appropriate Test Level: TL-2 Barrier TL-3 Is Barrier Crashworthy?: Crashworthy?: Crashworthy?: Transition Type: Test Level: Crashworthy?: Transition Type: Ending End Trtmt Type: Total Trunt Crashworthy?: Transition Type: Total Trunt Crashworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.	Route N	: LEATHERWOOD FO	ame: LEATHERWOOD FORI	O ROAD (STATE HIGHV	WAY 297)					
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: Hazard Behind Barrier: HIGH Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Seg. End Trtmt Type: Test Level: Crashworthy?: Transition Type: Transition T	Inspection J	: 10/01/2010	Date: 10/01/2010	Ba	arrier Rating:	18.20				
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: Hazard Behind Barrier: HIGH Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Seg. End Trtmt Type: Test Level: Crashworthy?: Transition Type: Transition T	Barrier Description									
STEEL/CORTEN Blockout Type: Speed Limit (MPH): 35 Speed Limit (MPH): 35 Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg. End Trtmt Type: Speed Trtmt Type: Crashworthy?: Speed Trtmt Type: Crashworthy?: Speed Trtmt Type: Speed Trt	•	: W-BEAM STRONG POS	Type: W-BEAM STRONG POST	Barr	rier Function:	TRAFFIC				
Type: Speed Limit (MPH): 35 Respect to Road: Hazard Behind Barrier: HIGH Barrier Crashworthiness Appropriate Test Level: TL-2 Barrier Test Level: Crashworthy?: Beg. End Trtmt Type: Test Level: Test Level: Crashworthy?: Transition Type: Tr	Barrier Mate			1	Post Material: CORTEN					
Hazard Behind Barrier: HIGH Barrier Crashworthiness Appropriate Test Level: TL-2 Barrier TL-3 Is Barrier Crashworthy?: Test Level: Crashworthy?: Beg. End Trtmt Type: W-BEAM BCT Is Beg. End Trtmt Crashhworthy?: Transition Type: Transition Type: Transition Type: NO Approach Transition Type: Transition Type: NO Approach Transition Type: Transition Type: NO Approach Transition Type: Transition Type: NO Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.		*			Length (ft.):	290				
Barrier Crashworthiness Appropriate Test Level: Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashhworthy?: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashhworthy?: Ending End Trtmt Crashhworthy?: MO Approach NONE Transition Type: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.	Speed Limit (M	: 35	PH): 35			TANGENT				
Appropriate Test Level: Beg. End Trtmt Type: The state of the state	Hazard Behind Bar	: HIGH	rier: HIGH							
Level: Beg. End Trtmt Type: W-BEAM BCT Is Beg. End Trtmt Crashhworthy?: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: W-BEAM BCT Crashhworthy?: NO Approach Transition Type: NO Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.	Barrier Crashworthi	S	ness							
Beg. End Trtmt Type: W-BEAM BCT Is Beg. End Trtmt Crashhworthy?: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: Crashhworthy?: NO Approach Transition Type: NO Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.		Te		**			YES			
Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.	Beg. End Trtmt W-B	1 BCT Is Beg. En	EAM BCT Is Beg. End	Trtmt NO		Approach	NONE			
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.	Ending End Trtmt W-B									
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.	Average Measureme		nts							
Height (In.): 29.2 Lateral Offset (In.): 49.0 Road Grade (%): 2.00 Physical Condition Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.		Wid		74.3						
Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.				80 7						
Alignment and Alignment has no deviation and height is at or above the 27 in design height by up to 4 in.	Physical Condition									
		,	8							
Barrier Breaking and Cracking: No breaking or cracking observed.	Barrier	-	2100000	acking observed.						
Missing Elements: No missing elements observed.	Mis	g Elements: No missing ele	ssing Elements: No missing elements	ents observed.						
Corrrosion and Weathering: No corrosion or weathering observed.				veathering observed.						
Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.		,		·* · · · · · · · · · · · · · · · · · ·						
End Treatments Breaking and Cracking: No breaking or cracking observed.	End Treatments			acking observed.						
Missing Elements: No missing elements observed.	Mis	g Elements: No missing ele	ssing Elements: No missing elements	ents observed.						
Corrrosion and Weathering: No corrosion or weathering observed.				veathering observed.						

В	arrier ID:	BISO-0010	-0.204-R				
Rou	ite Name:	LEATHER	RWOOD FORD ROA	HWAY 297)			
Inspec	tion Date:	10/01/2010)		Barrier Rating:	18.20	
Repair Recomme	endations						
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A						
Workorder:							
	2008 co	st estimate (A	STM Class D), prelimin	ary for compariso	n to other repair co	sts only.	

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_0.204_R_1.JPG

В	arrier ID:	BISO-0010	-0.353-L						
Rou	ite Name:	LEATHER	RWOOD FORD ROAL	D (STATE HIGHW.	AY 297)				
Inspec	tion Date:	10/01/201	0	Bar	rier Rating:	22.20			
Barrier Descripti	ion								
	Type:	W-BEAM S	STRONG POST	Barrio	er Function:	TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Po	st Material:	CORTEN			
	Blockout Type:	STEEL]	Length (ft.):	203			
Speed Lim	it (MPH):	35			cement with ect to Road:	OUTSIDE	OF CURVE		
Hazard Behind	d Barrier:	MEDIUM							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier nworthy?:	YES		
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach	NONE		
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO					
Average Measure	ements								
Design Height (In.):	27		Width (In.): 0.0 Post Spacing (In.): 74.5						
Height (In.):	28.0		Lateral Offset (In.): 86.0 Road Grade (%): 1.20						
Physical Condition	on								
	Align	ment and Height:							
Barrier		aking and Cracking:	No breaking or cracking observed.						
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:							
	Align	ment and Height:							
End Treatments	1	aking and Cracking:							
	Missing	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010	-0.353-L				
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGHWA)	Y 297)		
Inspec	tion Date:	10/01/2010	0	Barri	er Rating:	22.20	
Repair Recomme	endations	;					
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A						
Workorder:							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.	

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_0.353_L_1.JPG

	rrier ID:	BISO-0010	-0.395-K						
Rout	te Name:	LEATHER	RWOOD FORD ROAL	D (STATE HIGHWAY	7 297)				
Inspecti	on Date:	10/01/2010)	Barrie	er Rating:	32.70			
Barrier Description	on								
1	Туре:	W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC			
Barrier N	Aaterial:	WEATHER STEEL/CO		Post Material: CORTEN					
]	Blockout Type:	STEEL		Le	ngth (ft.):	330			
Speed Limit	(MPH):	35			ment with to Road:	INSIDE OF	FCURVE		
Hazard Behind	Barrier:	HIGH							
Barrier Crashwor	thiness								
Appropriate Test Level:	ГL-2		Barrier Test Level:	TL-3	1	Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO	1	Approach	NONE		
	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO					
Average Measure	ments								
	27		Width (In.): 0.0 Post Spacing (In.): 74.6						
	26.7		Lateral Offset (In.): 47.2 Road Grade (%): 4.10						
Physical Condition	n								
	Align	ment and Height:							
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing I	Elements:	No missing elements obser	ved.					
		osion and eathering:							
	Align	ment and Height:							
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.					
	Missing I	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010)-0.395-R							
Rou	ıte Name:	LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)								
Inspec	tion Date:	10/01/201	0/01/2010 Barrier Rating: 32.70							
Repair Recomme	endations									
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$2690			
Brief Workorder:	Raise 97 feet	of guardrail t	o 27-in design height.							
Workorder:	1 -		er -Lin. Ft. for 97 LF = \$970 at \$1475- per -Day for 1 Da	. Raise 97 feet of guardrail t $ay(s) = 1475 .	o 27-in design	height.				
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.				

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_0.395_R_1.JPG

В	arrier ID:	BISO-0010	-1.144-L							
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGHWA)	Y 297)					
Inspec	tion Date:	10/01/2010	0	Barri	er Rating:	37.00				
Barrier Descripti	ion									
·	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC				
Barrier	Material:	WEATHER STEEL/CO		Post Material: CORTEN						
	Blockout Type:	STEEL		Lo	ength (ft.):	869				
Speed Lim	it (MPH):	20			ment with t to Road:	BOTH INS	IDE AND OUTSIDE			
Hazard Behind	d Barrier:	HIGH								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3	1	Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	Crashhworthy?: Transition Type:						
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO						
Average Measure	ements									
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	74.0			
Height (In.):	24.7		Width (In.): 0.0 Post Spacing (In.): 74.0 Lateral Offset (In.): 43.0 Road Grade (%): 6.30							
Physical Condition	on									
	Align	ment and Height:	Alignment has no deviation	and height is 2 to 3 in belo	ow the 27 in de	esign height fo	r 402 ft.			
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.						
	Missing 1	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						
	Align	ment and Height:								
End Treatments	1	aking and Cracking:	No breaking or cracking ob	oserved.						
	Missing 1	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0010	-1.144-L							
Rou	ite Name:	: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)								
Inspec	tion Date:	te: 10/01/2010 Barrier Rating: 37.00								
Repair Recomme	endations									
Repair Action:	REPAIR		FMSS Work Type:	DEFERRED MAINTENANCE		Repair Cost:	\$7667			
Brief Workorder:	Raise 402 fee	et of guardrail	up to 27-in design height.							
Workorder:	'		er -Lin. Ft. for 402 LF = \$40 at \$1475- per -Day for 2 Da		ail up to 27-in	design height.				
	2008 со	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.				

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_1.144_L_1.JPG

Route Name: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)	Ba	arrier ID:	BISO-0010	-1.345-R						
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL CORTEN STEEL/CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: BOTH INSIDE AND OUTSID Respect to Road: Placement with Respect to Road: BOTH INSIDE AND OUTSID RESPECT TO ROAD: PERCENTAGE OF THE RESPECT	Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGH	HWAY 297)				
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout STEEL/CORTEN Blockout STEEL Length (ft.): 301 Type: Speed Limit (MPH): 20 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: See Crashworthy?: See Crashworthy?: Test Level: Crashworthy?: Transition Type: Tending End Trtmt Type: See The Truth Type: See	Inspect	tion Date:	10/01/2010	0]	Barrier Rating:	25.10			
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout STEEL/CORTEN Blockout STEEL Length (ft.): 301 Type: Speed Limit (MPH): 20 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: See Crashworthy?: See Crashworthy?: Test Level: Crashworthy?: Transition Type: Tending End Trtmt Type: See The Truth Type: See	Barrier Descripti	on								
STEEL/CORTEN STEEL Length (ft.): 301			W-BEAM S	STRONG POST	Ba	rrier Function:	TRAFFIC			
Type: Speed Limit (MPH): 20 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Leve	Barrier	Material:				Post Material:	CORTEN			
Respect to Road:			STEEL			Length (ft.):	301			
Appropriate Test Level: Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Type: Ending End Trtmt Type: Average Measurements Design Height (In.): Alignment and Height: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. No missing elements observed. Is Beg. End Trtmt No Approach NONE Transition Type: No Approach NONE Transition Type: No Approach NONE Transition Type: So Approach NONE Transition Type: No Approach NONE Transition Type: So Ap	Speed Limi	it (MPH):	20				BOTH INS	IDE AND OUTSIDE		
Appropriate Test Level: Beg. End Trtmt Type: Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashhworthy?: NO Approach Transition Type: Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 53.0 Post Spacing (In.): 75.0 Height (In.): 28.6 Lateral Offset (In.): 53.0 Road Grade (%): 4.30 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No breaking or cracking observed. Corrrosion and No corrosion or weathering observed.	Hazard Behind	d Barrier:	MEDIUM							
Level: Beg. End Trtmt Type: W-BEAM BCT Tensihworthy?: Ending End Trtmt Type: W-BEAM BCT Tensihworthy?: Ending End Trtmt Type: NO Approach Transition Type: Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 38.6 Lateral Offset (In.): 4.30 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. No missing elements observed. Corrrosion and No corrosion or weathering observed.	Barrier Crashwo	rthiness								
Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Crashhworthy?: Ending End Trtmt Type: NO Approach Transition Type: NO Average Measurements Design Height (In.): Physical Condition Alignment and Height: Breaking and Cracking: No breaking or cracking observed. No missing elements observed. Corrrosion and No corrosion or weathering observed.		TL-1			TL-3			YES		
Type: Crashhworthy?:	_	W-BEAM I	ВСТ		NO	1	Approach	NONE		
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Height (In.): 28.6 Lateral Offset (In.): 53.0 Road Grade (%): 4.30 Physical Condition Alignment and Height: The alignment has no deviation and height is at or above the design height of 27 in by up to 2 in. Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.	_	W-BEAM I	ВСТ		NO					
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Height (In.): 28.6 Lateral Offset (In.): 53.0 Road Grade (%): 4.30 Physical Condition Alignment and Height: The alignment has no deviation and height is at or above the design height of 27 in by up to 2 in. Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.	Average Measure	ements								
Height (In.): 28.6 Lateral Offset (In.): 53.0 Road Grade (%): 4.30 Physical Condition Alignment and Height: The alignment has no deviation and height is at or above the design height of 27 in by up to 2 in. Breaking and Cracking: No breaking or cracking observed. Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.	Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	75.0		
Barrier Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		28.6		8()						
Barrier Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.	Physical Condition	on		Eater at Offset (In.).						
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Align								
Corrrosion and No corrosion or weathering observed.	Barrier		_	No breaking or cracking of	oserved.					
		Missing 1	Elements:	No missing elements obser	ved.					
				No corrosion or weathering	g observed.					
Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.		Align		Alignment is acceptable. Height is within 1-in of 27-in design height.						
End Treatments Breaking and Cracking: No breaking or cracking observed.	End Treatments		_							
Missing Elements: No missing elements observed.		Missing 1	Elements:	No missing elements obser	ved.					
Corrrosion and Weathering: No corrosion or weathering observed.				No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010)-1.345-R				
Rou	ite Name:	LEATHEI					
Inspec	tion Date:	10/01/201	0	Barri	er Rating:	25.10	
Repair Recomme	endations	\$					
Repair Action:	NO ACTIC	DN	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A						
Workorder:							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair cos	sts only.	

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_1.345_R_1.JPG

В	arrier ID:	BISO-0010	-1.421-L				
Rou	ite Name:	LEATHER	RWOOD FORD ROAL	D (STATE HIGHWA	Y 297)		
Inspec	tion Date:	10/01/201	0	Barr	ier Rating:	23.60	
Barrier Descripti	ion						
	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC	
Barrier	Material:	WEATHER STEEL/CO		Pos	t Material:	CORTEN	
Blockout Type:		STEEL		L	ength (ft.):	1177	
Speed Limit (MPH):		20			ement with ct to Road:	BOTH INS	IDE AND OUTSIDE
Hazard Behind	d Barrier:	MEDIUM					
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3	1	Is Barrier nworthy?:	YES
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach	NONE
Ending End Trtmt Type:	W-BEAM BCT		Ending End Trtmt Crashhworthy?:	NO			
Average Measure	ements						
Design Height (In.):				0.0	Post Spa	cing (In.):	70.0
Height (In.):	28.2		Lateral Offset (In.):	56.2		rade (%):	8.80
Physical Condition	on						
	Align	ment and Height:	Alignment has no deviation	n and height is above the de	esign height of 2	27 in by 1 to 2	in.
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-	in design height	i.	
End Treatments	1	aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			

В	arrier ID:	BISO-0010-1.421-L							
Rou	ite Name:	LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Inspection Date:		10/01/2010		Barrier Rating:		23.60			
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_1.421_L_1.JPG

В	arrier ID:	BISO-0010	-1.675-L					
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGHWA	Y 297)			
Inspec	tion Date:	10/01/201	0	Barri	ier Rating:	32.50		
Barrier Descripti	ion							
	Type:	W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC		
Barrier	Material:	WEATHER STEEL/CO		Post	t Material:	CORTEN		
Blockout Type:		STEEL		L	ength (ft.):	653		
Speed Limit (MPH):		20			ement with et to Road:	BOTH INS	IDE AND OUTSIDE	
Hazard Behind	d Barrier:	MEDIUM						
Barrier Crashwo	rthiness							
Appropriate Test Level:			Barrier Test Level:	TL-3		Is Barrier worthy?:	YES	
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE	
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A				
Average Measure	ements							
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	76.0	
Height (In.):	25.2		Lateral Offset (In.):	40.7		rade (%):	12.60	
Physical Condition	on							
	Align	ment and Height:	Alignment has no deviation and height is 2 to 3 in below the 27 in design height for 258 ft.					
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-i	n design height			
End Treatments	1	aking and Cracking:	No breaking or cracking of	oserved.				
	Missing 1	Elements:	The approach end appeared	d to be missing several elen	nents including	rail and bolts.		
		osion and eathering:	No corrosion or weathering	g observed.				

В	arrier ID:	BISO-0010	-1.675-L						
Rou	ite Name:	LEATHE	RWOOD FORD ROA	D (STATE HIGHWAY	Y 297)				
Inspec	Inspection Date:		0	Barrier Rating:		32.50			
Repair Recomme	endations	;							
Repair Action:	REPLACE			CAPITAL IMPROVEMENT		Repair Cost:	\$9933		
Brief Workorder:	Raise 258 fee	uise 258 feet of guardrail up to 27-in design height and add replace end terminal.							
Workorder:	W-beam flar	djust Guardrail at \$10- per -Lin. Ft. for 258 LF = \$2580. Raise 258 feet of guardrail up to 27-in design height. -beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. -beam flared 350 compliant at \$1475- per -Day for 2 Day(s) = \$2950. 1 day raise barrier 1 day replace end treatment.							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_1.675_L_1.JPG

В	arrier ID:	BISO-0010	-1.811-R				
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HI	GHWAY 297)		
Inspec	tion Date:	10/01/201	0		Barrier Rating:	32.40	
Barrier Descripti	ion						
	Type:	W-BEAM S	STRONG POST]	Barrier Function:		
Barrier	Material:		WEATHERING STEEL/CORTEN		Post Material:	CORTEN	
	Blockout Type:	STEEL			Length (ft.):	325	
Speed Limit (MPH):		20			Placement with Respect to Road:	BOTH INS	IDE AND OUTSIDE
Hazard Behind	d Barrier:	MEDIUM					
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE
Ending End Trtmt Type:	W-BEAM BCT		Ending End Trtmt Crashhworthy?:	NO			
Average Measure	ements						
Design Height (In.): 27			Width (In.):	0.0	Post Space	cing (In.):	64.3
Height (In.):	26.2		Lateral Offset (In.):	47.5		rade (%):	4.50
Physical Condition	on						
	Align	ment and Height:	The alignment has no deviate.	ation and height is	low by 2 to 3 in from the	e design heigl	nt of 27 in for 168
Barrier		aking and Cracking:	No breaking or cracking of	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-	in of 27-in design height		
End Treatments	1	aking and Cracking:	No breaking or cracking of	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			

В	arrier ID:	BISO-0010)-1.811-R						
Route Name: LEA			EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspection Date: 10/0		10/01/201	0	Barrier Rating:		32.40			
Repair Recomme	endations								
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$3471		
Brief Workorder:	Raise 168 fee	aise 168 feet of guardrail to 27-in design height.							
Workorder:	1 -	djust Guardrail at \$10- per -Lin. Ft. for 168 LF = \$1680. Raise 168 feet of guardrail to 27-in design height. ow Speed Traffic Control at \$1475- per -Day for 1 Day(s) = \$1475.							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	ests only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_1.811_R_1.JPG

Route Name: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)	OUTSIDE
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: BOTH INSIDE AND CORTEN	OUTSIDE
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: BOTH INSIDE AND CORTEN	OUTSIDE
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: BOTH INSIDE AND CORTEN	OUTSIDE
STEEL/CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: Hazard Behind Barrier: HIGH	OUTSIDE
Type: Speed Limit (MPH): 20 Placement with Respect to Road: Hazard Behind Barrier: HIGH	OUTSIDE
Respect to Road: Hazard Behind Barrier: HIGH	OUTSIDE
'	
Barrier Crashworthiness	
Appropriate Test TL-1 Barrier TL-3 Is Barrier YES Level: Crashworthy?:	
Beg. End Trtmt W-BEAM BCT Is Beg. End Trtmt NO Approach Transition Type: Crashhworthy?: Transition Type:	
Ending End Trtmt Type: Ending End Trtmt Crashhworthy?: N/A	
Average Measurements	
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.8	
Height (In.): 25.5 Lateral Offset (In.): 39.2 Road Grade (%): 7.50	
Physical Condition	
Alignment and Height: Alignment has no deviation and height is 3 to 5 in below 27 in design height for 132 ft and 2 to 3 below 27 in design height for 348 ft.	3 in
Breaking and Cracking: No breaking or cracking observed.	
Missing Elements: No missing elements observed.	
Corrrosion and Weathering: No corrosion or weathering observed.	
Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.	
End Treatments Breaking and Cracking: No breaking or cracking observed.	
Missing Elements: No missing elements observed.	
Corrrosion and Weathering: No corrosion or weathering observed.	

