

Wyoming Connects

MCDUGAL - WERK
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Corridor 2 Plan
GENEVA TO HOBACK JUNCTION



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:

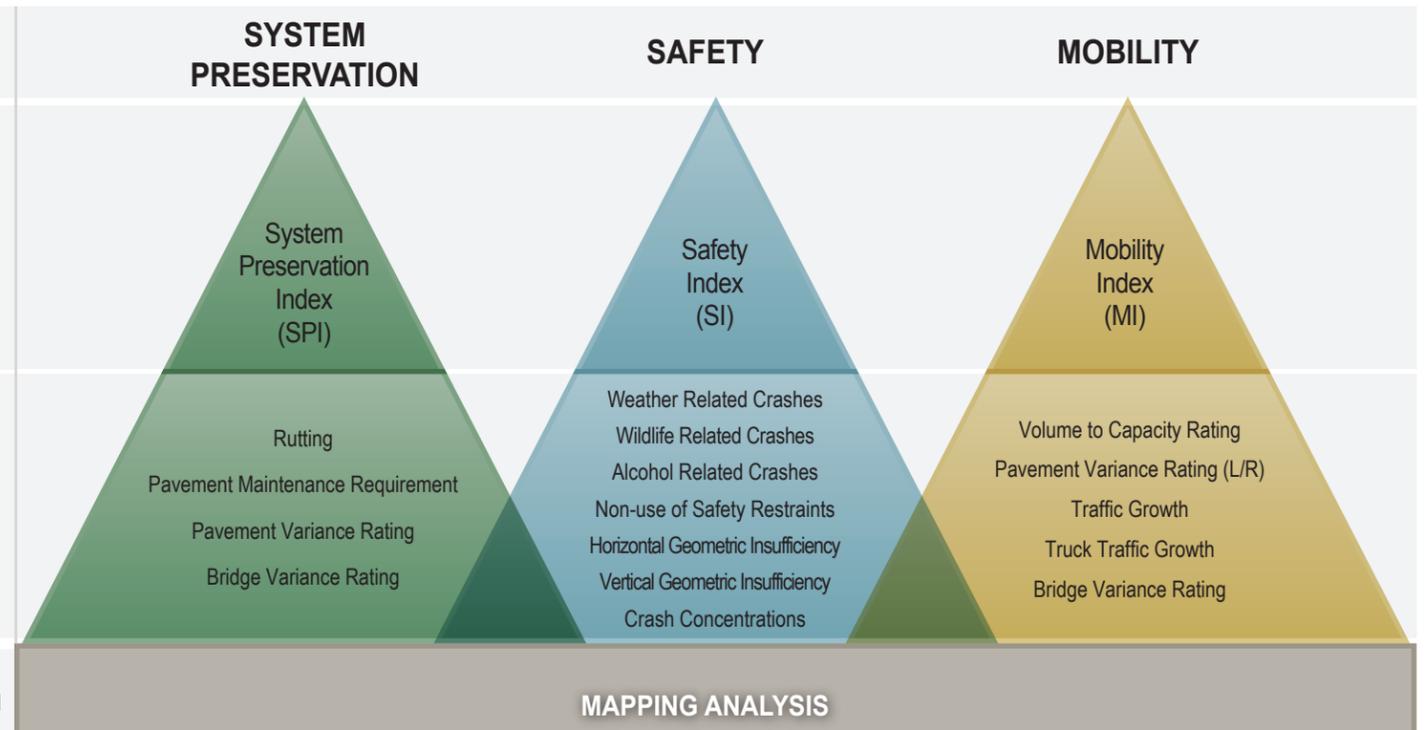
These are quantifiable and repeatable measurements that reflect the overall performance of the transportation corridor being analyzed. Targets for these indicators may be absolute and indicate a desired condition or comparative to current performance of the overall system to indicate relative priority.

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:

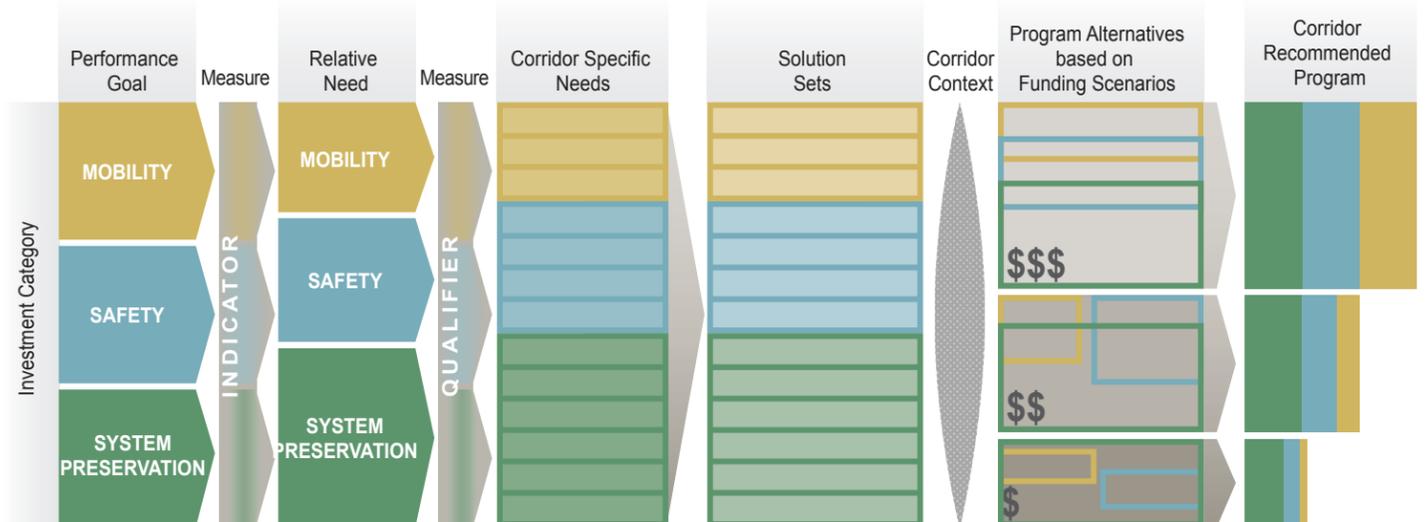
Mapping the deviated performance qualifiers against several factors to effectively prioritize, locate, and identify needs.



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 2 - GENEVA TO HOBACK JUNCTION - US 89 CORRIDOR PLAN

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I. STATE SIGNIFICANT CORRIDOR 2 - DESCRIPTION

CORRIDOR DESCRIPTION

State Significant Corridor (SSC) 2 is the 85 mile portion of US 89 from the Wyoming/Idaho state line to Hoback Junction. The corridor passes through WYDOT District 3, two counties, and the agricultural communities of Afton, Alpine, Grover, Smoot, and Thayne. The terrain varies from flat and rolling along the Star Valley to mountainous as it crosses the Salt River Mountain Range toward Jackson. SSC 2 is traveled heavily by tourists heading north to Grand Teton and Yellowstone National Parks.

There are many recreational opportunities along the corridor, attracting local recreation travel as well as out of state tourism. Many service industry employees who work in the Jackson area use US 89 to commute from the communities of Afton and Alpine. During peak season, the corridor can carry up to 10,000 vehicles per day. This volume of traffic creates spot congestion along the corridor and contributes to safety issues and vehicle crashes.

Communities along the corridor have experienced moderate growth over the last decade. The local economies are primarily dependent on agriculture and recreation. Jackson Hole recently constructed the Jackson Hole Center for the Arts, helping to support a vibrant arts community. Jackson Hole Mountain Resort ski area attracts many skiers in the winter. The 8.5 million visitors per year headed for Yellowstone and Grand Tetons National Parks contribute significantly to the local and regional economies through lodging, restaurant, and other service-related expenses.

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 2 has been divided into 5 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.



