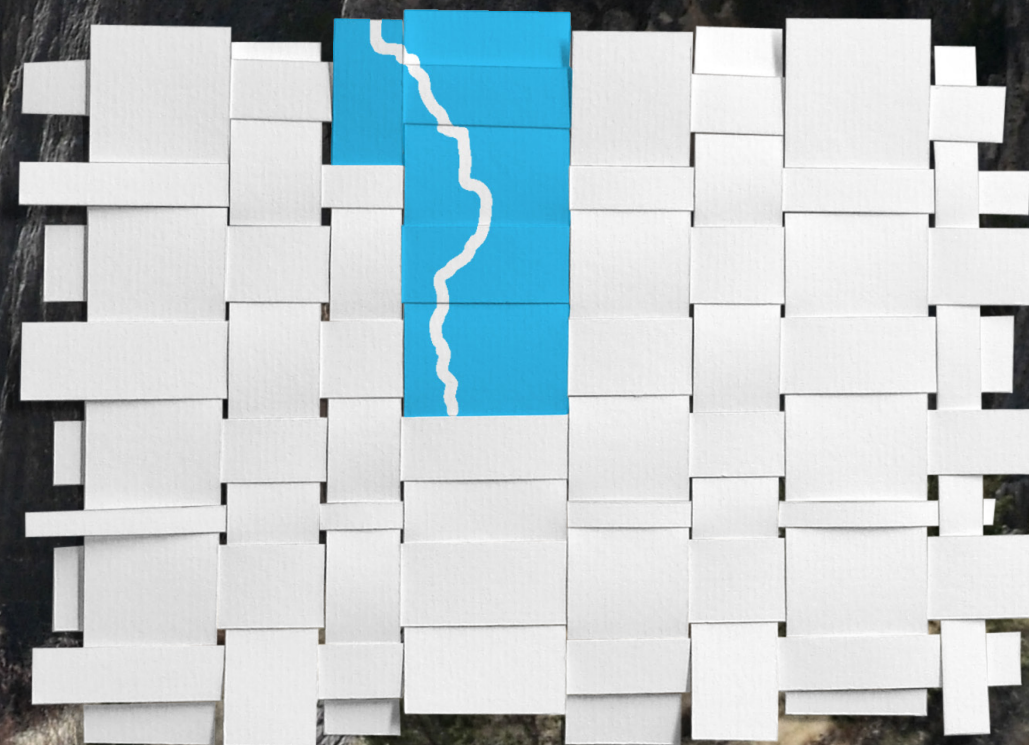
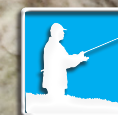


Wyoming Connects



Corridor 8 Plan

SHOSHONI TO LOVELL



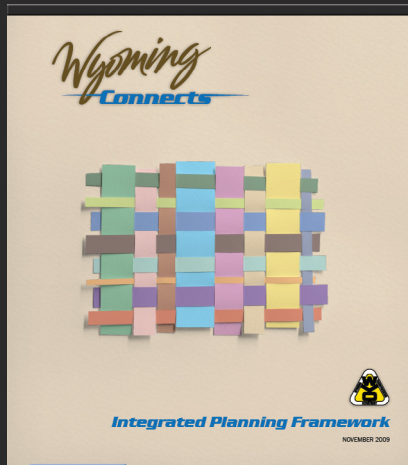
MAY 2013

FRAMEWORK

LONG RANGE
TRANSPORTATION
PLAN

CORRIDOR
VISIONS

CORRIDOR 8
PLAN



The Integrated Planning Framework describes the planning process in detail, including the linkage between strategic goals and project programming - and all the steps in between.



The Long Range Transportation Plan evaluates the state transportation needs from a systems level, describes the issues and problems facing the State including future revenue and programming, and presents options for future investments, all within the context of the Integrated Planning Framework.



Corridor Visions are created for each State Significant Corridor (SSC) as a supplement to the LRTP. These define long term goals and objectives for each corridor based on the strategic goals of the Department, the investment goals of the LRTP, and the specific context of each corridor. The SSC system represents high volume routes in the state that connect major activity centers to each other and to points external to Wyoming. Urban areas are also evaluated as a group.



Corridor Plans build on the Corridor Visions by providing a more detailed look at specific needs and location-based solutions. The plans identify a set of solutions and a recommended program of improvements to be implemented over time that address specific, documented needs.

CORRIDOR PLAN PURPOSE

This Corridor Plan is part of a set of documents created through a comprehensive planning process entitled Wyoming Connects. This set of documents captures consistent, transparent, and repeatable planning steps, analysis, and results designed to provide information to guide project selection and programming decision makers. Each document is designed to build upon prior documents and cascade the Strategic Goals of WYDOT forward from the overarching Strategic Plan to the system wide Long Range Transportation Plan, applied in the development of Corridor Visions, and the definition of Needs and potential Solutions to achieve the vision in Corridor Plans.

PERFORMANCE BASED NEEDS

The Corridor Plan utilizes a performance based approach to needs definition. A system of performance measures is used to evaluate the corridor. The architecture of this tiered system is focused on the three Investment Categories identified in the Long Range Transportation Plan: System Preservation, Safety, and Mobility. Performance measures include both absolute and comparative targets. Absolute measures gauge progress towards long term goals, while comparative measures between corridor and system performance provide information to assist in prioritization.

A need is defined as a deviation between these targets and measured performance. The first tier of the system allows for rapid identification of need in each of the Investment Categories through a Performance Indicator. The second tier provides additional information to qualify potential causes through a set of Performance Qualifiers. GIS based Mapping Analysis tools provide for a spatial analysis of these measurements to further investigate causes and identify overlapping needs.

TIERED APPROACH:

A method to evaluate performance goals at a general level and then advance through the system/hierarchy to filter data and define needs.

INVESTMENT CATEGORY

PERFORMANCE INDICATOR:

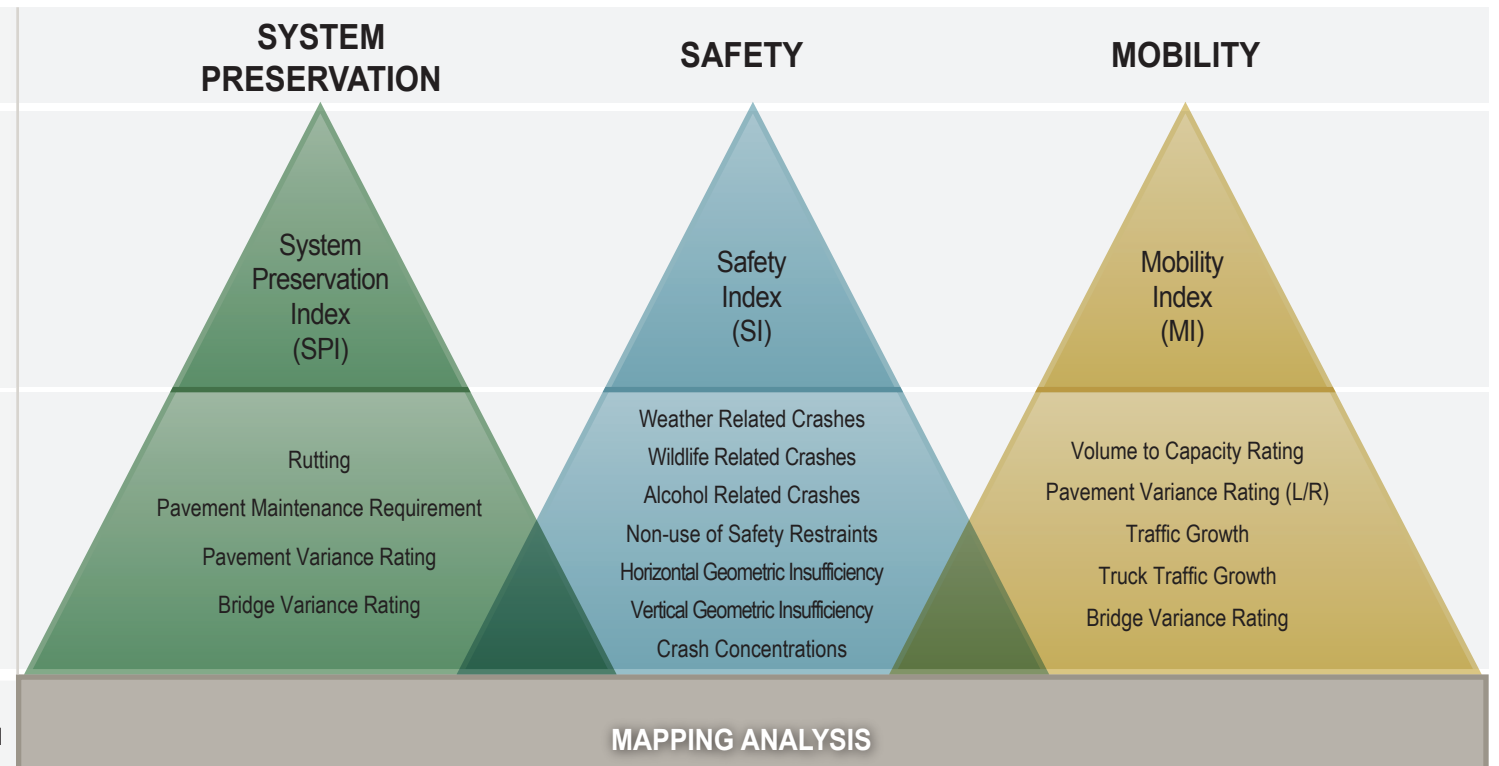
These are quantifiable and repeatable measurements that reflect the overall performance of the transportation corridor being analyzed. Targets for these indicators may be absolute and indicate a desired condition or comparative to current performance of the overall system to indicate relative priority.

PERFORMANCE QUALIFIER:

These measures include items that may contribute to the results of the indicator. These variables are measurable and actionable. They are used to qualify the need so that solution sets may be applied.

MAPPING ANALYSIS:

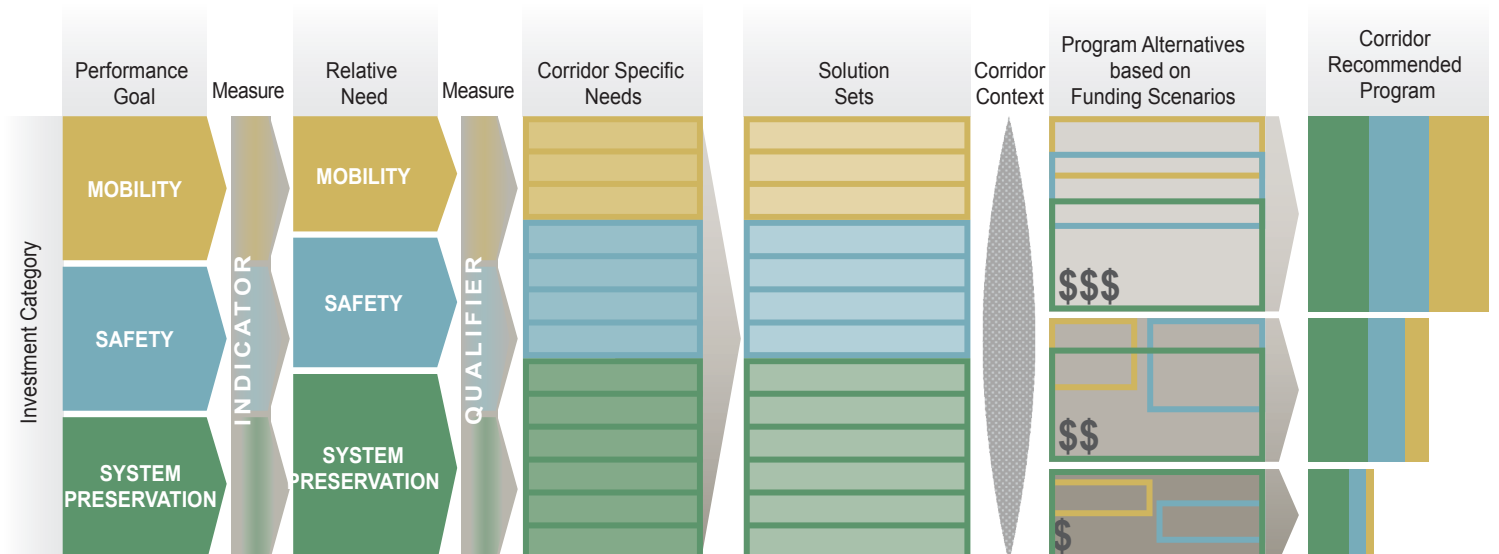
Mapping the deviated performance qualifiers against several factors to effectively prioritize, locate, and identify needs.



