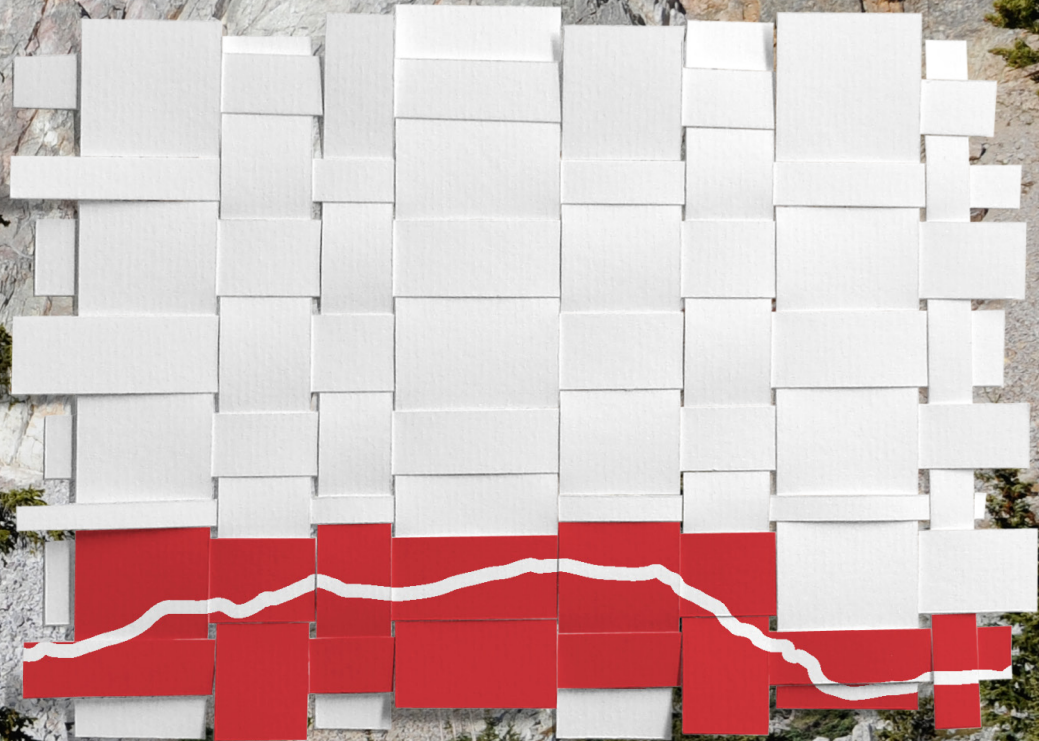


Wyoming Connects

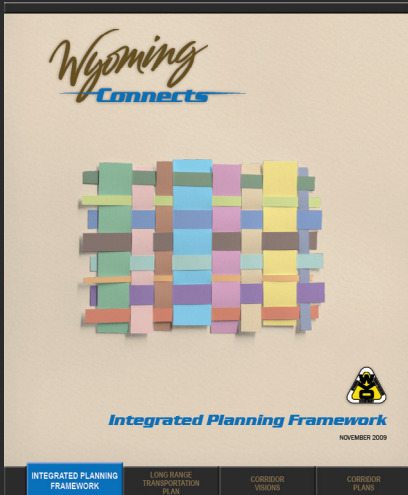


Corridor 1 Plan

EVANSTON TO CHEYENNE



MAY 2013



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:

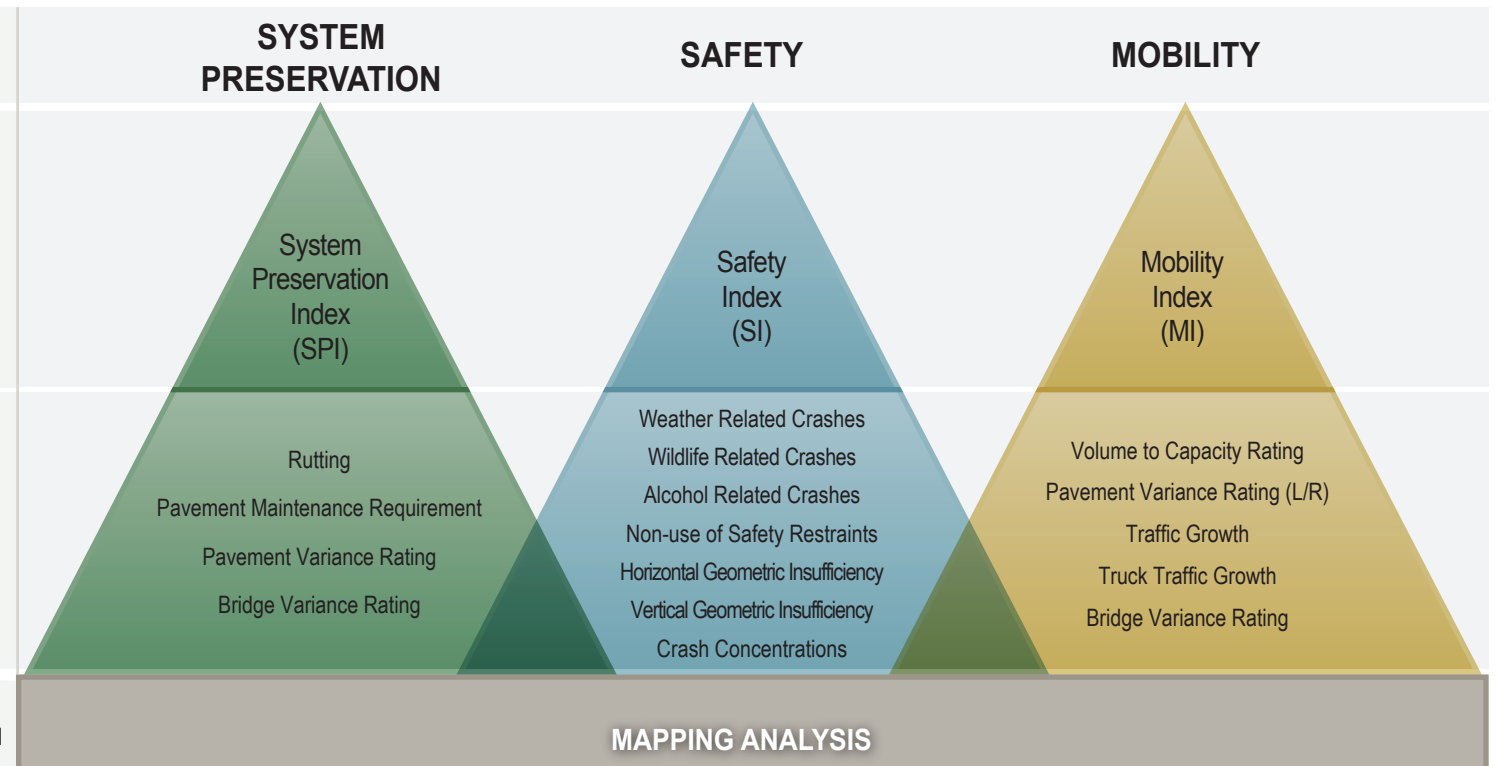
These are quantifiable and repeatable measurements that reflect the overall performance of the transportation corridor being analyzed. Targets for these indicators may be absolute and indicate a desired condition or comparative to current performance of the overall system to indicate relative priority.

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:

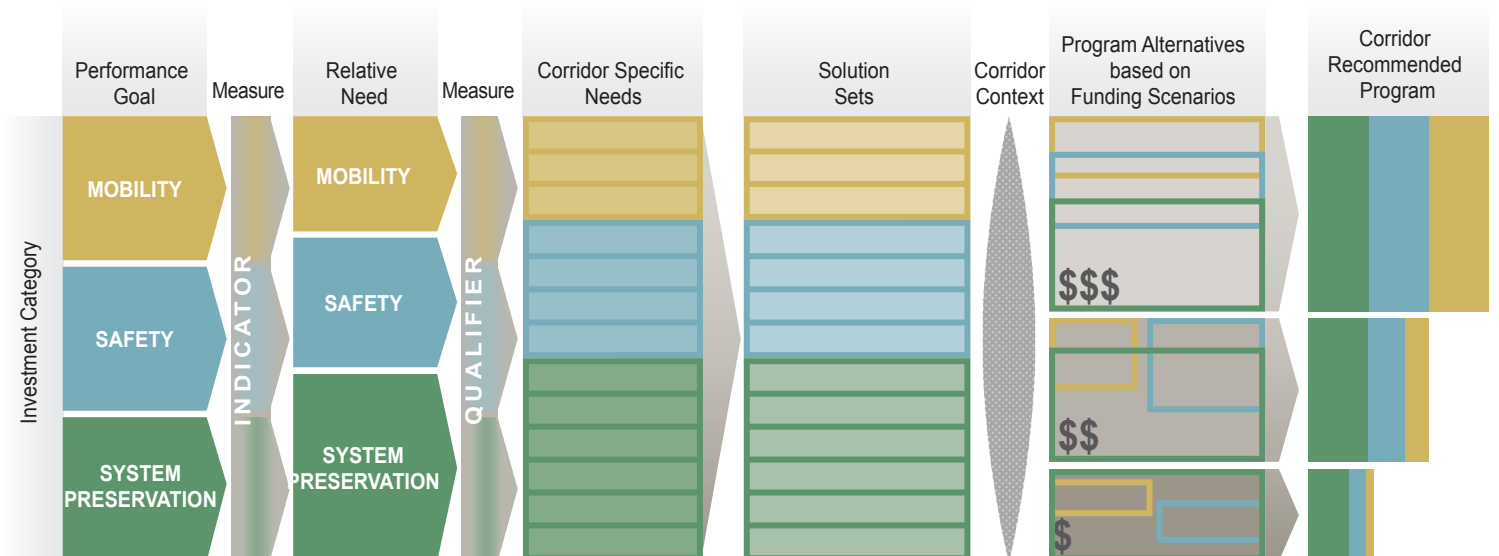
Mapping the deviated performance qualifiers against several factors to effectively prioritize, locate, and identify needs.



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 1 - EVANSTON TO CHEYENNE - I-80 CORRIDOR PLAN

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I. STATE SIGNIFICANT CORRIDOR 1 - DESCRIPTION

CORRIDOR DESCRIPTION

State Significant Corridor 1 (SSC 1) includes 403 miles of Interstate 80 (I-80) from the Utah border east to the Nebraska border and primarily serves as a route for trucks hauling goods between the western U.S. and the Midwest. The Corridor passes through WYDOT Districts 1 and 3, including five counties. From Evanston, the corridor connects the urban areas of Evanston, Green River, Rock Springs, Rawlins, Laramie and Cheyenne. I-80 (SSC 1) interchanges with Interstate 25 (I-25) in Cheyenne, the capital city of Wyoming, before continuing east to Nebraska.

The topography along SSC 1 is mostly open high plains, with flat to rolling terrain. The entire corridor often experiences severe winter weather conditions, which contributes to higher crash rates. During winter storms, sections of the corridor experience blowing and drifting snow, causing frequent road closures, and has led to well-known snow fence research. The majority of the western corridor passes through land owned by the Bureau of Land Management.