Snake River Canyon between Alpine and Hoback

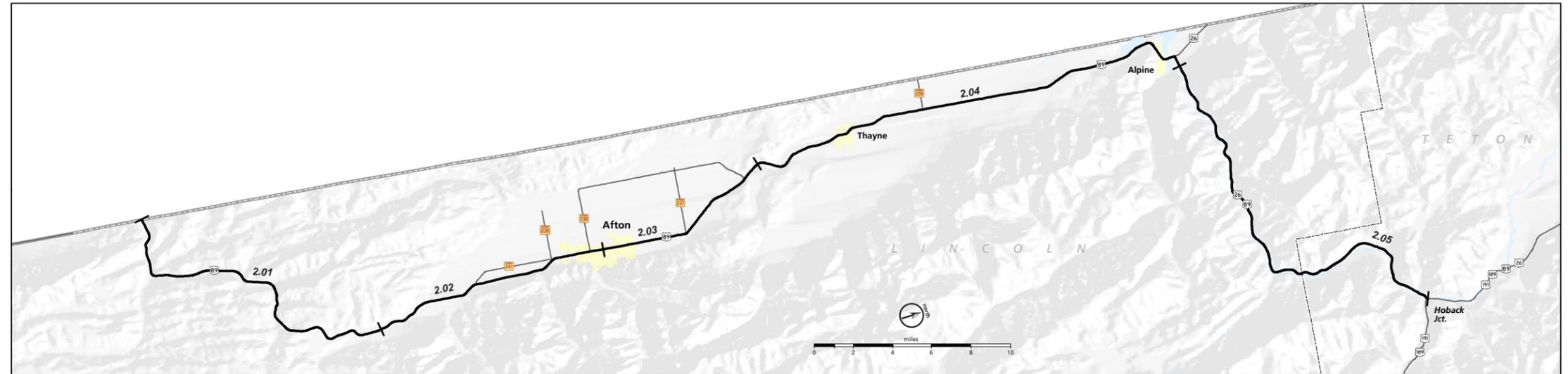
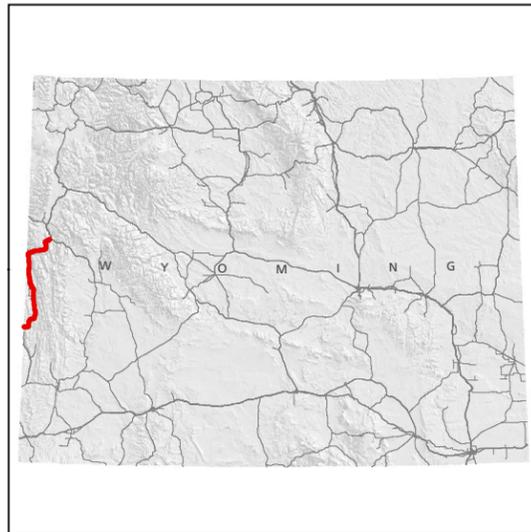


Table 1 - Segments for State Significant Corridor 2

Corridor 2	Segment	ML Route	Begin	End	Length	Description
	2.01	10	54.93	72.40	17.47	Geneva, ID/State Line to Salt River. Features: Two-lane cross section; Salt River Pass (el. 7,610); Salt River Bridge; Bureau of Land Management; Bridger-Teton National Forest; recreational lands access; tourism route to Yellowstone National Park area; mountainous terrain.
2.02	10	72.40	84.93	12.53	Smoot to Afton. Features: Two-lane cross section; intersections with Local Routes WYO 241, 236, 238 in Afton vicinity; driveway accesses (approx. 1/4 mile spacing) to rural residential homes; interspersed with irrigated and other agricultural uses; transition from rolling to flat terrain.	
2.03	10	84.93	94.40	9.48	Afton to Salt River. Features: 4-lane divided section in Afton transitions back to 2-lane; intersections with Local Routes WYO 237, 238; Swift Creek; frequent driveway accesses to larger residential homes on 5 - 20 acre lots; irrigated agricultural and equestrian properties; scattered small commercial and industrial land use; higher speeds; transition from flat to rolling terrain.	
2.04	10	94.40	118.33	23.93	Salt River to Alpine. Features: 2-lane cross section with occasional passing and accel/decel/turn lanes; intersects Local Route WYO 239 and US 26; multiple small communities (Thayne, Etna); Star Valley Rest Area; several irrigation canal crossings and Snake River; Palisades Reservoir; agricultural with rural residential; intercity bus station at Alpine; mostly flat terrain.	
2.05	10	118.33	140.77	22.44	Alpine to Hoback Jct. Features: Two-lane cross section; intersects SSC 4 (US 191/189); river crossings at Dog Creek and Fall Creek; road close gates; dynamic message signs; Bridger-Teton and Targhee National Forests; Palisades Reservoir; follows Snake River canyon; frequent pullouts, parking areas, and other recreation sites provide access to whitewater sports, fishing, and other public lands uses; intercity bus route; mountainous 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

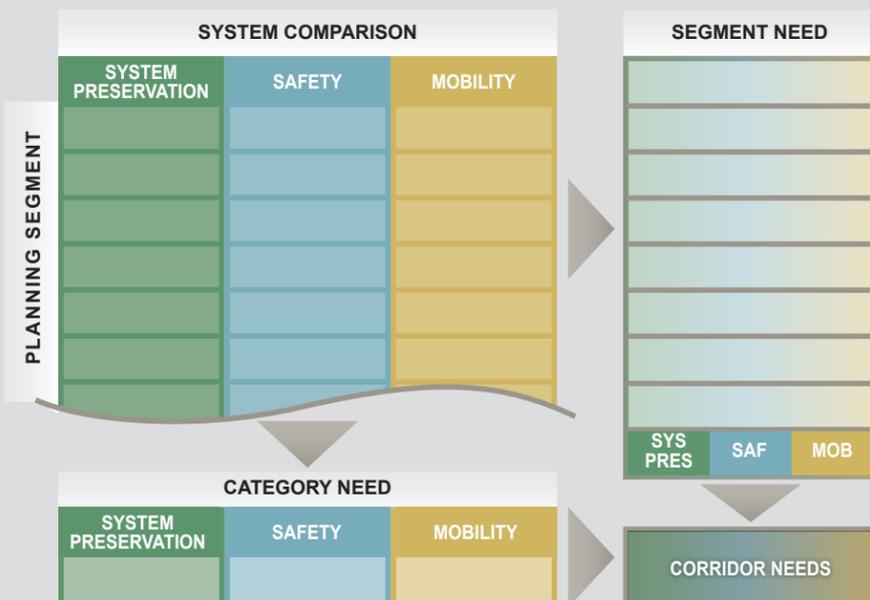
This corridor plan evaluates System Preservation, Safety, and Mobility performance using the process described in the Integrated Planning Framework, published separately. The plan analyzes the performance of planning segments described in Table 1 as compared to system averages. It identifies good, fair, 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 2