NEEDS DRIVEN SOLUTIONS:

Performance based needs are captured and documented. These needs remain until the performance is changed. This approach also separates the discussion of need from the discussion of projects, which enhances the transparency of prioritization.

From WYDOT's list of preferred remedies to specific problems, preliminary solutions sets are developed for the identified needs. These sets may be tailored by the specific context of the corridor. For each of the three funding scenarios of the long range plan, the solutions to be considered may vary and the size of the program change. A recommended program can be selected based on anticipated funding levels.



SSC 8 - SHOSHONI TO LOVELL - US 20/WYO 789 CORRIDOR PLAN

CONTENTS

CORRIDOR PLAN PURPOSE	INSIDE FRONT COVER	
I. STATE SIGNIFICANT CORRIDOR 8 - DESCRIPTION	1	
Corridor Description	1	
Corridor Segments	1	
II. EVALUATION OF CORRIDOR PERFORMANCE	3	
Step 1: Summary of Indicator and Qualifier Performance Measures	3	
Step 2: System Preservation - Index Maps	4	
Analysis of Investment Category Needs - System Preservation	5	
Step 2: Safety - Index Maps	6	
Analysis of Investment Category Needs - Safety	7	
Step 2: Mobility - Index Maps	8	
Analysis of Investment Category Needs - Mobility	9	
Step 3: Analysis of Planning Segment Needs	10	
Environmental Overview	11	
Step 4: Summary of Corridor Needs	12	
III. SOLUTION SETS	13	
IV. RECOMMENDATIONS	14	
Realizing the Corridor Vision	15	
Corridor Performance	15	

TABLES

TABLE 1	Segments for State Significant Corridor 8	2
TABLE 2	Indicator and Qualifier Performance of Planning Segments	3
TABLE 3	STIP by Year and Corridor Segment	5
TABLE 4	Horizontal Geometry Insufficiency	7
TABLE 5	Vertical Geometry Insufficiency	7
TABLE 6	Critical Crash Concentrations	7
TABLE 7	Major Traffic Generators	9
TABLE 8	Traffic Growth	9
TABLE 9	Truck Traffic Growth	9
TABLE 10	Local/Regional Routes with Poor PSR	9
TABLE 11	SSC 8 Structurally Deficient Bridges (L&R)	9
TABLE 12	Important Environmental Considerations	11
TABLE 13	Recommended Solution Sets to Improve Performance in Each Index	13
TABLE 14	SSC 8 Recommended Strategies for Long Range Plan Funding Scenarios	14
TABLE 15	Review of Corridor Vision Goals and Other Considerations	15
TABLE 16	Corridor Performance	15

APPENDIX

SYSTEM PRESERVATION MAPS	
Rutting	A-1
Pavement Maintenance Requirement	A-2
Pavement Variance Rating	A-3
Bridge Variance Rating	A-4
SAFETY MAPS	
Weather Related Crashes	A-5
Wildlife Related Crashes	A-6
Alcohol Related Crashes	A-7
Non-use of Safety Restraints per Crash Data	A-8
Horizontal Geometry Insufficiency	A-9
Vertical Geometry Insufficiency	A-10
Crash Concentrations	A-11
MOBILITY MAPS	
Volume to Capacity Rating	A-12
Pavement Variance Rating (L/R)	A-13
Traffic Growth	A-14
Truck Traffic Growth	A-15
Bridge Variance Rating (L/R)	A-16
ENVIRONMENTAL CHARACTERISTICS	
Environmental Data Summary	A-17



I. STATE SIGNIFICANT CORRIDOR 8 - DESCRIPTION

CORRIDOR DESCRIPTION

State Significant Corridor (SSC) 8, from Shoshoni to Lovell and the Wyoming/Montana state line, is 157 miles long and passes through four counties and WYDOT District 5. The corridor connects several small communities. SSC 8 follows US 20/WYO 789 from Shoshoni to Thermopolis, then continues as WYO 789 north through Basin to Greybull. At Greybull, US 14 joins US 16/20 for approximately five miles. From that point west of Greybull, US 14/16/20 continues west while WYO 789/US 310 continues north through Lovell onto the Montana state line. SSC 8 also serves the smaller communities of Cowley, Deaver and Frannie.

SSC 8 follows the Wind River/Big Horn River from Thermopolis to Greybull. The Wind River Scenic Byway overlays a portion of the corridor from Shoshoni to Thermopolis through the Wind River Canyon. The canyon area is shady, often

icy in the winter, and has three tunnels. The segment from Worland to Greybull is designated as part of the Northern Tier East-West Bicycle Route. The corridor runs parallel to the Bridger Trail from the US 20/WYO 172 intersection north to the US 20/WYO 431 intersection.

SSC 8 is a major commerce route connecting the Big Horn Basin to Montana. The area is mainly agricultural and is through or adjacent to Bureau of Land Management lands through much of the route. The corridor provides important access to river recreation and other dispersed recreational opportunities. Boysen State Park, north of Shoshoni is a lake-orientated park at the south end of the Owl Creek Mountains at the mouth of Wind River Canyon. The BNSF Railway runs parallel to most of the corridor.

Worland, known as the Jewel of the Big Horn Basin, is the only urban area on the corridor and serves as a regional agricultural, trucking and distribution center. Additional information including environmental context, key issues, and emerging trends is provided in the Corridor Visions and LRTP phases of Wyoming Connects.

This Corridor Plan focuses on the identification of the corridor needs through the analysis of corridor performance.

CORRIDOR SEGMENTS

SSC 8 has been divided into 10 planning segments. Planning segments identify generally consistent sections of the corridor for planning level analysis. The planning segments vary in length depending on the context of the corridor. The corridor was segmented at all urban areas and at the intersection of other SSCs. Other context changes may include: roadway typical section (through lanes, shoulders, etc.), average daily traffic, intersecting routes, and terrain. Each segment break or endpoint was assigned as closely as possible to the nearest maintenance section endpoint; segments generally encompass multiple maintenance sections. The planning segments allow for an appropriate analysis and evaluation of corridor needs at a planning level while still providing geographic reference.

Table 1 and the accompanying map on the next page describe general characteristics of each corridor segment.



Wind River Canyon

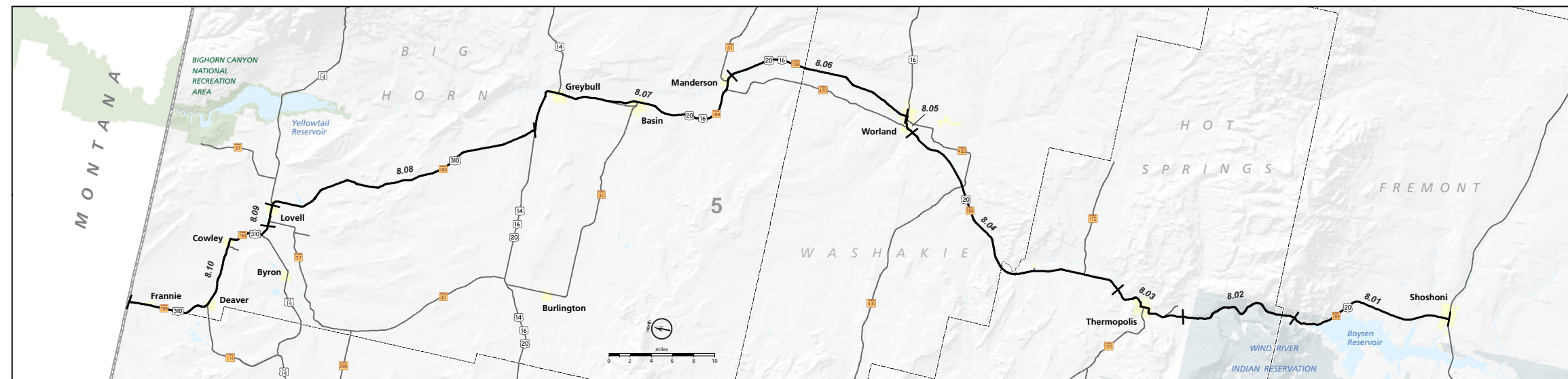
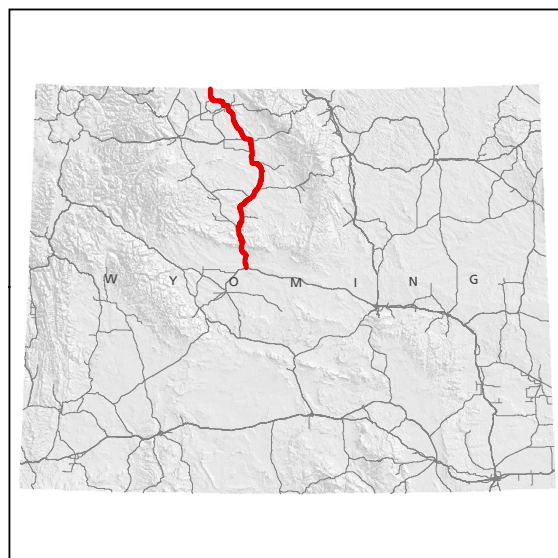


