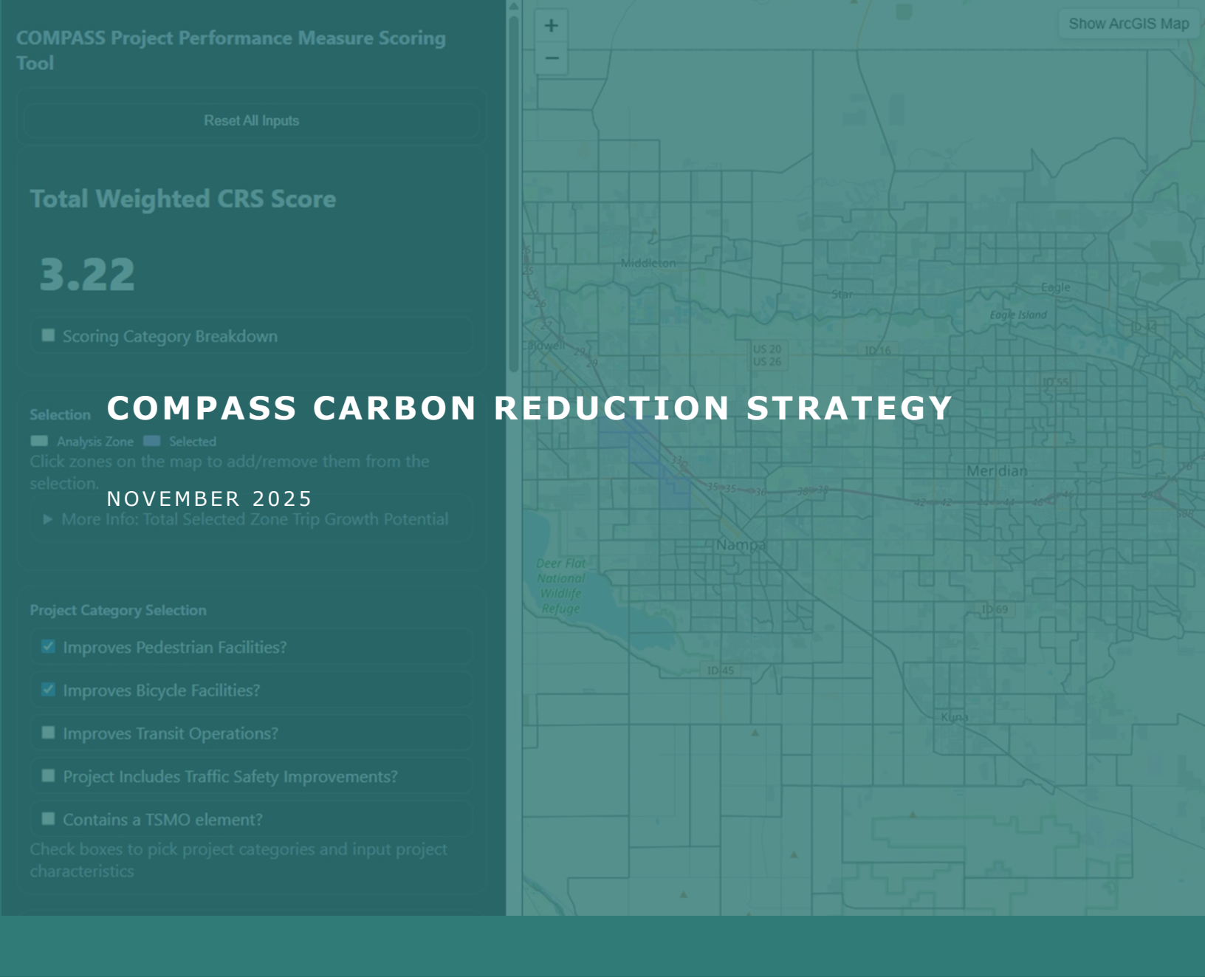


# COMPASS CARBON REDUCTION STRATEGY

NOVEMBER 2025

PREPARED FOR:

## COMMUNITY PLANNING ASSOCIATION OF SOUTHWEST IDAHO

COMPASS
COMMUNITY PLANNING ASSOCIATION
of Southwest Idaho

DKS

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| | |
|---|---|
| ACHD | Ada County Highway District |
| ACS | American Community Survey |
| ATSPM | Automated Traffic Signal Performance Measures |
| BLTS | Bicycle Level of Traffic Stress |
| $CH_4$ | Methane |
| CIM 2050 | *Communities in Motion 2050* |
| CIM 2055 | *Communities in Motion 2055* |
| CMF | Crash Modification Factor |
| $CO_2$ | Carbon Dioxide |
| $CO_2e$ | Carbon Dioxide Equivalents |
| COMPASS | Community Planning Association of Southwest Idaho |
| CRP | Carbon Reduction Program |
| CRS | Carbon Reduction Strategy |
| EPA | Environmental Protection Agency |
| EV | Electric Vehicle |
| FHWA | Federal Highway Administration |
| GHG | Greenhouse Gas |
| HSM | Highway Safety Manual |
| ITD | Idaho Transportation Department |
| ITS | Intelligent Transportation System |
| LTS | Level of Traffic Stress |
| MMT | Million Metric Tons |
| MPO | Metropolitan Planning Organization |
| MT | Metric Tons |
| $N_2O$ | Nitrous Oxide |
| NEI | National Environmental Inventory |
| PLTS | Pedestrian Level of Traffic Stress |
| RTAC | Regional Transportation Advisory Committee |
| $SF_6$ | Sulfur Hexafluoride |

| | |
|---|---|
| SOV | Single Occupant Vehicle |
| TIP | Transportation Improvement Plan |
| TMA | Transportation Management Area |
| TOPS-BC | Tool for Operations Benefit Cost Analysis |
| TSMO | Transportation Systems Management and Operations |
| VMT | Vehicle Miles Traveled |
| VRT | Valley Regional Transit |

## INTRODUCTION

COMPASS, the Community Planning Association of Southwest Idaho, serves Ada and Canyon Counties as the metropolitan planning organization (MPO). COMPASS developed this regional Carbon Reduction Strategy (CRS) to align with the Federal Highway Administration's (FHWA) Carbon Reduction Program (CRP) and the Idaho Transportation Department's (ITD) Carbon Reduction Strategy.

The FHWA CRP was established by the Infrastructure Investment and Jobs Act/Bipartisan Infrastructure Law and funds strategies and projects that reduce on-road transportation emissions. Under the CRP, funding is apportioned annually to states, which then suballocate to urban areas and MPO regions to implement eligible projects. Per the rules of the CRP, states must prepare a CRS in consultation with their MPOs and use it to guide program investments. ITD completed a statewide CRS in late 2024, paving the way for COMPASS to develop a CRS specific to Ada and Canyon Counties.

Nationwide, the CRP provides about $6.4 billion from FY 2022 through FY 2026, with $47 million allocated to the State of Idaho. The state distributes 65% of the funds the state receives to Transportation Management Areas (TMAs), large urban, small urban, and rural areas, based on population, and the remaining 35% is made available for any locality in the state. Funds designated for a TMA are apportioned directly to the MPO to be programmed at their discretion. Note that ITD requires statewide standard local matches of 7.34% for CRP fund expenditure.

Project eligibility is broad, emphasizing the following key themes:

- Promoting adoption of technologies and strategies that measurably reduce transportation-related greenhouse gas (GHG) emissions.
- Supporting low-carbon transportation modes such as public transit, walking, and biking through improved networks and accessibility.
- Expanding deployment of electric, hydrogen, and other zero-emission vehicles and fueling infrastructure.
- Funding Intelligent Transportation Systems (ITS) and traffic management technologies that reduce idling and enhance travel efficiency.
- Providing technical and financial resources to tailor carbon reduction strategies to regional conditions.
- Increasing investment in transit, rail, and active modes to reduce reliance on single-occupancy vehicles.
- Promoting sustainable materials and energy-efficient construction practices in transportation projects

MPOs play a central role in CRP planning and programming. Within the Boise Urban Area, designated as a TMA, COMPASS may program CRP funds to implement projects identified in the long-range transportation plan or transportation improvement program (TIP). In the Large Urban, Small Urban, and Rural areas in the COMPASS planning area, ITD will coordinate with COMPASS and local agencies to identify and program eligible projects consistent with the statewide CRS and this strategy.

The COMPASS CRS builds on ITD's statewide strategy, refining it to meet the specific goals of the region. The project evaluation and scoring process developed through this strategy align with the *Communities in Motion 2055* Goals and Objectives and the CRP, providing COMPASS member agencies with the tools they need to leverage FHWA CRP funds to implement projects that best support both regional and national goals.

This COMPASS CRS includes the following sections:

- Baseline Emissions – setting the regional context for emissions in the Treasure Valley against state and national trends
- Goals, Objectives, and Performance Measures – combines CRP, ITD CRS, and COMPASS' CIM 2055 goals to create the COMPASS CRS goals with linked objectives and performance metrics
- CRS Assessment and Evaluation – summarizes the tools, performance metrics, key assumptions and methodologies to assess strategies, and summarizes the project evaluations used to test and apply the CRS scoring tool
- CRS Statewide Alignment and Regional Coordination – describes commonalities and differences between the statewide CRS and COMPASS CRS and how projects will be prioritized and programmed based on their census geographies
- CRS Implementation – describes the how this strategy and associated tools will be used to achieve desired outcomes
- Future Application of the CRS – outlines potential next steps for the COMPASS CRS and associated tools following the anticipated end of the CRP

## STAKEHOLDER ENGAGEMENT

To support development of a CRS that reflects local and regional priorities and needs, COMPASS formed a stakeholder committee, which provided input throughout the planning process. Representatives from the following COMPASS member agencies were invited to participate in the Stakeholder Committee:

- Ada County
- Ada County Highway District
- Boise State University
- Central District Health
- City of Boise
- City of Caldwell
- City of Eagle
- City of Kuna
- City of Meridian
- City of Middleton
- City of Nampa
- City of Notus
- Highway District 4
- Idaho Department of Environmental Quality
- ITD District 3
- ITD Headquarters
- Valley Regional Transit

The staff from these agencies that participated in the stakeholder committee are listed in Table 1.

**TABLE 1: STAKEHOLDER COMITTEE MEMBERS**

| COMMITTEE MEMBER NAME | AGENCY | JURISDICTION CATEGORY |
|---|---|---|
| **AMY PARISH** | Boise State University | Other |
| **CURTIS LOVELESS** | Central District Health | Other |
| **STEPHEN HUNT** | Valley Regional Transit | Other |
| **MARINA LUNDY** | City of Kuna | Small Urban |
| **ABBY PETERSON** | ITD HQ | State |
| **SCOTT LUEKENGA** | ITD HQ | State |
| **SHIRLEY WENTLAND** | ITD HQ | State |
| **WENDY HOWELL** | ITD D3 | State |
| **BRIAN MCCLURE** | City of Meridian | TMA |
| **NICHOEL BAIRD SPENCER** | City of Eagle | TMA |
| **RANDI WALKINS** | City of Boise | TMA |
| **STACEY DUPUIS** | Ada County | TMA, Small Urban, Rural |
| **ALEX YANN** | ACHD | TMA, Small Urban, Rural |
| **CARL ANDERSON** | City of Meridian | TMA |
| **ROBERTA STEWART** | City of Middelton | Small Urban |

The stakeholder committee was convened three times throughout the CRS planning process:

- Stakeholder Committee Meeting #1 – March 5, 2025: Focused on the purpose of the COMPASS CRS, review of the regional baseline emissions, and an introduction of goals, objectives, and performance measures
- Stakeholder Committee Meeting #2 – June 24, 2025: Focused on preliminary project/strategy evaluation results and refinement of the goals, objectives, and performance measures
- Stakeholder Committee Meeting #3 – August 22, 2025: Focused on review of evaluation results for carbon reduction project strategies throughout the region and scoring outputs from the CRS Project Evaluation Toolkit

In addition to providing input at the in-person meetings, the stakeholder committee also provided review and comment on the interim CRS deliverables, as well as sample candidate projects for evaluation.

The full stakeholder committee meeting notes and presentation materials are included in Appendix D of this report.

In addition to the stakeholder committee, both the COMPASS Regional Transportation Advisory Committee (RTAC) and the COMPASS Board of Directors were provided interim updates on the CRS project progress, findings, and outcomes.

## BASELINE EMISSIONS

This section establishes baseline emission levels for the COMPASS planning area, separated into Ada and Canyon Counties, to serve as a foundation for developing carbon reduction goals and objectives and identifying viable strategies. Using the Environmental Protection Agency's (EPA) National Emissions Inventory (NEI)[1], this analysis quantifies 2020 GHG emissions across key transportation modes and compares regional results to statewide and national benchmarks. These baselines identify where transportation emissions are concentrated and where the greatest reduction opportunities lie. The full details of the baseline emissions evaluation are included in Appendix A.

### PLANNING CONTEXT

The COMPASS planning area includes the Boise Urban Area (a TMA), the Nampa Urban Area, and smaller urban communities such as Middleton, Star, and Kuna, along with surrounding rural regions.

Key regional network characteristics include:

- 5,560 miles of roadway
- 620 miles of trails and paths

The regional population trends for Ada and County were compiled and compared to both the statewide and national numbers, as shown in Table 2.

**TABLE 2: POPULATION GROWTH TRENDS[2]**

| COUNTY | 2010 | 2020 | 2023 | DENSITY (2023) | GROWTH (2010–23) |
|---|---|---|---|---|---|
| ADA | 392,365 | 494,967 | 524,673 | 438.9 pop/mi² | 2.3%/yr |
| CANYON | 188,923 | 231,105 | 257,674 | 498.7 pop/mi² | 2.4%/yr |
| IDAHO (STATE) | 1.57M | 1.84M | 1.96M | 22.8 pop/mi² | 1.8%/yr |
| U.S. | **308.7M** | **331.4M** | **334.9M** | **94.8 pop/mi²** | **0.6%/yr** |

[1] https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

[2] Data sourced from: https://www.census.gov/quickfacts/fact/Figure/canyoncountyidaho,ID,adacountyidaho/PST045224

## ADA AND CANYON COUNTY EXISTING EMISSIONS

For CRS purposes, Ada and Canyon Counties emissions were analyzed separately due to differing funding eligibility, as the Boise Urban Area (TMA) receives a direct allocation of CRP funds, while agencies in Canyon County census geographies (Large Urban, Small Uran, Rural) compete for statewide funding through ITD's CRS.

Baseline emissions were derived from the EPA NEI 2020 dataset, which was the latest complete data set available for this analysis. The NEI dataset categorizes sources into point, nonpoint, on-road, non-road, and fire sources. The definitions of these emissions sources are detailed in Table 3.

**TABLE 3: NEI EMISSION SOURCE CATEGORIES**

| NEI CATEGORY | DESCRIPTION | EXAMPLE SOURCES |
|---|---|---|
| **POINT** | Large, stationary, individually reported | Power plants, refineries |
| **NONPOINT** | Small, diffuse stationary sources | Gas stations, residential heating |
| **ON-ROAD** | Vehicles using public roads | Cars, trucks, buses |
| **NON-ROAD** | Mobile off-road sources | Construction, agriculture, aircraft |
| **FIRES** | Wildland and prescribed burns | Wildfire, crop burning |

Emissions are expressed in Carbon Dioxide equivalents ($CO_2e$) using conversion factors for Carbon Dioxide ($CO_2$), Methane ($CH_4$), Nitrus Oxide ($N_2O$), and Sulfur Hexafluoride ($SF_6$).

Table 4 shows the breakdown of total versus on-road emissions for 2020 in Ada and Canyon Counties and compares these emissions to statewide totals.

**TABLE 4: STATE AND COUNTY 2020 EMMISSIONS SUMMARY**

| MEASURE | UNIT[A] | ADA | CANYON | IDAHO |
|---|---|---|---|---|
| **TOTAL EMISSIONS** | MMT $CO_2e$ | 2.6 | 1.7 | 28.3 |
| **ON-ROAD EMISSIONS** | MMT $CO_2e$ | 2.1 | 1.1 | 11.5 |
| **ON-ROAD % OF TOTAL** | % | 80% | 61% | 41% |
| **EMISSIONS PER CAPITA** | MT/person | 5.3 | 7.6 | 15.4 |
| **ON-ROAD PER CAPITA** | MT/person | 4.3 | 4.6 | 6.2 |

[A] MMT = Millions of Metric Tons, MT = Metric Tons

As shown in Table 4, although Ada and Canyon Counties contain 40% of Idaho's population, they account for only 27% of statewide emissions and 15% of on-road emissions, reflecting lower per-capita emission rates. Both counties' emissions profiles are more urbanized, with smaller industrial and agricultural contributions and greater emphasis on personal vehicle travel.

To better understand the on-road elements of regional emissions, the emissions data by vehicle type was compiled for Ada and Canyon counties, as shown in Table 5.

**TABLE 5: ON-ROAD EMISSIONS BY VEHICLE TYPE**

| VEHICLE TYPE | CANYON | ADA | IDAHO | U.S. |
|---|---|---|---|---|
| TRUCKS (ALL TYPES) | 30.5% | 30.6% | 39.7% | 31.0% |
| BUSES (ALL TYPES) | 0.5% | 0.4% | 0.5% | 1.3% |
| PERSONAL VEHICLES | 69.0% | 68.9% | 59.8% | 67.7% |

As shown in Table 5, trucks, including heavy freight, delivery, and fleet vehicles, contribute fewer total emissions locally than statewide, while personal vehicles dominate on-road emissions locally, closely matching national distributions. The truck emissions trend aligns with the ITD statewide CRS, which prioritizes truck parking strategies due to this high proportion of the total emissions. However, Ada and Canyon Counties truck emissions align much more closely with national trends.

Focusing on regional travel patterns, commuting data from the 2023 American Community Survey (ACS) summarized in Table 6 shows Ada and Canyon Counties have limited transit use compared to the national average. Ada County also has higher than national average remote work rates.

**TABLE 6: COUNTY COMMUTE AND MODE SPLIT DATA[3]**

| MEASURE | ADA COUNTY | CANYON COUNTY | IDAHO | UNITED STATES |
|---|---|---|---|---|
| AVERAGE TRAVEL TIME TO WORK (MIN) FOR WORKSER AGE 16 YEAR+, 2019-2023 | 21.2 min | 25.8 min | 21.9 min | 26.8 min |
| DROVE ALONE | 68.5% | 69.6% | 71.0% | 69.2% |
| CARPOOLED | 8.6% | 11.3% | 10.2% | 9.0% |
| PUBLIC TRANSPORTATION (EXCLUDING TAXICAB) | 0.5% | 0.0% | 0.6% | 3.5% |
| WALKED | 2.0% | 2.5% | 2.8% | 2.4% |
| OTHER MEANS | 2.1% | 2.0% | 1.9% | 2.0% |
| WORKED FROM HOME | 18.3% | 14.6% | 13.5% | 13.8% |

[3] Data sourced from: https://data.census.gov/table?q=DP03

Drive alone trips still make up most commute trips throughout Ada and Canyon Counties. These statistics underscore the importance of targeting single-occupancy vehicle (SOV) trips as a priority for emission reduction efforts.

Overall, the baseline emissions analysis indicates that Ada and Canyon Counties have lower emissions per capita than statewide, but higher percentage of emissions coming from on-road sources, making transportation a priority target for reducing carbon emissions. Combined with the county level mode split travel data, these results indicate that the COMPASS CRS should look for opportunities to reduce emissions through projects that make SOV trip more efficient or encourage other modes of travel such as walking, biking, or transit.

## GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

This section defines the goals, objectives, and performance measures guiding the COMPASS CRS. It builds upon federal and state-level frameworks and integrates regional priorities from *Communities in Motion 2055* (CIM 2055), which is in the process of development at the time of writing this strategy. The goals and objectives for CIM 2055 were developed through public outreach and have been adopted by the COMPASS Board of Directors. Together, the CRP and CIM 2055 goals and objectives establish a foundation for evaluating transportation investments, tracking progress toward emissions reduction, and ensuring alignment among federal, state, and regional carbon reduction initiatives.

Full documentation of the goals, objectives, and performance measures is included in Appendix B of this report.

### FEDERAL CARBON REDUCTION PROGRAM GOALS

There are seven CRP core goals:

1. Lower Carbon Emissions – Promote adoption of technologies and strategies that measurably reduce transportation-related GHG emissions.
2. Promote Sustainable Transportation Infrastructure – Support low-carbon transportation modes such as public transit, walking, and biking through improved networks and accessibility.
3. Encourage Alternative Fuels and Vehicles – Expand deployment of electric, hydrogen, and other zero-emission vehicles and fueling infrastructure.
4. Improve Traffic Flow and Congestion Management – Fund ITS and traffic management technologies that reduce idling and enhance travel efficiency.
5. Support State and Local Efforts – Provide technical and financial resources to tailor carbon reduction strategies to regional conditions.
6. Enhance Multimodal Transportation Options – Increase investment in transit, rail, and active modes to reduce reliance on single-occupancy vehicles.
7. Encourage Energy-Efficient Infrastructure – Promote sustainable materials and energy-efficient construction practices in transportation projects.

The CRP embeds performance accountability into transportation planning by linking funding eligibility to quantifiable emission outcomes. MPOs such as COMPASS may establish baseline conditions, apply consistent evaluation methods, and measure performance improvements over time. The program's flexibility allows regions to design solutions reflecting local travel behavior, geography, and growth dynamics.

## STATEWIDE CARBON REDUCTION GOALS

The ITD CRS identified ten statewide and regional goal categories. Table 7 illustrates these 10 goal categories, six of which are identified as priorities by ITD and nine of which were identified as priorities by COMPASS during the development of the Statewide CRS.

**TABLE 7: ITD CRS GOAL CATEGORIES AND PRIORITIES[4]**

| GOAL CATEGORY | ITD | COMPASS |
|---|---|---|
| PROMOTE/IMPROVE FREIGHT | X | X |
| CONGESTION REDUCTION/PROJECT OPERATIONS/TECHNOLOGY | X | X |
| INFRASTRUCTURE STATE OF GOOD REPAIR | X | X |
| PROMOTE/IMPROVE TRANSIT | | X |
| ACTIVE TRANSPORTATION/SHARED MOBILITY | X | X |
| SAFETY/PUBLIC HEALTH | X | X |
| ENVIRONMENTAL STEWARDSHIP/RESILIENCY | | X |
| LAND USE SUSTAINABILITY/EFFICIENCY | | X |
| ECONOMIC VITALITY | X | X |
| PROJECT EFFICIENCY | | |

The COMPASS prioritization highlights the MPO's stronger regional focus on transit, land use efficiency, and environmental stewardship/resiliency.

ITD further categorized carbon reduction projects into three funding prioritization tiers:

- Tier 1: Truck Parking and Freight Amenities Improvements – Address freight efficiency and idling reduction.
- Tier 2: Traffic Operations and Technology Solutions – Include ITS deployments, adaptive signal control, and corridor optimization.

[4] Excerpt from Table 3-1 of the ITD Carbon Reduction Strategy, December 2024.

- Tier 3: Other Carbon Reduction Strategies – Encompass EV infrastructure, carpooling, transit electrification, sidewalks, pathways, and rail improvements.

These statewide priorities directly affect project selection and prioritization in non-TMA census geographies in the COMPASS planning area, which should align with ITD's CRS priorities to be competitive for statewide CRP funds. Conversely, projects within the Boise Urban Area TMA will be selected and programmed using regionally tailored performance measures developed in the COMPASS CRS.

## COMPASS CARBON REDUCTION STRATEGY GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

Based on input received from the CRS Stakeholder Committee, the COMPASS CRS aligns directly with goals and objectives of CIM 2055, COMPASS' long-range transportation plan, reflecting local values, priorities, and mobility goals developed through member and community engagement.

Performance measures were selected based on two primary criteria:

1. The measure must align with a CIM 2055 objective, ensuring regional policy consistency.
2. The measure is quantifiable using existing tools or tools developed through the CRS process or can be qualitatively evaluated based on best practices in the industry.

In addition, the majority of the performance measures were selected based on either a direct, or indirect reflection of carbon emissions, with the exception being measures tied to vehicle travel cost.

The CRS Goals and Objectives are summarized in Table 8, along with the corresponding CRS performance measures. Note that some performance measures are repeated under multiple relevant objectives. More details related to each specific performance measure's relevance to both the overarching CRP goal and the corresponding CIM 2055 objective are included in the following sections.

**TABLE 8: COMPASS CRS GOALS, OBJECTIVES, AND PERFORMANCE MEASURES**

| CIM 2055 GOAL AREAS | CIM 2055 OBJECTIVES | CRS PERFORMANCE MEASURES[A] |
|---|---|---|
| ECONOMIC VITALITY | **Economic Vitality:** Develop a transportation system that promotes economic vitality by providing local residents multi-modal access to jobs and housing, serving local businesses, promoting travel and tourism, and the movement of freight | • Decrease in heavy truck delay<br>• Increase in public transit trips<br>• Increase in walk trips<br>• Increase in bike trips |
| | **Preservation and Reliability:** Provide a reliable transportation system for all users by preserving and maintaining the existing transportation infrastructure | • Reduction in heavy truck vehicle miles traveled (VMT)<br>• Decrease in arterial roadway delay<br>• Decrease in freeway delay<br>• Decrease in heavy truck delay |

| CIM 2055 GOAL AREAS | CIM 2055 OBJECTIVES | CRS PERFORMANCE MEASURES[A] |
|---|---|---|
| | **Growth Management:** Develop and implement a regional vision that guides growth where it can be cost-effectively served by infrastructure, services, and amenities, to protect and preserve farmland and the agrarian economy of the valley. | • Reduced VMT |
| **SAFETY** | **Safety, Security, and Resiliency:** Provide a safe, secure, and resilient transportation system that minimizes risk and supports transportation options for all users. | • Reduce crash rate on congested and non-/or unreliable corridors<br>• Improved level of traffic stress (LTS) for bicycles and/or pedestrians, using the methodology detailed in Ada County Highway Districts (ACHD) *Livable Streets – Performance Measures*[5] |
| **CONVENIENCE** | **Organized Transportation:** Develop a regional transportation system that provides access and mobility for all users through a highly connected network that encourages travel choices and preserves future transportation options. | • Increase in public transit trips<br>• Increase in walk trips<br>• Increase in bike trips<br>• Increase in trips diverted to "low-speed" travel modes |
| | **Organized Development:** Promote development patterns that minimize travel, improve efficiency, and reduce congestion on the transportation system. | • Decrease in arterial roadway delay<br>• Reduced VMT |
| **QUALITY OF LIFE** | **Environment and Open Space:** Develop and implement a regional vision that protects, preserves, and connects residents to the natural environment and open space while minimizing the impact of the transportation system on the environment and promoting public health. | • Increase in walk trips<br>• Increase in bike trips |
| | **Housing Affordability and Equity:** Promote development patterns for affordable housing and equitable access to the transportation system for all users. | • Decrease in vehicle travel cost |

[A] Performance Measures that "reduce", "decrease", or "increase" refer to change compared to a future baseline condition, not change from present-day conditions

[5] Ada County Highway District. Livable Streets Performance Measures. Adopted December 2024.

Each of these measures is linked to both carbon reduction benefits and regional livability outcomes, forming an integrated evaluation framework.

## PERFORMANCE MEASURES CROSSWALK

The performance measures crosswalk defines how each performance metric connects to both the CIM 2055 objective and the carbon emissions, linking the COMPASS CRS with the CRP program goals. This performance measures crosswalk is defined in Table 9.

**TABLE 9: CRS PERFORMANCE MEASURES CROSSWALK**

| PERFORMANCE MEASURE | DEFINITION | CARBON REDUCTION LINK | ASSOCIATED CIM 2055 OBJECTIVE |
|---|---|---|---|
| **DECREASE IN ARTERIAL AND FREEWAY DELAY** | Daily reduction in delay hours across congestion levels | Lower idling time and fuel consumption lowers emissions | Economic Vitality, Preservation and Reliability |
| **DECREASE IN HEAVY TRUCK DELAY** | Reduction in daily hours of heavy-truck delay | Less idling and improved travel efficiency and lower emissions | Economic Vitality, Preservation and Reliability |
| **REDUCTION IN HEAVY TRUCK VMT** | Decrease in daily heavy-truck VMT on non-freeway routes | Less idling at intersections and reduced pavement degradation lowers both vehicle and construction emissions | Preservation and Reliability |
| **INCREASE IN PUBLIC TRANSIT TRIPS** | Increase in daily transit trips per household | Reduced dependence on high-emission single-occupancy vehicles lowers emissions | Economic Vitality, Organized Transportation. |
| **INCREASE IN WALKING AND BIKING TRIPS** | Growth in daily household walk/bike trips | Direct substitution of zero-emission modes for vehicle travel, which lowers emissions | Economic Vitality, Organized Transportation, Environment and Open Space. |
| **INCREASE IN TRIPS DIVERTED TO LOW-SPEED MODES** | Growth in daily household trips shifted to bicycles, e-bikes, other low-speed devices, or walking | Reduces auto dependency, decreasing auto trips and lowering emissions | Organized Transportation |

| PERFORMANCE MEASURE | DEFINITION | CARBON REDUCTION LINK | ASSOCIATED CIM 2055 OBJECTIVE |
|---|---|---|---|
| **REDUCED VMT** | Decrease in vehicle miles traveled per person per day | Core indicator of reduced travel demand and corresponding lower emissions | Growth Management, Organized Development |
| **REDUCED CRASH RATE ON UNRELIABLE CORRIDORS** | Reduction in crashes on congested/unreliable corridors | Fewer crashes mean fewer idling delays and lower emissions | Safety, Security, Resiliency |
| **IMPROVE BICYCYLE LEVEL OF TRAFFIC STRESS (BLTS) AND PEDESTRIAN LEVEL OF TRAFFIC STRESS (PLTS)** | Miles of facilities upgraded to lower stress levels for pedestrians/bicyclists | Improves comfort and safety, encouraging mode shift to non-auto modes thereby lowering emissions | Safety, Resiliency |
| **DECREASE IN VEHICLE TRAVEL COST** | Reduction in out-of-pocket cost of travel per mile | Reflects improved fuel efficiency and adoption of alternative fuels that produce lower rates of emission | Housing Affordability, Equity |

The goals, objectives, and performance measures described in the section form the basis of the COMPASS CRS. Projects that show progress towards these goals through the identified performance measure would be best aligned with the CRS.

## CRS ASSESSMENT AND EVALUATION

After reviewing baseline emissions data for Ada and Canyon Counties and establishing goals, objectives, and performance measures, the next step was to develop a toolkit to evaluate CRP candidate projects. This section describes the development of the CRS Project Evaluation Toolkit, which quantifies how projects align with the CRS goals and combines data-driven modeling with qualitative assessments to help member agencies evaluate and prioritize projects for CRP funding.

This section includes:

- Summary of the quantitative multimodal assessment methods and tools developed to support the CRS multimodal project level evaluation
- Summary of the qualitative assessment methods and tools used to evaluate other projects and metrics
- Project evaluation summary, outlining the scoring criteria development and application to sample projects through the CRS Project Evaluation Toolkit

The full documentation of the CRS Assessment and Evaluation process and tools is detailed in Technical Memorandum #3 – CRS Assessment and Evaluation, which is included as Appendix C of this report.

Note that while the CRS goals, objectives, and performance measures were developed using currently adopted elements of CIM 2055, the current draft long-range transportation plan, the CRS evaluation tools were built off assumptions about the future roadway network, land use, and regional travel statistics from the current adopted long-range transportation plan, *Communities in Motion 2050* (CIM 2050). These assumptions all supported the development of the baseline and future baseline scenarios developed for evaluation through the tools described in the subsequent sections.

## MULTIMODAL ASSESSMENT

As previously noted, the CRP is intended to fund non-capacity type enhancement projects. However, most of the developed and frequently applied transportation planning tools evaluate projects that mainly serve motor vehicle capacity projects.

The goals, objectives, and performance measures in the COMPASS CRS highlight the broader range of evaluation criteria needed to assess a project's viability for CRP funding, a tool capable of estimating multimodal benefits in the form of decreasing motor vehicle trips, VMT, and emissions was needed. Therefore, two technical modeling tools were used to develop the background multimodal travel behavior, emissions, and VMT data for the CRS Project Evaluation Toolkit:

- **VisionEval** – This tool is an open-source transportation and land use scenario model intended for strategic multimodal planning. To support the multimodal and corresponding VMT and emissions components of the CRS effort, a VisionEval model was created and calibrated to the COMPASS region, as documented in Appendix C.
- **The COMPASS Travel Demand Model** – This tool is a detailed four-step trip-based model, built on local surveys and calibrated with local data to Treasure Valley conditions.

To understand the range in multimodal potential for Ada and Canyon Counties and provide the underlying quantitative multimodal assumptions and data needed to evaluate CRP candidate projects, the following four scenarios were developed and evaluated in the VisionEval model:

- Future Baseline: 2050 future conditions, including all COMPASS TIP and CIM 2050 funded projects
- Scenario 1A: 2050 Fully Built-Out Bike/Pedestrian Network, including the unfunded improvements included in Bike/Walk COMPASS
- Scenario 1B: 2050 Aspirational Transit System, including the unfunded Valley Regional Transit (VRT) project list
- Scenario 1C: 2050 Built-Out Multimodal System – combines Scenarios 1A and 1B for maximum multimodal benefits.

The performance metrics produced by VisionEval from these scenarios were calibrated with COMPASS Travel Demand Model data to produce multimodal and emissions metrics for a range of geographies across Ada and Canyon Counties. This information was converted to benefit rates, indicating a range of expected returns on investment for multimodal projects. Figure 1 through

Figure 3 display the walking, biking, and transit trip benefit rates, which ultimately became the underlying quantitative performance data supporting the CRS Project Evaluation Toolkit. These regional potential maps are available online via this link: Online Regional Multimodal Potential Maps. Each modal potential is available for viewing as a separate layer.

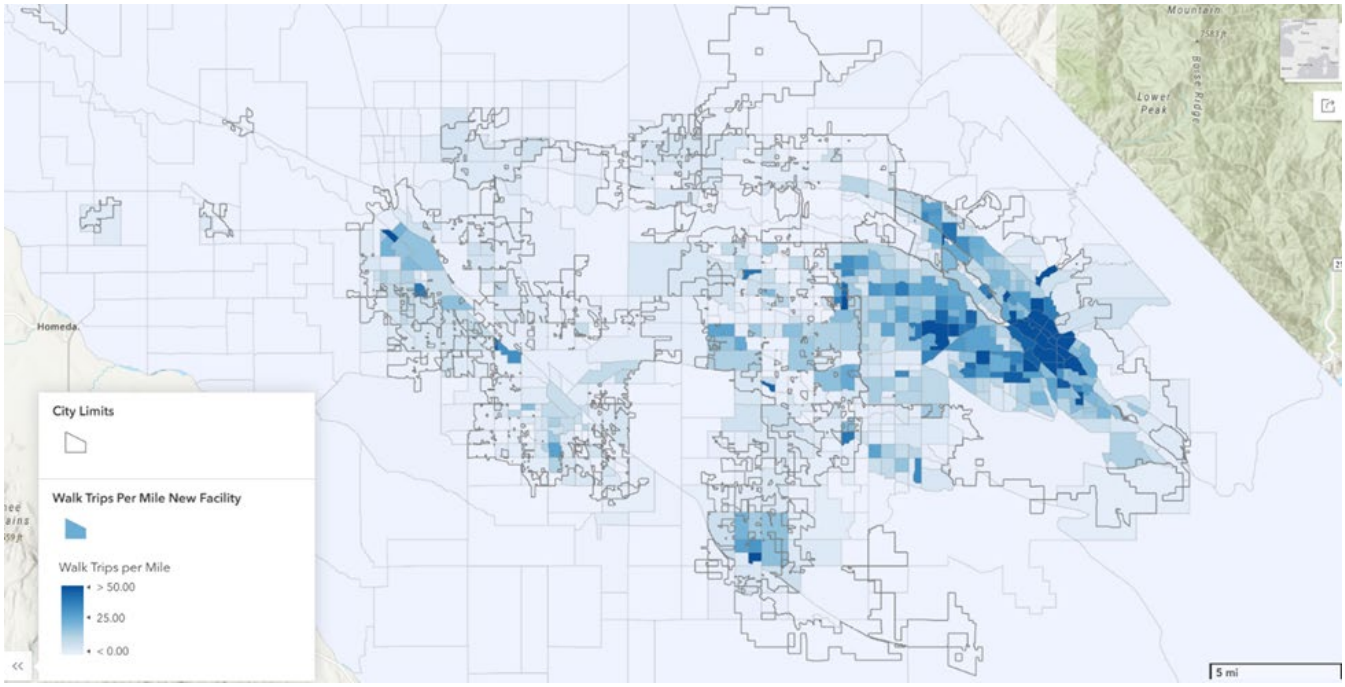


**FIGURE 1: REGIONAL WALK TRIP POTENTIAL**

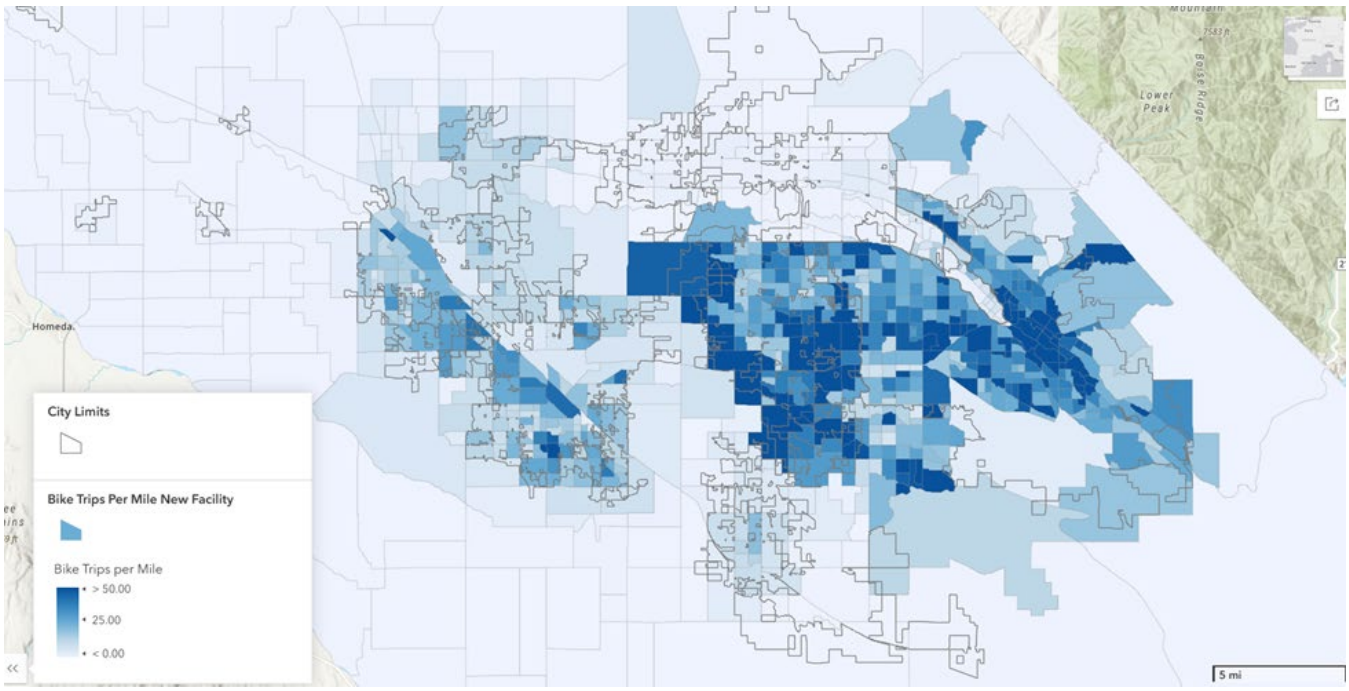


**FIGURE 2: REGIONAL BIKE POTENTIAL**

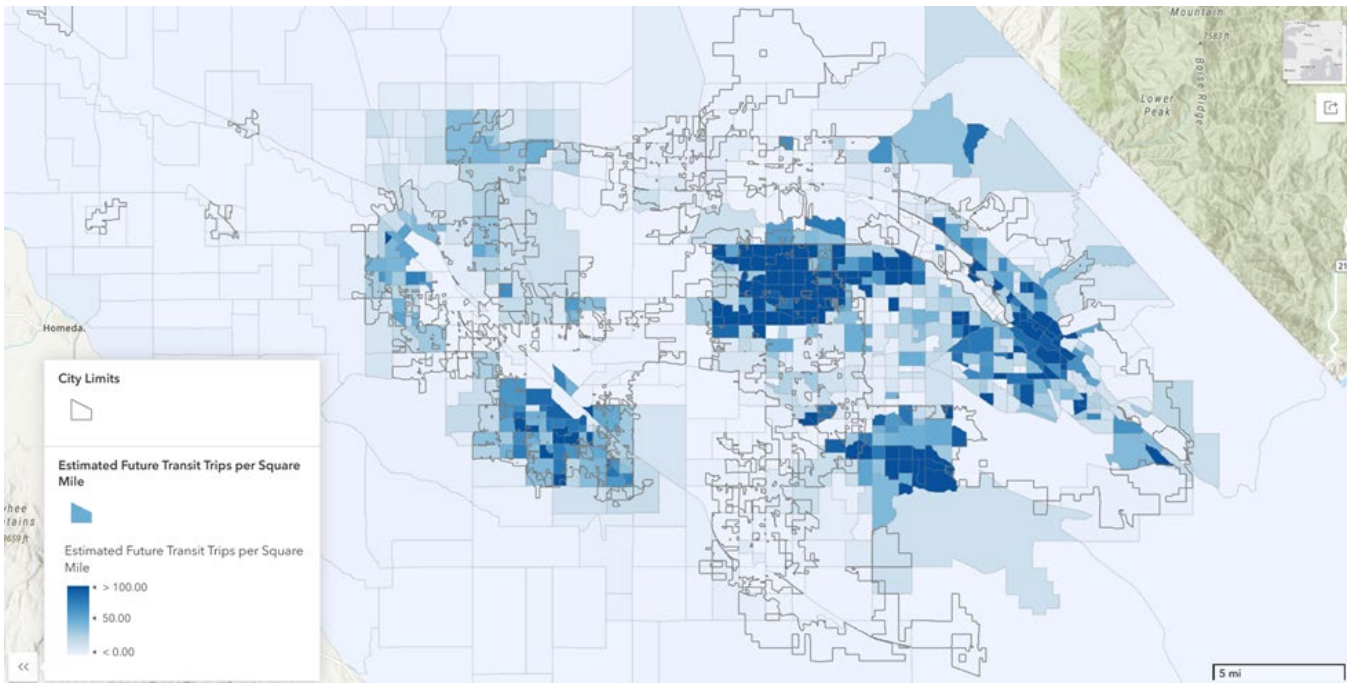


**FIGURE 3: REGIONAL POTENTIAL TRANSIT TRIP DENSITY BY AREA**

Key findings from the quantitative multimodal analysis include:

- Bicycle trips showed the highest potential increase across Ada and Canyon counties, with the largest increases in Ada County.
- Walking trip potential was less pronounced than bicycle trips and was primarily focused around the downtown and West Bench areas of Boise, with some additional hot spots in Caldwell, Nampa, Meridian, and Kuna.
- Transit ridership potential generally aligned with high density, high residential/employment mix areas, with Nampa, downtown Boise, Garden City, and Merdian showing the highest potential.
- The best transit ridership performance generally occurred in Scenario 1C, which coupled aspirational transit and bicycle/pedestrian improvements, reflecting the potential co-benefits of combined transit and active transportation improvement projects.