WYDOT constructed a third climbing lane for trucks along the uphill portions of the roadway through the Three Sisters area. Flaming Gorge Reservoir, south of the town of Green River, offers many opportunities for outdoor recreation. The corridor crosses the Green River, which flows into the Flaming Gorge Reservoir, and the North Platte River just east of Rawlins. The corridor runs just north of the Medicine Bow National Forest between the towns of Rawlins and Laramie, and through the national forest east of Laramie. The TransAmerica Bicycle Route follows SSC 1 from Rawlins to Walcott, then turns south on WYO 130/230. SSC 1 ascends Sherman Hill through Telephone Canyon, east of Laramie. The summit between Laramie and Cheyenne (elevation 8,640') is the highest point on the corridor. The eastern part of the corridor consists of high plains and rolling hills into Cheyenne on to the Nebraska border.

Many of the local economies along SSC 1 are highly dependent on mining, primarily oil and gas, which is also a primary contributor to the State economy. Evanston's economic foundation is coal and gas, but tourism is becoming more prevalent. Rock Springs has seen a significant increase in population since the 1990s due to the energy sector boom. Wind energy is also becoming very prevalent in areas surrounding the corridor, including near the towns of Evanston, Rawlins, southeast of Laramie, and north of Cheyenne. The corridor has experienced an increase in truck traffic due in part to the energy sector and to its major east-west orientation without high passes over the Continental Divide.

The UP railroad follows much of the corridor, with Laramie a major railroad hub. Laramie is also home to the University of Wyoming, the only state university in Wyoming. Cheyenne, the State Capital, is also home to F.E. Warren Air Force Base, both major traffic generators.

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 1 has been divided into 19 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.



Green River Tunnel on I-80

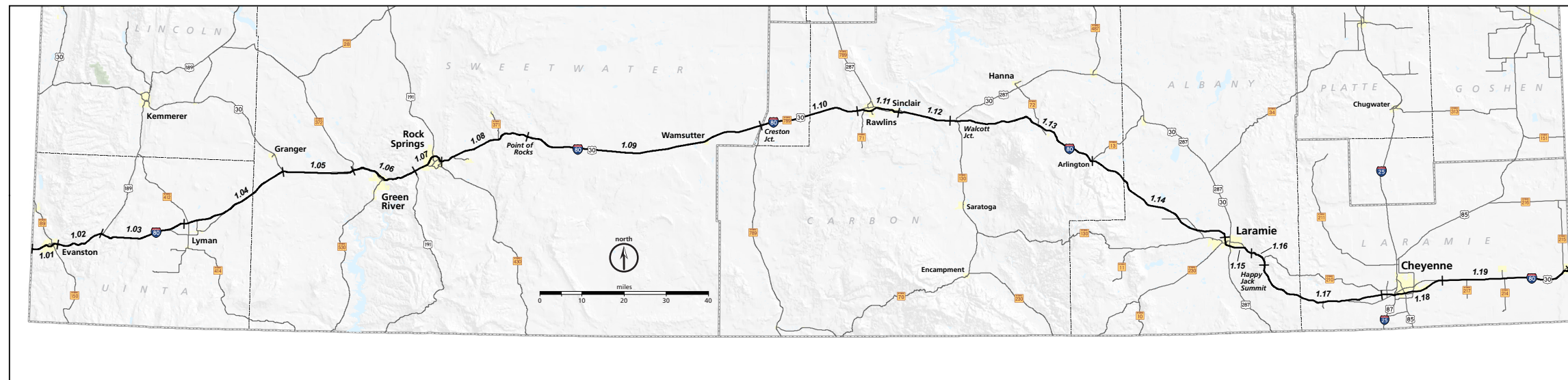
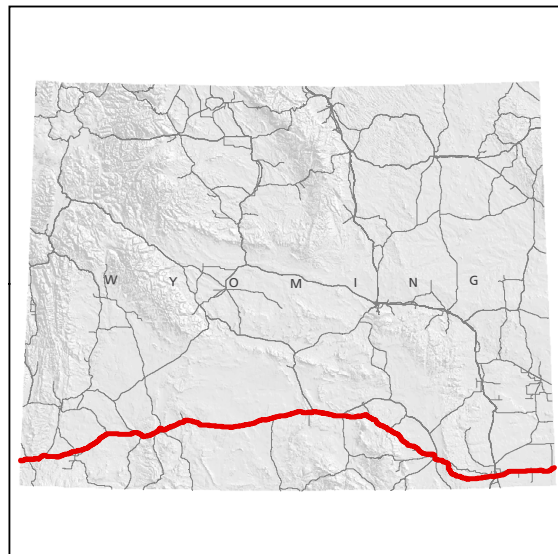


Table 1 - Segments for State Significant Corridor 1

Segment	ML Route	Begin	End	Length	Description
1.01	80	0.00	6.90	6.90	State Line through Evanston Urban Area (pop. 11,781). Features: Divided interstate cross-section; intersections with Local Routes US 189, WYO 89, and WYO 150 in Evanston; Port-of-Entry; 3 interchanges; E/WB road close gates; Burns Field business airport; and intercity bus station. This more densely populated area is largely dependent on energy production as an economic base.
1.02	80	6.90	17.70	10.80	Evanston to Regional Route US 189. Features: Divided interstate cross-section; variable speed limit signs; sparsely populated range land through rolling terrain. The local economy is based on energy production, with a strong tourism element due to proximity to federal and state recreation lands. A significant wildlife crossing area has been identified.
1.03	80	17.70	39.00	21.30	US 189 to Local Routes WYO 412 and WYO 414. Features: Divided interstate cross-section with 9 interchanges; WB road close gate; variable speed limit signs; UPRR grade separation; sparsely populated range land transitions from rolling to flat terrain. A significant wildlife crossing area has been identified.
1.04	80	39.00	65.40	26.40	WYO 414 to US 30 (SSC 3). Features: Divided interstate cross-section with 5 interchanges; intersections with Local Routes WYO 413, 374; intersection with I-80 Business route through small communities of Ft. Bridger and Lyman; Lyman Rest Area; EB road close gate; coal mine/power plant; sparse rural residences; flat terrain.
1.05	80	65.40	83.00	17.60	US 30 to WYO 372. Features: Divided interstate cross-section with 2 interchanges; intersection with Local Route WYO 374 (Little America); 2 UPRR grade separations; 1 changeable message sign, sparse rural residences; flat terrain.
1.06	80	83.00	99.14	16.14	WYO 372 to US 191, including the Green River Urban Area (Pop. 12,149). Features: Divided interstate cross-section with 5 interchanges; intersections with Regional Routes WYO 372 N, US 191 S; intersections with Local Routes WYO 375, 530; Green River crossing; variable speed limit signs; E/WB road close gates; changeable message signs; variable speed signs; dual tunnels; mining activities (trona). Access to Flaming Gorge National Recreation Area is provided via WYO 530 and US 191 on the Flaming Gorge River Basin Scenic Byway.
1.07	80	99.14	107.60	8.46	US 191 through Rock Springs, including the Urban Area (pop. 20,905). Features: Divided interstate cross-section with 4 interchanges; intersection with SSC 4 US 191 N at Rock Springs; intersection with Local Route I-80/US 30 Business Route; UPRR grade separation; E/WB road close gates; variable speed signs; Rock Springs - Sweetwater County commercial service airport; intercity bus station. The City is the gateway to the Jonah Field and Pinedale Anticline to the north, location of significant oil and gas production.
1.08	80	107.60	130.00	22.40	Rock Springs to Point of Rocks Interchange. Features: Divided interstate cross-section with 3 interchanges; intersections with Local Routes WYO 370, 371; road close gate; variable speed limit signs; range and ranch lands; flat terrain; Rock Springs - Sweetwater County commercial service airport; intercity bus station; local fixed route bus service.
1.09	80	130.00	186.60	56.60	Point of Rocks to Creston Jct. Features: Divided interstate cross-section with 10 interchanges; intersection with Regional Route WYO 789; road close gate; UPRR grade separation; wildlife crossing area; range and ranch lands; some rolling terrain.
1.10	80	186.60	210.90	24.30	Creston Junction to Rawlins. Features: Divided interstate cross-section with 6 interchanges; intersection with Regional Route WYO 789; road close gates; changeable message signs; range and ranch lands; flat terrain.
1.11	80	210.90	221.20	10.30	Rawlins Urban Area (pop. 8,740). Features: Divided interstate cross-section with 4 interchanges; intersection with SSC 5 US 287/WYO 789 N; intersection with Local Route I-80/US 30/287 Business Route; intersection with Local Routes WYO 78, 76; 3 UPRR grade separations; changeable message signs; regional ranching and energy production center; Rawlins Municipal/Harvey Field commercial service airport; intercity bus station.
1.12	80	221.20	233.70	12.50	Rawlins to Walcott Jct. Features: Divided interstate cross-section with 2 interchanges; intersection with Local Route WYO 76; road close gates; Ft. Steel Rest Area; North Platte River crossing; range and ranch lands; flat terrain; TransAmerica Bike Route.
1.13	80	233.70	272.00	38.30	Walcott Jct. to Arlington. Features: Divided interstate cross-section with 7 interchanges; intersection with Regional Route US 30; intersection with Local Routes WYO 72, 13; Wagonhound Rest Area; road close gates; changeable message signs; Medicine Bow and East Fork Medicine Bow Rivers; adjacent to Medicine Bow National Forest; flat to rolling terrain.
1.14	80	272.00	310.50	38.50	Arlington to Laramie. Features: Divided interstate cross-section with 10 interchanges; intersection with Local Routes WYO 12, 13; variable speed limit signs; river crossings at creeks and draws; ranch land; rolling to flat terrain.
1.15	80	310.50	319.10	8.60	Laramie Urban Area (pop. 30,816). Features: Divided interstate cross-section with 3 interchanges; intersection with Regional Routes US 30, WYO 130/230, US 30/287; intersection with Local Route I-80 Business; road close gates; changeable message signs; variable speed signs; unnamed creek crossing; University of Wyoming; intercity bus station; local fixed route bus service; Laramie Regional Airport - commercial service.
1.16	80	319.10	324.01	4.91	Laramie to Happy Jack Summit. Features: Divided interstate cross-section with 1 interchange; intersection with Local Route WYO 210; changeable message signs; variable speed signs; Continental Divide (8,640'); Summit Rest Area; mountainous terrain; Medicine Bow National Forest; Cheyenne-Laramie-Snowy Range Bicycle Route.
1.17	80	324.01	356.69	32.68	Happy Jack Summit to Cheyenne. Features: Divided interstate cross-section with 6 interchanges; intersection with Local Route WYO 225; changeable message signs; variable speed signs; 2 UPRR grade separations; Medicine Bow National Forest, mountainous and rolling terrain transitions to urban land uses.
1.18	80	356.69	371.90	15.21	Cheyenne Metropolitan Planning Area (pop. 59,466). Features: Divided interstate cross-section with 7 interchanges; intersection with SSC 12 (I-25); intersection with Regional Route US 85; intersection with Local Routes WYO 222, 212, US 30; port of entry, road close gates; creek crossings; 2 BNSF Railway grade separations; pedestrian overpass; State Capital; FE Warren Air Force Base; intercity bus station; local fixed route bus service; Cheyenne Regional-Jerry Olsen Field commercial service airport.
1.19	80	371.90	402.78	30.88	Cheyenne to Nebraska State Line. Features: Divided interstate cross-section with 4 interchanges; intersection with Local Routes WYO 213, 214, US 30; road close gates; road close gates; changeable message signs; unnamed creek crossings; Pine Bluffs Rest Area; more densely populated rural area, with mixed residences and smaller farms; urban to flat terrain.