В	arrier ID:	BISO-0010)-1.885-R						
Rou	Route Name: LEATHERWOOD FORD ROAD			D (STATE HIGHWAY	Y 297)				
Inspec	Inspection Date: 10		0	Barrier Rating:		49.90			
Repair Recomme	endations	;							
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$8525		
Brief Workorder:	Raise 480 fee	uise 480 feet of guardrail to 27-in design height.							
Workorder:		ljust Guardrail at \$10- per -Lin. Ft. for 480 LF = \$4800. Raise 480 feet of guardrail to 27-in design height. w Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950.							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_1.885_R_1.JPG

В	arrier ID:	BISO-0010	-2.175-L					
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGHWA	Y 297)			
Inspec	tion Date:	10/01/2010	0	Barr	ier Rating:	18.20		
Barrier Descripti	ion							
·	Type:	W-BEAM S	STRONG POST	Barrier	Barrier Function:			
Barrier	Material:	WEATHER STEEL/CO		Pos	t Material:	CORTEN		
	Blockout Type:	STEEL		L	ength (ft.):	79		
Speed Limit (MPH):		20			ement with et to Road:	OUTSIDE	OF CURVE	
Hazard Behind Barrier: LOW		LOW						
Barrier Crashwo	rthiness							
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES	
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE	
Ending End Trtmt Type:	W-BEAM BCT		Ending End Trtmt Crashhworthy?:	NO				
Average Measure	ements							
Design Height (In.): 27		Width (In.):	0.0	Post Spa	cing (In.):	58.2		
Height (In.):	26.0		Lateral Offset (In.):	37.2		rade (%):	5.30	
Physical Condition	on							
	Align	ment and Height:	Alignment has no deviation	n and height is within 1 in o	of the 27 in desi	gn height.		
Barrier		aking and Cracking:	No breaking or cracking ob	served.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-i	n design height	i.		
End Treatments	1	aking and Cracking:	No breaking or cracking ob	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				

В	arrier ID:	BISO-0010-2.175-L							
Rou	ite Name:	LEATHE	LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/01/2010		Barrier Rating:		18.20			
Repair Recomme	endations	;							
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$	\$0	
Brief Workorder:	N/A								
Workorder:								_	
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_2.175_L_1.JPG

В	arrier ID:	BISO-0010	-2.219-R					
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGHV	WAY 297)			
Inspec	tion Date:	10/01/2010	0	Ba	arrier Rating:	12.60		
Barrier Descripti	ion							
	Type:	W-BEAM S	STRONG POST Barrier 1		ier Function:	TRAFFIC		
Barrier	Material:	WEATHER STEEL/CO		P	Post Material:	CORTEN		
	Blockout Type:	STEEL			Length (ft.):	246		
Speed Limit (MPH):		20			acement with pect to Road:	INSIDE OF	F CURVE	
Hazard Behind Barrier: LOW		LOW						
Barrier Crashworthiness								
Appropriate Test Level:			Barrier Test Level:	TL-3		Is Barrier worthy?:	YES	
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	BRIDGE RAIL W-BEAM	
Ending End Trtmt Type:			Ending End Trtmt Crashhworthy?:	N/A				
Average Measure	ements							
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	75.0	
Height (In.):	27.2		Lateral Offset (In.):	37.2		rade (%):	0.70	
Physical Condition	on							
	Align	ment and Height:	Alignment has no deviation and height ranges from 1 in below to 2 in above the 27 in design height.					
Barrier		aking and Cracking:						
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				
	Align	ment and Height:						
End Treatments		aking and Cracking:						
	Missing	Elements:						
		osion and eathering:						

В	arrier ID:	BISO-0010-2.219-R							
Rou	ite Name:	LEATHE	LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/01/2010		Barrier Rating:		12.60			
Repair Recomme	endations	;							
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$	\$0	
Brief Workorder:	N/A								
Workorder:								_	
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_2.219_R_1.JPG

Route Name: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297) Inspection Date: 10/01/2010 Barrier Rating: 17.80 Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Post Material: CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test TL-1 Barrier Test Level: Crashworthy?: Beg. End Trtmt Type: Test Level: Crashworthy?: Beg. End Trtmt Type: Test Level: Crashworthy?: Ending End Trtmt Type: NONE Ending End Trtmt Crashworthy?: Ending End Trtmt Type: NONE Ending End Trtmt Crashworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Height: Alignment has no deviation and height is within 1 in of the 27 in design height.	Bar	rier ID: BISO-001	0-2.222-L						
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg. End Trtmt Type: Is Beg. End Trtmt Crashworthy?: NO Approach Transition Type: Post Material: None Transition Type: Post Material: Crashworthy?: None Transition Type: None Approach Transition Type: Transition	Route	Name: LEATHE	ERWOOD FORD ROA	D (STATE HIGHWA	Y 297)				
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: OUTSIDE OF CURVE Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: TL-1 Barrier Test Level: Crashworthy?: Seg. End Trtmt Type: Crashworthy?: NO Approach Transition Type: Passament Type: Crashworthy?: Transition Type: NONE Ending End Trtmt Crashhworthy?: N/A Ending End Trtmt Type: Crashworthy?: N/A Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.	Inspectio	n Date: 10/01/20	10	Barri	er Rating:	17.80			
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: OUTSIDE OF CURVE Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: TL-1 Barrier Test Level: Crashworthy?: Seg. End Trtmt Type: Crashworthy?: NO Approach Transition Type: Passament Type: Crashworthy?: Transition Type: NONE Ending End Trtmt Crashhworthy?: N/A Ending End Trtmt Type: Crashworthy?: N/A Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.	Barrier Description	<u> </u>							
STEEL/CORTEN Blockout Type: Speed Limit (MPH): 20 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg. End Trtmt Type: Seg. End Trtmt Type: Crashworthy?: Transition Type: W-BEAM Crashworthy?: Ending End Trtmt Type: Crashworthy?: NONE Ending End Trtmt Type: Crashworthy?: Seg. Height (In.): 27 Average Measurements Design Height (In.): 27 Width (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.			STRONG POST	Barrier	Function:	TRAFFIC			
Type: Speed Limit (MPH): 20 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg, End Trtmt Type: Test Beg, End Trtmt Crashworthy?: Transition Type: NON Approach Transition Type: NONE Ending End Trtmt Type: NONE Crashworthy?: None Crashworthy?: Transition Type: None Crashworthy?:	Barrier M	l		Post	Material:	CORTEN	ORTEN		
Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: TL-1 Barrier Crashworthy?: Beg. End Trtmt Type: Is Beg. End Trtmt Crashworthy?: Is Beg. End Trtmt Crashworthy?: NO Approach Transition Type: BRIDGE RAIL W-BEAM Ending End Trtmt Type: NONE Ending End Trtmt Crashhworthy?: N/A Ending End Trtmt Type: NONE Ending End Trtmt Crashhworthy?: N/A Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.	Type:								
Barrier Crashworthiness Appropriate Test Level: Beg. End Trtmt Type: Ending End Trtmt Type: NONE Ending End Trtmt Type: Average Measurements Design Height (In.): Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.	Speed Limit ((MPH): 20							
Appropriate Test Level: Beg. End Trtmt Type: NO Approach Crashworthy?: Ending End Trtmt Type: NONE Ending End Trtmt Type: Average Measurements Design Height (In.): Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height. Is Barrier Crashworthy?: NO Approach Transition Type: W-BEAM NO Approach Transition Type: W-BEAM NO Approach Transition Type: W-BEAM N/A Fransition Type: W-BEAM NO Approach Transition Type: N-BEAM NO Approach Transition Type: W-BEAM NO Approach Transition Type: N-BEAM NO Approach Transition Type: N-BEAM NO Approach Transition Type: N-BEAM NO Average Measurements Average Measurements Average Measurements Alignment In. Alignment Alignment has no deviation and height is within 1 in of the 27 in design height.	Hazard Behind I	Barrier: MEDIUM							
Level: Beg. End Trtmt Type: Beg. End Trtmt Type: Ending End Trtmt Type: NONE Ending End Trtmt Type: Crashhworthy?: Ending End Trtmt Type: NONE Ending End Trtmt Crashhworthy?: NONE Ending End Trtmt Crashhworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.	Barrier Crashwort	hiness							
Beg. End Trtmt Type: Is Beg. End Trtmt Crashhworthy?: Ending End Trtmt Type: NONE Ending End Trtmt Type: NONE Crashhworthy?: Ending End Trtmt Crashhworthy?: N/A Approach Transition Type: W-BEAM W-BEAM N/A Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.		L-1		TL-3			YES		
Type: Crashhworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.	1 .8	-BEAM BCT	Is Beg. End Trtmt NO Approach BRIDGE RAIL						
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.		ONE							
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.	Average Measuren	ients							
Height (In.): 27.0 Lateral Offset (In.): 54.7 Road Grade (%): 0.40 Physical Condition Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.	Design Height (In.): 2	7	Width (In.):	0.0	Post Spa	cing (In.):	75.6		
Alignment and Alignment has no deviation and height is within 1 in of the 27 in design height.	Height (In.): 2	7.0	Lateral Offset (In.):	54.7			0.40		
1	Physical Condition								
		0	· -	n and height is within 1 in o	f the 27 in desi	ign height.			
Barrier Breaking and Cracking: No breaking or cracking observed.	Barrier	_	`	bserved.					
Missing Elements: No missing elements observed.		Missing Elements:	No missing elements obse	rved.					
Corrrosion and Weathering: No corrosion or weathering observed.				g observed.					
Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.		U	` `	Height is within 1-in of 27-i	n design height	t.			
End Treatments Breaking and Cracking: No breaking or cracking observed.	End Treatments	_							
Missing Elements: No missing elements observed.		Missing Elements:	No missing elements obse	rved.					
Corrrosion and Weathering: No corrosion or weathering observed.				g observed.					

В	arrier ID:	BISO-0010	-2.222-L						
Rou	ite Name:	LEATHER	ATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/01/2010	10/01/2010 Barrier Rating: 17.80						
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	STM Class D), prelimin	ary for comparis	on to other repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_2.222_L_1.JPG

В	arrier ID:	BISO-0010	ISO-0010-2.378-L							
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGHWA)	Y 297)					
Inspec	tion Date:	10/01/2010	0	Barri	er Rating:	32.20				
Barrier Descripti	ion									
	Type:	W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC				
Barrier	Material:	WEATHER STEEL/CO		Post	Material:	CORTEN				
	Blockout Type:	STEEL	STEEL Length (ft.): 888							
Speed Lim	it (MPH):	20		Placement with Respect to Road: BOTH INSIDE AND OUTSIDE						
Hazard Behind	d Barrier:	MEDIUM								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier nworthy?:	YES			
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	rtmt N/A Approach BRIDGE RAIL						
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:							
Average Measure	ements									
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	70.4			
Height (In.):	27.3		Lateral Offset (In.):	49.0	Road G	rade (%):	7.90			
Physical Condition	on									
	Align	ment and Height:	Alignment has no deviation	n and height is within 1 in b	elow to 2 in ab	ove the 27 in	design height.			
		aking and	No breaking or cracking of	oserved.						
Barrier	·	Cracking:								
	Missing 1	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-in	n design height					
End Treatments		aking and Cracking:								
	Missing	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0010	-2.378-L						
Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/01/2010 Barrier Rating: 32.20							
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:		\$0	
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_2.378_L_1.JPG

В	arrier ID:	BISO-0010	SISO-0010-2.380-R						
Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/01/2010	0	Barı	rier Rating:	6.80			
Barrier Descripti	ion								
·	Type:	W-BEAM S	STRONG POST	Barrie	r Function:	TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Pos	st Material:	CORTEN			
	Blockout Type:	STEEL		I	Length (ft.):	33			
Speed Lim	it (MPH):	20		Placement with Respect to Road:					
Hazard Behind	d Barrier:	LOW							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	Is Beg. End Trtmt N/A Approach BRIDGE RAIL					
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:						
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	67.6		
Height (In.):	28.2		Lateral Offset (In.):	85.3		rade (%):	2.50		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	and height ranges from 1	in below to 4 ir	above the 27	in design height.		
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:							
End Treatments	1	aking and Cracking:							
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010	-2.380-R						
Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/01/2010	0	Barri	er Rating:	6.80			
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:		\$0	
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_2.380_R_1.JPG

Inspection Date: 10/02/2010 Barrier Rating: 28/20	Ba	arrier ID:	BISO-0010	-2.563-R						
Barrier Description	Rou	ite Name:	LEATHE	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC	Inspect	tion Date:	10/02/201	0		Barrier Rating:	28.20			
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC	Barrier Descripti	on								
STEEL/CORTEN Length (ft.): 912	1		W-BEAM S	STRONG POST	Ba	arrier Function:	TRAFFIC			
Speed Limit (MPH): 20	Barrier	Material:				Post Material:	CORTEN			
Hazard Behind Barrier HIGH										
Barrier Crashworthiness	Speed Limi	it (MPH):	20							
Appropriate Test Level: Beg. End Trtmt Type: NONE Is Beg. End Trtmt Crashhworthy?: Ending End Trtmt Type: W-BEAM BCT Test Level: NONE Transition Type: Level: NONE Transition Type: Average Measurements Design Height (In.): 127 Width (In.): 128 Width (In.): 129 Width (In.): 120 Width (In.): 120 Width (In.): 121 Width (In.): 120 Width (In.): 121 Width (In.): 122 Width (In.): 123 Width (In.): 124 Width (In.): 125 Width (In.): 126 Width (In.): 127 Width (In.): 128 Width (In.): 129 Width (In.): 129 Width (In.): 120 Width (In.): 120 Width (In.): 120 Width (In.): 120 Width (In.): 121 Width (In.): 122 Width (In.): 124 Width (In.): 125 Width (In.): 126 Width (In.): 127 Width (In.): 128 Width (In.): 129 Width (In.): 129 Width (In.): 120 Width (In.): 120 Width (In.): 120 Width (In.): 120 Width (In.): 121 Width (In.): 121 Width (In.): 121 Width (In.): 122 Width (In.): 124 Width (In.): 125 Width (In.): 126 Width (In.): 127 Width (In.): 128 Width (In.): 129 Width (In.): 120 Width (In.): 121 Width (In.): 120 Width (In.): 120 Width (In.): 121 Width (In.): 121 Width (In.): 121 Width (In.): 122 Width (In.): 124 Width (In.): 125 Width (In.): 127 Width (In	Hazard Behind	d Barrier:	HIGH							
Level: Beg. End Trtmt Type: NONE Is Beg. End Trtmt Crashhworthy?: NONE Transition Type: NONE Transition Type:	Barrier Crashwo	rthiness								
Beg. End Trtmt Type: Section 1 None Section 2 None Section 1 None Section 2 None Section 1 None None Section 1 None None None None		TL-1			TL-3			YES		
Average Measurements Design Height (In.): 27	_	NONE		Is Beg. End Trtmt N/A Approach NONE						
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.1	_	W-BEAM I	ВСТ							
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.1	Average Measure	ements								
Height (In.): 27.3 Lateral Offset (In.): 44.5 Road Grade (%): 10.30 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Corrrosion and Cracking observed. Missing Elements: No missing elements observed. Alignment and Height: Breaking and Cracking observed. Missing Elements: No breaking or cracking observed. Corrrosion and No corrosion or weathering observed. Corrrosion and Cracking: Missing Elements: No missing elements observed.				Width (In.):	0.0	Post Space	cing (In.):	75.1		
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1 in of the 27 in design height. Mo breaking or cracking observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: No missing elements observed. Missing Elements: No breaking or cracking observed. Missing Elements: No missing elements observed. Cracking: Missing Elements: No missing elements observed.		27.3		Lateral Offset (In.):	44.5			10.30		
Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking observed. Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No breaking or cracking observed.	Physical Condition	on								
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No breaking or cracking observed. Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Align		Alignment has no deviation	n and height is withi	in 1 in of the 27 in design	gn height.			
Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. No missing elements observed. Corrrosion and No corrosion or weathering observed.	Barrier		_	No breaking or cracking ob	oserved.					
Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Missing	Elements:	No missing elements obser	ved.					
Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.				No corrosion or weathering	g observed.					
End Treatments Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Align		Alignment is acceptable. I	Height is within 1-in	of 27-in design height				
Corrrosion and No corrosion or weathering observed.	End Treatments		_	No breaking or cracking ob	oserved.					
		Missing 1	Elements:	No missing elements obser	ved.					
				No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010	-2.563-R						
Rou	ite Name:	LEATHER	ATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/02/2010 Barrier Rating: 28.20							
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	STM Class D), prelimin	ary for compariso	on to other repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_2.563_R_1.JPG

В	arrier ID:	BISO-0010	BISO-0010-2.742-L						
Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/02/2010	0	Barr	ier Rating:	36.90			
Barrier Descripti	ion								
·	Type:	W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Pos	t Material:	CORTEN			
	Blockout Type:	STEEL	EEL Length (ft.): 2196						
Speed Lim	it (MPH):	20		Placement with Respect to Road: BOTH INSIDE AND OUTSIDE					
Hazard Behind	d Barrier:	HIGH							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	Beg. End Trtmt NO Approach NONE					
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:						
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	75.5		
Height (In.):	26.2		Lateral Offset (In.):	37.2		rade (%):	9.80		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	n and height is within 1 in o	of the 27 in desi	gn height.			
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-	in design height				
End Treatments	1	aking and Cracking:	No breaking or cracking of	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010	-2.742-L						
Rou	ıte Name:	LEATHER	ATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/02/2010	10/02/2010 Barrier Rating: 36.90						
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	STM Class D), prelimin	ary for comparis	son to other repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_2.742_L_1.JPG

В	arrier ID:	BISO-0010	SISO-0010-3.298-L						
Rou	ıte Name:	LEATHE	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/02/201	0	Barr	ier Rating:	16.80			
Barrier Descripti	ion								
	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Pos	t Material:	CORTEN			
	Blockout Type:	STEEL	EL Length (ft.): 207						
Speed Lim		20		Placement with Respect to Road:					
Hazard Behind	d Barrier:	LOW							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	s Beg. End Trtmt NO Approach NONE					
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:						
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	75.0		
Height (In.):	28.0		Lateral Offset (In.):	41.2		rade (%):	5.20		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	and height is at or above	the design heigl	nt of 27 in by	l in.		
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-	in design height	i.			
End Treatments		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010	-3.298-L						
Rou	ite Name:	LEATHER	ATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/02/2010	10/02/2010 Barrier Rating: 16.80						
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:			Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	STM Class D), prelimin	ary for compariso	on to other repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_3.298_L_1.JPG

В	arrier ID:	BISO-0010	-3.321-R				
Rou	ite Name:	LEATHER	RWOOD FORD ROAL	D (STATE HIGHV	VAY 297)		
Inspec	tion Date:	10/02/2010	0	Ba	rrier Rating:	15.30	
Barrier Descripti	ion						
	Type:	W-BEAM S	STRONG POST	Barr	ier Function:	TRAFFIC	
Barrier	Material:	WEATHER STEEL/CO		P	ost Material:	CORTEN	
	Blockout Type:	STEEL			Length (ft.):	74	
Speed Limit (MPH): 20					acement with pect to Road:	OUTSIDE	OF CURVE
Hazard Behind	d Barrier:	LOW					
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO	1	Approach ion Type:	NONE
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO			
Average Measure	ements						
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	66.6
Height (In.):	27.7		Lateral Offset (In.):	50.2		rade (%):	4.20
Physical Condition	on						
	Align	ment and Height:	Alignment is deviated more is at or 1 in above the 27 in		the corner of East	Bandy Creek	Road and height
Barrier		aking and Cracking:	There was 1 rail section that	at was impacted and ber	nt in.		
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.							
End Treatments	1	aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			

В	arrier ID:	BISO-0010	-3.321-R						
Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	pection Date: 10/02/2010 Barrier Rating: 15.30								
Repair Recomme	endations								
Repair Action:	REPAIR		FMSS Work Type:	DEFERRED MAINTENANCE		Repair Cost:	\$1953		
Brief Workorder:	Replace 12 f	eet of guardrai	I.						
Workorder: Replace Rail at \$25- per -Lin. Ft. for 12 LF = \$300. 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.									