## QUALITATIVE ASSESSMENT

Not all projects eligible for CRP funding are multimodal in nature, and not all the performance measures aligned with the CRS are well captured or easily linked to individual projects in either the VisionEval model or the COMPASS travel demand model. These types of projects most often include transportation system management and operations (TSMO)/ITS investments and their corresponding truck/motor vehicle delay benefits. Rather than evaluate potential TSMO/ITS projects in a new or existing tool, these strategies were evaluated at a qualitative level using known benefits, mainly derived from the FHWA Tool for Operations Benefit Cost Analysis (TOPS-

BC)[6], and were incorporated into the CRS Project Evaluation Toolkit. These assessments formed a qualitative evaluation matrix, which is included in Appendix C to Technical Memorandum #3.

In addition, further resources such as the ACHD Livable Communities Bicycle and Pedestrian LTS[7] evaluation procedures and the COMPASS regional travel time reliability datasets[8] were used as references to support certain project performance measures, as also detailed in Appendix C. Highway Safety Manual Crash Modification Factors[9] were referenced as a tool for determining whether a candidate project provides a safety benefit.

## PROJECT EVALUATION

The CRS Project Evaluation Toolkit was developed using the data produced by the Multimodal Assessment and the TSMO/ITS project evaluation matrix and qualitative safety methodologies developed in the Qualitative Assessment. The toolkit estimates quantified metrics and/or provides a qualitative evaluation of the CRS performance measures for non-capacity enhancement candidate projects, then uses these performance metrics to score the candidate project using the CRS goals and objectives. This section summarizes the scoring criteria implemented by the CRS Project Evaluation Toolkit and provides some project level evaluation results.

### SCORING CRITERIA

The scoring criteria were established to assess the alignment of an eligible project with the CRS goals and objectives. These thresholds are defined in Appendix C. The CRS scoring criteria for each performance metric used a simple numerical rating system:

- Score of 0: No change
- Score of 1: Some change
- Score of 2: Significant change

The thresholds defining "some change" versus "significant change" were established through an iterative process that included testing a variety of candidate projects to understand a reasonable range of expected benefits and incorporating input from COMPASS staff.

The scoring methodology and goals/objectives were developed and refined across two CRS Stakeholder Committee work sessions, conducted on June 24, 2025, and August 22, 2025. To develop a composite project CRS score, the goals were initially weighted equally. Additional input was provided from COMPASS staff to ensure alignment with the COMPASS 2025 "Move What Matters"[10] outreach survey, resulting in adjustments to the goals, objectives, and performance metric weighting.

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[6] https://ops.fhwa.dot.gov/plan4ops/topsbctool/index.htm

[7] ACHD Livable Streets Performance Measures

[8] COMPASSS Travel Time Reliability Data

[9] https://cmfclearinghouse.fhwa.dot.gov/

[10] https://compassidaho.org/wp-content/uploads/MoveWhatMatters_ResultsSummary.pdf

The Convenience and Safety goals were weighted highest, reflecting public input received from the 2025 "Move What Matters" survey. The objective and performance weighting was refined to ensure that no single measure provided disproportionate influence on the total CRS project score. The full goals, objectives, and performance metrics weighting are included in Appendix C.

## PROJECT TESTING AND RESULTS

Twenty-four projects were evaluated and scored using the CRS Project Evaluation Toolkit. These projects and their corresponding CRS scores are summarized in Table 10. The full performance metrics and individual scoring for each project are included in Appendix C.

**TABLE 10: CRS PROJECT EVALUATION RESULTS**

| PROJECT NAME | CITY/ AGENCY | EXTENT | PROJECT DESCRIPTION | CRS SCORE |
|---|---|---|---|---|
| **RIDENBAUGH CANAL PATH** | Boise | Maple Grove Rd to Milwaukee St | Construct a new multi-use path | 6.71 |
| **FAIRVIEW AVENUE BRIDGE** | Boise | North Garden St to Whitewater Park Blvd | Replace the existing Fairview Ave bridges over the Boise River, with low-stress bike/ped connections to the Boise River greenbelt | 4.86 |
| **GARDEN STREET PATH** | Boise | Cassia Park to Albion St | Construct new multi-use path | 4.55 |
| **GARRITY BLVD SIDEPATH** | Nampa | Stamm Ln to Grant St | Design and construct a new multi-use sidepath | 4.17 |
| **VISTA AVENUE PREMIUM ROUTE** | Valley Regional Transit (VRT) | Bogus Basin Rd to Boise Airport (City of Boise) | Add a new premium (15-minute peak hour headway) transit line | 4.16 |
| **NAMPA-CALDWELL BLVD PREMIUM ROUTE** | VRT | E Greenhurst Rd/S Canyon St to Blaine St/Kimball Ave (Cities of Nampa and Caldwell) | Add a new premium (15-minute peak hour headway) transit line | 4.16 |
| **EMERALD AVENUE FREQUENT SERVICE** | VRT | Cole Rd/Westpark St to Capitol/Main St (City of Boise) | Upgrade an existing route to a premium route (15-minute headway) | 4.16 |
| **SWAN FALLS RD RRX ELIMINATION** | Kuna | Avalon St to Stagecoach Wy | Replace an existing at-grade railroad crossing on Swan Falls Road with a new structure that would include multi-use paths and | 2.90 |

| PROJECT NAME | CITY/ AGENCY | EXTENT | PROJECT DESCRIPTION | CRS SCORE |
|---|---|---|---|---|
| | | | ADA ramps while eliminating the at-grade rail crossing. | |
| **MARBLE FRONT ST IMPROVEMENTS** | Caldwell | Illinois Ave to Blanco St | Widen and protect roadway shoulders; target sidewalk infill in most difficult areas | 2.90 |
| **MCCONNELL AVE SIDEWALKS** | Parma | 4th St to Parma Rd | Fill in gaps in sidewalks | 2.70 |
| **PAYNTER SOUTH SIDEWALK INFILL** | Caldwell | Kimball Ave to Ustick Rd | Fill in gaps in sidewalks | 2.52 |
| **ACHD TSMO PROJECT** | Ada County Highway District | Ada County | Install technology for Automated Traffic Signal Performance Measures (ATSPM) at 50 signals, transit signal priority at 20 signals, and signal coordination at 10 signals | 2.48 |
| **11TH AVE SIDEPATH** | Nampa | Greens Dr to Centennial Dr | Design and construct a multi-use sidepath | 2.40 |
| **PAYNTER NORTH SIDEWALK INFILL** | Caldwell | Simplot to Kimball | Fill in gaps in sidewalks | 2.32 |
| **3RD ST SIDEWALKS** | Parma | Wendle to US 20/26 | Fill in gaps in sidewalks | 2.25 |
| **DIGITAL MESSAGE SIGNAGE (DMS) BOARDS FOR MAJOR ROUTES** | Nampa | Major routes to Interstate-84 throughout Nampa (roads vary) | Install DMS around Nampa, near I-84 for traffic management | 2.15 |
| **INDIANA ST BIKE LANES** | Caldwell | Cleveland Blvd to Ustick Rd | Add bike lane protection | 2.15 |
| **MAIN ST SHOULDERS** | Greenleaf | Friends Rd to Top Rd | Widen and protect roadway shoulders | 1.95 |
| **INDIAN CR PATHWAY REBUILD** | Nampa | Kings Rd and Sugar Ave | Rebuild path and embankment | 1.90 |
| **DMS EVENT MANAGEMENT** | Nampa | Garrity Blvd at Ford Idaho Event Center | Install DMS around the Ford Idaho Event Center | 1.86 |
| **1ST ST SIDEWALKS** | Notus | US 20/26 to Notus Rd | Fill in gaps in sidewalks | 1.75 |

| PROJECT NAME | CITY/ AGENCY | EXTENT | PROJECT DESCRIPTION | CRS SCORE |
|---|---|---|---|---|
| **INDIAN CR PATHWAY REPAIR** | Nampa | Kings Rd to Amity Ave | Repair path and embankment | 1.40 |
| **NOTUS RD SIDEWALK INFILL** | Notus | US 20/26 to Notus High School | Fill in gaps in sidewalks | 1.20 |
| **MURPHY RD SHOULDERS** | Melba | Southside Blvd to Randolph Dr | Widen and protect roadway shoulders | 0.95 |

As shown in Table 10, the best performing projects occurred in urban areas with the highest access to non-auto infrastructure, giving people an option to use another mode of travel. The transit projects also performed well. Additional evaluation indicated that coupling transit projects with walking and bicycling improvements near bus stop locations showed further increases in quantified multimodal performance metrics and overall CRS score.

The projects in the small cities in Canyon County scored lower as the potential bicycle and pedestrian trip metrics for these jurisdictions were much lower than in the larger urban areas. The Ridenbaugh Canal Path was the highest scoring project, with high added walking and biking trips, VMT and emission reduction. In addition, this project includes safety benefits for moving active transportation trips off the arterials roadways and scored well for BLTS and PLTS. A detailed explanation of how the CRS Project Evaluation Toolkit was applied to a sample project, the Garden Street Path, is detailed in Appendix C.

The CRS Project Evaluation Toolkit development and test applications summarized in this section outline the application of the COMPASS CRS and indicate the range of projects that might be considered for the program. This toolkit is a cornerstone for the implementation of the CRS by helping inform the selection and programming of CRP eligible projects.

## CRS STATEWIDE ALIGNMENT AND REGIONAL COORDINATION

As discussed in the introduction to this report, ITD completed a statewide CRS in 2024 to guide the dispersion of the more than $9 million per year in CRP funds allocated throughout the state. Of these funds, approximately $1.5 million is allocated directly to COMPASS to fund projects within the Boise Urban Area TMA. The COMPASS Board of Directors has discretion on how these funds will be programmed, and this process does not need to align with ITD's CRS priorities. Therefore, all COMPASS member jurisdictions within the TMA may apply for eligible CRP funds based on the processes and project scoring criteria detailed in this CRS report.

COMPASS member agencies outside the TMA must compete with other candidate projects for statewide CRP funds based on the ITD Statewide CRS Priorities[11], which are outlined as follows in order of priority:

1. Truck Parking and Freight Amenities
    a. Truck Parking and Staging Areas
    b. Truck Parking Communication Systems
    c. Electrical Hookups
2. Traffic Operations and Technology
    a. Traffic Operations Technologies
    b. Other Technology Solutions
3. Other Transportation Emissions Reduction Projects
    a. Active Transportation
    b. Zero Emission Vehicles
    c. Transportation Demand Management (TDM)/Vanpool
    d. Public Transportation
    e. Rail

Based on the ITD priorities, non-TMA COMPASS member agency projects with truck parking or traffic operations and technology elements are favored for CRP funding.

## CRS IMPLEMENTATION

While most of the CRP funds are programmed through the final year of the program, Federal Fiscal Year 2026, the CRS Project Evaluation Toolkit has utility far beyond this program. This tool allows COMPASS member jurisdictions to test the performance of non-capacity enhancement projects in ways not previously available, quantifying performance metrics related to multimodal travel behavior, and producing information related to emissions metrics. The quantified performance metrics also provide indication of the level of benefit expected of non-capacity enhancement projects based on geography, providing member jurisdictions with some indication on their expected rate of return on infrastructure investment. The goals, objectives, and supporting performance metrics built into the CRS score also indicate project alignment with CIM 2055, providing member agencies with clear linkage between project performance and community needs.

To enhance the tools' utility, the CRS Project Evaluation Toolkit is available as a web-based dashboard tool which can be accessed by all COMPASS member agencies. In addition to providing a CRS score, this dashboard will provide the estimated mode shift, VMT, vehicle travel cost, and emissions benefits for a candidate project. Figure 4 shows the typical dashboard display.

[11] Figure ES.1 and Table 4-1, ITD Carbon Reduction Strategy, December 2024

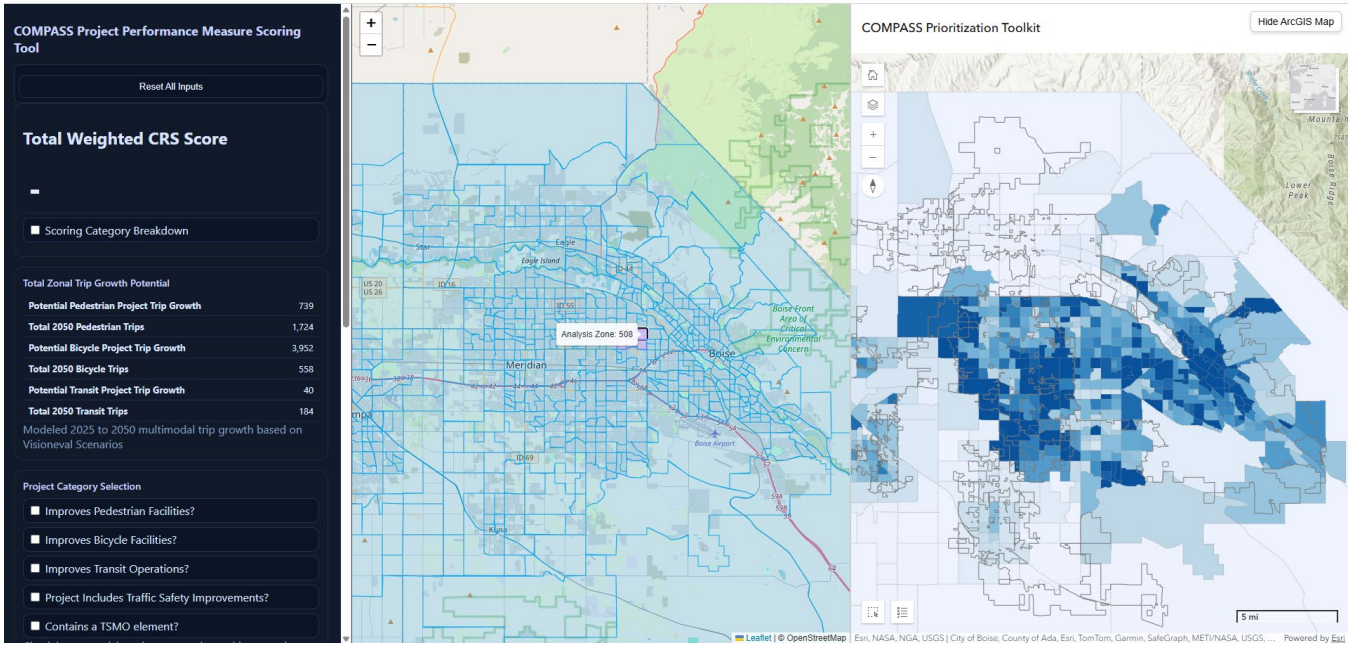


**FIGURE 4: CRS PROJECT EVLUATION TOOLKIT DASHBOARD**

The full instructions for how to use this dashboard tool are included in Appendix C.

Overall, the COMPASS Carbon Reduction Strategy provides a clear methodology for evaluating and prioritizing non-capacity enhancement capital projects for CRP fund programming. The evaluation tools provide quantified project benefits, keeping the scoring process transparent and accessible to all member jurisdictions. This CRS combines the goals and objectives of the CRP with the goals and objectives of the region, as established through the CIM 2055 planning process, providing a mechanism for funding non-capacity enhancement projects that provide tangible benefits to the local communities of the Treasure Valley.

## FUTURE APPLICATION OF THE CRS

As previously noted, the Carbon Reduction Program is due to expire in Federal Fiscal Year 2026 and is not expected to be renewed in its current iteration. However, the tools developed to support this Carbon Reduction Strategy will live on past the CRP and will continue to provide important data regarding the benefits of non-capacity enhancement projects. The CRS Project Evaluation Toolkit could be used to support the selection and programming of both similar federal opportunities and project evaluation for non-motor vehicle capacity enhancement projects. In addition, the toolkit can be used to evaluate project benefits related to the environment and public health, supporting the Quality-of-Life goal of CIM 2055

Further efforts could include evaluating different land use scenarios in VisionEval to provide local jurisdictions with better understanding of the range of multimodal benefits possible for integrated land use and transportation planning. The toolkit could be further expanded to incorporate quantified performance metrics for TSMO/ITS projects based on TOPS-BC or other benefit-cost tools.

Long-term, the vision for this CRS is to maintain a toolbox of strategies and quantifiable performance metrics that can be pivoted to align with different funding opportunities surrounding non-capacity enhancement projects and programs and to support COMPASS with existing and future project selection and programming.

# APPENDIX

## CONTENTS

# APPENDIX A: TECHNICAL MEMORANDUM #1

## BASELINE EMISSIONS

# TECHNICAL MEMORANDUM #1 – COMPASS CARBON REDUCTION STRATEGY BASELINE EMISSIONS

DATE: February 28, 2025

TO: Hunter Mulhall | COMPASS

FROM: Aaron Berger, PE; Eileen Chai, EIT | DKS Associates

SUBJECT: COMPASS Carbon Reduction Strategy
Baseline Emissions

Project #24747-000

## INTRODUCTION

The Community Planning Association of Southwest Idaho (COMPASS) is developing a regional Carbon Reduction Strategy (CRS) to align with the Federal Highway Administration's (FHWA) Carbon Reduction Program (CRP) and the Idaho Transportation Department of Transportation's (ITD) CRS. The goal of this Carbon Reduction Strategy is to provide a data-driven evaluation and prioritization process to allocate CRP funds towards qualified applicant projects from member agencies throughout COMASS. The details of which project types are qualified for the CRP funds will be defined in more detail further into the Carbon Reduction Strategy, but from a high level would include non-capacity enhancement transportation projects that provide health benefits by improving air quality, encouraging use of active transportation modes, and providing residents of the region with affordable transportation options.

The overarching goal of the CRP is to reduce carbon emissions from on-road transportation by creating actionable strategies and supporting projects that lower transportation-related emissions. This memorandum documents the baseline emissions levels, specifically in Ada and Canyon Counties, to provide a comparison to statewide and national emissions levels to offer valuable context for understanding the regional emission trends. Data from the Environmental Protection Agency (EPA) through the National Emissions Inventory (NEI) was used to support the evaluation. A specific focus was placed on transportation-related emissions, with additional analysis of the contributions from various transportation modes to the overall emissions. This analysis identifies the primary contributors to regional carbon emissions and supports the development of the reduction strategies.

## COMPASS EXISTING EMMISSIONS – PLANNING CONTEXT

The Community Planning Association of Southwest Idaho (COMPASS) is an association of local governments working together to plan for the future of Ada, Canyon, and (recently added) Boise Counties in Southwest Idaho. COMPASS serves as the metropolitan planning organization, or MPO, for Ada and Canyon Counties. The COMPASS Planning Area encompasses all of Ada and Canyon

Counties. This area includes the Boise Urban Area (designated a TMA, or Transportation Management Area, due to a population of greater than 200,000), the Nampa Urban Area (designated large urban), Middleton, Star and Kuna (designated as small urban) and rural areas.

Some key transportation characteristics of COMPASS include:

- 5,559.4 centerline miles of roadway
- 619 miles of trails and paths

For purposes of the COMPASS Carbon Reduction Strategy, Canyon County and Ada County will be evaluated separately, as Canyon County will be competing for statewide funding, and therefore must align with the Idaho Department of Transportations' Carbon Reduction Strategy, while jurisdictions within Ada County, which includes the TMA, will be competing for CRP federal funds dedicated to the TMA from the state.

## COUNTY POPULATION DENSITY AND GROWTH

Ada and Canyon counties are the two largest counties by population within the State of Idaho, as summarized in Table 1.

**TABLE 1: COUNTY POPULATION TRENDS[1]**

| COUNTY | 2010 | 2020 | 2023 | POPULATION DENSITY (2023) | ANNUAL GROWTH RATE (2010-2023) |
|---|---|---|---|---|---|
| ADA | 392,365 | 494,967 | 524,673 | 438.9 pop/mile$^2$ | 2.3%/year |
| CANYON | 188,923 | 231,105 | 257,674 | 498.7 pop/mile$^2$ | 2.4%/year |
| STATE OF IDAHO | 1,567,582 | 1,839,106 | 1,964,726 | 22.8 pop/mile$^2$ | 1.8%/year |
| UNITED STATES | **308,745,538** | **331,449,281** | **334,914,895** | **94.8 pop/mile$^2$** | **0.6%/year** |

Both counties have grown faster than both the national and statewide average since 2010, and 40% of the population of Idaho reside in Ada or Canyon County. The four largest cities in the state are in these counties, including:

- Boise (Ada County)
- Meridian (Ada County)
- Nampa (Canyon County)
- Caldwell (Canyon County)

[1] Data sourced from: https://www.census.gov/quickfacts/fact/table/canyoncountyidaho,ID,adacountyidaho/PST045224

Both counties also have some of the highest population densities in Idaho due to the large urban areas in and around these cities.

The Ada and Canyon counties also provide 45% of the employment in the State of Idaho, as summarized in Table 2.

**TABLE 2: COUNTY EMPLOYMENT INFORMATION[2]**

| COUNTY | 2023 |
|---|---|
| ADA | 66,729 |
| CANYON | 237,667 |
| STATE OF IDAHO | **689,589** |

The urbanized areas within Ada and Canyon counties are unique to the State of Idaho, bringing different challenges and opportunities related to emissions and carbon reduction strategies.

From a commute standpoint, Table 3 summarizes the 2023 American Community Survey (ACS) average travel time to work and mode usage for workers in the two counties, compared against the statewide and national averages.

**TABLE 3: COUNTY COMMUTE AND MODE SPLIT DATA[3]**

| MEASURE | CANYON COUNTY | ADA COUNTY | IDAHO | UNITED STATES |
|---|---|---|---|---|
| AVERAGE TRAVEL TIME TO WORK (MIN) FOR WORKSER AGE 16 YEAR+, 2019-2023 | 25.8 min | 21.2 min | 21.9 min | 26.8 min |
| DROVE ALONE | 69.6% | 68.5% | 71.0% | 69.2% |
| CARPOOLED | 11.3% | 8.6% | 10.2% | 9.0% |
| PUBLIC TRANSPORTATION (EXCLUDING TAXICAB) | 0.0% | 0.5% | 0.6% | 3.5% |
| WALKED | 2.5% | 2.0% | 2.8% | 2.4% |
| OTHER MEANS | 2.0% | 2.1% | 1.9% | 2.0% |
| WORKED FROM HOME | 14.6% | 18.3% | 13.5% | 13.8% |

[2] Data sourced from: https://www.census.gov/quickfacts/fact/table/canyoncountyidaho,ID,adacountyidaho/PST045224

[3] Data sourced from: https://data.census.gov/table?q=DP03

As shown in Table 3, Ada County has a significantly higher percentage of work from home than the national average. And both Ada and Canyon County have a much lower percentage of transit users than the national average, indicative of the limited transit service available in the region.

## COMPASS EXISTING EMISSIONS

This analysis utilizes data from the EPA Greenhouse Gas Reporting Program (GHGRP) to assess carbon emissions in Ada and Canyon Counties. The Idaho DEQ conducts emissions inventories that represent the types and amounts of air pollutants released from various sources. To meet EPA's Air Emissions Reporting Requirements, the Idaho DEQ submits periodic emissions inventories (PEI) at both the county and statewide levels. The EPA uses PEI submissions from Idaho and other states to build the National Emissions Inventory (NEI), which provides a comprehensive estimate of annual air emissions across the United States[4].

Note that the ITD Carbon Reduction Strategy (CRS)[5] document reports the State of Idaho total emissions using the Inventory of US Greenhouse Gas Emissions and Sinks. This is the most comprehensive emissions data source but is not available at the county level. Therefore, the GHGRP data from the NEI was used to establish the baseline conditions for Ada and Canyon counties.

The NEI categorizes emission sources into the following key groups:

- Point Sources: Large, stationary sources such as factories and power plants.
- Nonpoint Sources: Smaller, stationary sources like residential heating and small industrial sites.
- On-road Sources: Mobile sources, including cars, trucks, and motorcycles traveling on public roads.
- Non-road Sources: Other mobile sources such as aircraft, trains, and construction equipment.
- Fire Sources: Fire sources include wild and prescribed fires, and agricultural fires.

The latest NEI release was in 2020, with the next release of the 2023 NEI scheduled for publication in March 2026.

For this analysis, the Green House Gas (GHG) emission types available from the 2020v1 EDRT were used. These are summarized in Table 3. Different emission types have different GHG properties. For example, methane has much stronger heat trapping properties than $CO_2$. For comparative purposes, these emissions were converted to $CO_2$ equivalents using the conversion factors[6] included in Table 3.

[4] https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

[5] Idaho Department of Transportation. Carbon Reduction Strategy. 2024.

[6] Data Sourced from: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

**TABLE 4: GHG EMMISSION AND CONVERSION FACTORS**

| GHG | CONVERSION FACTOR TO $CO_2$ EQUIVALENTS |
|---|---|
| CARBON DIOXIDE ($CO_2$) | 1 metric ton of $CO_2$ = 1 metric ton of $CO_2$ |
| METHANE ($CH_4$) | 1 metric ton of $CH_4$ = 25 metric tons of $CO_2$ |
| NITROGEN OXIDE ($N_2O$) | 1 metric ton of $N_2O$ = 298 metric tons of $CO_2$ |
| SULFUR HEXAFLUORIDE ($SF_6$) | 1 metric ton of $SF_6$ = 23,500 metric ton of $CO_2$ |

Specifically for this analysis, the 2020 GHG contributing emissions (measured in metric tons of $CO_2$ equivalents) are extracted for Ada and Canyon Counties, and the State of Idaho. These emissions are categorized by source type to enable comparisons and provide insights into transportation-related contributions.

The total amounts of Carbon Dioxide ($CO_2$) equivalent produced by Canyon and Ada Counties are summarized and compared against the State of Idaho totals in Table 4. These quantities are based on 2020 NEI data.[7]

**TABLE 5: STATE AND COUNTY 2020 EMMISSIONS SUMMARY**

| MEASURE | UNIT | CANYON COUNTY | ADA COUNTY | STATE OF IDAHO |
|---|---|---|---|---|
| 2020 TOTAL EMISSIONS | Million equivalent Metric Tons (MMT) of $CO_2$ | 1.7 MMT | 2.6 MMT | 28.3 MMT |
| 2020 ON-ROAD EMISSIONS | | 1.1 MMT | 2.1 MMT | 11.5 MMT |
| ON-ROAD % OF TOTAL EMISSIONS | Percent | 61% | 80% | 41% |
| 2020 TOTAL EMISSIONS/CAPITA | Metric Tons (MT)/Person | 7.6 MT | 5.3 MT | 15.4 MT |
| 2020 ON-ROAD EMISSIONS/CAPITA | | 4.6 MT | 4.3 MT | 6.2 MT |
| % OF TOTAL STATE EMISSIONS | Percent | 9% | 18% | - |
| % OF ON-ROAD STATE EMISSIONS | | 6% | 9% | - |

[7] Data Sourced from: https://awsedap.epa.gov/public/single/?appid=20230c40-026d-494e-903f-3f112761a208&sheet=5d3fdda7-14bc-4284-a9bb-cfd856b9348d&opt=ctxmenu,currsel

As noted previously, the ITD CRS document referenced a different data source, the Inventory of US Greenhouse Gas Emissions and Sinks, that includes more emissions data. This data source indicates total emissions of 35.9 MMT of $CO_2$ equivalent in the year 2020 for the State of Idaho, about 27% higher than the 28.3 MMT reported by GHGRP.

As shown in Table 4, despite housing nearly 40% of the population of the state, Canyon and Ada counties only contribute 27% of the total emissions, and only 15% on the statewide on-road emissions. Individually, the large agricultural point sources in Canyon County contribute more non-road emissions than non-road sources in Ada County, although not to the level typical across the state. With the majority of both Ada and Canyon counties' emissions caused by on-road sources, the data indicates ample opportunity to target carbon reduction with the transportation system.

The main sources of mobile on-road emissions for the two counties and the State of are summarized and compared in Table 5.

**TABLE 6: PERCENT ON-ROAD EMISSIONS BY VEHICLE TYPE**

| VEHICLES | CANYON COUNTY | ADA COUNTY | IDAHO | UNITED STATES |
|---|---|---|---|---|
| **TRUCKS** | | | | |
| COMBINATION LONG-HAUL TRUCK | 15.0% | 12.4% | 22.7% | 12.5% |
| COMBINATION SHORT-HAUL TRUCK | 4.1% | 4.7% | 5.4% | 6.9% |
| SINGLE UNIT LONG-HAUL TRUCK | 1.2% | 1.1% | 1.2% | 1.0% |
| SINGLE UNIT SHORT-HAUL TRUCK | 6.5% | 6.9% | 6.3% | 6.0% |
| LIGHT COMMERCIAL TRUCK | 3.5% | 5.3% | 3.9% | 4.4% |
| REFUSE TRUCK | 0.2% | 0.2% | 0.2% | 0.2% |
| ***TRUCKS SUBTOTAL*** | ***30.5%*** | ***30.6%*** | ***39.7%*** | ***31.0%*** |
| **BUSES** | | | | |
| SCHOOL BUS | 0.2% | 0.2% | 0.2% | 0.6% |
| TRANSIT BUS | 0.1% | 0.1% | 0.1% | 0.4% |
| OTHER BUSES | 0.1% | 0.1% | 0.2% | 0.3% |
| ***BUSES SUBTOTAL*** | ***0.5%*** | ***0.4%*** | ***0.5%*** | ***1.3%*** |
| **PERSONAL VEHICLES** | | | | |
| MOTOR HOME | 0.2% | 0.2% | 0.1% | 0.3% |
| PASSENGER CAR | 21.4% | 21.6% | 16.3% | 25.5% |
| PASSENGER TRUCK | 46.9% | 46.6% | 43.0% | 41.5% |
| MOTORCYCLE | 0.5% | 0.6% | 0.4% | 0.4% |
| ***PERSONAL VEHICLES SUBTOTAL*** | ***69.0%*** | ***68.9%*** | ***59.8%*** | ***67.7%*** |

Higher than national percentage  Lower than national percentage

As shown in Table 5, trucks contribute to the total emissions in both Canyon and Ada counties at a significantly lower percentage than at the statewide level. Overall, the distribution of truck versus personal vehicle emissions in both the counties is more closely aligned with the national averages

than the state average, again highlighting the influences of urban areas within both counties. Therefore, some strategies particularly targeting truck emissions at the statewide level may not have as significant a benefit to Canyon County or Ada County.

Overall, the existing conditions emissions data for the counties indicate lower than statewide emissions per capita, higher than average on-road emissions compared to total emissions, and a higher share of personal vehicle emissions when compared to the statewide average. These findings set the stage for the elements for the COMPASS Carbon Reduction Strategy unique to the region.

# APPENDIX B: TECHNICAL MEMORANDUM #2

## GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

# TECHNICAL MEMORANDUM #2 – GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

DATE: April 2, 2025

TO: Hunter Mulhall | COMPASS

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SUBJECT: COMPASS Carbon Reduction Strategy
Goals, Objectives, and Performance Measures

Project #24747-000

## INTRODUCTION

The Community Planning Association of Southwest Idaho (COMPASS) is developing a regional Carbon Reduction Strategy (CRS) to align with the Federal Highway Administration's (FHWA) Carbon Reduction Program (CRP) and the Idaho Transportation Department of Transportation's (ITD) CRS. The over-arching goal of the CRS is to reduce carbon emissions from on-road transportation by creating actionable strategies and supporting projects that lower transportation-related emissions.

This memorandum documents the specific Goals, Objectives, and Performance Measures for the COMPASS Carbon Reduction Strategy. The document also includes review of the CRP goals and a summary of the Idaho Transportation Department (ITD) CRS goals.

## CARBON REDUCTION PROGRAM GOALS

The Federal Highway Administration (FHWA) Carbon Reduction Program (CRP) aims to reduce transportation-related carbon emissions across the United States by supporting projects that decrease greenhouse gas emissions from highway transportation.

The key goals of the FHWA CRP include:

- **Lower Carbon Emissions:**
  - Encourage the adoption of strategies and technologies that lead to measurable reductions in transportation-related carbon emissions.
- **Promote Sustainable Transportation Infrastructure:**
  - Support the development of low-carbon transportation alternatives, such as public transit, biking, and walking infrastructure.
- **Encourage Alternative Fuels and Vehicles:**

- Fund initiatives that expand the use of electric vehicles (EVs), hydrogen-powered transportation, and other clean energy solutions.

- **Improve Traffic Flow and Congestion Management:**
  - Invest in intelligent transportation systems (ITS) and other measures that reduce vehicle idling and improve efficiency.
- **Support Local and State-Level Carbon Reduction Efforts:**
  - Provide funding and guidance to state and local governments to implement carbon reduction strategies tailored to their unique needs.
- **Enhance Multimodal Transportation Options:**
  - Increase investment in transit systems, rail, and active transportation options to reduce dependency on single-occupancy vehicles.
- **Encourage Energy-Efficient Transportation Infrastructure:**
  - Promote the use of energy-efficient and sustainable materials in transportation projects.

The program is part of the Bipartisan Infrastructure Law (BIL) and provides funding to states and localities for eligible projects that align with these goals.

## ITD CRS GOALS

The ITD CRS was developed to align with and promote existing state and regional focus areas. The MPOs throughout the state provided input as to which goals were best aligned with their region. The statewide CRS developed the ten goal categories summarized in Table 1, with COMPASS prioritizing nine of the categories, and ITD prioritizing six.

**TABLE 1: ITD CRS GOAL CATEGORIES AND PRIORITIES**

| GOAL CATEGORY | ITD | COMPASS |
|---|---|---|
| PROMOTE/IMPROVE FREIGHT | X | X |
| CONGESTION REDUCTION/PROJECT OPERATIONS/TECHNOLOGY | X | X |
| INFRASTRUCTURE STATE OF GOOD REPAIR | X | X |
| PROMOTE/IMPROVE TRANSIT | | X |
| ACTIVE TRANSPORTATION/SHARED MOBILITY | X | X |
| SAFETY/PUBLIC HEALTH | X | X |
| ENVIRONMENTAL STEWARDSHIP/RESILIENCY | | X |
| LAND USE SUSTAINABILITY/EFFICIENCY | | X |
| ECONOMIC VITALITY | X | X |

| GOAL CATEGORY | ITD | COMPASS |
|---|---|---|
| **PROJECT EFFICIENCY** | | |

The full MPO and ITD goal prioritization information is included in Table 3-1 of the ITD CRS.

The ITD CRS further prioritized project types for CRP investment into the following three tiers:

- Tier 1: Truck Parking and Freight Amenities Improvements
- Tier 2: Traffic Operations and Technology Solutions
- Tier 3: Other potential carbon reduction strategies including:
  - zero emission vehicles
  - carpool
  - transit and electrification of transit
  - sidewalks
  - pathways
  - shoulder lanes
  - passenger and freight rail

These ITD statewide priorities are of critical importance to the non-TMA member agencies within COMPASS, as these are the priorities that will be used to allocate CRP funds to these jurisdictions.

## CRS GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

The CRS uses the same goals and objectives as the COMPASS 2055 *Communities in Motion*.. These goals and objectives were developed through robust member agency and community outreach efforts by COMPASS and represent the values and priorities of the Treasure Valley region.

The performance measures for the CRS were selected based on the following three criteria:

- The measure is indicative of some form of reduced carbon emissions, reflecting the overarching goal of the CRP
- The measure indicates advancement towards a *Communities in Motion 2055* objective
- The measure can be readily quantified from the tools available to COMPASS, including the VisionEval model developed to support this CRS

The CRS/*Communities in Motion 2055* Goals and Objective are summarized in Table 2, along with the corresponding CRS performance measures. Note that some performance measures are repeated under multiple relevant objectives. More detail related to each specific performance measure's relevance to both the overarching CRP goal and the corresponding *Communities in Motion 2055* Objective is included in the following sections.

