

Product(s): Performance Measures for Highway Capacity Decision Making (C02) and Integrating Freight Considerations into the Highway Capacity Planning Process (C15)

Executive summary

The Community Planning Association of Southwest Idaho (COMPASS) is the metropolitan planning organization (MPO) for Ada and Canyon Counties, Idaho. The two counties have a population of over 650,000, including over 220,000 people in the City of Boise, the State capital. The COMPASS planning area represents about 40% of the State's population.

COMPASS is updating its long-range transportation plan – *Communities in Motion 2040 2.0* (CIM 2040 2.0). The plan addresses eight elements, including transportation, land use, housing, community infrastructure, economic development, health, open space, and farm land, and includes regional goals and performance measures for each element.

Bundle Products Used

COMPASS focused on two of the Planning Process Bundle products: **Performance Measures for Highway Capacity Decision Making (C02)** and **Integrating Freight Considerations into the Highway Capacity Planning Process (C15)**.

Performance Measures

Key Challenges

In CIM 2040 2.0, COMPASS is addressing the transportation system as four components: roadways, freight, public transportation, and walking and biking. The challenge was to develop an objective approach to quantifying how transportation investment decisions impact achievement of regional goals. It was unclear how we would consider the transportation system components and many livability factors to address the needs of stakeholders.

Key Outcomes

COMPASS used the SHRP2 Implementation Assistance Program grant to integrate its existing tools and data to quantify the impact of different transportation investments on the eight plan elements and four transportation system components. The results will help prioritize investments for CIM 2040 2.0.

Freight Considerations

Key Challenges

As COMPASS delved into the four transportation components of CIM 2040 2.0, it became apparent the amount and level of local freight data and knowledge lagged behind the other components.

Key Outcomes

Project Snapshot

- Developed Performance Measure Framework to evaluate transportation projects using 28 performance measures across eight goal areas.
- Established Performance Measure Framework Work Group.
- Collected vehicle classification counts at over 80 locations in a two-county area.
- Established Freight Advisory Work Group.
- COMPASS contributed over 188 workdays worth about \$121,000 for all SHRP2 implementation grant-related activities.

COMPASS formed a Freight Advisory Work Group to provide input and feedback on freight data and the integration of freight considerations into the regional long-range plan. COMPASS used the SHRP2 funds to collect vehicle classification counts on key corridors. A key outcome of the data collection and work group input was the identification of critical freight corridors and their inclusion in the State Strategic Freight Plan, approved by the Idaho Transportation Board in December 2016.

Agency's Challenge

Performance Measures

As a medium-size MPO of a geographically, economically, and politically diverse planning area, COMPASS has worked to engage its stakeholders in developing a truly multimodal regional long-range transportation plan that integrates transportation and land use with other considerations. The long-range plan, *Communities in Motion 2040*, was finalized in 2014, and addressed eight planning elements and included 17 goals and 56 performance measures, developed with a stakeholder work group. However, the region lacked an objective approach to comparing the performance of various transportation projects and the impact of transportation investment decisions on achieving the goals in CIM 2040. Such comparisons could be used to help prioritize projects both in the long-range plan and the 5-year regional transportation investment program.

Freight

As COMPASS began to delve into the four transportation components of *Communities in Motion 2040 2.0* (roadways, freight, public transportation, and walking and biking), it became apparent that the amount and level of local freight data and knowledge lagged behind the other components. More and better data would also allow COMPASS to recalibrate the regional travel demand forecast model based on freight travel characteristics.

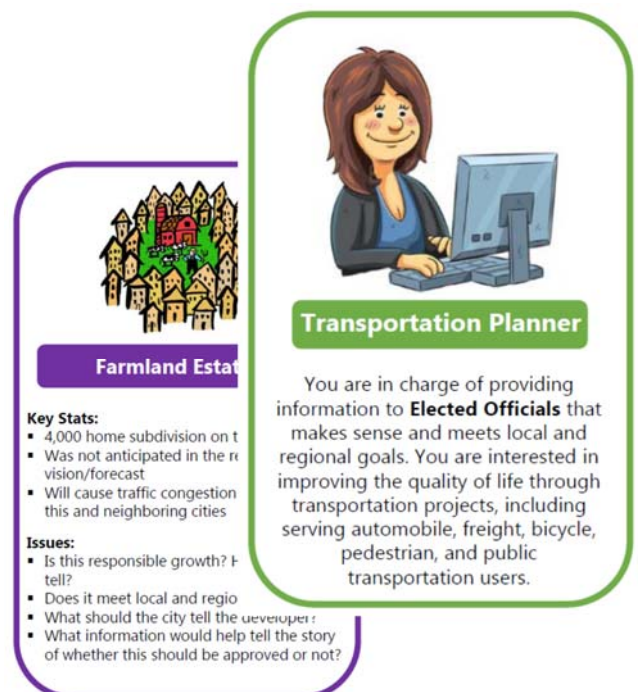
COMPASS conducted a commercial vehicle survey in 2007/2008 for data on freight movements in the region. COMPASS staff looked into national freight data bases for more recent information but found them providing very limited data for the planning area. Recognizing the need for better local and regional freight data, as the first step, COMPASS conducted an agricultural freight study in 2014/2015. That study focused on the data provided by the largest agriculture producers and processors (and their freight providers) in the region. These contacts were also an invaluable first step toward establishing a freight advisory workgroup.