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_3.321_R_1.JPG

Route Name: I.EATHERWOOD FORD ROAD (STATE HIGHWAY 297)	Ba	arrier ID:	BISO-0010	-3.798-R				
Barrier Description	Rou	te Name:	LEATHER	RWOOD FORD ROAL	D (STATE HIGHWA	Y 297)		
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC	Inspect	ion Date:	10/02/201)	Barri	er Rating:	19.30	
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC	Barrier Descripti	on						
STEEL/CORTEN Length (ft.): 279			W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC	
Speed Limit (MPH): 35 Placement with Respect to Road:	Barrier	Material:			Post	Material:	CORTEN	
Respect to Road: Hazard Behind Barrier: MEDIUM			STEEL		Lo	ength (ft.):	279	
Barrier Crashworthiness Appropriate Test Level: Test Level: Test Level: Crashworthy?: PS Beg. End Trtmt Type: W-BEAM BCT	Speed Limi	Speed Limit (MPH): 35					INSIDE OF	FCURVE
Appropriate Test Level: Beg. End Trtmt Type: Beg. End Trtmt Type: W-BEAM BCT Is Beg. End Trtmt Crashhworthy?: Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 27 Lateral Offset (In.): 27 Lateral Offset (In.): 27 Lateral Offset (In.): 32.0 Road Grade (%6): Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Alignment and Height: Alignment and Cracking: No breaking or cracking observed. Alignment is acceptable. Height is within 1 in of 27-in design height. Breaking and Cracking: Missing Elements: No missing elements observed. No breaking or cracking observed. Corrrosion and Cracking: Missing Elements: No missing elements observed.	Hazard Behind	Barrier:	MEDIUM					
Level: Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Erashmorthy?: Ending End Trtmt Type: NO Erashmorthy?: NO Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 27 Width (In.): 27 Begin Height (In.): 27 Lateral Offset (In.): 52.0 Road Grade (%): No Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Missing Elements: No breaking or cracking observed. Corrrosion and Weathering: Missing Elements: No missing elements observed. No breaking or cracking observed. Corrrosion and Weathering: Missing Elements: No missing elements observed. No breaking or cracking observed. No breaking or cracking observed. No missing elements observed.	Barrier Crashwo	rthiness						
Beg. End Trtmt Type: W-BEAM BCT Is Beg. End Trtmt Crashhworthy?: NO Approach Transition Type: No		TL-2			TL-3	1		YES
Average Measurements Design Height (In.): 27	_	W-BEAM I	ВСТ	0	NO		Approach	NONE
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0	_	W-BEAM I	ВСТ		NO			
Height (In.): 27.7 Lateral Offset (In.): 52.0 Road Grade (%): 1.00 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking of cracking observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Missing Elements: No breaking or cracking observed. Missing Elements: No breaking or cracking observed. Corrosion and Cracking: Missing Elements: No missing elements observed.	Average Measure	ements						
Height (In.): 27.7 Lateral Offset (In.): 52.0 Road Grade (%): 1.00 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Corrosion or weathering observed. Breaking and Cracking: Alignment and Height: Breaking and Cracking or cracking observed. Missing Elements: No missing elements is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Missing Elements: No missing elements observed. Corrosion and No corrosion or weathering observed.	Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	75.0
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1 in of the 27 in design height. Mo breaking or cracking observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: No missing elements observed. Missing Elements: No breaking or cracking observed. Missing Elements: No missing elements observed. Cracking: Missing Elements: No missing elements observed.	Height (In.):	27.7		Lateral Offset (In.):	52.0			1.00
Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking observed. Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No breaking or cracking observed.	Physical Condition	n						
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No breaking or cracking observed. Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Align		Alignment has no deviation	n and height is within 1 in o	f the 27 in desi	gn height.	
Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. No missing elements observed. Corrrosion and No corrosion or weathering observed.	Barrier		_	No breaking or cracking ob	oserved.			
Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Missing 1	Elements:	No missing elements obser	ved.			
Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.				No corrosion or weathering	g observed.			
End Treatments Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Align		Alignment is acceptable. I	Height is within 1-in of 27-in	n design height	•	
Corrrosion and No corrosion or weathering observed.	End Treatments		_	No breaking or cracking of	oserved.			
		Missing 1	Elements:	No missing elements obser	ved.			
				No corrosion or weathering	g observed.			

В	arrier ID:	BISO-0010	ISO-0010-3.798-R							
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIG	HWAY 297)					
Inspec	tion Date:	10/02/2010)		Barrier Rating:	19.30				
Repair Recomme	endations									
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	STM Class D), prelimin	ary for compariso	on to other repair co	sts only.				

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_3.798_R_1.JPG

В	arrier ID:	BISO-0010	HSO-0010-3.825-L							
Rou	ıte Name:	LEATHER	RWOOD FORD ROA	D (STATE HI	GHWAY 297)					
Inspec	tion Date:	10/02/2010	0		Barrier Rating:	25.10				
Barrier Descripti					9					
	Туре:	W-BEAM S	STRONG POST		Barrier Function:	TRAFFIC				
Barrier	Material:	WEATHER STEEL/CO			Post Material:	CORTEN				
	Blockout Type:	STEEL			Length (ft.):	264				
Speed Lim	it (MPH):	35			Placement with Respect to Road:	OUTSIDE	OF CURVE			
Hazard Behind	d Barrier:	MEDIUM								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE			
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO						
Average Measure	ements									
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	75.0			
Height (In.):	27.7		Lateral Offset (In.):	50.7	Road G	rade (%):	1.40			
Physical Condition	on									
	Align	ment and Height:	Alignment has no deviation	n and height is at	or above the design heigh	nt of 27 in by u	up to 2 in.			
Barrier		aking and Cracking:	No breaking or cracking of	oserved.						
	Missing 1	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						
Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.										
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.						
	Missing Elements: No missing elements observed.									
		osion and eathering:	No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0010	-3.825-L						
Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/02/2010	0	Barri	er Rating:	25.10			
Repair Recomme	endations	;							
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:		\$0	
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_3.825_L_1.JPG

В	arrier ID:	BISO-0010	-3.946-R						
Rou	ite Name:	LEATHE	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/02/201	0	Bar	rier Rating:	11.10			
Barrier Descripti	ion								
·	Type:	W-BEAM S	STRONG POST	Barri	er Function:	TRAFFIC			
Barrier Material: WEATHE STEEL/CO				Po	ost Material:	CORTEN			
	Blockout Type:	STEEL			Length (ft.):	77			
Speed Limit (MPH): 35					cement with ect to Road:	TANGENT			
Hazard Behind	d Barrier:	LOW							
Barrier Crashworthiness									
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approachtion Type:	NONE		
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A					
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	66.3		
Height (In.):	31.7		Lateral Offset (In.):	77.6		rade (%):	2.80		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	n and height is 4 to 5 in a	bove the 27 in dea	sign height.			
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 2'	7-in design height	t.			
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010	-3.946-R						
Rou	ıte Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)						
Inspec	tion Date:	10/02/2010)	I	Barrier Rating:	11.10			
Repair Recomme	endations	;							
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparisor	to other repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_3.946_R_1.JPG

В	arrier ID:	BISO-0010	-3.947-L				
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGHV	VAY 297)		
Inspec	tion Date:	10/02/2010	0	Ba	rrier Rating:	11.10	
Barrier Descripti							
Zurror Zosoripo	Туре:	W-BEAM S	STRONG POST	Barr	ier Function:	TRAFFIC	
Barrier Material: WEATHE STEEL/Co				P	Post Material:	CORTEN	
	Blockout Type:	STEEL			Length (ft.):	60	
Speed Lim	Speed Limit (MPH): 35				acement with pect to Road:	TANGENT	
Hazard Behind	d Barrier:	LOW					
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO	1	Approach	NONE
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A			
Average Measure	ements						
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	66.3
Height (In.):	34.5		Lateral Offset (In.):	83.0		rade (%):	3.80
Physical Condition	on						
	Align	ment and Height:	The alignment has no devia	ation and height is abov	e by 5 to 9 in above	e the design h	eight of 27 in.
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.							
End Treatments	1	aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			

В	arrier ID:	BISO-0010	-3.947-L							
Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Inspec	tion Date:	10/02/2010)	Barrie	er Rating:	11.10				
Repair Recomme	endations									
Repair Action:	REPAIR		FMSS Work Type:	DEFERRED MAINTENANCE		Repair Cost:	\$2283			
Brief Workorder:	Lower 60 fee	et of guardrail t	to 27-in design height.							
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 60 LF = \$600. Lower 60 feet of guardrail 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.										

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_3.947_L_1.JPG

В	arrier ID:	BISO-0010	-3.969-R							
Rou	ite Name:	LEATHE	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Inspec	tion Date:	10/02/201	0	Bar	rier Rating:	11.10				
Barrier Descripti	ion									
·	Type:	W-BEAM S	STRONG POST	Barri	er Function:	TRAFFIC				
Barrier	Barrier Material: WEATHE STEEL/CO			Po	ost Material:	CORTEN				
	Blockout Type:	STEEL			Length (ft.):	119				
Speed Limit (MPH): 35					cement with ect to Road:	TANGENT				
Hazard Behind	d Barrier:	LOW								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE			
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO						
Average Measure	ements									
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	66.6			
Height (In.):	32.7		Lateral Offset (In.):	85.0		rade (%):	11.50			
Physical Condition	on									
	Align	ment and Height:	Alignment has no deviation	and 30 ft is more than 5	in above the 27 i	n design heigl	nt.			
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.						
	Missing 1	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 2	7-in design height	i.				
End Treatments	1	aking and Cracking:	No breaking or cracking ob	oserved.						
	Missing 1	Elements:	No missing elements obser	ssing elements observed.						
		osion and eathering:	No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0010	-3.969-R							
Rou	ite Name:	LEATHE	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Inspec	tion Date:	10/02/201	0	Barri	er Rating:	11.10				
Repair Recomme	endations									
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$1953			
Brief Workorder:	Lower 30 fee	et of high guar	drail down to 27-in design h	eight.						
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 30 LF = \$300. Lower 30 feet of high guardrail down 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.									

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_3.969_R_1.JPG

В	arrier ID:	BISO-0010	-3.970-L						
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HI	GHWAY 297)				
Inspec	tion Date:	10/02/2010	0		Barrier Rating:	19.70			
Barrier Descripti	on								
	Type:	W-BEAM S	STRONG POST Barrier Function:		TRAFFIC				
Barrier	Material:	WEATHER STEEL/CO		Post Material: CORTEN		CORTEN			
	Blockout Type:	STEEL			Length (ft.): 121				
Speed Lim	it (MPH):	35		Placement with Respect to Road:					
Hazard Behind	l Barrier:	LOW							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	mt N/A Approach NONE					
Ending End Trtmt Type:	W-BEAM I	ВСТ							
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Snac	cing (In.):	74.3		
Height (In.):	30.0		Lateral Offset (In.):	84.3		rade (%):	7.50		
Physical Condition	on								
		ment and Height:	The alignment has no devis	ation and height is	above the design height	of 27 in by 2	to 5 in.		
Barrier		aking and Cracking:	No breaking or cracking of	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-	in of 27-in design height				
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0010	ISO-0010-3.970-L							
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGH	HWAY 297)					
Inspec	tion Date:	10/02/2010)	I	Barrier Rating:	19.70				
Repair Recomme	endations									
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	STM Class D), prelimin	ary for comparison	n to other repair co	sts only.				

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_3.970_L_1.JPG

В	arrier ID:	BISO-0010	SO-0010-4.030-L								
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE H	IGHWAY 297)						
Inspec	tion Date:	10/02/2010	0		Barrier Rating:	33.70					
Barrier Descripti		10/02/201			Durrier Russing.						
Darrier Descripti	Туре:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC					
	-7 F - 7			Darrier Function.							
Barrier	Material:	WEATHER STEEL/CO	1 000 112000 1000		CORTEN						
	Blockout Type:	STEEL			Length (ft.):	489					
Speed Lim	it (MPH):	35			Placement with Respect to Road:						
Hazard Behind	d Barrier:	MEDIUM		ı							
Barrier Crashwo	rthiness										
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES				
Beg. End Trtmt Type:	W-BEAM I					NONE					
Ending End Trtmt	W-BEAM I	ВСТ	Ending End Trtmt	Transit	ion Type.						
Type:	,		Crashhworthy?:								
Average Measure				0.0							
Design Height (In.):	28.0		Width (In.):	0.0 55.7		cing (In.):	75.0 10.50				
Height (In.):			Lateral Offset (In.):	33.1	Road G	rade (%):	10.30				
Physical Condition		ment and Height:	Alignment has no deviation	and height is 0-	-2 in above the design heig	ght of 27 in by	up to 27 ines.				
Barrier		aking and Cracking:	No breaking or cracking of	oserved.							
	Missing 1	Elements:	No missing elements obser	ved.							
		osion and eathering:	No corrosion or weathering	g observed.							
	Align	ment and Height:	Alignment is acceptable. I	Height is within	l-in of 27-in design height						
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.							
	Missing	Elements:	No missing elements obser	ved.							
		osion and eathering:	No corrosion or weathering	g observed.							

В	arrier ID:	BISO-0010	BISO-0010-4.030-L							
Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Inspec	tion Date:	10/02/2010	0	Barri	er Rating:	33.70				
Repair Recomme	endations									
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.				

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_4.030_L_1.JPG

В	arrier ID:	BISO-0010	-4.213-L					
Rou	ıte Name:	LEATHE	RWOOD FORD ROA	D (STATE HIGHWA	Y 297)			
Inspec	tion Date:	10/02/201	0	Barr	ier Rating:	30.70		
Barrier Descripti	ion							
·	Type:	W-BEAM S	STRONG POST	TRONG POST Barrier Function:		TRAFFIC		
Barrier	Material:	WEATHER STEEL/CO		Post Material:		CORTEN		
	Blockout Type:	STEEL		Length (ft.): 2		227		
Speed Lim	it (MPH):	35			ement with et to Road:	OUTSIDE	OF CURVE	
Hazard Behind	d Barrier:	MEDIUM						
Barrier Crashwo	rthiness							
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES	
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	nt NO Approach NONE				
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:					
Average Measure	ements							
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	74.6	
Height (In.):	28.0		Lateral Offset (In.):	50.7		rade (%):	7.90	
Physical Condition	on							
	Align	ment and Height:	Alignment has no deviation	n and height is 1 in above the	ne 27 in design	height.		
Barrier		aking and Cracking:	No breaking or cracking of	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-	n design height	i.		
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				

В	arrier ID:	BISO-0010	BISO-0010-4.213-L							
Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Inspec	tion Date:	10/02/2010	0	Barri	er Rating:	30.70				
Repair Recomme	endations									
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:		\$0		
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.				

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_4.213_L_1.JPG

В	arrier ID:	BISO-0010	6O-0010-4.733-R							
Rou	ıte Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGHWA	Y 297)					
Inspec	tion Date:	10/02/2010)	Barri	er Rating:	20.70				
Barrier Descripti	ion									
	Type:	W-BEAM S	STRONG POST Barrier Function:		TRAFFIC					
Barrier	Material:	WEATHER STEEL/CO		Post Material:						
	Blockout Type:	STEEL		Length (ft.): 230						
Speed Lim	it (MPH):	45		Placement with Respect to Road: INSIDE OF CURVE			FCURVE			
Hazard Behind	d Barrier:	MEDIUM								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3	1	Is Barrier nworthy?:	YES			
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	?: Transition Type:						
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:							
Average Measure	ements									
Design Height (In.):	27		Width (In.):	0.0		cing (In.):	74.5			
Height (In.):	27.2		Lateral Offset (In.):	50.5	Road G	rade (%):	0.40			
Physical Condition	on									
	Align	ment and Height:	Alignment has no deviation	n and height is at or above the	ne design heigh	nt of 27 in by	1 in.			
		aking and	No breaking or cracking of	oserved.						
Barrier	·	Cracking:								
	Missing	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-in	n design height					
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.						
	Missing	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0010	ISO-0010-4.733-R							
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIG	HWAY 297)					
Inspec	tion Date:	10/02/2010)		Barrier Rating:	20.70				
Repair Recomme	endations									
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	STM Class D), prelimin	ary for comparison	on to other repair co	sts only.				

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_4.733_R_1.JPG

Route Name: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297) Inspection Date: 10/02/2010 Barrier Rating: 30.70 Barrier Description	Barrie	ID: BISO-001	0-5.688-R						
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 45 Length (ft.): 167 Speed Limit (MPH): 45 Placement with Respect to Road: OUTSIDE OF CURVE Barrier Crashworthiness Appropriate Test Level: TL-2 Barrier Test Level: Crashworthy?: Seg. End Trtmt Type: Test Level: Crashworthy?: Transition Type: Tending End Trtmt Type: Ending End Trtmt Type: Crashworthy?: Transition Type: Seg. End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashworthy?: NO Approach Type: Transition Type: Seg. End Trtmt Type: Seg. End Trtmt Crashworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.2 Lateral Offset (In.): 49.2 Road Grade (%): 4.50 Physical Condition	Route N	me: LEATHE	RWOOD FORD ROA	D (STATE HIGHWA	Y 297)				
Barrier Material: WEATHERING STEEL/CORTEN STEEL/CORTEN STEEL/CORTEN STEEL/CORTEN STEEL Length (ft.): 167	Inspection	Date: 10/02/20	0	Barri	er Rating:	30.70			
Barrier Material: WEATHERING STEEL/CORTEN STEEL/CORTEN STEEL/CORTEN STEEL/CORTEN STEEL Length (ft.): 167	Barrier Description								
STEEL/CORTEN STEEL Length (ft.): 167	•	ype: W-BEAM	STRONG POST	STRONG POST Barrier Function:		TRAFFIC			
Type: Speed Limit (MPH): 45 Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: TL-2 Barrier TL-3 Is Barrier Crashworthy?: Beg. End Trtmt Type: Test Level: Crashworthy?: Test Level: Transition Type: Transition Ty	Barrier Mat			Post Material: CORTEN					
Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: TL-2 Barrier TL-3 Is Barrier Crashworthy?: Test Level: Crashworthy?: Test Level: Crashworthy?: NO Approach Trype: Transition Type: Transition Type: Transition Type: NO Approach Transition Type: NO Approach Transition Type: NO Approach Transition Type: NO Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.2 Lateral Offset (In.): 49.2 Road Grade (%): 4.50 Physical Condition Alignment and Alignment has no deviation and height is at or above the design height of 27 in by 1 in.				Le	ength (ft.):	167			
Barrier Crashworthiness Appropriate Test Level: Beg. End Trtmt Type: Ending End Trtmt Type: Beg. End Trtmt Type: Ending End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashhworthy?: Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): Design Height (In.): 27 Width (In.): 49.2 Road Grade (%): Physical Condition Alignment and Alignment has no deviation and height is at or above the design height of 27 in by 1 in.	Speed Limit (M	PH): 45				OUTSIDE	OF CURVE		
Appropriate Test Level: Beg. End Trtmt Type: The state of the state	Hazard Behind Bar	rier: MEDIUM							
Level: Beg. End Trtmt Type: W-BEAM BCT Is Beg. End Trtmt Crashhworthy?: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: W-BEAM BCT Crashhworthy?: NO Approach Transition Type: Ending End Trtmt Crashhworthy?: NO Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.2 Lateral Offset (In.): 49.2 Road Grade (%): 4.50 Physical Condition Alignment and Alignment has no deviation and height is at or above the design height of 27 in by 1 in.	Barrier Crashworthi	iess							
Beg. End Trtmt Type: Is Beg. End Trtmt Crashhworthy?: NO				TL-3			YES		
Type: Crashhworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.2 Lateral Offset (In.): 49.2 Road Grade (%): 4.50 Physical Condition Alignment and Alignment has no deviation and height is at or above the design height of 27 in by 1 in.	0	EAM BCT		nt NO Approach NONE					
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.2 Lateral Offset (In.): 49.2 Road Grade (%): 4.50 Physical Condition Alignment and Alignment has no deviation and height is at or above the design height of 27 in by 1 in.		EAM BCT							
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.6 Height (In.): 27.2 Lateral Offset (In.): 49.2 Road Grade (%): 4.50 Physical Condition Alignment and Alignment has no deviation and height is at or above the design height of 27 in by 1 in.	Average Measureme	its							
Height (In.): 27.2 Lateral Offset (In.): 49.2 Road Grade (%): 4.50 Physical Condition Alignment and Alignment has no deviation and height is at or above the design height of 27 in by 1 in.			Width (In.):	0.0	Post Spa	cing (In.):	75.6		
Alignment and Alignment has no deviation and height is at or above the design height of 27 in by 1 in.			Lateral Offset (In.):	49.2			4.50		
Alignment and Alignment has no deviation and height is at or above the design height of 27 in by 1 in.	Physical Condition								
Height:		0	Alignment has no deviatio	n and height is at or above th	he design heigh	nt of 27 in by	1 in.		
Barrier Breaking and Cracking: No breaking or cracking observed.	Barrier	_	1	bserved.					
Missing Elements: No missing elements observed.	Mi	sing Elements:	No missing elements obser	rved.					
Corrosion and Weathering: No corrosion or weathering observed.			No corrosion or weatherin	g observed.					
Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.		O	1	Height is within 1-in of 27-in	n design height	i.			
End Treatments Breaking and Cracking: No breaking or cracking observed.	End Treatments	_	No breaking or cracking of	bserved.					
Missing Elements: No missing elements observed.	Mi	sing Elements:	No missing elements obser	rved.					
Corrrosion and Weathering: No corrosion or weathering observed.				g observed.					

В	arrier ID:	BISO-0010	ISO-0010-5.688-R							
Rou	ite Name:	LEATHER	RWOOD FORD ROA	D (STATE HIGH	WAY 297)					
Inspec	tion Date:	10/02/2010)	В	arrier Rating:	30.70				
Repair Recomme	endations									
Repair Action:	NO ACTIC)N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison	to other repair co	sts only.				

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_5.688_R_1.JPG

В	arrier ID:	BISO-0010	-6.252-L						
Rou	ite Name:	LEATHER	RWOOD FORD ROAL	D (STATE HIGHW	AY 297)				
Inspec	tion Date:	10/02/2010	0	Bar	rier Rating:	20.70			
Barrier Descripti	ion								
·	Type:	W-BEAM S	STRONG POST Barrier Function:		TRAFFIC				
Barrier	Material:	WEATHER STEEL/CO		Post Material: CORTEN		CORTEN			
	Blockout Type:	STEEL			Length (ft.):	278			
Speed Lim	it (MPH):	45		Placement with Respect to Road:					
Hazard Behind	d Barrier:	MEDIUM							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	mt NO Approach NONE					
Ending End Trtmt Type:	W-BEAM I	ВСТ	T Ending End Trtmt Crashhworthy?: NO						
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	74.3		
Height (In.):	27.7		Lateral Offset (In.):	58.2		rade (%):	1.10		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	n and height is within 1 ir	n of the 27 in desi	gn height.			
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27	7-in design height				
End Treatments	1	aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

Ba	arrier ID:	BISO-0010-	ISO-0010-6.252-L							
Rou	ite Name:	LEATHER	WOOD FORD ROA	D (STATE HIGHV	WAY 297)					
Inspect	tion Date:	10/02/2010)	Ва	arrier Rating:	20.70				
Repair Recomme	endations	3								
Repair Action:	NO ACTIC	DN	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	STM Class D), prelimin	ary for comparison t	to other repair co	sts only.				