**TABLE 2: COMPASS CRS GOALS, OBJECTIVES, AND PERFORMANCE MEASURES**

| GOAL | OBJECTIVES | PERFORMANCE MEASURES |
|---|---|---|
| ECONOMIC VITALITY | **Economic Vitality:** Develop a transportation system that promotes economic vitality by providing local residents multi-modal access to jobs and housing, serving local businesses, promoting travel and tourism, and the movement of freight | • Decrease in heavy truck delay<br>• Increase in public transit trips<br>• Increase in walk trips<br>• Increase in bike trips |
| | **Preservation and Reliability:** Provide a reliable transportation system for all users by preserving and maintaining the existing transportation infrastructure | • Reduction in heavy truck Vehicle Miles Traveled (VMT)<br>• Decrease in arterial roadway delay<br>• Decrease in freeway delay<br>• Decrease in heavy truck delay |
| | **Growth Management:** Develop and implement a regional vision that guides growth where it can be cost-effectively served by infrastructure, services, and amenities, to protect and preserve farmland and the agrarian economy of the valley. | • Reduced VMT per capita |
| SAFETY | **Safety, Security, and Resiliency:** Provide a safe, secure, and resilient transportation system that minimizes risk and supports transportation options for all users. | • Reduced crash rate on congested and non-/or unreliable corridors<br>• Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians, using the methodology detailed in the ACHD *Livable Streets – Performance Measures*[1] |
| CONVENIENCE | **Organized Transportation:** Develop a regional transportation system that provides access and mobility for all users through a highly connected network that encourages travel choices and preserves future transportation options. | • Increase in public transit trips<br>• Increase in walk trips<br>• Increase in bike trips<br>• Increase in trips diverted to 'low-speed' travel modes |
| | **Organized Development:** Promote development patterns that minimize travel, improve efficiency, and reduce congestion on the transportation system. | • Decrease in arterial roadway delay<br>• Reduced VMT per capita |

[1] Ada County Highway District. Livable Streets Performance Measures. Adopted December 2024.

| GOAL | OBJECTIVES | PERFORMANCE MEASURES |
|---|---|---|
| QUALITY OF LIFE | **Environment and Open Space:** Develop and implement a regional vision that protects, preserves, and connects residents to the natural environment and open space while minimizing the impact of the transportation system on the environment and promoting public health. | • Increase in walk trips<br>• Increase in bike trips |
| | **Housing Affordability and Equity:** Promote development patterns for affordable housing and equitable access to the transportation system for all users. | • Decrease in vehicle travel cost |

## PERFORMANCE MEASURE CROSSWALK

This section details the relationships between the CRS performance measures and the CRS/*Communities in Motion 2055* Goals and Objectives. Each performance measure is defined, the analysis tool is identified, and the links to carbon reduction and the associated CRS objectives are outlined. Note that VisionEval is a regional scenario modeling tool, and a VisionEval model of the COMPASS planning area is being developed to support this CRS.

### DECREASE IN HEAVY TRUCK DELAY

***Definition:*** This performance measure is defined as the reduction in daily vehicle hours of delay incurred by heavy trucks on roadways throughout the COMPASS planning area.

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Reductions in travel delay reflect reduced carbon emissions due to idling vehicles.

***Relevant CRS Objectives:***

- Economic Vitality – reducing truck delay promotes the "movement of freight" throughout the region
- Preservation and Reliability - reducing truck delay provides "a reliable transportation system for all users" by improving reliability for freight throughout the region

### INCREASE IN PUBLIC TRANSIT TRIPS

***Definition:*** This performance measure is defined as the increase in the average number of public transit trips per year by household members within either the entirety of the COMPASS planning area, or sub-regions within the area.

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Increases in transit travel at the household level indicate decreases in higher emission modes of travel such as single occupant vehicles, thereby reducing carbon emissions.

***Relevant CRS Objectives:***

- Economic Vitality – increased transit trips indicate local residents are being provided "multi-modal access to jobs and housing"
- Organized Transportation - increased transit trips indicate "a highly connected network that encourages travel choices" for users

**INCREASE IN WALK TRIPS**

***Definition:*** This performance measure is defined as the increase in the average number of walk trips per year by household members within either the entirety of the COMPASS planning area, or sub-regions within the area. This measure would also be provided as a change in walking trips per capita to track changes between existing and future conditions.

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Increases in walking trips at the household level indicate decreases in higher emission modes of travel such as single occupant vehicles, thereby reducing carbon emissions.

***Relevant CRS Objectives:***

- Economic Vitality – increased walking trips indicate local residents are being provided "multi-modal access to jobs and housing"
- Organized Transportation - increased walking trips indicate "a highly connected network that encourages travel choices" for users
- Environment and Open Space – increased walking trips reflects a transportation system that is "promoting public health"

**INCREASE IN BIKE TRIPS**

***Definition:*** This performance measure is defined as the increase in the average number of bicycle trips per year by household members within either the entirety of COMPASS, or sub-regions within the area. This measure would also be provided as a change in bicycle trips per capita to track changes between existing and future conditions.

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Increases in bicycle trips at the household level indicate decreases in higher emission modes of travel such as single occupant vehicles, thereby reducing carbon emissions.

***Relevant CRS Objectives:***

- Economic Vitality – increased bicycle trips indicate local residents are being provided "multi-modal access to jobs and housing"

- Organized Transportation - increased bicycle trips indicate "a highly connected network that encourages travel choices" for users
- Environment and Open Space – increased bicycle trips reflect a transportation system that is "promoting public health"

### REDUCTION IN HEAVY TRUCK VMT

***Definition:*** This performance measure is defined as the reduction in heavy truck daily vehicle miles of travel within the region on non-freeway facilities.

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Reduced truck travel on non-freeway routes reduces truck delay incurred at signals and other at-grade intersections, reducing heavy vehicle idling time and thereby reducing carbon emissions.

***Relevant CRS Objectives:***

- Preservation and Reliability – reducing heavy truck VMT on non-freeway facilities extends pavement life, "preserving and maintaining the existing transportation infrastructure"

### DECREASE IN ARTERIAL ROADWAY DELAY

***Definition:*** This performance measure is defined as the decrease in average arterial delay (hours per mile) occurring throughout the region under the following five levels of congestion:

- no congestion
- moderate congestion
- heavy congestion
- severe congestion
- extreme congestion

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Decreases in travel delay indicates reduced carbon emissions due to idling vehicles.

***Relevant CRS Objectives:***

- Preservation and Reliability – decreasing arterial delay provides "a reliable transportation system for all users" by improving reliability on the regional arterial system
- Organized Development - decreasing arterial delay helps to "reduce congestion on the transportation system"

### DECREASE IN FREEWAY DELAY

***Definition:*** This performance measure is defined as the decrease in average freeway delay (hours per mile) occurring throughout the region under the following five levels of congestion:

- no congestion
- moderate congestion

- heavy congestion
- severe congestion
- extreme congestion

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Decreases in travel delay indicates reduced carbon emissions due to idling vehicles.

***Relevant CRS Objectives:***

- Preservation and Reliability – decreasing freeway delay provides "a reliable transportation system for all users" by improving reliability on the region's freeway system

### REDUCED VMT PER CAPITA

***Definition:*** This performance measure is defined as daily vehicle miles of travel of residents divided by population.

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Reduced VMT per person broadly indicates reduced emissions due to less overall vehicle travel within the region.

***Relevant CRS Objectives:***

- Growth Management – reduced VMT per person indicates that growth is "cost-effectively served by infrastructure" with a well-connected, accessible system
- Organized Development - reduced VMT per person indicates a system that is designed to support "development patterns that minimize travel"

### REDUCED CRASH RATE ON CONGESTED AND NON-/OR UNRELIABLE CORRIDORS

***Definition:*** This performance measure is defined as the expected percent reduction in crashes on corridors within COMPASS with a travel time reliability index that indicates un-reliable conditions.

***Measurement Tool:*** Highway Safety Manual (HSM) Crash Modification Factors (CMFs) and COMPASS travel time reliability index on regional corridors

***Carbon Reduction Link:*** Decreased crashes on congested/unreliable corridors reduce non-recurring delay events and vehicle idling time, ultimately reducing carbon emissions.

***Relevant CRS Objectives:***

- Safety, Security, and Resiliency – improving safety on a congested/unreliable corridor helps to "provide a safe, secure, and resilient transportation system"

### IMPROVED LEVEL OF TRAFFIC STRESS (LTS) FOR BICYCLES AND/OR PEDESTRIANS

***Definition:*** This performance measure is defined as miles of transportation facility where the bicycle or pedestrian Level of Traffic Stress (LTS) is improved at least one level. This measure

would follow the LTS definitions and performance levels detailed in the ACHD *Livable Streets - Performance Measures*[2].

***Measurement Tool:*** Bicycle and pedestrian segment Level of Traffic Stress spreadsheet tools

***Carbon Reduction Link:*** Improvements to bicycle and pedestrian LTS encourage more roadway users to switch to these modes due to increased comfort, thereby reducing auto travel and ultimately carbon emissions.

***Relevant CRS Objectives:***

- Safety, Security, and Resiliency – improving safety on a congested/unreliable corridor helps to "provide a safe, secure, and resilient transportation system that minimizes risk and supports transportation options for all users"

### INCREASE IN TRIPS DIVERTED TO 'LOW-SPEED' TRAVEL MODES

***Definition:*** This performance measure is defined as the increase in the proportion of household daily VMT diverted to bicycling, electric bikes, or other 'low-speed' travel modes.

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Increases in non-auto modes at the household level indicate decreases in higher emission modes of travel such as single occupant vehicles, thereby reducing carbon emissions.

***Relevant CRS Objectives:***

- Organized Transportation - increased non-auto modes of travel indicate "a highly connected network that encourages travel choices" for users

### DECREASE IN VEHICLE TRAVEL COST

***Definition:*** This performance measure is defined as the reduction in average out-of-pocket cost in dollars per mile of vehicle travel throughout the COMPASS planning area.

***Measurement Tool:*** VisionEval

***Carbon Reduction Link:*** Reductions in travel cost may indicate improved vehicle efficiency, either through improved fuel efficiency or use of alternative fuels or power sources that reduce carbon emissions.

***Relevant CRS Objectives:***

- Housing Affordability and Equity – reductions in travel cost promote "equitable access to the transportation system for all users"

[2] Ada County Highway District. Livable Streets Performance Measures. Dec. 2024.

## PERFORMANCE MEASURE APPLICATION

The performance measures outlined in this document will initially be used to evaluate project types anticipated to qualify for CRP funds. Some examples of the likely groupings of project types include logical groupings such as:

- Different types of Transportation Systems Management and Operations (TSMO) strategies such as variable speeds, integrated corridor management infrastructure, corridor signal timing optimization, ramp meters, etc.
- Active Transportation improvements such as new bike lanes, new multi-use paths, sidewalks, or other active transportation treatments
- Freight improvements such as new truck parking facilities

These project types will be evaluated using the tools and performance measures discussed in the prior section, providing quantified performance results. These findings would then be used to create unit benefits for project types, likely differing by geography. For example, 1 mile of new mixed-use path in Ada County might be anticipated to add X new walking and Y new cycling trips by the year 2050.

Once the project types have been quantified against the performance measures, the CRS stakeholder group will develop prioritization scoring. The scoring will vary between the TMA and non-TMA member jurisdictions, as the non-TMA areas must align with the ITD Statewide CRS to compete for funding, while member jurisdictions within the TMA will likely prioritize based on the COMPASS Communities in Motion 2055 Goals. With the performance-based prioritization process in place, member jurisdictions will have the ability to submit and score projects against the CRS Goals and Objectives, providing an open, objective process for allocating CRP funds.

# APPENDIX C: TECHNICAL MEMORANDUM #3

## CRS STRATEGY ASSESSMENT AND EVALUATION

# TECHNICAL MEMORANDUM #3 - CARBON REDUCTION STRATEGY ASSESSMENT AND EVALUATION

DATE: November 3, 2025

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SUBJECT: COMPASS Carbon Reduction Strategy Project #24747-00

## INTRODUCTION

The Federal Highway Administration (FHWA) Carbon Reduction Program (CRP) is a funding mechanism intended to provide support for projects that reduce road-related transportation emissions. While the program funds a broad range of strategies and programs, for COMPASS, which includes both Ada and Canyon Counties and encompasses the Treasure Vally, the regional Carbon Reduction Strategy (CRS) is tailored to projects that meet the overarching CRP goal of reducing emissions while also supporting the COMPASS goals and objectives. Based on input from the CRS Stakeholder Committee, this COMPASS CRS focuses on achieving the joint CRP and COMPASS goals through projects that reduce dependence on single-occupant vehicle (SOV) trips and increase travel efficiency through investment in Transportation System Management and Operations (TSMO) strategies and Intelligent Transportation Systems (ITS) infrastructure.

The CRS goals, objectives, and supporting project performance metrics are detailed in Technical Memorandum #2 – Goals, Objectives, and Performance Measures. This document details the link between COMPASS' long-range transportation plan (*Communities in Motion*) and the CRP Goals, narrowing the focus of the COMPASS CRS to projects that support both and identifying performance measures that quantify progress. Many of the performance measures selected focus on mode choice, vehicle miles traveled (VMT), and emissions. These measures are not easily quantified at a project level with existing available tools. To fill this gap and support this effort, a CRS Project Evaluation Toolkit was developed, building off both new and existing models and tools in the Treasure Valley. This new regional model was developed using VisionEval, a scenario planning tool capable of linking infrastructure improvements to changes in VMT, mode choice, and emissions. The data produced by this model was calibrated to local conditions using outputs from the COMPASS regional travel demand model. Additional tools such as TOPS-BC and the ACHD Livable Street Bicycle and Pedestrian Level of Traffic Stress methodology were used to complete the CRS toolkit.

The CRS toolkit was designed to produce the performance measures detailed in TM #2 for individual candidate projects. These performance measures were then scored based on a set of criteria refined and set by COMPASS and the CRS Stakeholder Committee, resulting in a final CRS score for each project to optimize programming of CRP funds.

This memorandum details the development and application of the CRS Project Evaluation Toolkit, describing:

- The quantitative models developed and applied to evaluate the benefits for multimodal projects
- The qualitative analysis used to assess TSMO/ITS projects and safety elements of projects
- Implementation of the toolkit, including refinement of the CRS scoring matrix and results and findings related to specific candidate projects
- Future uses of the CRS Project Evaluation Toolkit beyond the CRP program

## QUANTITATIVE ANALYSIS OF MULTIMODAL PROJECTS

To develop a regionally calibrated formula for evaluating multimodal project components in the CRS Project Evaluation Toolkit, the following tools and methods were developed and applied:

- VisionEval
- The COMPASS Travel Demand Model
- Multimodal Project Level Performance Measures

These tools and methods are summarized in the following sections.

### VISIONEVAL

VisionEval is an open-source family of modeling tools for strategic transportation and land use planning. It is aimed at helping state, regional, and metropolitan agencies explore alternative scenarios and assess how policies, investment strategies, and external trends affect long-term performance metrics such as travel behavior, greenhouse gas emissions, and energy use.

VisionEval synthesizes a population using a base data set of households with demographic and socioeconomic details such as age, income, household size, number of workers, and vehicle ownership. These demographic attributes of the synthesized population are then used to predict how many trips a household will produce on average per day, creating travel demand. VisionEval also incorporates infrastructure data related to miles of roadway, accessibility to and frequency of transit service, and biking and walking network completeness, creating travel network supply. These infrastructure elements are aggregated in VisionEval and do not directly reflect capacity constraints, differing from the more detailed network elements reflected typical travel demand models. The combined travel demand and infrastructure data is used to predict the lengths and modes of household trips across the modeled region.

There is no explicit detailed network of every road link or transit route. The model uses a hierarchy of geographic analysis areas to incorporate input data and produce performance measures, with the most fine-grained level of analysis roughly equating to a Census Block Group. These VisionEval zones provide geographic sensitivity to travel behavior changes in response to changes in

infrastructure, transit access, policy changes, travel demand management measures, and other changes that impact how and where people travel.

As a planning tool, VisionEval brings the following strengths and limitations to scenario evaluation:

- Strengths
  - Speed and flexibility - Avoiding detailed network modeling allows for several scenarios to be run relatively quickly, exploring changes under different future conditions
  - Policy Assessment – Well suited to adjusting policy levers such as vehicle/fuel technologies, congestion pricing, and land use changes, and exploring how combinations of policies might work together
  - Transparency and adaptability – As VisionEval is an open-source tool, users can inspect assumptions, adapt modules, and share enhancements among stakeholders
  - Ability to consider uncertain futures – Because many inputs are external or scenario-driven, VisionEval allows modeling of uncertainty such as alternative growth rates, fuel price trajectories, technology uptake, etc.
- Limitations
  - Less spatial detail – Because VisionEval lacks detailed capacity-constrained spatial networks, it has limited ability to evaluate the operations and time savings benefits of motor vehicle capacity enhancement projects.
  - Behavioral simplifications – Some responses by households or travelers are modeled via regression or simpler formulas rather than full behavioral choice models; some emerging behaviors or technologies may be hard to calibrate.
  - Data & calibration requirements – While less intensive than full travel demand models, a credible VisionEval application still needs good data for household demographics, incomes, vehicle ownership, travel behavior, transit supply, etc., which must be regionally calibrated.

Given the strengths of the tool to estimate changes in VMT, emissions, and mode decisions based on infrastructure related inputs, VisionEval was selected as the primary data source for the multimodal evaluation element of the CRS Project Evaluation Toolkit. The VisionEval model was developed with a calibrated existing condition year of 2020, aligning the population and household demographic information with the most recent Census data. The future baseline condition year was set to 2050, aligning with the current COMPASS regional land use forecast. Note that the year 2050 land use forecasts were held constant for all subsequent scenarios. The Future Baseline 2050 modeled scenario contained all funded projects within Ada and Canyon counties, including both the projects in the FY2026-FY2032 Transportation Improvement Program (TIP) and the funded projects from the current adopted long-range transportation plan, *Communities in Motion 2050 (CIM 2050)*, to the extent these projects could be captured in the VisionEval inputs. The full details of the key inputs and assumptions for VisionEval model developed and calibrated for the Carbon Reduction Strategy project are included in Appendix A.

To develop the range of potential multimodal performance improvement across the region, the 2050 Baseline and three aspirational scenarios were developed and evaluated in VisionEval to establish these thresholds. These scenarios are described as follows:

- **Baseline Scenario: 2050 Land Use with Funded Improvements** – This scenario reflects year 2050 conditions and includes the infrastructure improvements from the CIM 2050 funded project list and the COMPASS TIP.
- **Scenario 1A: Fully Built-Out Bicycle and Pedestrian Network** – This scenario reflected an aspirational, fully connected bicycle and pedestrian system under year 2050 conditions. This scenario was modeled using a combination of COMPASS GIS data related to both existing and planned active transportation facilities and intersection density data sourced from the Environmental Protection Agency (EPA) Smart Location Database (SLD)[1]. The EPA SLD is a nationwide dataset developed by the EPA that provides detailed geographic and demographic indicators of density, diversity, network design, and destination accessibility to help evaluate the built environment's relationship with transportation, land use, and sustainability. The EPA SLD network design variable, which represents the density of pedestrian and bicycle friendly facilities in a given area, was adjusted to reflect a fully built out active transportation system. These aspirational network design variables were set to thresholds reflective of the urban form of each individual city or unincorporated county area within the Treasure Valley. These thresholds are fully detailed in Appendix A. Additional adjustments were made to Single Occupant Vehicle (SOV) diversion inputs to best capture the walking and biking opportunity provided by a fully connected system.
- **Scenario 1B: Aspirational Transit System** – This scenario reflected an aspirational future transit system that fully connects the Treasure Valley with high-quality, high-frequency service. The future transit network assumptions were built off the CIM 2050 planned public transportation system, including all unfunded projects, as well as additional connections to areas not currently served by transit. The VisionEval transit service input uses the EPA Smart Location Database D4c variable, an aggregate frequency of transit service within 0.25 miles of the block group boundary (VisionEval Zone) per hour during the evening peak period. This input was modified to reflect the added transit access from the aspirational transit network. The jurisdiction level transit service area was also updated based on the added transit service.
- **Scenario 1C: Built Out Multimodal System** – This scenario included both the active transportation network build out assumptions from Scenario 1A and the aspirational transit system from Scenario 1B, capturing the benefits of a fully built out multimodal system.

The full details on the VisionEval input changes and coding assumptions for the scenarios are documented in Appendix A. The three Build-Out scenarios were run in the VisionEval model under year 2050 conditions, and the comparative changes against the Future Baseline 2050 conditions were recorded for mode choice, emissions, cost of travel, and VMT.

Note that while land use change is a critical lever for many performance metrics that reflect decreases in carbon emissions, given the nature of the capital project aspect of the Carbon Reduction Program (CRP) funding, additional land use scenarios were not explored in this evaluation. However, the VisionEval model is set up and well suited for this type of scenario analysis if the need should arise in the future.

[1] EPA SLD Map

## COMPASS TRAVEL DEMAND MODEL

The COMPASS Travel Demand Model is a 4-step trip-based forecasting model for the Treasure Valley. It estimates daily and peak hour travel demand across nearly 2,500 TAZs, using demographic and employment forecasts, periodic travel surveys, and a roadway/transit network.

The model relies on periodic household travel surveys, with the most recent conducted in the fall of 2021. The survey data is used to calibrate and validate the model so that it reflects actual travel behavior and conditions.

Demographic, employment, and housing forecasts are critical model inputs. COMPASS develops demographic forecasts for population, housing, and jobs in Ada and Canyon Counties, with these forecasts simulating future conditions. During the CRS regional assessment, the current model long-range forecast was for the year 2050. Therefore, 2050 was used as the future year for all scenario analysis, and the demographic and land use projection data from the COMPASS model was also incorporated into the VisionEval model.

The COMPASS model network includes interstates, highways, principal and minor arterials, collectors, and some local roads for connectivity.

Typical COMPASS model applications include long-range transportation planning, congestion forecasting, evaluating project and policy impacts, and ensuring plans align with future growth. The strengths and limitations of this tool include:

- Strengths
  - Detailed, capacity sensitive local network reflective of local and regional geographic constraints
  - Travel behavior calibrated to local survey data
  - Vehicle traffic geographically calibrated to real world counts
- Limitations
  - Minimal modal choice sensitivity to multimodal improvement projects
  - Lack of detailed vehicle fleet and corresponding emissions data

The locally calibrated element of the COMPASS Travel Demand Model adds to the accuracy and reasonableness of a project performance analysis. Therefore, the COMPASS Travel Demand Model was used to support the CRS Project Evaluation Toolkit in two primary ways:

1) Provide year 2050 land use projection information aggregated to the VisionEval geographic structure
2) Provide a reasonableness check and as needed scaling parameters to adjust VisionEval modal outputs to align more closely with locally calibrated data

## MULTMODAL PROJECT PERFORMANCE MEASURES

The multimodal performance measures from TM#2 - Goals, Objectives, and Performance Measures that could be quantified using the combination of VisionEval and the COMPASS travel demand model are listed as follows:

- Change in VMT

- Change in Public Transit Trips
- Change in Walking Trips
- Change in Bicycle Trips
- Increase in trips diverted to 'low-speed' travel modes
- Change in Vehicle Travel Cost
- Change in Emissions

These performance measures were developed using the results from scenarios from the VisionEval model and calibrating these outputs to local conditions using the COMPASS Travel Demand Model. This process is further detailed in the subsequent sections.

## SCENARIO RESULTS

The regional walk, bike, and transit trip results from the Existing, Future Baseline 2050, and three multimodal VisionEval scenarios are shown in Table 1, along with the COMPASS Travel Demand Model outputs for existing and Future Baseline 2050 conditions. Note that 2050 baseline scenario includes the CIM 2050 funded projects and the COMPASS TIP projects in both the VisionEval and the COMPASS Travel Demand Model.

**TABLE 1: REGIONAL SCENARIO EVALUATION RESULTS**

| SCENARIO | TOTAL DAILY WALK TRIPS | TOTAL DAILY BIKE TRIPS | TOTAL DAILY TRANSIT TRIPS |
|---|---|---|---|
| **EXISTING (2020) CONDITIONS - VISIONEVAL** | 239,763 | 38,441 | 71,609 |
| ***EXISTING (2023) CONDITIONS – COMPASS MODEL*** | *104,804* | *51,213* | *7,259* |
| **FUTURE BASELINE (2050) CONDITIONS - VISIONEVAL** | 357,535 | 47,100 | 87,951 |
| ***FUTURE BASELINE (2050) CONDITIONS – COMPASS MODEL*** | *130,123* | *70,233* | *9,516* |
| **SCENARIO 1A: FULLY BUILT-OUT BICYCLE AND PEDESTRIAN NETWORK (2050)** | 408,745 | 361,086 | 99,156 |
| **SCENARIO 1B: ASPIRATIONAL TRANSIT SYSTEM (2050)** | 369,537 | 45,674 | 91,332 |
| **SCENARIO 1C: BUILT OUT MULTIMODAL SYSTEM (2050)** | 423,306 | 359,527 | 101,942 |

The VisionEval and COMPASS Travel Demand Model outputs summarized in Table 1 resulted in the following key findings:

- The Vision Eval model roughly approximates (to level of magnitude) the COMPASS model base and future year bike trips, indicating a reasonable VisionEval model calibration to regional bike trips
- The VisionEval model significantly overestimates walk trips and to a greater relative extent, transit trips when compared to the COMPASS Travel Demand Model. However, the transit trip changes in VisionEval between future baseline and the three scenarios are of a reasonable magnitude when compared to the COMPASS model results.
- Transit ridership appeared more sensitive to improvements on the active transportation system than to increased transit access from the transit improvements only condition (Scenario 1b). This outcome reflects the co-benefits of coupling transit service expansion with supporting active transportation improvements to increase access to transit.
- Bicycle trips are by far the most sensitive mode across the scenarios, with the two scenarios incorporating active transportation improvements showing large increases. This indicates that the region's land use and demographics are more supportive of bicycling mode decisions over walking or transit, a finding that aligns with recent regional trends, particularly given with rapid growth of e-bikes/e-mobility devices.

For performance measure purposes, the maximum benefit in each VisionEval model geography, captured as increase in walk/bike/transit trips, decrease in VMT, decease in emission, and decrease in vehicle travel cost was calculated across the three scenarios and then selected as the initial indicator of the maximum potential. This approach reflected the cumulative benefits of multiple multimodal improvements.

## MULTIMODAL PERFORMANCE MEASURE CALIBRATION

The initial VisionEval results, summarized in Table 1, indicate travel shifts to bicycle and walking modes significantly larger (by percentage) than the COMPASS model indicates for the areas within the region that currently have complete or nearly complete active transportation systems. To better represent these regional travel preferences, the VisionEval walking and biking modal outputs were scaled to COMPASS model growth trends. The data presented in Table 2, shows some VisionEval (VE) and COMPASS Travel Demand Model (TDM) bicycle trip outputs for a sampling of zones throughout the region, and the subsequent discussion and equation outline this calibration process.

**TABLE 2: BIKE TRIP CALIBRATION EXAMPLE**

| VE ZONE | 2020 VE BIKE TRIPS | 2050 BASELINE VE TRIPS | 2050 VE POTENTIAL BIKE TRIPS | | | COMPASS TDM 2023 BIKE TRIPS | COMPASS TDM 2050 BIKE TRIPS | POTENTIAL BIKE TRIP INCREASE (2050) |
|---|---|---|---|---|---|---|---|---|
| | | | Scenario 1A | Scenario 1B | Scenario 1C | | | |
| 328 | 26 | 71 | 1,509 | 71 | **1,538** | 16 | 17 | 351 |
| 480 | 134 | 110 | **1,210** | 104 | **1,210** | 79 | 75 | 750 |
| 672 | 82 | 74 | **550** | 69 | 542 | 48 | 48 | 306 |
| 757 | 45 | 167 | **3,051** | 168 | 3,028 | 28 | 31 | 535 |

Focusing on a single model geography, VisionEval zone 757, the data in Table 2 indicates the following:

- Existing conditions (VisionEval): 45 daily bicycle trips
- Future Baseline 2050 conditions (VisionEval): 167 daily bicycle trips
- 2050 VisionEval Scenarios
  - Scenario 1A, Aspirational Walking and Biking Network: **3,051 daily bicycle trips** – this is the maximum of the three aspirational scenarios and was therefore selected as the maximum VisionEval bike trip potential for zone 757
  - Scenario 1B, Aspirational Transit Network: 168 daily bicycle trips
  - Scenario 1A, Aspirational Full Multimodal Network: 3,028 daily bicycle trips
- Existing conditions (COMPASS TDM): 28 daily bicycle trips
- 2050 Baseline Conditions (COMPASS TDM): 31 daily bicycle trips

For zone 757, the maximum year 2050 bicycle trips potential was then calculated as follows:

$$\begin{aligned} &Maximum\ Additional\ Bicyle\ Trip\ Potential_{Zone\ 757} \\ &= \frac{COMPASS\ TDM\ Baseline\ 2050\ Bike\ Trips_{Zone\ 757}}{VisionEval\ 2050\ Baseline\ Bike\ Trips_{Zone\ 757}} \\ &\times (VisionEval\ 2050\ Maximum\ Bike\ Potential_{Zone\ 757} \\ &-\ VisionEval\ 2050\ Baseline\ Bike\ Trips_{Zone\ 757}) = \frac{31}{167} \times (3{,}051 - 167) \\ &= \mathbf{535\ Additional\ Bicycle\ Trips\ in\ Zone\ 757\ by\ the\ year\ 2050} \end{aligned}$$

This approach conditioned the VisionEval outputs to the calibrated COMPASS model data, adding an additional level of reasonableness to the results. Additional parameters were added to these calculations to accommodate other edge cases of the VisionEval to COMPASS model output comparisons.

As noted in the summary of scenario findings, the transit trip growth between the VisionEval Future Baseline 2050 and the three aspirational scenarios is reasonable when compared against current transit ridership trends. Therefore, the net difference in transit trips between the VisionEval Future Baseline and best performing (by zone) build out scenario was used to develop the transit growth potential.

Table 3 summarizes the multimodal performance measures produced by the combination of the VisionEval and COMPASS Travel Demand Model outputs. The table also summarizes the methodology used to calculate each performance measure.

**TABLE 3: VISIONEVAL ZONAL PERFORMANCE MEASURES**

| PERFORMANCE MEASURE | UNITS[1] | CALCULATION METHODOLOGY |
|---|---|---|
| **MAXIMUM POTENTIAL INCREASE IN PUBLIC TRANSIT TRIPS** | # of daily transit trips added in 2050 | Based on net trip difference between the VisionEval Future Baseline 2050 and Built-Out Scenario with the highest transit trips by zone, with some edge condition adjustments using COMPASS model data |
| **MAXIMUM POTENTIAL INCREASE IN WALK TRIPS** | # of daily walk trips added in 2050 | Based on net trip difference between the VisionEval Future Baseline 2050 and Built-Out Scenario with the highest walk trips by zone and scaled to the COMPASS/VisionEval Baseline to Existing growth factor, with some edge condition adjustments also using COMPASS model data |
| **MAXIMUM POTENTIAL INCREASE IN BIKE TRIPS** | # of daily bike trips added in 2050 | Based on net trip difference between the VisionEval Future Baseline 2050 and Built-Out Scenario with the highest bicycle trips by zone and scaled to the COMPASS/VisionEval Baseline to Existing growth factor, with some edge condition adjustments also using COMPASS model data |
| **MAXIMUM POTENTIAL INCREASE IN TRIPS DIVERTED TO 'LOW-SPEED' TRAVEL MODES** | # of daily trips added in 2050 | The sum of the maximum potential walk trips and maximum potential bike trips by zone |
| **VMT REDUCTION** | Total decrease in daily VMT in 2050 | Based on VMT difference between the VisionEval Future Baseline 2050 and Built-Out Scenario with the largest VMT reduction by zone |
| **DECREASE IN VEHICLE TRAVEL COST** | $ saved per person per year | Based on change in travel cost per person difference between VisionEval Future Baseline 2050 and Built-Out Scenario with the largest travel cost reduction by zone, multiplied by 365 to reach a yearly savings |
| **REDUCTION IN CARBON EMISSIONS** | Tons of CO2 Equivalents | Based on CO2 Equivalents difference between the VisionEval Future Baseline 2050 and Built-Out Scenario with the largest CO2 Equivalents reduction by zone |

[1]All performance measure calculated to the VisionEval zone (approximately a Census Block Group) geography

These performance measures provided the basis for the quantitative multimodal elements of the CRS Project Evaluation Toolkit.

## MULTIMODAL PROJECT EVALUATION

With the base multimodal performance potential defined for the region, the next step was to link the performance potential to quantified amounts of infrastructure improvement or expansion. This process created a rate of benefit for the multimodal performance measures. The process was

similar for walk and bike performance measures, as discussed in the following section, but differed somewhat for transit, discussed in a subsequent section.

### Walking and Biking Trips

The complete process for linking walk trips to added infrastructure is detailed for a specific geography, VisionEval zone 1170 (shown in Figure 1), a partially developed area on the west side of Meridian. The key walking network data for VisionEval zone 1170 is summarized in Table 4.

**TABLE 4: WALKING INFRASTRUCTURE SAMPLE DATA**

| VE ZONE # | BUILDABLE AREA | BASELINE[1] PEDESTRIAN INFRASTRUCTURE | PLANNED[2] PEDESTRIAN INFRASTRUCTURE | BASELINE 2050 WALK TRIPS | POTENTIAL WALK TRIP INCREASE (2050) |
|---|---|---|---|---|---|
| **1170** | 594 Acres | 68,074 ft | 47,746 ft | 94 | 50 |

[1]Inlcudes CIM 2050 Funded and COMPASS TIP pedestrian facilities

[2]Planned pedestrian infrastructure calculated from the unfunded projects from Bike Walk COMPASS (Bike Walk COMPASS Map)

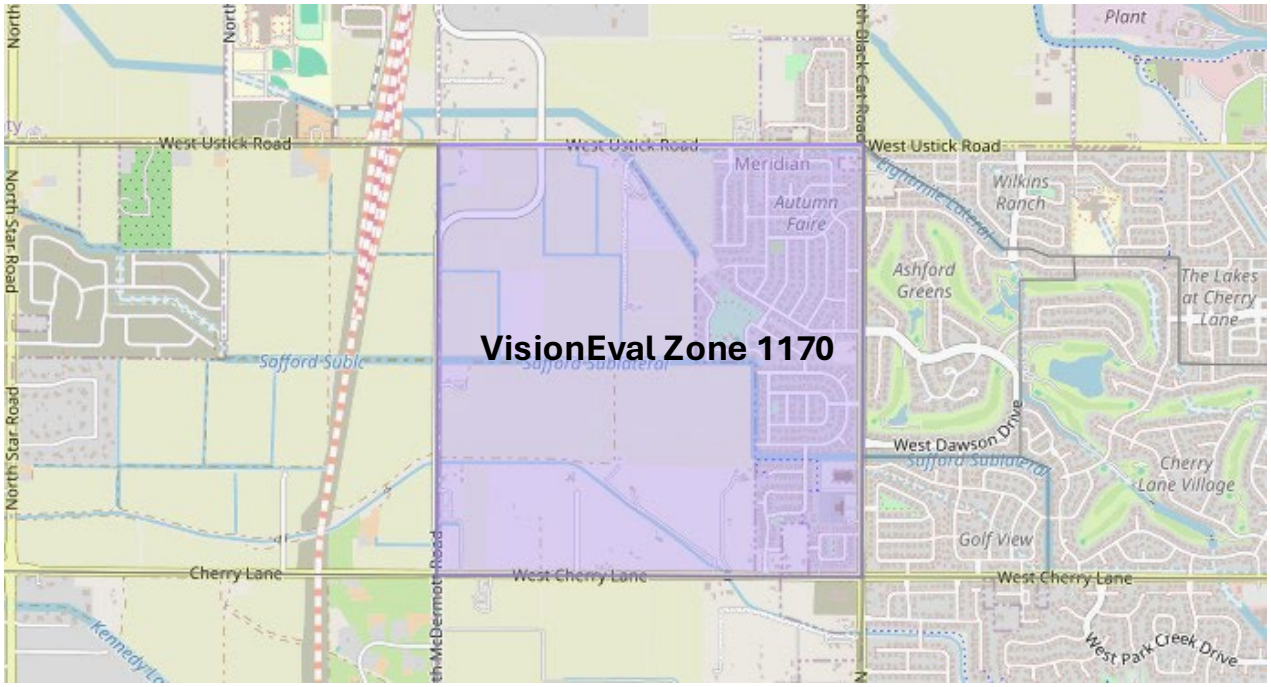


**FIGURE 1: VISIONEVAL ZONE 1170**

The walking infrastructure to walking trip benefit rate calculation process is outlined in the following steps, using VisionEval zone 1170 as an example:

1. For the zone, a baseline for pedestrian infrastructure in feet was calculated by summing the total existing and future baseline (funded) walking infrastructure. The future baseline infrastructure is based on the CIM 2050 Funded list and the COMPASS TIP. For VisionEval zone 1170, this equates to **68,074 ft**.

2. Divide this total future planned walking network length by the buildable area for each zone. For VisionEval zone 1170:

$$Baseline\ Walk\ Network\ Density_{Zone\ 1170} = \frac{68{,}074\ ft}{594\ acres} = 115\ \frac{ft\ of\ walk\ infrastructure}{buildable\ acre}$$

3. Calculate the 90th percentile highest walk network (ft)/acre across all the zones. For Ada and Canyon counties, this equates to **360 ft** of walk infrastructure per buildable acre
4. Calculate the amount of walk network needed to meet optimal walk network conditions by taking the maximum value of:
    a. Scaling up the existing walk infrastructure based on walk trip potential growth compared to Future Baseline 2050 conditions. For VisionEval zone 1170:

$$Optimal\ Walk\ Network\ _{Zone\ 1170} = 68{,}074\ ft\ \times \frac{94 + 50}{50} = \mathbf{104{,}284\ ft}$$

    b. Existing plus planned (funded and unfunded) walk network – note that mixed use paths were assumed to be both walk and bike network, while bike lanes and sidewalks were assigned to biking and walking respectively. For VisionEval zone 1170, this was the maximum value, as shown:

$$Optimal\ Walk\ Network\ _{Zone\ 1170} = 68{,}074\ ft + 47{,}746\ ft = \mathbf{115{,}820\ ft}$$

5. Calculate the Optimal Walk Network Density for each zone by dividing the Optimal Walk Network by the Buildable Area. If the Optimal Walk Network Density exceeded 360 ft/acre, use 360 ft/acre. For VisionEval zone 1170, this value was less than 360 ft/acre:

$$Optimal\ Walk\ Network\ Density_{Zone\ 1170} = \frac{115{,}820\ ft}{594\ acres} = \mathbf{195}\ \frac{\boldsymbol{ft\ of\ walk\ infrastructur}}{\boldsymbol{buildable\ acre}}$$

6. Calculate the desired walk infrastructure for each zone by subtracting the Baseline Pedestrian Infrastructure from the Optimal Walk Network. For VisionEval zone 1170:

$$Desired\ Walk\ Infrastructure_{Zone\ 1170} = 115{,}820\ ft - 68{,}074\ ft = \mathbf{47{,}746\ ft}$$

7. Divide the Potential Walk Trip Increase for each zone by the Desired Walk Infrastructure to create a walk trip rate per mile of added infrastructure. For VisionEval zone 1170:

$$Walk\ Infrastructure\ Trip\ Rate_{Zone\ 1170} = \frac{50\ trips}{47{,}746\ ft} \times \frac{5280\ ft}{1\ mile}$$
$$= \mathbf{5.53\ Walk\ Daily\ Trips\ per\ Mile\ of\ Walk\ Improvement}$$

These walk trip rates are visualized for all the VisionEval zones, as shown in Figure 2, providing a regional heatmap of walk potential across Ada and Canyon Counties.