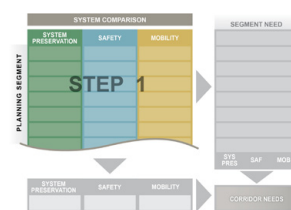
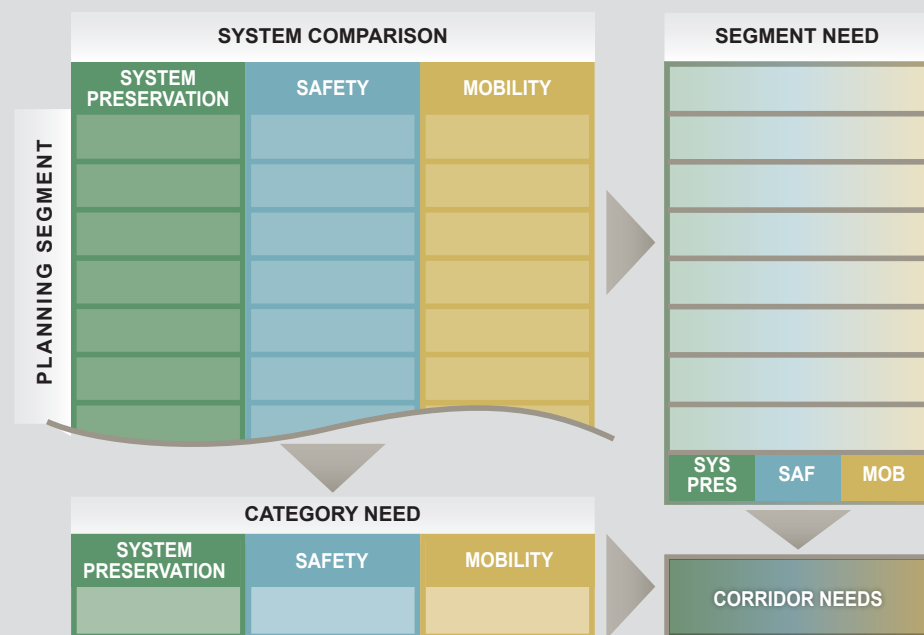
Source: URS Windshield Survey June 2012; Maintenance Section Reference Book 2012; Wyoming Connects: LRTP and Corridor Visions. Note: Descriptions of beginning and endpoints are approximate.



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.

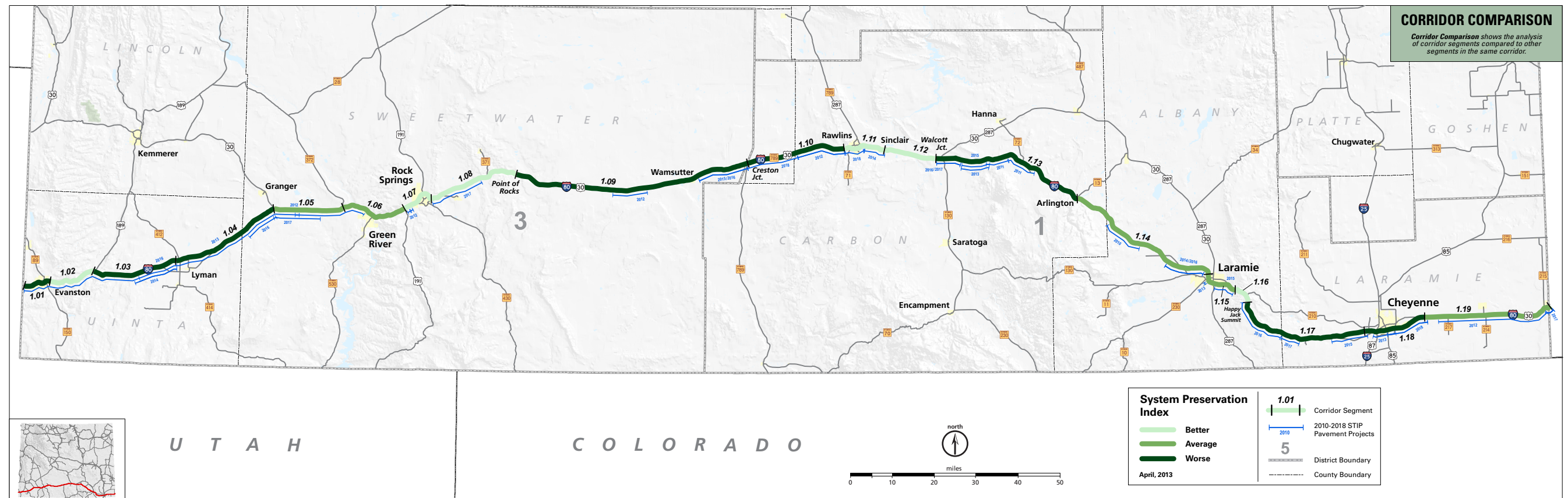
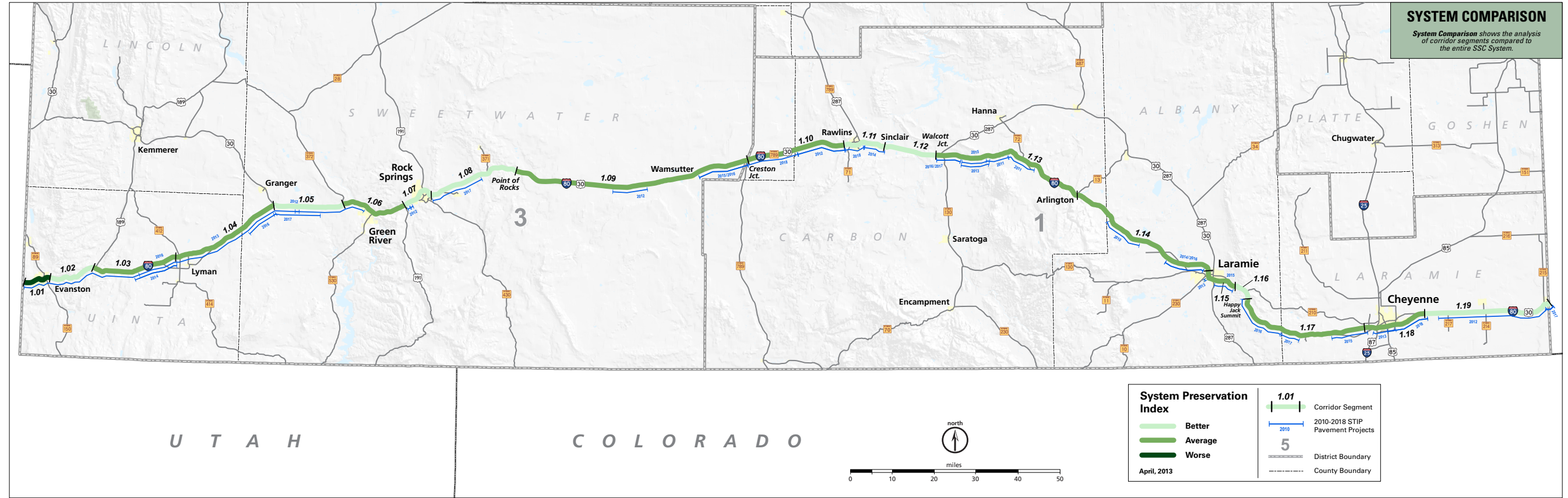
Table 2 summarizes the results for each performance index and qualifier for each planning segment on the corridor.

Table 2 - Indicator and Qualifier Performance of SSC 1

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)
1.01	Worse	Good	Less	Good	More	Fair	More	Average	Average	More	Average	More	Good	Average	Good	Fair	More	More	Average
1.02	Better	Good	Less	Good	Less	Poor	More	Less	Average	More	Less	More	Poor	Average	Good	Fair	More	More	Less
1.03	Average	Good	Average	Good	Average	Poor	More	Less	Average	More	Less	Average	Fair	Better	Good	Good	More	More	Less
1.04	Average	Good	Average	Good	Average	Poor	More	Less	Less	More	Less	Average	Poor	Average	Good	Fair	More	More	Less
1.05	Better	Fair	More	Good	Less	Fair	More	Less	Less	More	Less	Less	Fair	Average	Good	Fair	More	More	Average
1.06	Average	Good	Less	Good	Average	Poor	More	Less	Average	More	Average	Average	Good	Average	Good	Good	Average	More	Average
1.07	Better	Good	Less	Good	Less	Fair	Average	Less	More	More	Less	Less	Good	Worse	Good	Fair	Average	More	Average
1.08	Better	Good	Average	Good	Less	Fair	More	Less	Average	More	Average	Average	Fair	Better	Good	Poor	Average	More	Less
1.09	Average	Good	Average	Good	Less	Fair	More	Less	Less	More	Less	Average	Poor	Better	Good	Good	More	More	Less
1.10	Average	Poor	Average	Fair	Less	Fair	More	Less	Less	More	Less	Average	Good	Better	Good	Fair	Average	More	Less
1.11	Better	Fair	Average	Good	Less	Fair	More	Less	Average	More	Average	Average	Good	Average	Good	Good	Average	More	Less
1.12	Better	Good	Average	Good	Less	Fair	More	Less	Less	More	Less	Less	Good	Better	Good	Fair	Average	More	Less
1.13	Average	Good	Average	Good	Less	Poor	More	Less	Less	More	Average	Average	Good	Average	Good	Fair	More	More	Average
1.14	Average	Fair	Average	Good	Less	Fair	More	Less	Less	More	Average	Average	Good	Better	Good	Fair	More	More	Less
1.15	Average	Fair	Average	Good	Average	Fair	More	Less	Average	More	More	Average	Fair	Worse	Good	Fair	More	More	More
1.16	Better	Good	Less	Good	Less	Poor	More	Less	Average	More	More	Less	Good	Worse	Good	Fair	Average	More	More
1.17	Average	Good	Average	Good	Average	Poor	More	Less	Average	More	Average	Average	Poor	Better	Good	Good	More	More	Less
1.18	Average	Good	More	Good	Average	Fair	More	Less	More	More	Average	Average	Good	Average	Good	Fair	More	More	Average
1.19	Better	Good	Less	Good	Less	Fair	More	Less	Average	More	Average	Average	Poor	Average	Good	Good	More	More	Average



CORRIDOR 1





Pavement Variance Rating

The Pavement Variance Rating is good for the entire corridor with the exception of fair rating on Segment 1.10. Pavement hotspots, identified by length and severity, occur at two locations (moderately or least severe).

Bridge Variance Rating

The Bridge Variance Rating for most of the corridor is average or better than the system average. All segments have at least one bridge. There are 40 structurally deficient bridges along SSC 1, 37 with bridge decks under 15,000 ft², and three under 30,000 ft². The structurally deficient bridges are in Segments 1.01 (5), 1.03 (5), 1.04 (7), 1.05 (1), 1.06 (3), 1.09 (3), 1.13 (2), 1.15 (1), 1.17 (6), and 1.18 (8), resulting in Bridge Variance Ratings of average or more when compared to the system average.