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_6.252_L_1.JPG

Route Name: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)	Ba	arrier ID:	BISO-0010	BISO-0010-7.074-R							
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC	Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL CORTEN Blockout Type: Speed Limit (MPH): 45 Placement with Respect to Road: OUTSIDE OF CURVE Barrier Crashworthiness Appropriate Test Level: Crashworthy?: Test Level: Crashworthy?: Test Level: Crashworthy?: Transition Type: Beg. End Trtmt W-BEAM BCT Is Beg. End Trtmt NO Approach NONE Type: Crashworthy?: Transition Type:	Inspec	tion Date:	10/02/2010	/02/2010 Barrier Rating: 29.30							
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL CORTEN Blockout Type: Speed Limit (MPH): 45 Placement with Respect to Road: OUTSIDE OF CURVE Barrier Crashworthiness Appropriate Test Level: Crashworthy?: Test Level: Crashworthy?: Test Level: Crashworthy?: Transition Type: Beg. End Trtmt W-BEAM BCT Is Beg. End Trtmt NO Approach NONE Type: Crashworthy?: Transition Type:	Barrier Descripti	on									
STEEL CORTEN Length (ft.): 379			W-BEAM S	STRONG POST Barrier Function:		TRAFFIC					
Type: Speed Limit (MPH): 45 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Test Level: Crashworthy?: Test Level: Crashworthy?: Test Level: Test	Barrier	Material:			Po	st Material:	CORTEN				
Respect to Road:			STEEL		Length (ft.): 379						
Barrier Crashworthiness	Speed Lim	it (MPH):	45								
Appropriate Test Level: Beg. End Trtmt Type: No. Seg. End Trtmt Type: No. Approach Crashworthy?: Transition Type: No.	Hazard Behind	l Barrier:	MEDIUM								
Level: Test Level: Crashworthy?:	Barrier Crashwo	rthiness									
Beg. End Trtntt Type: W-BEAM BCT Is Beg. End Trtntt Crashhworthy?: Ending End Trtntt Type: W-BEAM BCT Ending End Trtntt Type: NO NO		TL-2			TL-3			YES			
Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Height (In.): 27.6 Lateral Offset (In.): 52.0 Road Grade (%): 2.30 Physical Condition Alignment and Height: Breaking and Cracking: No breaking or cracking observed. Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Missing Elements: No breaking or cracking observed. Alignment and Height: No breaking or cracking observed. Missing Elements: No missing elements observed. Breaking and Cracking: No breaking or cracking observed. Missing Elements: No missing elements observed. Missing Elements: No missing elements observed.	_	W-BEAM I	ВСТ		FF						
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Height (In.): 27.6 Lateral Offset (In.): 52.0 Road Grade (%): 2.30 Physical Condition	Ending End Trtmt	W-BEAM I	ВСТ								
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Height (In.): 27.6 Lateral Offset (In.): 52.0 Road Grade (%): 2.30 Physical Condition	Average Measurements										
Height (In.): 27.6 Lateral Offset (In.): 52.0 Road Grade (%): 2.30 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: No breaking or cracking observed. Corrrosion and Height: Alignment and Height: Breaking and Cracking: No breaking or cracking observed. Missing Elements: No missing elements observed.											
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: No breaking or cracking observed. Alignment and Height: Alignment and Height: Breaking and Cracking: No breaking or cracking observed. No corrosion or weathering observed. Missing Elements: No breaking or cracking observed. No breaking or cracking observed.		27.6		8 7							
Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Alignment and Cracking: Missing Elements observed. Alignment and Cracking: Breaking and Cracking: No breaking or cracking observed. Mo breaking or cracking observed. Mo breaking or cracking observed. No missing elements observed.	Physical Condition	on									
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No breaking or cracking observed. Missing Elements: No missing elements observed.		Align		Alignment has no deviation	n and height is at or above	e the design heigh	ht of 27 in by	1 in.			
Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. No missing elements observed.	Barrier		_	· ··							
Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed.		Missing 1	Elements:	No missing elements obser	ved.						
Height: Breaking and Cracking: Missing Elements: No breaking or cracking observed. No missing elements observed.											
End Treatments Cracking: Missing Elements: No missing elements observed.		Align									
	End Treatments		_	No breaking or cracking of	cracking observed.						
		Missing 1	Elements:	No missing elements obser	its observed.						
Corrrosion and Weathering: No corrosion or weathering observed.				No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0010	-7.074-R						
Rou	ıte Name:	LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Inspec	tion Date:	10/02/2010)]	Barrier Rating:	29.30			
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison	n to other repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_7.074_R_1.JPG

В	arrier ID:	BISO-0010	ISO-0010-7.190-L							
Rou	ıte Name:	LEATHE	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Inspec	tion Date:	10/02/201	0	Barr	ier Rating:	26.80				
Barrier Descripti	ion									
·	Type:	W-BEAM S	STRONG POST	TRONG POST Barrier Function:		TRAFFIC	TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Pos	t Material:	CORTEN				
	Blockout Type:	STEEL		L	ength (ft.):	116				
Speed Lim	it (MPH):	45			ement with ct to Road:	OUTSIDE	OF CURVE			
Hazard Behind	d Barrier:	LOW								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approachtion Type:	NONE			
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:							
Average Measurements										
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 66.6							66.6			
Height (In.): 27.0 Lateral Offset (In.): 46.7 Road Grade (%): 2.40							2.40			
Physical Condition	on									
	Align	ment and Height:								
Barrier		aking and Cracking:	No breaking or cracking ob	No breaking or cracking observed.						
	Missing 1	Elements:	No missing elements observed.							
		osion and eathering:								
	Align	ment and Height:	nt:							
End Treatments	1	aking and Cracking:	No breaking or cracking ob	cking observed.						
	Missing 1	Elements:	No missing elements obser	bserved.						
		osion and eathering:	No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0010	-7.190-L						
Rou	ıte Name:	: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Inspec	tion Date:	10/02/2010)	I	Barrier Rating:	26.80			
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison	to other repair co	sts only.			

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_7.190_L_1.JPG

Route Name: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297) Inspection Date: 10/02/2010 Barrier Rating: 26:60 Barrier Description	Ba	arrier ID:	BISO-0010	ISO-0010-7.210-R							
Barrier Description	Rou	ite Name:	LEATHER	EATHERWOOD FORD ROAD (STATE HIGHWAY 297)							
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL CORTEN Blockout Type: Speed Limit (MPH): 45 Placement with Respect to Road: NSIDE OF CURVE Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Crashworthy?: Beg. End Trtmt Type: Crashworthy?: Test Level: Te	Inspect	tion Date:	10/02/2010	/02/2010 Barrier Rating: 26.60							
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL CORTEN Blockout Type: Speed Limit (MPH): 45 Placement with Respect to Road: NSIDE OF CURVE Barrier Crashworthiness Appropriate Test TL-2 Barrier Test Level: Crashworthy?: PS Crashworthy?: Test Level: Crashworthy?: Test Level: Crashworthy?: Tending End Trtmt Type: W-BEAM BCT Crashworthy?: The Crashwo	Barrier Descripti	ion									
STEEL/CORTEN STEEL Length (ft.): 267			W-BEAM S	STRONG POST Barrier Function: T		TRAFFIC					
Type: Speed Limit (MPH): 45	Barrier	Material:			Po	ost Material:	CORTEN				
Respect to Road:			STEEL			Length (ft.):	267				
Appropriate Test Level: Beg. End Trtmt Type:	Speed Limi	it (MPH):	45								
Appropriate Test Level: TL-2	Hazard Behind	d Barrier:	MEDIUM								
Level: Test Level: Crashworthy?:	Barrier Crashwo	rthiness									
Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashhworthy?: Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 47.2 Road Grade (%): Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Height: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and No breaking or cracking observed.		TL-2			TL-3			YES			
Type: Crashhworthy?:	_	W-BEAM I	ВСТ		NO		Approach	NONE			
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0	_	W-BEAM I	ВСТ								
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0	Average Measurements										
Height (In.): 27.2 Lateral Offset (In.): 47.2 Road Grade (%): 1.50 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No breaking or cracking observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Alignment and Height: Breaking and No breaking or cracking observed.											
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Alignment and Height: No breaking or cracking observed. Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and No breaking or cracking observed.		27.2	8()								
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Alignment and Height: No breaking or cracking observed. Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and No breaking or cracking observed.	Physical Condition	on									
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and No breaking or cracking observed.		Align		Alignment has no deviation	n and height is within 1 in	n of the 27 in desi	gn height.				
Corrrosion and Weathering: Alignment and Height: Breaking and No corrosion or weathering observed. Alignment is acceptable. Height is within 1-in of 27-in design height.	Barrier		_	No breaking or cracking ob	oserved.						
Weathering: Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and No breaking or cracking observed.		Missing	Elements:	No missing elements obser	ved.						
Height: Breaking and No breaking or cracking observed.											
		Align									
	End Treatments	1	_	No breaking or cracking ob	oreaking or cracking observed.						
Missing Elements: No missing elements observed.		Missing 1	Elements:	No missing elements obser	ments observed.						
Corrrosion and Weathering: No corrosion or weathering observed.				No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0010	-7.210-R								
Rou	ıte Name:	LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)									
Inspec	tion Date:	10/02/2010)		Barrier Rating:	26.60					
Repair Recommendations											
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0				
Brief Workorder:	N/A										
Workorder:											
	2008 со	st estimate (A	ASTM Class D), prelimin	ary for compariso	on to other repair co	sts only.					

ROUTE 0010: LEATHERWOOD FORD ROAD (STATE HIGHWAY 297)



BISO_0010_7.210_R_1.JPG

В	arrier ID:	BISO-0101	ISO-0101-0.006-L							
Rou	ıte Name:	BANDY (ANDY CREEK ROAD							
Inspec	tion Date:	10/05/2010	0	Barr	ier Rating:	29.70				
Barrier Descripti	ion									
·	Type:	W-BEAM S	STRONG POST Barrier Function: T		TRAFFIC					
Barrier	Material:	WEATHER STEEL/CO		Post Material:						
	Blockout Type:	STEEL		L	ength (ft.):	54				
Speed Lim	it (MPH):	35			ement with ct to Road:	TANGENT				
Hazard Behind	d Barrier:	LOW								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE			
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:							
Average Measurements										
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	75.0			
Height (In.): 25.0 Lateral Offset (In.): 15.0 Road Grad							6.80			
Physical Condition	on									
	Align	ment and Height:	Alignment has no deviation	n and height is 2 in below the	he design heigh	t of 27 in.				
Barrier		aking and Cracking:	No breaking or cracking observed.							
	Missing	Elements:	No missing elements obser	ved.						
	1	osion and eathering:								
	Align	ment and Height:	ght:							
End Treatments	1	aking and Cracking:	No breaking or cracking of	reaking or cracking observed.						
	Missing 1	Elements:	No missing elements obser	elements observed.						
		osion and eathering:	No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0101	-0.006-L								
Rou	ite Name:	Name: BANDY CREEK ROAD									
Inspec	tion Date:	10/05/201	0	Barrie	er Rating:	29.70					
Repair Recommendations											
Repair Action:REPAIRFMSS Work Type:DEFERRED MAINTENANCERepair Cost:\$2217											
Brief Workorder:											
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 54 LF = \$540. Raise 54 feet of guardrail 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.											

ROUTE 0101: BANDY CREEK ROAD

Barrier Condition Photos

Condition photos are not available for BISO-0101-0.006-L.

В	arrier ID:	BISO-0101	SISO-0101-0.032-R							
Rou	ite Name:	BANDY (CREEK ROAD							
Inspec	tion Date:	10/05/2010	0	Barri	er Rating:	32.20				
Barrier Descripti	ion									
	Type:	W-BEAM S	STRONG POST Barrier Function: T		TRAFFIC	TRAFFIC				
Barrier	Material:	WEATHER STEEL/CO		Post Material: CORTEN						
	Blockout Type:	STEEL		Length (ft.): 754						
Speed Lim	it (MPH):	35			ement with	BOTH INS	IDE AND OUTSIDE			
Hazard Behind	d Barrier:	MEDIUM								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3	1	Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE			
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:	NO						
Average Measure	ements									
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0							75.0			
Height (In.): 26.5 Lateral Offset (In.): 51.2 Road Grade (%): 5.20							5.20			
Physical Condition	on									
	Align	ment and Height:	The barrier alignment has n	no deviation height is 2 to 4	in below the d	esign height o	f 27 in for 150 ft.			
Barrier		aking and Cracking:	No breaking or cracking of	oserved.						
	Missing 1	Elements:	No missing elements obser	ved.						
		osion and eathering:								
	Align	ment and Height:								
End Treatments	1	aking and Cracking:	No breaking or cracking ob	eaking or cracking observed.						
	Missing 1	Elements:	No missing elements obser	bserved.						
		osion and eathering:	No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0101	-0.032-R								
Rou	ite Name:	ame: BANDY CREEK ROAD									
Inspec	tion Date:	10/05/201	0	Barrie	er Rating:	32.20					
Repair Recommendations											
Repair Action:REPAIRFMSS Work Type:DEFERRED MAINTENANCERepair Cost:\$3273											
Brief Workorder:											
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 150 LF = \$1500. Raise 150 feet of guardrail 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.											

ROUTE 0101: BANDY CREEK ROAD



BISO_0101_0.032_R_1.JPG

В	arrier ID:	BISO-0101	1-0.181-R							
Rou	ite Name:	BANDY (CREEK ROAD							
Inspec	tion Date:	10/05/2010)	Barrie	er Rating:	43.70				
Barrier Descripti	ion									
	Type:	W-BEAM S	STRONG POST Barrier Function:		TRAFFIC					
Barrier	Material:	WEATHER STEEL/CO		Post Material: CORTEN						
	Blockout Type:	STEEL		Length (ft.): 333						
Speed Lim		35		Placement with Respect to Road: INSIDE OF CURVE						
Hazard Behind	d Barrier:	MEDIUM								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:							
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:							
Average Measurements										
Design Height (In.):	27		Width (In.): 0.0 Post Spacing (In.): 74.0							
Height (In.):	21.2		Lateral Offset (In.): 36.0 Road Grade (%): 4.60							
Physical Condition	on									
	Align	ment and Height:	Alignment has no deviation	Alignment has no deviation and height is 3 to 6 in below the 27 in design height.						
		aking and	No breaking or cracking of	oserved.						
Barrier	(Cracking:								
	Missing 1	Elements:	No missing elements observed.							
		osion and eathering:	No corrosion or weathering observed.							
	Align	ment and Height:	Alignment was as designed and height is 6 in below the 27 in design height.							
End Treatments		aking and Cracking:	No breaking or cracking ob							
	Missing	Elements:	No missing elements obser	served.						
		osion and eathering:	No corrosion or weathering	g observed.						

В	Barrier ID: BISO-0101-0.181-R										
Rou	ıte Name:	me: BANDY CREEK ROAD									
	Insurantian Data, 10/05/2010 Paurian Dating, 42.70										
Inspec	Inspection Date: 10/05/2010 Barrier Rating: 43.70										
Repair Recommendations											
Repair	REPAIR		FMSS	DEFERRED		Repair	\$6908				
Action:		Work Type: MAINTENANCE Cost:									
Brief	Brief Raise 333 feet of guardrail up to the 27-in design height.										
Workorder:											
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 333 LF = \$3330. Raise 333 feet of guardrail up to the 27-in design height. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950.											
2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.											

ROUTE 0101: BANDY CREEK ROAD



BISO_0101_0.181_R_1.JPG

Route Name: BANDY CREEK ROAD	Ba	arrier ID:	BISO-0101	-0.412-R							
Barrier Description	Rou	ite Name:	BANDY (DY CREEK ROAD							
Barrier Description	Inspect	tion Date:	10/05/2010	0	Barr	ier Rating:	48.00				
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC						a a g					
STEEL/CORTEN Length (ft,): 444	Burrier Descriper		W-BEAM S	STRONG POST	Barrie	r Function:	TRAFFIC				
Type: Speed Limit (MPH): 35 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg. End Trint Type: W-BEAM BCT Is Beg. End Trint Type: Crashworthy?: Beg. End Trint Type: Ending End End Trint Type: End	Barrier	Material:			Pos	t Material:	CORTEN				
Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Crashworthy?: Beg. End Trtntt Type: Tending End Trtntt Type: Tend			STEEL		I	ength (ft.):	444				
Barrier Crashworthiness Appropriate Test TL-2 Barrier Test Level: Crashworthy?: Beg. End Trtmt W-BEAM BCT Grashworthy?: Send Trtmt Type: Crashworthy?: Transition Type: Crashworthy?: Transition Type: Crashworthy?: NO Approach Transition Type: Transition Type: Crashworthy?: Transition Type: Transition Type: Crashworthy?: Transition Type: Crashworthy?: Transition Type: Transitio	Speed Limi	it (MPH):	35				INSIDE OF	FCURVE			
Appropriate Test Level: Beg. End Trtmt Type: W-BEAM BCT Test Level: Beg. End Trtmt Type: NONE Transition Type: Ending End Trtmt Type: W-BEAM BCT Type: Ending End Trtmt Type: NONE NONE Transition Type: NONE Approach Transition Type: NONE Transition Type: Average Measurements Design Height (In.): 127 Width (In.): 128 Width (In.): 129 Useral Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. No breaking or cracking observed. Alignment and Height: No breaking or cracking observed. No breaking or cracking observed. Alignment and Height: No missing elements observed. No breaking or cracking observed. No missing elements observed.	Hazard Behind	l Barrier:	MEDIUM								
Level: Beg. End Trtmt Type: W-BEAM BCT Is Beg. End Trtmt Crashhworthy?: NO Approach Transition Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashhworthy?: NO Approach Transition Type:	Barrier Crashwo	rthiness									
Beg. End Trtmt Type: W-BEAM BCT Is Beg. End Trtmt Crashhworthy?: NO Approach Transition Type: NONE		TL-2			TL-3	I		YES			
Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 65.0 Height (In.): 22.2 Lateral Offset (In.): 34.2 Road Grade (%): 0.30 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment was as designed and the height is 5 in below 27 in design height. Breaking and Height: Corrrosion and Corracking: Alignment was as designed and the height is 5 in below 27 in design height. Breaking and Cracking: Missing Elements: No breaking or cracking observed. Corrosion or weathering observed. Missing Elements: No breaking or cracking observed. Cracking: Missing Elements: No missing elements observed. Corrosion and No corrosion or weathering observed.		W-BEAM I	ВСТ	0	NO			NONE			
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 65.0 Height (In.): 22.2 Lateral Offset (In.): 34.2 Road Grade (%): 0.30 Physical Condition	_	W-BEAM I	ВСТ		NO						
Height (In.): 22.2 Lateral Offset (In.): 34.2 Road Grade (%): 0.30 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment was as designed and the height is 5 in below 27 in design height. Breaking and Cracking observed. Corrrosion and Weathering: Alignment was as designed and the height is 5 in below 27 in design height. Breaking and Cracking: Mo breaking or cracking observed. No missing elements observed. Corrosion and No corrosion or weathering observed.	Average Measure	ements									
Height (In.): 22.2 Lateral Offset (In.): 34.2 Road Grade (%): 0.30 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment was as designed and the height is 5 in below 27 in design height. Breaking and Cracking: No breaking or cracking observed. Corrosion and Weathering: Alignment and Height: Breaking and Cracking: No breaking or cracking observed. Missing Elements: No missing elements observed. Corrosion and No corrosion or weathering observed. Missing Elements: No missing elements observed.	Design Height (In.):	27		8\ 7							
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment was as designed and the height is 5 in below 27 in design height. Breaking and Cracking observed. Corrosion and Weathering: Alignment was as designed and the height is 5 in below 27 in design height. Breaking and Cracking: Missing Elements: No breaking or cracking observed. Missing Elements: No missing elements observed. Corrosion and No corrosion or weathering observed.	Height (In.):	22.2		8 7							
Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking or cracking observed. Alignment was as designed and the height is 5 in below 27 in design height. Breaking and Cracking: Missing Elements: No breaking or cracking observed. Corrrosion and No corrosion or weathering observed.	Physical Condition	n									
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No breaking or cracking observed. Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Align									
Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. No missing elements observed. No missing elements observed.	Barrier		_	- S							
Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Missing 1	Elements:	ments: No missing elements observed.							
Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.											
End Treatments Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Align									
Corrrosion and No corrosion or weathering observed.	End Treatments		_	······································							
		Missing 1	Elements:	No missing elements obser	ved.						
				No corrosion or weathering	g observed.						

Ва	Barrier ID: BISO-0101-0.412-R											
Rou	Route Name: BANDY CREEK ROAD											
Inspect	tion Date:	10/05/2010)	Barri	er Rating:	48.00						
Repair Recomme	endations											
Repair Action:	Action: Work Type: MAINTENANCE Cost:											
Brief Workorder: Raise 444 feet of guardrail to 27-in design height.												
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 444 LF = \$4440. Raise 444 feet of guardrail to 27-in design height. Low Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950.												
2008 cost estimate (ASTM Class D), preliminary for comparison to other repair costs only.												