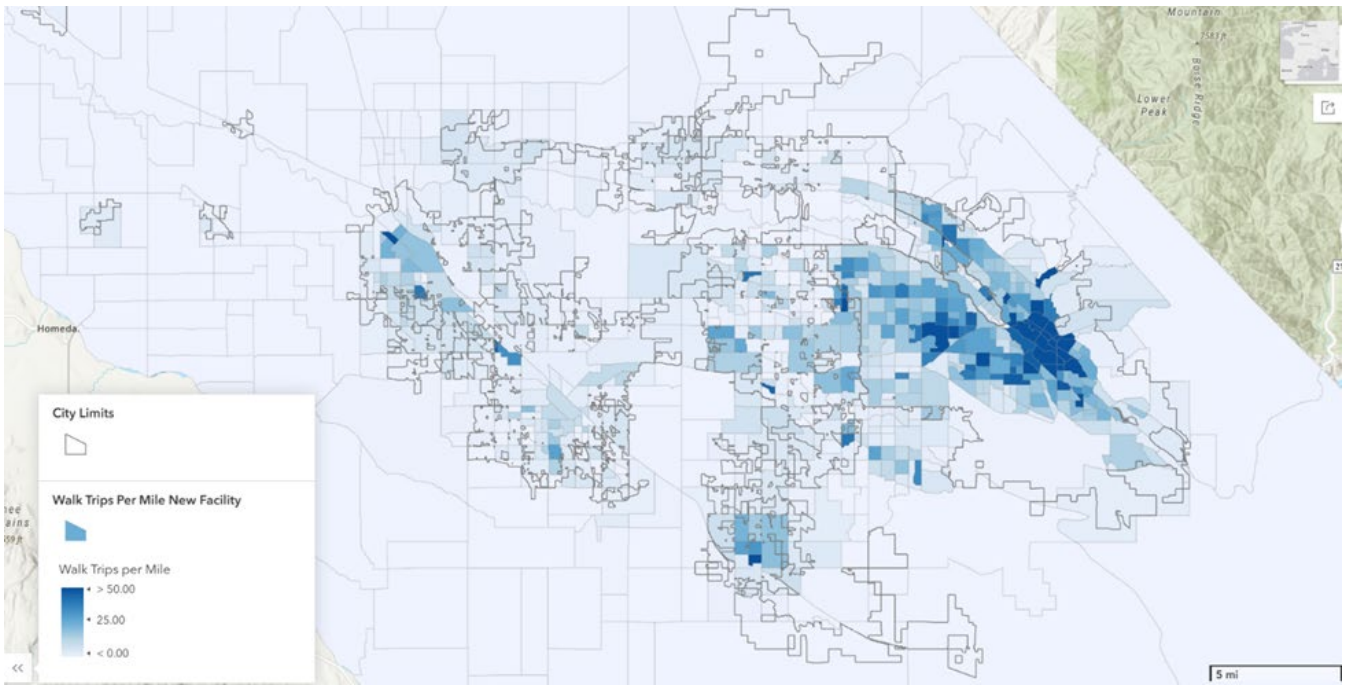


**FIGURE 2: REGIONAL WALK TRIP POTENTIAL (WALK POTENTIAL ONLINE MAP)**

As shown in Figure 2, the highest walk rate potential occurs in the downtown Boise area and the West Bench, areas with high residential and employment mix and density. However, downtown Kuna, parts of Meridian, and portions of downtown Nampa and Caldwell also show significant walk trip potential.

The bike network and unit benefit performance measure was calculated in the exact same way, except for a 90th percentile threshold of 180 ft of infrastructure per acre rather than 360. The regional bike trip potential is shown in Figure 3.

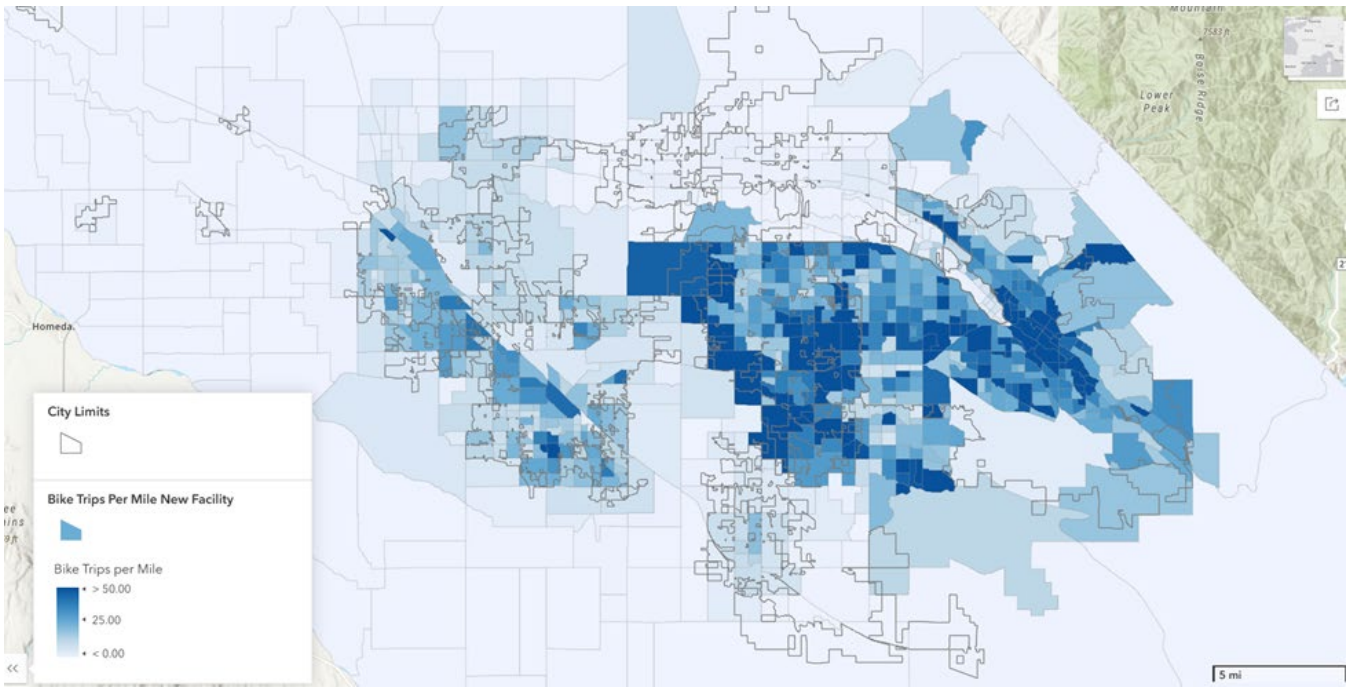


**FIGURE 3: REGIONAL WALK BIKE POTENTIAL (BIKE POTENTIAL ONLINE MAP)**

As shown in Figure 3, the bike potential extends from the downtown areas into the area transitioning from a rural to urban/subdivision nature. This map highlights the importance of well-connected bicycle networks in new communities, particularly in Meridian.

### Transit Trips

Given the different nature of transit improvements, particularly the dual elements of both time (headways) and space (route), transit potential was treated differently than the active transportation modes. The full transit potential of any zone was assumed to be realized if one of the following two conditions were met:

1) A new transit line with a headway of 7.5 minutes (during the peak hours) or less touched the zone
2) An existing transit line touching a zone was upgraded to a headway of 7.5 minutes

Headways between 7.5 and 60 minutes for new or enhancement to existing transit lines were interpolated from 100-10% of the potential transit trip benefit for zone touched by the transit line. And transit lines with headways of more than 60 minutes were assumed to receive 10% of the potential transit trips. The potential maximum transit trips by area are shown in Figure 4.

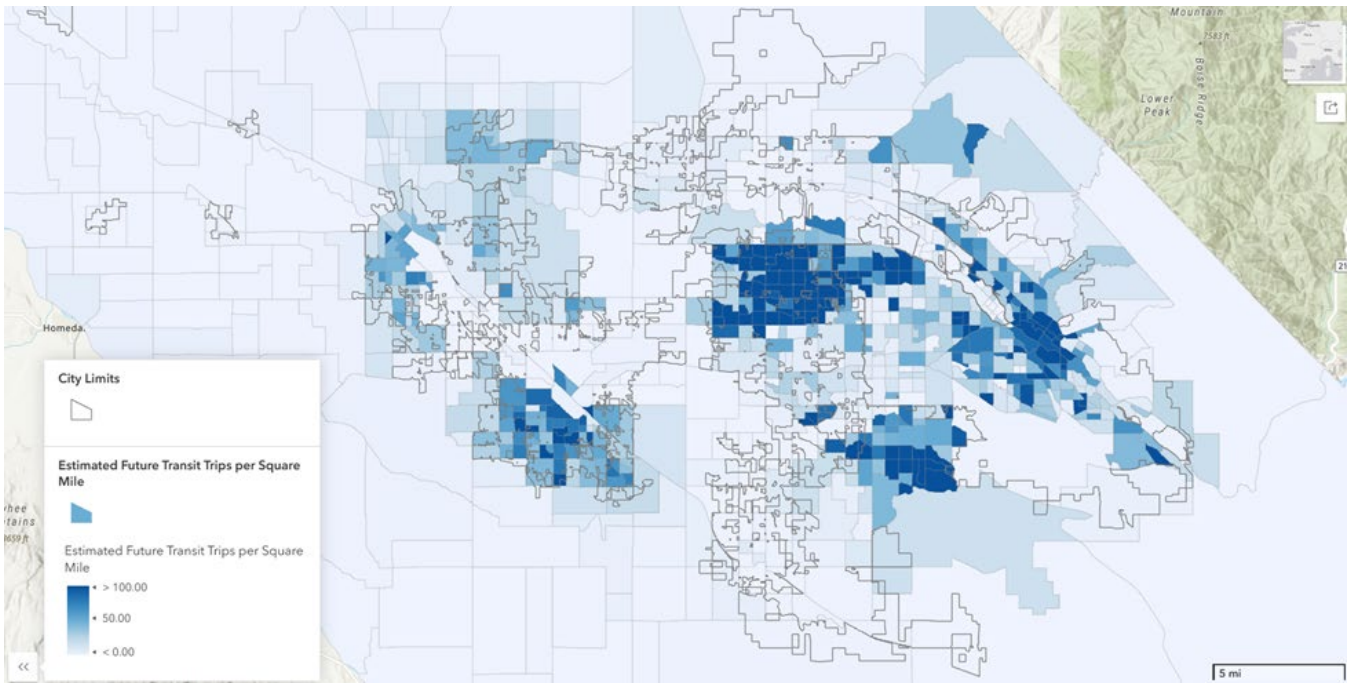


**FIGURE 4: REGIONAL POTENTIAL TRANSIT TRIP DENSITY BY AREA (TRANSIT POTENTIAL ONLINE MAP)**

As shown in Figure 4, the highest potential for transit trips is generally centered around areas with high existing or future employment and areas with high density. These results also indicate transit potential in residential areas in both Caldwell and Nampa, indicating demographics and land uses supportive of transit usage.

### VMT, Cost of Vehicle Travel, and Emissions

The remaining quantitative performance measures of VMT, Cost of Vehicle Travel, and Emissions were calculated by taking the outputs from best performing VisionEval scenario for each zone and assigning that benefit to the zone. These benefits were then weighted proportionally to transit, walking, or biking improvements based on the total added trips for each of those modes. Table 5 outlines this process for a sample zone, VisionEval zone 2664.

**TABLE 5: VMT, EMISSIONS, AND COST OF VEHICLE TRAVEL PERFORMANCE ALLOCATION**

| PERFORMANCE MEASURE | ZONE 2664 RESULT | PORTION OF BENEFIT ATTRIBUTED TO PEDESTRIAN IMPROVEMENTS | PORTION OF BENEFIT ATTRIBUTED TO BICYCLE IMPROVEMENTS | PORTION OF BENEFIT ATTRIBUTED TO TRANSIT IMPROVEMENTS |
|---|---|---|---|---|
| POTENTIAL WALK TRIP INCREASE | 33 Trips | 12% (33/274) | | |
| POTENTIAL BIKE TRIP INCREASE | 217 Trips | | 79% (217/274) | |
| POTENTIAL TRANSIT TRIP INCREASE | 24 Trips | | | 9% (24/274) |
| TOTAL ADDED MULTIMODAL TRIPS | 274 Trips | | | |
| TOTAL VMT BENEFIT | -379 VMT/Day | -46 VMT/Day | -300 VMT/Day | -33 VMT/Day |
| TOTAL EMISSIONS BENEFIT | -199 $CO_2e$ | -24 $CO_2e$ | -158 $CO_2e$ | -17 $CO_2e$ |
| TOTAL VEHICLE TRAVEL COST BENEFIT | -$398/day | -$48/day | -$315/day | -$35/day |

This process enables the VMT, emissions reduction, and cost of vehicle travel benefits to be allocated to projects that specifically address transit, walking, or biking infrastructure.

## QUALITATIVE ANALYSIS OF TSMO/ITS AND SAFETY IMPROVEMENTS

To capture the performance of Transportation System Management and Operations (TSMO) projects, Intelligent Transportation Systems (ITS) projects, and to capture the safety benefits of multimodal projects and align with safety goals, qualitative analysis methods were developed to supplement the CRS Project Evaluation Toolkit. The qualitative analysis measures are summarized in the following sections.

### TMSO/ITS PROJECT EVALUATION METHODS

Transportation Systems Management and Operations (TSMO) and Intelligent Transportation Systems (ITS) projects were evaluated qualitatively based on best practices and known ranges of benefits provided by tools such as TOPS-BC. For these types of projects, the following performance measures were evaluated by project type on a qualitative basis:

- Decrease in heavy vehicle delay
- Increase in public transit trips

- Reduction in heavy truck Vehicle Miles Traveled (VMT)
- Decrease in arterial roadway delay
- Decrease in freeway delay
- Reduced crash rate on congested and non-/or unreliable corridors
- Reduced Carbon Emissions

The full details of the TSMO/ITS qualitative project performance measure methodology and key assumptions are included in Appendix B.

### SAFETY IMPROVEMENT EVALUATION METHODLOGY

To capture the pedestrian and bicycle safety benefits of multimodal projects, a combined quantitative and qualitative performance measure was applied. This measure was derived from the Ada County Highway District (ACHD) Livable Streets Performance Measures (ACHD Livable Streets Performance Measures) document, which was adopted in December 2024. The methodology described in this document provides guidance on how to calculate Level of Traffic Stress (LTS) for pedestrians and bicyclists, both along roadways and at intersections. LTS is measured on a scale of 1 to 4, with a score of 1 being the best case, and 4 being the worst. ACHD promotes LTS of 2 or better as the best practice for multimodal project elements. This LTS methodology was incorporated into the CRS Project Evaluation Toolkit as a project specific input as the number of levels of both bicycle and pedestrian LTS improvement.

A more broad, qualitative safety input was also incorporated into the CRS Project Evaluation Toolkit as a project specific input. This input, provided as a Boolean (yes/no), was based on known Crash Modification Factors (CMF) from the Highway Safety Manual (HSM). A project with beneficial CMF would be input as a yes, projects without would be input as a no. This input was compounded by a further user input indicating whether or not a proposed project that improves safety based on CMF information is also located on an unreliable corridor. Crashes on unreliable corridors severely increase idling delay, which creates more emissions, so projects that improve safety on these corridors provide additional emissions and safety benefits through reduced delay and lessened risk of secondary crashes. For reference, the unreliable corridors throughout COMPASS are identified on Figure 6 of the Treasure Valley Annual Congestion Management System Report 2024 (Congestion Management Report 2024). Corridor segments with a Medium or High Travel Time Index or an unreliable value for Level of Travel Time Reliability are considered unreliable.

These project level inputs provided the CRS Project Evaluation Toolkit with the information needed to determine whether a proposed improvement aligns with safety goals while also advancing the CRP goal of reducing emissions.

## PROJECT EVALUATION

The CRS Project Evaluation Toolkit was developed from the quantitative and qualitative performance measures and methodologies described in the prior sections. The toolkit is intended to assess the performance of candidate projects against the goals and objectives for the CRS using the performance measures selected by the project stakeholders. The tool quantifies specific project

performance metrics and then assigns a score for that metric based on pre-defined thresholds. These performance metric specific scores are then aligned with the goals and objectives of the CRS, as described in TM #2. The goals and objectives are weighted based on stakeholder and COMPASS input, and the resulting CRS score is used to determine the alignment of the proposed project with the CRS. The scoring methodology, criteria, and weighting used to complete the CRS Project Evaluation Toolkit is described in the subsequent sections, along with some candidate project evaluations and guidelines for applying the Toolkit.

## DEVELOPMENT AND EVALUATION METHODOLOGY

The full development process and underlying evaluation methodology followed to complete the CRS Project Evaluation Toolkit is summarized in the following steps:

**Step 1:** Compile VisionEval Existing and Future Baseline 2050 Scenario Data

**Step 2:** Run and compile outputs from VisionEval 2050 aspirational scenarios

**Step 3:** Compile COMPASS Travel Demand Model data

**Step 4:** Estimate maximum potential of each multimodal performance measure

**Step 5:** Link maximum potential modal trip benefits to the added infrastructure data assumptions for the aspirational multimodal system. This step results in a benefit rate measured in trips added by mode per unit distance of active transportation infrastructure or frequency/access of transit service.

**Step 6:** Incorporate safety performance metrics that reflect improvement in Level of Traffic Stress (LTS) for pedestrians and bicyclists based on the ACHD Livable Streets Performance Measures (Adopted 2024), and whether the project is located on an unreliable corridor.

**Step 7:** Set initial performance measure scoring (0, 1, 2) and weighting (even)

**Step 8:** Incorporate the qualitative TSMO/ITS scoring criteria for the relevant performance measures

**Step 9:** Test multiple candidate projects in the tool and establish quantitative benefit thresholds for project scoring using the preliminary tool outputs.

**Step 10:** Update performance measure weighting to reflect the on-going *Communities in Motion* outreach efforts key findings

**Step 11:** Incorporate the final version of the toolkit into an online dashboard that can be access via web-browser by all agencies with interest in either CRP funds and CRS project scoring, or in multimodal performance metrics and regional goals alignment for planned projects

## CRS SCORING THRESHOLDS

Step 7 of the development notes that scoring thresholds were developed for each performance measure, and then these scoring thresholds were refined during Step 9 based on evaluation of a sample of candidate projects. These thresholds were established through trial and error, identifying

the range in project performance measures for actual planned projects that are expected to align closely with the CRS goals. The performance measure thresholds are important, as they define the magnitude of project benefits, and influence project priority through the total CRS score. These CRS scoring thresholds by quantified performance measure are summarized as follows:

- Increase in Public Transit Trips:
  - Score of 1: >0.1% increase in daily transit trips across project geography
  - Score of 2: >10 daily transit trips added
- Increase in Walk Trips:
  - Score of 1: >0.2% increase in daily walk trips across project geography
  - Score of 2: >10 daily walk trips added
- Increase in Bike Trips:
  - Score of 1: >0.2% increase in daily walk trips across project geography
  - Score of 2: >10 daily walk trips added
- Reduced VMT:
  - Score of 1: >0.2% decrease in daily VMT across project geography
  - Score of 2: >250 daily decrease in VMT
- Reduced crash rate on congested and non-/or unreliable corridors:
  - Score of 1: Project is expected to improve safety
  - Score of 2: >20% of the project is located along an unreliable corridor
- Increase in trips diverted to 'low-speed' travel modes:
  - Score of 1: >0.4% increase in daily walk+bike trips across project geography
  - Score of 2: >30 daily walk+bike trips added
- Decrease in vehicle travel cost:
  - Score of 1: >0.1% decrease in daily vehicle travel cost across project geography
  - Score of 2: >$2.50 savings in travel cost per year per person within the project area
- Reduced carbon emissions:
  - Score of 1: >0.2% decrease in daily $CO_2$ Equivalents across project geography
  - Score of 2: >30 daily decrease in tons of $CO_2$ Equivalents

As noted in Step 9 of the CRS Project Evaluation Toolkit development process these thresholds were refined based on testing of a variety of candidate project COMPASS staff input. Note also that the decrease in vehicle travel cost by no means represents the full monetized benefit of a project but only focuses on the distributed travel cost benefits related to some drivers switching to cheaper modes of travel.

## CRS SCORING MATRIX

A CRS scoring matrix was developed based on the goals, objectives, and performance measures presented in TM #2. To compile a composite CRS project score for individual candidate projects, the performance measures, objectives, and goals were all weighted. The weighting of the goals and

objectives was determined based on public input on the Goals and Objectives of the draft long-range transportation plan, *Communities in Motion 2055*. The performance measure weighting was developed primarily by summing up the total weight of each performance measure across all the objectives, ensuring that no single performance measure provided disproportionate impact on the total CRS score. The full project scoring matrix with the project weighting is shown in Table 6.

**TABLE 6: PERFORMANCE MEASURE WEIGHTING AND SCORING MATRIX**

| GOAL | OBJECTIVE | PERFORMANCE MEASURE | GOAL WEIGHTING | OBJECTIVE WEIGHTING | MEASURE WEIGHTING |
|---|---|---|---|---|---|
| ECONOMIC VITALITY | *Economic Vitality* | Decrease in heavy truck delay | 0.63 | 0.33 | 0.70 |
| | | Increase in public transit trips | 0.63 | 0.33 | 0.20 |
| | | Increase in walk trips | 0.63 | 0.33 | 0.05 |
| | | Increase in bike trips | 0.63 | 0.33 | 0.05 |
| | *Preservation and Reliability* | Decrease in heavy truck delay | 0.63 | 0.33 | 0.17 |
| | | Reduction in heavy truck Vehicle Miles Traveled (VMT) | 0.63 | 0.33 | 0.50 |
| | | Decrease in arterial roadway delay | 0.63 | 0.33 | 0.17 |
| | | Decrease in freeway delay | 0.63 | 0.33 | 0.17 |
| | *Growth Management* | Reduced VMT per capita | 0.63 | 0.33 | 1 |
| SAFETY | *Safety, Security, and Resiliency* | Reduced crash rate on congested and non-/or unreliable corridors | 1 | 1 | 0.25 |
| | | Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians | 1 | 1 | 0.75 |
| CONVENIENCE | *Organized Transportation* | Increase in public transit trips | 1 | 0.5 | 0.5 |
| | | Increase in walk trips | 1 | 0.5 | 0 |
| | | Increase in bike trips | 1 | 0.5 | 0 |
| | | Increase in trips diverted to 'low-speed' travel modes | 1 | 0.5 | 0.5 |
| | *Organized Development* | Decrease in arterial roadway delay | 1 | 0.5 | 0.5 |
| | | Reduced VMT per capita | 1 | 0.5 | 0.5 |
| QUALITY OF LIFE | *Environment and Open Space* | Increase in walk trips | 0.75 | 0.5 | 0.5 |
| | | Increase in bike trips | 0.75 | 0.5 | 0.5 |
| | *Housing Affordability and Equity* | Decrease in vehicle travel cost | 0.75 | 0.5 | 1 |
| ***CRP GOAL*** | *Reduce Carbon Emissions* | Reduced VMT per capita | 1 | 1 | 0.5 |
| | | Reduced Carbon Emissions | 1 | 1 | 0.5 |

These weightings were multiplied against the performance measure score (0, 1, or 2) for any project under consideration and are then summed up to create the final project CRS score.

## CRS PROJECT ASSESSMENT

To demonstrate the application of the tool to a real, planned project, this section describes evaluating and scoring the Garden Street Path project in the CRS Project Evaluation Toolkit.

The Garden Street Path Project is located on the West Bench in Boise, connecting Cassia Park to Albion Street with a new, multiuse path.

First, the zones benefiting from the project were first selected from the toolkit dashboard, as shown in Figure 5.

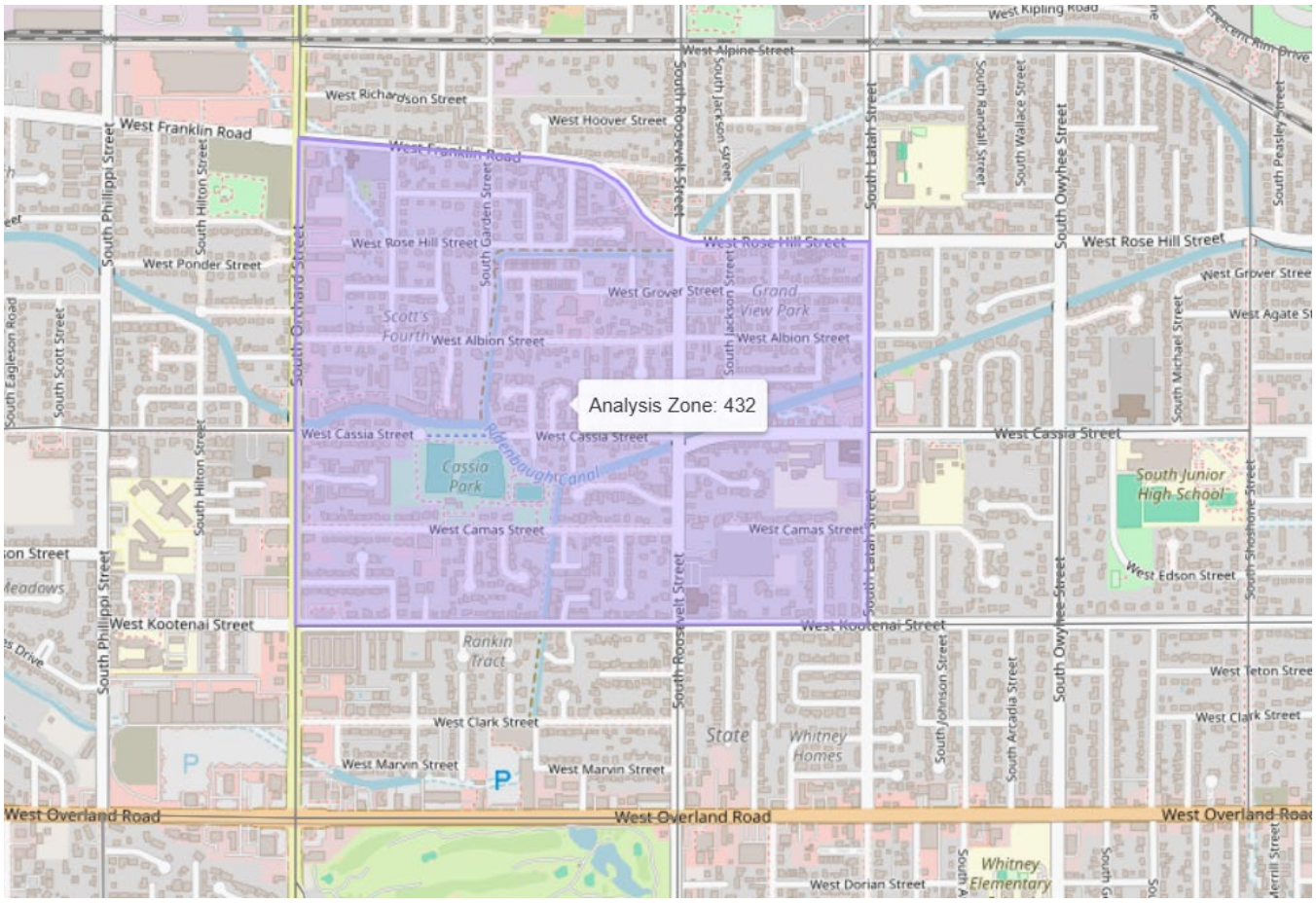


**FIGURE 5: ANALYSIS ZONE 432**

Next, the project specific information was input into the toolkit dashboard. These inputs and corresponding reasoning for these inputs are provided in Table 7.

**TABLE 7: GARDEN STREET PATH CRS TOOLKIT INPUTS**

| CRS EVALUATION TOOLKIT INPUT | PROJECT INPUT | INPUT REASONING/ASSUMPTIONS |
|---|---|---|
| IMPROVES PEDESTRIAN FACILTIES? | Yes | A new multiuse pathway provides an improved pedestrian facility |
| PEDESTRIAN PROJECT LENGTH (FT) | 2,500 ft | New multiuse pathway is approximately 2,500 ft long |
| PLTS IMPROVEMENT | 2 | Per ACHD Livable Streets Performance Measures, a multiuse pathway provides Pedestrian Level of Traffic Stress (PLTS) of 1, compared to current PLTS of 3 along the project corridor |
| IMPROVES BICYCLE FACILTIES? | Yes | A new multiuse pathway provides an improved bicycle facility |
| BICYCLE PROJECT LENGTH (FT) | 2,500 ft | New multiuse pathway is approximately 2,500 ft long |
| BLTS IMPROVEMENT | 2 | Per ACHD Livable Streets Performance Measures, a multiuse pathway provides Bicycle Level of Traffic Stress (BLTS) of 1, compared to current BLTS of 3 along the project corridor |
| IMPROVES TRANSIT OPERATIONS? | No | Project does not contain any transit operations improvements, including new routes, existing route operations enhancements, or station improvements |
| TRANSIT PROJECT HEADWAY (MIN) | N/A | Project does not include improved transit headway |
| PROJECT INCLUDES TRAFFIC SAFETY IMRPOVEMENTS? | Yes | Project provides pedestrians and bicyclists with a facility physically separated from the adjacent roadways. This improvement has a positive CMF. |
| PERCENT SAFETY IMPROVEMENTS ON UNRELIABLE CORRIDORS | 0% | This project is not located along a corridor flagged as either Medium or Highly unreliable in the COMPASS Congestion Management Report |
| CONTAINS TSMO ELEMENT? | No | Project does not include TSMO/ITS elements |
| SELECT TSMO PROJECT CATEGORY (MULTIPLE) | N/A | Project does not include TSMO/ITS elements |
| SELECT TSMPO PROJECT TYPE (MULTIPLE) | N/A | Project does not include TSMO/ITS elements |

After receiving these inputs, the CRS Project Evaluation Toolkit provided the project performance results detailed in Table 8.

**TABLE 8: GARDEN STREET PATH PROJECT EVALUATION RESULTS**

| GOAL | OBJECTIVE | PERFORMANCE MEASURE | OUTPUT #1 | OUTPUT #2 | CRS SCORE |
|---|---|---|---|---|---|
| ECONOMIC VITALITY | *Economic Vitality* | Decrease in heavy truck delay | | | 0 |
| | | Increase in public transit trips | 0 | 0.0% | 0 |
| | | Increase in walk trips | 12 | 3.8% | 2 |
| | | Increase in bike trips | 16 | 10.0% | 1 |
| | *Preservation and Reliability* | Decrease in heavy truck delay | | | 0 |
| | | Reduction in heavy truck Vehicle Miles Traveled (VMT) | | | 0 |
| | | Decrease in arterial roadway delay | | | 0 |
| | | Decrease in freeway delay | | | 0 |
| | *Growth Management* | Reduced VMT | 138 | 0.3% | 1 |
| SAFETY | *Safety, Security, and Resiliency* | Reduced crash rate on congested and non-/or unreliable corridors | 0% | TRUE | 1 |
| | | Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians | | 2 | 2 |
| CONVENIENCE | *Organized Transportation* | Increase in public transit trips | 0 | 0.0% | 0 |
| | | Increase in walk trips | 12 | 3.8% | 2 |
| | | Increase in bike trips | 16 | 10.0% | 1 |
| | | Increase in trips diverted to 'low-speed' travel modes | 28 | 5.9% | 1 |
| | *Organized Development* | Decrease in arterial roadway delay | | | 0 |
| | | Reduced VMT | 138 | 0.3% | 1 |
| QUALITY OF LIFE | *Environment and Open Space* | Increase in walk trips | 12 | 3.8% | 2 |
| | | Increase in bike trips | 16 | 10.0% | 1 |
| | *Housing Affordability and Equity* | Decrease in vehicle travel cost | $0 | 0.0% | 0 |
| *CRP GOAL* | *Reduce Carbon Emissions* | Reduced VMT | 138 | 0.3% | 1 |
| | | Reduced Carbon Emissions | 31.9 | 0.4% | 2 |
| | | | | **TOTAL CRS SCORE** | **4.55** |

As shown in Table 8, the Garden Street Pathway Project received a CRS score of 4.55, out of a maximum possible score of 8.76. From a multimodal performance standpoint, the project is anticipated to add 12 daily walk trips and 16 daily bike trips by 2050, decreasing VMT by 138 per day, and reducing emissions by 31.9 tons of $CO_2e$ per day.

A broad range of projects were tested in the CRS Project Evaluation Toolkit. These projects spanned many of the jurisdictions throughout the region and captured a wide range of multimodal and ITS/TSMO improvements. These projects described in Table 9.

**TABLE 9: CRS TEST PROJECTS**

| PROJECT NAME | JURISDICTION | EXTENTS | PROJECT DESCRIPTION |
|---|---|---|---|
| **11TH AVENUE SIDEPATH** | Nampa | 11th Avenue North from Greens Drive to Centennial Drive | Design and Construct a Multi-Use Sidepath |
| **GARRITY BOULEVARD SIDEPATH** | Nampa | Garrity Boulevard, from Stamm to Grant Street | Design and Construct a Multi-Use Sidepath |
| **INDIAN CREEK PATHWAY REPAIR** | Nampa | Rebuild Path between Kings Road and Amity Avenue | Rebuild Path and Treat embankment for Section of Indian Creek |
| **INDIAN CREEK PATHWAY REBUILD** | Nampa | Rebuild Path between Kings Road and Sugar Avenue | Rebuild Path and Treat embankment for Section of Indian Creek |
| **FAIRVIEW AVENUE BRIDGE** | Ada County Highway District | Fairview Avenue Bridge between North Garden Street and Whitewater Park Blvd | Remove and replace the existing Fairview Avenue Bridges over the Boise River in the City of Boise. Facilities for low-stress Bicycle and Pedestrian travel with connections into the greenbelt. |
| **SWAN FALLS ROAD RRX ELIMINATION** | Kuna | Swan Falls Road, Avalon St to Stagecoach Way | Eliminating an existing at-grade railroad crossing on Swan Falls Road and replacing an aging bridge structure. New structure includes multi-use paths, ADA ramps, and eliminates the rail crossing, preventing long queues and vehicle idling. |
| **DMS EVENT MANAGEMENT** | Nampa | Garrity Boulevard at Ford Idaho Event Center | Digital Message Signage around Ford Idaho Event Center |
| **DMS MESSAGE BOARDS FOR MAJOR ROUTES** | Nampa | Major Routes to Interstate Throughout Nampa (Roads Vary) | Digital Message Boards Around Nampa, Near I84 for Traffic Management. |
| **MARBLE FRONT ST IMPROVEMENTS** | Caldwell | Illinois Ave to Blanco St | Widen and protect roadway shoulders, and targe sidewalk infill in most difficult areas |
| **INDIANA ST BIKE LANES** | Caldwell | Cleveland to Ustick | Bike lane protection can be rubber, flex post, etc, rather than concrete |
| **PAYNTER NORTH SIDEWALK INFILL** | Caldwell | Simplot to Kimball | Sidewalk Infill |

| PROJECT NAME | JURISDICTION | EXTENTS | PROJECT DESCRIPTION |
|---|---|---|---|
| PAYNTER SOUTH SIDEWALK INFILL | Caldwell | Kimball to Ustick | Sidewalk Infill |
| NOTUS RD SIDEWALK INFILL | Notus | US 20/26 to Notus High School | Sidewalk Infill |
| 1ST ST SIDEWALKS | Notus | US 20/26 to Notus Rd | Sidewalk Infill |
| 3RD ST SIDEWALKS | Parma | Wendle to US 20/26 | Sidewalk Infill |
| MCCONNELL AVE SIDEWALKS | Parma | 4th to Parma Rd | Sidewalk Infill |
| MURPHY RD SHOULDERS | Melba | Southside to Randolph | Widen and protect roadway shoulders |
| MAIN ST SHOULDERS | Greenleaf | Friends Rd to Top Rd | Widen and protect roadway shoulders |
| ACHD TSMO PROJECT | Ada County Highway District | Ada County | ATSPM at 50 signals, Transit signal priority to 20 signals, Signal coordination at 10 signals |
| GARDEN STREET PATH | Ada County Highway District | Cassia Park to Albion St | New multi-use path |
| RIDENBAUGH CANAL PATH | Ada County Highway District | Maple Grove to Milwaukie | New multi-use path |

The full project evaluation results are included in Appendix C. The totals scores and key performance metrics for the top three scoring projects are provided as follows:

- Ridenbaugh Canal Path – CRS Score 6.71
  - Daily Walk Trips added (by 2050) - 33
  - Daily Bike Trips added (by 2050) – 69
  - Daily VMT Reduction (by 2050) – 297
  - Daily $CO_2e$ Reduction (by 2050) – 58.9 tons
- Fairview Bridge Replacement – CRS Score 4.86
  - Daily Walk Trips added (by 2050) - 0
  - Daily Bike Trips added (by 2050) – 45
  - Daily VMT Reduction (by 2050) – 160
  - Daily $CO_2e$ Reduction (by 2050) – 33.6 tons
- Garden Street Path – CRS Score 4.55
  - Daily Walk Trips added (by 2050) - 12
  - Daily Bike Trips added (by 2050) – 16
  - Daily VMT Reduction (by 2050) – 138
  - Daily $CO_2e$ Reduction (by 2050) – 31.9 tons

Ridenbaugh Canal multi-use path project stood out for high-performance, generating over 100 new daily walk/bike trips. This outcome is expected, as the Ridenbaugh Canal project is located in an area with high walk/bike potential but somewhat limited active transportation connectivity. Overall, active transportation projects performed well, particularly within the TMA. Transit projects also

scored well, and additional testing indicated that transit projects combined with bicycle and pedestrian network improvements could achieve even higher scores.

## CRS PROJECT EVALUATION TOOLKIT GUIDELINES

Once the scoring thresholds and weighting were finalized, the CRS Project Evaluation Toolkit was converted to a web-based dashboard. Dashboard users testing projects for multimodal performance measures and/or looking for a potential CRS score should use the following guidelines when implementing this tool:

- A multiuse path length should be entered as both a bicycle facility and a pedestrian facility. For example, a 2,000 ft multiuse path is input twice, once as 2,000 ft of walk facility, and once as 2,000 ft of bicycle facility
- Count total sidewalk length (summed separately for both sides)
- Count total bike lane length (summed separately for each direction)
- If a new facility eliminates an existing gap in the system, additional distance may be added to represent the potential travel distance saved by users
- A new or enhanced bike/ped crossing project can be input by estimating the travel length saved by users. For example, a new pedestrian crossing located halfway between two existing protected crossing opportunities 5,000 ft apart could be assumed to provide 2500 ft of new pedestrian network in the zone where the project is located
- Use COMPASS travel time reliability assessment resources to determine whether a project occurs on an unreliable corridor
- Improvements may be layered. For example, a project could include both transit line enhancements such as TSP, increased frequency, and some location specific bicycle and pedestrian improvements. All these improvements should be input into the tool, and the scores will be compiled through the mixture of appropriate quantitative and qualitative performance metrics.
- TSMO/ITS projects can also be evaluated additively, or combined with multimodal projects

# APPENDIX

## CONTENTS

# APPENDIX A

## COMPASS VISIONEVAL MODEL DOCUMENTATION

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# VISIONEVAL DOCUMENTATION

DATE: October 31, 2025

TO: Hunter Mulhall | COMPASS

FROM: Aaron Berger, PE | DKS Associates
Emily D'Antonio | DKS Associates

SUBJECT: COMPASS Carbon Reduction Strategy Project #24747-000

## VISIONEVAL OVERVIEW

### INTRODUCTION

According to the VisionEval developers, "VisionEval is a collaborative project to build a family of strategic tools for performance-based transportation planning into a single open-source programming framework". Within the VisionEval framework, the Regional Strategic Planning Model (VERSPM), was developed by the Oregon Department of Transportation for the purpose of estimating and forecasting the effects of various policies and other influences on the amount of vehicle travel within a region as well as the types of vehicles and fuels used. Based on the inputs provided, the model predicts travel demand impacts at an individual household level. By looking at a household level, the model is able to evaluate the relationships between travel, emissions, and the characteristics of households, land use, transportation systems, vehicles, and other factors.