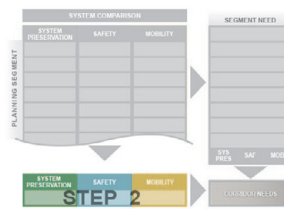
NOTE: See Appendix for maps documenting each performance qualifier.



CORRIDOR 1

SAFETY - INDEX





Performance Index

The Safety Performance Index ranges from fair to poor across the corridor. Segments rated poor include 1.02, 1.03, 1.04, 1.06, 1.13, 1.16, and 1.17.

Performance qualifiers with poor performance include:

- Weather Related Crashes are more than the average on all segments except 1.07.
- Alcohol Related Crashes are more than the average on segments 1.07 and 1.18.
- Non-Use of Safety Restraints is more than the average on all segments.
- Crashes on Horizontal Geometric Insufficient Curves are more than the average on segments 1.15 and 1.16.
- Crashes on Vertical Geometric Insufficient Curves are more than the average on segments 1.01 and 1.02.
- Crash Concentrations are rated poor on segments 1.02, 1.04, 1.09, 1.17, and 1.19.

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
1.01	Fair	More	Average	Average	More	Average	More	Good
1.02	Poor	More	Less	Average	More	Less	More	Poor
1.03	Poor	More	Less	Average	More	Less	Average	Fair
1.04	Poor	More	Less	Less	More	Less	Average	Poor
1.05	Fair	More	Less	Less	More	Less	Less	Fair
1.06	Poor	More	Less	Average	More	Average	Average	Good
1.07	Fair	Average	Less	More	More	Less	Less	Good
1.08	Fair	More	Less	Average	More	Average	Average	Fair
1.09	Fair	More	Less	Less	More	Less	Average	Poor
1.10	Fair	More	Less	Less	More	Less	Average	Good
1.11	Fair	More	Less	Average	More	Average	Average	Good
1.12	Fair	More	Less	Less	More	Less	Less	Good
1.13	Poor	More	Less	Less	More	Average	Average	Good
1.14	Fair	More	Less	Less	More	Average	Average	Good
1.15	Fair	More	Less	Average	More	More	Average	Fair
1.16	Poor	More	Less	Average	More	More	Less	Good
1.17	Poor	More	Less	Average	More	Average	Average	Poor
1.18	Fair	More	Less	More	More	Average	Average	Good
1.19	Fair	More	Less	Average	More	Average	Average	Poor

Performance Qualifiers

Weather Related Crashes

Weather related crashes are a significant concern for this corridor. In six of the corridor segments - 1.02, 1.13, 1.14, 1.15, 1.16, and 1.17 - more than half of the crashes occurred during hazardous weather conditions.

Within SSC 1, segment 1.17 had the highest percentage (64.35%) of weather related crashes. Of adverse weather related crashes, 96.9% occurred during snow, blowing snow, blizzard, or severe wind conditions. In segment 1.13, the second highest rated

(59.62%) segment in this corridor, 83.9% of crashes that occurred during adverse weather were in snow, blowing snow, blizzard, or severe wind conditions.

Segment 1.07, the urban segment of Rock Springs, with the lowest percentage of weather related crashes had approximately 31% of total crashes occur during adverse weather conditions. Hazardous weather conditions are a significant problem for this corridor.

Wildlife Related Crashes

Corridor 1 had a lower instance of accidents related to wildlife than others within Wyoming. Segment 1.01, between the Utah state line and Evanston, received the poorest rating; however, it was still average when compared to the rest of the System. In this segment, 15% of the accidents that occurred involved a collision with wildlife. The other segments ranged between 3% and 9% of accidents involved wildlife. This a noticeable difference from other Corridor, indicating a significant effort in mitigation.

Within segment 1.01, all of the wildlife related crashes are with deer. The highest concentration is located near milepost 2; however, deer related crashes can be found throughout this segment. These crashes do not correlate with migration routes documented by the Wyoming Game and Fish Department.

Alcohol Related Crashes

Overall, the number of alcohol related crashes along SSC 1 as compared to the total number of crashes within the corridor is below the system average. Segment 1.07, in the Rock Springs area of urban influence, and segment 1.18, in the Cheyenne metropolitan planning area, have the highest percentage of alcohol related crashes in the corridor. Other segments near urban centers, specifically 1.06 near Green River and 1.16 near Laramie, also have a percentage rating higher than the system average with regard to alcohol related crashes.

Non-use of Safety Restraint

The ratio of crashes in which a restraint device was not worn to total crashes is high in comparison to the system average. All segments were high, but segment 1.10 had the highest percentage of crashes (91%) occurring without a seat belt in use. All segments along this I-80 corridor had a non-use of safety restraint percentage of 78% or higher.

Horizontal Geometry Insufficiency

Several horizontal alignments were found to be insufficient based on the associated posted speed and an assumed emax of 8%. Segments 1.15 and 1.16 has 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
1.01	ML80D	3.73	2
1.01	ML80D	5.61	14
1.01	ML80I	3.73	3
1.01	ML80I	5.61	6
1.06	ML80D	89.46	9
1.06	ML80I	89.10	2
1.06	ML80I	89.44	21
1.08	ML80D	128.92	5
1.08	ML80I	128.94	5
1.11	ML80D	220.07	10
1.11	ML80I	215.72	8
1.11	ML80I	219.45	4
1.11	ML80I	220.21	2
1.13	ML80D	251.99	13
1.13	ML80I	252.10	33
1.14	ML80D	304.97	2
1.14	ML80I	305.08	5
1.14	ML80I	305.45	2
1.14	ML80I	309.81	9
1.15	ML80D	312.32	10
1.15	ML80D	316.80	7
1.15	ML80I	312.32	9
1.15	ML80I	316.92	9
1.16	ML80D	319.63	7
1.16	ML80D	323.51	2
1.16	ML80D	323.88	7
1.16	ML80I	319.76	14
1.16	ML80I	320.37	2
1.16	ML80I	320.73	4
1.16	ML80I	324.00	9
1.17	ML80D	325.13	3
1.17	ML80D	346.07	3
1.17	ML80D	346.07	3
1.17	ML80I	324.42	7
1.17	ML80I	325.24	7
1.18	ML80D	359.34	3
1.18	ML80I	359.44	3
1.19	ML80D	401.31	4
1.19	ML80I	401.31	10
1.19	ML80I	402.18	4



Vertical Geometry Insufficiency

Several vertical alignments were found to be insufficient based on the associated posted speed and the length of the curve for stopping sight distance. Segments 1.01 and 1.02 have the most insufficient vertical 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.

Table 5 summarizes locations where a vertical profile corresponded to a crash. The data is not clear if the crash was directly related to the geometry. However, locations with several crashes should be further studied. The table summarizes locations of insufficient profiles with more than one crash in the near vicinity within the 5 year crash analysis.

Table 5 - Vertical Geometry Insufficiency

Segment	ML Route	Route Marker	Curve Type	# of Crashes
1.01	ML80D	3.73	CREST	2
1.01	ML80D	5.21	CREST	9
1.01	ML80D	5.52	SAG	8
1.01	ML80I	5.21	CREST	9
1.01	ML80I	5.52	SAG	4
1.02	ML80D	13.66	CREST	7
1.02	ML80D	14.31	CREST	7
1.02	ML80I	13.66	CREST	6
1.02	ML80I	14.32	CREST	11
1.03	ML80D	20.85	CREST	10
1.03	ML80D	23.52	CREST	8
1.03	ML80I	17.73	SAG	3
1.03	ML80I	20.85	CREST	8
1.04	ML80D	52.39	CREST	2
1.04	ML80D	52.47	CREST	5
1.06	ML80D	90.73	CREST	4
1.06	ML80D	92.05	CREST	8
1.06	ML80I	90.77	CREST	7
1.06	ML80I	92.11	CREST	3
1.08	ML80D	110.05	CREST	2
1.08	ML80I	129.17	CREST	3
1.09	ML80D	183.68	SAG	2
1.09	ML80I	179.98	CREST	6
1.10	ML80D	209.48	CREST	4
1.10	ML80I	206.12	CREST	14
1.11	ML80D	215.34	CREST	5
1.13	ML80D	236.31	CREST	2
1.13	ML80I	236.52	CREST	4
1.13	ML80I	262.21	CREST	10
1.14	ML80D	272.02	SAG	9
1.14	ML80D	281.75	SAG	3
1.15	ML80I	318.00	CREST	6
1.17	ML80D	328.17	CREST	4
1.17	ML80D	332.29	SAG	3
1.17	ML80D	339.38	CREST	5
1.18	ML80I	362.29	CREST	2
1.19	ML80D	378.51	SAG	2
1.19	ML80D	385.93	SAG	2
1.19	ML80I	385.99	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 18 Critical concentrations on Corridor 1, which are listed in Table 6. Additionally, there is one Other type concentration. Segment 1.04 exhibits the most crash concentrations with 5 Critical concentrations, which occur between RM 39.7 and 40.3, RM 44.5 and 45.3, RM 53.7 and 54, RM 63 and 63.7, and RM 64.4 and 65.2. Segments 1.06, 1.08, 1.11, 1.13, 1.14, 1.17, and 1.18 have Other type concentrations resulting primarily from Damage level crashes.

Table 6 - Critical Crash Concentrations

Segment	ML Route	Route Marker	
		From	To
1.02	ML80	14.2	14.5
1.02	ML80	15	16
1.03	ML80	38.4	38.7
1.04	ML80	39.7	40.3
1.04	ML80	44.5	45.3
1.04	ML80	53.7	54
1.04	ML80	63	63.7
1.04	ML80	64.4	65.2
1.05	ML80	74.75	75.25
1.08	ML80	116.7	117.5
1.09	ML80	144	144.5
1.09	ML80	158.9	159.1
1.15	ML80	313.8	314.2
1.17	ML80	337.3	338.3
1.17	ML80	352.7	353
1.19	ML80	376	376.2
1.19	ML80	395.8	396.5
1.19	ML80	398	399

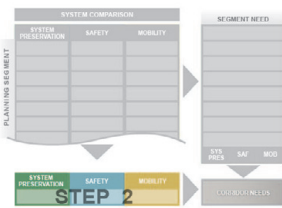
NOTE: See Appendix for maps documenting each performance qualifier.



CORRIDOR 1

MOBILITY - INDEX





Performance Index

The Mobility Performance Index for segments on SSC 1 ranges from better than average to worse than average. Segments rated worse than average include 1.07, 1.15, and 1.16.

MOBILITY						
Segment	Mobility Index	Volume to Capacity Rating	Pavement Variance Rating (L/R)	Traffic Growth	Truck Traffic Growth	Bridge Variance (L/R)
1.01	Average	Good	Fair	More	More	Average
1.02	Average	Good	Fair	More	More	Less
1.03	Better	Good	Good	More	More	Less
1.04	Average	Good	Fair	More	More	Less
1.05	Average	Good	Fair	More	More	Average
1.06	Average	Good	Good	Average	More	Average
1.07	Worse	Good	Fair	Average	More	Average
1.08	Better	Good	Poor	Average	More	Less
1.09	Better	Good	Good	More	More	Less
1.10	Better	Good	Fair	Average	More	Less
1.11	Average	Good	Good	Average	More	Less
1.12	Better	Good	Fair	Average	More	Less
1.13	Average	Good	Fair	More	More	Average
1.14	Better	Good	Fair	More	More	Less
1.15	Worse	Good	Fair	More	More	More
1.16	Worse	Good	Fair	Average	More	More
1.17	Better	Good	Good	More	More	Less
1.18	Average	Good	Fair	More	More	Average
1.19	Average	Good	Good	More	More	Average

Numerous regional and local routes connect to SSC 1. The condition of each local and regional route is associated with a planning segment and directly influences the mobility of that segment. The condition of these local and regional routes ranges from fair to poor.