Product Implementation

Performance Measures

The performance measure framework tool was developed to provide a method to compare and cross-prioritize potential transportation investments based on their expected performance. The goal was to identify future transportation system improvements that integrate different transportation system components (roadways, freight, public transportation, and bicycle/pedestrian modes) into a future transportation system that reflects the stakeholders' preferred outcomes and has regional 'buy-in.'

The first step was to form a Performance Measure Framework Work Group to identify when and where data could be better



Farmland Estate

Key Stats:

- 4,000 home subdivision on the site
- Was not anticipated in the region's transportation vision/forecast
- Will cause traffic congestion in this and neighboring cities

Issues:

- Is this responsible growth? If not, how should we tell?
- Does it meet local and regional goals?
- What should the city tell the developer?
- What information would help tell the story of whether this should be approved or not?

Transportation Planner

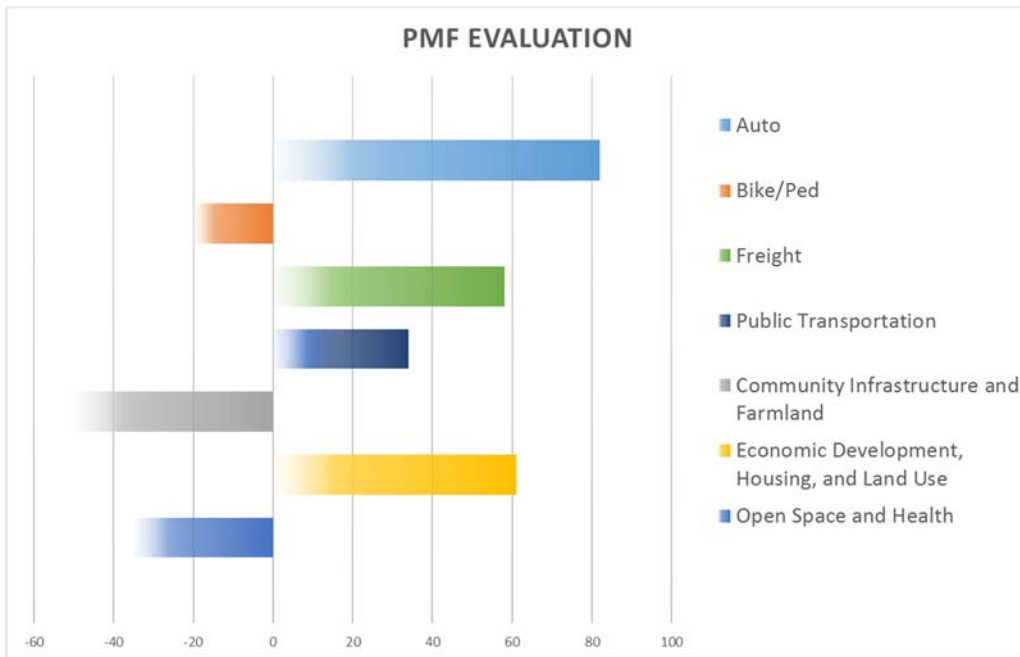
You are in charge of providing information to **Elected Officials** that makes sense and meets local and regional goals. You are interested in improving the quality of life through transportation projects, including serving automobile, freight, bicycle, pedestrian, and public transportation users.

used to assist in decision-making. This was conducted through interactive exercises with the workgroup.