Table 1 - Segments for State Significant Corridor 8

Corridor 8	Segment	ML Route	Begin	End	Length	Description
	8.01	34	100.09	116.14	16.05	Shoshoni to Wind River Canyon. Features: 2-lane cross section with 2 short 3 lane sections; segment begins at SSC 10 (US 20/26); road close gate; Badwater Creek, Birdseye Creek; Wind River Canyon Scenic Byway; BNSF Railway parallel to route with 1 grade separation; intercity bus route and station; local fixed route bus service; Wind River Indian Reservation; Boysen State Park and Reservoir; access to BLM lands; energy development; range and ranch lands; recreation, tourism, and agricultural transportation; flat terrain with section of rolling terrain on north end.
	8.02	34	116.14	128.32	12.18	Wind River Canyon. Features: 2-lane cross section; 3 tunnels; road close gate; Big Horn River; Wind River Canyon Scenic Byway; BNSF Railway parallel to route; intercity bus route; Wind River Indian Reservation; access to BLM lands; recreation, tourism, and agricultural transportation; flat terrain.
	8.03	34	128.32	136.34	8.02	Thermopolis. Features: 2-4 lane cross section with curb, gutter, sidewalks, traffic signals, pedestrian crossings; intersects Local Route WYO 173; 2 bridges; BNSF Railway parallel to route with 1 grade separation; intercity bus route and station; Hot Springs State Park; fully developed corridor with residential and commercial land uses; urban and flat terrain.
	8.04	34	136.34	164.09	27.75	Thermopolis to Worland. Features: 2-lane cross section with multiple accesses (auxiliary lanes) to Bighorn River (BLM); intersects Local Routes WYO 172, WYO 175, WYO 431, WYO 432; Owl Creek, several unnamed draws, Cottonwood Creek, Gooseberry Creek, Big Horn Canal; Bighorn River Class I Water from Thermopolis to Boysen Dam; BNSF Railway parallel to route; intercity bus route; wildlife crossings; flat terrain.
	8.05	34	164.09	166.03	1.94	Worland Urban Area (pop. 4,958). Features: 2-5 lane cross section with curb, gutter, sidewalks, traffic signals, pedestrian crossings; intersects SSC 9 (US 16) and Local Route WYO 432; Fifteen Mile Creek, Big Horn River; BNSF Railway at-grade crossing; Worland Municipal Airport; intercity bus route and station; fully developed corridor with residential and commercial land uses; urban terrain.
	8.06	34	166.03	184.26	18.23	Worland to Manderson. Features: 2-lane cross section; Slick Creek, unnamed draw, Big Horn River; intersects Local Route WYO 31; BNSF Railway parallel to route with 1 grade separation; intercity bus route; Northern Tier East/West Bike Route; irrigated agricultural lands; flat terrain.
	8.07	34	184.26	209.03	24.77	Manderson through Greybull. Features: 2-3-4 lane cross section varies; intersects SSC 6 (US 14) and Local Routes WYO 433, WYO 30, WYO 36; Dobie Creek, Big Horn Canal, Antelope Creek, Elk Creek, Greybull River, multiple access points to rural residential and agriculture uses; more densely developed sections in Basin and Greybull with areas of curb/gutter/sidewalk/pedestrian crosswalks and traffic signals; BNSF Railway parallel to route with 2 grade separations; Airport Rest Area; intercity bus route and station (Basin and Greybull); Northern Tier East/West Bike Route; irrigated agricultural lands; flat terrain with urban sections in Basin and Greybull.
	8.08	34	209.03	236.26	27.23	Greybull to Lovell. Features: mostly 2-lane cross section with occasional passing lanes and auxiliary lane access points; segment begins at SSC 6 (US 16) intersects Local Route US 14 A; Little Dry Creek, Sand Draw; BNSF Railway parallel to route; intercity bus route; BLM range and ranch lands; flat terrain.
	8.09	34	236.26	238.34	2.08	Lovell. Features: 4-5 lane section with curb, gutter, sidewalks, traffic signals, pedestrian crossings; intersects Local Route WYO 32; BNSF Railway parallel to route; intercity bus route and station; access to BLM lands; Bighorn Canyon National Recreation Area and Big Horn Lake; urban terrain.
8.10	34	238.34	257.03	18.69	Lovell to State Line north of Deaver. Features: 2-lane cross section with 4-lane sections in Cowley, Deaver, and Frannie; segment begins at Local Route WYO 32 and intersects Local Routes US 14 A, WYO 35 and ends at SSC 7 (WYO 114) in Deaver; Frannie Port of Entry; BNSF Railway parallel to route with 1 grade separation; Shoshone River, Sage Creek (3), Sidon Canal, intercity bus route and stations (Cowley, Deaver, and Frannie); ranching and agricultural lands mixed with rural residential; Bighorn Canyon National Recreation Area and Big Horn Lake; flat terrain.	

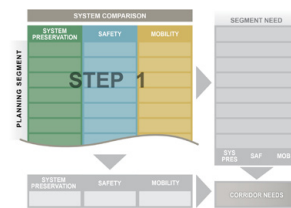
Source: URS Windshield Survey June 2012; Maintenance Section Reference Book 2012; Wyoming Connects: LRTP and Corridor Visions. Note: Descriptions of beginning and endpoints are approximate.



II. EVALUATION OF CORRIDOR PERFORMANCE

This section describes the evaluation of specific corridor needs based on the performance based process defined in the IPF. The Performance Based Needs Process, shown below, illustrates the steps followed for this corridor plan. Indicative Performance measures based on existing or simply defined index measurements for each investment category of System Preservation, Safety, and Mobility were evaluated to preliminarily identify need relative to long term goals. Qualifying performance measures were evaluated to better assess contributing factors to the primary need indicators. The indicators and qualifiers were evaluated and analyzed relative to system averages and, when available, previously specified performance targets. This gap analysis identifies locations where needs exist, qualifies the nature of the need, and provides information on the priority relative to the system of SSCs and available funding.

Many of the measures were established as comparisons to the system average, therefore good performance indicates performance better than the system average. The reverse is also true, poor performance indicates that performance is below the average or rated as poor for a particular indicator or qualifier. As additional corridors are evaluated, specific performance targets may be set to measure absolute performance. The IPF process recommends a mix of absolute measures to evaluate true need relative to long term goals and comparative measures to assist in determining priority.



STEP 1: SUMMARY OF INDICATOR AND QUALIFIER PERFORMANCE MEASURES

This corridor plan evaluates System Preservation, Safety, and Mobility performance using the process described in the Integrated Planning Framework, published separately. The plan analyzes the performance of planning segments described in Table 1 as compared to system averages. It identifies good, fair, poor or less, average, more performance for each segment in an overall index and for each contributing qualifier measurement.

Throughout this report, the color green is used to represent System Preservation, blue represents Safety, and yellow represents Mobility. Lighter shades represent better performance and darker shades represent worse performance compared to the system average.

Table 2 summarizes the results for each performance index and qualifier for each planning segment on the corridor.

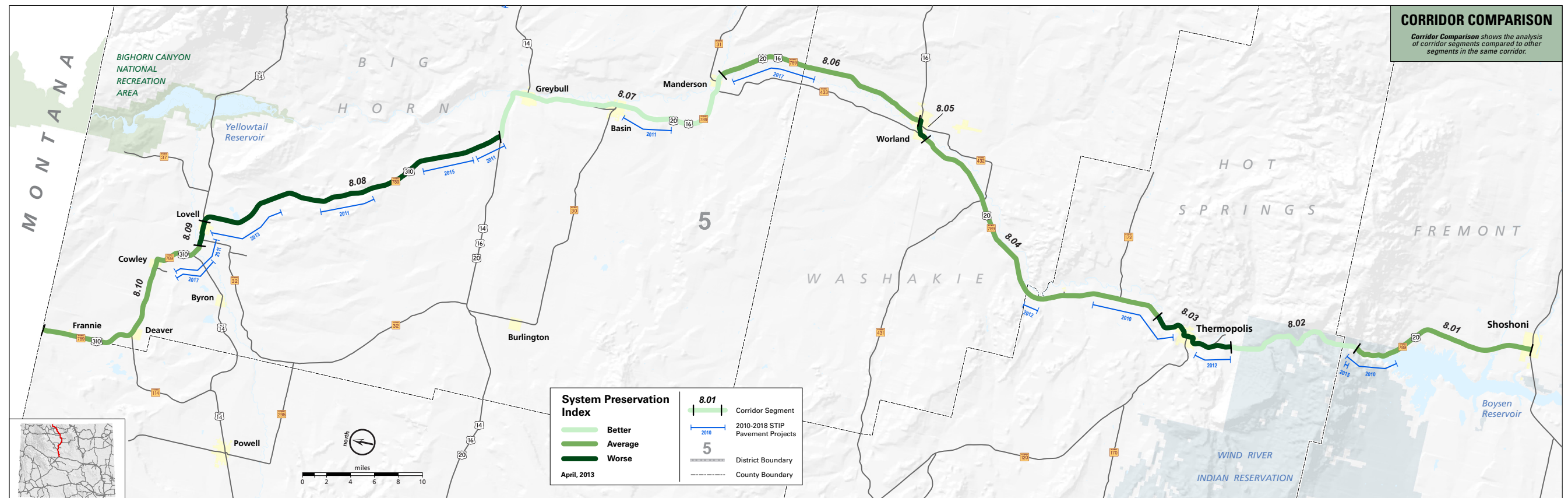
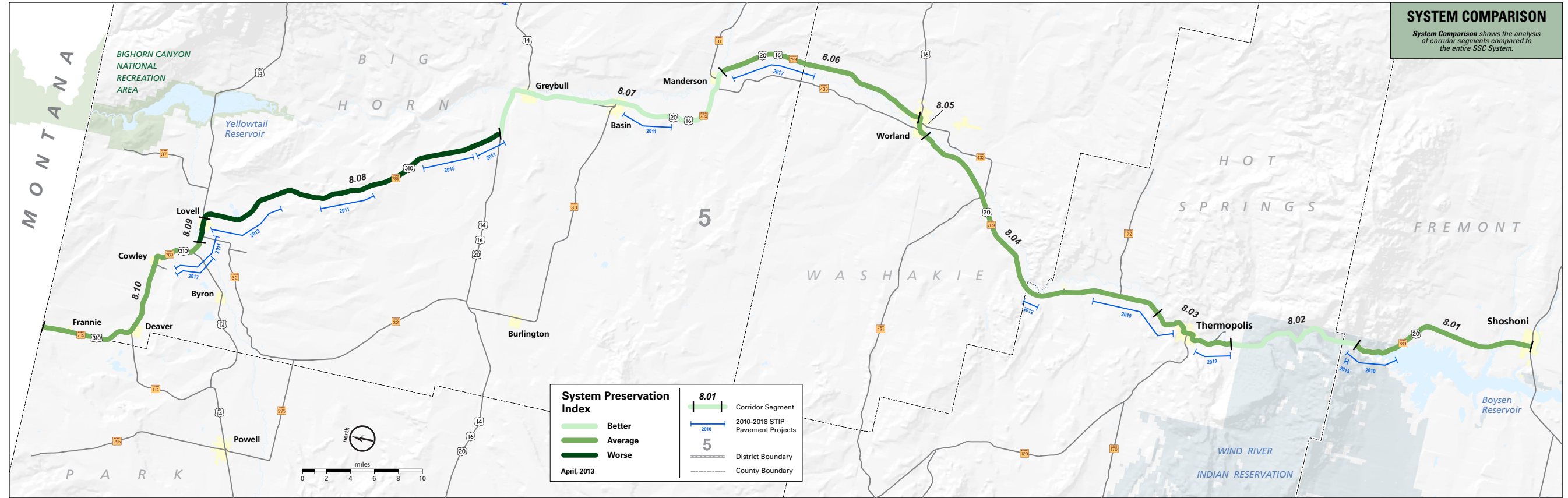
Table 2 - Indicator and Qualifier Performance of SSC 8

Segment	SYSTEM PRESERVATION					SAFETY								MOBILITY					
	System Preservation Index	Rutting	Pavement Maint. Requirement	Pavement Variance Rating	Bridge Variance Rating	Safety Index	Weather Related Crashes	Wildlife Related Crashes	Alcohol Related Crashes	Non-use of Safety Restraints	Horizontal Geometric Insufficiency	Vertical Geometric Insufficiency	Crash Concentrations	Mobility Index	Volume to Capacity Rating	Pavement Variance Rating (L/R)	Traffic Growth	Truck Traffic Growth	Bridge Variance (L/R)
8.01	Average	Good	Average	Good	Less	Fair	Average	Average	Average	Average	Average	Average	Fair	Better	Good	Fair	Average	Average	Less
8.02	Better	Good	Less	Good	Less	Poor	Average	Less	More	Average	More	Average	Poor	Better	Good	Fair	Average	Average	Less
8.03	Average	Fair	Less	Fair	Average	Good	Average	Average	More	Less	More	Less	Good	Better	Good	Poor	Average	Average	Less
8.04	Average	Good	Less	Good	Average	Fair	Average	More	Average	Less	Average	Average	Good	Average	Good	Fair	Average	Average	Less
8.05	Average	Good	Less	Fair	Less	Good	Less	Less	Average	Less	Less	Good	Worse	Good	Fair	Less	Less	Average	
8.06	Average	Good	Average	Good	Less	Fair	Less	More	Less	Less	Average	Less	Good	Better	Good	Fair	Less	Average	Less
8.07	Better	Good	Less	Good	Less	Fair	Average	More	Average	Less	Average	Less	Good	Average	Good	Fair	Average	Average	Average
8.08	Worse	Good	Average	Good	More	Good	Average	Average	Average	Average	Less	Less	Fair	Average	Good	Fair	Average	Average	Average
8.09	Worse	Fair	Average	Poor	Less	Poor	Average	Less	More	Average	Less	Less	Good	Average	Good	Fair	Average	Less	Average
8.10	Average	Good	Average	Good	Less	Poor	Less	More	Average	Less	Less	Less	Good	Average	Good	Fair	Average	Less	Average