Overall volumes including truck traffic are among the highest in the state. SSC 1 serves as a primary route for trucks hauling goods between the western U.S. and the Midwest. It also serves energy industry traffic for gas, oil, coal, and wind development, including oversized vehicles. SSC 1 connects several of the largest communities in Wyoming, including Rock Springs, Laramie, and Cheyenne. The route (I-80) has the typical 4-lane divided section common to Interstate Highways.

Table 7 - Major Traffic Generators

Major Traffic Generators
Energy industry truck traffic - gas/oil/wind
Interstate commercial trucks
Mining - Kemmerer to Rock Springs
Flaming Gorge National Recreation Area - Rock Springs
Long distance personal travel
Trucking distribution centers - Cheyenne
F.E. Warren Air Force Base - Cheyenne
University of Wyoming - Laramie
Employment Centers - Evanston, Green River, Rock Springs, Rawlins, Laramie, Cheyenne

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 1 is good.

Traffic Growth

The average traffic growth within the SSC System is 1.42%. All segments in this corridor are above this average. Segment 1.18 has the highest average annual traffic growth rate. This segment is located in the city of Cheyenne on ML 80.

Table 8 - Traffic Growth

Segment	AADT 2010	Average 20 Year Growth
1.01	13,522	2.04%
1.02	12,937	1.98%
1.03	11,413	2.12%
1.04	10,854	2.11%
1.05	13,157	1.94%
1.06	19,486	1.84%
1.07	17,404	1.79%
1.08	13,244	1.77%
1.09	11,812	1.98%
1.10	12,289	1.86%
1.11	13,599	1.86%
1.12	12,024	1.76%
1.13	10,352	2.04%
1.14	10,470	1.91%
1.15	13,689	1.96%
1.16	13,491	1.78%
1.17	12,684	1.88%
1.18	12,934	2.24%
1.19	9,085	1.97%

Truck Traffic Growth

The average truck traffic growth within the SSC System is 1.34%. All segments within SSC 1 are above this average. The majority of the corridor is a inter-rural roadway classification. The highest growth rates were found in the western segments of 1.01, 1.02, 1.03, and 1.05, as well as in segments 1.13, 1.15, and 1.18. Segment 1.18 has the highest average annual truck growth rate. This segment is located in the city of Cheyenne.

Table 9 - Truck Traffic Growth

Segment	AADTT 2010	% Trucks 2010	Truck Traffic Growth
1.01	5,305	39.20%	2.92%
1.02	5,222	40.36%	2.80%
1.03	4,962	43.83%	2.84%
1.04	4,966	45.66%	2.78%
1.05	6,317	47.64%	2.83%
1.06	6,562	33.67%	2.64%
1.07	6,666	38.46%	2.51%
1.08	6,473	48.92%	2.67%
1.09	6,348	53.81%	2.52%
1.10	6,349	51.59%	2.37%
1.11	6,092	44.99%	2.71%
1.12	5,708	47.59%	2.75%
1.13	5,490	53.38%	2.91%
1.14	5,587	53.34%	2.77%
1.15	5,391	39.51%	2.83%
1.16	5,419	39.58%	2.70%
1.17	5,376	42.38%	2.69%
1.18	4,870	36.55%	2.93%
1.19	4,071	44.75%	2.63%

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 1.04, 1.06, 1.07, 1.08, 1.11, 1.13, 1.14, 1.15, and 1.18. 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	
1.04	1.81	ML2101	3.11	16.48	1.44
1.04	1.86	ML2104	0.00	4.04	1.39
1.06	0.93	ML374	83.67	90.14	2.32
1.06	0.90	ML52	89.45	91.96	2.35
1.07	1.70	ML376	0.00	4.31	1.55
1.08	2.00	ML1905	0.00	7.30	1.25
1.11	1.38	ML78	0.15	1.23	1.94
1.13	0.76	ML412	0.00	3.02	2.49
1.14	0.84	ML104	0.00	12.18	2.41
1.14	0.85	ML4200	0.02	1.26	2.40
1.15	1.80	ML101	0.00	9.12	1.45
1.15	1.18	ML102	0.00	10.94	2.07
1.15	0.96	ML26	0.00	42.04	2.30
1.15	1.54	ML77	122.10	144.28	1.71
1.18	1.58	ML221	0.00	1.84	1.67

Bridge Variance Rating (L/R)

The bridge variance rating for local and regional routes on SSC 1 shows 27 structurally deficient bridges. The locations of the bridges are shown in the table below.

Table 11 - SSC 1 Structurally Deficient Bridges on Local/Regional Routes

Segment	ML Route	Route Marker
1.01	ML51	5.53
1.05	ML374	82.67
1.06	ML17	500.01
1.06	ML17	500.30
1.06	ML17	500.62
1.06	ML374	83.67
1.06	ML374	87.17
1.06	ML374	88.15
1.07	ML17	500.01
1.07	ML17	500.30
1.07	ML17	500.62
1.07	ML53	104.29
1.07	ML53	105.25
1.07	ML376	0.06
1.07	ML376	0.21
1.07	ML376	4.09
1.07	ML1903	1.89
1.13	ML22	2.11
1.13	ML22	109.54
1.13	ML412	1.32
1.15	ML26	0.18
1.15	ML103	26.76
1.16	ML107	37.79
1.18	ML56	371.28
1.18	ML212	5.95
1.19	ML1104	0.89
1.19	ML1104	1.67

NOTE: See Appendix for maps documenting each performance qualifier.



CORRIDOR 1

1.01 State Line through Evanston

- System Preservation Index – Worse than average, with poor performance in the Bridge Variance Rating performance qualifier. There are 4 structurally deficient bridges. A pavement project is scheduled on this segment in 2013.
- Safety Index – Fair, with more than average weather related crashes, non-use of safety restraints, and crashes on curves with a vertical geometric deficiency. There were 25 crashes on 4 curves with a horizontal deficiency and 32 crashes on 5 curves with a vertical deficiency. There were 215 total reported crashes during the 5-year planning period, with 3 fatalities.
- Mobility Index – Average, with more than average traffic and truck traffic growth. The segment reports 13,522 AADT with 39% trucks. There is 1 structurally deficient bridge on route ML51B.

1.02 Evanston to US 189

- System Preservation Index – Better than average, with average or better performance across all qualifiers. A pavement project is scheduled on this segment in 2013.
- Safety Index – Poor, with more than average weather related crashes, non-use of safety restraints, and crashes on curves with a vertical geometric deficiency. There were 31 crashes on 4 curves with a vertical deficiency and 2 critical crash concentrations. There were 447 total reported crashes during the 5-year planning period, with 2 fatalities.
- Mobility Index – Average, with more than average traffic and truck traffic growth. The segment reports 12,937 AADT with 40% trucks.

1.03 US 189 to Local Routes WYO 412 & WYO 414

- System Preservation Index – Average, with average or better performance across all qualifiers. There are 2 structurally deficient bridges. Pavement projects are scheduled on this segment in 2013, 2014, and 2016.
- Safety Index – Poor, with more than average weather related crashes and non-use of safety restraints. There were 29 crashes on 4 curves with a vertical deficiency and 1 critical crash concentration. There were 537 total reported crashes during the 5-year planning period, with 5 fatalities.
- Mobility Index – Better than average, with more than average traffic and truck traffic growth. The segment reports 11,413 AADT with 44% trucks.

1.04 WYO 414 to US 30

- System Preservation Index – Average, with average or better performance across all qualifiers. There are 5 structurally deficient bridges. Pavement projects are scheduled on this segment in 2013 and 2016.
- Safety Index – Poor, with more than average weather related crashes and non-use of safety restraints. There were 7 crashes on 2 curves with a vertical deficiency and 5 critical crash concentrations. There were 401 total reported crashes during the 5-year planning period, with 9 fatalities.
- Mobility Index – Average, with more than average traffic and truck traffic growth. The segment reports 10,854 AADT with 46% trucks. Poor PSR is reported on ML2101B and ML2104B.

1.05 US 30 to WYO 372

- System Preservation Index – Better than average, with poor performance in the Pavement Maintenance Rating performance qualifier. There is 1 structurally deficient bridge. Pavement projects are scheduled on this segment in 2013 and 2017.
- Safety Index – Fair, with more than average weather related crashes and non-use of safety restraints. There is 1 critical crash concentration. There were 201 total reported crashes during the 5-year planning period, with 1 fatality.
- Mobility Index – Average, with more than average traffic and truck traffic growth. The segment reports 13,157 AADT with 48% trucks. There is 1 structurally deficient bridge on local/regional route ML374.

1.06 WYO 372 to US 191

- System Preservation Index – Average, with average or better performance across all qualifiers. There are 2 structurally deficient bridges. A pavement project is scheduled on this segment in 2013.
- Safety Index – Poor, with more than average weather related crashes and non-use of safety restraints. There were 32 crashes on 3 curves with a horizontal deficiency and 22 crashes on 4 curves with a vertical deficiency. There were 813 total reported crashes during the 5-year planning period, with 3 fatalities.
- Mobility Index – Average, with more than average truck traffic growth. The segment reports 19,486 AADT with 34% trucks. Poor PSR is reported on ML52B and ML374B. There are 6 structurally deficient bridges on local/regional routes.

1.07 Rock Springs to Point of Rocks

- System Preservation Index – Better than average, with average or better performance across all qualifiers.
- Safety Index – Fair, with more than average alcohol related crashes and non-use of safety restraints. There were 337 total reported crashes during the 5-year planning period, with 4 fatalities.
- Mobility Index – Worse than average, with more than average truck traffic growth. The segment reports 17,404 AADT with 39% trucks. Poor PSR is reported on ML376B. There are 9 structurally deficient bridges on local/regional routes.

1.08 Rock Springs through Point of Rocks Interchange

- System Preservation Index – Better than average, with average or better performance across all qualifiers. A pavement project is scheduled on this segment in 2017.
- Safety Index – Fair, with more than average weather related crashes and non-use of safety restraints. There were 10 crashes on 2 curves with a horizontal deficiency, 5 crashes on 2 curves with a vertical deficiency, and 1 critical crash concentration. There were 420 total reported crashes during the 5-year planning period, with 10 fatalities.
- Mobility Index – Better than average, with poor pavement variance rating on local/regional routes and more than average truck traffic growth. The segment reports 13,244 AADT with 49% trucks. Poor PSR is reported on ML1905B.

1.09 Point of Rocks to Creston Jct.

- System Preservation Index – Average, with average or better performance across all qualifiers. There are 2 structurally deficient bridges and 1 pavement hotspot at RM 157. Pavement projects are scheduled on this segment in 2015 and 2016.
- Safety Index – Fair, with more than average weather related crashes and non-use of safety restraints. There were 8 crashes on 2 curves with a vertical deficiency and 2 critical crash concentrations. There were 1,088 total reported crashes during the 5-year planning period, with 10 fatalities.
- Mobility Index – Better than average, with more than average traffic and truck traffic growth. The segment reports 11,812 AADT with 54% trucks.

