Performance-Based Planning

Facing rapid growth, transportation funding deficiencies, and growing transportation needs, COMPASS is striving to accelerate the rate of transportation improvement in the Treasure Valley. For this reason, COMPASS has developed a performance monitoring and performance-based planning approach to support *Communities in Motion 2040 2.0* (CIM 2040 2.0) development and implementation.

> When performance is measured, performance improves. When performance is measured and reported back, the rate of improvement accelerates.
>
> —Pearson's Law

The Fixing America's Surface Transportation (FAST) Act, signed into law on December 4, 2015, emphasizes the role of performance management in developing regional long-range transportation plans: "Performance management will transform the Federal-aid highway program and provide a means to the most efficient investment of Federal transportation funds by refocusing on national transportation goals, increasing the accountability and transparency of the Federal-aid highway program, and improving project decision making through performance-based planning and programming." [23 USC 150(a)][1]

COMPASS has satisfied FAST Act requirements by tracking performance measures and targets and developing an approach to performance-based prioritization and programming. This document describes the approach COMPASS uses to monitor progress and forecast benefits and costs, including how it

- reports on performance;
- meets federal performance measure requirements;
- uses performance-based planning in developing its long-range transportation plan; and
- allocates federal transportation funding based on performance measures and targets.

PERFORMANCE MONITORING AND REPORTING

Since 2006, beginning with *Communities in Motion 2030*, COMPASS has tracked progress in meeting goals established in the regional long-range transportation plan via its Performance Monitoring Reports (now called the *Change in Motion Scorecard*).[2] This document uses metrics to represent the goals and performance measures identified in the plan. With the adoption of *Communities in Motion 2040* in 2014, the number of performance measures grew to 56, reflecting the plan's broadened scope to include elements other than transportation, such as community infrastructure, health, farmland, and more.[3]

The performance measures have now been revised to better reflect readily available data and to address Federal Highway (FHWA) and Transit (FTA) Administration required performance areas as specified under the FAST Act (Figure 1). A list of all CIM 2040 2.0 performance measures, with targets, can be found in the Appendix.

COMPASS develops performance measure data for a variety of internal planning and monitoring functions. It also shares the data with COMPASS member agencies to assist in decision making and uses the data to satisfy national performance requirements. COMPASS makes the data available through its *Change in Motion Scorecard*,[4] COMPASS Performance Dashboard,[5] and Development Review Checklists.[6]

Figure 1. *Communities in Motion 2040 2.0* performance measures include federally required measures as well as COMPASS-specific measures.

COMPASS Change in Motion Scorecard

COMPASS collects and evaluates data to assess the region's progress toward achieving *Communities in Motion* goals[7] and summarizes that information in *Change in Motion* reports.[8]

To focus public attention on *Communities in Motion* goals and progress, COMPASS ran a series of social media posts[9] based on the COMPASS performance measures and data outlined in the *2016 Change in Motion* report. The social media series used infographics to broaden reporting of performance measure data to the general public.

Find more information and archived reports on the COMPASS Growth and Transportation System Monitoring web page.[10]

COMPASS Performance Dashboard

Additional information is tracked annually and provided on the COMPASS Performance Dashboard.[11] The dashboard features online mapping and trends about Treasure Valley transportation, economic development, housing, farmland, open space, health, and more. Users can view and download data for business or personal use (Figure 2).

COMPASS Development Review Checklist

To help ensure local decision making reflects regional goals, COMPASS provides a Development Review Checklist to land-use agencies when large-scale developments are proposed.[12] The checklist offers tangible evidence of how well the proposed developments meet *Communities in Motion* goals and helps local cities and counties understand the regional impacts of local development proposals (Figure 3).