CORRIDOR 8

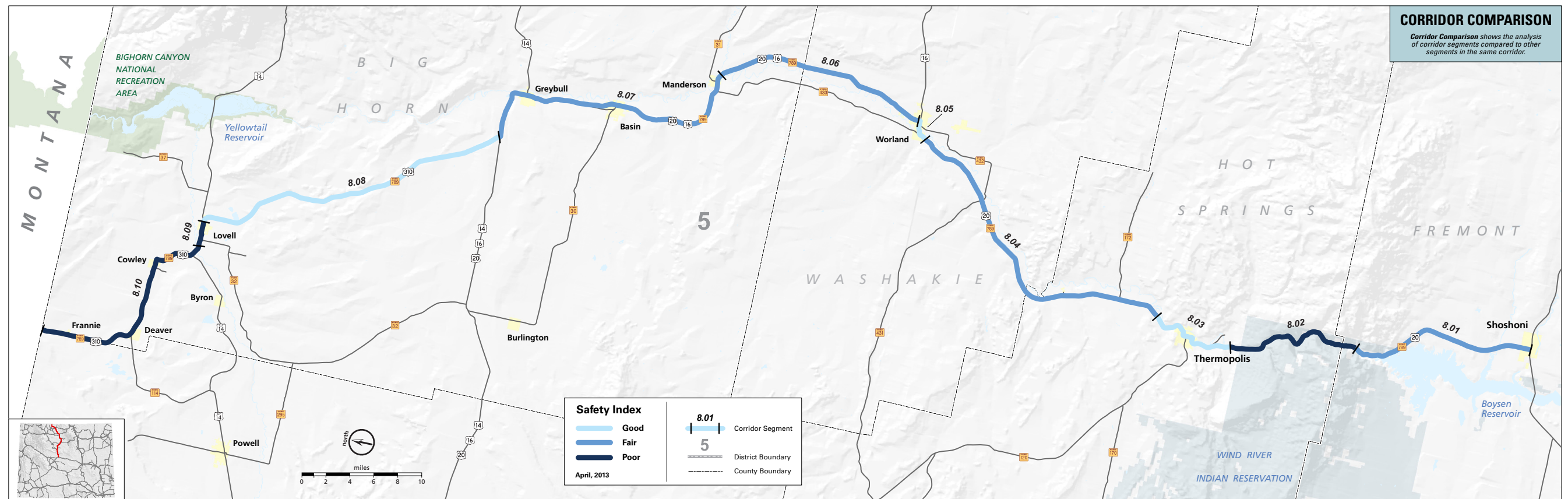
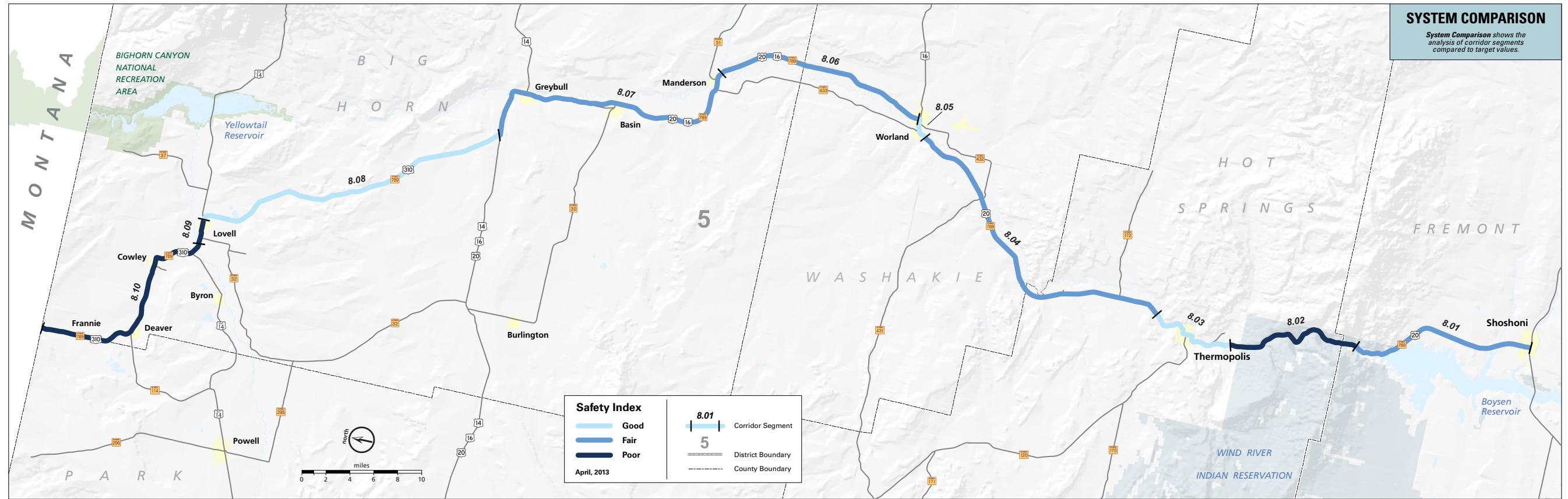
SYSTEM PRESERVATION - INDEX





CORRIDOR 8

SAFETY - INDEX





Performance Index

The Safety Performance Index ranges from good to poor across the corridor. Segments rated poor include 8.02, 8.09, and 8.10.

Performance qualifiers with poor performance include:

- Wildlife Related Crashes are more than the average on segments 8.04, 8.06, 8.07, and 8.10.
- Alcohol Related Crashes are more than the average on segments 8.02, 8.03, and 8.09.
- Crashes on Horizontal Geometric Insufficient Curves are more than the average on segments 8.02 and 8.03.
- Crash Concentrations are rated poor on segment 8.02.

Refer to the sections below for more information.

Segment	SAFETY							
	Safety Index	Weather Related Crashes	Wildlife Related Crashes	Alcohol Related Crashes	Non-use of Safety Restraints	Horizontal Geometric Insufficiency	Vertical Geometric Insufficiency	Crash Concentrations
8.01	Fair	Average	Average	Average	Average	Average	Average	Fair
8.02	Poor	Average	Less	More	Average	More	Average	Poor
8.03	Good	Average	Average	More	Less	More	Less	Good
8.04	Fair	Average	More	Average	Less	Average	Average	Good
8.05	Good	Less	Less	Less	Average	Less	Less	Good
8.06	Fair	Less	More	Less	Less	Average	Less	Good
8.07	Fair	Average	More	Average	Less	Average	Less	Good
8.08	Good	Average	Average	Average	Average	Less	Less	Fair
8.09	Poor	Average	Less	More	Average	Less	Less	Good
8.10	Poor	Less	More	Average	Less	Less	Less	Good

Performance Qualifiers

Weather Related Crashes

Within SSC 8, the ratio of weather related crashes to total crashes is at or below the system average. The highest percentage of weather related crashes occurred in segment 8.02 (27%), with snowfall (and snow/slush on roads), and segment 8.08 (25.6%), with snow or blizzards (and snow and ice/frost on roads). The lowest percentage of weather related crashes occurred in segment 8.10 (9.4%).

Wildlife Related Crashes

Corridor 8 is varied in its wildlife related collisions. Segments 8.04, 8.06, and 8.07 have a high rate of accidents involving wildlife compared to the statewide average (31%), all over 60%. Segments 8.03 (45%) and 8.10 (50%) also have a higher rate of accidents involving wildlife .

Segment 8.04 had the highest rate of crashes involving wildlife within SSC 8. All of the wildlife related crashes are with deer. The crashes were found throughout the segment, concentrations could be found in the data. A majority of the deer related crashes were at dawn and during darkness. These crashes do not correlate with migration routes documented by the Wyoming Game and Fish Department.

Alcohol Related Crashes

The percentage of alcohol related crashes is varied throughout the corridor. Segment 8.05 did not have any alcohol related crashes. Segments 8.02 and 8.03, along State Highway 20 south of Thermopolis, and 8.09, between Deaver and Lovell, had higher percentage of alcohol related crashes than the system average.

Non-use of Safety Restraint

The ratio of crashes in which a restraint device was not worn to total crashes varies within SSC 8 from below the system average to above the system average. The highest percentage of crashes in which seat belts were not worn occurred in segment 8.02. Segments 8.04 and 8.06 showed the best usage of safety restraints.

Horizontal Geometry Insufficiency

Several horizontal alignments were found to be insufficient based on the associated posted speed and an assumed emax of 8%. Segments 8.02 and 8.03 have the most insufficient horizontal alignments within the segment. Further study will need to take place to determine specific needs of each alignment and the constraints to which it was designed and built.

Following is a summary of locations where a horizontal insufficiency corresponded to a crash. The data is not clear if the crash was directly related to geometry. However, locations with several accidents should be further studied. Table 4 summarizes locations of insufficient curves with more than one crash in near vicinity within the 5 year accident analysis period.

Table 4 - Horizontal Geometry Insufficiency

Segment	ML Route	Route Marker	# of Crashes
8.01	ML34	114.90	2
8.02	ML34	116.80	2
8.02	ML34	118.03	3
8.02	ML34	122.02	4
8.02	ML34	122.97	2
8.02	ML34	124.00	2
8.03	ML34	132.01	2
8.03	ML34	133.97	3
8.03	ML34	134.27	4
8.03	ML34	135.08	10
8.04	ML34	137.28	2
8.04	ML34	163.15	2

Vertical Geometry Insufficiency

Corridor 8 has 21 vertical alignments that were found to be insufficient based on the associated posted speed and the length of the curve for stopping sight distance. Two crashes were recorded at the sag curve along ML 34 at mile marker 143.4. The data is not clear if the crash was directly related to the geometry. Further study will need to take place to determine specific needs of this alignment and the constraints to which it was designed and built.

The remaining 20 vertical insufficiencies within corridor 8 had zero to one crash reported. Because of the low number of crashes, it is suggested funding be spent in other locations where there are more crashes that can be attributed to poor roadway geometry.

Table 5 - Vertical Geometry Insufficiency

Segment	ML Route	Route Marker	Curve Type	# of Crashes
8.04	ML34	143.38	SAG	2

Crash Concentrations

Crash concentrations are identified by locating spatially significant clusters of individual crash events that are of a similar severity level. The concentrations fall into one of two severity types: Critical, which consists of only “Critical” level crashes, and Other, which consists of “Severe” and “Damage” level crashes.

There are four Critical concentrations on Corridor 8, which are listed in Table 6. Additionally, there is one Other type concentration. Segment 8.02, exhibits the most crash concentrations with 2 Critical concentrations, which occur between RM 118 and 119, and RM 124 and 124.3. Segments 8.04 and 8.07 have Other type concentrations resulting primarily from Damage level crashes.