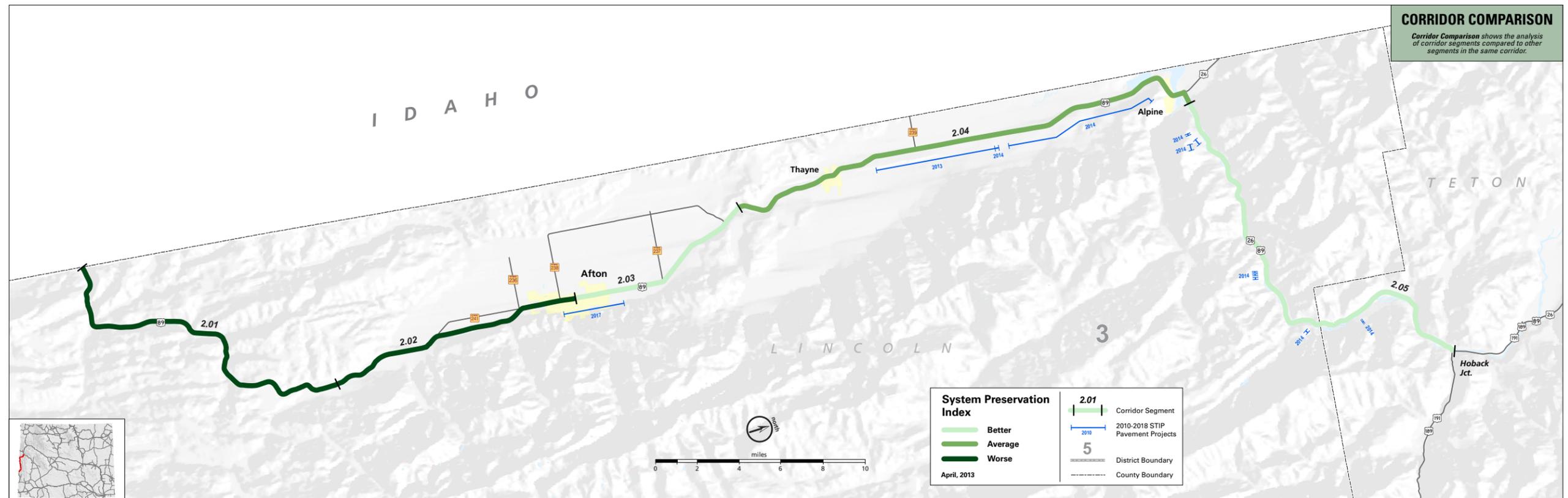
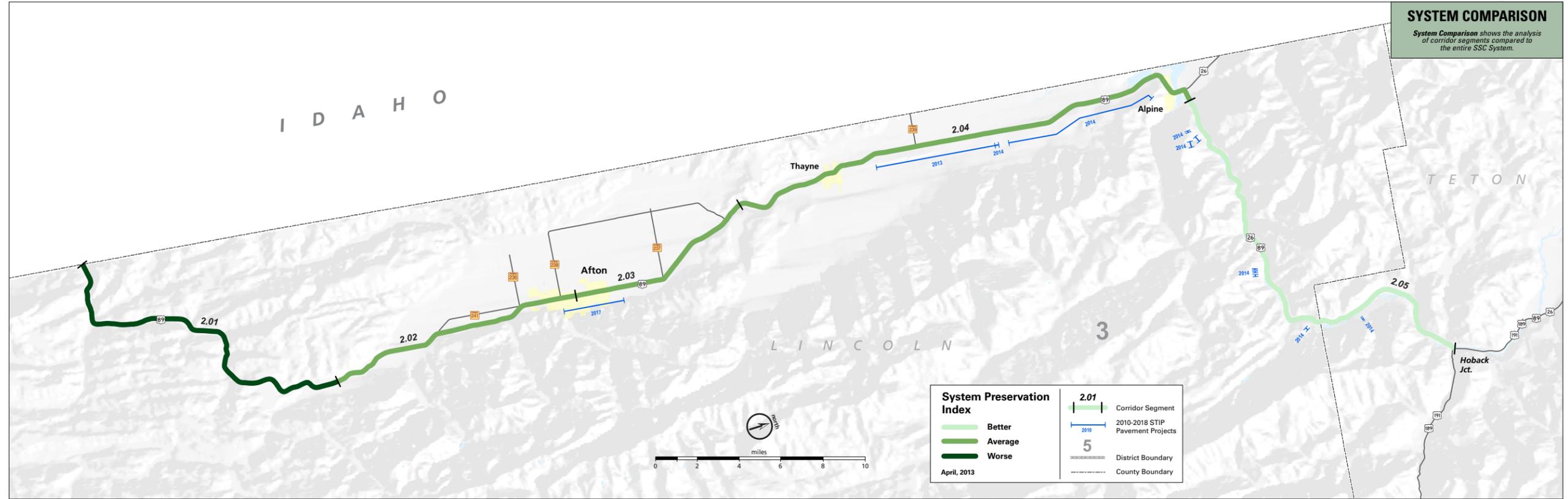
Segment	SYSTEM PRESERVATION					SAFETY								MOBILITY					
	System Preservation Index	Rutting	Pavement Maint. Requirement	Pavement Variance Rating	Bridge Variance Rating	Safety Index	Weather Related Crashes	Wildlife Related Crashes	Alcohol Related Crashes	Non-use of Safety Restraints	Horizontal Geometric 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)
2.01	Worse	Good	Average	Good	More	Good	Average	Average	Average	Average	Average	Average	Good	Better	Good	Poor	Average	Less	Less
2.02	Average	Good	Less	Good	Average	Poor	Average	Average	More	Less	Average	Less	Fair	Average	Good	Poor	Average	Less	Less
2.03	Average	Good	Average	Fair	Less	Fair	Average	Average	Average	Average	Less	Less	Good	Average	Good	Poor	More	Average	Less
2.04	Average	Fair	Average	Fair	Less	Poor	Average	Average	More	Average	Average	Average	Poor	Better	Good	Good	More	Average	Less
2.05	Better	Good	Average	Good	Less	Fair	Average	Average	Average	Average	More	Average	Good	Better	Good	Poor	More	More	Less

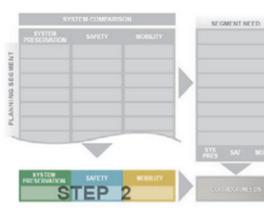




CORRIDOR 2

SYSTEM PRESERVATION - INDEX





Performance Index

The System Preservation Index for all segments in this corridor is average, with the exception of segment 2.01, which is worse than average.

Performance qualifiers with a negative effect on the System Preservation Index:

- The Bridge Variance Rating on 2.01 is poor.

Refer to the sections below for more information.

Segment	SYSTEM PRESERVATION				
	System Preservation Index	Rutting	Pavement Maint. Requirement	Pavement Variance Rating	Bridge Variance Rating
2.01	Worse	Good	Average	Good	More
2.02	Average	Good	Less	Good	Average
2.03	Average	Good	Average	Fair	Less
2.04	Average	Fair	Average	Fair	Less
2.05	Better	Good	Average	Good	Less

Performance Qualifiers

Rutting

There is one location where rutting falls within the poor category: 6 miles on ML 10 between route marker (RM) 106 and 112 in Segment 2.04.

Pavement Maintenance Requirements

Pavement maintenance sections recommended by the Pavement Management System (Agile Assets) and not yet selected to receive funding within the STIP will continue to decline. If not treated on the recommended schedule, the treatments will become more costly as conditions deteriorate.

Approximately 53% of SSC 2 has been identified as having a 1S need. This represents 45 miles of pavement. Segments 2.01, 2.02, 2.03, 2.04, and 2.05 have 1S treatments recommended by the Pavement Management System. Based upon current available funding, only two projects, representing 7.5 miles of pavement, have been selected to be completed within the next several years.

Approximately 15% of SSC 2 has been identified as having a 2S need. This represents 13 miles of pavement. Segments 2.01 and 2.04 have 2S treatment recommended by the Pavement Management System. Based upon current available funding, only one project, representing 3 miles of pavement, has been selected to be completed within the next several years.

Approximately 2% of SSC 2 has been identified as having a 3S need. This represents 1.5 miles of pavement. Segment 2.05 has a 3S treatment

recommended by the Pavement Management System. Based upon current available funding, no projects have been selected to be completed within the next several years.

Based upon current available funding within the STIP, SSC 2 has identified one 4S projects, representing 9 miles of pavement.

Pavement Variance Rating

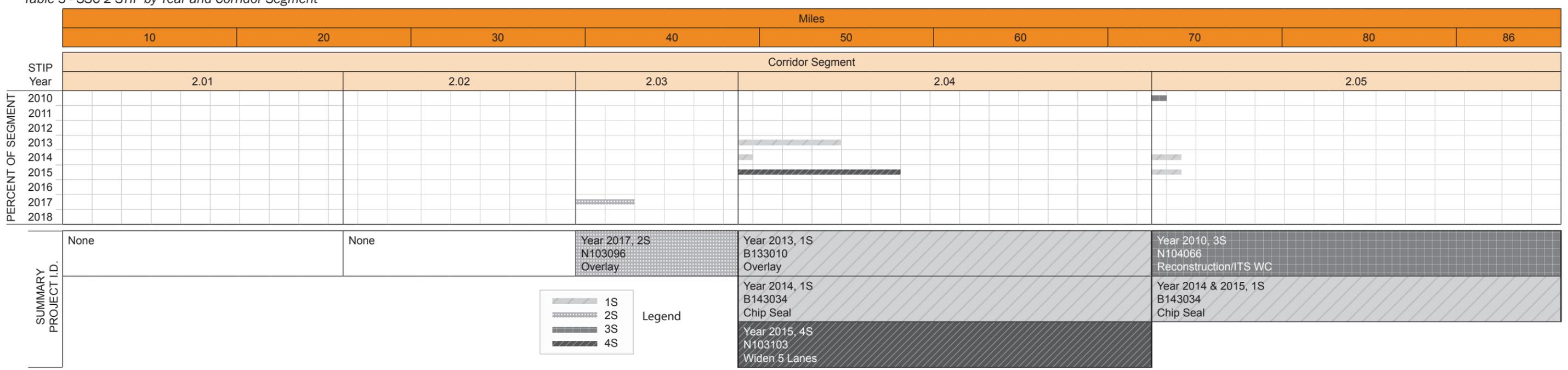
The Pavement Variance Rating is fair or better for the entire corridor. Pavement hotspots, identified by length and severity, occur in two locations (most or least severe).