ROUTE 0101: BANDY CREEK ROAD



BISO_0101_0.412_R_1.JPG

В	arrier ID:	BISO-0101	-0.684-L							
Rou	ıte Name:	BANDY (CREEK ROAD							
Inspec	tion Date:	10/05/201	0	Barri	er Rating:	35.20				
Barrier Descripti	ion									
·	Type:	W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC				
Barrier	Material:	WEATHER STEEL/CO		Post	Material:	CORTEN				
	Blockout Type:	STEEL		L	ength (ft.):	658				
Speed Lim		35			ement with	INSIDE OF	FCURVE			
Hazard Behind	d Barrier:	MEDIUM								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3	1	Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE			
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:	NO						
Average Measure	ements									
Design Height (In.):	27		Width (In.): 0.0 Post Spacing (In.): 75.3							
Height (In.):	24.2		Lateral Offset (In.): 37.5 Road Grade (%): 2.40							
Physical Condition	on									
	Align	ment and Height:								
Barrier		aking and Cracking:								
	Missing	Elements:	No missing elements observed.							
		osion and eathering:								
	Align	ment and Height:	t:							
End Treatments		aking and Cracking:	No breaking or cracking ob	iking or cracking observed.						
	Missing 1	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						

В	Barrier ID: BISO-0101-0.684-L											
Rou	Route Name: BANDY CREEK ROAD											
Inchae	tion Date:	10/05/201	0	Rarric	er Rating:	35.20						
•			0	Dairie	r Kating.	33.20						
Repair Recomme	endations											
Repair	REPAIR		FMSS	DEFERRED		Repair	\$12106					
Action:	Action: Work Type: MAINTENANCE Cost:											
Brief Raise 658 feet of w-beam to 27-in design height.												
Workorder:												
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 658 LF = \$6580. Raise 658 feet of guardrail up to 27-in 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.												

ROUTE 0101: BANDY CREEK ROAD



BISO_0101_0.684_L_1.JPG

Route Name: BREWSTER BRIDGE ROAD	Ba	arrier ID:	BISO-0110	-0.008-R							
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING Post Material: CORTEN STEEL/CORTEN Blockout Type: Speed Limit (MPH): 25 Placement with Respect to Road: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Test Level: Crashworthy?: Test Level: Type: MeBAM BCT Is Beg. End Trtmt NO Approach Type: Crashworthy?: Transition Type: Transition Type: MeBAM BCT Ending End Trtmt NO Crashhworthy?: Transition Type: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Physical Condition Alignment and Height: No missing elements observed. Corrrosion and Weathering: No missing elements observed. Corrrosion and Weathering: Alignment and Alignment and Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.	Rou	ite Name:	BREWST	ER BRIDGE ROAD							
Barrier Material: WEATHERING STEEL CORTEN Blockout Type: Speed Limit (MPH): 25 Placement with Respect to Road: DUTSIDE OF CURVE Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Test Level: Crashworthy?: Test Level: Crashworthy?: Transition Type: Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Physical Condition Alignment and Barrier: More propriated (Missing Elements: No missing elements observed. Alignment and Weathering: More corrosion or weathering observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height.	Inspect	tion Date:	10/04/201	0	Barri	er Rating:	35.20				
Barrier Material: WEATHERING STEEL_CORTEN Blockout Type: Speed Limit (MPH): 25 Placement with OUTSIDE OF CURVE Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg. End Trtmt Type: Test Level: Crashworthy?: Transition Type: Transition	Barrier Descripti	on									
STEEL/CORTEN STEEL Length (ft.): 1163		Type:	W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC				
Type: Speed Limit (MPH): 25 Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg. End Trtmt Type: Test Level: Crashworthy?: Test Level: Crashworthy?: Transition Type: Ending End Trtmt Type: Tending End Trtmt Crashhworthy?: Transition Type: Transition	Barrier	Material:			Post	Material:	CORTEN				
Respect to Road:			STEEL		Le	ength (ft.):	1163				
Appropriate Test Level: Beg. End Trimt Type: Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Crashworthy?: Ending End Trtmt Type: W-BEAM BCT Crashworthy?: Ending End Trtmt Type: W-BEAM BCT Crashworthy?: Ending End Trtmt Type: Average Measurements Design Height (In.): Beg. End Trtmt Crashworthy?: NO Average Measurements Design Height (In.): Alignment and Height: Alignment and Cracking: Mob reaking or cracking observed. Corrrosion and Weathering: No missing elements observed. Alignment is acceptable. Height is within 1-in of 27-in design height.	Speed Limi	it (MPH):	25				OUTSIDE	OF CURVE			
Appropriate Test Level: Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: Average Measurements Design Height (In.): 127 Width (In.): 128.5 Lateral Offset (In.): 128.5 Lateral Offset (In.): 128.5 Lateral Offset (In.): 128.5 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.	Hazard Behind	l Barrier:	MEDIUM								
Level: Test Level: Crashworthy?:	Barrier Crashwo	rthiness									
Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Height (In.): 28.5 Lateral Offset (In.): 38.7 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height.		TL-1			TL-3			YES			
Type: Crashhworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Height (In.): 28.5 Lateral Offset (In.): 38.7 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height.	_	W-BEAM I	ВСТ		NO			NONE			
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 75.0 Height (In.): 28.5 Lateral Offset (In.): 38.7 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height.	_	W-BEAM I	ВСТ		NO						
Height (In.): 28.5 Lateral Offset (In.): 38.7 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height.	Average Measure	ements									
Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height.	Design Height (In.):	27		1 Ost Spacing (III.).							
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height of 27 in by up to 2 in. Breaking and Cracking observed. No breaking or cracking observed. No missing elements observed.	Height (In.):	28.5		80.7							
Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.	Physical Condition	on									
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: No corrosion or weathering observed. Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.		Align		······································							
Corrrosion and Weathering: No corrosion or weathering observed. Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.	Barrier			No breaking or cracking observed.							
Weathering: Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.		Missing 1	Elements:	: No missing elements observed.							
1											
		Align	ment and Height:	t:							
End Treatments Breaking and Cracking: 36 ft of damaged guardrail due to fallen tree.	End Treatments		_	36 ft of damaged guardrail	guardrail due to fallen tree.						
Missing Elements: 2 missing bolts from posts.		Missing 1	Elements:	2 missing bolts from posts.							
Corrrosion and Weathering: No corrosion or weathering observed.				No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0110)-0.008-R						
Rou	ıte Name:	BREWST	ER BRIDGE ROAD						
Inspec	tion Date:	10/04/201	0	Barrie	r Rating:	35.20			
Repair Recomme	endations								
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$3405		
Brief Workorder: Remove and replace 36 feet of guardrail at trailing end treatment.									
Workorder: Remove Guardrail at \$10- per -Lin. Ft. for 36 LF = \$360. W-Beam Strong Post at \$35- per -Lin. Ft. for 36 LF = \$1260. 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.									

ROUTE 0110: BREWSTER BRIDGE ROAD



BISO_0110_0.008_R_1.JPG

Route Name: BREWSTER BRIDGE ROAD	В	arrier ID:	BISO-0110	-0.009-L							
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Length (ft.): 700 Speed Limit (MPH): 25 Placement with Respect to Road: INSIDE OF CURVE Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Placement with Type: Crashworthy?: Transition Type: Crashworthy?: NONE Ending End Trtmt Type: Crashworthy?: 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.): 73.8 Height (In.): 28.2 Lateral Offset (In.): 48.2 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and No breaking or cracking observed.	Rou	ite Name:	BREWST								
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Length (ft.): 700 Speed Limit (MPH): 25 Placement with Respect to Road: INSIDE OF CURVE Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Placement with Type: Crashworthy?: Transition Type: Crashworthy?: NONE Ending End Trtmt Type: Crashworthy?: 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.): 73.8 Height (In.): 28.2 Lateral Offset (In.): 48.2 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and No breaking or cracking observed.	Inspec	tion Date:	10/04/2010	0	Barri	er Rating:	19.50				
Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 25 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg. End Trtmt Type: Speed Beg. End Trtmt Type: Ending End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashworthy?: Medium Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 73.8 Height (In.): 28.2 Lateral Offset (In.): 48.2 Road Grade (%): 5.10 Physical Condition Alignment and Height: No breaking or cracking observed.						0					
STEEL/CORTEN STEEL Length (ft.): 700	1		W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC				
Speed Limit (MPH): 25 Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg, End Trtmt Type: NONE Is Beg, End Trtmt Crashworthy?: Transition Type: Ending End Trtmt Type: Crashworthy?: Ending End Trtmt Type: Crashworthy?: Measurements Design Height (In.): 27 Height (In.): 28.2 Lateral Offset (In.): 48.2 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and No breaking or cracking observed.	Barrier	Material:			Post	Material:	CORTEN				
Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Test Level: Crashworthy?: Beg. End Trtmt Type: Send Trtmt Crashworthy?: Tensition Type: Tensition			STEEL		Lo	ength (ft.):	700				
Barrier Crashworthiness Appropriate Test Level: TL-1 Barrier TL-3 Is Barrier Crashworthy?: Test Level: Crashworthy?: Beg. End Trtmt Type: Send Trtmt Crashhworthy?: Sending End Trtmt Type: Sending End Trtmt Crashhworthy?: Sending End Trtmt Ending End Trtmt Crashhworthy?: Sending End Trtmt End End End End Trtmt End	Speed Lim	it (MPH):	25				INSIDE OF	FCURVE			
Appropriate Test Level: Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Crashhworthy?: Design Height (In.): Design Height (In.): Alignment and Height: Alignment has no deviation and height is within 1 in below and 4 in above the 27 in design height. TL-3 Is Barrier Crashworthy?: N/A Approach Transition Type: N/A Approach Transition Type: NO Post Spacing (In.): 73.8 Road Grade (%): 5.10 Physical Condition Alignment and Height: No Post Spacing (In.): Alignment and Height is within 1 in below and 4 in above the 27 in design height.	Hazard Behind	d Barrier:	MEDIUM								
Level: Beg, End Trtmt Type: Is Beg, End Trtmt Type: Ending End Trtmt Type: Ending End Trtmt Type: Crashhworthy?: Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 10.0 Post Spacing (In.): 28.2 Lateral Offset (In.): Physical Condition Alignment and Height: Alignment has no deviation and height is within 1 in below and 4 in above the 27 in design height. Breaking and No breaking or cracking observed.	Barrier Crashwo	rthiness									
Beg. End Trtmt Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: NO Ending End Trtmt Crashhworthy?: NO Approach Transition Type: NO Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 73.8 Height (In.): 28.2 Lateral Offset (In.): 48.2 Road Grade (%): 5.10 Physical Condition Alignment and Height: NO Alignment has no deviation and height is within 1 in below and 4 in above the 27 in design height. Breaking and No breaking or cracking observed.		TL-1			TL-3	1		YES			
Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 73.8 Height (In.): 28.2 Lateral Offset (In.): 48.2 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and No breaking or cracking observed.	_	NONE			N/A		Approach	NONE			
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 73.8 Height (In.): 28.2 Lateral Offset (In.): 48.2 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and No breaking or cracking observed.		W-BEAM I	ВСТ		NO						
Height (In.): 28.2 Lateral Offset (In.): 48.2 Road Grade (%): 5.10 Physical Condition Alignment and Height: Breaking and No breaking or cracking observed.	Average Measur	ements									
Height (In.): 28.2 Lateral Offset (In.): 48.2 Road Grade (%): 5.10 Physical Condition Alignment and Height: Alignment has no deviation and height is within 1 in below and 4 in above the 27 in design height. Breaking and No breaking or cracking observed.	Design Height (In.):	27		80.7							
Alignment and Height: Alignment has no deviation and height is within 1 in below and 4 in above the 27 in design height. Breaking and No breaking or cracking observed.	Height (In.):	28.2		80.7							
Height: Breaking and No breaking or cracking observed.	Physical Condition	on									
2101111119 11111		Align									
	Barrier		_	·9 ·····							
Missing Elements: No missing elements observed.		Missing 1	Elements:	ements: No missing elements observed.							
Corrosion and Weathering: No corrosion or weathering observed.											
Alignment and Height: Approach end terminal severely damaged due to impact.		Align									
End Treatments Breaking and Cracking: Approach end terminal severely damaged due to impact.	End Treatments	1	_								
Missing Elements: 3 missing bolts on trailing end and approach end severely damaged due to impact.		Missing 1	Elements:	3 missing bolts on trailing	end and approach end sever	ely damaged d	ue to impact.				
Corrrosion and Weathering: No corrosion or weathering observed.				No corrosion or weathering	g observed.						

В	arrier ID:	BISO-0110	-0.009-L									
Route Name: BREWSTER BRIDGE ROAD												
Inspec	Inspection Date: 10/04/2010 Barrier Rating: 19.50											
Repair Recomme	endations	;										
Repair Action:	Action: Work Type: IMPROVEMENT Cost:											
Brief Workorder: Remove and replace approach end terminal due to impact.												
Workorder: Remove Guardrail at \$10- per -Lin. Ft. for 40 LF = \$400. Remove approach end treatment. W-beam flared 350 compliant at \$3500- per -Each for 1 Unit(s) = \$3500. 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.											

ROUTE 0110: BREWSTER BRIDGE ROAD



BISO_0110_0.009_L_1.JPG

В	arrier ID:	BISO-0110	-0.559-R						
Rou	ıte Name:	BREWST	ER BRIDGE ROAD						
Inspec	tion Date:	10/04/2010	0	Barr	ier Rating:	13.60			
Barrier Descripti	ion								
	Type:	W-BEAM S	STRONG POST	Barrie	r Function:	TRAFFIC			
Barrier	Material:	GALVANI	ZED STEEL	Pos	t Material:	GALVANI.	ZED STEEL		
	Blockout Type:	STEEL		L	ength (ft.):	125			
Speed Lim		25			ement with ct to Road:	TANGENT	•		
Hazard Behind	d Barrier:	MEDIUM							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3	I	Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE		
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A					
Average Measure	ements								
Design Height (In.):	27		Width (In.): 0.0 Post Spacing (In.): 74.3						
Height (In.):	28.0		Lateral Offset (In.): 52.0 Road Grade (%): 5.30						
Physical Condition	on								
	Align	ment and Height:	The barrier alignment has i	no deviation and height is a	above the design	height of 27 i	in by 1 in.		
Barrier		aking and Cracking:							
	Missing 1	Elements:	ments: No missing elements observed.						
		osion and eathering:							
	Align	ment and Height:	ight:						
End Treatments		aking and Cracking:							
	Missing	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

Ba	arrier ID:	BISO-0110	-0.559-R				
Rou	ite Name:	BREWST	ER BRIDGE ROAD				
Inspec	tion Date:	10/04/2010)		Barrier Rating:	13.60	
Repair Recomme	endations						
Repair Action:	NO ACTIO)N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A						
Workorder:							
	2008 cos	st estimate (A	ASTM Class D), prelimin	ary for compar	rison to other repair co	sts only.	

ROUTE 0110: BREWSTER BRIDGE ROAD



BISO_0110_0.559_R_1.JPG

Route Name: BLUE HERON ROAD (HWY 742)	Ba	arrier ID:	BISO-0117	-0.222-L							
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout STEEL Length (ft.): 257 Type: Speed Limit (MPH): 35 Placement with Respect to Road: TANGENT Respect to Road: TEST Level: Tanger Test Level: Test Level: Test Level: Test Level: Tanger Test Level: Test	Rou	ite Name:	BLUE HE								
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout STEEL Length (ft.): 257 Type: Speed Limit (MPH): 35 Placement with Respect to Road: TANGENT Respect to Road: TEST Level: Tanger Test Level: Test Level: Test Level: Test Level: Tanger Test Level: Test	Inspect	tion Date:	10/03/2010	0	Barı	rier Rating:	25.20				
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: TANGENT Respect to Road: Tangent T											
STEEL/CORTEN Blockout Type: STEEL Length (ft.): 257			W-BEAM S	STRONG POST	Barrie	r Function:	TRAFFIC				
Type: Speed Limit (MPH): 35 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test TL-2 Barrier Test Level: Crashworthy?: Crashworthy?: Beg. End Trtmt Type: DoWN Crashworthy?: NO Approach Transition Type: Ending End Trtmt Type: Crashworthy?: Ending End Trtmt Type: Crashworthy?: Crashworthy?: Crashworthy?: Crashworthy?: Average Measurements Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 73.6 Height (In.): 25.0 Lateral Offset (In.): 52.7 Road Grade (%): 3.70 Physical Condition Alignment and Height: No breaking or cracking observed. Corrrosion and Weathering: No missing elements observed. Corrrosion and Weathering: No missing elements observed. Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.	Barrier	Material:			Pos	st Material:	CORTEN				
Hazard Behind Barrier: MEDIUM			STEEL		I	Length (ft.):	257				
Appropriate Test Level: Beg. End Trtmt Type: Beg. End Trtmt Crashhworthy?: Ending End Trtmt Type: Beg. End Trtmt Type: Beg. End Trtmt Crashhworthy?: Ending End Trtmt Type: Beg. End Trtmt Type: Beg. End Trtmt Crashhworthy?: Beg. End Trtmt Type: Boo Transition Type: Beg. End Trtmt Type: Boo Transition Type: Beg. End Trtmt Type: Boo Transition Transition Transition Too Transition Transition Transition Too Transition Transition Too Transition Trans	Speed Limi	it (MPH):	35				TANGENT				
Appropriate Test Level: Beg. End Trtmt Type: Beg. End Trtmt Type: Beg. End Trtmt Type: W-BEAM TURN DOWN Crashhworthy?: Ending End Trtmt Type: W-BEAM BCT Crashhworthy?: Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 25.0 Lateral Offset (In.): 52.7 Road Grade (%): 3.70 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.	Hazard Behind	l Barrier:	MEDIUM								
Level: Test Level: Crashworthy?:	Barrier Crashwo	rthiness									
Beg. End Trtmt Type: DoWN		TL-2			TL-3			YES			
Type: Crashhworthy?:	_		ΓURN	0	NO		Approach	NONE			
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 73.6		W-BEAM I	ВСТ		NO						
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 73.6	Average Measure										
Height (In.): 25.0 Lateral Offset (In.): 52.7 Road Grade (%): 3.70 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.			80 7								
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Alignment is acceptable. Height is 2 to 3 in below the 27 in design height for 114 ft. Breaking and Cracking observed. No breaking or cracking observed. No missing elements observed.	Height (In.):	25.0	80 7								
Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.	Physical Condition	on									
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: No corrosion or weathering observed. Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.		Align		Alignment has no deviation	n and height is 2 to 3 in be	low the 27 in de	esign height fo	or 114 ft.			
Corrrosion and Weathering: No corrosion or weathering observed. Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.	Barrier		_	s							
Weathering: Alignment and Alignment is acceptable. Height is within 1-in of 27-in design height.		Missing 1	Elements:	Clements: No missing elements observed.							
		Align	ment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.								
End Treatments Breaking and Cracking: No breaking or cracking observed.	End Treatments										
Missing Elements: No missing elements observed.		Missing 1	Elements:	No missing elements obser	ved.						
Corrrosion and Weathering: No corrosion or weathering observed.				No corrosion or weathering	g observed.						

В	Barrier ID: BISO-0117-0.222-L										
Route Name: BLUE HERON ROAD (HWY 742)											
Inspec	tion Date:	10/03/201	0	Barrie	er Rating:	25.20					
Repair Recomme	endations										
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$2877				
Brief Workorder: Raise 114 feet of guardrail to 27-in design height.											
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 114 LF = \$1140. Raise 114 feet of guardrail 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.										