Table 6 - Critical Crash Concentrations

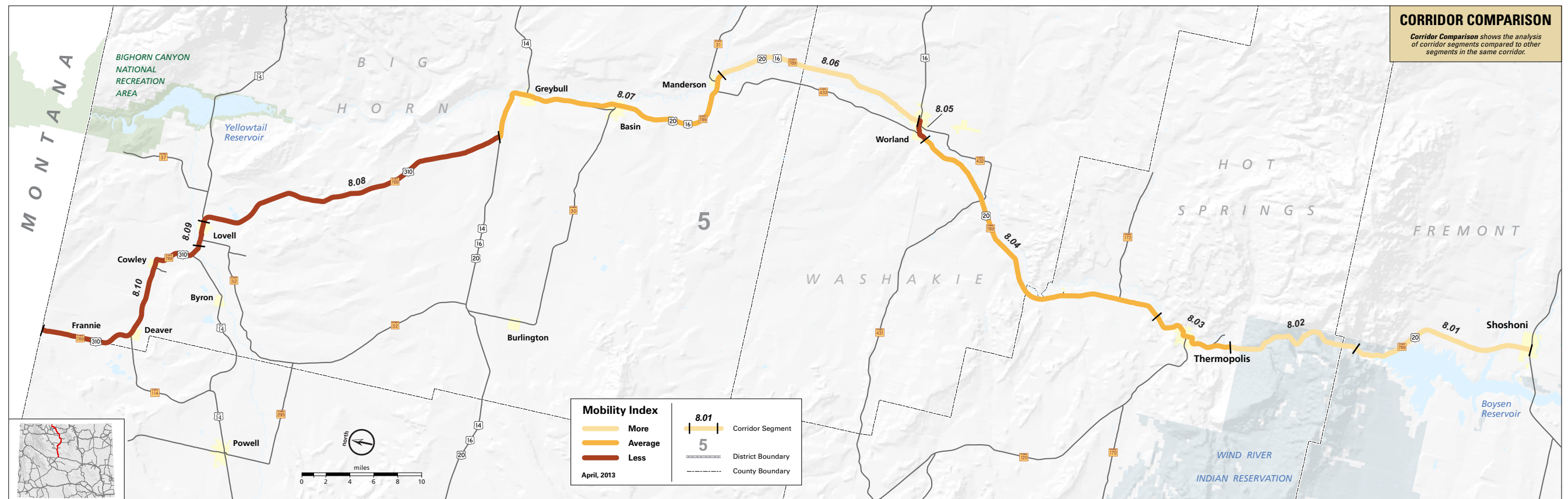
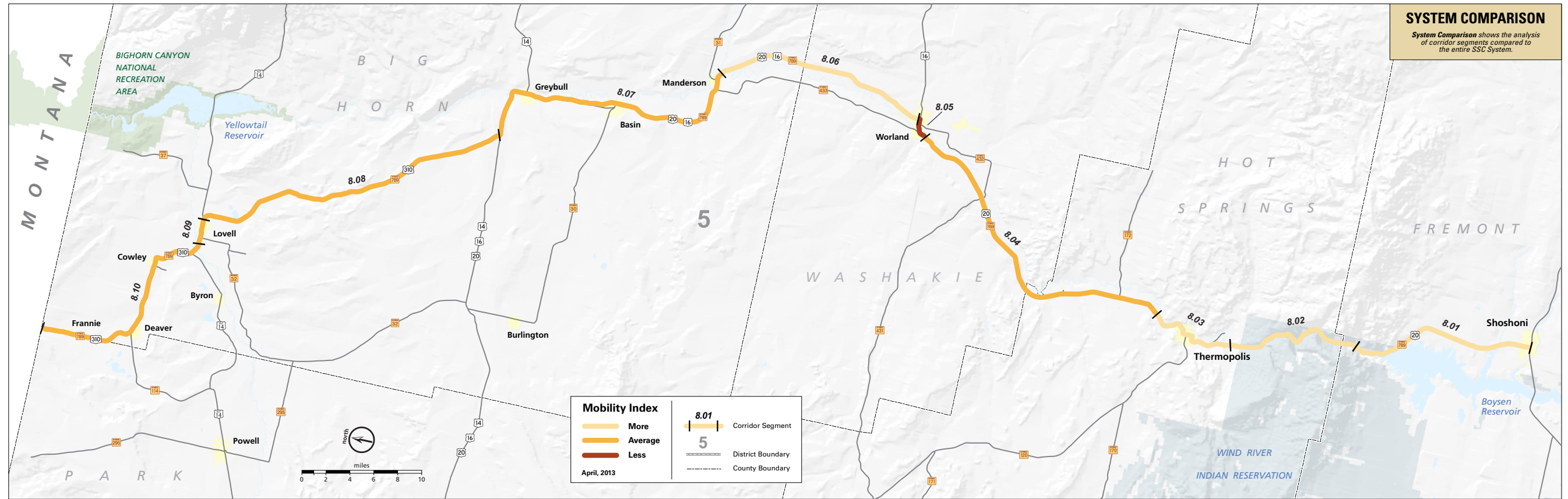
Segment	ML Route	Route Marker	
		From	To
8.01	ML34	114.8	115
8.02	ML34	118	119
8.02	ML34	124	124.3
8.08	ML34	219.8	220

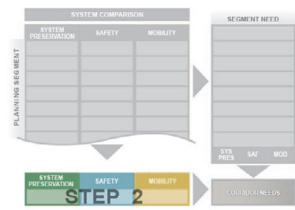
NOTE: See Appendix for maps documenting each performance qualifier.



CORRIDOR 8

MOBILITY - INDEX





Performance Index

The Mobility Performance Index for SSC 8 ranges from better to worse than average. Segments rated worse than average include 8.05.

Segment	MOBILITY					
	Mobility Index	Volume to Capacity Rating	Pavement Variance Rating (L/R)	Traffic Growth	Truck Traffic Growth	Bridge Variance (L/R)
8.01	Better	Good	Fair	Average	Average	Less
8.02	Better	Good	Fair	Average	Average	Less
8.03	Better	Good	Poor	Average	Average	Less
8.04	Average	Good	Fair	Average	Average	Less
8.05	Worse	Good	Fair	Less	Less	Average
8.06	Better	Good	Fair	Less	Average	Less
8.07	Average	Good	Fair	Average	Average	Average
8.08	Average	Good	Fair	Average	Average	Average
8.09	Average	Good	Fair	Average	Less	Average
8.10	Average	Good	Fair	Average	Less	Average

No Regional Routes connect to SSC 8. The condition of each connecting local route is associated with a planning segment on SSC 8 and directly influences the mobility of that segment. The condition of connecting local routes is poor with some in good condition. There are currently four structurally deficient bridges on the local routes.

SSC 8 connects several small communities. Agriculture is an important industry along SSC 8. The Wind River Scenic Byway overlays a portion of SSC 8 from Shoshoni to Thermopolis. The segment from Worland to Greybull is designated as part of the Northern Tier East-West Bicycle Route. SSC 8 is a major commerce route into the Big Horn Basin. Shoulder widths vary from 4' to 8' with some rumble strips noted.

Table 7 - Major Traffic Generators

Major Traffic Generators
Boysen State Park/Reservoir & Wind River Canyon - Shoshoni
Hot Springs State Park - Thermopolis
Big Horn Canyon National Recreation Area - Lovell
Farm to market transport - Big Horn River Valley
Mineral production - bentonite & gypsum
Other dispersed local/regional recreation on public lands
Employment centers - Thermopolis, Worland, Greybull, Lovell

Performance Qualifiers

Volume to Capacity Rating

Volume to Capacity Ratio (V/C) is a measure that reflects mobility and quality of travel of a corridor or section of a corridor. It compares roadway demand (vehicle volumes) with roadway supply (carrying capacity). The volume to capacity rating for the entire SSC 8 is good.

Traffic Growth

The average traffic growth within the SSC System is 1.42%. All segments in Corridor 8 are less than this average. Segment 8.01 has the highest average annual traffic growth rate. This segment connects Shoshoni to the northern limits of Boysen Reservoir on ML34.

Table 8 - Traffic Growth

Segment	AADT 2010	Average 20 Year Growth
8.01	2,885	1.26%
8.02	2,759	1.20%
8.03	3,474	1.03%
8.04	2,275	1.20%
8.05	4,697	0.78%
8.06	2,388	0.78%
8.07	3,237	1.04%
8.08	1,902	1.11%
8.09	6,087	0.99%
8.10	2,029	1.10%

Truck Traffic Growth

The average truck traffic growth within the system is 1.34%. All segments within SSC 8 are below this average. The majority of the corridor is a 2-lane rural roadway classification. Segment 8.08 has the highest average annual truck growth rate. This segment is located between Greybull north to Lovell via ML34.

Table 9 - Truck Traffic Growth

Segment	AADTT 2010	% Trucks 2010	Truck Traffic Growth
8.01	431	15.09%	0.99%
8.02	367	14.00%	0.69%
8.03	416	13.10%	0.90%
8.04	284	12.74%	0.71%
8.05	313	8.23%	0.30%
8.06	318	13.35%	1.27%
8.07	363	12.21%	0.56%
8.08	217	18.61%	1.31%
8.09	473	7.49%	0.26%
8.10	255	13.69%	0.51%

Local and Regional Roads

Local and Regional Routes that connect to the SSC affect the Mobility Performance Indicator. These routes serve the important function of connecting rural areas to the primary routes. While traffic volumes are typically low on these secondary routes, maintaining them in acceptable condition is important to general mobility for the state. This analysis includes pavement and bridge condition as qualifiers.

Local and Regional Roads Impacting Pavement Variance Rating (L/R)

The Mobility Index may be affected by local and regional routes that have poor pavement condition as reflected by the Pavement Variance Rating (PVR). The PVR is the product of Pavement Sufficiency Rating (PSR) calculated as the deviation from the system average. Poor PSR is reported on local/regional routes associated with segments 8.03, 8.05, 8.07, 8.09, and 8.10. Table 10 lists the local/regional routes with poor PSR.

Table 10 - Local/Regional Routes with Poor PSR

Segment	Average PVR	ML Route	Route Marker		Average PSR
			Begin	End	
8.03	1.28	ML903	0.00	1.61	1.97
8.05	0.79	ML2202	0.00	18.81	2.46
8.07	0.79	ML2202	0.00	18.81	2.46
8.09	2.09	ML205	2.89	4.28	1.16
8.10	1.00	ML206	0.00	1.08	2.25

Bridge Variance Rating (L/R)

The bridge variance rating for local and regional routes on SSC 8 shows 5 structurally deficient bridges. The locations of the bridges are shown in the table below.