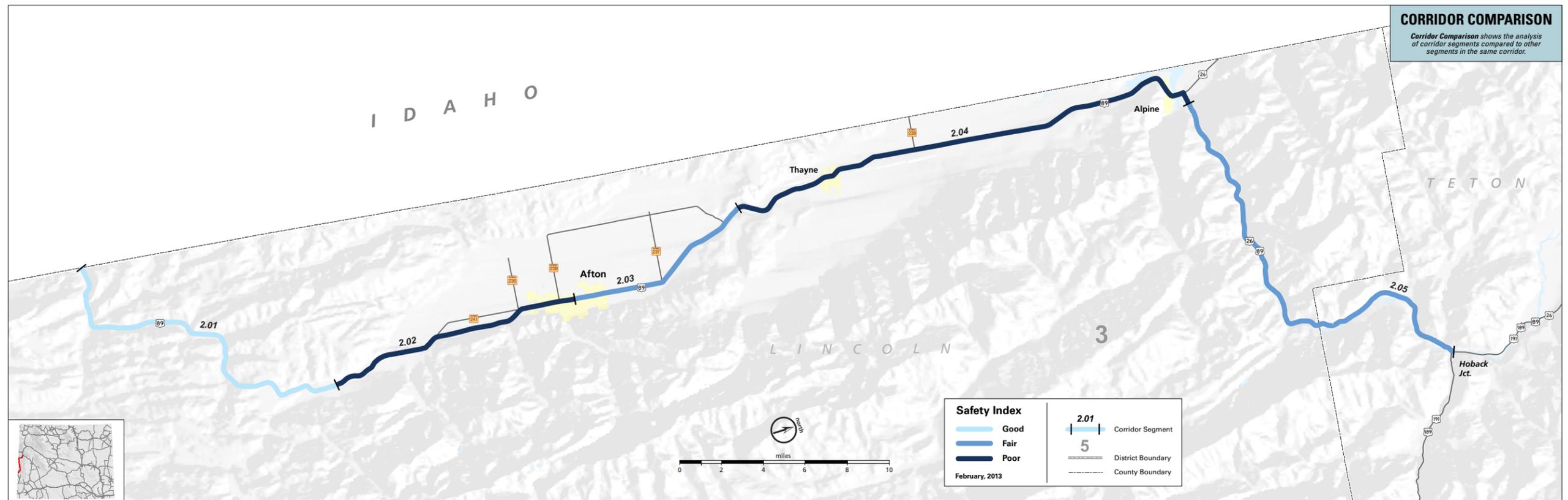
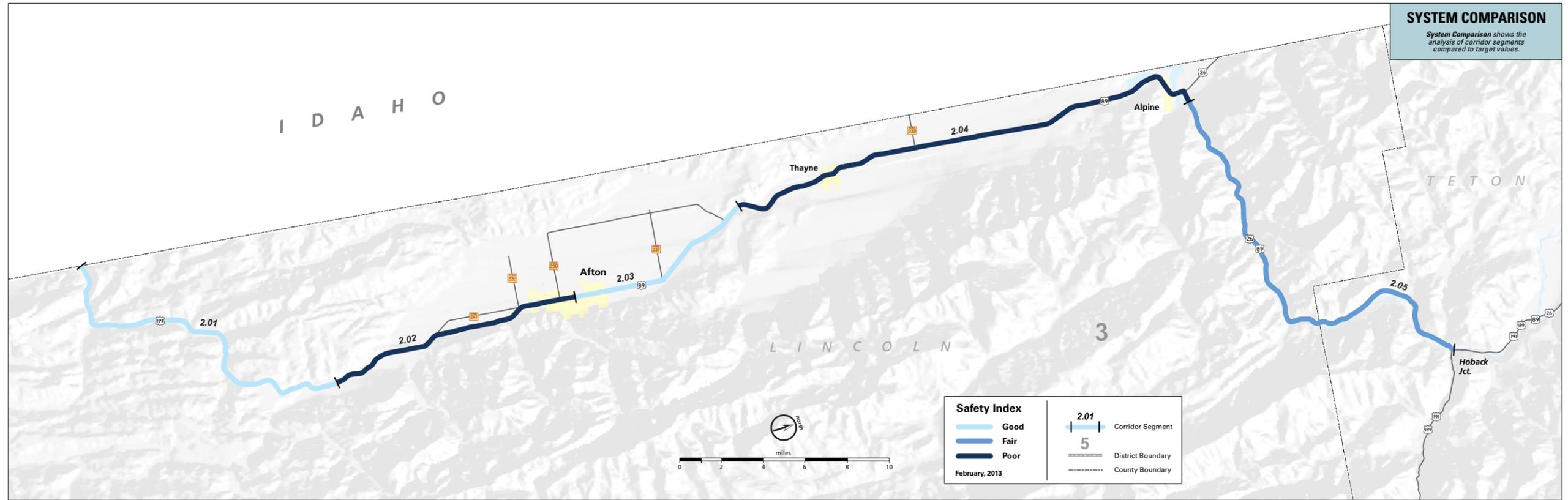
Bridge Variance Rating

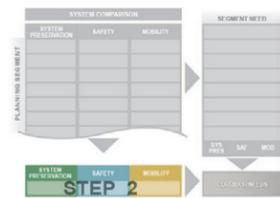
The Bridge Variance Rating for most of the corridor is Average or better than the system average. All segments have at least one bridge. There are two structurally deficient bridges along SSC 2: one in Segment 2.01 with a bridge deck of 4300 ft² and one in Segment 2.02 with a bridge deck of 2265 ft², each with the lowest WYDOT severity rating, resulting in a Bridge Variance Rating of more than average or average when compared to the system average.

NOTE: See Appendix for maps documenting each performance qualifier.

Table 3 - SSC 2 STIP by Year and Corridor Segment







Performance Index

The Safety Performance Index is good to poor. Segments rated poor include 2.02 and 2.04.

Performance qualifiers with poor performance include:

- Alcohol Related Crashes are more than the average on segments 2.02 and 2.04.
- Crashes on Horizontal Geometric Insufficient Curves are more than the average on segment 2.05.
- Crash Concentrations are rated poor on segment 2.04.

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
2.01	Good	Average	Average	Average	Average	Average	Average	Good
2.02	Poor	Average	Average	More	Less	Average	Less	Fair
2.03	Fair	Average	Average	Average	Average	Less	Less	Good
2.04	Poor	Average	Average	More	Average	Average	Average	Poor
2.05	Fair	Average	Average	Average	Average	More	Average	Good

Performance Qualifiers

Weather Related Crashes

The ratio of weather related crashes to total crashes in this corridor was at or slightly above the system average. For each segment within this corridor, approximately 30% of the total crashes were weather related and during snowfall conditions.

Wildlife Related Crashes

Corridor 2 received an average rating with respect to vehicle/wildlife collisions. Segments 2.02 and 2.05 had the highest rate of crashes involving wildlife, at 44% and 47%, respectively.

Segment 2.05 is more varied in the type of animal-vehicle crash, including deer (64%), elk (17%), moose (14%), and other (5%). Several migration routes documented by the Wyoming Game and Fish Department intersect the corridor. The highest concentrations of animal-vehicle crashes are located near RM 120 and 130; however, animal related crashes are also distributed throughout the segment.

Alcohol Related Crashes

The percentage of alcohol related crashes is above the system average, meaning that the number of crashes that involved alcohol compared to the total number of crashes within the corridor was more than the system average. Segments 2.02 and 2.04 have the highest percentage of alcohol related crashes; the crashes were located along the segments and were not concentrated in a specific area.

Non-use of Safety Restraint

The ratio of crashes in which a restraint device was not worn to total crashes is at the system average. Segment 2.04 had the highest percentage (71%) of crashes in which seat belts were not worn.