For the development of the outputs used within the COMPASS Carbon Reduction Strategy prioritization toolkit, a module within the VERSPM was used. The VETravelDemandMM module works within the VERSPM model, but modifies the formulas and inputs used to calculate multimodal trips. Using the VETravelDemandMM allows for enhanced model capacity to account for transit and active transportation modes. The module does this by incorporating inputs from the EPA Smart Location Database to better account for infrastructure influences on active transportation trips. The Smart Location Database is a tool that provides data for residential and employment density, land use diversity, design of the built environment, access to destinations, and distance to transit in a consistent format within US metropolitan regions.

### ZONE STRUCTURE

VisionEval produces outputs at a household level, but inputs are provided at three levels of geography:

- Region
- MArea
- azone
- bzone

For the COMPASS Model, the Region and the Marea share the same boundaries. Azones are loosely based on city limits and bzones are based on the COMPASS Travel Demand Model Transportation Analysis Zone (TAZ). To create working bzones within the VisionEval model, Traffic Analysis Zones from the COMPASS travel demand model were aggregated to ensure all BZones contained housing units and met certain population thresholds necessary for VisionEval. Similarly, due to having small populations, the Notus and Melba azones contain some parts of Rural Canyon County.

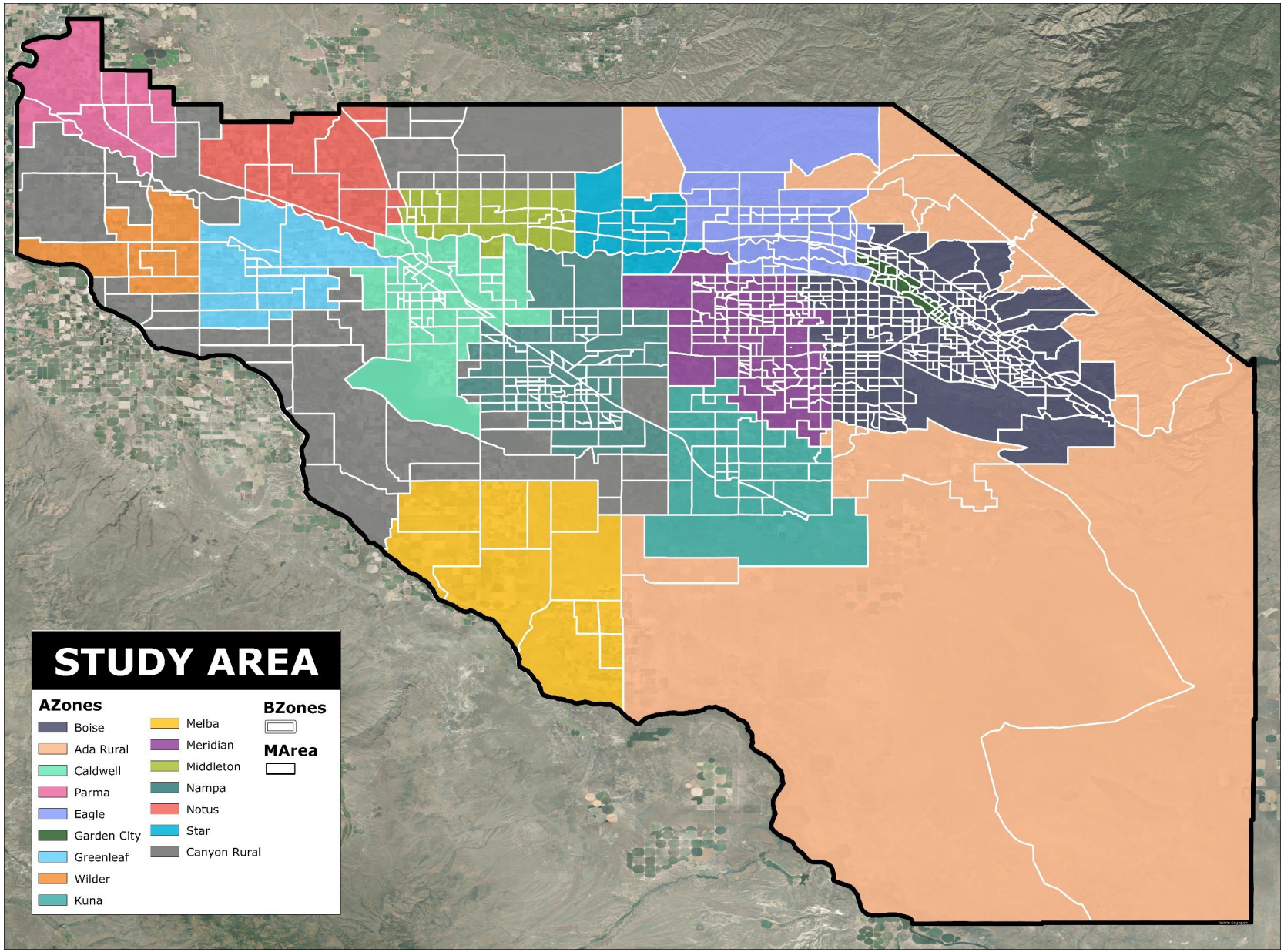


**FIGURE 1: VISIONEVAL ZONE STRUCTURE**

## VISIONEVAL INPUTS

VisionEval inputs were determined based on information provided by COMPASS as well as partner agencies. Any information not provided by a local agency was determined based on US Census data. Due to the need to use Census data, when aggregating bzones, Block group boundaries were taken into account. The model was provided with inputs for a base year of 2020 and a future year of 2050. 2020 data was used for all base year inputs unless otherwise specified.

### REGION INPUTS

The highest level of geography for the COMPASS model is the Region, which spans the entirety of Ada and Canyon Counties. These inputs were typically based off either Idaho statewide data sources or national data sources. The individual region inputs and corresponding existing and future baseline assumptions are described in the following sections.

#### REGION_AVE_FUEL_CARBON_INTENSITY

This file is used to specify the average carbon density for different vehicle types. The vehicle types available for modification are household vehicles, car service vehicles, commercial service vehicles, heavy trucks, transit vans, transit bus, and transit rail. Carbon intensity is listed as grams of CO2 emissions per megajoule of power. These values were developed based on values developed for another VisionEval model located within Oregon. Values used are shown in the table below. 2050 values have a lower carbon intensity due to renewable energy adoption trends.

**TABLE 1: FUEL INPUTS**

| | HH FUEL | CAR SVC FUEL | COM SVC FUEL | HVY TRK FUEL | TRANSIT VAN FUEL | TRANSIT BUS FUEL | TRANSIT RAIL FUEL |
|---|---|---|---|---|---|---|---|
| **2020** | 98.2 | 98.2 | 95.3 | 96.5 | 95.3 | 96.3 | NA |
| **2050** | 86.7 | 86.7 | 71.8 | 72.9 | 71.8 | 72.8 | NA |

#### REGION_BASE_YEAR_DVMT

This file is used to adjust heavy truck daily vehicle miles traveled. This input was not changed from the default parameters.

#### REGION_CARSVC_POWERTRAIN_PROP

This file allows users to modify the powertrain proportion of vehicles used for car service. The values for this input were built off of default VisionEval assumptions.

**TABLE 2: CAR SERVICE INPUTS**

| YEAR | CAR SVC AUTO ICEV | CAR SVC AUTO HEV | CAR SVC AUTO BEV | LT TRK SVC AUTO ICEV | LT TRK SVC AUTO HEV | LT TRK SVC AUTO BEV |
|---|---|---|---|---|---|---|
| 2020 | 0.809 | 0.165 | 0.026 | 0.951 | 0.044 | 0.005 |
| 2050 | 0.425 | 0.348 | 0.227 | 0.568 | 0.249 | 0.183 |

### REGION_CO2E_COSTS

This input accounts for the social cost of CO2e emissions per metric ton. This input was built based on default VisionEval assumptions.

**TABLE 3: CO2 EQUIVALENTS COSTS**

| YEAR | CO2E COST |
|---|---|
| 2020 | $40 |
| 2050 | $70 |

### REGION_COMSVC_AVE_VEH_AGE

This file allows users to modify the average age of commercial service vehicles. The average vehicle age was calculated based on the average age by vehicle type with adjustments made based on Idaho specific statistics. Pickup trucks, vans, and medium trucks were included within the profile. Based on these data inputs **13.59** was calculated as the average age for both 2020 and 2050. According to registration figures compiled by the Alliance for Automotive Innovation with data provided by S&P Global Mobility, the average age of a vehicle in Idaho in 2024 was 14.9 years while the national average was 12.2 years[1]. **REGION_COMSVC_VEH_MEAN_AGE** is the same as this input.

### REGION_COMSCV_LTTRK_PROP

This file modifies the proportion of commercial service vehicles that are light trucks. This value was calculated based on vehicle registration data obtained from COMPASS. Registration data was not broken down between personal-use and commercial-use vehicles, so assumptions were made. Based on the registration data and assumptions it was determined that **74.5%** of commercial use vehicles are light trucks.

### REGION_COMSVC_POWERTRAIN_PROP

Methodology for this input is the same as that for car service powertrain proportions.

[1] https://www.autosinnovate.org/resources/insights/id

### REGION_HH_AVE_DRIVER_PER_CAPITA

This input sets the baseline for the average amount of drivers by age for the region. Average driver per capita was calculated using Table DL-22 from the FHWA along with Idaho drivers license registrations by county from the Idaho DMV. Between Ada and Canyon County, there were 516,798 licensed drivers in 2020. The input assumptions were maintained the same between 2020 and 2050.

**TABLE 4: DRIVER AGE DISTRIBUTION**

| | 15-19 | 20-29 | 30-54 | 55-64 | 65+ |
|---|---|---|---|---|---|
| PROPORTION OF ALL DRIVERS | 6% | 16% | 40% | 15% | 23% |
| TOTAL DRIVERS[A] | 29,075 | 84,540 | 205,970 | 78,725 | 118,495 |
| TOTAL POPULATION[B] | 52,010 | 97,795 | 239,200 | 84,855 | 103,440 |
| DRIVERS PER CAPITA | 0.56 | 0.86 | 0.86 | 0.93 | 0.93[C] |

**NOTES:**
A. TOTAL DRIVERS BY AGE IS BASED ON 2020 ADA AND CANYON COUNTY DRIVER'S LICENSE REGISTRATIONS MULTIPLIED BY STATE DRIVER BY AGE METRICS OBTAINED FROM THE FHWA
B. TOTAL POPULATION CALCULATIONS CAN BE FOUND IN AZONE_HH_POP_BY_AGE
C. CALCULATIONS FOR 65+ USING THIS METHODOLOGY RESULTED IN 1.14 DRIVERS PER PERSON. THIS WAS CHANGED TO BE THE SAME AS THE 55-64 AGE RANGE DUE TO 1.14 NOT BEING FEASIBLE.

### REGION_HVYTRK_POWERTRAIN_PROP

This input was set to 100% internal combustion engine vehicles due to limited technology for battery powered heavy trucks.

### REGION_PROP_EXTERNALITIES_PAID

This input provides the cost for climate change as well as other negative externalities caused by transportation-related pollution. This value was set to 0 due to the state of Idaho not having any carbon pricing policies.

### REGION_ROAD_COST

This input is used to set the variables for roadway construction costs. This input was developed based on VisionEval default values. There was no change to values between 2020 and 2050. Road costs are in dollars per vehicle mile, while freeway and arterial costs are in dollars per lane mile. Highway Truck Passenger Car Equivalents indicate the number of light-duty vehicles a heavy truck is equivalent to in calculating road capacity.

**TABLE 5: ROADWAY CONSTRUCTION COSTS**

| ROAD MODERNIZATION COST | ROAD PRESERVATION AND MAINTENANCE COST | OTHER ROAD COSTS | FREEWAY LANE MILE COST | ARTERIAL LANE MILE COST | HWY TRK PASSNGER CAR EQUIVALENTS |
|---|---|---|---|---|---|
| 0.004 | 0.01 | 0.015 | 4,900 | 1,800 | 3 |

## MAREA INPUTS

For the purposes of the COMPASS VisionEval model, only one MArea geography was assumed, spanning the entire extent of the model, so the Region Inputs and MArea inputs are essentially synonymous. The following section detail the key regional assumptions incorporated into the single MArea for the COMPASS VisionEval Model.

### MAREA_BASE_YEAR_DVMT

Base year daily vehicle miles traveled (DVMT) is stated between light duty vehicles and heavy duty vehicles.

### MAREA_CONGESTION_CHARGES

Congestion charges are represented as a $/mile charge to users on daily vehicle miles travel by road type. There are no congestion charges within the state of Idaho. This input was set to 0.

### MAREA_DVMT_SPLIT_BY_ROAD_CLASS

Road class within this input is split between Arterial, Freeway, and Other. It is also divided by Light Duty Vehicles, Heavy Duty Vehicles, and Buses. Each input represents the proportion of the specific modes mileage that occurs on the specific road class. This input was derived from data obtained from Replica. Replica is a platform that aggregates data from dozens of different sources to then produce its own calibrated travel demand model. From this model users are able to extract vehicle types by link. The table below shows the resulting inputs produced from the Replica dataset.

**TABLE 6: DAILY VMT BY VEHICLE TYPE**

| ROAD CLASS | LIGHT DUTY VEHICLE | HEAVY DUTY VEHICLE | BUS |
|---|---|---|---|
| ARTERIAL | 0.549 | 0.477 | 0.040 |
| FREEWAY | 0.337 | 0.448 | 0.808 |
| OTHER | 0.113 | 0.075 | 0.152 |

### MAREA_LANE_MILES

This input contains the data for the total freeway and arterial lane-miles by year. Total lane miles for 2020 and 2050 were based on roads coded within the COMPASS Travel Demand Model (TDM). The 2050 TDM includes projects that are in progress or plan to be funded and constructed by 2050. Calculated miles are shown in the table below.

**TABLE 7: LANE MILES**

| YEAR | FREEWAY MILES | ARTERIAL MILES |
|---|---|---|
| **2020** | 363 | 2,478 |
| **2050** | 455 | 2,540 |

### MAREA_OPERATIONS_DEPLOYMENT

Operations deployment involves multiple programs that affect transportation efficiency within the region. These programs include:

- Ramp Metering
- Incident Management Deployment
- Signal Coordination
- Access Management
- Other freeway or arterial operations measures

Data for these measures is not easily quantifiable, so estimations were developed to account for the areas within the Metro Region that do have these programs. The values below were used within the model. Values represent a proportion of all freeways or arterials able to be covered by the program.

**TABLE 8:OPERATIONS DEPLOYMENT ASSUMPTIONS**

| YEAR | RAMP METERING | INCIDENT MANAGEMENT | SIGNAL COORDINATION | ACCESS MANAGEMENT |
|---|---|---|---|---|
| **2020** | 0.15 | 0.55 | 0.5 | 0.35 |
| **2050** | 0.7 | 0.8 | 0.65 | 0.55 |

### MAREA_SAFETY_FACTORS – NOT USED

### MAREA_SPEED_SMOOTH_ECODRIVE

This input contributes to Vehicle performance metrics. Speed Smoothing involves more gradual acceleration and deceleration, which is commonly seen when using technology like adaptive cruise control. ECO Drive is a function in cars that reduces throttle sensitivity. This allows drivers to be more conscious about fuel consumption while driving. This input was derived from the default VisionEval inputs and represents a percentage of driving.

**TABLE 9: SPEED SMOOTHING ASSUMPTIONS**

| YEAR | FREEWAY SMOOTH | ARTERIAL SMOOTH | LDV ECODRIVE | HVY TRK ECODRIVE |
|---|---|---|---|---|
| **2020** | 0.2 | 0.1 | 0.05 | 0.01 |
| **2050** | 0.8 | 0.6 | 0.6 | 0.4 |

### MAREA_TRANSIT_AVE_FUEL_CARBON_INTENSITY

This is an optional input file used to specify the average carbon intensity of fuel used by transit. It was determined not necessary to modify the carbon intensity for transit specific travel. This input was set to Not Applicable and the carbon intensity was taken from the *region_ave_fuel_carbon_intensity* input.

### MAREA_TRANSIT_BIOFUEL_MIX

This input provides the ability to modify the biofuel used by transit services. The three biofuels are Ethanol, Biodiesel, and Renewable Natural Gas. There was no information found or provided in terms of Biodiesel of Renewable Natural Gas usage by Valley Regional Transit, so these values were set to 0. The proportion of ethanol in gasoline was set to 10% which is in line with most gasoline sold within the United States.

### MAREA_TRANSIT_FUEL

The input modifies the proportion of different fuels used by different forms of transit. The three modes transit is broken into are Van, Bus, and Rail. The three fuels able to be chosen for these modes are diesel, gasoline, and compressed natural gas (CNG). Fleet information was obtained from the Valley Regional Transit 2023 Year in Review[2]. Fuel proportions were developed based on this information and are shown in the table below. There is currently no Rail within the Marea, so these values were set to 0.

**TABLE 10: TRANSIT FUEL ASSUMPTIONS**

| | VAN PROPORTION GASOLINE | BUS PROPORTION GASOLINE | BUS PROPORTION DIESEL | BUS PROPORTION CNG |
|---|---|---|---|---|
| **VALLEY REGIONAL TRANSIT** | 100% | 12% | 34% | 54% |

### MAREA_TRANSIT_POWERTRAIN_PROP

[2] https://www.valleyregionaltransit.org/wp-content/uploads/2024/03/VRT-2023-Year-in-Review.pdf

This input modifies the mix of transit vehicles by their powertrain. The three powertrain options are internal combustion engine (ICE), hybrid electric (HEV), and battery electric (BEV). This metric was developed based on the same report and information used for the development of the *Marea_Transit_Fuel* input.

**TABLE 11: TRANSIT POWERTRAIN ASSUMPTIONS**

| | VAN PROPORTION ICE | BUS PROP ICE | BUS PROP HEV | BUS PROP BEV | RAIL PROP ICE |
|---|---|---|---|---|---|
| VALLEY REGIONAL TRANSIT | 100% | 84% | 0% | 16% | 100% |

### MAREA_TRANSIT_SERVICE

This file contains the annual revenue-miles for different transit modes for the metropolitan area. Data for revenue miles was obtained from the National Transit Database table TS2.1 Service Data and Operating Expenses Time Series by Mode. From this database, revenue miles were extracted for Valley Regional Transit, Treasure Valley Transit, the Ada County Highway District, and Boise State University. All data was obtained for the year 2020 and is shown in the table below. Revenue miles are broken down by Demand Response, Van Pool, Fixed Route, Rapid Bus, Monorail, Trolleybus, Heavy Rail, and Commuter rail. Only Demand Response, Vanpool, and fixed route bus were filled out for this input based on the available data. Values were kept the same between 2020 and 2050 inputs.

**TABLE 12: TRANSIT SERVICE REVENUE-MILES DATA**

| AGENCY | DEMAND RESPONSE | VAN POOL | FIXED ROUTE |
|---|---|---|---|
| VALLEY REGIONAL TRANSIT | 443,327 | | 1,457,690 |
| TREASURE VALLEY TRANSIT | 201,162 | | 352,829 |
| ADA COUNTY HIGHWAY DISTRICT | | 1,063,602 | |
| BOISE STATE UNIVERSITY | | | 114,420 |
| TOTAL | 644,489 | 1,063,602 | 1,924,939 |

## AZONE INPUTS

### AZONE_CARSVC_CHARACTERISTICS

This input provides car service rates. Car service refers to the availability to call for a ride from a company like a Taxi or Uber. This input provides ways to modify the likelihood of individuals to not

own a vehicle due to the availability of ride hail services. Car Service is divided between two options a High and a low. High car services is where there is a high number of options available, low car service is where there is a low number of options available. All azone were given the same inputs due to lack of available data.

**TABLE 13: CAR SERVICE DATA/ASSUMPTIONS**

| | HIGHCARSVC COST/MILE | LOWCARSVC COST/MILE | AVECARSVC AGE | LTTRKCARSVC SUBSTITUTE PROPORTION | AUTOCARSVC SUBSTITUTE PROPORTION |
|---|---|---|---|---|---|
| AZONE | 2.25 | 4.50 | 9 | 0.75 | 0.95 |

### AZONE_CHARGING_AVAILABILITY

Charging Availability refers to the proportion of Single Family, Multi Family, or Group Quarter Dwelling Units that have access to the ability to charge an Electric Vehicle. Due to limited information availability, default values were created for Urban and Rural contexts. They were then slightly increased for 2050 to represent improved charging network implementation.

**TABLE 14: CHARGING AVAILABILITY**

| GEO | YEAR | PROPORTION SINGLE FAMILY | PROPORTION MULTI FAMILY | PROPORTION GROUP QUARTER |
|---|---|---|---|---|
| URBAN | 2020 | 0.88 | 0.016 | 0.038 |
| RURAL | 2020 | 0.78 | 0.004 | 0 |
| URBAN | 2050 | 0.95 | 0.1 | 0.25 |
| RURAL | 2050 | 0.85 | 0.025 | 0 |

### AZONE_ELECTRICITY_CARBON_INTENSITY

Idaho Power is the only Utility that provides electricity within the COMPASS region. According to its website, between 2021 through 2024 the average CO2 emissions intensity was 790 pounds per MWh[3]. Currently the utility has a goal to decommission all coal power plants by 2030. According to their CO2 emissions reduction report, the utility is aiming to decrease the carbon intensity to 45.72 by 2043 lb/MWh which represents a 96% reduction from 2005 Emissions values[4]. The 2043 goal was used for the 2050 value. Values were converted from lbs/MWh to g/MJ for VisionEval purposes.

[3] https://www.idahopower.com/energy-environment/energy/energy-sources/our-path-away-from-coal/

[4] https://docs.idahopower.com/pdfs/AboutUs/EnergySources/emissions-reduction-report.pdf

**TABLE 15: ELTECTRICITY CARBON INTENSITY**

| YEAR | ELECTRICITY CARBON INTENSITY (G/MJ) |
|---|---|
| 2020 | 100 |
| 2050 | 6 |

### AZONE_FUEL_POWER_COST

Fuel power cost includes the average $/gallon of gas as well as the $/kwh for electricity. This supplies data to produce a retail cost of fuel and electricity by azone. There are no cities within the COMPASS region that have their own gas tax. Due to this all azones were provided the same Fuel Cost as well as Power Cost. Costs were grown based on historical trends to represent 2050 prices. Both fuel costs and electricity costs are based on data obtained from the Energy Information Administration. Both Gasoline and Diesel are included in the fuel cost. The Rocky Mountain region was used for fuel costs, and state energy profiles for Idaho were used for electricity costs. Fuel costs do not include state or federal gas tax.

**TABLE 16: FUEL & POWER COST**

| YEAR | FUEL COST ($/GALLON) | POWER COST ($/KWH) |
|---|---|---|
| 2020 | 1.92 | 0.080 |
| 2050 | 2.88 | 0.098 |

### AZONE_GQ_POP_BY_AGE

This input provides age forecasts and population estimates for individuals living in group quarters. Group quarters are distinguished between two types, institutional and non-institutional. Institutional groups are those in correctional facilities or nursing homes. Those in non-institutional settings include college dormitories, military barracks group homes, missions, or shelters. Only non-institutional group quarters are included within the VisionEval model. Group Quarter population was derived from both the Census table B26001 as well as the COMPASS travel demand model. It was assumed no Group Quarter population exists in Rural Ada County, Rural Canyon County, Greenleaf, Melba, Middleton, Notus, Parma, and Wilder. Group Quarter population was increased to represent population growth in 2050.

### AZONE_HH_AVE_VEH_PER_DRIVER

This input provides the average number of household vehicles per licensed driver. Due to data availability, this input was aggregated to the county level and azone were assigned depending on the county they are located in (Ada or Canyon). According to data obtained from the Idaho DMV, in 2024 there were 394,687 drivers license issued in Ada County and 182,805 drivers license issued

in Canyon County. Vehicle registration data was obtained from COMPASS for April 2024. At that time there were 448,084 vehicles registered in Ada County and 220,940 vehicles registered in Canyon County.

**TABLE 17: VEHICLES PER DRIVER**

| COUNTY | VEHICLE/DRIVER |
|---|---|
| ADA | 1.14 |
| CANYON | 1.21 |

### AZONE_HH_LTTRK_PROP

This input specifies the light truck proportion of the vehicle fleet. A Light truck is a vehicle that weight less than 8,500 pounds. Vehicles that are under 10,000 pounds share the same registration status according to the Idaho DMV. The last available MV-9 Truck and Truck-Tractor Registrations table released by the Federal Highway Administration was for the year 2019. According to this table, there were 1,155,330 light trucks[5] registered in the State of Idaho in 2019. This value was then compared to the MV-1 State Motor-Vehicle Registration table with a total of 1,954,528 total vehicles. Due to data availability being at the state level all azones were given the same Light Truck Proportion. 2050 light truck proportion was not modified.

**TABLE 18: LIGHT TRUCK PROPORTION PER HOUSEHOLD**

| | LIGHT TRUCK PROPORTION |
|---|---|
| IDAHO | 0.59 |

### AZONE_HH_POP_BY_AGE

This input provides the total contains population estimates by age for the base and future years. Age groups are broken into six categories. Base year and future year populations were derived from the Communities in Motion 2050 plan[6]. 2020 Base year and future year populations were taken from the "Demographic and Economic Changes" report released in December 2022[7]. To convert total populations to age groups, distributions were derived from American Community Survey Table S0101 2020 5-year estimates and then applied to the population totals provided in the Communities in Motion report.

[5] Light Trucks was determined by calculating the total of Pickups, Vans, Sport Utilities, and Other Light

[6] https://compassidaho.org/communities-in-motion-2050-planning-process/

[7] https://cim2050.compassidaho.org/wp-content/uploads/Demographics.pdf

**TABLE 19. COMMUNITIES IN MOTION POPULATION ESTIMATES**

| CITY | 2020 | 2050 |
|---|---|---|
| BOISE | 271,010 | 314,520 |
| EAGLE | 33,540 | 54,670 |
| GARDEN CITY | 12,290 | 19,000 |
| KUNA | 31,730 | 72,020 |
| MERIDIAN | 123,810 | 192,540 |
| STAR | 11,810 | 22,380 |
| ADA COUNTY RURAL | 10,780 | 40,690 |
| CALDWELL | 66,680 | 111,190 |
| GREENLEAF | 2,910 | 4,170 |
| MELBA | 970 | 1,700 |
| MIDDLETON | 15,660 | 40,570 |
| NAMPA | 115,860 | 168,140 |
| NOTUS | 990 | 1,460 |
| PARMA | 2,700 | 3,330 |
| WILDER | 2,940 | 3,620 |
| CANYON COUNTY RURAL | 22,400 | 25,000 |

**TABLE 20: AGE DISTRIBUTION BY CITY**

| CITY | 0-14 | 15-19 | 20-29 | 30-54 | 55-64 | 65+ |
|---|---|---|---|---|---|---|
| BOISE | 16% | 7% | 15% | 34% | 13% | 15% |
| EAGLE | 20% | 7% | 6% | 29% | 17% | 21% |
| GARDEN CITY | 16% | 5% | 11% | 27% | 16% | 25% |
| KUNA | 25% | 7% | 15% | 33% | 11% | 9% |

| CITY | 0-14 | 15-19 | 20-29 | 30-54 | 55-64 | 65+ |
|---|---|---|---|---|---|---|
| MERIDIAN | 23% | 7% | 11% | 35% | 10% | 13% |
| STAR | 20% | 9% | 10% | 36% | 10% | 15% |
| ADA COUNTY RURAL | 23% | 3% | 13% | 39% | 10% | 11% |
| CALDWELL | 28% | 8% | 14% | 30% | 10% | 10% |
| GREENLEAF | 33% | 8% | 5% | 24% | 13% | 18% |
| MELBA | 25% | 9% | 13% | 29% | 12% | 13% |
| MIDDLETON | 24% | 9% | 11% | 31% | 10% | 14% |
| NAMPA | 21% | 7% | 15% | 31% | 10% | 15% |
| NOTUS | 22% | 11% | 13% | 23% | 14% | 16% |
| PARMA | 22% | 8% | 10% | 31% | 11% | 17% |
| WILDER | 23% | 7% | 10% | 32% | 15% | 13% |
| CANYON COUNTY RURAL | 21% | 9% | 10% | 35% | 13% | 12% |

SOURCE: AMERICAN COMMUNITY SURVEY 2020 5-YEAR ESTIMATES
NOTE: CITY TOTALS ARE BASED ON CENSUS BLOCK GROUPS WHILE ADA COUNTY RURAL AND CANYON COUNTY RURAL ARE BASED ON COUNTY LEVEL DATA

When converting city population totals to azone totals, some population from Ada County Rural and Canyon County Rural was moved into "City" azone to account for the difference in geographic boundaries and to maintain a base year azone population of at least 2,000. In addition to the 2050 population forecasts, the Communities in Motion 2050 plan provides a population pyramid for the Treasure Valley region. This age breakdown was used with the 2050 population projections to produce the 2050 inputs.

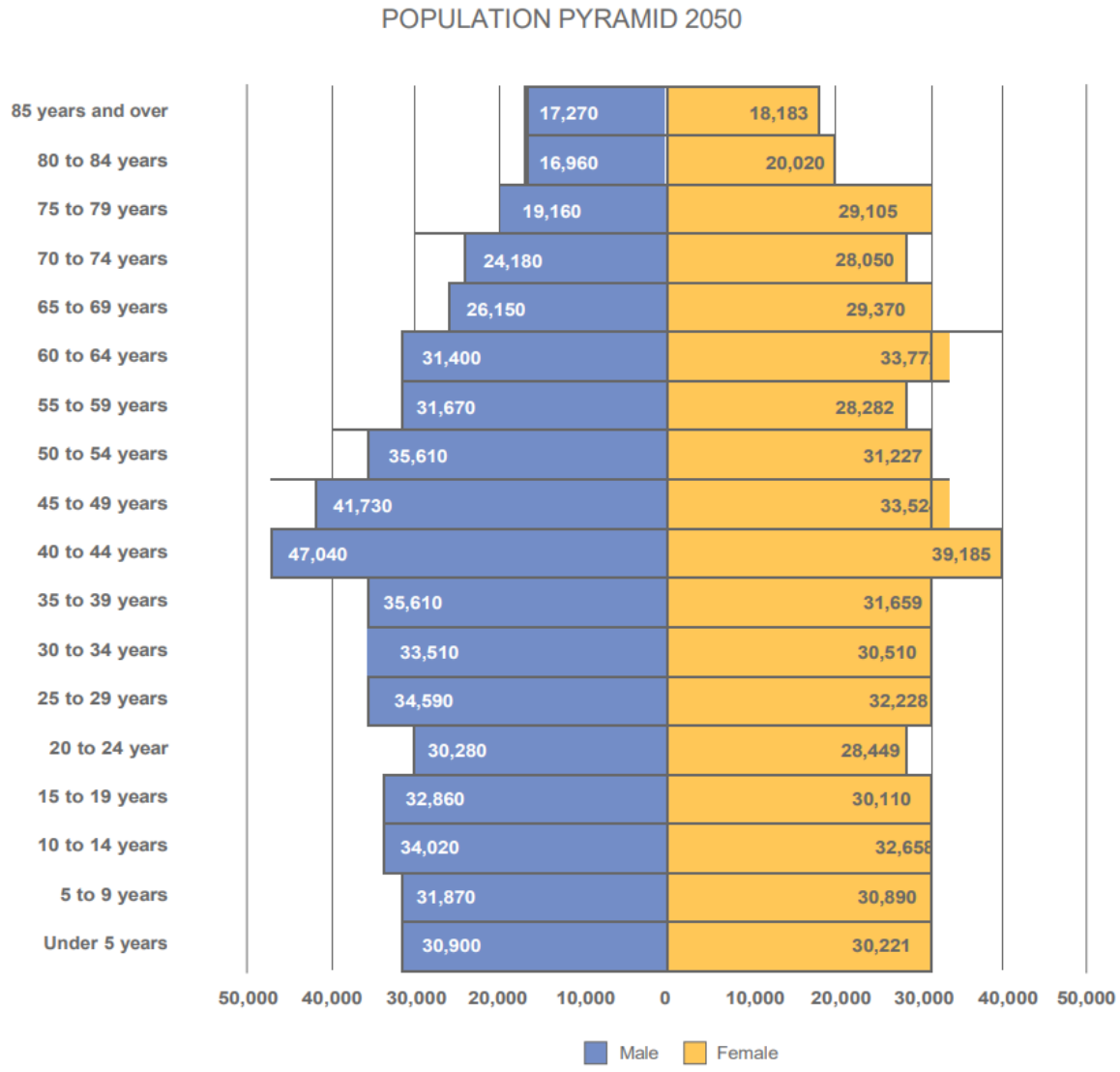


**FIGURE 2: TREASURE VALLEY POPULATION PYRAMID 2050**

### AZONE_HH_VEH_MEAN_AGE

This input provides the mean age of household vehicles by type. Vehicle types are broken down by auto and light truck. For this metric, data were obtained from the Idaho Transportation Department (ITD). According to the department, the average year of manufacture for passenger cars and pickups, based on registration data by county, was 2007 in Ada County in 2018 and 2005 in Canyon County that same year. This data was then compared to historical ITD trends as well as national data provided by the Bureau of Transportation Statistics to produce an estimate for both autos and light trucks for the year 2020. This vehicle age was then applied to azone based on the county they are located in. Due to limited data availability, the same age was applied to autos and light trucks.

**TABLE 21: VEHICLE AGE**

| COUNTY | AUTO MEAN AGE | LIGHT TRUCK MEAN AGE |
|---|---|---|
| ADA | 12.96 | 12.96 |
| CANYON | 14.46 | 14.46 |

### AZONE_HH_VEH_OWN_TAXES

This input provides information about annual auto ownership fees. The ITD has different registration rates for different vehicles. Currently, for passenger vehicle, annual registration ranges from $45 to $69 per year, depending on the age of the vehicle. The Ada County Highway District currently has an additional fee that ranges from $24-$40 depending on the age of the vehicle. Due to the high mean vehicle age the registration fees for a vehicle 3-7 and 7+ were averaged to produce separate rates for Ada County and Canyon County. These rates were then applied to azone depending on their location. A $10 increase was used for 2050 rates. Though there is no mention of increasing registration fees, it is not uncommon for rates to be raised within a 30-year time span.

**TABLE 22: VEHICLE TAXES**

| COUNTY | 2020 | 2050 |
|---|---|---|
| ADA | 81 | 91 |
| CANYON | 51 | 61 |

### AZONE_HHSIZE_TARGETS

Household size provides two inputs: the average household size and the percentage of one-person households. This information is used when creating households within each azone. This input was calculated using data at the census tract level from the American Community Survey Table S2501 and S0101. Table S2501 provides total households by size. The average size was calculated by summing all households and dividing by the population calculated from table S0101. Population for this input is different than that used for the Azone_HH_Pop_By_Age. This is to maintain the same data source within the averaging calculation. The proportion of 1 person households was calculated from S2501. The proportion of 1 person households in Garden City was calculated to be 41% and was adjusted down to equal that of Boise in post processing.

**TABLE 23: HOUSEHOLD SIZE**

| AZONE | AVERAGE HH SIZE | PROPORTION 1 PERSON HH |
|---|---|---|
| ADA RURAL | 2.66 | 26% |

| AZONE | AVERAGE HH SIZE | PROPORTION 1 PERSON HH |
|---|---|---|
| CANYON RURAL | 3.28 | 12% |
| BOISE | 2.43 | 33% |
| CALDWELL | 3.21 | 24% |
| EAGLE | 2.63 | 19% |
| GARDEN CITY | 2.16 | 33% |
| GREENLEAF | 3.56 | 13% |
| KUNA | 3.46 | 20% |
| MELBA | 2.96 | 19% |
| MERIDIAN | 2.84 | 21% |
| MIDDLETON | 3.04 | 19% |
| NAMPA | 2.81 | 24% |
| NOTUS | 2.66 | 31% |
| PARMA | 2.82 | 24% |
| STAR | 3.01 | 16% |
| WILDER | 2.97 | 17% |

### AZONE_HH_LTTRK_PROP

This file specifies the light truck proportion of the vehicle fleet. Light truck proportion was calculated based on vehicle registration data received from COMPASS. It was assumed that 90% of truck registrations were light trucks since Truck registrations exclude semitrucks. Data was obtained at a county level.

**TABLE 24: LIGHT TRUCK PROPORTION**

| COUNTY | LIGHT TRUCK PROPORTION |
|---|---|
| ADA COUNTY | 0.61 |
| CANYON COUNTY | 0.60 |

### AZONE_PAYD_INSURANCE_PROP

This file specifies the share of households that participate in a pay-as-you-drive (PAYD) auto insurance program also known as Usage Based Insurance (UBI). These programs tend to involve a per-mile charge as well as consider other factors like driving habits and driving record. According to an article by J.D. Power in 2023, "Participation in usage-based insurance programs has more than doubled since 2016, with 17% of auto insurance customers no participating in such programs"[8]. Based on this statistic, Boise was set at 20% and all other azone were set at 10%. Boise was given the higher percentage since adoption rates for PAYD is more common with those who drive less and those who are within Boise tend to drive less than those in the neighboring areas.

### AZONE_PER_CAP_INC

This file contains information on regional average per capita household and group quarters income by forecast year in 2010 dollars. Per capita income was developed based on Census Table B19301: Per Capita Income in the Past 12 Months (in 2020 Inflation-Adjusted Dollars). Income was then multiplied by the Census Tract Population to get a "Total Income". Census tract "Total Income" was then assigned to azone based on the proportion of the Census Tract within the azone. This income was then divided by the total azone population and converted to 2010 dollars. Group Quarter per capita income was set at 23% of household income due to the group quarter population being predominantly composed of students. Income was not changed between 2020 and 2050. The table below shows final per capita income assumptions.

**TABLE 25: INCOME DISTRIBUTION**

| AZONE | HHINCOME | GQINCOME |
|---|---|---|
| ADA RURAL | 30,352 | 9,106 |
| CANYON RURAL | 21,590 | 5,034 |
| BOISE | 31,240 | 7,285 |
| CALDWELL | 17,054 | 3,977 |
| EAGLE | 43,610 | 10,169 |

[8] J.D. Power 2023 Auto Insurance Study

| AZONE | HHINCOME | GQINCOME |
|---|---|---|
| GARDEN CITY | 29,059 | 6,776 |
| GREENLEAF | 20,129 | 4,694 |
| KUNA | 24,289 | 5,664 |
| MELBA | 23,198 | 5,409 |
| MERIDIAN | 30,756 | 7,172 |
| MIDDLETON | 22,137 | 5,162 |
| NAMPA | 20,380 | 4,752 |
| NOTUS | 17,859 | 3,465 |
| PARMA | 18,199 | 4,244 |
| STAR | 27,297 | 6,365 |
| WILDER | 21,697 | 5,059 |

### AZONE_PROP_SOV_DVMT_DIVERTED

This input sets a goal for the proportion of household DVMT in single occupant vehicles with round trip distances of 20 miles or less to be diverted to bicycling or other lower emission modes of travel (Bike, Walk, Transit). This value was set for azone based on the COMPASS travel demand model (TDM). The COMPASS TDM contains total trips to and from TAZ by mode (Auto, Bus, Walk, and Bike). It is a four-step trip-based model that forecasts daily trips as well as peak hour trips. The model is based on regional demographic characteristics as well as information from regional household travel surveys. Daily trips were used to set the values for this data set. Trips were aggregated from TAZ to bzone, then to azone to determine the portion of non Auto trips. These values were set as the azone goals for diverted DVMT. Different values were assigned for 2020 and 2050 based on the different model years. The values are shown in the table below.