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_0.222_L_1.JPG

Inspection Date: 10:03/2010 Barrier Rating: 33.70	Ba	arrier ID:	BISO-0117	ISO-0117-0.477-R						
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL CORTEN Blockout Type: STEEL Length (IL): 498 Break Barrier Crashworthiness Appropriate Test Level: Test Level: Test Level: Crashworthy?: Beg. End Trimt W-BEAM TURN Type: DOWN Crashhworthy?: Test Level: Test	Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)					
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL Length (ft.): 498 Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: WEDIUM Barrier Crashworthiness Appropriate Test TL-2 Barrier TL-3 Is Barrier Test Level: Crashworthy?: Test Level: Crashworthy?: Test Level: Test Level: Test Level: Test Level: Test Level: Transition Type: DOWN Crashhworthy?: Transition Type: Transition Type: Transition Type: Transition Type: Down Crashhworthy?: Transition Type: Transition Type	Inspect	ion Date:	10/03/2010	0	Barr	ier Rating:	33.70			
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL Length (ft.): 498 Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: WEDIUM Barrier Crashworthiness Appropriate Test TL-2 Barrier TL-3 Is Barrier Test Level: Crashworthy?: Test Level: Crashworthy?: Test Level: Test Level: Test Level: Test Level: Test Level: Transition Type: DOWN Crashhworthy?: Transition Type: Transition Type: Transition Type: Transition Type: Down Crashhworthy?: Transition Type: Transition Type										
STEEL/CORTEN Length (ft.): 498	Post-		W-BEAM S	STRONG POST	Barriei	Function:	TRAFFIC			
Speed Limit (MPH): 35 Placement with Respect to Road:	Barrier	Material:			Pos	t Material:	CORTEN			
Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: Test Level: Crashworthy?: Beg. End Trtmt W-BEAM TURN DOWN Crashhworthy?: Transition Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt NO Crashhworthy?: Average Measurements Design Height (In.): 27 Width (In.): 57.2 Road Grade (%): 6.40 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. End Treatments Alignment and Height: Breaking and No breaking or cracking observed. Corrrosion and Weathering: Alignment and Height: Breaking and No breaking or cracking observed. Corrrosion and No corrosion or weathering observed. End Treatments Breaking and No breaking or cracking observed. Corrosion and No breaking or cracking observed. Corrosion and No breaking or cracking observed. Corrosion and No breaking or cracking observed. Missing Elements: No missing elements observed. Corrosion and No breaking or cracking observed. Corrosion and No corrosion or weathering observed.			STEEL		L	ength (ft.):	498			
Appropriate Test TL-2 Barrier TL-3 Is Barrier YES Level: Beg. End Trtmt W-BEAM TURN Type: Ending End Trtmt Type: W-BEAM BCT Ending End Trtmt Type: Average Measurements Design Height (In.): 27 Width (In.): 57.2 Road Grade (%): 6.40 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Height: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion or weathering observed. Corrrosion and No breaking or cracking observed. Cracking: Missing Elements: No missing elements observed. Cracking: Missing Elements: No missing elements observed. Cracking: Missing Elements: No missing elements observed.	Speed Limi	t (MPH):	35				OUTSIDE	OF CURVE		
Appropriate Test Level: Beg. End Trtmt	Hazard Behind	Barrier:	MEDIUM							
Level: Test Level: Crashworthy?:	Barrier Crashwo	rthiness								
Beg. End Trtmt Type: DOWN		TL-2			TL-3	1		YES		
Type: Crashhworthy?: Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3 Height (In.): 27.7 Lateral Offset (In.): 57.2 Road Grade (%): 6.40 Physical Condition Alignment and Height: Alignment has no deviation and height is at or above the design height of 27 in by 1 in. Breaking and Cracking: No breaking or cracking observed. Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Space	_		ΓURN		NO		Approach	NONE		
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3	_	W-BEAM I	ВСТ		NO					
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.3	Average Measure	ements								
Height (In.): 27.7 Lateral Offset (In.): 57.2 Road Grade (%): 6.40 Physical Condition Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: No breaking or cracking observed. Breaking and Cracking: No missing elements observed. Alignment and Height: Breaking and Cracking: No breaking or cracking observed. Missing Elements: No missing elements observed.				Width (In.):	0.0	Post Spa	cing (In.):	74.3		
Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking observed. Corracking: Alignment and Height: Breaking and Cracking: No breaking or cracking observed. No breaking or cracking observed. Missing Elements: No breaking or cracking observed. Mo breaking or cracking observed. Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.	Height (In.):	27.7		Lateral Offset (In.):	57.2			6.40		
Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking or cracking observed. Alignment is acceptable. Height is within 1-in of 27-in design height. Breaking and Cracking: Missing Elements: No breaking or cracking observed. Missing Elements: No missing elements observed.	Physical Condition	on								
Barrier Cracking: Missing Elements: No missing elements observed. Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No breaking or cracking observed. Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Align		Alignment has no deviation and height is at or above the design height of 27 in by 1 in.						
Corrrosion and Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. No missing elements observed. No corrosion or weathering observed.	Barrier		_	No breaking or cracking ob	oserved.					
Weathering: Alignment and Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Missing 1	Elements:	No missing elements obser	ved.					
Height: Breaking and Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.				No corrosion or weathering	g observed.					
End Treatments Cracking: Missing Elements: No missing elements observed. Corrrosion and No corrosion or weathering observed.		Align		Alignment is acceptable. I	Height is within 1-in of 27-	in design height	t.			
Corrrosion and No corrosion or weathering observed.	End Treatments		_	No breaking or cracking of	oserved.					
		Missing 1	Elements:	No missing elements obser	ved.					
				No corrosion or weathering	g observed.					

Ba	arrier ID:	BISO-0117	-0.477-R				
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)			
Inspect	tion Date:	10/03/2010)		Barrier Rating:	33.70	
Repair Recomme	endations						
Repair Action:	NO ACTIO	N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A				·		
Workorder:							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for compar	ison to other repair co	sts only.	

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_0.477_R_1.JPG

В	arrier ID:	BISO-0117	BISO-0117-0.478-L						
Rou	ıte Name:	BLUE HE	RON ROAD (HWY 7	42)					
Inspec	tion Date:	10/03/2010	0	Barri	er Rating:	25.70			
Barrier Descripti	ion								
·	Type:	W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC			
		WEATHER STEEL/CO		Post	Material:	CORTEN			
	Blockout Type:	STEEL		L	ength (ft.):	532			
Speed Lim		35			ement with	INSIDE OF	FCURVE		
Hazard Behind	d Barrier:	LOW							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES		
Beg. End Trtmt Type:		ΓURN	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE		
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:	Ending End Trtmt NO Crashhworthy?:					
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	75.0		
Height (In.):	25.6		Lateral Offset (In.):	54.2		rade (%):	7.80		
Physical Condition	on								
	Align	ment and Height:	The barrier alignment has no deviation and height is 2 in below the design height of 27 in for 185 ft.						
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-i	n design height	i.			
End Treatments		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0117	-0.478-L							
Rou	ite Name:	BLUE HE	LUE HERON ROAD (HWY 742)							
Inspec	tion Date:	10/03/2010)	Barri	er Rating:	25.70				
Repair Recomme	endations									
Repair Action:	REPAIR		FMSS Work Type:	DEFERRED MAINTENANCE		Repair Cost:	\$3658			
Brief Workorder:	Raise 185 fee	et of guardrail	to 27-in design height.							
Workorder:	Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 185 LF = \$1850. Raise 185 feet of barrier to 27-in design height. Low Speed Traffic Control at \$1475- per -Day for 1 Day(s) = \$1475.									
	2008 со	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.				

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_0.478_L_1.JPG

Route Name: BLUE HERON ROAD (HWY 742) Inspection Date: 10/03/2010 Barrier Rating: 20.70 Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test Level: TL-2 Barrier TL-3 Is Barrier YES Crashworthy?: YES					
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: INSIDE OF CURVE Barrier Crashworthiness Appropriate Test TL-2 Barrier TL-3 Is Barrier YES					
Barrier Description Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: INSIDE OF CURVE Barrier Crashworthiness Appropriate Test TL-2 Barrier TL-3 Is Barrier YES					
Type: W-BEAM STRONG POST Barrier Function: TRAFFIC Barrier Material: WEATHERING STEEL/CORTEN Blockout Type: Length (ft.): 113 Speed Limit (MPH): 35 Placement with Respect to Road: INSIDE OF CURVE Barrier Crashworthiness Appropriate Test TL-2 Barrier TL-3 Is Barrier YES					
STEEL/CORTEN Blockout Type: Speed Limit (MPH): 35 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test TL-2 Barrier TL-3 Is Barrier YES					
Type: Speed Limit (MPH): 35 Placement with Respect to Road: Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test TL-2 Barrier TL-3 Is Barrier YES					
Hazard Behind Barrier: MEDIUM Barrier Crashworthiness Appropriate Test TL-2 Barrier TL-3 Is Barrier YES					
Barrier Crashworthiness Appropriate Test TL-2 Barrier TL-3 Is Barrier YES					
Appropriate Test TL-2 Barrier TL-3 Is Barrier YES					
Beg. End Trtmt W-BEAM TURN Is Beg. End Trtmt NO Approach Transition Type: DOWN Crashhworthy?: Transition Type:					
Ending End Trtmt Type: Ending End Trtmt Crashhworthy?: NO					
Average Measurements					
Design Height (In.): 27 Width (In.): 0.0 Post Spacing (In.): 74.0					
Height (In.): 26.7 Lateral Offset (In.): 51.0 Road Grade (%): 4.40					
Physical Condition					
Alignment and Height: Alignment has no deviation and height is within 1 in of the 27 in design height.	Alignment has no deviation and height is within 1 in of the 27 in design height.				
Barrier Breaking and Cracking: No breaking or cracking observed.					
Missing Elements: No missing elements observed.					
Corrrosion and Weathering: No corrosion or weathering observed.					
Alignment and Height: Alignment is acceptable. Height is within 1-in of 27-in design height.					
End Treatments Breaking and Cracking: No breaking or cracking observed.					
Missing Elements: No missing elements observed.					
Corrrosion and Weathering: No corrosion or weathering observed.					

Ba	arrier ID:	BISO-0117	-0.640-R				
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)			
Inspect	tion Date:	10/03/2010)		Barrier Rating:	20.70	
Repair Recomme	endations						
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A				·	·	
Workorder:							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comp	parison to other repair co	sts only.	

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_0.640_R_1.JPG

В	arrier ID:	BISO-0117	ISO-0117-0.879-L						
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)					
Inspec	tion Date:	10/03/2010	0	Barri	er Rating:	25.10			
Barrier Descripti									
	Туре:	W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Post	Material:	CORTEN			
	Blockout Type:	STEEL		L	ength (ft.):	157			
Speed Lim	it (MPH):	35			ment with t to Road:	OUTSIDE	OF CURVE		
Hazard Behind	d Barrier:	MEDIUM							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO	,	Approach	NONE		
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO					
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	66.6		
Height (In.):	27.0		Lateral Offset (In.):	42.2		rade (%):	11.80		
Physical Condition	on								
		ment and Height:	Alignment has no deviation and height is within 1 in of the 27 in design height.						
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-i	n design height	i.			
End Treatments	1	aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

Ba	arrier ID:	BISO-0117	-0.879-L				
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)			
Inspect	tion Date:	10/03/2010	0	Ba	arrier Rating:	25.10	
Repair Recomme	endations						
Repair Action:	NO ACTIC)N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A						
Workorder:							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison	to other repair co	sts only.	

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_0.879_L_1.JPG

B	arrier ID:	BISO-0117	-0.973-R				
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)			
Inspec	tion Date:	10/03/2010	0		Barrier Rating:	48.20	
Barrier Descripti	ion						
Type: W-BEAM		W-BEAM S	STRONG POST		Barrier Function:	TRAFFIC	
Barrier	Material:	WEATHER STEEL/CO			Post Material:	CORTEN	
	Blockout Type:	STEEL			Length (ft.):	818	
Speed Lim	it (MPH):	35			Placement with Respect to Road:	BOTH INS	IDE AND OUTSIDE
Hazard Behind	d Barrier:	MEDIUM					
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE
Ending End Trtmt Type:	Ending End Trtmt W-BEAM BCT			NO			
Average Measure	ements						
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	75.1
Height (In.):	24.5		Lateral Offset (In.):	29.5		rade (%):	9.60
Physical Condition	on						
	Align	ment and Height:	The barrier alignment has no deviation height is low by 2 to 4 in below the design height of 27 in for 690 ft.				
Barrier		aking and Cracking:	No breaking or cracking of	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:	Alignment is acceptable. I	Height is within	1-in of 27-in design height		
End Treatments	1	aking and Cracking:	No breaking or cracking of	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			

В	arrier ID:	BISO-0117	ISO-0117-0.973-R								
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)							
Inspec	tion Date:	10/03/201	0	Barrier Rating: 48.20							
Repair Recomme	endations	}									
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$12458				
Brief Workorder:	Raise 690 fee	et of guardrail	to the 27-in design height.								
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 690 LF = \$6900. Raise 690 feet of barrier to the 27-in design height. Low Speed Traffic Control at \$1475- per -Day for 3 Day(s) = \$4425.											
	2008 со	st estimate (A	ASTM Class D), prelimin	ary for comparison to otl	her repair co	sts only.					

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_0.973_R_1.JPG

В	arrier ID:	BISO-0117	BISO-0117-1.113-L						
Rou	ıte Name:	BLUE HE	RON ROAD (HWY 7	42)					
Inspec	tion Date:	10/03/201	0	Barri	er Rating:	43.70			
Barrier Descripti	ion								
	Type:	W-BEAM S	STRONG POST	Barrier	Function:	TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Post	Material:	CORTEN			
	Blockout Type:	STEEL		Lo	ength (ft.):	964			
Speed Lim	it (MPH):	35			ment with t to Road:	BOTH INS	IDE AND OUTSIDE		
Hazard Behind	d Barrier:	MEDIUM							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3	1	Is Barrier worthy?:	YES		
Beg. End Trtmt Type:		BURIED	Is Beg. End Trtmt Crashhworthy?:	YES		Approach ion Type:	NONE		
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:	NO					
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	75.1		
Height (In.):	24.2		Lateral Offset (In.):	28.6		rade (%):	8.90		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation and height is 2 to 3 in below the 27 in design height for 540 ft and 3 to 5 in below the 27 in design height for 264 ft.						
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-i	n design height				
End Treatments		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0117	ISO-0117-1.113-L								
Rou	ıte Name:	BLUE HE	RON ROAD (HWY 7	42)							
Inspection Date: 10/03/2010 Barrier Rating: 43.70						43.70					
Repair Recomme	endations										
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$15334				
Brief Workorder:	Raise 804 fee	et of guardrail	to 27-in design height.								
Workorder: Adjust Guardrail at \$10- per -Lin. Ft. for 804 LF = \$8040. Raise 804 feet of guardrail to 27-in design height. Low Speed Traffic Control at \$1475- per -Day for 4 Day(s) = \$5900.											
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.					

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_1.113_L_1.JPG

В	arrier ID:	BISO-0117	'-1.291-R					
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)				
Inspec	tion Date:	10/03/2010	0	Barri	er Rating:	58.50		
Barrier Descripti	ion							
	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC		
Barrier	Material:	WEATHERING STEEL/CORTEN		Post	Material:	CORTEN		
	Blockout Type:	STEEL		L	ength (ft.):	4069		
Speed Lim	it (MPH):	35			ement with	BOTH INS	IDE AND OUTSIDE	
Hazard Behind	Hazard Behind Barrier: HIGH							
Barrier Crashwo	rthiness							
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3	1	Is Barrier worthy?:	YES	
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE	
Ending End Trtmt Type:	W-BEAM BCT		Ending End Trtmt Crashhworthy?:	NO				
Average Measure	ements							
Design Height (In.):	27		Width (In.):	0.0 Post Space		cing (In.):	66.4	
Height (In.):	23.2		Lateral Offset (In.):	26.6		rade (%):	0.20	
Physical Condition	on							
	Align	ment and Height:	Alignment has no deviation ft.	n and height is low by 2 to 6	6 in below the	design height	of 27 in for 3688	
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-i	n design height	-		
End Treatments	1	aking and Cracking:	No breaking or cracking ob	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				

В	arrier ID:	er ID: BISO-0117-1.291-R								
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)						
Inspec	tion Date: 10/03/2010)	Barrie	er Rating:	58.50				
Repair Recomme	endations									
Repair Action:	REPAIR		FMSS Work Type:	DEFERRED MAINTENANCE		Repair Cost:	\$64906			
Brief Workorder:	Raise 3688 f	aise 3688 feet of guardrail up to 27-in design height.								
Workorder:	'	Adjust Guardrail at \$10- per -Lin. Ft. for 3688 LF = \$36880. Raise 3688 feet of guardrail up to 27-in design height. Low Speed Traffic Control at \$1475- per -Day for 15 Day(s) = \$22125.								
	2008 со	st estimate (A	ASTM Class D), prelimin	ary for comparison to otl	her repair co	sts only.				

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_1.291_R_1.JPG

В	arrier ID:	BISO-0117	-2.105-R					
Rou	ıte Name:	BLUE HE	RON ROAD (HWY 7	42)				
Inspec	tion Date:	10/03/2010	0	Barr	ier Rating:	45.50		
Barrier Descripti	ion							
·	Type:	W-BEAM S	STRONG POST Barrier Function:		Function:	TRAFFIC		
Barrier	Material:	WEATHER STEEL/CO		Post Material:		CORTEN		
	Blockout Type:	STEEL		L	ength (ft.):	295		
Speed Lim	it (MPH):	35			ement with ct to Road:	INSIDE OF	FCURVE	
Hazard Behind Barrier: HIGH		HIGH						
Barrier Crashwo	rthiness							
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3	I	Is Barrier worthy?:	YES	
Beg. End Trtmt Type:	W-BEAM I	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE	
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO				
Average Measure	ements							
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	75.3	
Height (In.):	22.0		Lateral Offset (In.):	29.6		rade (%):	8.20	
Physical Condition	on							
	Align	ment and Height:	The barrier alignment has n	no deviation and height is lo	ow by 5 in from	the 27 in des	ign height.	
Barrier		aking and Cracking:	No breaking or cracking of	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-i	in design height	i.		
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.				
	Missing	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				

Ва	arrier ID:	BISO-0117	-2.105-R						
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)					
Inspect	tion Date: 10/03/2010)	Barri	er Rating:	45.50			
Repair Recomme	endations								
Repair Action:	REPAIR		FMSS Work Type:	DEFERRED MAINTENANCE		Repair Cost:	\$6490		
Brief Workorder:	Raise 295 fee	aise 295 feet of guardrail up to 27-in design height.							
Workorder:		Adjust Guardrail at \$10- per -Lin. Ft. for 295 LF = \$2950. Raise 295 feet of guardrail up to 27-in design height. ow Speed Traffic Control at \$1475- per -Day for 2 Day(s) = \$2950.							
	2008 со	st estimate (A	ASTM Class D), prelimin	ary for comparison to o	ther repair co	sts only.			

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_2.105_R_1.JPG

В	arrier ID:	BISO-0117	-2.239-R					
Rou	ıte Name:	BLUE HE	RON ROAD (HWY 7	42)				
Inspec	tion Date:	10/03/2010	0	Barı	ier Rating:	41.40		
Barrier Descripti	ion							
	Type:	W-BEAM S	STRONG POST Barrie		r Function:	TRAFFIC		
Barrier	Material:	WEATHERING STEEL/CORTEN		Pos	st Material:	CORTEN		
	Blockout Type:	STEEL		I	Length (ft.):	444		
Speed Lim	it (MPH):	35			ement with ct to Road:	OUTSIDE	OF CURVE	
Hazard Behind Barrier: HIGH								
Barrier Crashwo	rthiness							
Appropriate Test Level:	TL-2		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES	
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approachtion Type:	NONE	
Ending End Trtmt Type:	W-BEAM BCT		Ending End Trtmt Crashhworthy?:	NO				
Average Measure	ements							
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	74.0	
Height (In.):	25.2		Lateral Offset (In.):	23.0		rade (%):	2.80	
Physical Condition	on							
	Align	ment and Height:	Alignment has no deviation	n and height is 2 to 3 in be	low the 27 in de	sign height fo	r 186 ft.	
Barrier		aking and Cracking:	No breaking or cracking of	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-	in design height	t.		
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.				
	Missing 1	Elements:	No missing elements obser	ved.				
		osion and eathering:	No corrosion or weathering	g observed.				

В	arrier ID:	BISO-0117	'-2.239-R							
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)						
Inspec	tion Date: 10/03/2010		Barrie	Barrier Rating: 41.40						
Repair Recommendations										
Repair Action:	REPAIR		FMSS Work Type:	DEFERRED MAINTENANCE	R	Repair Cost:	\$3669			
Brief Workorder:	Raise 186 fe	aise 186 feet of guardrail to 27-in design height.								
Workorder:	'	djust Guardrail at \$10- per -Lin. Ft. for 186 LF = \$1860. Raise 186 feet of guardrail to 27-in design height. ow Speed Traffic Control at \$1475- per -Day for 1 Day(s) = \$1475.								
	2008 со	st estimate (A	ASTM Class D), prelimin	ary for comparison to otl	her repair costs o	only.				

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_2.239_R_1.JPG

В	arrier ID:	BISO-0117	'-2.337-R				
Rou	ıte Name:	BLUE HE	RON ROAD (HWY 7	42)			
Inspec	tion Date:	10/03/2010	0	Barri	er Rating:	28.20	
Barrier Descripti	ion						
	Type:	OTHER: TI	IMBER RAIL ON OSTS			TRAFFIC	
Barrier	Material:	LOG/TIME	BER/WOOD	Post	Material:	WOOD	
	Blockout Type:	N/A		Length (ft.):		47	
Speed Lim	Speed Limit (MPH):				ement with	OUTSIDE	OF CURVE
Hazard Behind Barrier: LOW		LOW					
Barrier Crashworthiness							
Appropriate Test Level:	TL-2		Barrier Test Level:	NCW	1	Is Barrier worthy?:	NO
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE
Ending End Trtmt Type:	Trtmt NONE		Ending End Trtmt Crashhworthy?:	N/A			
Average Measure	ements						
Design Height (In.):	20		Width (In.):	0.0	Post Spa	cing (In.):	68.0
Height (In.):	22.0		Lateral Offset (In.):	26.2		rade (%):	1.00
Physical Condition	on						
	Align	ment and Height:	Alignment has no deviation	and height is at or above t	he design heigh	nt of 20 in by u	up to 3 in.
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:					
End Treatments		aking and Cracking:					
	Missing 1	Elements:					
		osion and eathering:					

Ba	arrier ID:	BISO-0117	-2.337-R				
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)			
Inspect	Inspection Date: 10/03		10/03/2010 Barrier Rating:		28.20		
Repair Recomme	endations						
Repair Action:	NO ACTIO	N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A				·	·	
Workorder:							
	2008 cos	st estimate (A	ASTM Class D), prelimin	ary for comp	arison to other repair co	sts only.	