Horizontal Geometry Insufficiency

Several horizontal alignments were found to be insufficient based on the associated posted speed and an assumed emax of 8%. Segment 2.05 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
2.01	ML10	70.49	3
2.01	ML10	71.73	5
2.02	ML10	74.55	3
2.05	ML10	121.01	6
2.05	ML10	121.31	2
2.05	ML10	126.40	4
2.05	ML10	132.57	3
2.05	ML10	132.60	2
2.05	ML10	138.11	2

Vertical Geometry Insufficiency

Several horizontal alignments were found to be insufficient based on the associated posted speed and an assumed emax of 8%. Segment 2.05 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.

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

Table 5 - Vertical Geometry Insufficiency

Segment	ML Route	Route Marker	Curve Type	# of Crashes
2.01	ML10	70.42	SAG	2

Crash Concentrations

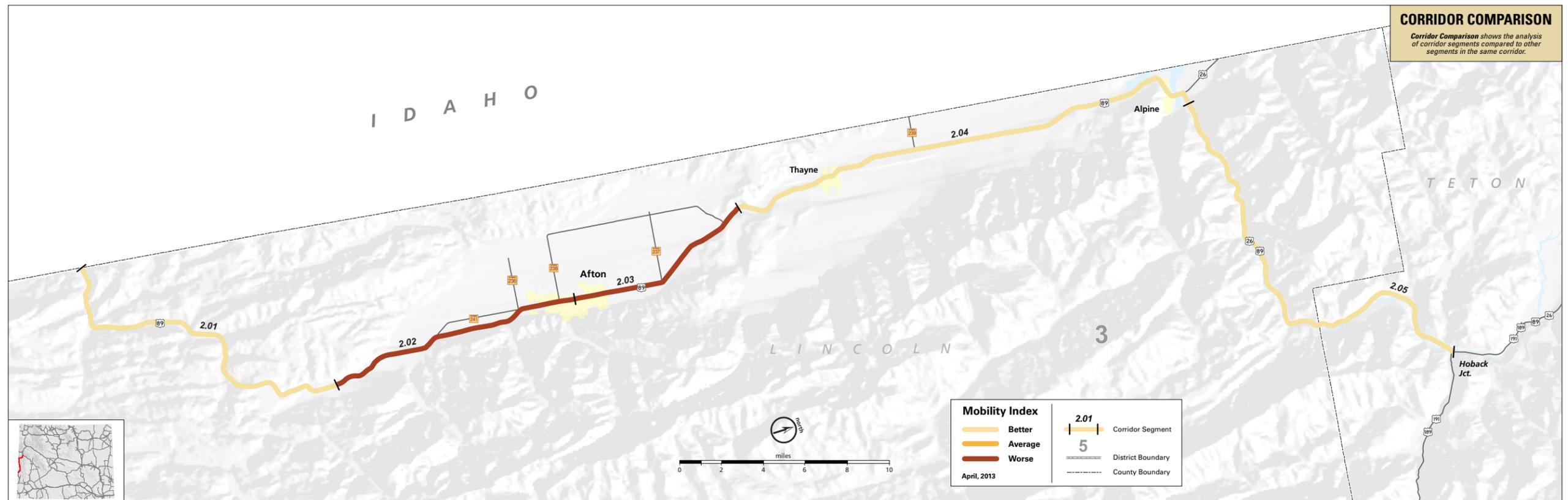
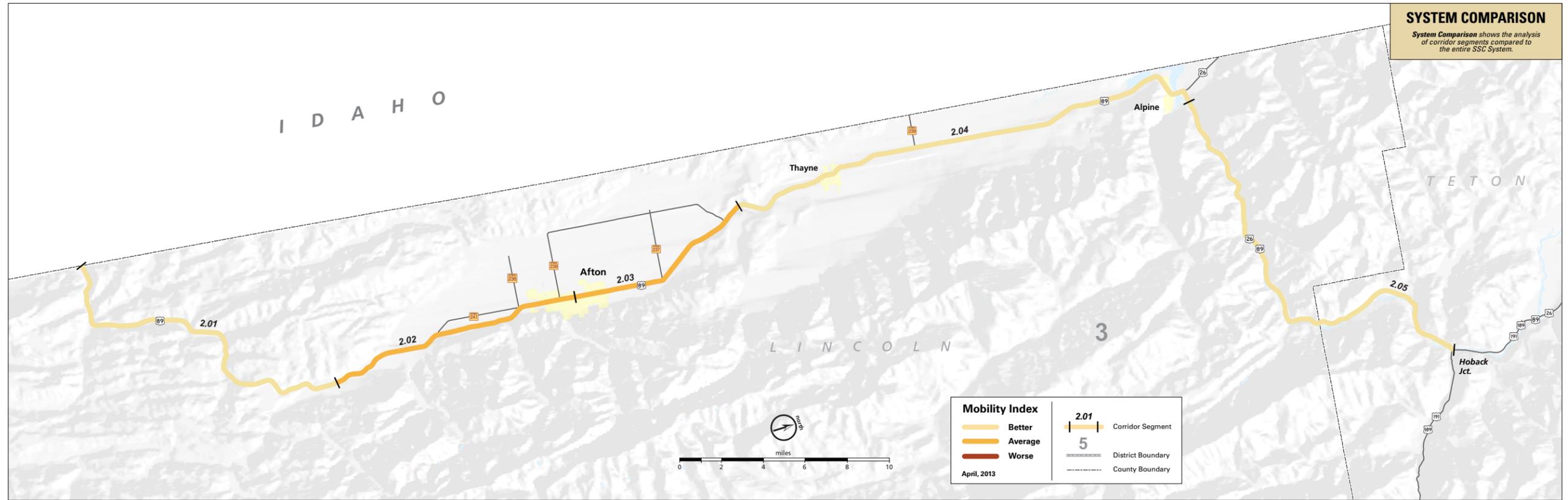
Crash concentrations are identified by locating spatially significant clusters of individual crash events that are of a similar severity level. The concentrations fall into one of two severity types: Critical, which consists of only "Critical" level crashes, and Other, which consists of "Severe" and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

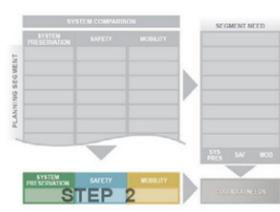
There are three Critical concentrations on Corridor 2, which are listed in Table 6. Additionally, there is one Other type concentration. Segment 2.04, exhibits the most crash concentrations with 2 Critical concentrations, which occur between RM 96.5 and 97.75, and RM 110.1 and 110.3.

Table 6 - Critical Crash Concentrations

Segment	ML Route	Route Marker	
		From	To
2.02	ML10	79.75	80.2
2.04	ML10	96.5	97.75
2.04	ML10	110.1	110.3

NOTE: See Appendix for maps documenting each performance qualifier.





Performance Index

The Mobility Performance Index for segments on SSC 2 is average or better than average.

MOBILITY						
Segment	Mobility Index	Volume to Capacity Rating	Pavement Variance Rating (L/R)	Traffic Growth	Truck Traffic Growth	Bridge Variance (L/R)
2.01	Better	Good	Poor	Average	Less	Less
2.02	Average	Good	Poor	Average	Less	Less
2.03	Average	Good	Poor	More	Average	Less
2.04	Better	Good	Good	More	Average	Less
2.05	Better	Good	Poor	More	More	Less

Several local routes connect to SSC 2. The condition of each local route is associated with a planning segment and directly influences the mobility of that segment. The condition of several routes is poor.

SSC 2 is traveled heavily by tourists heading north towards Grand Teton National Park and Yellowstone National Park. The route also serves local recreational traffic and commuting to the national park area. Shoulder widths vary from 0' to 4' with no rumble strips noted. Current shoulders may not be adequate for high volume sections of the route.

Table 7 - Major Traffic Generators

Major Traffic Generators
Yellowstone & Grand Teton National Parks - Tourism - Jackson area
Other dispersed local/regional recreation on public lands and waterways
Commuting to tourism destinations - Star Valley to Jackson
Local agricultural/commercial transport

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 2 is good.

Traffic Growth

The average traffic growth within the SSC System is 1.42%. More than half of the segments in this corridor have higher than average annual traffic growth. Segment 2.03 has the highest average annual traffic growth rate. This segment is located in the town of Afton and to the north on ML10.