**TABLE 26: SOV VMT DIVERTED**

| AZONE | 2020 | 2050 |
|---|---|---|
| ADA RURAL | 0.01 | 0.02 |
| CANYON RURAL | 0.07 | 0.07 |
| BOISE | 0.07 | 0.06 |
| CALDWELL | 0.02 | 0.02 |

| AZONE | 2020 | 2050 |
|---|---|---|
| EAGLE | 0.04 | 0.04 |
| GARDEN CITY | 0.06 | 0.06 |
| GREENLEAF | 0.02 | 0.02 |
| KUNA | 0.08 | 0.06 |
| MELBA | 0.08 | 0.09 |
| MERIDIAN | 0.06 | 0.05 |
| MIDDLETON | 0.05 | 0.05 |
| NAMPA | 0.06 | 0.05 |
| NOTUS | 0.02 | 0.03 |
| PARMA | 0.07 | 0.07 |
| STAR | 0.04 | 0.04 |
| WILDER | 0.07 | 0.09 |

### AZONE_VEH_USE_TAXES

This data input contains information related to Fuel Taxes, taxes on vehicle miles traveled, and a per mile surcharge for electric vehicles. The current tax rate in Idaho is $0.32 per gallon[9] along with a $0.01 per gallon transfer fee. This rate has been in effect since 2015. The federal gas tax is $0.184 per gallon. The fuel tax for 2050 maintains the same amount, but accounts for inflation (40% decrease in present value of fuel taxes). All azone were given the same values as there are no city-level gas taxes in the region. There are also no per mile vehicle charges within the state, so these were also set to 0.

[9] https://tax.idaho.gov/taxes/product-excise-taxes/fuels-taxes-and-fees/distributor-fuels/tax-rate/

**TABLE 27: VEHICLE USE TAXES**

| YEAR | TAX |
|---|---|
| 2020 | 0.514 |
| 2050 | 0.305 |

### AZONE_VEHICLE_ACCESS_TIMES

This data input refers to the minutes it takes to call up service vehicles like an Uber, Lyft, or Taxi. This input contains separate values for personal vehicle access time as well as high service and low service areas. The default VisionEval values for this input were not modified. They were maintained the same for all azones between both years.

**TABLE 28: VEHICLE ACCESS TIMES**

| AZONE | OWNED VEHICLE | HIGH CAR SERVICE | LOW CAR SERVICE |
|---|---|---|---|
| ALL | 5 | 10 | 45 |

## BZONE

The model contains 850 individual bzones. Bzones were developed through the merging of Transportation Analysis Zones (TAZs) taken from the COMPASS travel demand model (TDM). When merging TAZs, boundaries of city and census tract were taken into account. TAZs were merged until all bzones had some level of housing and employment within them. Most bzone input values can be found in the appendix as opposed to the text below.

### BZONE_CARSVC_AVAILABILITY

This input contains information about the level of car service availability. The metric can contain only a Low or High rating. For this input, all bzone were given the value of Low except for bzone within or near the Boise Downtown as well as Boise State University.

### BZONE_DWELLING_UNITS

Dwelling units for were calculated based on data contained within the COMPASS TDM. 2022 estimated households were used to represent 2020 dwelling units. 2050 projected households were used for 2050 values. Within VisionEval, dwelling units are divided between single family and multi family housing. Since the COMPASS TDM does not have this granularity of data, a proportion based on the census block groups was used to proportion multi family and single family housing. A bzone was assigned a block group based on the block group that shared the highest amount of overlapping area with the bzone. ACS Table B25024 was used for these proportions. 1 unit detached was classified as single family housing. Some manual adjustments were made to the total number of single family or multi family housing present within the bzone to help match azone level single family and multifamily proportions.

In addition to single family and multifamily dwelling units, this input provides the total number of group quarter dwelling units. VisionEval treats each group quarter resident as an individual household. Due to this, dwelling units for group quarters should be greater than or equal to the total group quarter populations they serve. Institutionalized group quarters populations are not included in the VisionEval model. Due to this information, group quarter dwelling units were calculated based on estimated group quarter populations from the COMPASS TDM. From these values, institutionalized group quarter populations were removed.

### BZONE_EMPLOYMENT

Employment data by bzone was calculated based on COMPASS TDM data. The Employment input file contains total employment, total retail employment, and total service employment. Jobs considered service jobs included those classified as Office, Government or Education. Data from COMPASS was obtained for both 2025 and 2050. The only modification that was made to this data was the merging of TAZ to the bzone level.

### BZONE_HH_INC_QRTL_PROPORTION

Income quartiles were developed based on ACS Table B19001 at the census tract level. Bzones were assigned census tracts based on whichever the census tract the majority of the bzone area was within. This table provides the total number of households by level of income. The cut offs for the different quartiles are shown in the table below. Note, values from this table are in 2020 dollars. The quartile proportions from this table were used as a base, and minor modifications were made to the values based on azone level aggregation. This was done to ensure no azone had an unrealistic income profile.

**TABLE 29: INCOME QUARTILES**

| | LOWER LIMIT | UPPER LIMIT |
|---|---|---|
| **Q1** | x | 35,000 |
| **Q2** | 35,000 | 75,000 |
| **Q3** | 75,000 | 125,000 |
| **Q4** | 125,000 | x |

### BZONE_LAT_LONG

This input contains the latitude and the longitude of the centroid of the bzone. It was calculated using ArcGIS. The latitude and longitude values are used for calculating trip lengths.

### BZONE_NETWORK_DESIGN

This input contains values for D3bpo4, which is a measure for intersection density determined by the number of pedestrian-oriented intersections having four or more legs per square mile. The data

for this input is sourced from the EPA Smart Location Database[10] and is provided at the Census Block Group level. D3po4 values were assigned to bzone based on the maximum value of all block groups that are within the bzone.

### BZONE_PARKING

This input contains the total number of parking spaces for the various types of housing (SF, MF, and GQ), as well as the costs associated with parking. Parking space totals were calculated based on tax lot data. Parcels were assigned to bzone and then total spots were averaged for single-family and multi-family. Group quarter housing was assigned the same value as single family housing.

For Parking costs, there is an input for the proportion of non work trips that require paid parking, as well as the proportion of work trips that require paid parking. There are also inputs for long-term parking costs. The proportion of non work trips that pay for parking was set to 0 for all bzones. The proportion of work trips that require payment for parking was only set for bzones within Downtown Boise, the Boise State Campus, and Downtown Nampa. Parking costs for these areas were determined based on the rates of nearby parking garages or on street parking.

### BZONE_TRANSIT_SERVICE

This input is also based off the EPA Smart Location Database. It contains the variable D4c which is an aggregate frequency of transit service within 0.25 miles of the block group boundary per hour during the evening peak period. To assign D4c values, weighted averages were created based on the percentage of a block group within the bzone. These frequency averages were then assigned to their bzone respectively.

### BZONE_TRAVEL_DEMAND_MGT

Travel demand management includes the proportion of workers and the proportion of households that participate in a commute options or an individualized marketing program. These programs provide worker or households with opportunities to reduce personal VMT through different alternative transportation incentives. Bzone within or near the Boise State Campus were given a value of 14% of employees participating in a commute options program.

### BZONE_UNPROTECTED_AREA

This input provides the total area within a bzone that can be developed. This value was calculated using ArcGIS. Areas of water as well as protected natural areas (i.e. parks, national forests, and nature preserves) were removed from the bzone to calculate this total area value.

### BZONE_URBAN-MIXED-USE_PROP

[10] https://www.epa.gov/smartgrowth/smart-location-mapping

This file contains the target proportion of households located in a mixed-use neighborhood. This input file was set to NA and not used within the VisionEval calculations.

### BZONE_URBAN-TOWN_DU_PROPORTIONS

This file contains the proportion of single-family, multifamily, and group quarter dwelling units within the urban portion of the zone. The three area classifications are Urban, Town, and Rural. To classify the bzone, housing unit densities were calculated. The top 20% of densities were placed under Urban classification, the middle 40% were put under Town classification, and the bottom 40% were put under Rural classification. There was no modification of classifications or proportions between the 2020 and 2050 inputs. This input has the option to split units between Urban and Town within a single bzone, but for this input, 100% of units were then placed under one classification.

## VISION EVAL SCENARIO DEVELOPMENT

To produce metrics that influence the weighting of projects within the COMPASS region, the following scenarios were developed:

1A: Bicycle and Pedestrian Network Improvements

1B: Transit Network Improvements

1C: Bicycle, Pedestrian, and Transit Network Improvements

The following section provides information on which inputs were changed for each scenario to reflect the changes that can be seen through different modal investments. The data used to inform the toolkit pulls from all three of these scenarios to capture the maximum potential for each mode. The combined scenario was necessary since adjusting the SOV diversion impacts transit trips even though scenario 1A does not contain any transit improvements. However, there is expected to be an increase in transit trips as a result of bicycle and pedestrian improvements as better walking and bike infrastructure allow for easier access to transit.

### AZONE_PROP_SOV_DIVERTED

As previously mentioned, this input is used to set goals for multimodal trips. Investment in multimodal modes will ideally encourage more mode shift and subsequently divert more single-occupancy vehicle trips. Though this input cannot be tuned to bzone related characteristics or for individual modes, it was used to help make more space for more multimodal trips with other input changes. To calculate the new values, the maximum non car trip percentage for a bzone within each azone was calculated. If the maximum value was between 5% and 10% it was rounded up to 10%. This was done to increase the potential of the zone. The 2050 COMPASS model does not include all potential projects that the VisionEval model is trying to assess, so potential for SOV diversion may be higher than what the model currently shows. The only azone with a value less than 10% are the Rural zones and Notus. After some early model testing, there were too high quantities of multimodal trips being assigned to the Ada Rural azone. Due to this, Ada Rural was lowered from its Max percentage and reset to its average percentage.

This input was used in scenarios 1A and 1C.

**TABLE 30: SOV DIVERSION BY CITY**

| AZONE | 2050 | 2050 SCENARIO |
|---|---|---|
| ADA RURAL | 0.02 | 0.02 |
| CANYON RURAL | 0.07 | 0.05 |
| BOISE | 0.06 | 0.27 |
| CALDWELL | 0.02 | 0.14 |
| EAGLE | 0.04 | 0.1* |
| GARDEN CITY | 0.06 | 0.1* |
| GREENLEAF | 0.02 | 0.1* |
| KUNA | 0.06 | 0.12 |
| MELBA | 0.09 | 0.1* |
| MERIDIAN | 0.05 | 0.16 |
| MIDDLETON | 0.05 | 0.1* |
| NAMPA | 0.05 | 0.23 |
| NOTUS | 0.03 | 0.05 |
| PARMA | 0.07 | 0.1* |
| STAR | 0.04 | 0.1* |
| WILDER | 0.09 | 0.1* |

NOTE: A * INDICATES THAT THE MAX VALUE WAS ROUNDED BUT TO 10%

### BZONE_NETWORK_DESIGN

To represent pedestrian and bicycle improvements, this input was increased. As mentioned previously, the network design is a measure of intersection density. Though it is not directly related to pedestrian and bicycle improvements, a higher intersection density represents an area with higher walkability and is correlated with more walk trips. The intersection density for a bzone was increased if a bike or pedestrian project was within it. Projects that exist on the border of two bzones count for both. The maximum D3bpo4 was calculated for each azone and then applied to the flagged bzone within the azone boundaries. This input was used for scenario 1a and 2c.

**TABLE 31: MAXIMUM NETWORK DESIGN INPUT**

| AZONE | SCENARIO |
|---|---|
| ADA RURAL | 12 |
| CANYON RURAL | 57 |
| BOISE | 311 |
| CALDWELL | 164 |
| EAGLE | 26 |
| GARDEN CITY | 58 |
| GREENLEAF | 0.5 |
| KUNA | 15 |

| AZONE | SCENARIO |
|---|---|
| MELBA | 0.1 |
| MERIDIAN | 41 |
| MIDDLETON | 42 |
| NAMPA | 156 |
| NOTUS | 1 |
| PARMA | 4 |
| STAR | 4 |
| WILDER | 10 |

### BZONE_URBAN-MIXED-USE_PROP

This input was used to represent the COMPASS 2050 Communities in Motion (CIM) goals. The file contains the target proportion of households located in mixed-use neighborhoods in the zone. Under CIM there are Future Activity Centers. According to the plan, "Activity Centers are concentrations of residential and commercial areas, such as downtowns, office parks, and shopping centers. They represent the highest densities and most diverse land uses in the region and support a robust mix of transportation modes"[11]. Each bzone was set to a 75% proportion of Mixed-use household if the bzone boundaries overlapped with an activity center. This input was applied to all scenarios.

[11] https://cim2050.compassidaho.org/wp-content/uploads/CIM_2050_Vision_Map_Final.pdf

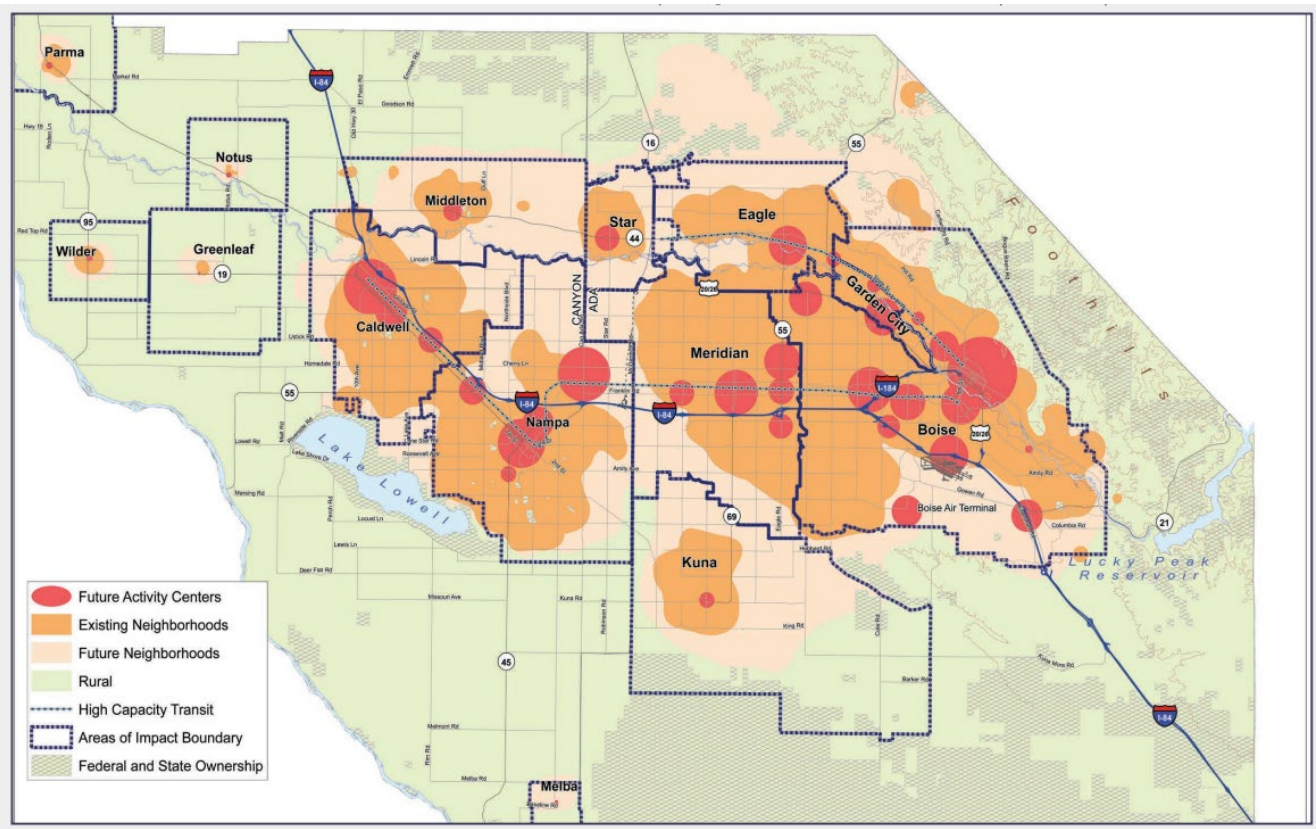


**FIGURE 3: PLANNED ACTIVITY CENTERS**

### BZONE_TRANSIT_SERVICE

Transit service uses the variable D4c from the EPA smart location database. This input represents transit frequency. To have a greater impact on transit mode choice, broader assumptions were made for modifying this attribute. Previously, averages were used to assign frequency to bzones. For scenario purposes, the Max D4c value was taken instead. The D4c value was then doubled if there was a transit project within the bzone. Bzone without transit projects and no existing transit service were set to 0. If a bzone currently has no transit, but will have transit in the future it was given a base value of 8. The highest observed D4c value is 57 and the lowest is 1. This input was applied to scenario 1b and 1c.

### MAREA_TRANSIT_SERVICE

For this input, revenue miles were increased based on the Communities in Motion 2050 Planned Public Transportation System[12]. To calculate future revenue miles based on this plan, existing and future networks were compared. Between the two networks there was an 87% increase in lines which results in a 3,616,680 increase in Revenue miles. This input is divided between different types of bus service. Previously only fixed route bus, demand response, and van pool service were

[12] https://cim2050.compassidaho.org/wp-content/uploads/PublicTransportation.pdf

coded. For the purposes of this input, Express lines were coded as Rapid Bus and the Regional Rail was coded as Heavy Rail. All other revenue mile increase was applied to fixed route bus service. There was no change made to demand response or vanpool. This input was applied to scenario 1b and 1c.

**TABLE 32: TRANSIT SERVICE TOTALS**

| | DEMAND RESPONS | VAN POOL | FIXED ROUTE | RAPID BUS | HEAVY RAIL |
|---|---|---|---|---|---|
| REVENUE MILES | 644,489 | 1,063,602 | 3,590,641 | 16,500 | 9,540 |

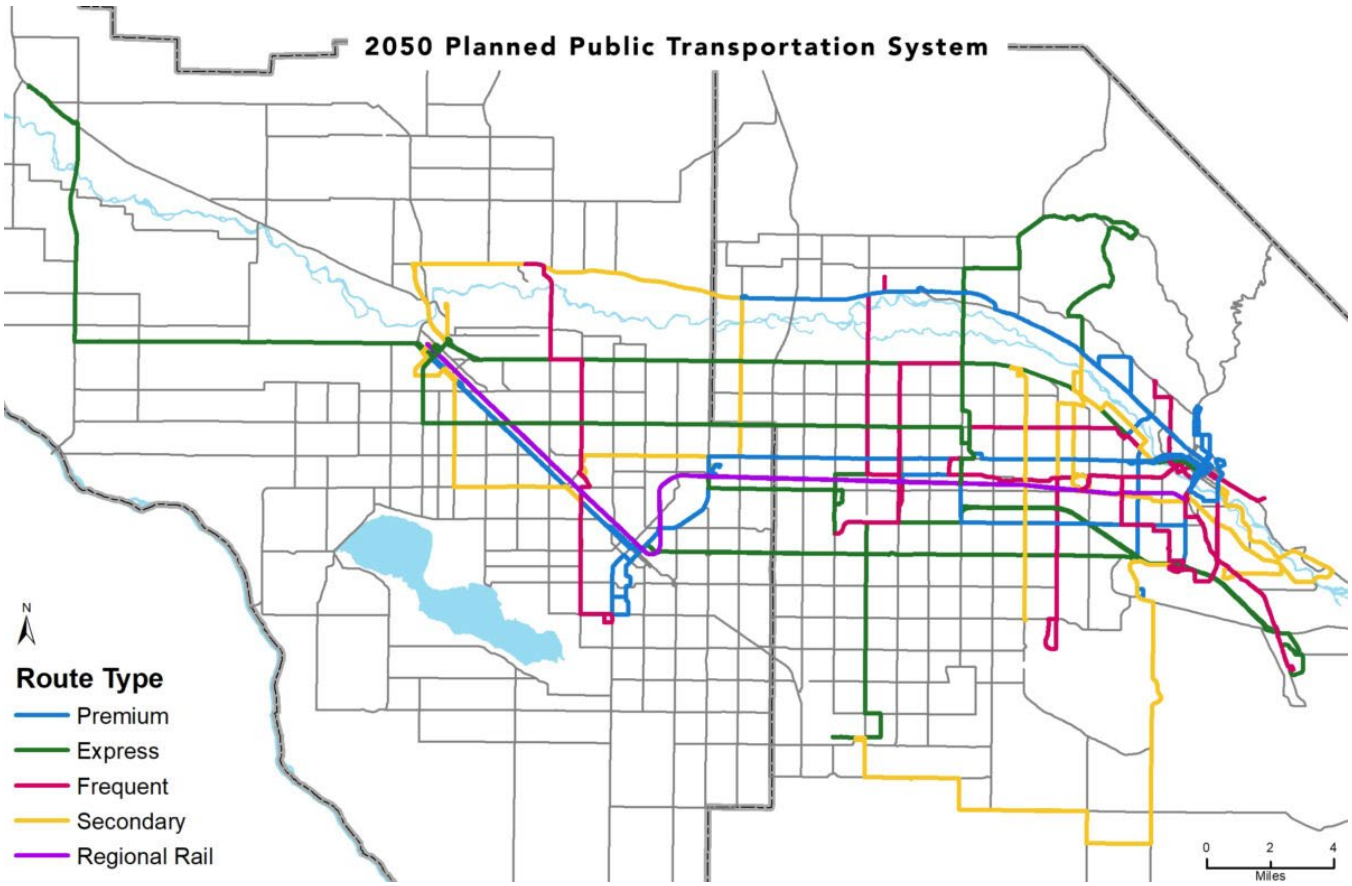


**FIGURE 4: ASPIRATIONAL TRANSIT SCENARIO NETWORK**

# APPENDIX B

## TSMO/ITS PROJECT SCORING METHODOLOGY

# COMPASS Carbon Reduction Strategy

# TSMO/ITS Project Scoring Methodology

## Introduction

This technical memorandum focuses on project scoring methodology for the COMPASS Carbon Reduction Strategy Project.

## Performance Measures

The performance measures are derived from COMPASS' goals and objectives. The following measures were selected for this project:

- Decrease in heavy vehicle delay
- Increase in public transit trips
- Reduction in heavy truck Vehicle Miles Traveled (VMT)
- Decrease in arterial roadway delay
- Decrease in freeway delay
- Reduced crash rate on congested and non-/or unreliable corridors
- Reduced Carbon Emissions

## Ratings

A rating of 0 (zero), 1 (one), or 2 (two) was given to each category above for every project:

- **0** = No correlation between the project and performance measure
- **1** = Indirect correlation between the project and performance measure
- **2** = Direct correlation between the project and performance measure

## Projects and Their Scoring

### Arterial Management

#### *Arterial Variable Speeds*

The project will install variable speed signs on a primary arterial roadway to reduce speeding and improve safety.

- Direct correlation to reducing crashes

- Indirect correlation to reducing heavy truck delay, arterial roadway delay and emissions as a result of reducing crashes
- No direct correlation between variable speeds and an increase in public transit trips, reduction in heavy truck vehicle miles traveled, or a decrease in freeway delay (when variable speeds are implemented on arterials).

### *Arterial Traffic Signal Operations Improvements*

This strategy assumes improved traffic signal operations and detection, and may also use some strategies to improve pedestrian and bicyclist safety.

- Direct correlation to reducing delay on arterials, for heavy trucks, and carbon emissions
- Indirect correlation to reducing crashes because of improved traffic signal operations and detection
- No direct correlation between arterial signal operations and increasing transit trips, reducing VMT or reducing freeway delay

### *Transit Signal Priority (TSP) on Premium Transit Corridors*

This project would install TSP to give buses extra green time and improve travel time reliability.

- Indirect correlation to increasing transit trips if the bus travel times are more reliable
- Indirect correlation to reducing arterial delay because the bus priority may improve travel time vehicles on the mainline
- Indirect correlation to reducing carbon emissions because the buses have reduced delay. Part of the emissions reduction may be offset by increasing delay for side streets or left turns.
- No correlation to the other delay, or VMT performance measures

### *Automated Traffic Signal Performance Measures (ATSPMs) Corridors or System Wide*

This project would turn the traffic signal data into ATSPMs available 24/7. Traffic signal operations engineers would have better information about where timing adjustments are needed and could respond proactively.

- Direct correlation to reducing arterial delay and emissions with better traffic signal timing
- Indirect correlation to truck delay because the signal timing changes could also benefit trucks
- Indirect correlation to crash rate because the ATSPMs may identify locations with failed detection that can be corrected in a timely manner.

- No correlation to the VMT, public transit trips, or freeway delay.

### *Camera Upgrades for Traffic Monitoring and Near-Miss Analytics*

This project would install monitoring cameras to provide a visual of on-street operations and enable proactive traffic management and/or safety analytics.

- Indirect correlation to reducing crash rates because the near-miss analytics would still require a change to improve safety. The changes may be related to signal timing or may require a physical roadway improvement.
- Indirect correlation to reducing delay and carbon emissions because the monitoring cameras could inform traffic signal timing changes.

### *Integrated Corridor Management (ICM)*

This strategy would install technologies to manage freeways and arterials during traffic incidents or events that result in diverting traffic.

- Direct correlation to reducing delay on freeways, arterials, and for trucks because the ICM system actively manages traffic operations during incidents or events.
- Indirect correlation to reducing the crash rate by better managing incidents.
- Indirect correlation to reducing emissions due to the active traffic management and response to the incident.

### *Transit Vehicle Maintenance / Upgrades*

This strategy would improve the efficiency of transit vehicles and/or transition gas-powered transit vehicles to electric or hybrid.

- Direct correlation to reduced carbon emissions because more efficient electric or hybrid vehicles do not produce carbon emissions
- Indirect correlation to an increase in public transit trips because more efficient, new vehicles may increase ridership due to aesthetics

## Commercial Vehicle Operations

### *New Truck Parking Facility*

This project would build a new truck parking facility with access to food and restrooms.

- Indirect correlation with a decrease in heavy truck delay because truck drivers may avoid searching for parking if spaces are available

- Indirect correlation with a reduced crash rate as trucks can park off the highway ramps in a dedicated parking space

### *Truck Parking Information Management System (TPIMS)*

This project would be implemented across existing truck parking sites, sharing information about where empty parking spaces are with truck drivers so they don't waste time entering and exiting places without parking spaces.

- Indirect correlation with a decrease in heavy truck delay because truck drivers can directly go to available truck parking spaces
- Indirect correlation with a reduced crash rate as truck drivers can find available, dedicated truck parking spaces
- Indirect correlation with reduced carbon emissions because trucks will drive around less to identify parking opportunities

## Freeway Management

### *Transportation Management Center (TMC)*

This strategy would build a TMC that is connected to cameras, signals, variable speed signs, and dynamic message signs to better control congestion, especially during non-recurring events such as crashes or special events.

- Indirect correlation with a decrease in delay from heavy trucks, arterials, and freeways, reduced crash rate, and reduced carbon emissions because TMCs can identify congestion and operators can implement activities to reduce delay such as traffic incident management, variable speeds, etc.

### *Ramp Metering*

This strategy would install ramp meters, which is a type of technology that allows only one vehicle at a time to enter a freeway.

- Direct correlation with a decrease in freeway delay and reduced carbon emissions because metering spaces out the vehicles entering the freeway, reducing congestion and improving safety
- Indirect correlation with a decrease in heavy truck delay because metering spaces out the vehicles entering the freeway, reducing congestion and improving safety

### *Freeway Variable Speeds*

This strategy would install variable speeds on the freeway to reduce speeding and improve safety during recurring and non-recurring congestion.

- Direct correlation with reduced crash rate because slower vehicles translate to fewer serious and fatal vehicle crashes
- Indirect correlation with a decrease in delay from heavy trucks and freeways because the variable speeds can reduce crashes and the resulting delay from lane blocking crashes
- Indirect correlation with reduced carbon emissions because fewer crashes results in improved traffic flow

## General and Winter Operations

### *Snowplow Vehicle Maintenance / Upgrades*

This strategy would improve the winter operations by tracking snowplow vehicles and the quantity of material applied.

- Indirect correlation with a decrease in delay on heavy trucks, arterials, and freeways as proactive management of clearing roads results in fewer weather-related crashes.

## Special Event Management

### *Special Event Management ITS System*

This strategy would create a connected ITS system for special event management, connecting ITS tools such as variable speed signs, dynamic message signs, traveler information websites, and road weather information systems.

- Direct correlation with delay for arterials and freeways as the system would be optimized for specific special events
- Indirect correlation with delay for heavy trucks as they can be informed of the special event and choose to reroute themselves
- Indirect correlation with and increase in public transit trips and reduced carbon emissions because traveler information may encourage persons not going to the special event to detour around it or choose a different mode to travel to the special event

## Traffic Incident Management

### *Traffic Incident Management*

This strategy would integrate traffic incident management tools such as signal timing changes, quick clearance, traffic incident management trucks, variable speed signs, and dynamic message signs to improve responses to traffic incidents.

- Indirect correlation with delay for heavy trucks, arterials, and freeways, reduce crash rate, reduce carbon emissions and reduce heavy truck vehicle miles traveled because traffic incident management can reduce congestion, and secondary crashes

## Work Zone Management

### *Smart Work Zones*

This strategy would implement smart work zone ITS tools such as Bluetooth cones, automatic flagger assistance devices, queue management, etc.

- Direct correlation with delay for heavy trucks, arterials, and freeways and reduced crash rate because smart work zones can reduce congestion because it reduces speed and communicates traveler information
- Indirect correlation with reduced carbon emissions because smart work zones can reduce congestion, which reduces vehicles idling and producing carbon emissions

### *Work Zone Data Exchange (WZDx)*

This strategy would implement WZDx by sharing information about queuing, locations of work zones, and other additional information.

- Direct correlation with reduced crash rate because smart work zones can reduce congestion because it reduces speed and communicates traveler information
- Indirect correlation with delay for heavy trucks, arterials, and freeways and reduced carbon emissions because smart work zones can reduce congestion, which reduces vehicles idling and producing carbon emissions

## TSMO/ITS Project Scoring Matrix

The scoring thresholds for the range of strategies described in the previous sections are summarized in the scoring matrix provided in Table X. This scoring matrix provides a crosswalk between TSMO/ITS strategies and the Goals, Objectives, and Policies developed in TM #2. The scoring matrix was incorporated into the CRS Project Evaluation Toolkit, providing flexibility to evaluate TSMO/ITS strategies either as stand-alone projects or in combination with other projects.

Table 1: CRS Scoring Matrix for TSMO/ITS Strategies

| Project Category | Project Type | Decrease in heavy truck delay | Increase in public transit trips | Reduction in heavy truck Vehicle Miles Traveled (VMT) | Decrease in arterial roadway delay | Decrease in freeway delay | Reduced crash rate on congested and non-/or unreliable corridors | Reduced Carbon Emissions |
|---|---|---|---|---|---|---|---|---|
| **Arterial Management** | Arterial Variable Speeds | 1 | 0 | 0 | 1 | 0 | 2 | 1 |
| | Arterial Signal Operations Improvements | 2 | 0 | 0 | 2 | 0 | 1 | 2 |
| | Transit Signal Priority on Premium Transit Corridors | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| | Automated Traffic Signal Performance Measures (ATSPMs) Corridors or System Wide | 1 | 0 | 0 | 2 | 0 | 1 | 2 |
| | Camera Upgrades for Traffic Monitoring and Near-Miss Analytics | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| | Integrated Corridor Management (ICM) | 2 | 0 | 0 | 2 | 2 | 1 | 1 |
| | Transit Vehicle Maintenance / Upgrades | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| **Commercial Vehicle Operations** | New Truck Parking Facility | 2 | 0 | 0 | 0 | 0 | 2 | 2 |
| | Truck Parking Information Management System (TPIMS) | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| **Freeway Management** | Transportation Management Center (TMC) | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| | Ramp Metering | 1 | 0 | 0 | 0 | 2 | 2 | 1 |
| | Freeway Variable Speeds | 1 | 0 | 0 | 0 | 1 | 2 | 1 |

| Project Category | Project Type | Decrease in heavy truck delay | Increase in public transit trips | Reduction in heavy truck Vehicle Miles Traveled (VMT) | Decrease in arterial roadway delay | Decrease in freeway delay | Reduced crash rate on congested and non-/or unreliable corridors | Reduced Carbon Emissions |
|---|---|---|---|---|---|---|---|---|
| **General and Winter Operations** | Snowplow Vehicle Maintenance / Upgrades | 1 | 0 | 0 | 1 | 1 | 0 | 1 |
| **Special Event Management** | Special Event Management ITS System | 1 | 1 | 0 | 2 | 2 | 1 | 1 |
| **Traffic Incident Management** | Traffic Incident Management | 2 | 0 | 0 | 2 | 2 | 2 | 1 |
| **Traveler Information** | Traveler Information Improvements (ex. DMS upgrades, 511) | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| **Work Zone Management** | Smart Work Zones | 2 | 0 | 0 | 2 | 2 | 2 | 1 |
| | Work Zone Data Exchange (WZDx) | 1 | 0 | 0 | 1 | 1 | 2 | 1 |

# APPENDIX C

## SAMPLE CRS PROJECT EVALUATION RESULTS

| Measures and Weighting | | | | | | Sample Project Scores | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Goal** | **Objective** | **Performance Measure** | **Goal Weighting** | **Objective Weighting** | **Measure Weighting** | **11th Avenue Sidepath** | **Garrity Boulevard Sidepath** | **Indian Creek Pathway Repair** | **Indian Creek Pathway Rebuild** | **Fairview Avenue Bridge** | **Swan Falls Road RRX Elimination** | **DMS Event Management** | **DMS Message Boards for Major Routes** | **Marble Front St Improvements** | **Indiana St Bike Lanes** | **Paynter North Sidewalk Infill** | **Paynter South Sidewalk Infill** | **Notus Rd Sidewalk Infill** | **1st St Sidewalks** | **3rd St Sidewalks** | **McConnell Ave Sidewalks** | **Murphy Rd Shoulders** | **Main St Shoulders** | **ACHD TSMO Project** | **Garden St Path** | **Ridenbaugh Canal Pathway** | **Vista Avenue Premium Route** | **Nampa-Caldwell Blvd Premium Route** | **Emerald Avenue Frequent Service** |
| ECONOMIC VITALITY | *Economic Vitality* | Decrease in heavy truck delay | 0.63 | 0.33 | 0.7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| | | Increase in public transit trips | 0.63 | 0.33 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 2 |
| | | Increase in walk trips | 0.63 | 0.33 | 0.05 | 1 | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
| | | Increase in bike trips | 0.63 | 0.33 | 0.05 | 1 | 2 | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 0 |
| | *Preservation and Reliability* | Decrease in heavy truck delay | 0.63 | 0.33 | 0.17 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| | | Reduction in heavy truck Vehicle Miles Traveled (VMT) | 0.63 | 0.33 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Decrease in arterial roadway delay | 0.63 | 0.33 | 0.17 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 1 |
| | | Decrease in freeway delay | 0.63 | 0.33 | 0.17 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | *Growth Management* | Reduced VMT | 0.63 | 0.33 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 2 |
| SAFETY | *Safety, Security, and Resiliency* | Reduced crash rate on congested and non-/or unreliable corridors | 1 | 1 | 0.25 | 1 | 2 | 0 | 0 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| | | Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians | 1 | 1 | 0.75 | 2 | 2 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
| CONVENIENCE | *Organized Transportation* | Increase in public transit trips | 1 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 2 | 2 |
| | | Increase in walk trips | 1 | 0.5 | 0 | 1 | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
| | | Increase in bike trips | 1 | 0.5 | 0 | 1 | 2 | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 0 |
| | | Increase in trips diverted to 'low-speed' travel modes | 1 | 0.5 | 0.5 | 1 | 2 | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 |
| | *Organized Development* | Decrease in arterial roadway delay | 1 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 1 |
| | | Reduced VMT | 1 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 2 |
| QUALITY OF LIFE | *Environment and Open Space* | Increase in walk trips | 0.75 | 0.5 | 0.5 | 1 | 2 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
| | | Increase in bike trips | 0.75 | 0.5 | 0.5 | 1 | 2 | 1 | 1 | 2 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 0 | 0 | 0 |
| | *Housing Affordability and Equity* | Decrease in vehicle travel cost | 0.75 | 0.5 | 1 | 0 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 1 | 1 | 1 |
| ***CRP Goal*** | *Reduce Carbon Emissions* | Reduced VMT | 1 | 1 | 0.5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 2 |
| | | Reduced Carbon Emissions | 1 | 1 | 0.5 | 0 | 1 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| | | | | | | ***2.40*** | ***4.17*** | ***1.40*** | ***1.90*** | ***4.86*** | ***2.90*** | ***1.86*** | ***2.15*** | ***2.90*** | ***2.15*** | ***2.32*** | ***2.52*** | ***1.20*** | ***1.75*** | ***2.25*** | ***2.70*** | ***0.95*** | ***1.95*** | ***2.48*** | ***4.55*** | ***6.71*** | ***4.16*** | ***4.16*** | ***4.16*** |

| Measures | | | | Performance Measure 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Goal | Objective | Performance Measure | Measure | 11th Avenue Sidepath | Garrity Boulevard Sidepath | Indian Creek Pathway Repair | Indian Creek Pathway Rebuild | Fairview Avenue Bridge | Swan Falls Road RRX Elimination | DMS Event Management | DMS Message Boards for Major Routes | Marble Front St Improvements | Indiana St Bike Lanes | Paynter North Sidewalk Infill | Paynter South Sidewalk Infill | Notus Rd Sidewalk Infill | 1st St Sidewalks | 3rd St Sidewalks | McConnell Ave Sidewalks | Murphy Rd Shoulders | Main St Shoulders | ACHD TSMO Project | Garden St Path | Ridenbaugh Canal Pathway | Vista Avenue Premium Route | Nampa-Caldwell Blvd Premium Route | Emerald Avenue Frequent Service |
| ECONOMIC VITALITY | *Economic Vitality* | Decrease in heavy truck delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Increase in public transit trips | VisionEval | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | 26.7% | 852% | 18.7% |
| | | Increase in walk trips | VisionEval | 0.4% | 1.9% | 1.3% | 1.8% | 0.0% | 0.8% | | | 0.5% | 0.0% | 1.0% | 1.2% | 0.2% | 0.1% | 0.1% | 0.6% | 0.0% | 0.0% | | 3.8% | 1.6% | 0.0% | 0.0% | 0.0% |
| | | Increase in bike trips | VisionEval | 0.9% | 4.7% | 13.8% | 31.8% | 21.9% | 2.7% | | | 7.9% | 6.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.7% | 4.1% | | 10.0% | 5.2% | 0.0% | 0.0% | 0.0% |
| | *Preservation and Reliability* | Decrease in heavy truck delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Reduction in heavy truck Vehicle Miles Traveled (VMT) | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Decrease in arterial roadway delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Decrease in freeway delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Growth Management* | Reduced VMT | VisionEval | 0.0% | 0.1% | 0.0% | 0.2% | 0.3% | 0.0% | | | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | | 0.3% | 0.4% | 0.2% | 0.1% | 0.2% |
| SAFETY | *Safety, Security, and Resiliency* | Reduced crash rate on congested and non-/or unreliable corridors | CMF and COMPASS TTR data | TRUE | TRUE | FALSE | FALSE | TRUE | TRUE | | | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE | TRUE | | TRUE | TRUE | FALSE | FALSE | FALSE |
| | | Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians | ACHD Methodology | 2 | 2 | 0 | 0 | 1 | 2 | | | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | | 2 | 2 | 0 | 0 | 0 |
| CONVENIENCE | *Organized Transportation* | Increase in public transit trips | VisionEval | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | 26.7% | 852% | 18.7% |
| | | Increase in walk trips | VisionEval | 0.4% | 1.9% | 1.3% | 1.8% | 0.0% | 0.8% | | | 0.5% | 0.0% | 1.0% | 1.2% | 0.2% | 0.1% | 0.1% | 0.6% | 0.0% | 0.0% | | 3.8% | 1.6% | 0.0% | 0.0% | 0.0% |
| | | Increase in bike trips | VisionEval | 0.9% | 4.7% | 13.8% | 31.8% | 21.9% | 2.7% | | | 7.9% | 6.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.7% | 4.1% | | 10.0% | 5.2% | 0.0% | 0.0% | 0.0% |
| | | Increase in trips diverted to 'low-speed' travel modes | VisionEval | 0.6% | 3.1% | 5.2% | 12.2% | 5.4% | 1.3% | | | 2.7% | 1.6% | 0.7% | 0.9% | 0.1% | 0.1% | 0.1% | 0.5% | 0.1% | 1.7% | | 5.9% | 3.0% | 0.0% | 0.0% | 0.0% |
| | *Organized Development* | Decrease in arterial roadway delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Reduced VMT | VisionEval | 0.0% | 0.1% | 0.0% | 0.2% | 0.3% | 0.0% | | | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | | 0.3% | 0.4% | 0.2% | 0.1% | 0.2% |
| QUALITY OF LIFE | *Environment and Open Space* | Increase in walk trips | VisionEval | 0.4% | 1.9% | 1.3% | 1.8% | 0.0% | 0.8% | | | 0.5% | 0.0% | 1.0% | 1.2% | 0.2% | 0.1% | 0.1% | 0.6% | 0.0% | 0.0% | | 3.8% | 1.6% | 0.0% | 0.0% | 0.0% |
| | | Increase in bike trips | VisionEval | 0.9% | 4.7% | 13.8% | 31.8% | 21.9% | 2.7% | | | 7.9% | 6.5% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.7% | 4.1% | | 10.0% | 5.2% | 0.0% | 0.0% | 0.0% |
| | *Housing Affordability and Equity* | Decrease in vehicle travel cost | VisionEval | 0.0% | 0.1% | 0.2% | 0.4% | 0.2% | 0.0% | | | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% |
| ***CRP Goal*** | *Reduce Carbon Emissions* | Reduced VMT | VisionEval | 0.0% | 0.1% | 0.0% | 0.2% | 0.3% | 0.0% | | | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.1% | | 0.3% | 0.4% | 0.2% | 0.1% | 0.2% |
| | | Reduced Carbon Emissions | VisionEval | 0.0% | 0.1% | 0.0% | 0.1% | 0.3% | 0.0% | | | 0.0% | 0.1% | 0.0% | 0.1% | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.1% | | 0.4% | 0.3% | 0.3% | 0.1% | 0.2% |