1.10 Creston Junction to Rawlins

- System Preservation Index – Average, with poor performance in the Rutting performance qualifier. A pavement project is scheduled on this segment in 2018.
- Safety Index – Fair, with more than average weather related crashes and non-use of safety restraints. There were 18 crashes on 2 curves with a vertical deficiency. There were 551 total reported crashes during the 5-year planning period, with 4 fatalities.
- Mobility Index – Better than average, with more than average truck traffic growth. The segment reports 12,289 AADT with 52% trucks.

1.11 Rawlins Urban Area

- System Preservation Index – Better than average, with average or better performance across all qualifiers. Pavement projects are scheduled on this segment in 2013 and 2015.
- Safety Index – Fair, with more than average weather related crashes and non-use of safety restraints. There were 24 crashes on 4 curves with a horizontal deficiency and 5 crashes on 1 curve with a vertical deficiency. There were 335 total reported crashes during the 5-year planning period, with 2 fatalities.
- Mobility Index – Average, with more than average truck traffic growth. The segment reports 13,599 AADT with 45% trucks. Poor PSR is reported on ML78B.

1.12 Rawlins to Walcott Jct.

- System Preservation Index – Better than average, with average or better performance across all qualifiers.
- Safety Index – Fair, with more than average weather related crashes and non-use of safety restraints. There were 230 total reported crashes during the 5-year planning period, with 0 fatalities.
- Mobility Index – Better than average, with more than average truck traffic growth. The segment reports 12,024 AADT with 48% trucks.

1.13 Walcott Jct. to Arlington

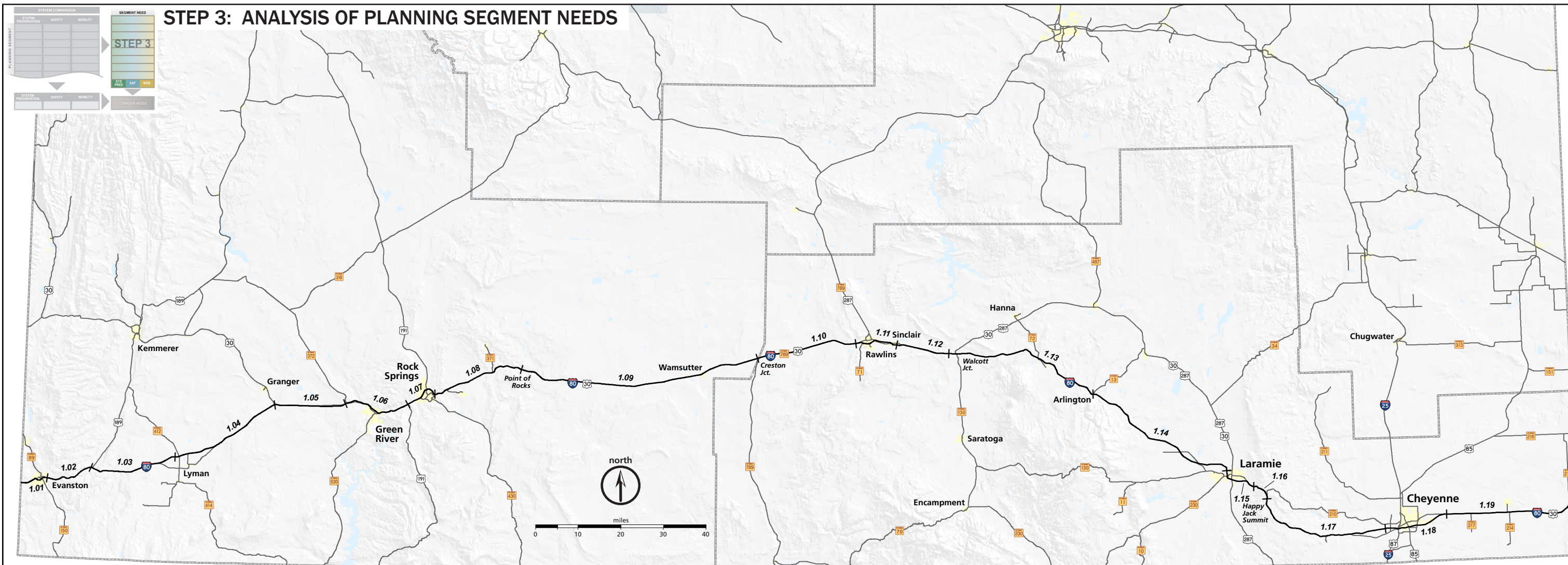
- System Preservation Index – Average, with average or better performance across all qualifiers. There are 2 structurally deficient bridges. Pavement projects are scheduled on this segment in 2013, 2015, 2016, and 2017.
- Safety Index – Poor, with more than average weather related crashes and non-use of safety restraints. There were 56 crashes on 2 curves with a horizontal deficiency and 16 crashes on 3 curves with a vertical deficiency. There were 1,021 total reported crashes during the 5-year planning period, with 14 fatalities.
- Mobility Index – Average, with more than average traffic and truck traffic growth. The segment reports 10,352 AADT with 53% trucks. Poor PSR is reported on ML412B. There are 3 structurally deficient bridges on ML22B an ML412B.

1.14 Arlington to Laramie

- System Preservation Index – Average, with average or better performance across all qualifiers. Pavement projects are scheduled on this segment in 2014 and 2016.
- Safety Index – Fair, with more than average weather related crashes and non-use of safety restraints. There were 18 crashes on 4 curves with a horizontal deficiency and 12 crashes on 2 curves with a vertical deficiency. There were 810 total reported crashes during the 5-year planning period, with 10 fatalities.
- Mobility Index – Better than average, with more than average traffic and truck traffic growth. The segment reports 10,470 AADT with 53% trucks. Poor PSR is reported on ML104B and ML4200B.



STEP 3: ANALYSIS OF PLANNING SEGMENT NEEDS



1.15 Laramie Urban Area

- System Preservation Index – Average, with average or better performance across all qualifiers. There is 1 structurally deficient bridge. A pavement project is scheduled on this segment in 2015.
- Safety Index – Fair, with more than average weather related crashes, non-use of safety restraints, crashes on curves with a horizontal deficiency, and 1 critical crash concentration. There were 35 crashes on 4 curves with a horizontal deficiency and 6 crashes on 1 curve with a vertical deficiency. There were 229 total reported crashes during the 5-year planning period, with 3 fatalities.
- Mobility Index – Worse than average, with more than average traffic, truck traffic growth, and bridge variance rating. The segment reports 13,689 AADT with 40% trucks. Poor PSR is reported on ML101B, ML102B, ML26B, and ML77B. There are 2 structurally deficient bridges on ML26B and ML103B.

1.16 Laramie to Happy Jack Summit

- System Preservation Index – Better than average, with average or better performance across all qualifiers.
- Safety Index – Poor, with more than average weather related crashes, non-use of safety restraints, and crashes on curves with a horizontal deficiency. There were 45 crashes on 7 curves with a vertical deficiency and 262 total reported crashes during the 5-year planning period, with 4 fatalities.
- Mobility Index - Worse than average, with more than average truck traffic growth and bridge variance rating. The segment reports 13,491 AADT with 40% trucks. There is 1 structurally deficient bridge on ML107B.

1.17 Happy Jack Summit to Cheyenne

- System Preservation Index – Average, with average or better performance across all qualifiers. There are 4 structurally deficient bridges. Pavement projects are scheduled on this segment in 2015, 2016, and 2017.
- Safety Index – Poor, with more than average weather related crashes and non-use of safety restraints. There are 2 critical crash concentrations. There were 23 crashes on 5 curves with a horizontal deficiency and 12 crashes on 3 curves with a vertical deficiency. There were 1,006 total reported crashes during the 5-year planning period, with 9 fatalities.
- Mobility Index – Better than average, with more than average traffic and truck traffic growth. The segment reports 12,684 AADT with 42% trucks.

1.18 Cheyenne MPO Area

- System Preservation Index – Average, with poor performance in the Pavement Maintenance Requirement qualifier. There are 4 structurally deficient bridges and 1 pavement hotspot at RM359. Two pavement projects are scheduled on this segment in 2018.
- Safety Index – Fair, with more than average alcohol related crashes, weather related crashes, and non-use of safety restraints. There were 6 crashes on 2 curves with a horizontal deficiency and 2 crashes on 1 curve with a vertical deficiency. There were 327 total reported crashes during the 5-year planning period, with 5 fatalities.
- Mobility Index - Average, with more than average traffic and truck traffic growth. The segment reports 12,934 AADT with 37% trucks. Poor PSR is reported on ML221B. There are 2 structurally deficient bridges on ML56B and ML212B.

1.19 Cheyenne to Nebraska State Line

- System Preservation Index – Better than average, with average or better performance across all qualifiers. Pavement projects are scheduled on this segment in 2015 and 2017.
- Safety Index – Fair, with more than average weather related crashes and non-use of safety restraints. There were 18 crashes on 3 curves with a horizontal deficiency and 6 crashes on 3 curves with a vertical deficiency. There were 340 total reported crashes during the 5-year planning period, with 3 fatalities
- Mobility Index - Average, with more than average traffic and truck traffic growth. The segment reports 9,085 AADT with 45% trucks. There are 2 structurally deficient bridges on ML1104B.



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 eleven different terrestrial habitat types located throughout the fourteen special management areas within SSC 1. Nine federally listed species within the corridor fall into one of three categories, candidate, endangered, and threatened. Four big game species and nineteen raptor species are found in SSC 1. There are four different categories that fall under the aquatic habitat. There are thirty-seven watersheds, four aquatic crucial priority areas, six aquatic enhancement priority areas, and five combined crucial priority areas. See Table 12 for general locations.