Table 8 - Traffic Growth

Segment	AADT 2010	Average 20 Year Growth
2.01	1,359	1.00%
2.02	2,415	1.07%
2.03	5,160	2.28%
2.04	4,592	1.98%
2.05	4,080	1.96%

Truck Traffic Growth

The average truck traffic growth within the SSC System is 1.34%. All segments within SSC 2 have a 2-lane rural roadway classification. Segment 2.05 has the highest average annual truck growth rate. This segment is from Alpine to Hoback Junction via ML10.

Table 9 - Truck Traffic Growth

Segment	AADTT 2010	% Trucks 2010	Truck Traffic Growth
2.01	135	10.10%	0.41%
2.02	112	4.98%	0.00%
2.03	211	4.01%	1.31%
2.04	189	4.01%	1.61%
2.05	174	4.12%	3.62%

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 2.02 and 2.03. 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	
2.02	1.72	ML1204	0.00	2.52	1.53
2.02	1.36	ML1206	0.00	12.08	1.89
2.03	1.36	ML1206	0.00	12.08	1.89

Bridge Variance Rating (L/R)

The bridge variance rating for local and regional routes on SSC 2 shows no structurally deficient bridges.

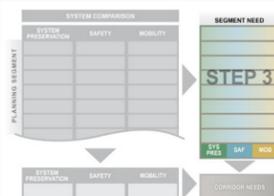
Table 11 - SSC 2 Structurally Deficient Bridges on Local/Regional Routes

Segment	ML Route	Route Marker
NA		

NOTE: See Appendix for maps documenting each performance qualifier.



STEP 3: ANALYSIS OF PLANNING SEGMENT NEEDS



2.01 Geneva, ID/State Line to Salt River

- System Preservation Index - Worse than average, including one structurally deficient bridge.
- Safety Index - Good, with average or better performance across all qualifiers. There were 74 total reported crashes during the 5-year planning period, with 1 fatality. Two curves with a horizontal deficiency and one with a vertical deficiency between RM 70 and 72 were associated with 10 crashes during the five-year analysis period.
- Mobility Index - Better than average, although Poor PVR on Local/Regional routes is reported due to Poor PSR. The segment reports 1,359 AADT with 10.1% trucks.

2.02 Smoot to Afton

- System Preservation Index - Average, with average or better performance across all performance qualifiers, including one structurally deficient bridge.
- Safety Index - Poor, with more than average alcohol-related crashes. There were 85 total reported crashes during the 5-year planning period, with 0 fatalities. One curve with a horizontal deficiency at RM 74 is associated with 3 crashes during the five-year analysis. One area of critical crash concentrations was reported at RM 80.
- Mobility Index - Average, although Poor PVR on Local/Regional routes is reported due to Poor PSR. There are 2 local/regional routes with poor PSR. The segment reports 2,415 AADT with 5.0% trucks.

2.03 Afton to Salt River

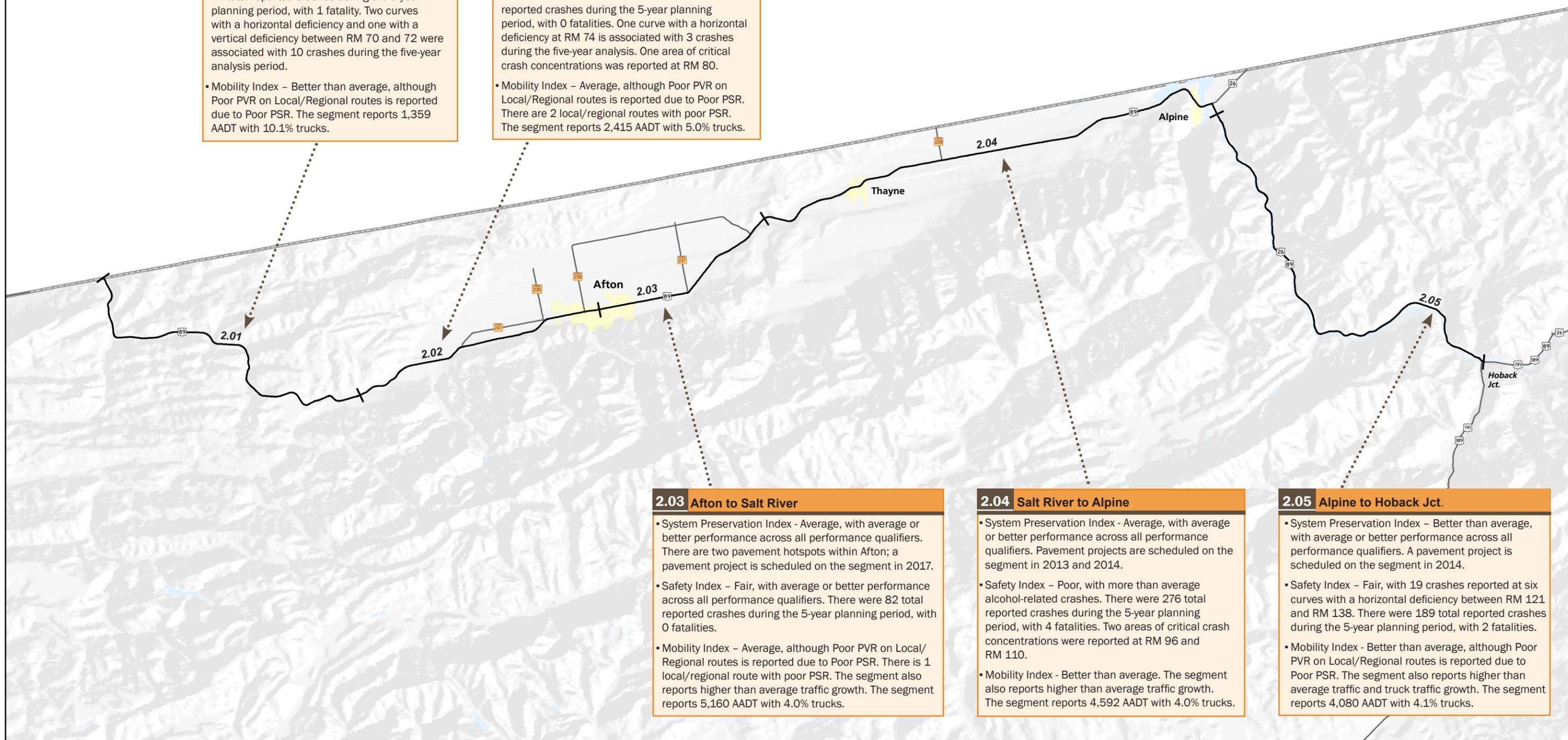
- System Preservation Index - Average, with average or better performance across all performance qualifiers. There are two pavement hotspots within Afton; a pavement project is scheduled on the segment in 2017.
- Safety Index - Fair, with average or better performance across all performance qualifiers. There were 82 total reported crashes during the 5-year planning period, with 0 fatalities.
- Mobility Index - Average, although Poor PVR on Local/Regional routes is reported due to Poor PSR. There is 1 local/regional route with poor PSR. The segment also reports higher than average traffic growth. The segment reports 5,160 AADT with 4.0% trucks.

2.04 Salt River to Alpine

- System Preservation Index - Average, with average or better performance across all performance qualifiers. Pavement projects are scheduled on the segment in 2013 and 2014.
- Safety Index - Poor, with more than average alcohol-related crashes. There were 276 total reported crashes during the 5-year planning period, with 4 fatalities. Two areas of critical crash concentrations were reported at RM 96 and RM 110.
- Mobility Index - Better than average. The segment also reports higher than average traffic growth. The segment reports 4,592 AADT with 4.0% trucks.

2.05 Alpine to Hoback Jct.

- System Preservation Index - Better than average, with average or better performance across all performance qualifiers. A pavement project is scheduled on the segment in 2014.
- Safety Index - Fair, with 19 crashes reported at six curves with a horizontal deficiency between RM 121 and RM 138. There were 189 total reported crashes during the 5-year planning period, with 2 fatalities.
- Mobility Index - Better than average, although Poor PVR on Local/Regional routes is reported due to Poor PSR. The segment also reports higher than average traffic and truck traffic growth. The segment reports 4,080 AADT with 4.1% trucks.