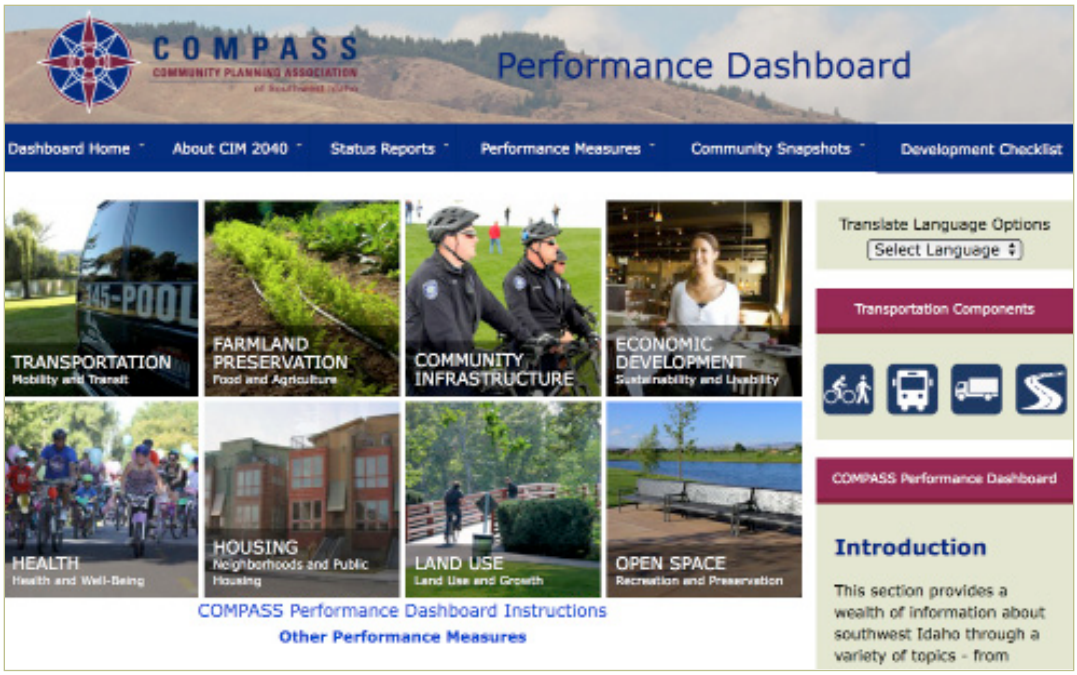
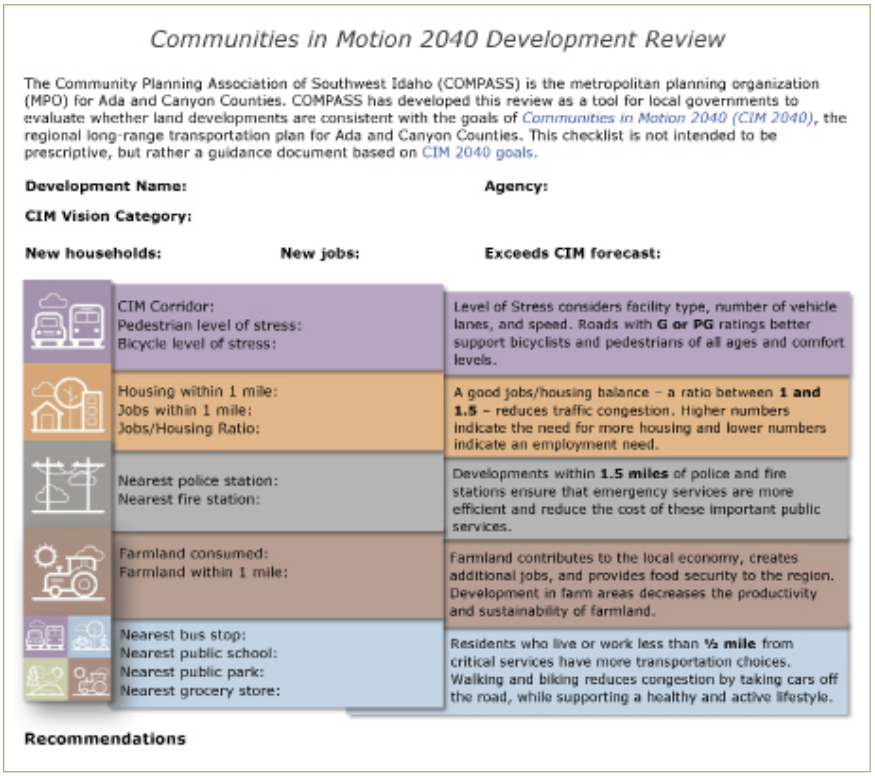


Figure 2. The COMPASS Performance Dashboard allows users to access performance data on demand.



Communities in Motion 2040 Development Review

The Community Planning Association of Southwest Idaho (COMPASS) is the metropolitan planning organization (MPO) for Ada and Canyon Counties. COMPASS has developed this review as a tool for local governments to evaluate whether land developments are consistent with the goals of *Communities in Motion 2040 (CIM 2040)*, the regional long-range transportation plan for Ada and Canyon Counties. This checklist is not intended to be prescriptive, but rather a guidance document based on CIM 2040 goals.

Development Name: **Agency:**

CIM Vision Category:

New households: **New jobs:** **Exceeds CIM forecast:**

CIM Corridor: Pedestrian level of stress: Bicycle level of stress:	Level of Stress considers facility type, number of vehicle lanes, and speed. Roads with **G or PG** ratings better support bicyclists and pedestrians of all ages and comfort levels.
Housing within 1 mile: Jobs within 1 mile: Jobs/Housing Ratio:	A good jobs/housing balance – a ratio between **1 and 1.5** – reduces traffic congestion. Higher numbers indicate the need for more housing and lower numbers indicate an employment need.
Nearest police station: Nearest fire station:	Developments within **1.5 miles** of police and fire stations ensure that emergency services are more efficient and reduce the cost of these important public services.
Farmland consumed: Farmland within 1 mile:	Farmland contributes to the local economy, creates additional jobs, and provides food security to the region. Development in farm areas decreases the productivity and sustainability of farmland.
Nearest bus stop: Nearest public school: Nearest public park: Nearest grocery store:	Residents who live or work less than **½ mile** from critical services have more transportation choices. Walking and biking reduces congestion by taking cars off the road, while supporting a healthy and active lifestyle.

Recommendations

Figure 3. COMPASS completes Development Review Checklists and provides them to cities and counties to illustrate how proposed developments align with *Communities in Motion goals.*

FEDERAL REQUIREMENTS

The 2012 Moving Ahead for Progress in the 21st Century Act (MAP-21) was the first federal transportation legislation to require states and regions to set transportation performance targets to better track progress. The 2015 FAST Act built on MAP-21 and defines transportation performance management as "a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals."[13] There are several federal performance management and performance-based planning requirements for metropolitan planning organizations (MPOs). These requirements include:

- establishing performance targets for federal-aid highway and public transportation measures established by the US Department of Transportation. [23 USC 134(h)(2)][14];
- including a discussion in the metropolitan transportation improvement program (TIP)[15] to show how the planned program will achieve the targets set by the MPO. [23 USC 134(j)(2)(D)][16];
- reporting progress of system performance in the transportation plan. [23 USC 134(i)(2)(C)];[17] and
- developing a performance-driven, outcome-based approach for long-range planning and programming. [49 USC 5303(c)[18] and 23 USC 134(h)(2)[19]].

FHWA Performance Measures and Targets

As outlined in the FAST Act, FHWA requires that MPOs set safety, asset management, and system performance targets and report on progress toward meeting them. [23 USC 150(c)][20] COMPASS has met these performance management requirements.