Once these decision points were identified, the consulting team evaluated the performance data and existing COMPASS models and tools to develop a storyboard for how data could be used. The team developed a web-based tool that nested performance data from each of the *Communities in Motion* goal areas and illustrated the societal benefits and costs of transportation investments.

The resulting [Performance Measure Framework](#) allows COMPASS to quantify and normalize the benefits and costs of different sets of transportation investments, as compared to the seven planning elements and four transportation components. The framework consists of three key technical components: database tables and procedures, indexing protocols for scoring and weighting, and visualization and reporting templates and tools. The framework uses existing COMPASS models, tools, and data to analyze packages of transportation projects, then provides the results in a graphical, user-friendly manner that can be used to inform project prioritization for the long-range transportation plan and Regional Transportation Improvement Program.

The performance measure framework tool will be used to help prioritize investment decisions regarding all four transportation components and in light of the seven planning elements.



As a package of transportation projects is evaluated using PMF, the outcome of each transportation system component and the seven elements is measures, scaled and weighted. Packages can receive between 100 and -100 points for each outcome, based on the difference from baseline. The scored and weighted values are also available in a table that can be exported to Excel.

Example of Visualizing PMF Results

	November, 2015	December, 2015	January, 2016	February, 2016	March, 2016	April, 2016	May, 2016	June, 2016	July, 2016	August, 2016	September, 2016	October, 2016	November, 2016	December, 2016
Task 1: Outreach/Listening														
Task 2: Define Use Cases														
Task 3: Technical Assessment														
Task 4: Design Analysis Methods														
Task 5: Graphic Templates and Interfaces														
Task 6: Integrate Methods and Tools into Framework														
Task 7: Delivery and Testing of Integrated Framework														
Task 8: Documentation, Training and Finalization														

PMF Development Scope and Schedule

Freight Considerations

The data from COMPASS truck freight study, conducted in 2007/2008, provided commercial vehicle travel behavior, patterns, vehicle fleet composition, daily vehicle use, cargo, trip ends, as well as internal-external, external-internal and through-trip rates. Using the SHRP2 grant, COMPASS contracted with IdealTime and L2 Data Collection to conduct freight classification counts. Initially in October and November 2015, the counts were collected at 72 sites along key corridors based on regional data on freight routes, the agricultural freight study, and member agency input. Additional data were collected in early 2016 for a total of over 80 sites. The cost of the data collection contracts was \$28,400.

COMPASS consolidated and analyzed its freight data and compiled a map of the regional freight network, and worked with the Idaho Transportation Department to designate critical urban freight corridors which are now included in the approved statewide freight strategic plan. The data were also used in the TIGER and FASTLANE grant applications to show the need to improve sections of Interstate 84 in Canyon County. Several local corridor studies have also used the classification counts to assist with traffic analyses.

COMPASS convened a Freight Advisory Work Group in September 2015 to identify regional freight issues and goals. The work group met again in December 2015 and March 2016 to review a draft freight work plan, based on the earlier discussions. A key component of this work plan was a freight study to collect additional data (beyond classification counts conducted through the SHRP2 grant) and document land use and economic impacts of freight in the region. The Freight Advisory Work Group met again in August 2016 to review a draft of the freight study scope of work. COMPASS let the contract for the freight study in January 2017.

In addition, COMPASS staff and key stakeholders attended an FHWA Freight Data Workshop on March 1, 2016. This was followed by a video conference with COMPASS staff and FHWA representatives to address specific questions about freight planning and data.

In Fall 2016, the contractor reviewed locally-available commercial vehicle data (vehicle classification counts, 2007/2008 truck freight study), outlined an implementation plan for developing the capability within the COMPASS regional travel demand model to estimate and forecast truck trips, and developed a preliminary set of “truck trip” related model parameters. This implementation plan also identified where additional and more detailed data are necessary.

Stakeholder Collaboration

Performance Measures

COMPASS formed a [Performance Measure Framework Work Group](#) made of stakeholders representing all eight plan elements and the four transportation system components.

The work group provided feedback throughout the process, including identifying when and where performance data would be most useful, determining key performance measures to tell the performance story to various audiences, and prioritizing the data so that results would accurately reflect the relative importance of each performance area.

Freight



Performance Measure Framework Workgroup

A [Freight Advisory Work Group](#) was formed to generate and share data on regional and local freight and to collaborate in planning and project decision-making. The work group consisted of representatives of local and regional freight generators and providers, ITD and local highway districts.