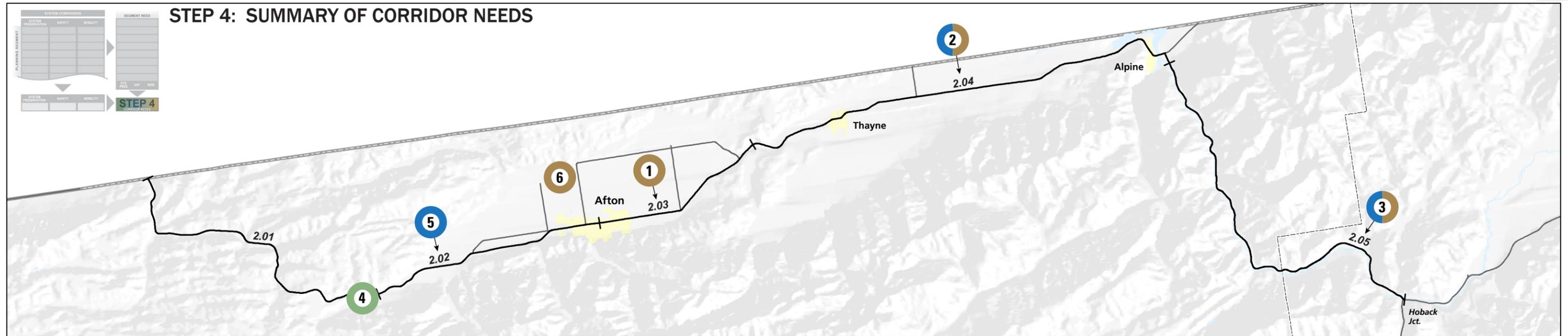
Environmental Overview

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 eight different terrestrial habitat types located throughout the five special management areas within SSC 2. Five federally listed species within the corridor fall into one of three categories, candidate, endangered, and threatened. Four big game species and fourteen raptor species are found in SSC 2. There are three different categories that fall under the aquatic habitat. There are eight watersheds, four aquatic crucial priority areas, and four aquatic enhancement priority areas. See Table 12 for general locations.

Table 12 - Environmental Considerations

Category	SOUTH (West State Line - North of Afton)	CENTRAL (North of Afton - Alpine)	NORTH (Alpine - Hoback Junction)
Big Game Crucial Range	Elk Moose Mule Deer	Elk Moose	Elk Moose Mule Deer Rocky Mountain Goat
Big Game Migration Route	Elk Mule Deer	na	Elk Moose Mule Deer
WGFD Aquatic Crucial Priority Areas SHP	Lower Bear River Upper Salt River Habitat Willow Creek	Snake River Corridor Willow Creek	Snake River Corridor
WGFD Terrestrial Crucial Priority Areas SHP	Bear River - Southern Wyoming Range	Greys - Hoback River 6th Order Hydrologic Units	Greys - Hoback River 6th Order Hydrologic Units
WGFD Combined Crucial Priority Areas SHP	na	na	na
Occurrence & Distribution (Federally Listed Species)	Canada Lynx Greater Sage Grouse Whooping Crane	Greater Sage Grouse Whooping Crane	Canada Lynx Greater Sage Grouse Grizzly Bear North American Wolverine Whooping Crane



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 2 needs occur in several categories: Pavement condition of Local/Regional routes, mostly in the Afton area; structurally deficient bridges on US 89; alcohol related crashes north and south of Afton on US 89; several curves with a horizontal deficiency are located in the mountainous area between Alpine and Hoback Junction.

Several environmental factors should also be considered when conducting project level planning, including big game range and migration routes. The range of numerous endangered species is noted in the corridor. Additionally, the Bear, Greys, and Hoback Rivers are crucial priority areas.

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 needed improvements. Local and specific ROW requirements based on urban on needs in urban areas should be evaluated in the Urban Areas Corridor Plan in cooperation with local governments and planning organizations.

Overlapping Needs

Overlapping needs are identified on three segments:

- 1 2.03 - MOBILITY: Pavement Variance Rating (L/R), Traffic Growth
- 2 2.04 - SAFETY/MOBILITY: Alcohol-Related Crashes, Crash Concentrations, Traffic Growth
- 3 2.05 - SAFETY/MOBILITY: Crashes on curves with Horizontal Geometric Deficiency, Traffic Growth, Truck Traffic Growth

Other Performance Index Needs

System Preservation

- 4 2.01 - Structurally Deficient Bridge

Safety

- 5 2.02 - Alcohol-Related Crashes

Mobility

- 6 2.02 - Pavement Variance Rating on Local/Regional Routes





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

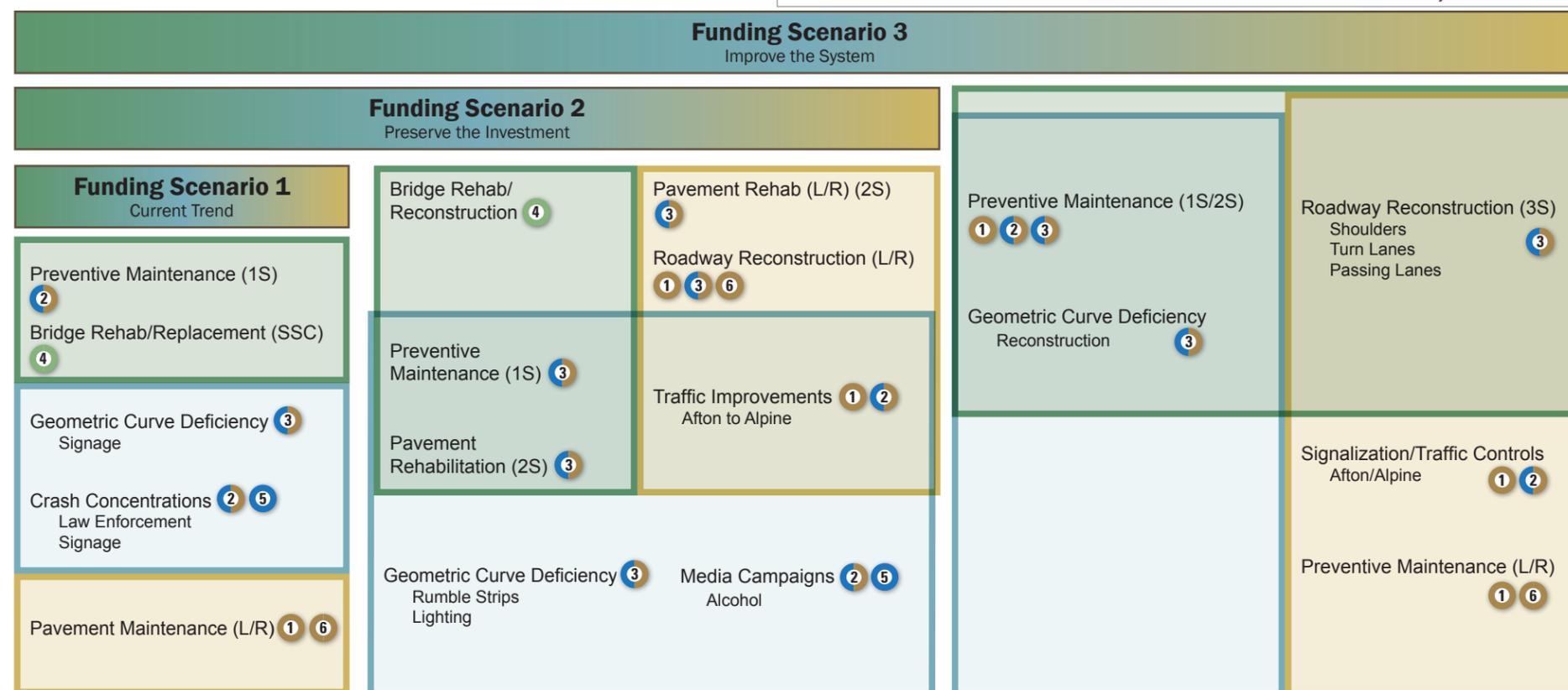
Funding Scenario 1, defined as the continuation of current program funding, is focused primarily on addressing System Preservation needs through preventive maintenance efforts. For this corridor, the plan recommends that these funds remain allocated to preventive maintenance, along with reserving a portion to address identified safety needs. Safety needs include specific wildlife-related accident prone areas and some geometric insufficiencies. These needs may be only partially met 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.
- Minor surface treatments on local and regional routes to extend service life.
- Bridge rehabilitation and 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 alcohol-related law enforcement.