| Measures | | | | Performance Measure 2 | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Goal | Objective | Performance Measure | Measure | 11th Avenue Sidepath | Garrity Boulevard Sidepath | Indian Creek Pathway Repair | Indian Creek Pathway Rebuild | Fairview Avenue Bridge | Swan Falls Road RRX Elimination | DMS Event Management | DMS Message Boards for Major Routes | Marble Front St Improvements | Indiana St Bike Lanes | Paynter North Sidewalk Infill | Paynter South Sidewalk Infill | Notus Rd Sidewalk Infill | 1st St Sidewalks | 3rd St Sidewalks | McConnell Ave Sidewalks | Murphy Rd Shoulders | Main St Shoulders | ACHD TSMO Project | Garden St Path | Ridenbaugh Canal Pathway | Vista Avenue Premium Route | Nampa-Caldwell Blvd Premium Route | Emerald Avenue Frequent Service |
| ECONOMIC VITALITY | *Economic Vitality* | Decrease in heavy truck delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Increase in public transit trips | VisionEval | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 399 | 281 | 277 |
| | | Increase in walk trips | VisionEval | 2 | 14 | 2 | 2 | 0 | 6 | | | 2 | 0 | 2 | 15 | 0 | 0 | 0 | 2 | 0 | 0 | | 12 | 33 | 0 | 0 | 0 |
| | | Increase in bike trips | VisionEval | 5 | 30 | 10 | 20 | 45 | 8 | | | 15 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | | 16 | 69 | 0 | 0 | 0 |
| | *Preservation and Reliability* | Decrease in heavy truck delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Reduction in heavy truck Vehicle Miles Traveled (VMT) | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Decrease in arterial roadway delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Decrease in freeway delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | |
| | *Growth Management* | Reduced VMT | VisionEval | 0 | 84 | 21 | 52 | 160 | 0 | | | 9 | 111 | 13 | 46 | 0 | 0 | 1 | 6 | 0 | 18 | | 138 | 297 | 1250 | 729 | 878 |
| SAFETY | *Safety, Security, and Resiliency* | Reduced crash rate on congested and non-/or unreliable corridors | CMF and COMPASS TTR data | 0% | 100% | 0% | 0% | 100% | 0% | | | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | | 0% | 0% | 0% | 0% | 0% |
| | | Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians | ACHD Methodology | | | | | | | | | | | | | | | | | | | | | | | | | |
| CONVENIENCE | *Organized Transportation* | Increase in public transit trips | VisionEval | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 399 | 281 | 277 |
| | | Increase in walk trips | VisionEval | 2 | 14 | 2 | 2 | 0 | 6 | | | 2 | 0 | 2 | 15 | 0 | 0 | 0 | 2 | 0 | 0 | | 12 | 33 | 0 | 0 | 0 |
| | | Increase in bike trips | VisionEval | 5 | 30 | 10 | 20 | 45 | 8 | | | 15 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | | 16 | 69 | 0 | 0 | 0 |
| | | Increase in trips diverted to 'low-speed' travel modes | VisionEval | 7 | 44 | 12 | 22 | 45 | 14 | | | 17 | 20 | 2 | 15 | 0 | 0 | 0 | 2 | 0 | 1 | | 28 | 102 | 0 | 0 | 0 |
| | *Organized Development* | Decrease in arterial roadway delay | Qualitative Assessment | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Reduced VMT | VisionEval | 0 | 84 | 21 | 52 | 160 | 0 | | | 9 | 111 | 13 | 46 | 0 | 0 | 1 | 6 | 0 | 18 | | 138 | 297 | 1250 | 729 | 878 |
| QUALITY OF LIFE | *Environment and Open Space* | Increase in walk trips | VisionEval | 2 | 14 | 2 | 2 | 0 | 6 | | | 2 | 0 | 2 | 15 | 0 | 0 | 0 | 2 | 0 | 0 | | 12 | 33 | 0 | 0 | 0 |
| | | Increase in bike trips | VisionEval | 5 | 30 | 10 | 20 | 45 | 8 | | | 15 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | | 16 | 69 | 0 | 0 | 0 |
| | *Housing Affordability and Equity* | Decrease in vehicle travel cost | VisionEval | $ - | $ 1.57 | $ 3.36 | $ 9.18 | $ 5.97 | $ - | | | $ 1.98 | $ - | $ 0.95 | $ 0.47 | $ - | $ - | $ - | $ - | $ - | $ 2.72 | | $ - | $ 2.61 | $ 0.31 | $ 1.08 | $ 0.53 |
| ***CRP Goal*** | *Reduce Carbon Emissions* | Reduced VMT | VisionEval | 0 | 84 | 21 | 52 | 160 | 0 | | | 9 | 111 | 13 | 46 | 0 | 0 | 1 | 6 | 0 | 18 | | 138 | 297 | 1250 | 729 | 878 |
| | | Reduced Carbon Emissions | VisionEval | 0.0 | 28.0 | 0.0 | 6.9 | 33.6 | 4.3 | | | 5.5 | 22.2 | 3.3 | 14.8 | 0.0 | 0.0 | 0.5 | 3.2 | 0.1 | 4.1 | | 31.9 | 58.9 | 248.0 | 168.1 | 170.0 |

# APPENDIX D: STAKEHOLDER COMMITTEE

## MEETING MATERIALS

# COMPASS CARBON REDUCTION STRATEGY (CRS)

## STAKEHOLDER WORKSHOP #1

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# AGENDA

## 1 / CRP PROGRAM INTRODUCTION

- CRP Funding
- Purpose of the CRS

## 2 / CRS PROCESS

- Key Tasks
- Schedule Overview

## 3 / COMPASS BASELINE EMISSIONS OVERVIEW

- National, State, and COMPASS comparison

## 4 / ITD CRS OVERVIEW

- ITD CRS Key Strategies/Project Types
- ITD CRS Project Criteria

## 5 / GOALS AND OBJECTIVES

- CRP Goals and Objectives
- ITD CRS Focus Areas
- Communities in Motion Goals and Objectives
- Review COMPASS Change in Motion Scorecard

## 6 / OVERVIEW OF PROJECT IDENTIFICATION

- Sample Projects

## 7 / NEXT STEPS

1

# CRP PROGRAM INTRODUCTION

# CRP PROGRAM INTRODUCTION

- The Federal Highway Administration (FHWA) Carbon Reduction Program (CRP) aims to reduce transportation-related carbon emissions across the United States by supporting projects that decrease greenhouse gas emissions from highway transportation.

- This program allocates $6.4 billion in federal funds of 5 years nationwide, with **$47 million** to Idaho.

- The COMPASS TMA currently receives approximately **$1.45** million per year from CRP for the TMA. COMPASS designates which projects receive this funding.

- The Large Urban (LU), Small Urban, and Rural areas within COMPASS must compete for the statewide funding allocation

# CRP PROGRAM INTRODUCTION

## Carbon Reduction Program (CRP) Apportionment Requirements

| | | Estimated Apportionment Breakout 65% to TMA, Large & Small Urban and Rural; 35% to Any State Area | | | | |
|---|---|---|---|---|---|---|
| | | TMA (Over 200K) | Large Urban (50K–200K) | Small Urban (5K–50K) | Rural (Under 5K) | Any State Area |
| Project Selection Authority | | COMPASS | ITD in coordination with MPOs | ITD in coordination with MPOs | ITD | ITD |
| Idaho Apportionment | | 15.31% | 20.13% | 9.43% | 20.12% | 35% |
| FY 2022 | $9,044,000 | $1,385,000 | $1,821,000 | $853,000 | $1,820,000 | $3,166,000 |
| FY 2023 | $9,225,000 | $1,412,000 | $1,857,000 | $870.000 | $1,856,000 | $3,229,000 |
| FY 2024 | $9,408,000 | $1,440,000 | $1,894,000 | $887,000 | $1,893,000 | $3,293,000 |
| FY 2025 | $9,598,000 | $1,469,000 | $1,932,000 | $905,000 | $1,931,000 | $3,359,000 |
| FY 2026 | $9,790,000 | $1,499,000 | $1,971,000 | $923,000 | $1,970,000 | $3,427,000 |

***Table 1-2 from the ITD Carbon Reduction Strategy**

# PURPOSE OF THE CARBON REDUCTION STRATEGY

- Establish a process to program CRP funding to applicant projects within the MPO

- Identify the strategies and tactics that help achieve the goals of *Communities in Motion* while qualifying for CRP funds (i.e. contributing to reduced carbon emissions)

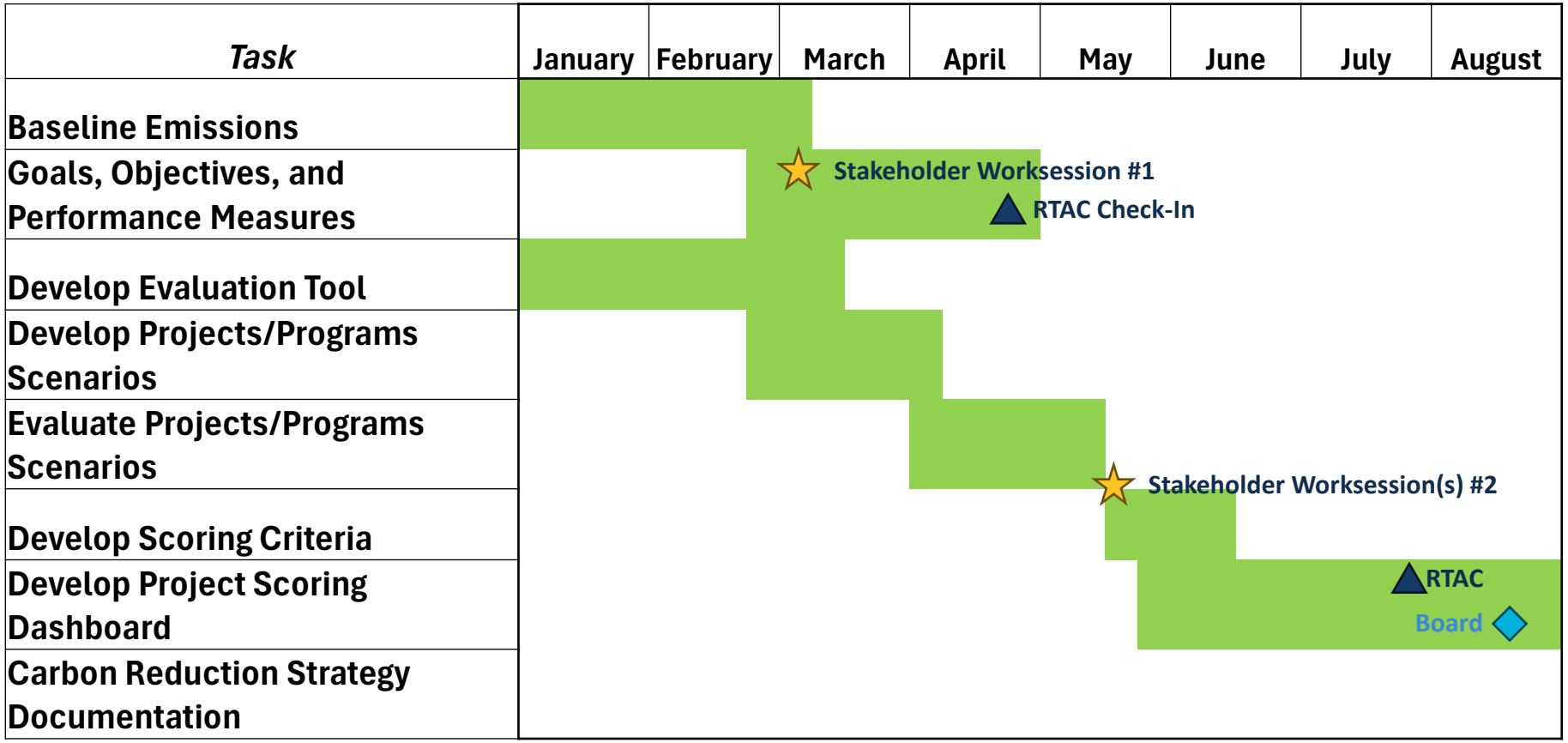
- Create a data-driven project scoring methodology and performance measures that lead to consistent and transparent programming of CRP and other funding sources, quantifying benefits of non-capacity enhancement projects

# CRS PROCESS

# CRS KEY TASKS

- Baseline Emissions
- Goals, Objectives, and Performance Measures
- Develop Evaluation Tool (VisionEval)
- Develop Projects/Programs Scenarios
- Evaluate Projects/Programs
- Develop Scoring Criteria
- Develop Project Scoring Dashboard
- Carbon Reduction Strategy Documentation

# CRS SCHEDULE



# 3

# COMPASS BASELINE EMISSIONS OVERVIEW

# EMISSIONS DATA COMPARISON

## National, State, and County 2020 Emissions Summary

| MEASURE | UNIT | CANYON COUNTY | ADA COUNTY | STATE OF IDAHO |
|---|---|---|---|---|
| 2020 TOTAL EMISSIONS | Million equivalent Metric Tons (MMT) of $CO_2$ | 1.7 MMT | 2.6 MMT | 28.3 MMT |
| 2020 ON-ROAD EMISSIONS | | 1.1 MMT | 2.1 MMT | 11.5 MMT |
| ON-ROAD % OF TOTAL EMISSIONS | Percent | 61% | 80% | 41% |
| 2020 TOTAL EMISSIONS/CAPITA | Metric Tons (MT)/Person | 7.6 MT | 5.3 MT | 15.4 MT |
| 2020 ON-ROAD EMISSIONS/CAPITA | | 4.6 MT | 4.3 MT | 6.2 MT |
| % OF TOTAL STATE EMISSIONS | Percent | 9% | 18% | - |
| % OF ON-ROAD STATE EMISSIONS | | 6% | 9% | - |

# EMISSIONS DATA COMPARISON

## Percent On-Road Emissions by Vehicle Type (2020)

| VEHICLES | CANYON COUNTY | ADA COUNTY | IDAHO | UNITED STATES |
|---|---|---|---|---|
| *TRUCKS* | *30.5%* | *30.6%* | *39.7%* | *31.0%* |
| *BUSES* | *0.5%* | *0.4%* | *0.5%* | *1.3%* |
| *PERSONAL VEHICLES* | *69.0%* | *68.9%* | *59.8%* | *67.7%* |

Higher than national percentage  Lower than national percentage

4

# ITD CRS OVERVIEW

# ITD CRS KEY STRATEGIES/PROJECT TYPES

1. Truck Parking and Freight Amenities Improvements

   - **Truck Parking and Staging Areas**
   - **Electrical hookups at truck parking facilities**
   - **Truck parking communication systems**

2. Traffic Operations and Technology Solutions

   - **Signal Timing Optimization**
   - **Adaptive Signals**
   - **Intelligent Transportation System (ITS) and signage**

# ITD CRS PROJECT CRITERIA

- Alignment with ITD CRS priority strategy categories and project types
- Carbon reduction impact
- Cost effectiveness
- Federal funding apportionment to urban and rural or statewide contexts
- Co-benefits (accrued to residents, visitors, and through travelers)


# GOALS AND OBJECTIVES

# CRP GOALS

- **Lower Carbon Emissions:**
  - Encourage the adoption of strategies and technologies that lead to measurable reductions in transportation-related carbon emissions.
- **Promote Sustainable Transportation Infrastructure:**
  - Support the development of low-carbon transportation alternatives, such as public transit, biking, and walking infrastructure.
- **Encourage Alternative Fuels and Vehicles:**
  - Fund initiatives that expand the use of electric vehicles (EVs), hydrogen-powered transportation, and other clean energy solutions.
- **Improve Traffic Flow and Congestion Management:**
  - Invest in intelligent transportation systems (ITS) and other measures that reduce vehicle idling and improve efficiency.
- **Support Local and State-Level Carbon Reduction Efforts:**
  - Provide funding and guidance to state and local governments to implement carbon reduction strategies tailored to their unique needs.
- **Enhance Multimodal Transportation Options:**
  - Increase investment in transit systems, rail, and active transportation options to reduce dependency on single-occupancy vehicles.
- **Encourage Energy-Efficient Transportation Infrastructure:**
  - Promote the use of energy-efficient and sustainable materials in transportation projects.

# ITD CRS FOCUS AREAS

## ITD Long-Range Transportation Plan and MPO Focus Areas

| Goal Category | ITD | Bannock MPO | Bonneville MPO | COMPASS MPO | Kootenai MPO | Lewis-Clark MPO |
|---|---|---|---|---|---|---|
| Promote/Improve Freight | X | | X | X | X | |
| Congestion Reduction/Protect Operations/Technology | X | | X | X | | |
| Infrastructure State of Good Repair | X | X | X | X | | |
| Promote/Improve Transit | | X | | X | X | X |
| Active Transportation/Shared Mobility | X | X | | X | X | X |
| Safety/Public Health | X | X | X | X | | |
| Environmental Stewardship/Resiliency | | | | X | | |
| Land Use Sustainability/Efficiency | | X | | X | | X |
| Economic Vitality | X | | | X | | X |
| Project Efficiency | | | X | | X | |

*Table 3-1 from the ITD Carbon Reduction Strategy

# COMMUNITIES IN MOTION 2055 GOALS AND OBJECTIVES

| GOAL | OBJECTIVES |
|---|---|
| ECONOMIC VITALITY | **Economic Vitality:** Develop a transportation system that promotes economic vitality by providing local residents multi-modal access to jobs and housing, serving local businesses, promoting travel and tourism, and the movement of freight |
| | **Preservation and Reliability:** Provide a reliable transportation system for all users by preserving and maintaining the existing transportation infrastructure |
| | **Growth Management:** Develop and implement a regional vision that guides growth where it can be cost-effectively served by infrastructure, services, and amenities, to protect and preserve farmland and the agrarian economy of the valley. |
| SAFETY | **Safety, Security, and Resiliency:** Provide a safe, secure, and resilient transportation system that minimizes risk and supports transportation options for all users. |
| CONVENIENCE | **Organized Transportation:** Develop a regional transportation system that provides access and mobility for all users through a highly connected network that encourages travel choices and preserves future transportation options. |
| | **Organized Development:** Promote development patterns that minimize travel, improve efficiency, and reduce congestion on the transportation system. |
| QUALITY OF LIFE | **Environment and Open Space:** Develop and implement a regional vision that protects, preserves, and connects residents to the natural environment and open space while minimizing the impact of the transportation system on the environment and promoting public health. |
| | **Housing Affordability and Equity:** Promote development patterns for affordable housing and equitable access to the transportation system for all users. |

# GOAL: ECONOMIC VITALITY

- **Objective: Economic Vitality –** Develop a transportation system that promotes economic vitality by providing local residents multi-modal access to jobs and housing, serving local businesses, promoting travel and tourism, and the movement of freight
- **Objective: Preservation and Reliability –** Provide a reliable transportation system for all users by preserving and maintaining the existing transportation infrastructure
- **Objective: Growth Management –** Develop and implement a regional vision that guides growth where it can be cost-effectively served by infrastructure, services, and amenities, to protect and preserve farmland and the agrarian economy of the valley.

# GOAL: ECONOMIC VITALITY

- **Objective: Economic Vitality –** Develop a transportation system that promotes economic vitality by providing local residents multi-modal access to jobs and housing, serving local businesses, promoting travel and tourism, and the movement of freight
- **Objective: Preservation and Reliability –** Provide a reliable transportation system for all users by preserving and maintaining the existing transportation infrastructure
- **Objective: Growth Management –** Develop and implement a regional vision that guides growth where it can be cost-effectively served by infrastructure, services, and amenities, to protect and preserve farmland and the agrarian economy of the valley.

# GOAL: ECONOMIC VITALITY

- **Objective: Economic Vitality –** Develop a transportation system that promotes economic vitality by providing local residents multi-modal access to jobs and housing, serving local businesses, promoting travel and tourism, and the movement of freight

**Sample CRS Objective: "Increase/promote non-auto access to jobs and housing"**

- **ility –** Provide a sers by preserving and maintaining the existing transportation infrastructure
- **Objective: Growth Management –** Develop and implement a regional vision that guides growth where it can be cost-effectively served by infrastructure, services, and amenities, to protect and preserve farmland and the agrarian economy of the valley.

# GOAL: ECONOMIC VITALITY

- **Objective: Economic Vitality –** Develop a transportation system that promotes economic vitality by providing local residents multi-modal access to jobs and housing, serving local businesses, promoting travel and tourism, and the movement of freight
- **Objective: Preservation and Reliability –** Provide a reliable transportation system for all users by preserving and maintaining the existing transportation infrastructure
- **Objective: Growth Management –** Develop and implement a regional vision that guides growth where it can be cost-effectively served by infrastructure, services, and amenities, to protect and preserve farmland and the agrarian economy of the valley.

# GOAL: SAFETY

- **Safety, Security, and Resiliency:** Provide a safe, secure, and resilient transportation system that minimizes risk and supports transportation options for all users.

# GOAL: CONVENIENCE

- **Objective: Organized Transportation –** Develop a regional transportation system that provides access and mobility for all users through a highly connected network that encourages travel choices and preserves future transportation options.
- **Objective: Organized Development –** Promote development patterns that minimize travel, improve efficiency, and reduce congestion on the transportation system.

# GOAL: QUALITY OF LIFE

- **Objective: Environment and Open Space -** Develop and implement a regional vision that protects, preserves, and connects residents to the natural environment and open space while minimizing the impact of the transportation system on the environment and promoting public health.
- **Objective: Housing Affordability and Equity -** Promote development patterns for affordable housing and equitable access to the transportation system for all users.

6

# OVERVIEW OF PROJECT IDENTIFICATION

# SAMPLE PROJECTS

- Recent COMPASS CRP funds allocated to projects:
  - TMA Projects
    - Rail to Trail, Meridian
    - Spoils Bank, Boise
    - West Glenwood, Garden City
- Large Urban funds allocated within COMPASS
  - Mathew Peltzer Trail, Nampa
- Projects that do not qualify
  - Capital projects that increase motor vehicle capacity – widening projects, new interchanges, intersection expansions, etc.

# 7

# NEXT STEPS

# NEXT STEPS

- Goals, Objectives, and Performance Measures Memo will be sent out to group for review by end of next week (March 14)
- Send list us a list of projects for consideration
- Provide data on which projects/strategies reduce carbon emissions (i.e. meet over-arching CRP goal) via memo in May
- Next Meeting be in mid-late May
  - **Present project/strategy performance relative to CRS Objectives**
  - **Develop prioritization and scoring criteria**

# THANK YOU

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# NOTES

## COMPASS CRS

**STAKEHOLDER WORKSHOP #1**
MARCH 5, 2025 1:00-2:00 PM
COMPASS BOARD ROOM

### 1. MEETING ATTENDEES

Hunter Mulhall – COMPASS (Project Manager)
Aaron Berger – DKS Associates (Consultant Project Manager)
Colby GeDeros – DKS Associates
Jim Peters – Citizen Engineers
Olvia Vielstich McKinnon – COMPASS
Craig Raborn – COMPASS
Alex Yann – ACHD
Rob Hartsock – City of Notus
Carl Anderson – City of Meridian
Brian McClure – City of Meridian
Marina Lundy – City of Kuna
Randi Walkins – City of Boise
Abby Peterson – ITD
Stacey Dupuis – Ada County
N. Baird – City of Eagle
Amy Parrish – Boise State
Curtis Loveless – Central District Health
Wendy Howell – ITD
Roberta Steward – City of Middelton

### 2. ACTION ITEMS

| ACTION ITEM REVIEW | PARTY RESPONSIBLE |
|---|---|
| Add criteria to the prioritization that projects are within the boundary of the category (TMA, small urban, large urban, etc). Projects can't cross boundaries. | All |
| Read the full text of the law to understand what projects qualify because the fact sheet doesn't include everything. | All |

| ACTION ITEM REVIEW | PARTY RESPONSIBLE |
|---|---|
| Provide real examples of projects to partner agencies | PMT |
| Send a list of potential projects to DKS/COMPASS to help with developing and testing the evaluation tool | All |
| Team to develop the preliminary Goals and Objective memo, submit to the stakeholder group for input | DKS |
| Provide list of words we can and can't use to stay in line with state law | ITD |

## 3. MEETING NOTES

**Slide 2 –** Hunter provided an overview of the agenda for the meeting

**Slide 3-** Hunter provided an overview of the CRP program. He introduced that CRP funding is formula funding, as opposed to competitive grant funding. $1.45 M available / year for COMPASS

**Slide 4 –** Hunter provided an overview

**Slide 5 –** Hunter provided an overview

**Slide 6 –** Hunter provided an overview

**Slide 7 –** Hunter provided an overview

**Slide 8 –** Aaron provided an overview of the CRS key tasks

**Slide 9-** Aaron provided an overview of the CRS project schedule

**Slide 11-** Aaron provided an overview of the baseline emissions data comparison of Ada/Canyon counties and the state of Idaho.

- Data sources differ for the COMPASS study as compared to the ITD study because the data set used for ITDs study does not allow for county-specific data
- Up until 2 years ago, Ada/Canyon counties collected emissions data. **Is there a better data set?** Ada/Canyon county may have air quality monitoring stations as part of the non-attainment. Emissions from vehicles was being tested.
    - The non-attainment was PM10, the data shown for this project is CO2 equivalent.
- **Is this data on-road only?**
    - Aaron explained that the CRP funding is for on-road only.
- **How is this data calculated, considering commuter traffic coming into Ada County?**
    - Emissions data is based on vehicle miles traveled (VMT)
- **On-road % of total emissions feels too high for City of Boise for the data they have.**
    - Purpose of the baseline is to understand what is contributing and how we should be defining our goals and focusing our strategies.

- **If cars exhaust many different gases and CO2 is a small percentage, why is that reported only?**
    - The program captures all gases and compares it to an equivalent amount of CO2.

**Slide 12 -** Aaron provided an overview of the emissions data comparison for on-road emissions

- **What is included in trucks?**
    - SU delivery, short haul, long haul. The Baseline Emissions memo further breaks down the categories.

**Slide 14 –** Aaron provided an overview of the ITD CRS key strategies and project types

- ITD provided additional information
    - The truck parking information system is intended to reduce trucks having to search for legal parking facilities, and not to be staging in private lots, etc.
    - ITS and signage is intended to design and build direct messaging signs. Enhanced opportunities for direct messaging to truck drivers.
    - Truck parking communications – looking at doing a pilot program with truck software that can let them know where parking spaces are available
- Understanding these strategies are important for member agencies outside of the TMA.
    - Small urban, large urban or rural area are competing statewide, and need to target these strategies
    - Projects within the TMA don't need to meet the ITD CRS criteria

**Slide 15 -** Aaron provided an overview of ITD CRS project criteria

- Hunter highlighted that one goal for today is to identify which co-benefits can align with the ITD CRS and Communities in Motion goals and objectives.
- **ACTION:** add criteria to the prioritization that projects are within the boundary of the category (TMA, small urban, large urban, etc). Projects can't cross boundaries.
- The list of eligible projects on the ITD fact sheet is not all encompassing of the law. ITD recognizes that some of the projects they considered were not actually qualified by FHWA's criteria
    - **ACTION:** Read the full text of the law to understand what projects qualify because the fact sheet doesn't include everything.

**Slide 17 –** Aaron provided an overview of the goals of the CRP program

- Improving traffic flow and congestion management does not cover capacity enhancements. Capacity enhancement project does not qualify for the funding (i.e. roadway widening).
- **Would a roundabout project qualify?**
    - Potentially. If you can show the carbon reduction, then it might qualify. Roundabout isn't a typical CRS project

**Slide 18 –** Aaron provided an overview of the ITD CRS focus areas

**Slide 19 –** Aaron provided an overview of the Communities in Motion Goals and Objectives

**Slide 20-26 –** Aaron provided an example of how communities in motion goals can be aligned with the CRS goals and highlighted the existing communities in motions goals

- **Goal – Economic Vitality**

    - According to ITD separated bike paths are not considered eligible. A bike/ped facility must be connected to the street network. FHWA is evaluating if the project meets the project goals. ITD has had to provide additional layers of clarification to show that the projects are not for recreational purposes. ITD has had some projects get rejected.
    - COMPASS has had discussions on this topic and understands that these projects are okay. Some pathway projects have been funded.
    - **Would "serving local businesses" be applicable?**
        - Not by itself. We would need to clarify and link it to CRS
    - **Would a project that develops a co-working space for our community qualify?**
        - No, CRS is focused on transportation only. If funding program changes in the future, it might.
    - **Is the focus on non-auto access, or single occupancy? The words we chose are important.**
- **Are the goals we are discussing for TMA only?**
    - The goals will be the same for all COMPASS agencies. We will develop different scoring criteria for the different groupings.
    - There are 3 filters: 1 ) meet goals of statewide plan, 2) meet goals of long range transportation plan, 3) meet the goals of the CRP
- **Goal – Safety**
    - Not a major focus of the CRP funding, but could be a cobenefit
- **Goal – Convenience**
- **Goal – Quality of Life**

**Slide 28 -**Aaron provided a brief overview of sample projects

- FHWA is reading the scope and the project charter to confirm that pathway projects are not recreational

**Slide 30 –** Aaron provided an overview of next steps

- **Can the list of project types be provided?**
    - ITD's fact sheet has an abbreviated list, but the master list from the statewide plan has the various project types and the US code associated.
    - Upgrading street lighting from HPS style to LED is an option.
    - **ACTION:** Provide real examples of projects to partner agencies
- **ACTION:** Send a list of potential projects to DKS/COMPASS to help with developing and testing the evaluation tool
    - Would you like hypothetical projects, or real projects?
        - Real projects is preferred. If it's a feasible project but not funded, that is okay
- **Eagle – SH44 changed from on-street bike lanes to a separated greenbelt style pathway. Would that qualify?**
    - No, ITD had that specific project that rejected. The funding is niche and specific

- Nest meeting will likely break up into TMA and non-TMA
- Gem state air quality initiative through Idaho DEQ solicited projects across the state. It could be good to connect with them to get their list of project ideas. Gem State was also trying to develop a quantitative process for scoring projects
- **How were previous CRS funds allocated if we didn't have the scoring and objectives?**
    - COMPASS was delayed in developing the strategy, but it wasn't a required precursor to allocating funding
    - State had to develop the strategy before the MPOS. ITD had delays in getting their strategies adopted.
- **How does federal funding pause impact this project?**
    - ITD is in a spending pause at the moment because the state has not received it's full obligation for the year.
        - This is not impacting the CRS project because it is already programmed and obligated.
    - The project and tools will allow for it to be used for other funding sources if the funding programs change

# COMPASS CARBON REDUCTION STRATEGY (CRS)

## STAKEHOLDER WORKSHOP #2

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# AGENDA

## 1 / CRP PROGRAM REVIEW

- CRP Funding
- Purpose of the CRS

## 2 / WORK COMPLETED TO DATE

- Key Tasks
- Schedule
- Scenario Evaluation

## 3 / BASELINE EVALUATION FINDINGS

- Carbon Emissions Trends
- VMT Trends
- Mode Split Trends

## 4 / SCENARIO EVALUATION FINDINGS

- Transit
- Active Transportation
- TSMO

## 5 / PRIORITIZATION

- Performance Measures
- Preliminary Scoring Methodology

## 6 / NEXT STEPS


# CRP PROGRAM REVIEW

# CARBON REDUCTION PROGRAM (CRP)

- The Federal Highway Administration (FHWA) Carbon Reduction Program (CRP) aims to reduce transportation-related carbon emissions across the United States by supporting projects that decrease greenhouse gas emissions from highway transportation.

- This program allocates $6.4 billion in federal funds of 5 years nationwide, with **$47 million** to Idaho.

- The COMPASS TMA currently receives approximately **$1.45** million per year from CRP for the TMA. COMPASS designates which projects receive this funding.

- The Large Urban (LU), Small Urban, and Rural areas within COMPASS must compete for the statewide funding allocation

# PURPOSE OF THE CARBON REDUCTION STRATEGY

- Establish a process to program CRP funding to applicant projects within the MPO
- Identify the strategies and tactics that help achieve the goals of *Communities in Motion* while qualifying for CRP funds (i.e. contributing to reduced carbon emissions)
- Create a data-driven project scoring methodology and performance measures that lead to consistent and transparent programming of CRP and other funding sources, quantifying benefits of non-capacity enhancement projects

# 2

# WORK COMPLETED TO DATE

# CRS KEY TASKS

- Baseline Emissions
- Goals, Objectives, and Performance Measures
- Develop Evaluation Tool (VisionEval)
- Develop Projects/Programs Scenarios
- Evaluate Projects/Programs
- Develop Scoring Criteria
- Develop Project Scoring Dashboard
- Carbon Reduction Strategy Documentation

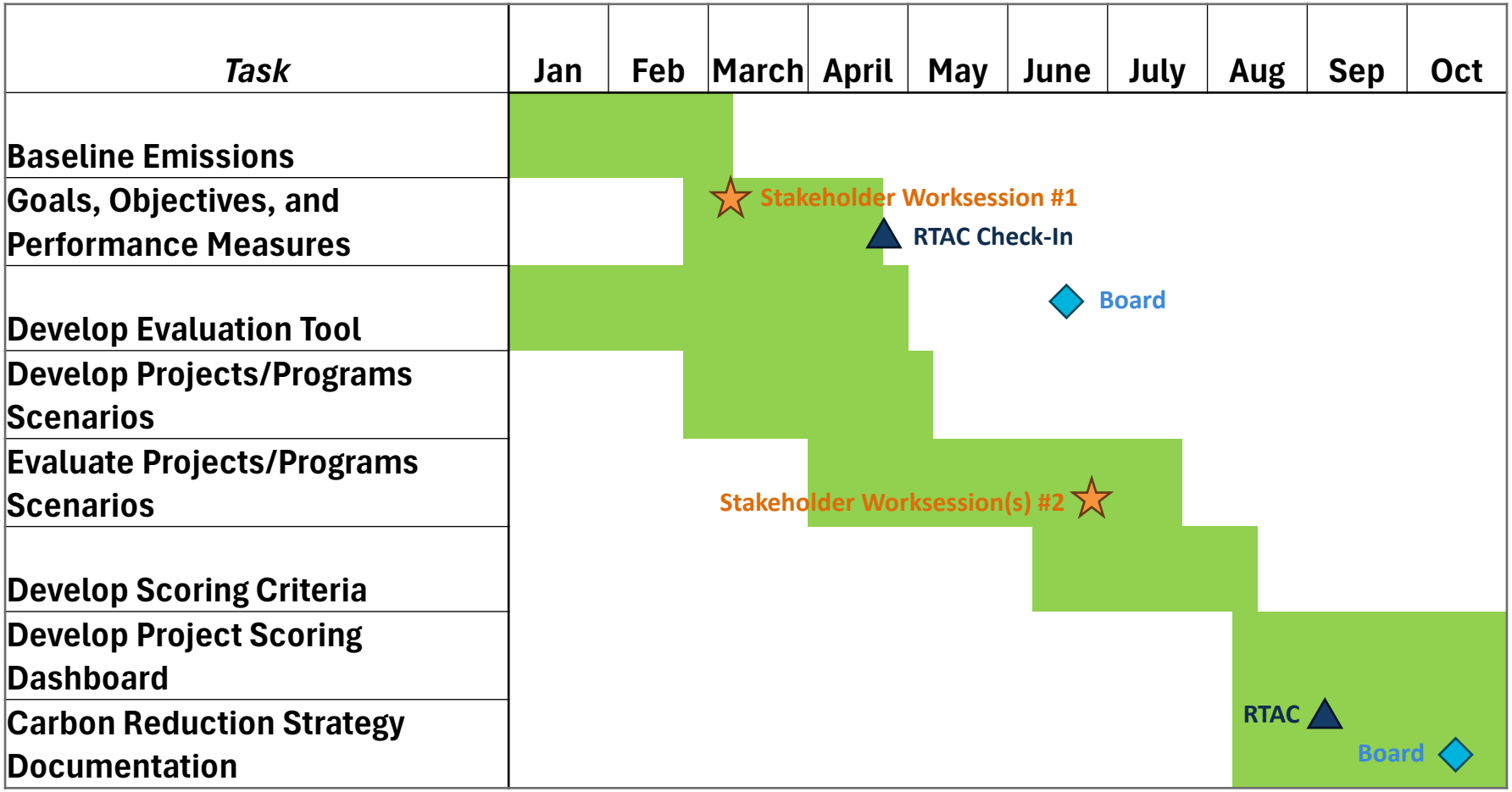
# CRS KEY TASKS

- Baseline Emissions
- Goals, Objectives, and Performance Measures
- Develop Evaluation Tool (VisionEval)
- Develop Projects/Programs Scenarios
- Evaluate Projects/Programs
- Develop Scoring Criteria