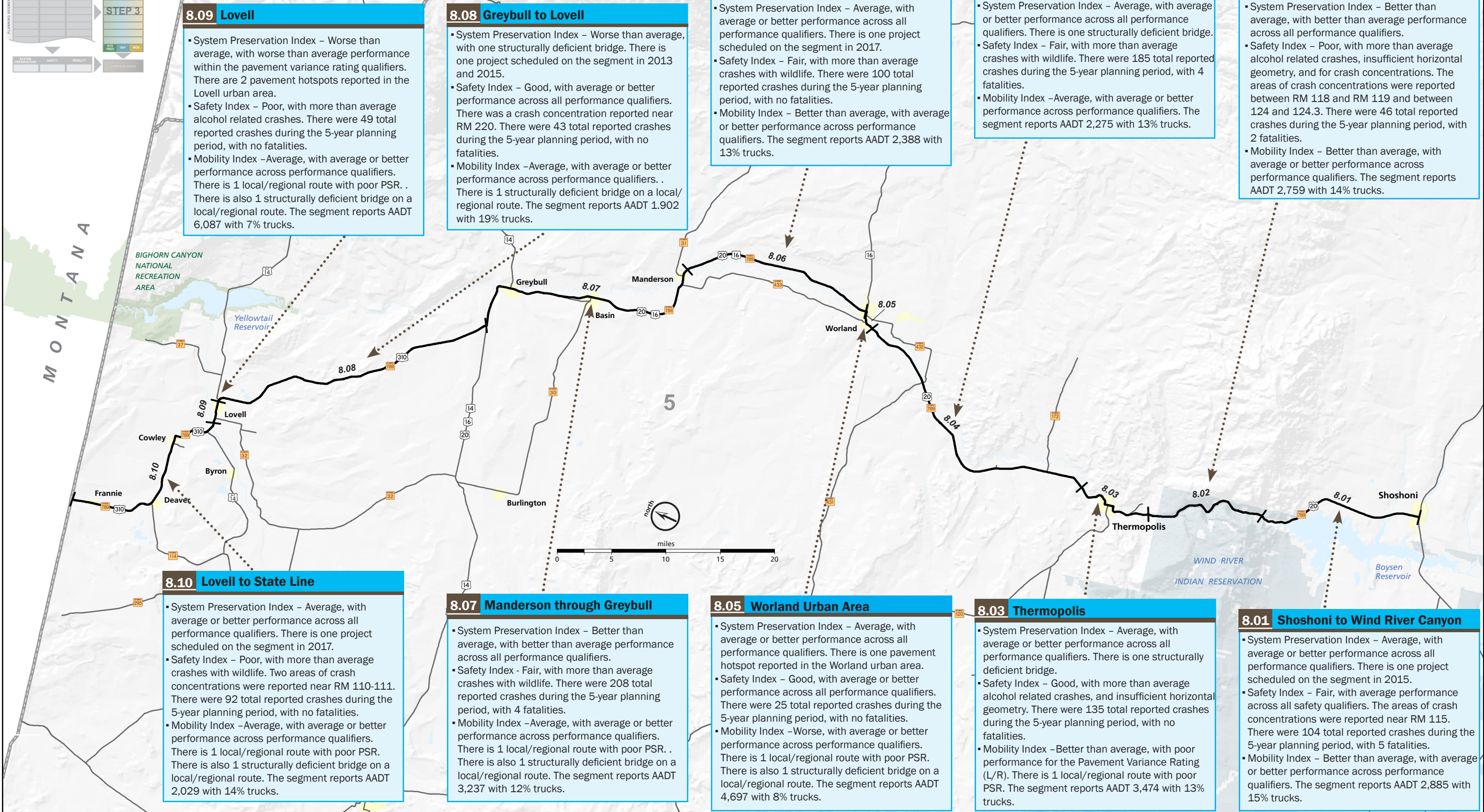
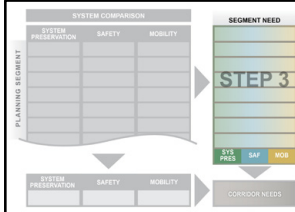
Table 11 - SSC 8 Structurally Deficient Bridges on Local/Regional Routes

Segment	ML Route	Route Marker
8.05	ML2202	4.89
8.07	ML2202	4.89
8.08	ML35	56.89
8.09	ML202	100.49
8.10	ML206	0.72

NOTE: See Appendix for maps documenting each performance qualifier.



STEP 3: ANALYSIS OF PLANNING SEGMENT NEEDS



8.09 Lovell

- System Preservation Index – Worse than average, with worse than average performance within the pavement variance rating qualifiers. There are 2 pavement hotspots reported in the Lovell urban area.
- Safety Index – Poor, with more than average alcohol related crashes. There were 49 total reported crashes during the 5-year planning period, with no fatalities.
- Mobility Index – Average, with average or better performance across performance qualifiers. There is 1 local/regional route with poor PSR. There is also 1 structurally deficient bridge on a local/regional route. The segment reports AADT 6,087 with 7% trucks.

8.08 Greybull to Lovell

- System Preservation Index – Worse than average, with one structurally deficient bridge. There is one project scheduled on the segment in 2013 and 2015.
- Safety Index – Good, with average or better performance across all performance qualifiers. There was a crash concentration reported near RM 220. There were 43 total reported crashes during the 5-year planning period, with no fatalities.
- Mobility Index – Average, with average or better performance across performance qualifiers. There is 1 structurally deficient bridge on a local/regional route. The segment reports AADT 1,902 with 19% trucks.

8.06 Worland to Manderson

- System Preservation Index – Average, with average or better performance across all performance qualifiers. There is one project scheduled on the segment in 2017.
- Safety Index – Fair, with more than average crashes with wildlife. There were 100 total reported crashes during the 5-year planning period, with no fatalities.
- Mobility Index – Better than average, with average or better performance across performance qualifiers. The segment reports AADT 2,388 with 13% trucks.

8.04 Thermopolis to Worland

- System Preservation Index – Average, with average or better performance across all performance qualifiers. There is one structurally deficient bridge.
- Safety Index – Fair, with more than average crashes with wildlife. There were 185 total reported crashes during the 5-year planning period, with 4 fatalities.
- Mobility Index – Average, with average or better performance across performance qualifiers. The segment reports AADT 2,275 with 13% trucks.

8.02 Wind River Canyon

- System Preservation Index – Better than average, with better than average performance across all performance qualifiers.
- Safety Index – Poor, with more than average alcohol related crashes, insufficient horizontal geometry, and for crash concentrations. The areas of crash concentrations were reported between RM 118 and RM 119 and between 124 and 124.3. There were 46 total reported crashes during the 5-year planning period, with 2 fatalities.
- Mobility Index – Better than average, with average or better performance across performance qualifiers. The segment reports AADT 2,759 with 14% trucks.

8.10 Lovell to State Line

- System Preservation Index – Average, with average or better performance across all performance qualifiers. There is one project scheduled on the segment in 2017.
- Safety Index – Poor, with more than average crash concentrations were reported near RM 110-111. There were 92 total reported crashes during the 5-year planning period, with no fatalities.
- Mobility Index – Average, with average or better performance across performance qualifiers. There is 1 local/regional route with poor PSR. There is also 1 structurally deficient bridge on a local/regional route. The segment reports AADT 2,029 with 14% trucks.

8.07 Manderson through Greybull

- System Preservation Index – Better than average, with better than average performance across all performance qualifiers.
- Safety Index – Fair, with more than average crashes with wildlife. There were 208 total reported crashes during the 5-year planning period, with 4 fatalities.
- Mobility Index – Average, with average or better performance across performance qualifiers. There is 1 local/regional route with poor PSR. There is also 1 structurally deficient bridge on a local/regional route. The segment reports AADT 3,237 with 12% trucks.

8.05 Worland Urban Area

- System Preservation Index – Average, with average or better performance across all performance qualifiers. There is one pavement hotspot reported in the Worland urban area.
- Safety Index – Good, with average or better performance across all performance qualifiers. There were 25 total reported crashes during the 5-year planning period, with no fatalities.
- Mobility Index – Worse, with average or better performance across performance qualifiers. There is 1 local/regional route with poor PSR. There is also 1 structurally deficient bridge on a local/regional route. The segment reports AADT 4,697 with 8% trucks.

8.03 Thermopolis

- System Preservation Index – Average, with average or better performance across all performance qualifiers. There is one structurally deficient bridge.
- Safety Index – Good, with more than average alcohol related crashes, and insufficient horizontal geometry. There were 135 total reported crashes during the 5-year planning period, with no fatalities.
- Mobility Index – Better than average, with poor performance for the Pavement Variance Rating (L/R). There is 1 local/regional route with poor PSR. The segment reports AADT 3,474 with 13% trucks.

8.01 Shoshoni to Wind River Canyon

- System Preservation Index – Average, with average or better performance across all performance qualifiers. There is one project scheduled on the segment in 2015.
- Safety Index – Fair, with average performance across all safety qualifiers. The areas of crash concentrations were reported near RM 115. There were 104 total reported crashes during the 5-year planning period, with 5 fatalities.
- Mobility Index – Better than average, with average or better performance across performance qualifiers. The segment reports AADT 2,885 with 15% trucks.



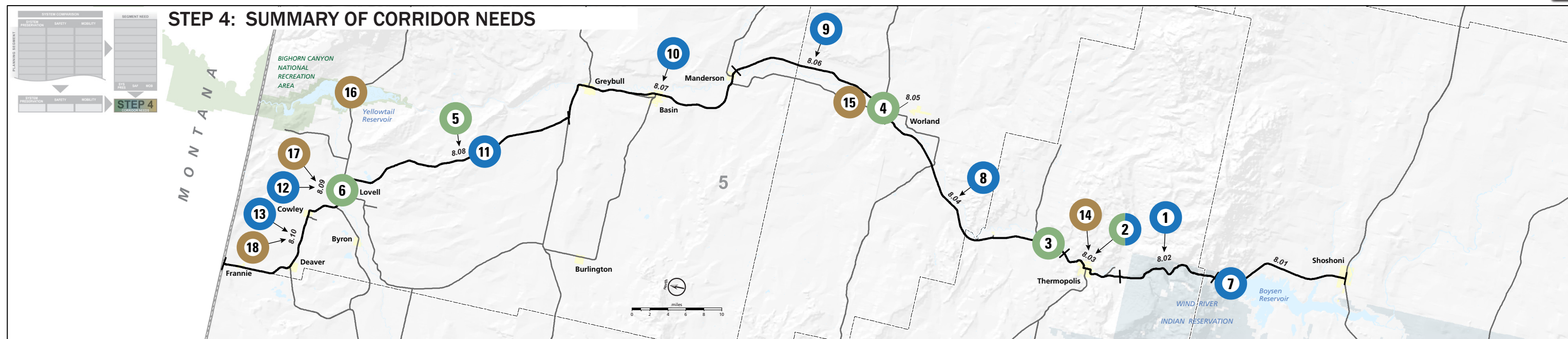
Environmental Overview

The Wyoming Interagency Spatial Database and Online Management System (WISDOM) was queried to identify natural resources that could be impacted by transportation projects. The following summary lists the general type of potentially impacted resources. The project development phase should investigate these resources in more detail to determine if mitigation activities are required. Please see Appendix and <http://wisdom.wygisc.org/> for detailed information.

There are seven different terrestrial habitat types located throughout the sixteen special management areas within SSC 8. Six federally listed species within the corridor fall into one of three categories, candidate, endangered, and threatened. Three big game species and sixteen raptor species are found in SSC 8. There are five different categories that fall under the aquatic habitat. There are nineteen watersheds, five aquatic crucial priority areas, four aquatic enhancement priority areas, one combined crucial priority area, and one combined enhancement priority area. See Table 12 for general locations.

Table 12 - Environmental Considerations

Category	SOUTH (Shoshoni - Thermopolis)	CENTRAL (Thermopolis - Greybull)	NORTH (Greybull - North State Line)
Big Game Crucial Range	Mule Deer Pronghorn Antelope	Mule Deer Pronghorn Antelope	na
Big Game Migration Route	na	na	na
WGFD Aquatic Crucial Priority Areas SHP	Upper Bighorn River Wind River Basin Burbot Wind River Basin Sauger	Lower Bighorn River Complex Upper Bighorn River	Lower Bighorn River Complex Lower Shoshone River
WGFD Terrestrial Crucial Priority Areas SHP	na	Big Game Crucial Habitats	na
WGFD Combined Crucial Priority Areas SHP	Riparian	Riparian	Riparian
Occurrence & Distribution (Federally Listed Species)	Gray Wolf Greater Sage Grouse	Gray Wolf Greater Sage Grouse Yellow-billed Cuckoo	Greater Sage Grouse Yellow-billed Cuckoo



Summary of Needs

This section summarizes needs by planning segment for each of the three performance indicators and the supporting performance qualifiers. The summary identifies overlapping needs, which provides guidance in the efficient prioritization of projects to best address deficiencies. The practice of completing projects that simultaneously address multiple needs may present cost savings as well as being most effective in improving performance indexes across the system. The summary also lists other needs in each of the three performance measurement areas. For more information about needs at the corridor level, see the maps in the appendix which compare both system level and corridor level needs.