Beginning in February 2014, COMPASS met regularly with staff from the Idaho Transportation Department (ITD), FHWA, FTA, and transit providers to review proposed and final rules, coordinate data collection efforts, and discuss how these rules impact local, regional, and statewide efforts. COMPASS represents other Idaho MPOs in this group and distributes information to them to support their planning efforts.

Most of the data required by FHWA are collected by ITD, including data related to safety, asset management, and system performance. Valley Regional Transit (VRT) collects the transit asset management data required by FTA (see below).

COMPASS worked with stakeholders through the Regional Transportation Advisory Committee (RTAC) and the Performance Measure Framework Workgroup to set targets for the COMPASS planning area based on the federal requirements in the areas of safety, asset management, and system performance.

For each performance area, MPOs have the option of setting their own regional targets or supporting statewide targets established by the state department of transportation—in this case, ITD.

The COMPASS Board of Directors directed that COMPASS support ITD's statewide targets for all performance areas. With this direction, COMPASS will support these targets by incorporating data on how well projects proposed for the TIP will help meet desired outcomes and budgeting federal funding accordingly.

It is important to note that support of statewide targets does NOT mean that COMPASS will be required to address a regional "share" of the statewide goals; that is, COMPASS does not have specific goals for Ada and Canyon Counties. It simply means that COMPASS will support ITD in its statewide efforts.

Safety

FHWA requires states and MPOs to develop targets for the safety performance measures below. As noted above, COMPASS is supporting Idaho's statewide targets (Table 1) in lieu of separate regional targets.

Table 1. Federally required safety performance measures and Idaho's statewide targets

Federally required safety performance measures[21]	Idaho statewide safety performance targets
Number of fatalities	Fewer than 188 fatalities statewide, annually
Rate of fatalities	Fewer than 1.14 fatalities per 100 million vehicle miles traveled, annually
Number of serious injuries	Fewer than 1,239 serious injuries statewide, annually
Rate of serious injuries	Fewer than 7.49 serious injuries per 100 million vehicle miles traveled, annually
Number of non-motorized fatalities and non-motorized serious injuries	Fewer than 120 non-motorized fatalities and non-motorized serious injuries statewide, annually

To aid in budgeting projects to support safety targets, COMPASS uses FHWA's Crash Modification Factors tool.[22] This tool computes the expected number of vehicle crashes reduced based on proposed safety countermeasures in roadway design. COMPASS also supports state safety targets through outreach and educational events.

Asset Management (Pavement and Bridge)

FHWA requires states and MPOs to develop targets for the asset management performance measures below. COMPASS is supporting Idaho's statewide targets (Table 2) in lieu of separate regional targets.

Table 2. Federally required asset management performance measures and Idaho's statewide targets

Federally required asset management performance measures for pavement[23] and bridges[24]	Idaho statewide asset management performance targets
Percentage of pavement on the Interstate System in good condition	At least 50% of the pavement on the Interstate System in good condition
Percentage of pavement on the Interstate System in poor condition	Less than 4% of pavement on the Interstate System in poor condition
Percentage of pavement on the non-Interstate National Highway System (NHS) in good condition	At least 50% of pavement on the non-Interstate NHS in good condition
Percentage of pavement on the non-Interstate NHS in poor condition	Less than 8% of pavement on the non-Interstate NHS in poor condition
Percentage of NHS bridges classified as in good condition	At least 19% of NHS bridges classified as in good condition
Percentage of NHS bridges classified as in poor condition	Less than 3% of NHS bridges classified as in poor condition

Note: FHWA pavement condition definitions can be found at www.fhwa.dot.gov/tpm/pubs/PM2PavementFactSheet.pdf.

Quantification tools are in development to assess how well proposed projects will help support the statewide targets for asset management.

System Performance (Reliability and Congestion Mitigation Air Quality [CMAQ])

FHWA requires that states and MPOs develop targets for the system performance measures below. COMPASS is supporting Idaho's statewide targets (Table 3) in lieu of separate regional targets.

Table 3. Federally required system performance measures and Idaho's statewide targets

Federally required system performance measures	Idaho statewide system performance targets
Level of travel time reliability, which is a measure of the peak hour travel time compared to median travel times[25]	At least 90% of the Interstate considered "reliable"
	At least 70% of the non-Interstate considered "reliable"
Truck travel time reliability, which is a measure of the peak hour travel time compared to median travel times, for trucks only[26]	Less than a 1.3 truck travel time reliability score[27]
CMAQ emission reductions, which measures the amount of total emissions reduction of on-road mobile source emissions for all projects funded with CMAQ funds[28]	Zero emission reductions based on CMAQ funds, as ITD currently does not use CMAQ funds for emissions reductions

Note: View formulas used for computing travel time reliability at www.compassidaho.org/documents/prodserv/CIM2040_20/TechDocs/Travel_Time_Reliability_Formulas.pdf.

In addition, a federal performance metric for "percent of non-single-occupancy-vehicle travel" will be required in the COMPASS planning area starting in 2022.

Quantification tools are in development to assess how well proposed projects will help support the statewide targets for system performance.

FTA Performance Measures and Targets

FTA requires that MPOs coordinate with local public transportation providers in establishing performance measures for transit assets. Transit asset management (TAM)[29] is an approach to replacing transit assets such as rolling stock, equipment, and facilities based on maintaining a "state of good repair"—meaning that the asset is able to perform its designated function, doesn't pose a known unacceptable safety risk, and its lifecycle investments have been met or recovered.

FTA requires that transit agencies such as VRT document and maintain assets according to TAM standards. VRT must develop a TAM plan to achieve and maintain a state of good repair of all public transportation assets in Ada and Canyon Counties. COMPASS is required to report on TAM targets and progress in long-range transportation plans.