Table 12 - Environmental Considerations

Category	WEST (West State Line - Creston Junction)	CENTRAL (Creston Junction - Arlington)	EAST (Arlington - East State Line)
Big Game Crucial Range	Elk Mule Deer Pronghorn Antelope	Elk Mule Deer Pronghorn Antelope	Elk Mule Deer Pronghorn Antelope
Big Game Migration Route	Elk Moose Mule Deer Pronghorn Antelope	Mule Deer	Mule Deer Pronghorn Antelope
WGFD Aquatic Crucial Priority Areas SHP	Bear River Corridor Upper Muddy Creek 3BF	NA	Lower Lodgepole & Muddy Creek Pole Mountain Watersheds
WGFD Terrestrial Crucial Priority Areas SHP	Great Divide Basin North Rawlins Sands South Rawlins Unita	Medicine Bow-Shirley Basin North Rawlins Platte Valley	Shortgrass Prairie
WGFD Combined Crucial Priority Areas SHP	Flaming Gorge Green River-Blacks Fork-Hams Fork Red Desert & Bitter Creek	Wick WHMA	Upper Laramie & Little Laramie Watersheds Wick WHMA
Occurrence & Distribution (Federally Listed Species)	Black-footed Ferret Gray Wolf Greater Sage Grouse Yellow-billed Cuckoo	Black-footed Ferret Canada Lynx Greater Sage Grouse Grizzly Bear Wyoming Toad	Black-footed Ferret Canada Lynx Colorado Butterfly Plant Gray Wolf Greater Sage Grouse North American Wolverine Wyoming Toad

Summary of Needs

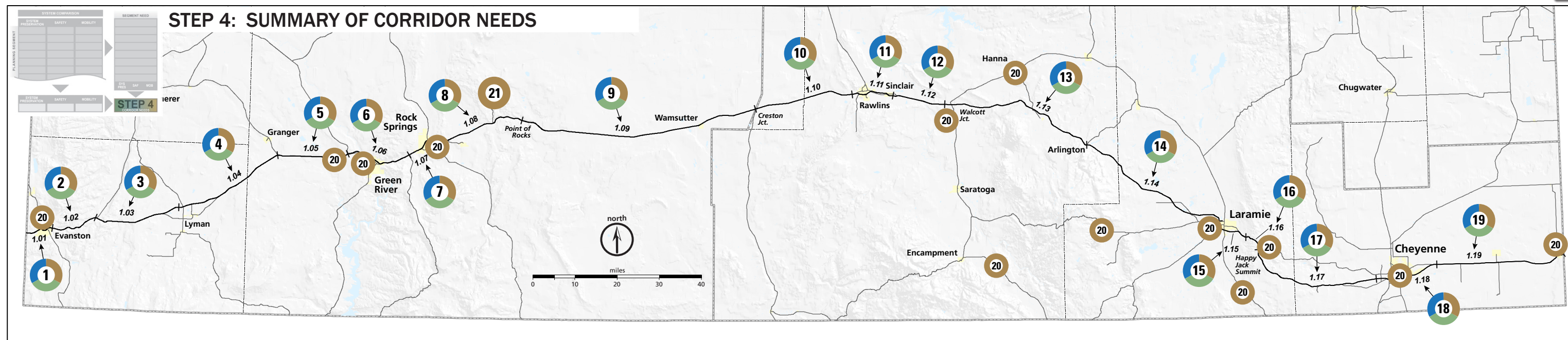
This section summarizes needs by planning segment for each of the three performance indexes and the supporting performance qualifiers. The summary identifies overlapping needs, which provides guidance in the efficient prioritization of projects to best address deficiencies. The practice of completing 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 1 needs occur across all Performance Indexes: the most prevalent needs occur in structurally deficient bridges, both on I-80 and on local and regional routes; weather related crashes are high throughout the corridor, as is the non-use of safety restraints; and high traffic growth and truck traffic growth characterize this already high volume route. Multiple opportunities to design projects that overlap several needs are available.

A large number of bridges (27) on local and regional routes that connect to I-80 are structurally deficient, affecting the Mobility Index for those SSC segments. Bridge maintenance/rehabilitation or replacement of these structures will have a significant benefit to the Mobility Index.

Several environmental factors should also be considered when conducting project level planning. While wildlife crashes are not high on the corridor, probably due to the extensive fencing along the Interstate, the route is contiguous to extensive crucial big game range and migration routes. A wide range of endangered species is noted in the corridor. Additionally, virtually the entire southern part of the state encompasses several Crucial Aquatic, Terrestrial, and Combined Priority habitat areas as defined by the Wyoming Game and Fish Department. All sources in the WISDOM database should be consulted for environmental compliance.

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. WYDOT owns sufficient right of way for the Interstate highway mainline for the foreseeable future. However, due to rapidly increasing traffic and truck volumes, interchange improvements or additions could be required in some locations. This plan does not identify specific future interchange locations. However, if such projects are planned, additional right of way may be required in some cases. Interchange locations in the cities along the route would need to be coordinated with local planning processes.



Overlapping Needs

Overlapping needs are identified on all segments:

- 1** 1.01 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Non-use of Safety Restraints, Vertical Geometric Insufficiency, Traffic Growth, Truck Traffic Growth
- 2** 1.02 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Weather Related Crashes, Non-use of Safety Restraints, Vertical Geometric Insufficiency, Crash Concentrations, Traffic Growth, Truck Traffic Growth
- 3** 1.03 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Non-use of Safety Restraints, Crash Concentrations, Traffic Growth, Truck Traffic Growth
- 4** 1.04 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Non-use of Safety Restraints, Traffic Growth, Truck Traffic Growth
- 5** 1.05 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Pavement Maintenance Requirement, Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Non-use of Safety Restraints, Traffic Growth, Truck Traffic Growth
- 6** 1.06 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Non-use of Safety Restraints, Truck Traffic Growth
- 7** 1.07 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Alcohol Related Crashes, Non-use of Safety Restraints

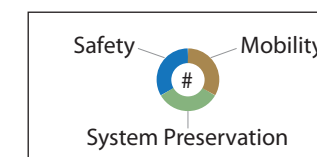
- 8** 1.08 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Weather Related Crashes, Non-use of Safety Restraints, Truck Traffic Growth
- 9** 1.09 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Pavement Hotspot, Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Non-use of Safety Restraints, Crash Concentrations, Traffic Growth, Truck Traffic Growth
- 10** 1.10 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Rutting, Weather Related Crashes, Non-use of Safety Restraints, Truck Traffic Growth
- 11** 1.11 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Weather Related Crashes, Non-use of Safety Restraints, Truck Traffic Growth
- 12** 1.12 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Weather Related Crashes, Non-use of Safety Restraints, Truck Traffic Growth
- 13** 1.13 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Non-use of Safety Restraints, Traffic Growth, Truck Traffic Growth
- 14** 1.14 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Weather Related Crashes, Non-use of Safety Restraints, Traffic Growth, Truck Traffic Growth
- 15** 1.15 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Non-use of Safety Restraints, Horizontal Geometric Insufficiency, Traffic Growth, Truck Traffic Growth
- 16** 1.16 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Weather Related Crashes, Non-use of Safety Restraints, Horizontal Geometric Insufficiency, Truck Traffic Growth

- 17** 1.17 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Non-use of Safety Restraints, Crash Concentrations, Traffic Growth, Truck Traffic Growth
- 18** 1.18 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Pavement Maintenance Requirement, Pavement Hotspot, Bridge Variance Rating/Structurally Deficient Bridges, Weather Related Crashes, Alcohol Related Crashes, Non-use of Safety Restraints, Traffic Growth, Truck Traffic Growth
- 19** 1.19 - SYSTEM PRESERVATION/SAFETY/MOBILITY: Weather Related Crashes, Non-use of Safety Restraints, Crash Concentrations, Traffic Growth, Truck Traffic Growth

Other Performance Index Needs

Mobility

- 20** 1.01, 1.05, 1.06, 1.07, 1.13, 1.14, 1.15, 1.16, 1.17, 1.18, 1.19 - Bridge Variance Rating (L/R)/Structurally Deficient Bridges
- 21** 1.08 - Pavement Variance Rating (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	
<p><i>Pavement Maintenance Requirement & Pavement Variance Rating</i></p> <p><i>Rutting</i> Mill Mill and overlay</p> <p><i>1S Treatments</i> Mill and overlay Seal Coat Cleaning and sealing joints Patching pavement Micro surfacing</p> <p><i>2S Treatments</i> Roadway Restoration</p> <p><i>3S Treatments</i> Reconstruct Roadway Roadway widening Upgrade geometric design</p> <p><i>Bridge Variance Rating</i> Bridge Replacement Channel reconstruction Cleaning and sealing bridge members Lower weight limits Restore drainage systems Scour countermeasures</p>	<p><i>Weather Related</i> Signage Automated anti-icing systems Grooved pavement ITS Larger signs Snow berms/grading Snow fencing Warning beacons</p> <p><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</p> <p><i>Alcohol Related</i> Centerline rumble strips ITS Law Enforcement Media campaign Shoulder rumble strips</p>	<p><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</p> <p><i>Vertical Geometry</i> Larger signs Reconstruction/realignment Reduce posted speed Reflectors Signage Warning beacons</p> <p><i>Safety Restraints</i> ITS Law Enforcement Media campaign</p>	<p><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</p> <p><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</p>	<p><i>Pavement Variance Rating (L/R)</i></p> <p><i>Rutting</i> Mill Mill and overlay</p> <p><i>1S Treatments</i> Cleaning and sealing joints Micro surfacing Mill and overlay Patching pavement Seal Coat</p> <p><i>2S Treatments</i> Roadway Restoration</p> <p><i>3S Treatments</i> Reconstruct Roadway Roadway widening Upgrade geometric design</p>



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, an intersection improvement 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

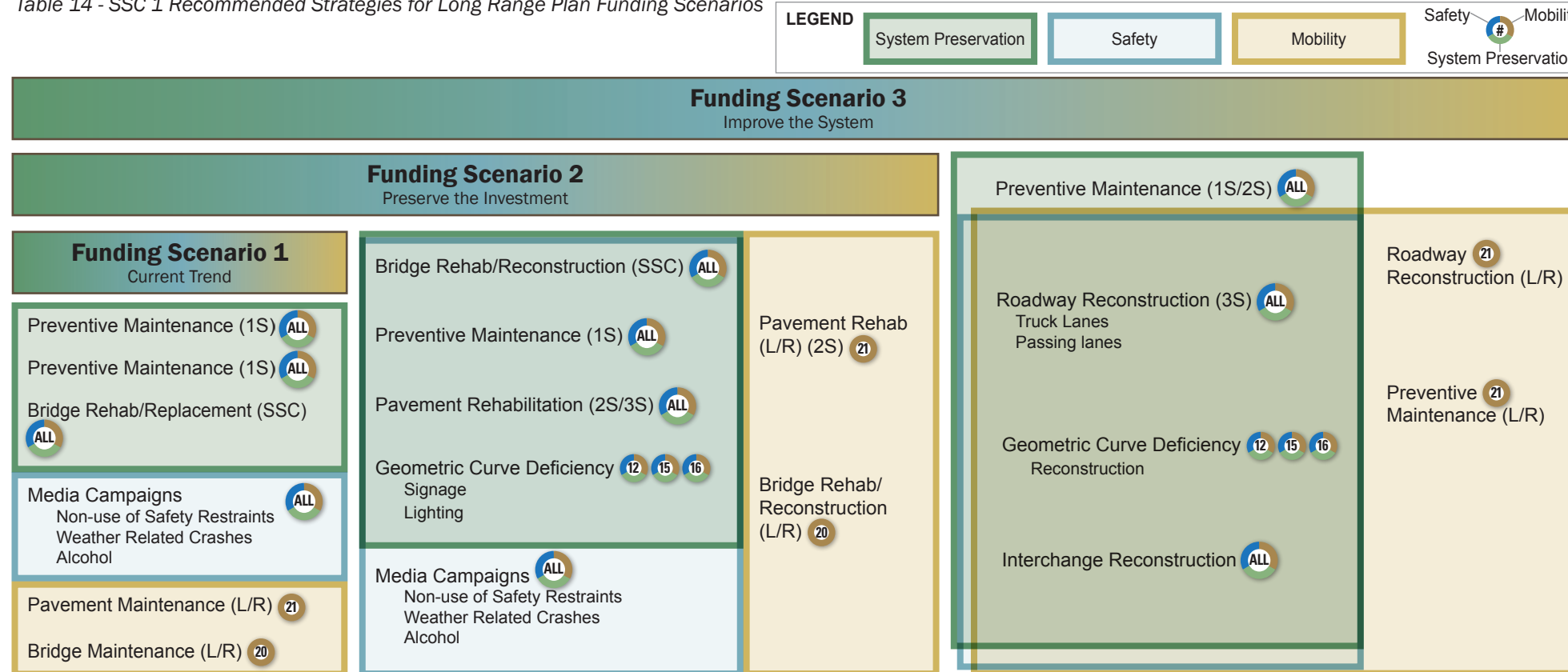
Funding Scenario 1, defined as the continuation of current program funding, is focused primarily on addressing System Preservation needs through preventive maintenance efforts. For this high volume corridor, the plan recommends that these funds remain allocated to preventive maintenance, along with reserving a portion to address identified safety needs. The continuously growing high traffic and truck traffic volumes, while not generally requiring capacity improvements, do require continuous pavement treatments in order to stay ahead of the pavement lifecycle curve. Less expensive treatments on a regular schedule, delay the need indefinitely for more expensive reconstruction. The corridor also has extensive needs in the bridge area. Bridge maintenance or rehabilitation should be timed to coincide with pavement treatments, to the extent possible.