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_2.337_R_1.JPG

В	arrier ID:	BISO-0117	'-2.389-R				
Rou	ite Name:	BLUE HE	RON ROAD (HWY 7	42)			
Inspec	tion Date:	10/03/2010	0		Barrier Rating:	23.60	
Barrier Descripti	ion						
	Type:	OTHER: TI	IMBER RAIL ON OSTS	Barrier Function:		TRAFFIC	
Barrier	Material:	LOG/TIME	BER/WOOD		Post Material:	WOOD	
	Blockout Type:	N/A			Length (ft.):	349	
Speed Limit (MPH):		25			Placement with Respect to Road:	TANGENT	,
Hazard Behind	Hazard Behind Barrier: MEDIUM						
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-1		Barrier Test Level:	NCW		s Barrier	NO
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE
Ending End Trtmt Type:	ing End Trtmt NONE		Ending End Trtmt Crashhworthy?:	N/A			
Average Measure	ements						
Design Height (In.):			Width (In.):	0.0		cing (In.):	68.0
Height (In.):	21.6		Lateral Offset (In.):	18.0	Road G	rade (%):	0.60
Physical Condition		ment and Height:	The barrier alignment has n	no deviation and h	eight is above the 20 in o	lesign height	by 1 to 2 in.
Barrier		aking and Cracking:	No breaking or cracking of	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:					
End Treatments		aking and Cracking:					
	Missing	Elements:					
		osion and eathering:					

В	arrier ID:	BISO-0117	-2.389-R						
Route Name: BLU			BLUE HERON ROAD (HWY 742)						
Inspection Date:		10/03/2010 Barrier Rating:			23.60	23.60			
Repair Recomme	endations								
Repair Action:	NO ACTIC	Ν	FMSS Work Type:	N/A		Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to o	ther repair co	sts only.			

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_2.389_R_1.JPG

В	arrier ID:	BISO-0117	-2.470-R				
Rou	ıte Name:	BLUE HE	RON ROAD (HWY 7	42)			
Inspec	tion Date:	10/03/2010	0	Barri	er Rating:	35.00	
Barrier Descripti	ion						
	Type:	OTHER: TI	IMBER RAIL ON Barrier Function OSTS		Function:	TRAFFIC	
Barrier	Material:	LOG/TIME	BER/WOOD	Post	Material:	CORTEN	
	Blockout Type:	N/A		Lo	ength (ft.):	938	
Speed Limit (MPH):		25			ment with t to Road:	OUTSIDE	OF CURVE
Hazard Behind Barrier: MEDIUM		MEDIUM					
Barrier Crashworthiness							
Appropriate Test Level:			Barrier Test Level:	NCW	1	Is Barrier worthy?:	NO
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE
Ending End Trtmt Type:	End Trtmt NONE		Ending End Trtmt Crashhworthy?:	N/A			
Average Measure	ements						
Design Height (In.):	20		Width (In.):	0.0	Post Space	cing (In.):	60.5
Height (In.):	20.3		Lateral Offset (In.):	19.0		rade (%):	0.20
Physical Condition	on						
	Align	ment and Height:	Alignment has no deviation	n and height is within 1 in o	f the 20 in desi	gn height.	
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:					
End Treatments		aking and Cracking:					
	Missing 1	Elements:					
		osion and eathering:					

В	arrier ID:	BISO-0117	-2.470-R					
Route Name: BLUE HERON RO			RON ROAD (HWY 7	(42)				
Inspection Date:		10/03/2010 Barrie		er Rating:	35.00		_	
Repair Recomme	endations							
Repair Action:	NO ACTIC	Ν	FMSS Work Type:	N/A		Repair Cost:	\$	0
Brief Workorder:	N/A							
Workorder:								_
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	ther repair co	sts only.		

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_2.470_R_1.JPG

В	arrier ID:	BISO-0117	ISO-0117-2.664-R						
Rou	ıte Name:	BLUE HE	RON ROAD (HWY 7	42)					
Inspec	tion Date:	10/03/2010	0	Barri	er Rating:	34.00			
Barrier Descripti	ion								
	Type:	OTHER: TI	IMBER RAIL ON OSTS	Barrier Function:		TRAFFIC			
Barrier	Material:	LOG/TIME	BER/WOOD Post Material: \		WOOD				
	Blockout Type:	N/A		Lo	ength (ft.):	378			
Speed Limit (MPH): 25		25			ment with to Road:	OUTSIDE	OF CURVE		
Hazard Behind	d Barrier:	HIGH							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-1		Barrier Test Level:	NCW	1	Is Barrier worthy?:	NO		
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE		
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A					
Average Measure	ements								
Design Height (In.):	20		Width (In.):	0.0	Post Space	cing (In.):	68.0		
Height (In.):	21.0		Lateral Offset (In.):	20.7		rade (%):	0.10		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	n and height is at or above t	he design heigh	nt of 20 in by u	up to 2 in.		
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:							
End Treatments		aking and Cracking:							
	Missing	Elements:							
		osion and eathering:							

В	arrier ID:	BISO-0117	ISO-0117-2.664-R							
Rou	ıte Name:	BLUE HE	BLUE HERON ROAD (HWY 742)							
Inspec	tion Date:	10/03/2010								
Repair Recomme	endations									
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for compariso	on to other repair co	sts only.				

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_2.664_R_1.JPG

В	arrier ID:	BISO-0117	'-2.762-R				
Rou	ıte Name:	BLUE HE	RON ROAD (HWY 7	42)			
Inspec	tion Date:	10/03/2010	0	Barri	er Rating:	35.00	
Barrier Descripti	ion						
	Type:	OTHER: TI	IMBER RAIL ON OSTS	Barrier Function:		TRAFFIC	
Barrier	Material:	LOG/TIME	BER/WOOD	Post	Material:	WOOD	
	Blockout Type:	N/A		Length (ft.):		1070	
Speed Limit (MPH): 25		25			ement with	OUTSIDE	OF CURVE
Hazard Behind	d Barrier:	MEDIUM					
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-1		Barrier Test Level:	NCW	1	Is Barrier worthy?:	NO
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A			
Average Measure	ements						
Design Height (In.):	20		Width (In.):	0.0	Post Spa	cing (In.):	68.1
Height (In.):	21.2		Lateral Offset (In.):	21.7		rade (%):	0.30
Physical Condition	on						
	Align	ment and Height:	The barrier alignment has n	no deviation height is above	the 20 in desig	gn height by 1	to 2 in.
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:					
End Treatments		aking and Cracking:					
	Missing 1	Elements:					
		osion and eathering:					

Ba	arrier ID:	BISO-0117	BISO-0117-2.762-R							
Rou	ite Name:	BLUE HE	LUE HERON ROAD (HWY 742)							
Inspect	tion Date:	10/03/2010)		Barrier Rating:	35.00				
Repair Recomme	endations									
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A				·	·				
Workorder:										
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comp	arison to other repair co	sts only.				

ROUTE 0117: BLUE HERON ROAD (HWY 742)



BISO_0117_2.762_R_1.JPG

В	arrier ID:	BISO-0118	-1.256-L		SO-0118-1,256-L						
Rou	ıte Name:	BLUE HE	RON OVERLOOK R	OAD							
Inspec	tion Date:	10/03/2010	0	Barri	er Rating:	32.20					
Barrier Descripti	ion										
	Type:	OTHER: TI	MBER RAIL ON OSTS	Barrier Function:		TRAFFIC					
Barrier	Material:	LOG/TIME	BER/WOOD Post Material:		WOOD						
	Blockout Type:	N/A		Lo	ength (ft.):	105					
Speed Limit (MPH): 30				ment with t to Road:	INSIDE OF	F CURVE					
Hazard Behind	d Barrier:	MEDIUM									
Barrier Crashwo	rthiness										
Appropriate Test Level:	TL-1		Barrier Test Level:	NCW	1	Is Barrier worthy?:	NO				
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE				
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A							
Average Measure	ements										
Design Height (In.):	20		Width (In.):	0.0	Post Space	cing (In.):	68.6				
Height (In.):	21.2		Lateral Offset (In.):	23.0	Road G	rade (%):	13.40				
Physical Condition	on										
	Align	ment and Height:	Alignment has no deviation	n and height is at or above t	he 20 in design	height by up	to 2 in.				
Barrier		aking and Cracking:	No breaking or cracking of	oserved.							
	Missing 1	Elements:	No missing elements obser	ved.							
		osion and eathering:	No corrosion or weathering	g observed.							
	Align	ment and Height:									
End Treatments		aking and Cracking:									
	Missing 1	Elements:									
		osion and eathering:									

В	arrier ID:	BISO-0118-	SISO-0118-1.256-L							
Rou	ite Name:	BLUE HE	LUE HERON OVERLOOK ROAD							
Inspec	tion Date:	10/03/2010)		Barrier Rating:	32.20				
Repair Recomme										
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	STM Class D), prelimin	ary for compar	ison to other repair co	sts only.				

ROUTE 0118: BLUE HERON OVERLOOK ROAD



BISO_0118_1.256_L_1.JPG

Ba	arrier ID:	BISO-0700	ISO-0700-0.084-L						
Rou	ite Name:	UNKNOW	VN ROUTE						
Inspec	tion Date:	10/05/2010	0		Barrier Rating:	13.60			
Barrier Descripti	ion								
	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO			Post Material:	CORTEN			
Blockout Tvpe: PLASTIC				Length (ft.):	202				
Speed Lim	Speed Limit (MPH): 25			I	Placement with Respect to Road:	INSIDE OF	FCURVE		
Hazard Behind	d Barrier:	MEDIUM							
Barrier Crashworthiness									
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		s Barrier worthy?:	YES		
Beg. End Trtmt Type:	W-BEAM BCT		Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	BRIDGE RAIL W-BEAM		
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A					
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	75.0		
Height (In.):	27.2		Lateral Offset (In.):	22.2		rade (%):	2.70		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	n and height is at or	above the 27 in design	height by 1 in	1.		
Barrier		aking and Cracking:	No breaking or cracking of	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-ir	n of 27-in design height				
End Treatments	1	aking and Cracking:	No breaking or cracking of	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0700-	BISO-0700-0.084-L							
Roi	ıte Name:	UNKNOW	N ROUTE							
Inspec	tion Date:	10/05/2010)		Barrier Rating:	13.60				
Repair Recomme	endations									
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	STM Class D), prelimin	ary for compari	son to other repair co	sts only.				

ROUTE BISO-0700: UNKNOWN ROUTE

Barrier Condition Photos

Condition photos are not available for BISO-0700-0.084-L.

В	arrier ID:	BISO-0700	ISO-0700-0.124-R							
Rou	ıte Name:	UNKNOV	VN ROUTE							
Inspec	tion Date:	10/05/201	0	Ba	rrier Rating:	16.60				
Barrier Descripti	ion									
	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC				
Barrier	Material:	WEATHER STEEL/CO		P	Post Material:	CORTEN				
	Blockout Type:	PLASTIC			Length (ft.):	16				
Speed Lim	Speed Limit (MPH): 25				acement with pect to Road:	OUTSIDE	OF CURVE			
Hazard Behind	d Barrier:	MEDIUM								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:				
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A						
Average Measur	ements									
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	38.5			
Height (In.):	31.0		Lateral Offset (In.):	37.5		rade (%):	0.90			
Physical Condition	on									
	Align	ment and Height:	Alignment has no deviation	n and height is at or abo	ove the 27 in design	n height by 3 t	o 5 in.			
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.						
	Missing	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						
	Align	ment and Height:								
End Treatments		aking and Cracking:								
	Missing Elements:									
	1	osion and eathering:								

В	arrier ID:	BISO-0700	-0.124-R				
Rou	ite Name:	UNKNOW	/N ROUTE				
Inspec	tion Date:	10/05/2010)	Barr	ier Rating:	16.60	
Repair Recomme	endations	;					
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A						
Workorder:							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to o	other repair co	sts only.	

ROUTE BISO-0700: UNKNOWN ROUTE

Barrier Condition Photos

Condition photos are not available for BISO-0700-0.124-L.

Ba	arrier ID:	BISO-0700	ISO-0700-0.179-L							
Rou	ıte Name:	UNKNOW	VN ROUTE							
Inspec	tion Date:	10/05/2010	0	Barr	ier Rating:	16.60				
Barrier Descripti	ion									
	Type:	W-BEAM S	STRONG POST	Barrier	Barrier Function:		TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Post Material:		CORTEN				
	Blockout Type:	PLASTIC		L	ength (ft.):	61				
Speed Limit (MPH): 25					ement with ct to Road:	OUTSIDE	OF CURVE			
Hazard Behind	d Barrier:	MEDIUM								
Barrier Crashwo	rthiness									
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES			
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	mt N/A Approach BRIDGE			BRIDGE RAIL W-BEAM			
Ending End Trtmt Type:	W-BEAM	ВСТ	CT Ending End Trtmt Crashhworthy?:							
Average Measure	ements									
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	74.3			
Height (In.):	28.2		Lateral Offset (In.):	47.2		rade (%):	2.20			
Physical Condition	on									
	Align	ment and Height:	Alignment has no deviation	n and height is at or above	the 27 in design	height by up	to 2 in.			
Barrier		aking and Cracking:	No breaking or cracking of	oserved.						
	Missing 1	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-	in design height	i.				
End Treatments		aking and Cracking:	No breaking or cracking of	oserved.						
	Missing 1	Elements:	No missing elements obser	ved.						
		osion and eathering:	No corrosion or weathering	g observed.						

R	arrier ID:	BISO-0700	BISO-0700-0.179-L							
	ute Name:		/N ROUTE							
Inspec	tion Date:	10/05/2010)		Barrier Rating:	16.60				
Repair Recomme	endations	;								
Repair Action:	NO ACTIO)N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 со	st estimate (A	STM Class D), prelimin	ary for compa	rison to other repair co	sts only.				

ROUTE BISO-0700: UNKNOWN ROUTE

Barrier Condition Photos

Condition photos are not available for BISO-0700-0.179-L.

Ba	arrier ID:	BISO-0700	SO-0700-0.181-R						
Rou	ite Name:	UNKNOW	VN ROUTE						
Inspec	tion Date:	10/05/2010	0	Barri	er Rating:	13.60			
Barrier Descripti									
	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Post	Material:	CORTEN			
	Blockout Type:	STEEL		Le	ength (ft.):	93			
Speed Limit (MPH): 25		25			ment with to Road:	INSIDE OF	FCURVE		
Hazard Behind	d Barrier:	MEDIUM							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3	1	Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A	1	Approach ion Type:	BRIDGE RAIL W-BEAM		
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO					
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	74.0		
Height (In.):	27.7		Lateral Offset (In.):	18.7		rade (%):	2.70		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	n and height is at or above th	ne design heigh	nt of 27 in by	l in.		
Barrier		aking and Cracking:	No breaking or cracking of	oserved.					
	Missing	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-in	n design height				
End Treatments	1	reaking and Cracking: No breaking or cracking observed.							
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

В	arrier ID:	BISO-0700	-0.181-R					
Rou	ite Name:	UNKNOW	/N ROUTE					
Inspec	tion Date:	10/05/2010)	В	arrier Rating:	13.60		
Repair Recomme	endations	;						
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0)
Brief Workorder:	N/A							
Workorder:								•
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison	to other repair co	sts only.		

ROUTE BISO-0700: UNKNOWN ROUTE

Barrier Condition Photos

Condition photos are not available for BISO-0700-0.181-L.

В	arrier ID:	BISO-0900	ISO-0900-0.000-P1						
Rou	ite Name:	LEATHER	RWOOD DAY USE P.	ARKING					
Inspec	tion Date:	10/01/2010	0	Bar	rier Rating:	22.70			
Barrier Descripti	ion								
·	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Po	st Material:	CORTEN			
	Blockout Type:	STEEL]	Length (ft.):	138			
Speed Limit (MPH): 25		25			cement with ect to Road:	OUTSIDE	OF CURVE		
Hazard Behind	d Barrier:	LOW							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	mt N/A Approach NONE			NONE		
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO					
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	66.6		
Height (In.):	27.0		Lateral Offset (In.):	24.0		rade (%):	6.70		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	n and height is within 1 in	of the 27 in desi	gn height.			
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27	-in design heigh	t.			
End Treatments	1	Breaking and Cracking: No breaking or cracking observed.							
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

Ba	arrier ID:	BISO-0900	-0.000-P1						
Rou	ite Name:	LEATHER	EATHERWOOD DAY USE PARKING						
Inspect	tion Date:	10/01/2010)	Barı	ier Rating:	22.70			
Repair Recomme	endations								
Repair Action:	NO ACTIC	N	FMSS Work Type:			Repair Cost:	\$0		
Brief Workorder:	N/A								
Workorder:									
	2008 co	st estimate (A	ASTM Class D), prelimin	nary for comparison to o	other repair co	sts only.			

ROUTE 0900: LEATHERWOOD DAY USE PARKING



BISO_0900_0.000_P1_1.JPG

В	arrier ID:	BISO-0900	SO-0900-0.000-P2						
Rou	ite Name:	LEATHER	RWOOD DAY USE P.	ARKING					
Inspec	tion Date:	10/01/2010)	Barri	er Rating:	8.30			
Barrier Descripti									
	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC			
Barrier	Material:	WEATHER STEEL/CO		Post	Material:	CORTEN			
	Blockout Type:	STEEL		Lo	ength (ft.):	144			
Speed Limit (MPH): 25		25			ment with t to Road:	INSIDE OF	FCURVE		
Hazard Behind	d Barrier:	LOW							
Barrier Crashwo	rthiness								
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3	1	Is Barrier worthy?:	YES		
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE		
Ending End Trtmt Type:	W-BEAM I	ВСТ	Ending End Trtmt Crashhworthy?:	NO					
Average Measure	ements								
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	74.0		
Height (In.):	26.2		Lateral Offset (In.):	24.0		rade (%):	8.30		
Physical Condition	on								
	Align	ment and Height:	Alignment has no deviation	n and height is within 1 in o	f the 27 in desi	gn height.			
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.					
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-in	n design height				
End Treatments	1	Breaking and Cracking: No breaking or cracking observed.							
	Missing 1	Elements:	No missing elements obser	ved.					
		osion and eathering:	No corrosion or weathering	g observed.					

Ba	arrier ID:	BISO-0900	-0.000-P2				
Rou	ite Name:	LEATHER	RWOOD DAY USE P	ARKING			
Inspect	tion Date:	10/01/2010)		Barrier Rating:	8.30	
Repair Recomme	endations						
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A				·	·	
Workorder:							
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparis	son to other repair co	sts only.	

ROUTE 0900: LEATHERWOOD DAY USE PARKING



BISO_0900_0.000_P2_1.JPG

В	arrier ID:	BISO-0925	5-0.000-P1				
Rou	ıte Name:	BREWST	ER BRIDGE TRAILH	EAD PARKING			
Inspec	tion Date:	10/04/201	0	Ba	rrier Rating:	32.50	
Barrier Descripti	ion						
	Type:	W-BEAM S	STRONG POST	Barrier Function:		TRAFFIC	
Barrier	Material:	GALVANI.	ZED STEEL	P	ost Material:	GALVANI	ZED STEEL
	Blockout Type:	STEEL			Length (ft.):	351	
Speed Limit (MPH): 25		25			acement with pect to Road:	BOTH INS	IDE AND OUTSIDE
Hazard Behind	Hazard Behind Barrier: MEDIUM						
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-1		Barrier Test Level:	TL-3		Is Barrier worthy?:	YES
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:	NO			
Average Measure	ements						
Design Height (In.):	27		Width (In.):	0.0	Post Spa	cing (In.):	75.3
Height (In.):	23.7		Lateral Offset (In.):	30.0		rade (%):	3.80
Physical Condition	on						
	Align	ment and Height:	Alignment has no deviation in below the 27 in design h	-	below the 27 in de	sign height for	r 72 ft and 3 to 7
Barrier		aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 2	27-in design height	i.	
End Treatments		aking and Cracking:	No breaking or cracking ob	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			

В	arrier ID:	BISO-0925	BISO-0925-0.000-P1							
Rou	ıte Name:	BREWSTER BRIDGE TRAILHEAD PARKING								
Inspection Date: 10/04/2010				Barri	er Rating:	32.50				
Repair Recomme	endations									
Repair Action:	REPAIR			DEFERRED MAINTENANCE		Repair Cost:	\$4065			
Brief Workorder:	Raise 222 fee	et of guardrail	up to 27 inch design height.							
Workorder:	1 -	Adjust Guardrail at \$10- per -Lin. Ft. for 222 LF = \$2220. Raise 222 feet of guardrail up to 27 inch design height. Low Speed Traffic Control at \$1475- per -Day for 1 Day(s) = \$1475.								
	2008 co	st estimate (A	ASTM Class D), prelimin	ary for comparison to ot	her repair co	sts only.				