VRT is considered a Tier II regional transit authority. As such, VRT is required to have a TAM plan that includes:

- an inventory of assets with information about those assets;
- a condition assessment of inventoried assets with ratings sufficient for monitoring and predicted performance;

- a description or development of a decision support tool to assist in capital asset investment prioritization that will also estimate capital needs over time; and
- the transit provider's prioritized list of investments to improve the state of good repair of their capital assets over a four-year period.[30]

Specifically, VRT developed the region's TAM plan to:

- outline how people, processes, and tools come together to address asset management policy and goals;
- provide accountability and visibility for furthering understanding of leveraging asset management practices; and
- support planning, budgeting, and communications to internal and external stakeholders.

It is anticipated that the VRT Board of Directors will adopt the TAM plan in early 2019. The plan will address the four required elements and establish goals and targets for each. COMPASS will integrate these performance-based planning elements into the TIP with identified capital investment and priorities arising from the TAM plan.[31]

While setting regional state-of-good-repair performance targets is a local decision, FTA suggests MPOs identify one region-wide state-of-good-repair performance target for each asset type. This allows all transit providers in that region to assess progress towards attainment of transit state-of-good-repair performance and better determine how funding decisions support regional targets.

COMPASS' state-of-good-repair targets for transit asset management, as established by VRT, are:

- less than 27.59% of rolling stock beyond "useful life benchmark"[32]
- less than 15.38% of equipment beyond "useful life benchmark"[33]
- less than 46% of facilities rated below 3 on the condition scale[34]

PERFORMANCE-BASED PLANNING

COMPASS has developed a performance-based planning tool—the Performance Measure Framework—to help objectively compare the region's many unfunded corridors and projects.

The Performance Measure Framework uses existing and new data sources and tools to compare the performance of proposed transportation projects, or groups of projects, against goals identified in CIM 2040 2.0. The outputs provide objective information that assist decision makers in prioritizing transportation investments.

This tool was designed to reflect more complete impacts of transportation investments and help COMPASS

- meet transportation goals identified in CIM 2040 2.0;
- meet livability goals identified in CIM 2040 2.0 in areas such as land use, housing, community infrastructure, economic development, farmland preservation, and health;
- invest limited resources wisely;
- demonstrate accountability of transportation investments;

- tell a compelling story of how transportation investments impact communities; and
- meet federal requirements for performance-based planning.

Developing the Performance Measure Framework

In 2015, COMPASS received a Second Strategic Highway Research Program (SHRP2) grant to develop its Performance Measure Framework. This grant provided funding for consultant support for combining performance data, developing a methodology, and coordinating these efforts with regional stakeholders.

Developing the Performance Measure Framework consisted of four phases:

Phase I: Conduct Outreach

Phase II: Assess the Technical Capacity and Design the Methodology

Phase III: Develop Outputs and Visualizations

Phase IV: Estimate Costs

Phase I: Conduct Outreach

COMPASS identified stakeholder buy-in as a critical aspect of developing the Performance Measure Framework to ensure it would have support when used in decision making. COMPASS established a Performance Measure Framework Workgroup comprised of diverse stakeholders to guide the development of the Performance Measure Framework tool. The first phase of the project focused on interviewing workgroup members to understand their needs. The project consultant then conducted two workshops with the workgroup to obtain additional input.

In the first workshop, COMPASS "gamified" various business processes and decision points, such as corridor planning, development review, and project prioritization, to facilitate discussion about how Performance Measure Framework outputs could be used. Participants played the role of different partners to consider various perspectives when building a transportation system and how performance metrics can inform transportation decisions (Figure 4). Participants also discussed effective ways to display critical information to the public, other stakeholders, and decision makers. This workshop helped determine how performance measures could be used to help realize short- and long-term goals.

Figure 4. Using game cards, workshop participants played the roles of different partners to consider various perspectives on building a transportation system and how performance metrics can inform transportation decisions.

The second workshop used an interactive "dotmocracy" exercise to select the performance measures to use in the final Performance Measure Framework tool.

These workshops were critical to ensuring the resulting Performance Measure Framework generates outputs that are meaningful and useful to stakeholders and decision makers.

Phase II: Assess Available Technical Tools and Design the Methodology

The second phase of the process focused on developing the behind-the-scenes methodology for the model. Since COMPASS has been tracking and using a variety of data for many years, the key aspect of this phase was assessing existing and available analytical tools to match stakeholder needs and objectives.

The framework combines various COMPASS tools, including the regional travel demand model, Geographic Information Systems, and others to evaluate 25 performance metrics structured across seven categories, four representing transportation modes and three reflecting other "livability" elements. The model "scores" investments based on these categories (Figure 5):

- Roadway
- Bicycle/pedestrian
- Freight
- Public transportation
- Community infrastructure and farmland
- Economic development, housing, and land use
- Health and open space