SSC 8 needs occur in all categories and are most apparent in Safety. Within Safety, wildlife and alcohol related crashes, as well as crashes related to deficient curves, are documented. Four areas of critical crash concentrations occur on the corridor. Within System Preservation, three pavement hotspots are documented along with three structurally deficient bridges. Within Mobility, one segment shows a poor pavement variance rating on local/regional routes. Five structurally deficient bridges on local/regional routes are reported.

Big game crucial range for Mule Deer and Pronghorn Antelope intersect the south and central parts of the corridor and should be investigated for concurrence with wildlife related crashes. The Wind River, Bighorn River, and Shoshone River complex is considered an Aquatic Crucial Priority Area by the Wyoming Game and Fish Department. Several federally listed endangered species are found in the corridor and should be considered in all project planning.

Based on the needs identified in this analysis and the recommended strategies and solution sets, this plan does not identify specific needs to preserve or acquire additional rights of way to accommodate improvements. Local and specific ROW requirements based on urban area needs should be evaluated in the Urban Areas Corridor Plan in cooperation with local governments and planning organization.

Overlapping Needs

Overlapping needs are identified on two segments:

- 1 8.02 - SAFETY: Alcohol Related Crashes, Crashes on Deficient Curves, Crash Concentrations
- 2 8.03 - SYSTEM PRESERVATION/SAFETY: Structurally Deficient Bridge, Alcohol Related Crashes, Crashes on Deficient Curves

Other Performance Index Needs

System Preservation

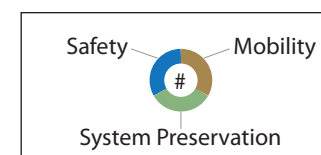
- 3 8.04 - Structurally Deficient Bridge
- 4 8.05 - Pavement Hotspot
- 5 8.08 - Bridge Variance Rating/Structurally Deficient Bridge
- 6 8.09 - Pavement Hotspots

Safety

- 7 8.01 - Crash Concentrations
- 8 8.04 - Wildlife Related Crashes
- 9 8.06 - Wildlife Related Crashes
- 10 8.07 - Wildlife Related Crashes
- 11 8.08 - Crash Concentrations
- 12 8.09 - Alcohol Related Crashes
- 13 8.10 - Wildlife Related Crashes

Mobility

- 14 8.03 - Pavement Variance Rating (L/R)
- 15 8.07 - Structurally Deficient Bridge (L/R)
- 16 8.08 - Structurally Deficient Bridge (L/R)
- 17 8.09 - Structurally Deficient Bridge (L/R)
- 18 8.10 - Structurally Deficient Bridge (L/R)





III. SOLUTION SETS

A solutions menu was created to address the needs identified in the previous sections. This menu identifies potential solution strategies grouped by performance measure categories. The strategies are a preliminary list based on industry accepted approaches and the efforts to date of WYDOT programs to document preferred approaches. This list is not intended to be all-inclusive, but represents types of improvements that may be employed to address documented needs.

Section IV recommends how the solution sets may be efficiently grouped depending on funding availability.

Table 13 - Recommended Solution Sets to Improve Performance in Each Index

System Preservation	Safety		Mobility	
<i>Pavement Maintenance Requirement & Pavement Variance Rating</i> <i>Rutting</i> Mill Mill and overlay <i>1S Treatments</i> Mill and overlay Seal Coat Cleaning and sealing joints Patching pavement Micro surfacing <i>2S Treatments</i> Roadway Restoration <i>3S Treatments</i> Reconstruct Roadway Roadway widening Upgrade geometric design <i>Bridge Variance Rating</i> Bridge Replacement Channel reconstruction Cleaning and sealing bridge members Lower weight limits Restore drainage systems Scour countermeasures	<i>Weather Related</i> Signage Automated anti-icing systems Grooved pavement ITS Larger signs Snow berms/grading Snow fencing Warning beacons <i>Wildlife Related</i> Animal detection systems Animal jump-out or one-way gates ITS Remove brush from ROW Signage Warning beacons Wildlife bridge/underpass Wildlife fencing <i>Alcohol Related</i> Centerline rumble strips ITS Law Enforcement Media campaign Shoulder rumble strips	<i>Horizontal Geometry</i> Centerline rumble strips Dynamic curve warning system Guardrail Improve/restore superelevation Lighting Oversize/length restrictions Reconstruction/realignment Reduce posted speed Reflectors Shoulder rumble strips Signage Warning beacons <i>Vertical Geometry</i> Larger signs Reconstruction/realignment Reduce posted speed Reflectors Signage Warning beacons <i>Safety Restraints</i> ITS Law Enforcement Media campaign	<i>Volume to Capacity Rating & Traffic Growth / Truck Traffic Growth</i> Acceleration lane Capacity improvements Deceleration lane Increase lane width Intersection/interchange improvements Multimodal improvements Passing lanes Shoulder widening Through lanes Turn lane <i>Bridge Variance (L/R)</i> Bridge Replacement Channel reconstruction Cleaning and sealing bridge members Lower allowable weight limits on bridge Restore drainage systems Scour countermeasures	<i>Pavement Variance Rating (L/R)</i> <i>Rutting</i> Mill Mill and overlay <i>1S Treatments</i> Cleaning and sealing joints Micro surfacing Mill and overlay Patching pavement Seal Coat <i>2S Treatments</i> Roadway Restoration <i>3S Treatments</i> Reconstruct Roadway Roadway widening Upgrade geometric design

IV. RECOMMENDATIONS

This section describes recommendations for strategies and priorities to address corridor needs. The selected strategies address the needs described in previous sections and are organized by the three strategic performance areas: System Preservation, Safety, and Mobility. These recommendations provide information and guidance consistent with the Strategic and Long Range Plans to help WYDOT select projects in coordination with the STIP process.

The recommended strategies have been packaged into solution sets that recognize the inherent overlap that investments may have across performance areas. For example, truck passing lanes may simultaneously improve traffic flow (Mobility) and reduce crashes (Safety).

The solution sets are tiered to the three Funding Scenarios identified in the Long Range Transportation Plan. The funding scenarios describe a progressively increasing budget, with generally defined allocations to System Preservation, Safety, and Mobility. With each succeeding level of investment, additional funding is allocated to address shortfalls in performance-based goals.

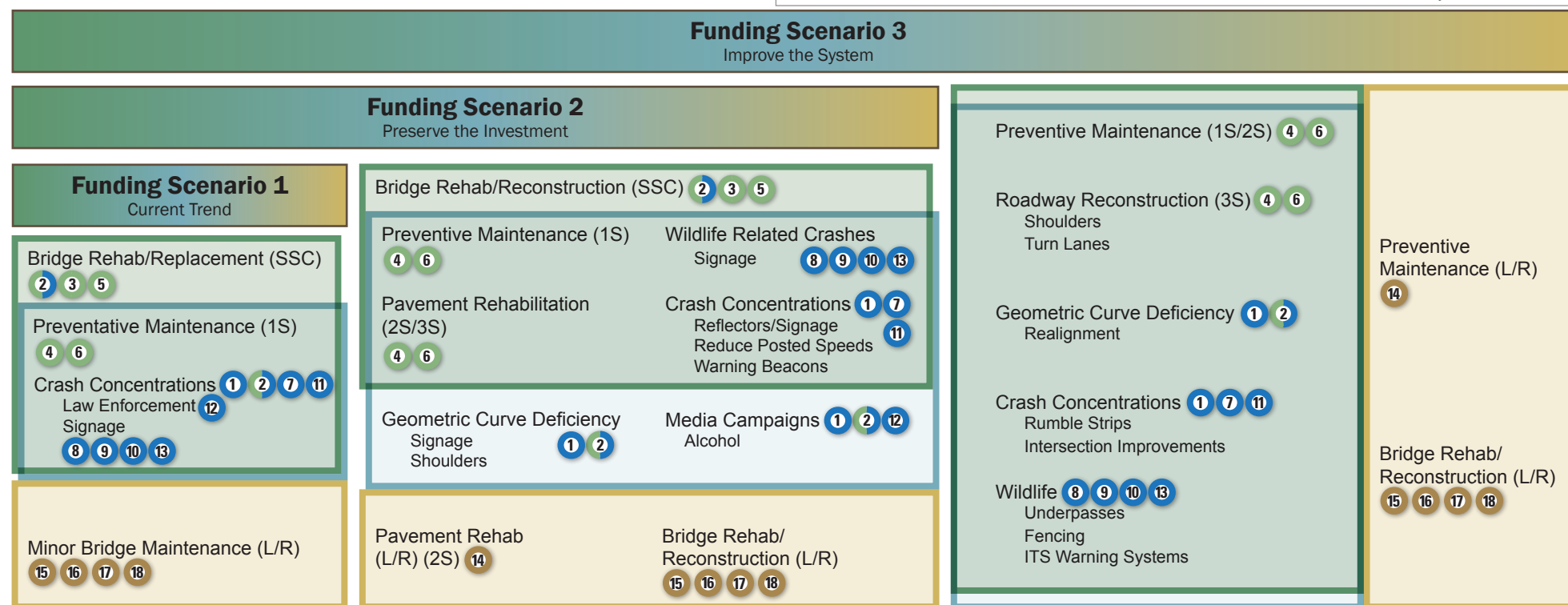
- Funding Scenario 1 – The continuation of program funding at current levels. Most funding is directed to System Preservation needs. System characteristics are expected to decline with inflation and increasing construction costs over time. Few major projects to address Safety, other than with specially restricted and allocated funds, or Mobility would be implemented.
- Funding Scenario 2 – Funding over and above the base level would allow additional investments in pavement and bridge projects to meet WYDOT goals.
- Funding Scenario 3 – Additional funding over and above Scenario 2 would allow WYDOT to maintain and improve existing conditions, achieve pavement and bridge condition goals, plus invest in major projects to improve Mobility.

Funding Scenario 1

Funding Scenario 1, defined as the continuation of current program funding, is focused primarily on addressing System Preservation needs through preventive maintenance efforts. The plan recommends that funds remain allocated to preventive pavement maintenance and bridge repair/rehabilitation on the main corridor, along with reserving a portion to address identified safety needs. Safety needs include specific wildlife, alcohol, and geometry-related crash concentrations. These needs may be only partially addressed under current funding and should be focused on areas with documented overlapping needs. Additional needs that cannot be met under Scenario 1 may be delayed pending additional funds under Scenarios 2 or 3.

- Minor surface treatments on the SSC mainline, including mill and overlay on pavement hotspots.
- Bridge rehabilitation or replacement of structurally deficient bridges on the SSC mainline.
- Minor projects to improve safety not involving major construction, such as signage on deficient curves and in areas likely to experience wildlife-related crashes or other crash concentrations.
- Alcohol-related law enforcement.