ROUTE 0925: BREWSTER BRIDGE TRAILHEAD PARKING



BISO_0925_0.000_P1_1.JPG

Ba	arrier ID:	BISO-0936	6-0.000-P1				
Rou	ite Name:	BLUE HE	RON OVERLOOK PA	ARKING			
Inspect	tion Date:	10/03/201	0		Barrier Rating:	8.00	
Barrier Descripti	ion						
	Type:	OTHER: TI	IMBER RAIL ON OSTS	Barrier Function:		NON-TRAFFIC	
Barrier	Material:	LOG/TIME	BER/WOOD	Post Material:		WOOD	
	Blockout Type:	N/A			Length (ft.):	544	
Speed Limit (MPH): 25		25			Placement with Respect to Road:	NON-TRA	FFIC BARRIER
Hazard Behind	d Barrier:	N/A					
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-1		Barrier Test Level:	N/A		Is Barrier worthy?:	N/A
Beg. End Trtmt Type:	NONE		Is Beg. End Trtmt Crashhworthy?:	N/A		Approach ion Type:	NONE
Ending End Trtmt Type:	NONE		Ending End Trtmt Crashhworthy?:	N/A			
Average Measure	ements						
Design Height (In.):	20		Width (In.):	0.0	Post Space	cing (In.):	0.0
Height (In.):	29.2		Lateral Offset (In.):	0.0	Road G	rade (%):	0.00
Physical Condition	on						
	Align	ment and Height:	The alignment has no devia	ation and height is	above the 20 in design h	neight by 7 to	11 in.
Barrier		aking and Cracking:	No breaking or cracking of	oserved.			
	Missing	Elements:	No missing elements obser	ved.			
		osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:					
End Treatments	End Treatments Breaking and Cracking:						
Missing Elements:							
	1	osion and eathering:					

Ba	arrier ID:	BISO-0936	-0.000-P1				
Rou	ite Name:	BLUE HE	RON OVERLOOK P	ARKING			
Inspect	tion Date:	10/03/2010)		Barrier Rating:	8.00	
Repair Recomme	endations						
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0
Brief Workorder:	N/A				·	·	
Workorder:							
	2008 co	st estimate (A	STM Class D), prelimin	ary for comp	arison to other repair co	sts only.	

ROUTE 0936: BLUE HERON OVERLOOK PARKING



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В	arrier ID:	BISO-0972	-0.000-P1				
Rou	ute Name:	BEAR CR	EEK HORSE CAMP	DUMP STATION			
Inspec	tion Date:	10/05/2010	0	Barrio	er Rating:	5.00	
Barrier Descripti	ion						
·	Type:	W-BEAM S	STRONG POST	Barrier Function:		NON-TRAFFIC	
Barrier	Material:	WEATHER STEEL/CO		Post	Material:	CORTEN	
	Blockout Type:	PLASTIC		Le	ength (ft.):	58	
Speed Zimie (ini 12)v		25			ment with to Road:	NON-TRA	FFIC BARRIER
Hazard Behind Barrier: N/A							
Barrier Crashwo	rthiness						
Appropriate Test Level:	TL-1		Barrier Test Level:	N/A		Is Barrier worthy?:	N/A
Beg. End Trtmt Type:	W-BEAM	ВСТ	Is Beg. End Trtmt Crashhworthy?:	NO		Approach ion Type:	NONE
Ending End Trtmt Type:	W-BEAM	ВСТ	Ending End Trtmt Crashhworthy?:	NO			
Average Measure	ements						
Design Height (In.):	27		Width (In.):	0.0	Post Space	cing (In.):	0.0
Height (In.):	28.2		Lateral Offset (In.):	0.0		rade (%):	0.00
Physical Condition	on						
	Align	ment and Height:	Alignment has no deviation	n and height is at or above th	ne design heigh	nt of 27 in by u	up to 2 in.
Barrier		aking and Cracking:	No breaking or cracking of	oserved.			
	Missing 1	Elements:	No missing elements obser	ved.			
	1	osion and eathering:	No corrosion or weathering	g observed.			
	Align	ment and Height:	Alignment is acceptable. I	Height is within 1-in of 27-ir	n design height		
End Treatments	Breaking and Cracking: No breaking or cracking observed.						
	Missing 1	Elements:	No missing elements obser	ved.			
	1	osion and eathering:	No corrosion or weathering	g observed.			

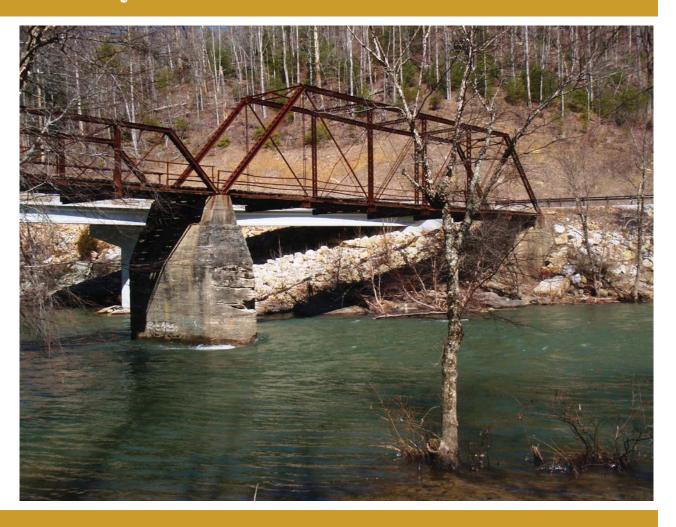
В	arrier ID:	BISO-0972	BISO-0972-0.000-P1							
Rot	ite Name:	BEAR CR	EAR CREEK HORSE CAMP DUMP STATION							
Inspec	tion Date:	10/05/2010)		Barrier Rating:	5.00				
Repair Recomme	endations									
Repair Action:	NO ACTIC	N	FMSS Work Type:	N/A		Repair Cost:	\$0			
Brief Workorder:	N/A									
Workorder:										
	2008 co	st estimate (A	STM Class D), prelimin	ary for compar	rison to other repair co	sts only.				

ROUTE 0972: BEAR CREEK HORSE CAMP DUMP STATION



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Appendix A Summary of GIP Definitions and Assessment



Big South Fork National River and Recreation Area



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
 Other: Completed by field crew

Wood • N/A

Corten

BLOCKOUT TYPE

The type of blockout or of what it is comprised:

WoodSteelPlasticN/A

BARRIER PLACEMENT WITH RESPECT TO ROADWAY

To identify the roadway alignment the barrier is located upon:

Tangent
 Both Inside and Outside of Curve

Inside 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:

Lov

• High

Medium

• 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-3, 50 mph and higher

• TL-2, 35-45 mph

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

No

• TL-2

• N/A – Non-Traffic Barrier

• TL-3

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

N/A

• No

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

<u>The barrier performs as intended.</u> 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.

<u>The end treatment performs as intended.</u> 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

<u>The barrier is slightly compromised.</u> 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.

<u>The end treatment is slightly compromised.</u> 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

<u>The barrier is not functional.</u> 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.

<u>The end treatment is not functional.</u> The end treatment does not function as intended. There is no tension in the cable anchor. A significant portion of the end treatment has broken, cracked or dented elements. Elements are missing and corrosion or erosion is significant.

In general, the distresses observed clearly illustrate the inability of the element to perform the intended functions.

CONDITION AND SEVERITY DISTRESS TABLES – BARRIERS

Condition and Severity Distress Table for Semi-Rigid Barriers (including barriers with posts, rail elements

and blocks). **GOOD FAIR POOR** Alignment/Design Height Alignment off by less Alignment off by 6"-12" Alignment off by more than 6" than 12" Within 1" of *design* Less than 3" lower Greater than 3" lower than design height than design height height Breaking/Cracking, an member, post or rail – due to impact loading Metal – no Metal - no cracking or Metal – any cracks or twisting/bending, tears tearing (but minor tears twisting/bending is ok) or cracking Wood – no impact Wood – maybe cracked Wood – cracks or tears related cracking but retains original cross that deform original section section Isolated broken blocks Two Consecutive broken Consecutive broken blocks blocks (three or more consecutive) **Missing Elements** No bolts and nuts One or two bolt/nut Three or more bolts/nuts missing at one rail/rail missing at one rail/rail missing connection connection Two consecutive Three or more n/a missing blocks consecutive missing blocks One missing rail element • n/a n/a or post Corrosion/Decay/Weathering, all posts, rails and blocks – due to aging Loss of 5% or less of Loss of 5% to 50% of Loss of 50% or more of cross section cross section cross section Erosion (less than 8" of Erosion around posts (8" Erosion around or more of post exposed post exposed below consecutive posts (more than 8" of post exposed original groundline) below original groundline) for one below original

groundline)

Condition and Severity Distress Table for Rigid Concrete Barriers (including pre-cast).

	y Distress Table for Rigid Con GOOD	FAIR	POOR
Alignment/Design	Height		
	Alignment off by less than 6"	• Alignment off by 6"-12"	Alignment off by more than 12"
	Within 1" of <u>design</u> height	• Less than 3" lower than <i>design height</i>	Greater than 3" lower than <u>design height</u>
Breaking/Cracking	g– due to impact loading		
	Minor cracks (less than 1/4") present	Cracking present ¼" or greater but no displacement or discontinuity in face	Barrier displaced and/or discontinuous
	• n/a	Pieces broken from barrier 3" deep or less without exposing rebar	Cracking exposes rebar
	• n/a	• n/a	Pieces broken from face greater than 3" deep
Missing Elements			
	• n/a	• n/a	• n/a
Corrosion/Decay/V	Veathering – due to aging		
	Surface corrosion on less than 5% of the run	• Surface corrosion on between 5-25% of the run	Surface corrosion on more than 25% of the run
	• n/a	Spalling 3" deep or less without exposing rebar	• Spalling greater than 3" deep
	Erosion (less than 8" below groundline) around base	Erosion (8" or more below groundline) around base	Erosion (8" or more below groundline)
	• n/a	Less than 50% undermined (less than half barrier width)	• 50% or more undermined (less than half barrier width)

Condition and Severity Distress Table for Rigid Stone/Masonry Barriers (including all types of stone or masonry barriers).

masonry barriers).				
	GOOD	FAIR	POOR	
Alignment/Design H	leight			
	• Alignment (off by less than 6")	• Alignment (off by 6"-12")	• Alignment (off by more than 12")	
	• Within 3" of <u>design</u> <u>height</u>	• Between 3.1 - 6" lower than <u>design height</u>	• Greater than 6.1" lower than <i>design height</i>	
Breaking/Cracking	– due to impact loading			
	• Minor cracks (less than 1/4") present	• Cracks, less than ½" present	Cracks greater than ½" present	
		• Stones broken/displaced extending less than 1/3 of width of barrier	Stones broken/displaced extending 1/3 width or more through the barrier	
Missing Elements				
	• n/a	• n/a	• n/a	
Corrosion/Decay/W	Corrosion/Decay/Weathering – due to aging			
	Cracks in mortar joints 1/4" or less and/or single loose or missing stones	Mortar joints deteriorated resulting in two - three loose or missing adjacent stones (without impact)	Mortar joints deteriorated resulting in more than three continuous/adjacent loose or missing stones (without impact)	
	• Erosion (less than 8" below groundline) around base	Erosion (8" or more below groundline) around base	Erosion (8" or more below groundline)	
	• n/a	Less than 50% undermined (less than half barrier width)	50% or more undermined (less than half barrier width)	

Condition and Severity Distress Table for Flexible Barriers, (including cable barriers and weak-post systems designed without blocks).

designed without blocks	S).		
	GOOD	FAIR	POOR
Alignment/Tension/	Design Height		
	No bent posts	Bent posts; one to three consecutive posts	Bent posts; four or more consecutive posts
	Cable has tension	Cable under- tensioned/sagging	No cable tension
	Less than 1" too low	• 1-3" too low	Greater than 3" too low
Breaking/Cracking			
	No cracked or broken posts	One to three isolated broken posts	Four or more consecutive broken posts
	• n/a	Cable frayed	Cable broken or severed
Missing Elements			
	No bolts and nuts missing at anchors	• n/a	Bolts and nuts missing or loose at anchors
	• n/a	• n/a	Any missing posts or cable for any length of run
Corrosion/Decay/W	eathering – due to aging		
	Loss of 5% or less of cable cross section	Loss of 5% to 15% of cable cross section	Loss of 15% or more of cross section
	Erosion (less than 8" of post exposed below original groundline)	Erosion around one post (8" or more of post exposed below original groundline)	Erosion around consecutive posts (more than 8" of post exposed below original groundline)

CONDITION AND SEVERITY DISTRESS TABLES – END TREATMENTS

Condition and Severity Distress Table for Flexible End Treatments, (including cable end terminals).

Condition and Severity Distri	GOOD	FAIR	POOR
Alignment/Tension			
	Alignment off by less than 4"	Alignment off by 4"-8"	Alignment off by more than 8"
	Adequate cable tension	Low cable anchor tension	No cable anchor tension
Breaking/Cracking – due	to impact loading		
	No broken or cracked elements	Minor cable fraying but still with adequate tension	Broken or cracked cables or posts
	No damage to posts, cable or anchor	Slight damage to posts without cracking or tearing (but minor twisting/bending on isolated posts is OK)	Cable broken or severed on any cable
Missing Elements			
	No bolts and nuts missing at anchors; No missing cables	• n/a	Any missing element (post, cable, bolts, nuts, or anchor)
Corrosion/Decay/Weathe	ring – due to aging		
	Loss of 5% or less of cable cross section	Loss of 5% to 15% of cable cross section	• Loss of 15% or more of cross section
	Connections weathered but still provide element interlock on less than 5% of the end treatment	Connections weathered but still provide element interlock on between 5% to 15% of the end treatment	Connections weathered but still provide element interlock on more than 15% of the end treatment

Condition and Severity Distress Table for Semi-Rigid End Treatments, including Flared and Tangent

Condition and Severity		End Treatments, including Fla	
	GOOD	FAIR	POOR
Alignment/Tension			
	Alignment of flares and offsets off by less than 4"	Alignment of flares and offsets off by 4"-8"	Alignment of flares and offsets off by more than 8"
	Within 1" of <u>design</u> <u>height</u>	• Less than 3" lower than <u>design height</u>	• Greater than 3" lower than <u>design height</u>
For Aesthetic Barriers (i.e. – SBT and SBL guardrail) that do not have crashworthy terminals:	Approach barrier terminals are buried, anchored, and flared away from the travel lane	Approach barrier terminals are buried, anchored, and flared away from the travel lane	Approach barrier ends are NOT buried, anchored, nor flared away from the travel lane
Breaking/Cracking -	- due to impact loading		
	Metal – no twisting/bending, tears or cracking	Metal – no cracking or tearing (but minor twisting or bending is ok)	Metal – any cracks or tears
	Wood – no impact related cracking	Wood – maybe cracked but retains original cross section	Wood – cracks or tears that deform original section
	No broken blocks	One broken block	Two consecutive broken blocks
Missing Elements			
	No missing elements, including breakaway cables and struts	Isolated bolts, nuts, or blocks loose on non- consecutive posts	Any missing element, including blocks, rails, posts cables, or struts
	No bolts, nuts, or blocks missing or loose	Breakaway strut present but vertical height off by more than 2"	Missing nuts / bolts on consecutive posts
Corrosion/Decay/Wo	eathering – due to aging		
	Surface corrosion / decay / connections weathered with a loss of 5% or less of cross section of interlocking elements	Surface corrosion / decay / connections weathered with between 5-25% loss of cross section along transition interlocking elements	Surface corrosion / decay / connections weathered with more than 25% loss of cross section along transition interlocking elements
	Erosion (less than 8" of post exposed below original groundline)	Erosion around 1 post (8" or more of post exposed below original groundline)	Erosion around consecutive posts (8" or more of post exposed below original groundline)

SPECIFIC RISK ELEMENTS

The potential risk to a motorist after a vehicle impacts a traffic barrier depends on the crashworthiness of the traffic barrier as well as traffic exposure factors. Variables relating to the roadside, the traffic barrier's crashworthiness and traffic data include the following:

ADT. The number of vehicles (in both directions) that travel the roadway on which the traffic barrier is located.

Barrier Crashworthy. A traffic barrier is crashworthy if it was successfully crash tested under NCHRP Report 350 at speeds along the park road or parkway or if it was accepted through analysis by FHWA, based on similarity to other crashworthy critical design element features. If crashworthy, the appropriate test level also needs to be recorded. For crashworthy barriers, the barrier test level will be compared to the test level appropriate for the roadway (based solely on posted speed limit). The intent is to record situations in which a crashworthy barrier of a lower test level is installed on a roadway which should have a barrier of a higher test level.

Barrier Height. Determined from barrier height as collected in the physical condition assessment. The database will compare this value to the NCHRP test level height that is appropriate for the posted speed of the road and barrier type.

End Treatment Crashworthy. An end treatment is crashworthy if it has been successfully crash tested. This is for the approach end treatment, which is defined as the end treatment which a vehicle will first pass when traveling on the same side of the road as the barrier.

Existing Roadway Features. The list of roadway features is limited to the following, all of which have a documented history of reducing the number of crashes, and are found later in the GIP as possible countermeasures.

Centerline pavement markings Grooved pavement surface
Edgeline pavement markings Delineators on curve and tangent

Wider centerline Chevrons
Wider edgeline Warning sign

Centerline rumble strips Flashing beacon on warning sign

Shoulder rumble strips Lighting

Barrier reflectors Speed feedback sign

Factored Crash Rate. The average annual number of crashes (on the overall road and by barrier segment), over the last 5 years. If the road has an ADT of less than 1000, evaluate a minimum of

7 to 10 years of crash data, if available.

Lateral Offset of Barrier from Edge of Traveled Way. The distance from the edge of traveled way to the face of the barrier is useful for determining impact to asset during different types of construction. Two or three measurements will be taken – beginning, middle and end of barrier run (not including the end treatments) – and the average will be used.

Posted Speed Limit. The posted speed limit(s) of the roadway section.

Roadway Grade and Uphill or Downhill. Is refers to the grade of the roadway, in the direction of travel closest to the barrier.

Severity of the Hazard behind Barrier. A rating system based on photos will be used to rate the severity of the hazard behind the barrier. Choices include:

- Low
- Medium
- High
- Extreme

RISK ASSESSMENT AND RISK SCORE

The following table shows the variables relating to the overall roadway safety in the vicinity of barriers. In addition, the table illustrates the range of values considered for each variable and associated levels of risk. For categorization purposes, variables have been placed into one of three categories: segment, site or barrier variables. The "Associated Risk" column identifies the relative risk posed by each variable. This looks at the relative risk of the each variable itself and is only a cursory evaluation.

A Risk Score or Rating ("Barrier Rating" on Tier 3 Barrier page) was created for each barrier based on the table values. The level of risk tolerated is dependent on the category of road, which will be discussed in subsequent pages.

Once the inventory has been conducted, a total risk value can be assigned to each barrier. A comparison of the relative risk to an acceptable risk threshold will be performed in order to analyze the overall risk of a given barrier.

Variable and Associated Levels of Risk

VARIABLE	RANGE	ASSOCIATED RISK
SEGMENT VARIABLES		
ADT	0 – 1000	0.0
	1001 - 4000	2.9
	4001 - 8000	5.7
	8001 - 20,000	7.1
	20,001 and greater	8.6
Crash Factor	0	0.0
	0.1 - 5.0	4.2
	5.1 – 20.0	8.7
	20.1 – 30.0	17.1
	30.1 – 75.0	25.8
	75.1 and greater	34.2
Posted Speed Limit	15 – 25 mph	0.0
Tosted Speed Emilit	30 – 40 mph	4.3
	45 and higher	8.6
SITE VARIABLES	+3 and nights	0.0
Barrier Placement w/ Respect to	Tangent	0.0
_	Inside of curve	2.9
Roadway Geometry	Both inside and outside of curve	8.6
C '4 CH 111' 14 D '	Outside of curve	8.6
Severity of Hazard behind the Barrier	Low severity	2.6
	Medium severity	5.1
	High severity	6.9
T	Extreme severity	8.6
Longitudinal Length of Barrier	1 – 250-ft	0.0
	251 – 750-ft	2.9
	751 – ft and greater	5.7
Lateral Offset of Barrier from Edge of	4.1 – ft and greater	0.0
Traveled Way	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	0 – 1-in lower	0.0
test level height)	1.1 – 4-in lower	4.4
test level height)	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	0-25	0.0
(based on design height)	26 – 200	4.4
(based on design neight)	201 – 400	8.6
	401 – 400 401 – 600	12.9
	601 – 800	17.1
	801 and above	
Barrier Conformance with Current		21.5
	Yes	0.0
Crashworthiness Criteria	No Table 211 Pil S	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	 Identify measures other than barrier replacement that could be taken to reduce risk (including engineering countermeasures). Corrective action (including reconstruct/replacement, if necessary) needed to reduce risk below 90.
	Below 90	 Identify measures that could be taken to reduce risk (including engineered countermeasures). Identify repairs needed to improve physical condition/maintain historic integrity. When condition is good and risk is acceptable, no action is necessary.
В	70-100	 Identify measures that could be taken to reduce risk (including engineered countermeasures). Corrective action (including reconstruct/replacement, if necessary) needed to reduce risk below 70.
	Below 70	 Identify measures that could be taken to reduce risk (including engineered countermeasures). Identify repairs needed to improve physical condition/maintain historic integrity. When condition is good and risk is acceptable, no action is necessary.
С	50-100	 Identify measures that could be taken to reduce risk (including engineered countermeasures). Corrective action (including reconstruct/replacement, if necessary) needed to reduce risk below 50.
	Below 50	 Identify measures that could be taken to reduce risk (including engineered countermeasures). Identify repairs needed to improve physical condition/maintain historic integrity. 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.
- 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.