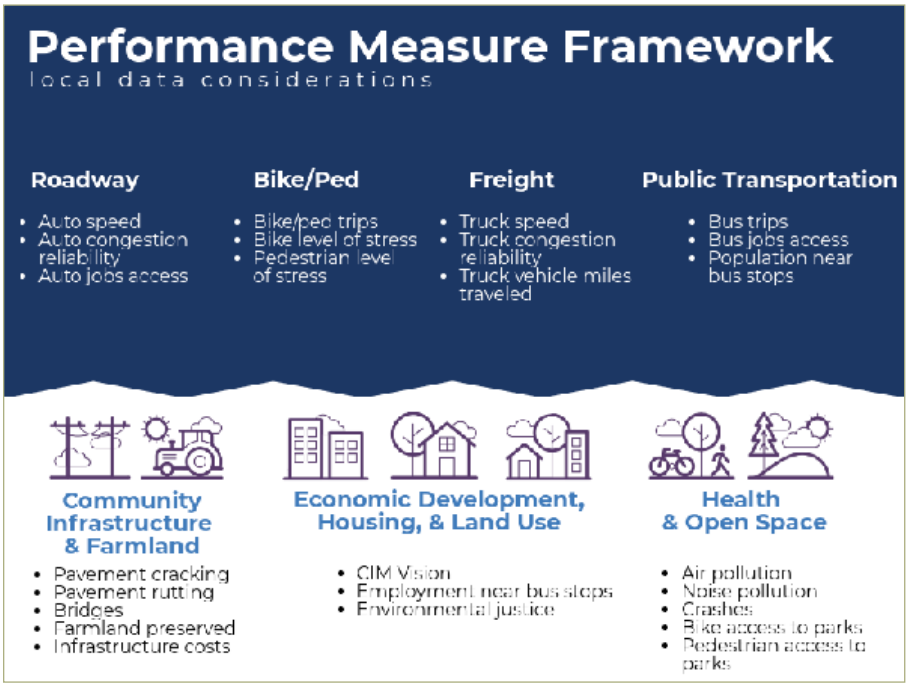


Figure 5. The Performance Measure Framework includes a wide variety of metrics, from transportation to "quality of life" factors.

Phase III: Develop Outputs and Visualizations

Stakeholders noted that diverse methods of summarizing and communicating performance information was critical to conveying this information to the public, elected officials, and other stakeholders.

To enable complex data to be easily understood, COMPASS designed the Performance Measure Framework to include a mapping function and a scoring function. These helped stakeholders visualize the trade-offs of project prioritization.

The mapping function highlights the impacts of transportation investments on the roadway network (Figure 6).

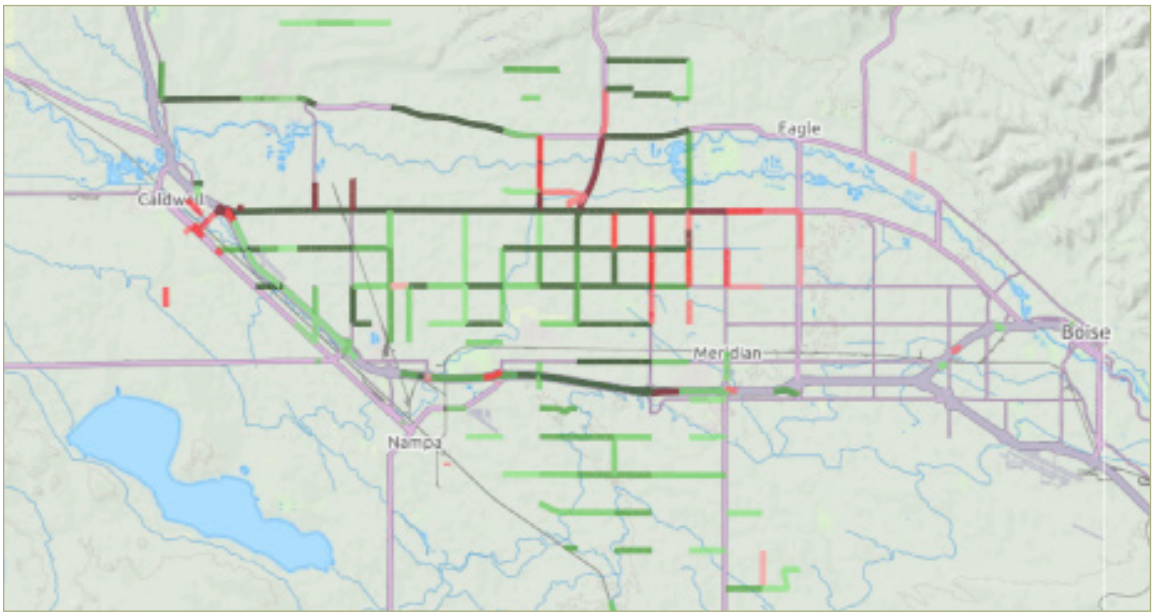


Figure 6. The Performance Measure Framework map illustrates the impacts of transportation projects on the roadway network. This example shows predicted changes in truck speeds if US 20/26 were widened from Caldwell to Meridian. Darker greens show increases in truck speeds and darker reds show decreases in truck speeds.

The scoring function quantifies the impact of transportation investments. Categorical scores combine the scores of the data inputs for that category. For example, the Freight category score is the average of the project's score for 1) truck speed, 2) truck congestion reliability, and 3) truck vehicle miles traveled (Figure 7).

Numeric scores can also be translated into "star"-based ratings to allow for high-level visual comparisons (Figure 8).

Phase IV: Estimate Costs

Project cost estimates are incorporated into the framework, allowing users to understand the relative capital costs, as well as the benefits, when determining the "bang for the buck" for the region (see Figure 7).

Whenever possible, the cost input into the framework comes from existing cost estimates prepared by the implementing agencies. When these are not available, COMPASS develops sketch-level project cost estimates based on industry standards using a unit-cost estimation methodology. For roadway projects, this method considers the types of project improvements and provides a standardized cost for each component of the