Table 14 - SSC 8 Recommended Strategies for Long Range Plan Funding Scenarios



Funding Scenario 2

If sufficient funds to preserve the system in at least its current operational form are made available, WYDOT will direct funding to strengthen pavement and bridge conditions across the system, including on local and regional routes. SSC 8 has five structurally deficient bridges on local/regional routes. This scenario would allow investments to fully achieve WYDOT goals in pavement and bridge conditions. Additional investments should be made to improve safety for wildlife/alcohol related crashes, insufficient horizontal curves, and other areas of crash concentrations.

- Preventive maintenance could be deferred and/or advanced, depending on life cycle, as recommended by the Pavement Management System.
- Reconstruction (2S/3S) to address higher traffic volumes to address pavement hotspots, if required.
- Improvement of pavement condition of local and regional routes, to include preventive maintenance or mill and overlay.
- Rehabilitation or replacement of bridges on local and regional routes so as to maintain bridge condition and the Mobility Index.
- Minor projects to improve safety not involving major construction, such as rumble strips and lighted signage to address wildlife-related crashes, and alcohol-related media campaigns.

Funding Scenario 3

If additional funds are made available to WYDOT under Funding Scenario 3, opportunities would be created to address all three investment categories, thus preserving the investment and improving the overall “health” of the system. Additional funds allow project selection to address overlapping needs, therefore investing funds most effectively. The additional funds would expand to include other items to improve performance in the Mobility Index.

- Roadway reconstruction (3S) to meet long term goals, including on local/regional routes.
- Roadway reconstruction (3S) to meet standards on curves with deficient geometry that experience high crash rates.
- Minor bridge maintenance to maintain bridge conditions over the long term.

Performance Measurement Over Time

As these performance measures are continually monitored over time it will become evident how the recommended solution strategies and the selected projects address the needs of the corridor and the overall system. Addressing deficiencies documented in the corridor plan will effectively improve the System Preservation, Safety, and Mobility indexes at both the corridor and system level.

Ongoing performance measure documentation is critical to identify trends, capture the existing health of the system, and allowing an accurate forecast of the future health of Wyoming’s Transportation system. The need for additional funding and/or more aggressive solutions will become evident if performance measures fail to meet WYDOT goals.

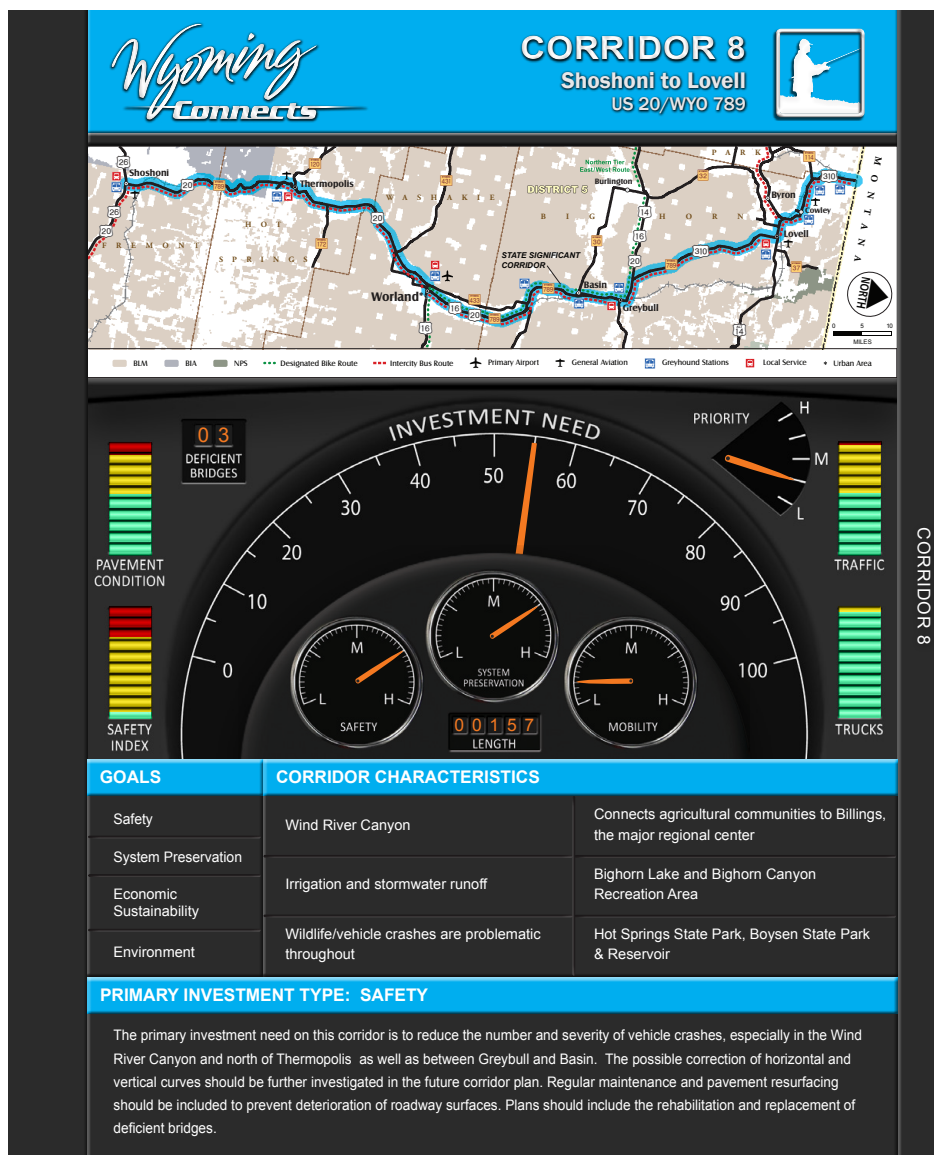


REALIZING THE CORRIDOR VISION

As part of the statewide Wyoming Connects and Long Range Transportation Plan, the Corridor Vision for SSC 8 - and all SSCs - focuses on the identification of overall system performance aggregated from the evaluations of each individual corridor's "health" relative to WYDOT's long-term Strategic Goals. The identified types of investment needs (system preservation, safety, and mobility) expressed in the Corridor Vision are reflected in the three primary need indicators of this Corridor Plan. The analysis of each investment type generated goals representing corridor health issues as communicated by the planning and public process used in development of the Vision. See *Wyoming Connects: Corridor Visions* for more information.

Corridor Vision Goals

The Shoshoni to Lovell Corridor Vision captured Key Issues and Emerging Trends of critical importance and how SSC 8 could best serve the communities it connects over the long term. While issues were identified relative to each investment type, the Primary Investment Type is Safety:



The primary investment need on this corridor is to reduce the number and severity of vehicle crashes, especially in the Wind River Canyon and north of Thermopolis as well as between Greybull and Basin. The possible correction of horizontal and vertical curves should be further investigated in the future corridor plan. Regular maintenance and pavement resurfacing should be included to prevent deterioration of roadway surfaces. Plans should include the rehabilitation and replacement of deficient bridges.

Additional goals which reflect the full context, character, and issues of SSC 8 were set as high priority goals as indicated in Table 15. A review of these Vision Goals compared to the findings of this Corridor Plan provides for a conformance check and identifies additional issues to be considered when evaluating potential projects and implementation plans.

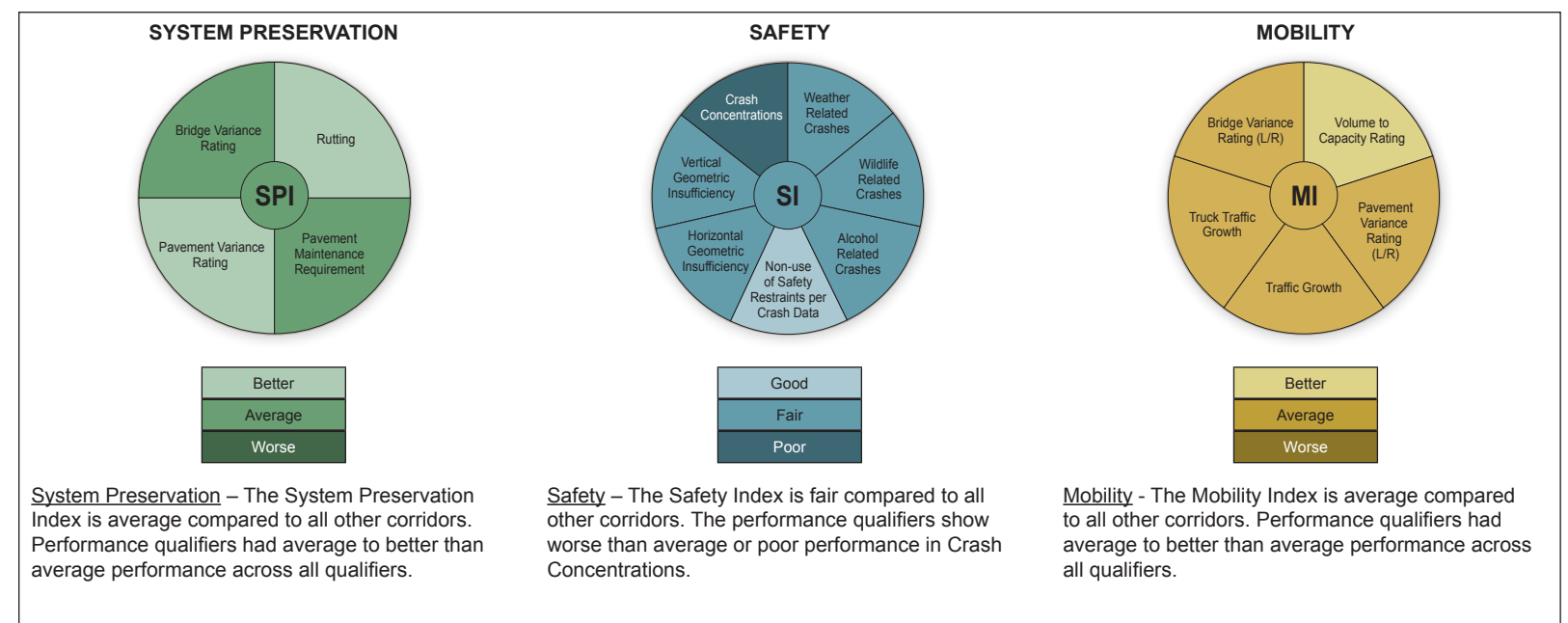
Table 15 - Review of Corridor Vision Goals and Other Considerations

Corridor Visions		High Priority	Other Considerations
Investment Category	Goal		
System Preservation	Preserve the existing transportation system	✓	Specific locations for roadway and bridge repairs have been identified.
	Support farm to market economic sustainability		Maintaining the roadway and bridges in acceptable condition promotes economic stability for the region.
	Promote environmentally responsible transportation improvements		The Wind River/Bighorn River drainage is noted as a crucial area for wildlife and habitat.
Safety	Reduce fatalities, injuries, and property damage crash rate	✓	Corridor Plan identifies specific locations with higher wildlife and alcohol related crash rates, along with other crash concentrations.
Mobility	NA		Local/regional routes contribute to mobility and will be maintained at acceptable levels.

CORRIDOR PERFORMANCE

Table 16 shows SSC 8 corridor performance compared to the system. The center of each chart indicates the value of the performance index, with each section indicating the performance qualifier for each measure.

Table 16 - Corridor Performance



Coordination with System Priorities

The corridor comparison can be used to help assign a priority level to entire corridors, if conditions warrant. The Corridor Plans – Executive Summary is published under separate cover and provides an overview of corridor comparisons. The summary identifies areas of greatest need within all performance indexes and for performance qualifiers across the state system. By addressing these areas of greatest need, whether by program, corridor, or corridor segment WYDOT will ensure positive changes in reported conditions throughout Wyoming.