Key Outcomes

Performance Measures

- Transparent and objective benefit/cost tool customizable for local conditions.
- Defined menu of solutions for the future transportation system.
- Stakeholder input and buy-in to evaluating projects and trade-offs.
- Summary report of benefits and costs of potential future transportation projects in relation to all *Communities in Motion* elements.

Freight

- Engaged freight industry representation in the freight advisory work group.
- Stakeholder input to identifying freight needs in the region.
- New high quality, local data about truck types and volumes on the region's Interstate highways and major arterials.
- Regional map of freight corridors.
- Path forward to enhance the regional travel demand forecast model to estimate and forecast truck trips on the system and develop a set of protocols to share model-based truck trip tables between the regional and statewide travel demand forecast models.



Freight Advisory Work Group

Lessons Learned

Performance Measures

- Normalizing costs and benefits across disparate goal areas was harder than anticipated; it is an extremely complicated process.
- Don't try to use too many performance measures. Find a balance that reflects the community goals without trying to be all things to all people.
- Be sure to provide graphic representations of the data in maps, charts, and/or infographic formats to help explain the data easily.
- Build upon existing work, data, and tools.
- Performance data should provide objective information to assist in decision-making, but not replace the decision-making process.
- Involve technical staff early in the project design.
- Advisory group on performance measurement may not care about the details as much as the people working on it every day.

Freight

- The Freight Advisory Work Group provided valuable input as the members identified needs and opportunities that otherwise would have been missed.
- Start by building a solid data foundation with better local freight data, such as vehicle classification counts on key corridors.

- Keep looking for connections to other planning topics (i.e. how freight data can inform public transportation and bicycle/pedestrian network decisions).

Next Steps

Performance Measures

- Evaluate potential projects using the performance measure framework.
- Continue to refine the performance measure framework, including more dynamic land use measures and measures to evaluate risk.
- Expand the framework application to include an automated development checklist to provide feedback for local land use decisions on how well proposals meet the performance goals of the long-range transportation plan. This was identified as a need by the work group, but was outside of the SHRP2 product implementation budget.

Freight

- Conduct a freight study to collect more information about land use and freight, use of existing rail lines, and key commodities and supply chains and their economic significance (currently under contract).
- Integrate freight needs into land use and transportation improvement decisions.
- Explore additional data sources for managing freight performance, including the National Performance Management Research Data Set (NPMRDS) data available for the regional corridors.

Connections to PlanWorks

While COMPASS did not explicitly use PlanWorks, the following Decision Guide components, applied to development of a long-range plan, relate to our project:

- LRP-3 – Approve evaluation criteria, methods and measures.
- LRP-7 – Approve plan scenarios. In this case, the “scenarios” are packages of needed improvements/projects.
- ENV-5 – Approve evaluation criteria, methods and measures.
- ENV-6 – Approve full range of alternatives, in this case for the long-range plan.
- COR-6 – Approve range of solution sets (packages of needed improvements/projects).

PlanWorks Summary

Decision Guide:

- LRP-3 – Approve evaluation criteria, methods and measures.
- LRP-7 – Approve plan scenarios. In this case, the “scenarios” are packages of needed improvements/projects.
- ENV-5 – Approve evaluation criteria, methods and measures.
- ENV-6 – Approve full range of alternatives, in this case for the long-range plan.
- COR-6 – Approve range of solution sets (packages of needed improvements/projects).

Assessment(s):

- Partner Collaboration
- Stakeholder Collaboration

Application(s):

- Bicycles and Pedestrians
- Capital Improvement
- Economic Development
- Freight
- Human Environment (Health, Environmental Justice)
- Land Use
- Linking Planning and Operations
- Natural Environment
- Performance Measures
- Safety and Security
- Stakeholder Collaboration

Library:

- [2015 Agricultural Freight Study](#)
- [COMPASS Dashboard](#)
- [CIM 2040 Performance Measures and Targets](#)

For More Information

Contacts

Liisa Itkonen

Principal Planner

COMPASS

208-475-2241 litkonen@compassidaho.org

Name of Primary FHWA Contact

Reena Mathews

Transportation Specialist

Office Of Planning

202-366-2076 reena.mathews@dot.gov

Resources

- [Communities in Motion 2040 2.0](#)
- [Communities in Motion 2040 2.0 – SHRP2 Implementation Assistance Grant](#)
- [2015 Agricultural Freight Study](#)
- [COMPASS Dashboard](#)
- [CIM 2040 Performance Measures and Targets](#)
- [COMPASS Performance Measure Framework](#)