Package	Auto	Bike/Ped	Freight	Public Transportation	Community Infrastructure and Farmland	Economic Development, Housing, Land Use	Open Space and Health	Overall Score	Project Cost
Local Projects									
Ustick Road (Montana Avenue to Ten Mile Road)	4.5	3.5	5.0	0.4	2.8	2.7	2.7	★★★	$196,550,000
Cherry Lane (Middleton Road to Black Cat Road)	3.7	0.5	4.0	0.4	2.7	2.9	2.1	★★★	$127,662,000
Idaho Center Boulevard (Achievement Drive to Cherry Lane)	0.5	1.2	0.7	0.4	2.5	1.4	1.6	★	$7,952,000
Greenhurst/Lake Hazel (Greenhurst - Middleton Road to McDermott Road; Lake Hazel - McDermott Road to Black Cat Road)	0.7	3.6	1.6	2.3	2.5	2.8	1.9	★★	$77,704,000
Midland Boulevard (Cherry Lane to US 20/26)	1.0	0.8	1.1	0.4	1.2	2.9	1.6	★★	$49,795,000
Amity Road (Southside Boulevard to SH-69 [Meridian Road])	2.2	1.8	3.1	1.1	2.3	3.4	2.6	★★★★★	$84,447,000
Happy Valley Road (Greenhurst Road to Stamm Lane)	2.3	3.9	1.8	1.2	2.3	2.5	1.6	★★	$53,167,000
Star/Robinson Road (Greenhurst Road to Ustick Road)	4.3	4.3	2.7	1.2	1.9	2.8	2.4	★★★	$96,781,000
Middleton Road (Greenhurst Road to SH-44 in the City of Middleton)	3.6	2.0	2.3	1.1	2.9	3.0	3.3	★★★	$210,339,000
Franklin Boulevard (Birch Lane to US 20/26)	1.1	0.8	1.4	0.4	3.0	2.1	2.4	★★	$66,464,000
Northside Boulevard (Karcher Road to US 20/26)	1.5	2.5	1.7	0.4	2.8	3.7	2.3	★★	$65,028,000
Franklin Road (West of Star Road to Black Cat Road)	2.8	0.4	3.3	0.4	2.6	2.7	1.6	★★	$32,356,000
State Projects									
US 20/26 (Chinden Boulevard) (City of Caldwell to Linder Road; 6 lanes)	3.8	3.7	4.0	1.8	3.6	2.5	3.0	★★★	$106,000,000
SH-44 (State Street) (Canyon Lane to Star Road; alternate route from Canyon Lane to Duff Lane)	3.3	1.7	2.3	3.0	3.0	3.0	2.6	★★★	$133,900,000
SH-55 (Karcher Road) (Pear Lane to Indiana Avenue and Snake River Bridge to True Road [Snake River Bridge to True Road has since been removed from this project])	0.0	1.0	1.7	1.8	2.8	2.0	2.2	★★	$64,707,000
SH-45 South (Bowmont Road to Greenhurst Road)	0.4	0.8	0.8	0.4	3.2	1.8	1.9	★★	$58,026,000
US 20/26 West (City of Parma to City of Caldwell)	1.8	2.3	3.3	1.0	2.4	2.5	2.2	★★★	$199,452,000
Interstate 84 Overpasses (at Linder, Emerald, Cloverdale, and Five Mile Roads [Cloverdale was later removed from this grouping])	4.5	2.7	3.7	0.0	2.3	2.0	3.4	★★★	$23,096,000
Public Transportation Projects									
ValleyConnect Growth	4.5	4.5	4.5	4.6	4.5	4.6	4.4	★★★★★	$118,000,000
ValleyConnect Intermediate	3.2	4.0	3.7	1.8	2.8	3.0	3.0	★★★	$60,000,000

Figure 7. Performance report cards can show the performance of the various transportation investments using a numeric format, in addition to providing an overall "score" (shown as an easy-to-grasp "star rating" in this example). Analysis does not include new roadway connections.

Local Projects	Auto	Bike & Pedestrian	Public Transportation	Freight	Community Infrastructure & Farmland	Economic Development, Housing, Land Use	Open Space & Health
Ustick Road	★★★★☆	★★★	N/A	★★★★★	★★☆	★★☆	★★★★
Cherry Lane	★★★☆		N/A	★★★★☆	★★☆	★★☆	★★☆
Idaho Center Boulevard	☆	★	N/A	★	★★	★	☆
Greenhurst/Lake Hazel	☆	★★★☆	N/A	★☆	★★	★★☆	★☆
Midland Boulevard	☆	☆	N/A	★	★	★★☆	★★
Amity Road	★★	★☆	N/A	★★★	★★	★★★	★★
Victory Road	★★★☆		N/A	★★★	★★	☆	★★
Happy Valley Road	★★	★★★☆	N/A	★☆	★★	★★	★★☆
Star/Robinson Road	★★★★	★★★★	N/A	★★☆	★☆	★★☆	★★★☆
Middleton Road	★★★☆	★★	N/A	★★	★★☆	★★★	★★★★☆
SH 45 South		☆	N/A	☆	★★★	★☆	☆
Franklin Boulevard	★	☆	N/A	★	★★☆	★★	★☆
Northside Boulevard	★☆	★★	N/A	★☆	★★☆	★★★☆	★★
Franklin Road	★★☆		N/A	★★★	★★☆	★★☆	☆
Interstate 84 Overpasses	★★★★☆	★★☆	N/A	★★★☆	★★	★☆	★★☆
State Projects							
US 20/26 (Chinden)	★★★	★★★☆	★★	★★★☆	★★★☆	★★☆	★★★
SH 44 (State Street)	★★☆	★☆	★★★	★★	★★★	★★★	★★☆
SH 55 (Karcher)		★	★	★	★★☆	★☆	★★
US 20/26 West	★	★★☆	☆	★★★	★★☆	★★☆	★★
Public Transportation Projects							
ValleyConnect Growth	★★★★★	★★★★☆	★★★★	★★★★☆	★★★☆	★★★★☆	★★★★☆
ValleyConnect Interim	★★★★★	★★★☆	★★☆	★★★☆	★★☆	★★☆	★★★
	★ equals full star ☆ equals half star						

Figure 8. Performance report cards can also display the performance of various transporation investments using an easy-to-grasp "star rating" for each metric. More stars indicate a more positive outcome.

project. Some of these cost components include:

- construction costs;
- engineering design costs;
- right-of-way costs;
- environmental review costs; and
- other intangible costs such as engineering and contingency.