Safety needs are most apparent – corridor wide - in the category of weather related crashes. The non-use of safety restraints is also a universal factor. Five areas of crash concentrations are also observed. WYDOT should consider a targeted effort such as a media campaign and expanded ITS-related information systems to address these issues.

These needs may be only partially met under current funding. Additional needs that cannot be met under Scenario 1 may be delayed pending additional funds under Scenarios 2 or 3.

- Surface treatments on the SSC mainline, including mill and overlay.
- Bridge rehabilitation and replacement of structurally deficient bridges on the SSC mainline.

Table 14 - SSC 1 Recommended Strategies for Long Range Plan Funding Scenarios



- Safety campaign to reduce number of weather-related accidents and increase the use of safety restraints.

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. The corridor has significant bridge rehabilitation needs on local and regional routes. This scenario would allow investments to fully achieve WYDOT goals in the System Preservation investment category. Expansion of safety programs to reduce the number and severity of crashes related to weather and the non-use of safety restraints should be considered, especially in areas of crash concentrations as identified in this corridor plan.

- Preventive maintenance could be deferred and/or advanced, depending on life cycle, as recommended by the Pavement Management System.
- Reconstruction (2S) to address geometric insufficiencies on the SSC mainline.
- Improvement of pavement condition of Local and Regional Routes, to include preventive maintenance or mill and overlay.
- Bridge rehabilitation on local and regional routes.
- Safety program expansion to address weather related crashes and non-use of safety restraints.

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 correction of geometric deficiencies.
- Roadway widening (3S), including additional truck passing lanes, to better address growing vehicle and truck traffic.
- Interchange improvements to improve safety and traffic flow in high volume areas.

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.

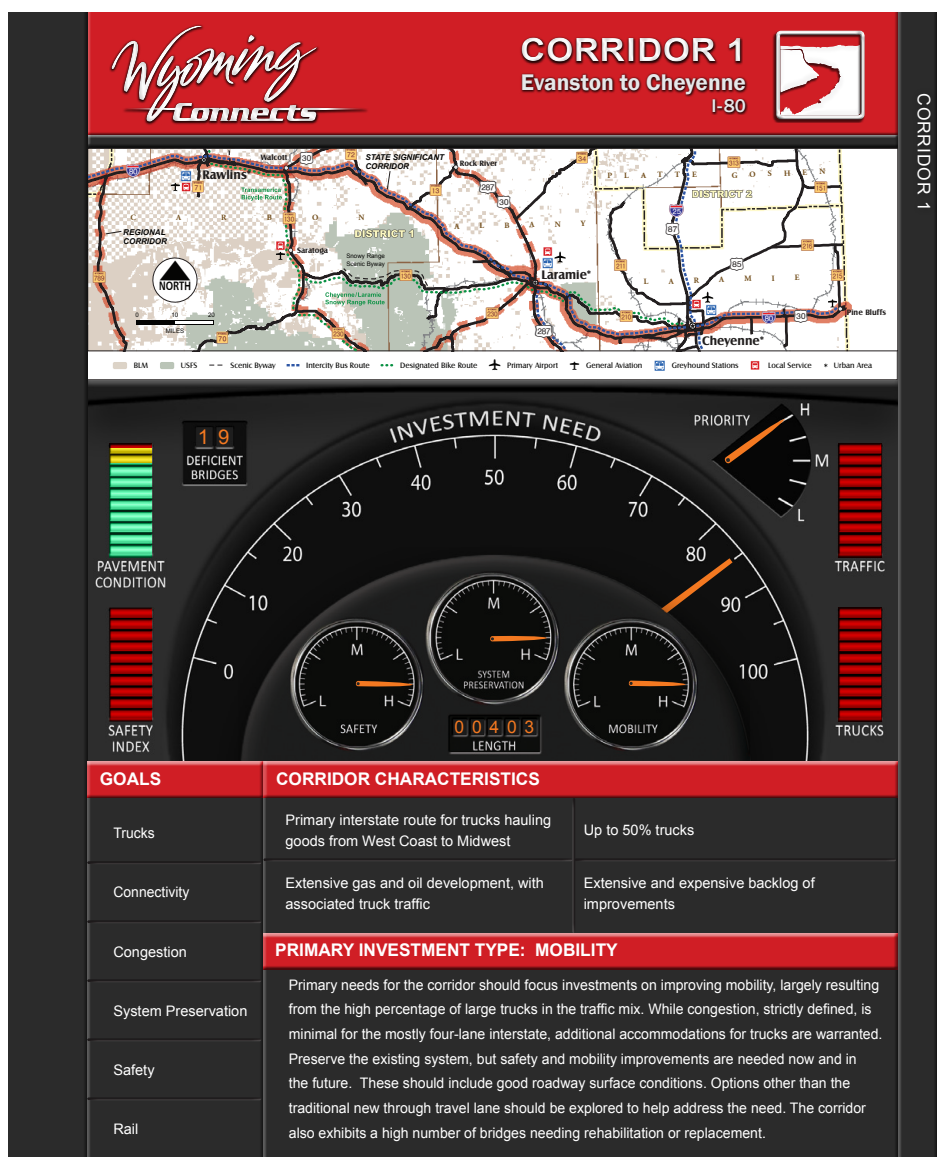


REALIZING THE CORRIDOR VISION

As part of the statewide Wyoming Connects and Long Range Transportation Plan, the Corridor Vision for SSC 1 - 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 Evanston to Cheyenne Corridor Vision captured Key Issues and Emerging Trends of critical importance and how SSC 1 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 Mobility:



Primary needs for the corridor should focus investments on improving mobility, largely resulting from the high percentage of large trucks in the traffic mix. While congestion, strictly defined, is minimal for the mostly four-lane interstate, additional accommodations for trucks are warranted. Preserve the existing system, but safety and mobility improvements are needed now and in the future. These should include good roadway surface conditions. Options other than the traditional new through travel lane should be explored to help address the need. The corridor also exhibits a high number of bridges needing rehabilitation or replacement.

Additional goals which reflect the full context, character, and issues of SSC 1 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.

Dashboard from Corridor Visions

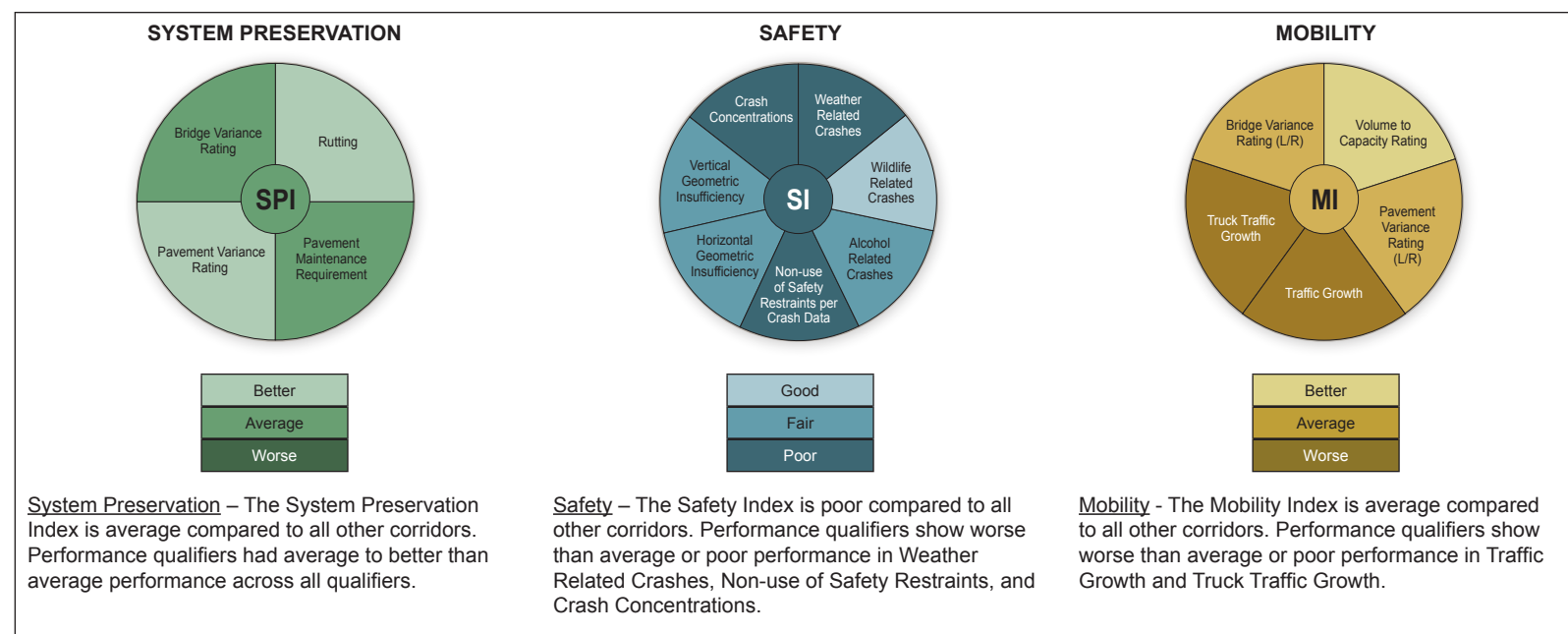
Table 15 - Review of Corridor Vision Goals and Other Considerations

Corridor Visions		High Priority	Other Considerations
Investment Category	Goal		
System Preservation	Preserve the existing transportation system	✓	Extensive pavement treatments required to maintain conditions resulting from growing traffic and truck traffic volumes. Numerous structurally deficient bridges must be upgraded.
Safety	Reduce fatalities, injuries, and property damage crash rate	✓	Weather related crashes are prevalent throughout the corridor. The high number of critical (severe and fatal) crashes may be reduced by improved use of safety restraints.
Mobility	Accommodate growth in truck freight transport	✓	I-80 averages 40%-50% trucks across the state. Continuous improvements in pavement and bridge condition is required.
	Maintain statewide transportation connections		I-80 is the most travelled interstate route in Wyoming. While much of the traffic originates locally (energy production), an equal amount is interstate in nature. This connection is crucial for maintaining the state's economic position.
	Reduce traffic congestion and improve traffic flow		Additional truck and passing lanes may be added in the future as volumes warrant. Interchange improvements may also be required in high volume areas.
	Improve rail facilities		Locally produced coal and oil is shipped via rail. A large amount of rail traffic takes advantage of one of the best east-west routes across the west.

CORRIDOR PERFORMANCE

Table 16 shows SSC 1 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.