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

Table 14 - SSC 2 Recommended Strategies for Long Range Plan Funding Scenarios



conditions across the system, including on local and regional routes. SSC 2 has significant pavement condition needs on local and regional routes in the Afton area. This scenario would allow investments to fully achieve WYDOT goals in the System Preservation investment category.

- 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.
- Minor projects to improve safety not involving major construction, such as rumble strips, lighted signage (geometric deficiencies), 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 correction of geometric deficiencies.
- Roadway widening (3S), including shoulders, to better address growing vehicle and truck traffic.
- Turn lanes, passing lanes, and other auxiliary lanes to address spot congestion and safety issues in more populated areas from Afton to Alpine Junction.
- Intersection and signalization improvements in more populated areas from Afton to Alpine Junction.

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.

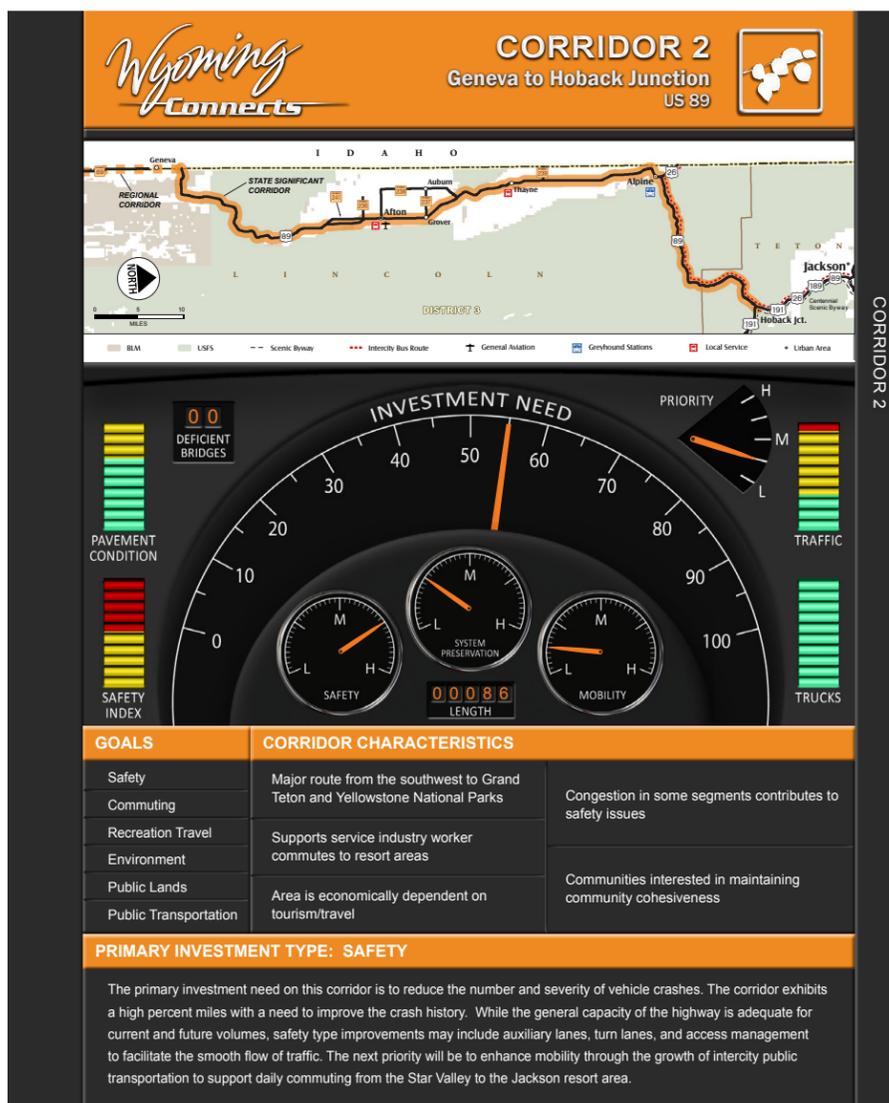


REALIZING THE CORRIDOR VISION

As part of the statewide Wyoming Connects and Long Range Transportation Plan, the Corridor Vision for SSC 2 - 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 Geneva to Hoback Junction Corridor Vision captured Key Issues and Emerging Trends of critical importance and how SSC 2 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. The corridor exhibits a high percent miles with a need to improve the crash history. While the general capacity of the highway is adequate for current and future volumes, safety type improvements may include auxiliary lanes, turn lanes, and access management to facilitate the smooth flow of traffic. The next priority will be to enhance mobility through the growth of intercity public transportation to support daily commuting from the Star Valley to the Jackson resort area.

Additional goals which reflect the full context, character, and issues of SSC 2 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

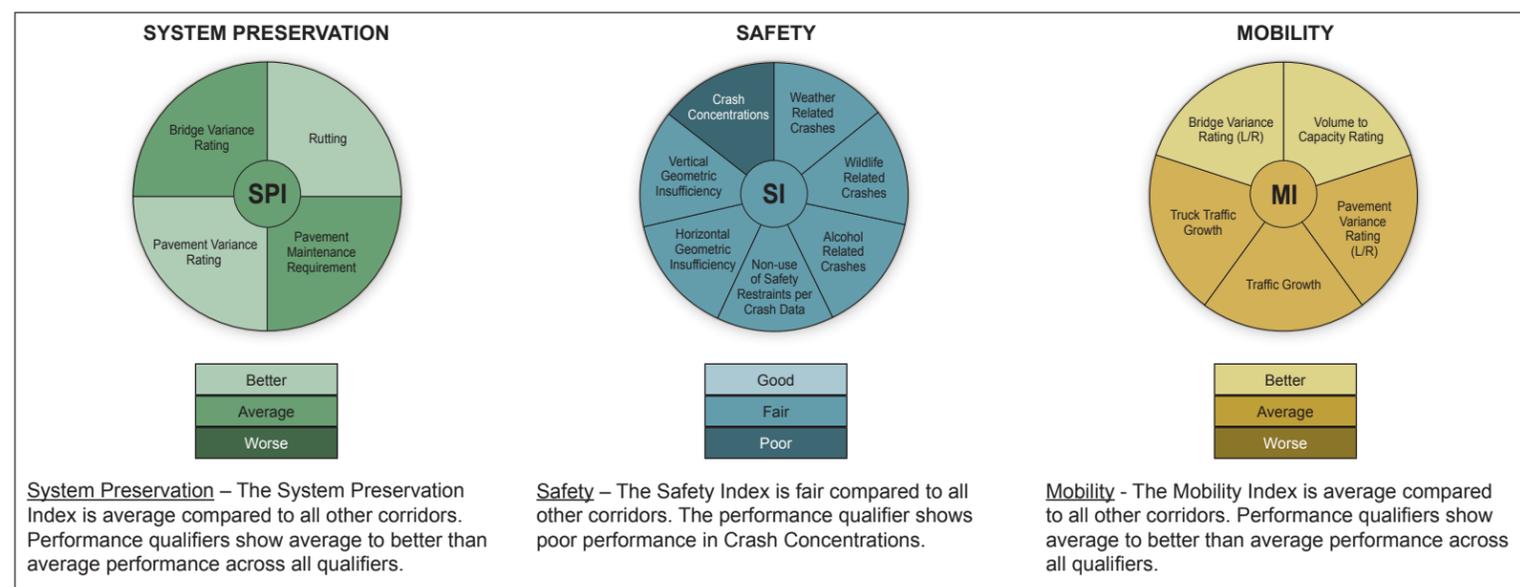
Table 15 - Review of Corridor Vision Goals and Other Considerations

Corridor Visions		High Priority	Other Considerations
Investment Category	Goal		
System Preservation	Promote environmentally responsible transportation improvements		Numerous environmentally sensitive areas along rivers require careful planning.
Safety	Reduce fatalities, injuries, and property damage crash rate	✓	Vision identified Safety as the primary investment need, especially in the northern part of the corridor.
Mobility	Support commuter travel	✓	Traffic and truck traffic growth along the corridor between residential communities and resort destinations.
	Support recreation travel		Local recreation as well as regional destinations identified as key economic drivers.
	Improve access to public lands		Access to public lands for fishing, boating, and mountain regions are important to the communities and visitors.
	Improve public transportation opportunities		Public transportation to support commuter travel to the recreation destination areas is important for community health and to reduce roadway impacts from single occupant vehicles.

CORRIDOR PERFORMANCE

Table 16 shows SSC 2 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.