Additional information about the cost estimation method and how it was used to estimate unfunded capital costs is in included in the financial plan.[35]

Public transportation capital and operations cost estimates are calculated differently than roadway infrastructure cost estimates. Public transportation capital costs are based on the amount of additional rolling stock, right-of-way costs (if needed), and station amenities. Public transportation operational costs were developed through Remix, software that provides sketch-level estimates based on the number of buses required to meet route schedules, the standard, local operating costs of bus service, and the number of route miles.[36]

Transportation System Performance

In addition to the Performance Measure Framework, COMPASS also uses its Travel Demand Forecast Model to forecast impacts of different projects on the transportation system. For this plan, the results compared the complete "funded" 2040 transportation system as determined through this plan against the same complete "funded" system *plus* each unfunded project individually to see changes in the system if the project were to be funded. This allowed users to see the transportation impacts of each project to compare against the "funded" system alone and against each other project. Outputs[37] included differences in:

- vehicle miles of travel;
- congested vehicle miles of travel; and
- vehicle hours of delay.

ALLOCATING FEDERAL TRANSPORTATION FUNDING (TIP ACHIEVEMENT)

One of the ways that COMPASS is implementing performance management is through its TIP—a five-year budget of federally funded and regionally significant transportation projects.[38] Beginning with the FY2016-2020 TIP, COMPASS has identified which projects will help the region meet COMPASS-established performance measures, along with relative funding amounts per measure.

Beginning with the FY2018-2022 TIP, COMPASS also describes which projects will help meet federal safety, pavement and bridge, and/or system performance targets. This information is essential in helping COMPASS prioritize among competing projects.

SUMMARY/CONCLUSION

"Start by doing what's necessary; then do what's possible; and suddenly you are doing the impossible."
—(often attributed to) St. Francis of Assisi

COMPASS started by "doing what's necessary" with tracking performance in Change in Motion reports to help stakeholders and decision makers see progress towards the region's goals. Next, it began to "do what's possible" by developing a comprehensive performance-based planning tool that considers all outcomes of transportation investment decisions. Now, COMPASS is using performance-based planning to "do the impossible" by facing the region's growing challenges while still maintaining and improving our region's transportation system and high quality of life.

NOTES

1 "National goals and performance management measures." *Code of Federal Regulations*. Title 23, 150. http://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title23-section150&num=0&edition=prelim

2 "Growth and Transportation System Monitoring," COMPASS, http://www.compassidaho.org/prodserv/gtsm-perfmonitoring.htm

3 *Communities in Motion 2040*, COMPASS, http://www.compassidaho.org/documents/prodserv/CIM2040/CIM2040_Printer_Friendly.pdf

4 See note 2.

5 "Performance Dashboard," COMPASS, http://www.compassidaho.org/dashboard

6 "*Communities in Motion 2040* Development Review Tool," COMPASS, http://www.compassidaho.org/dashboard/devreview.htm

7 "*Communities in Motion 2040 2.0* Goals," Communities in Motion 2040 2.0, http://compassidaho.org/CIM2040-2.0/communities-in-motion-goals

8 See note 2.

9 Social media posts: "Performance Measure Reporting," COMPASS, http://www.compassidaho.org/prodserv/pmreporting.htm

10 "Growth and Transportation System Monitoring," COMPASS, http://www.compassidaho.org/prodserv/gtsm-perfmonitoring.htm

11 See note 5.

12 See note 6.

13 "Transportation Performance Management," US Department of Transportation Federal Highway Administration, https://www.fhwa.dot.gov/tpm/about/tpm.cfm

14 "Metropolitan transportation planning." *Code of Federal Regulations*. Title 23, 134. https://www.law.cornell.edu/uscode/text/23/134

15 "Transportation Improvement Program," COMPASS, http://www.compassidaho.org/prodserv/transimprovement.htm

16 See note 14.

17 Ibid.

18 "Metropolitan transportation planning." *Code of Federal Regulations*. Title 49, 5303. https://www.law.cornell.edu/uscode/text/49/5303

19 See note 14.

20 "National goals and performance management measures." *Code of Federal Regulations*. Title 23, 150. https://www.law.cornell.edu/uscode/text/23/150

21 "MPO Safety Performance Measures Fact Sheet," US Department of Transportation Federal Highway Administration, https://safety.fhwa.dot.gov/hsip/spm/mpo_factsheet.cfm

22 Crash Modification Factors Clearinghouse, US Department of Transportation Federal Highway Administration, http://www.cmfclearinghouse.org/index.cfm

23 *Pavement Performance Measures*, US Department of Transportation Federal Highway Administration, https://www.fhwa.dot.gov/tpm/pubs/PM2PavementFactSheet.pdf

24 *Bridge Performance Measures*, US Department of Transportation Federal Highway Administration, https://www.fhwa.dot.gov/tpm/pubs/PM2BridgeFactSheet.pdf

25 *Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and the Congestion Mitigation and Air Quality Improvement Program*, US Department of Transportation Federal Highway Administration, https://www.fhwa.dot.gov/tpm/rule/systemperf20042016.pdf

26 *Transportation Performance Management: Freight Reliability Measure*, US Department of Transportation Federal Highway Administration, https://www.fhwa.dot.gov/tpm/rule/pm3/freight.pdf

27 Ibid.

28 *Transportation Performance Management: On-Road Mobile Source Emissions Measure*, US Department of Transportation Federal Highway Administration, https://www.fhwa.dot.gov/tpm/rule/pm3/onroadmobile.pdf

29 "Definitions." *Code of Federal Regulations*. Title 49, 625.5. https://www.law.cornell.edu/cfr/text/49/625.5

30 "TAM Plans," US Department of Transportation Federal Highway Administration, https://www.transit.dot.gov/TAM/TAMPlans

31 See note 15.

32 "Useful Life Benchmarks," US Department of Transportation Federal Transit Administration, https://www.transit.dot.gov/TAM/gettingstarted/htmlFAQs#ULB_Title

33 Ibid.

34 "Performance Management," US Department of Transportation Federal Transit Administration, https://www.transit.dot.gov/PerformanceManagement

35 *Financial Plan*, Communities in Motion 2040 2.0, http://www.compassidaho.org/documents/prodserv/CIM2040_20/TechDocs/Financial.pdf

36 "Remix," TransitWiki, https://www.transitwiki.org/TransitWiki/index.php/Remix#Costs_.26_resources

37 *Final Tech Analysis*, COMPASS, http://www.compassidaho.org/documents/prodserv/CIM2040_20/TechDocs/Final_Tech_Analysis.pdf

38 See note 15.

APPENDIX: *COMMUNITIES IN MOTION 2040 2.0* PERFORMANCE MEASURES

Communities in Motion Planning Element	Category	Sub-category	Performance Measure	Federal Requirement	Target	Target Year
Transportation	Safety	Auto Safety	Number of Auto Fatalities	Safety (PM I)	<188*	2018
Transportation	Safety	Auto Safety	Number of Auto Fatalities per 100 million Vehicle Miles Traveled (VMT)	Safety (PM I)	<1.14*	2018
Transportation	Safety	Auto Safety	Number of Auto Serious Injuries	Safety (PM I)	<1,239*	2018
Transportation	Safety	Auto Safety	Number of Auto Serious Injuries per 100 million VMT	Safety (PM I)	<7.49*	2018
Transportation	Safety	Auto Safety	Number of Non-motorized Fatalities and Serious Injuries	Safety (PM I)	<120*	2018
Transportation	Asset Management	Pavement Conditions	Interstate Pavement in "Good" Condition	Pavement and Bridge (PM II)	>50%*	2019
Transportation	Asset Management	Pavement Conditions	Interstate Pavement in "Poor" Condition	Pavement and Bridge (PM II)	<4%*	2019
Transportation	Asset Management	Pavement Conditions	Non-Interstate NHS Pavement in "Good" Condition	Pavement and Bridge (PM II)	>50%*	2019
Transportation	Asset Management	Pavement Conditions	Non-Interstate NHS Pavement in "Poor" Condition	Pavement and Bridge (PM II)	<8%*	2019
Transportation	Asset Management	Bridge Conditions	Bridges in "Good" Condition	Pavement and Bridge (PM II)	>19%*	2019
Transportation	Asset Management	Bridge Conditions	Bridges in "Poor" Condition	Pavement and Bridge (PM II)	<3%*	2019
Transportation	System Performance	Reliability	Interstate Reliability	Transportation: System Performance (PM III)	>90%*	2019
Transportation	System Performance	Reliability	National Highway System (NHS) Reliability	Transportation: System Performance (PM III)	>70%*	2019
Transportation	System Performance	Reliability	Truck Reliability (index of worst-case travel times compared to median times on the Interstate)	Transportation: System Performance (PM III)	<1.3*	2019

Communities in Motion Planning Element	Category	Sub-category	Performance Measure	Federal Requirement	Target	Target Year
Transportation	System Performance	Congestion Mitigation Air Quality (CMAQ)	CMAQ Emissions (total emission reductions for particulate matter [PM10] for CMAQ funded projects)	Transportation: System Performance (PM III)	0*	2019
Transportation	Public Transportation	Asset Management	Rolling Stock (met or exceeded useful life benchmark)	Transit Asset Management	<27.59%*	2019
Transportation	Public Transportation	Asset Management	Equipment (met or exceeded useful life benchmark)	Transit Asset Management	<15.38%*	2019
Transportation	Public Transportation	Asset Management	Facilities (condition rating less than 3.0)	Transit Asset Management	<46.00%*	2019
Transportation	Active Transportation	Multimodal Use	Bicycle Volumes	Not Required	No Target Set	No Target Set
Transportation	Active Transportation	Multimodal Use	Pedestrian Volumes	Not Required	No Target Set	No Target Set
Transportation	Active Transportation	Infrastructure	Miles of Bikeways	Not Required	No Target Set	No Target Set
Transportation	System Performance	Congestion Management	Volumes at Key Intersections	Not Required	No Target Set	No Target Set
Transportation	Public Transportation	Congestion Management	Transit Passenger Ridership	Not Required	>13.5 Million	2040
Transportation	Public Transportation	Congestion Management	Vanpools (number of operational vanpools)	Not Required	No Target Set	No Target Set
Transportation	Public Transportation	Congestion Management	Non-Single Occupancy Vehicle Mode Share	Not Required	No Target Set	No Target Set
Economic Development	Economic Development	None	Employment Near Transit	Not Required	>70%	2040
Farmland	Farmland	None	Households Outside Area of Impact	Not Required	<6%	2040
Health	Walkability	None	Grocery Store Walkability	Not Required	>1%	2040
Health	Walkability	None	Public School Walkability	Not Required	>34%	2040
Housing	Housing	None	Households Near Transit	Not Required	>20%	2040

Communities in Motion Planning Element	Category	Sub-category	Performance Measure	Federal Requirement	Target	Target Year
Land Use	Activity Centers	None	Major Activity Center Population	Not Required	>28%	2040
Land Use	Jobs Accessibility	None	Auto (number of jobs accessible within a 15-minute commute)	Not Required	No Target Set	No Target Set
Land Use	Jobs Accessibility	None	Multimodal (number of jobs accessible within a 15-minute non-auto commute)	Not Required	No Target Set	No Target Set
Open Space	Open Space	None	Trails and Pathways	Not Required	>754 Miles	2040

*COMPASS supports the Idaho Transportation Department statewide target.