← We are here

- Develop Project Scoring Dashboard
- Carbon Reduction Strategy Documentation

# CRS SCHEDULE

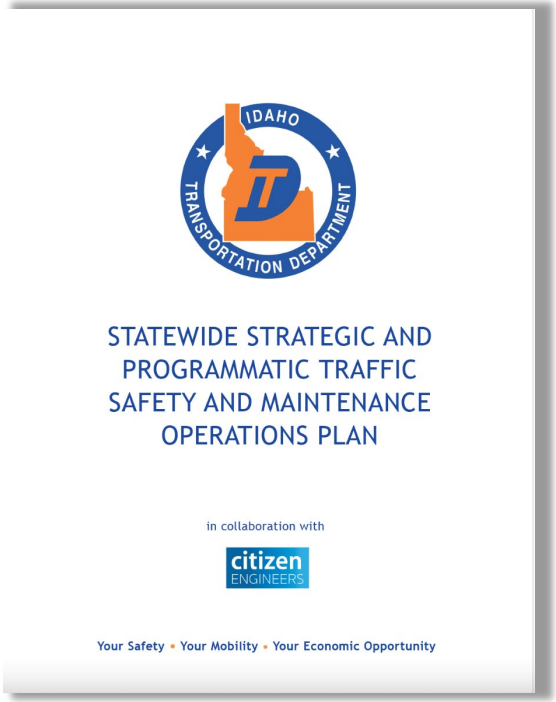


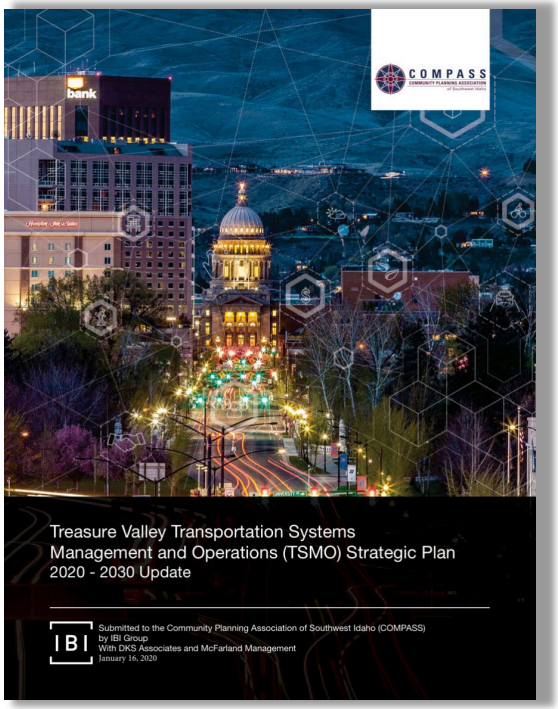
# PROJECT/PROGRAM SCENARIOS

- Transit
  - **New connections to Middleton, Star, Eagle, and South Ada County**
- Walking/Biking Improvements
  - **Levels of build out (% of all facilities complete) from Bike Walk COMPASS**
    - 25% build out
    - 100% build out

# TSMO PROJECT SCENARIO

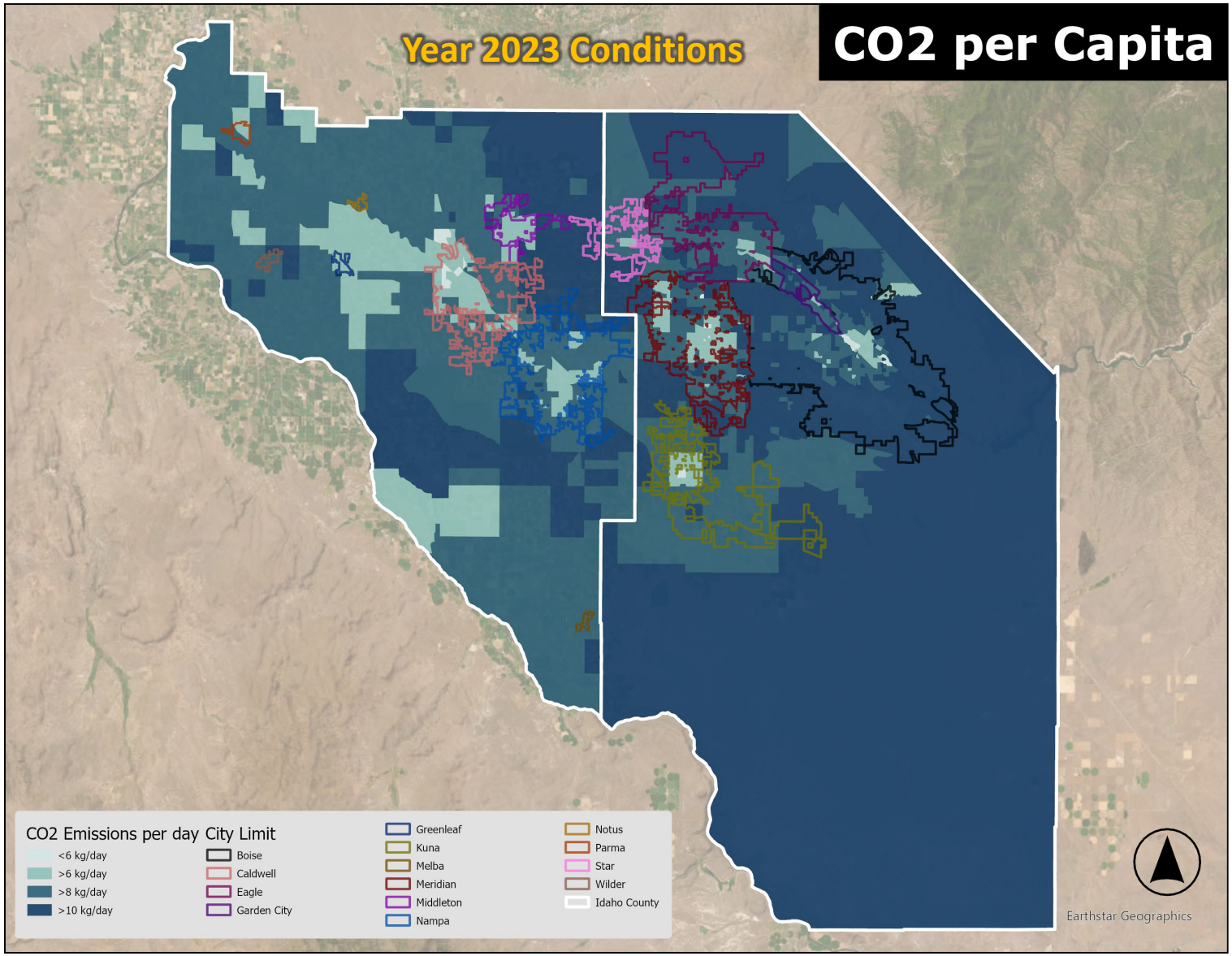
- Treasure Valley TSMO Strategic Plan
- I-84 Corridor Operations Plan
- ITD Statewide TSMO Plan

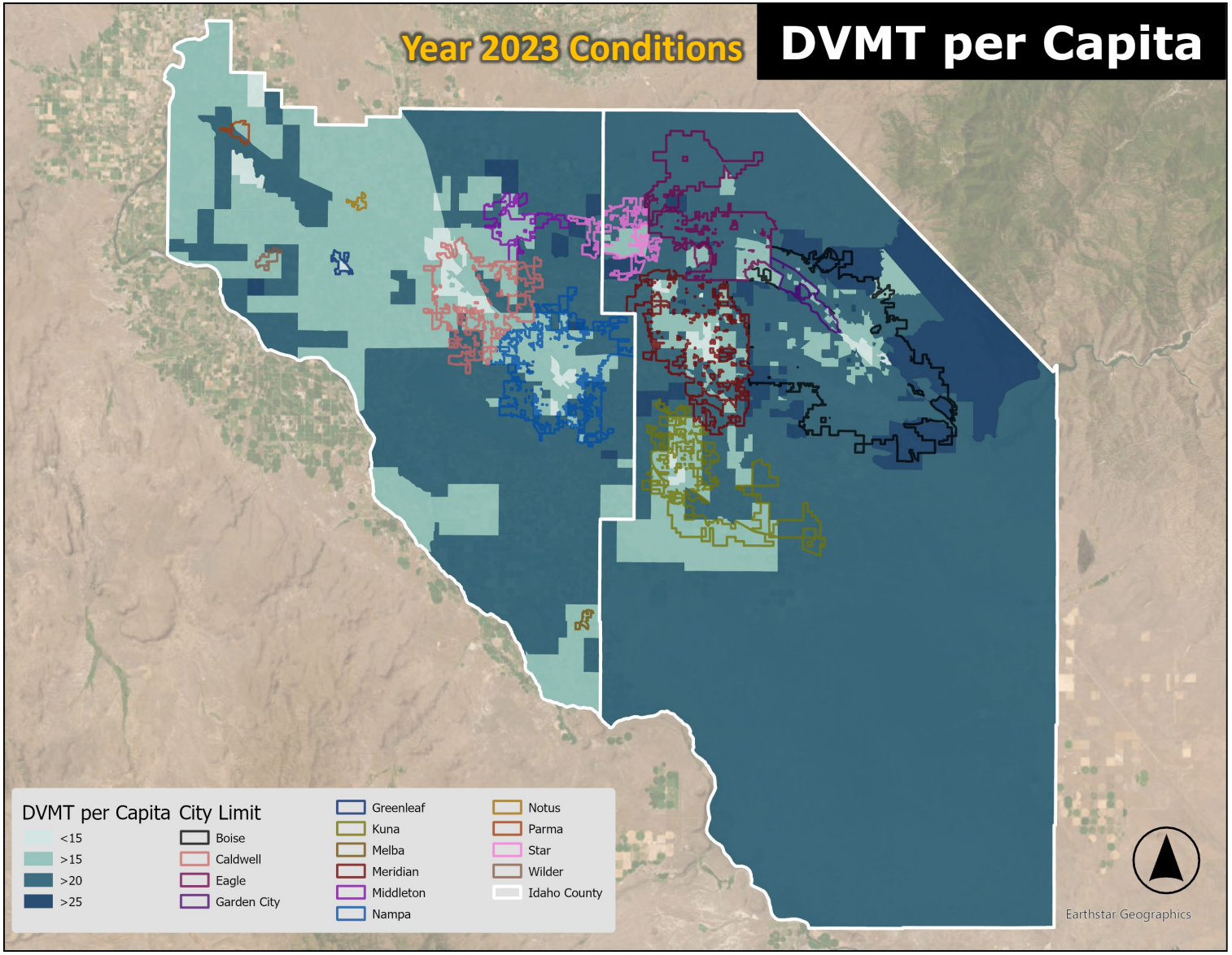



# BASELINE EVALUATION FINDINGS

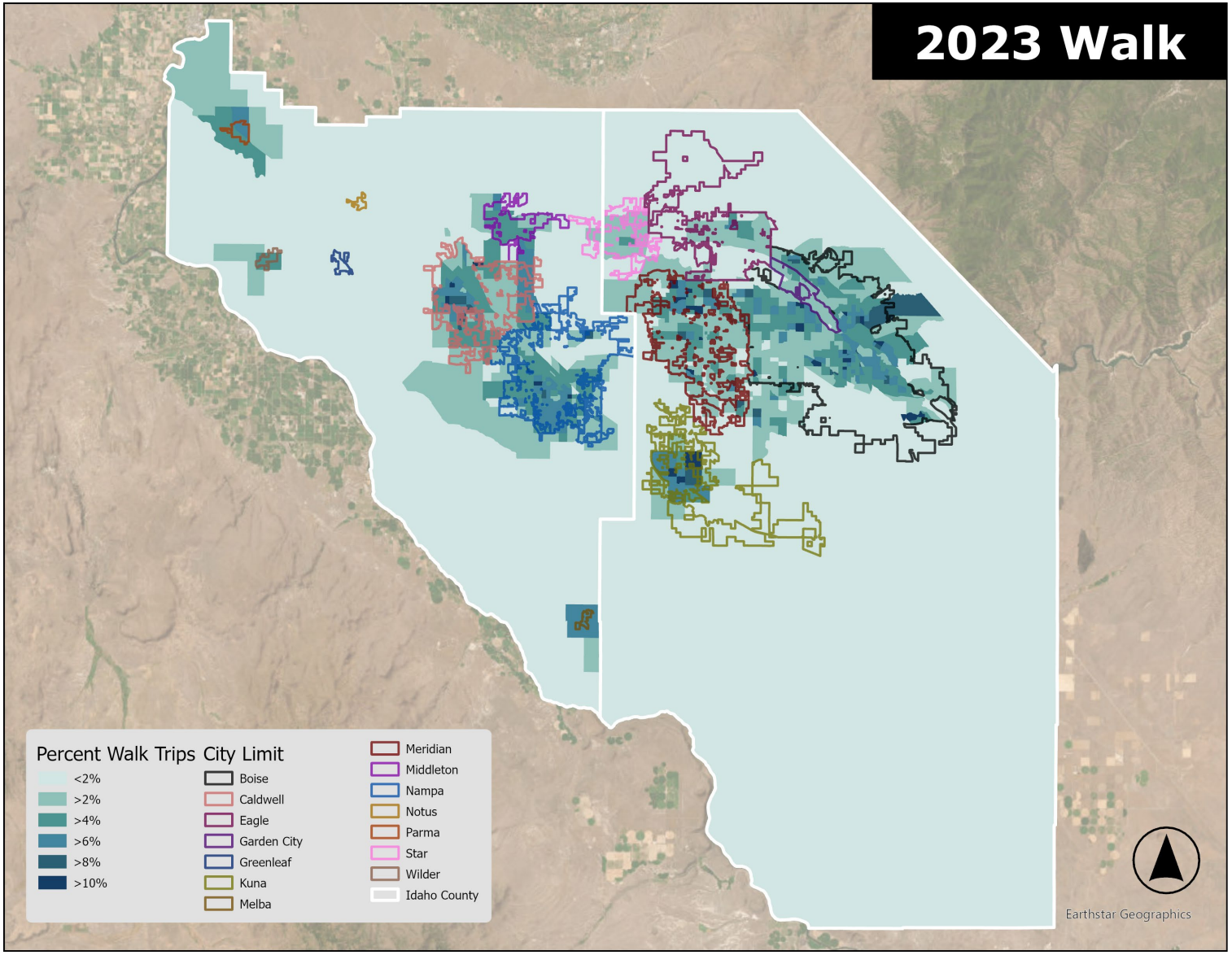
# EMISSIONS – VISIONEVAL



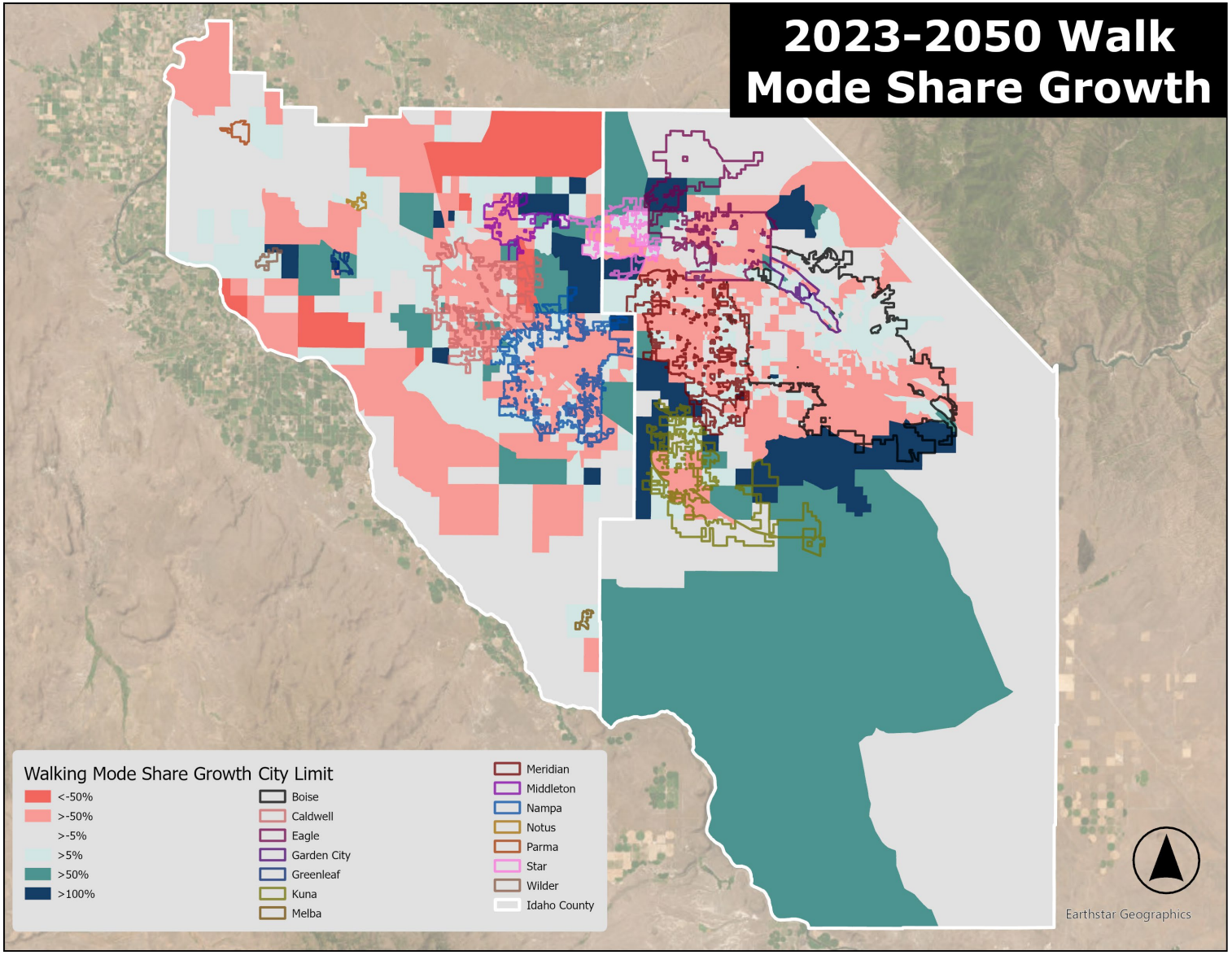
# DAILY VMT – VISIONEVAL



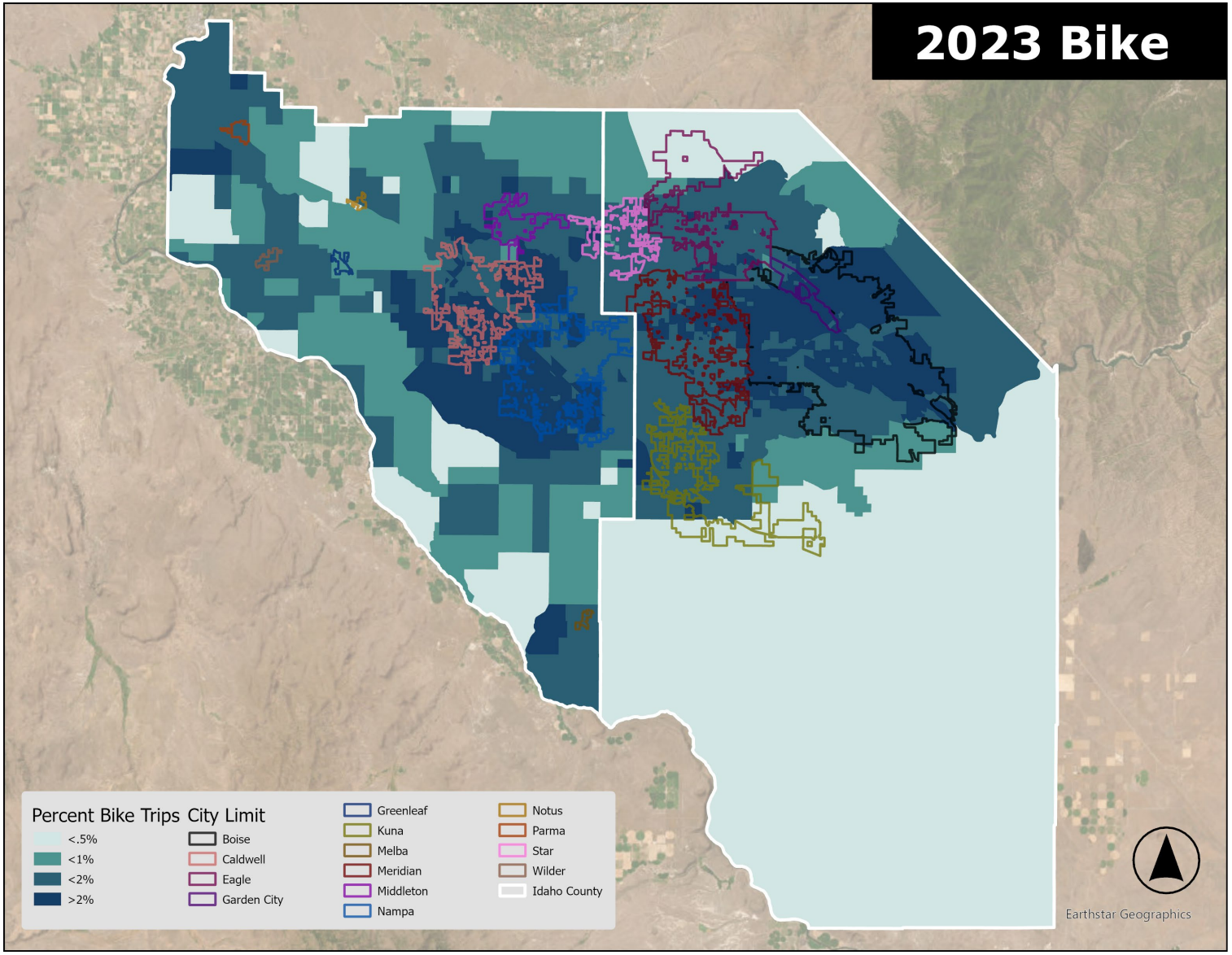
# MODE SPLIT – COMPASS ESTIMATE



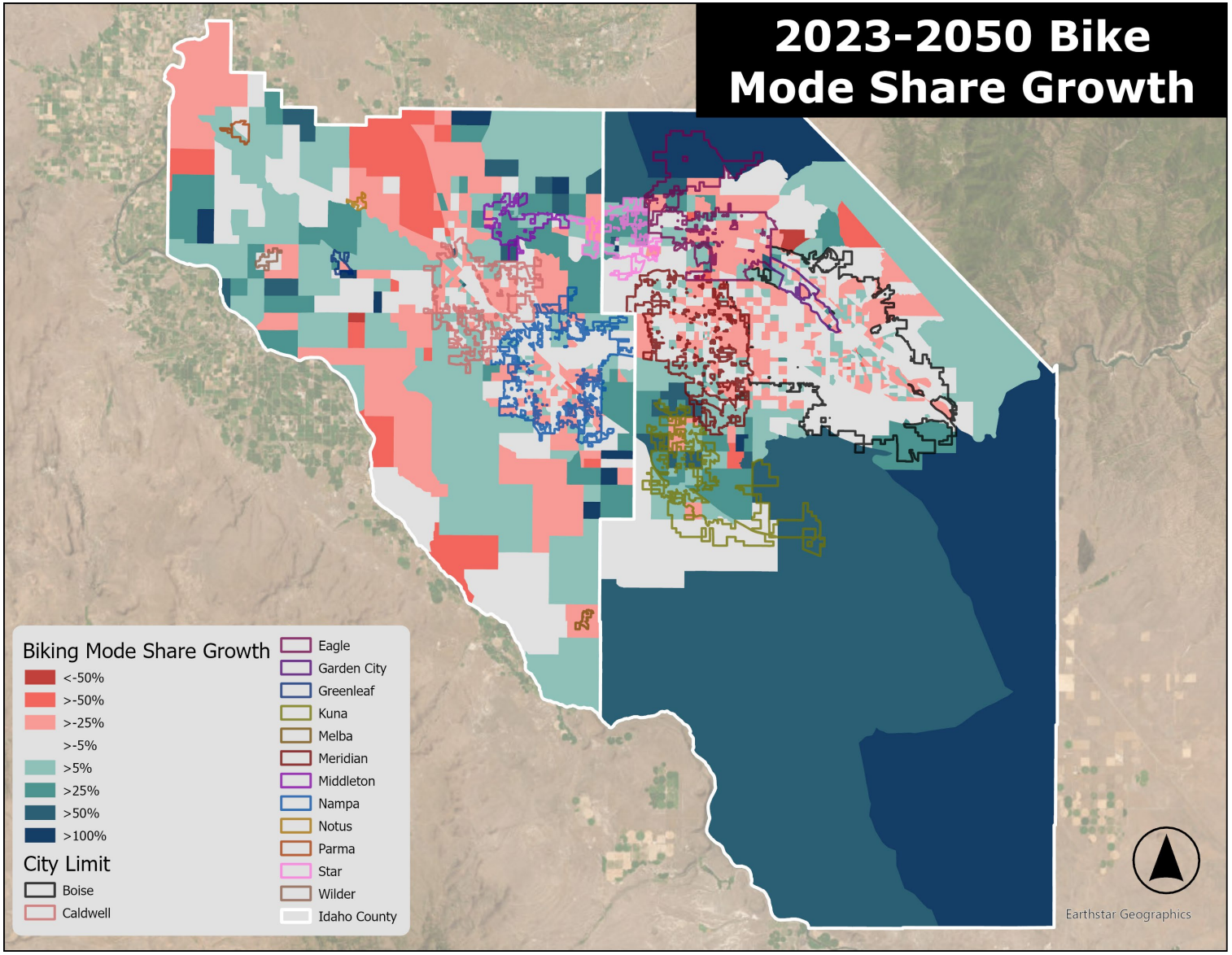
# MODE SPLIT – COMPASS ESTIMATE



# MODE SPLIT – COMPASS ESTIMATE



# MODE SPLIT – COMPASS ESTIMATE



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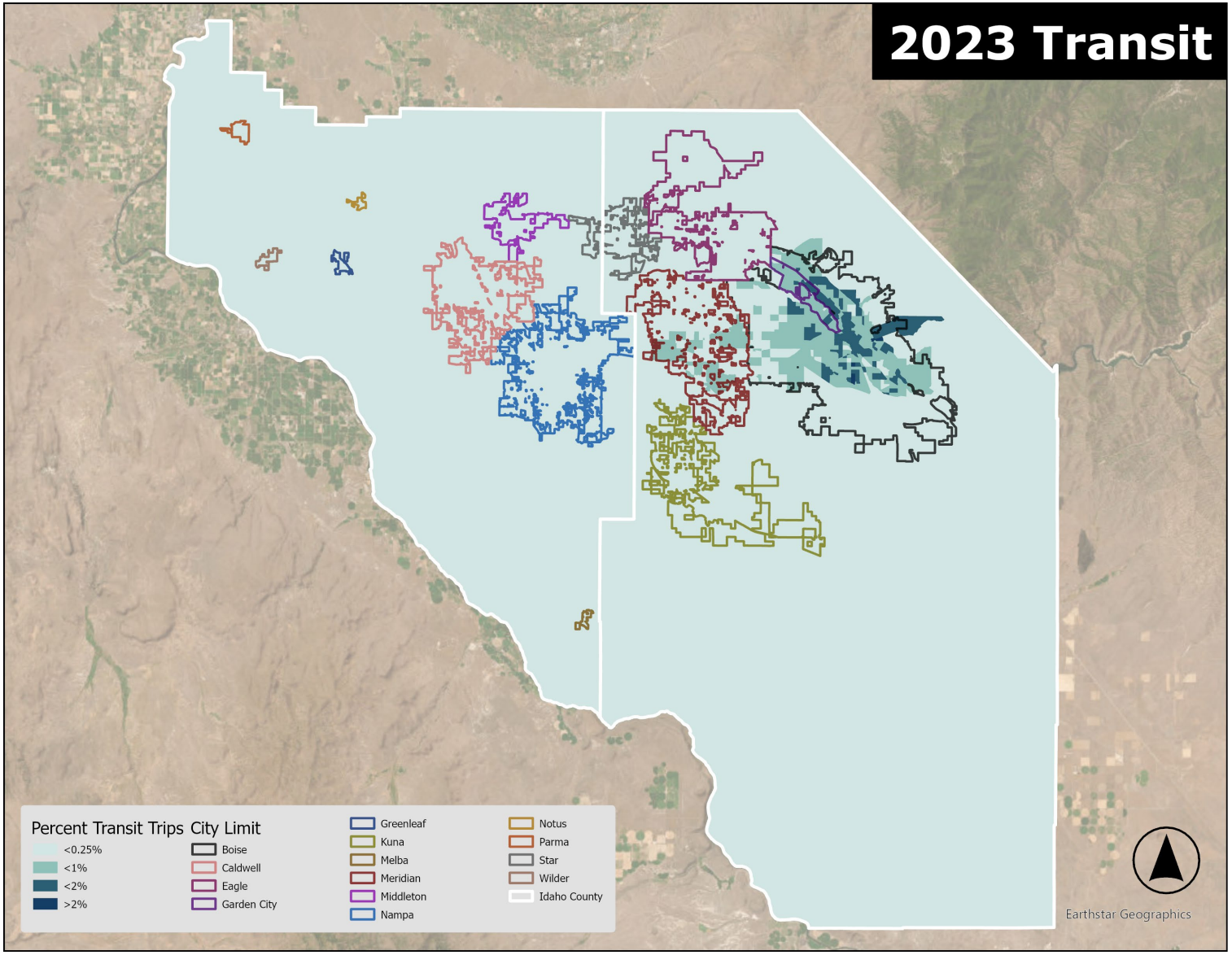
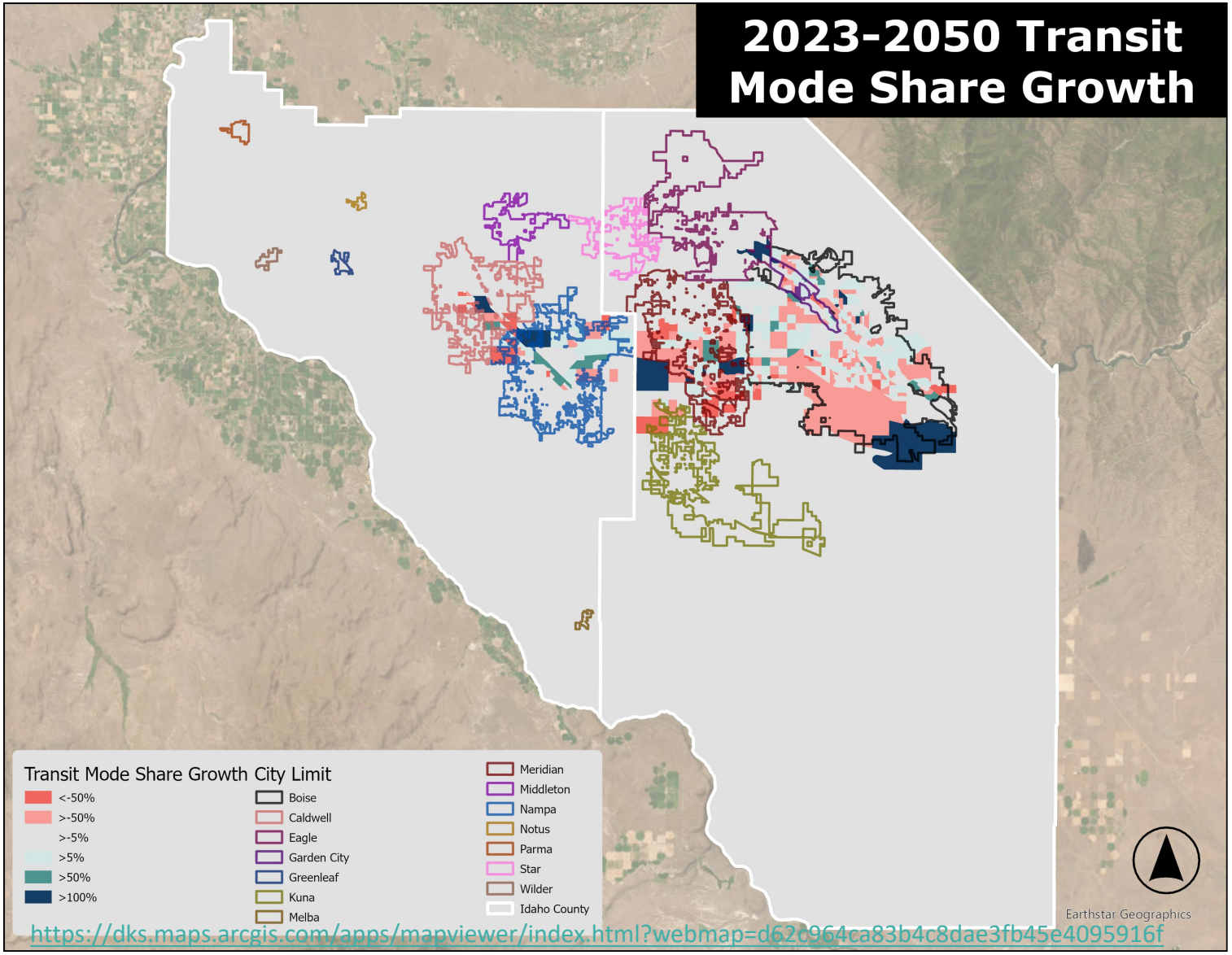


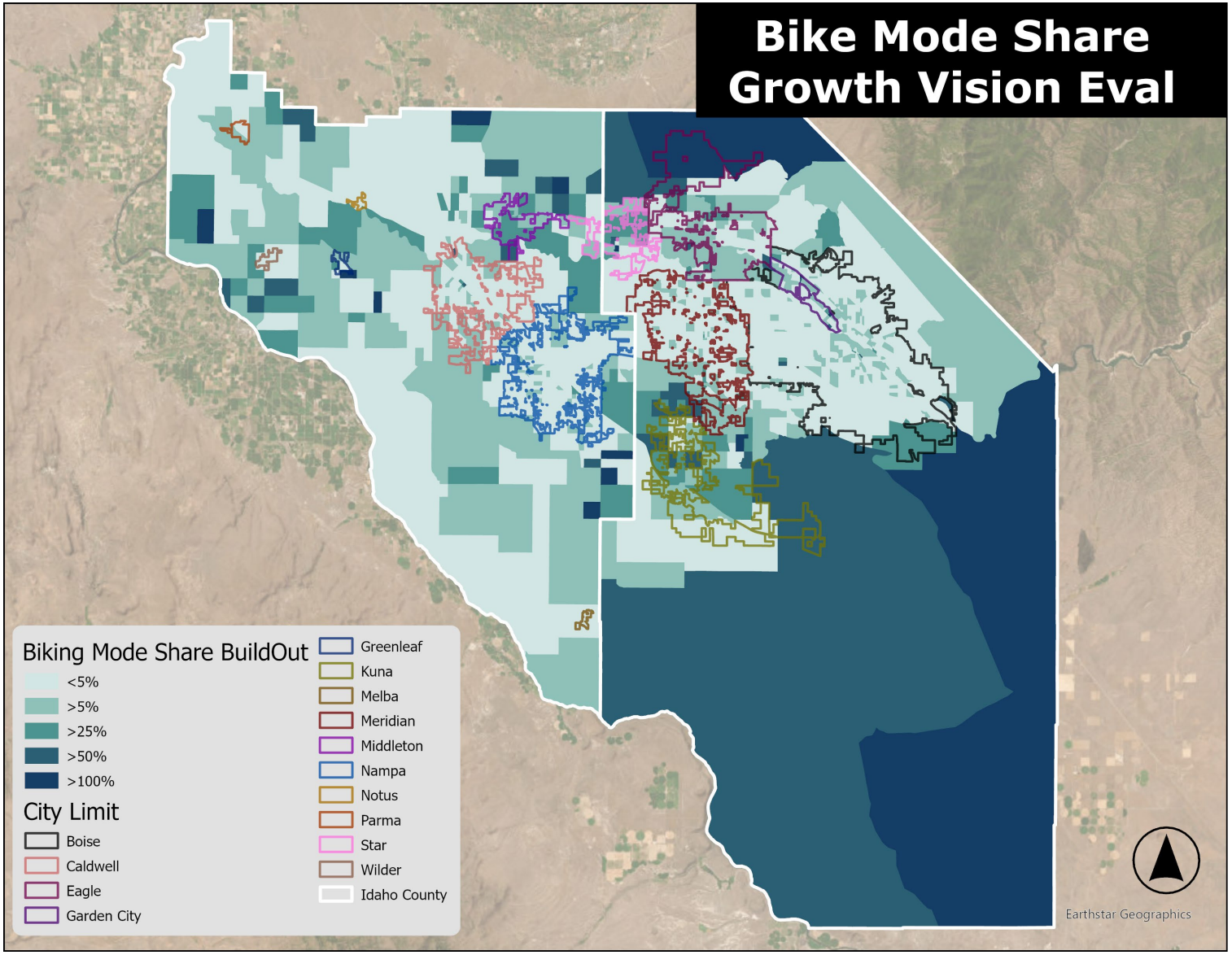
# MODE SPLIT – COMPASS ESTIMATE



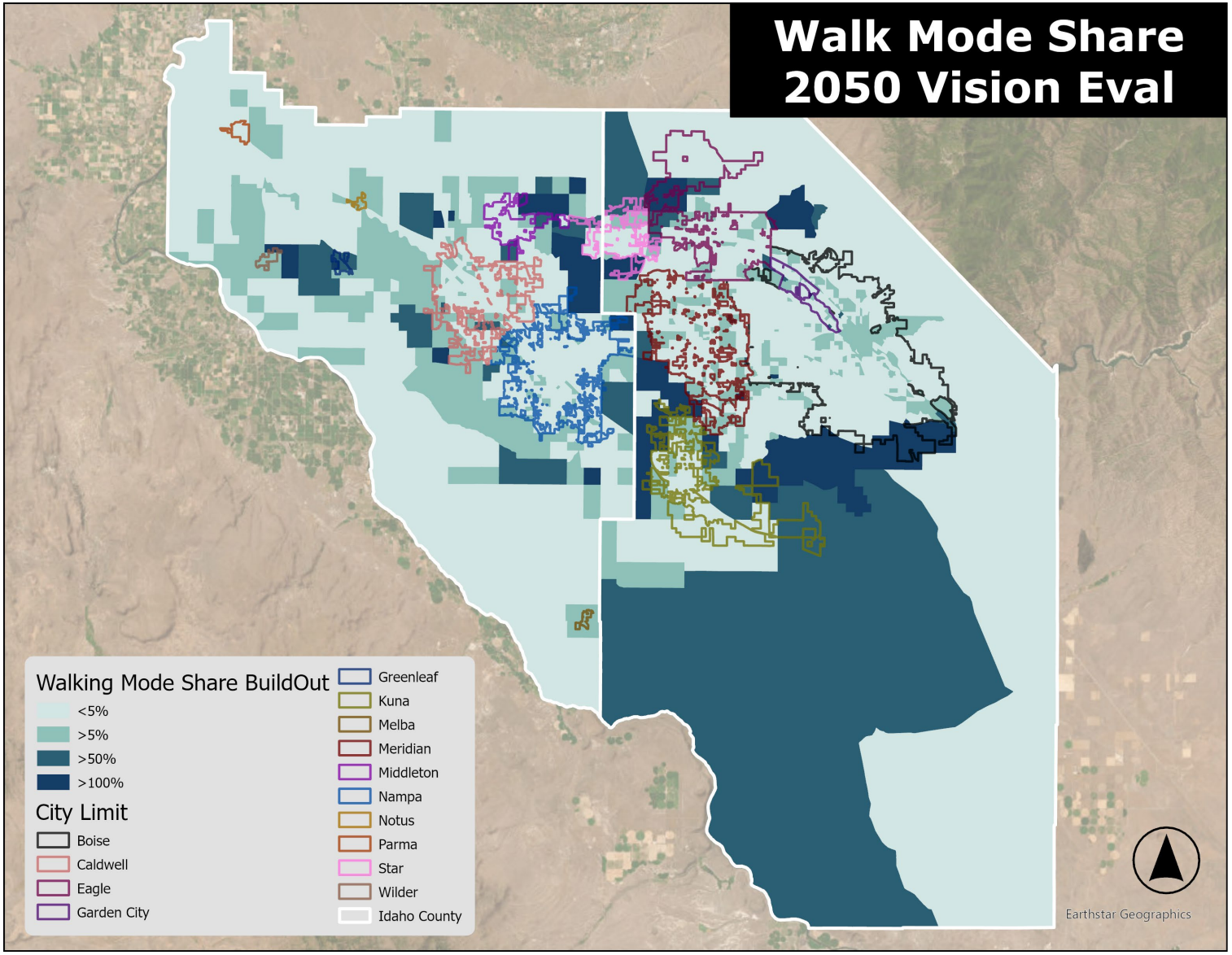

https://dks.maps.arcgis.com/apps/mapviewer/index.html?webmap=d62c964ca83b4c8dae3fb45e4095916f

# SCENARIO EVALUATION FINDINGS

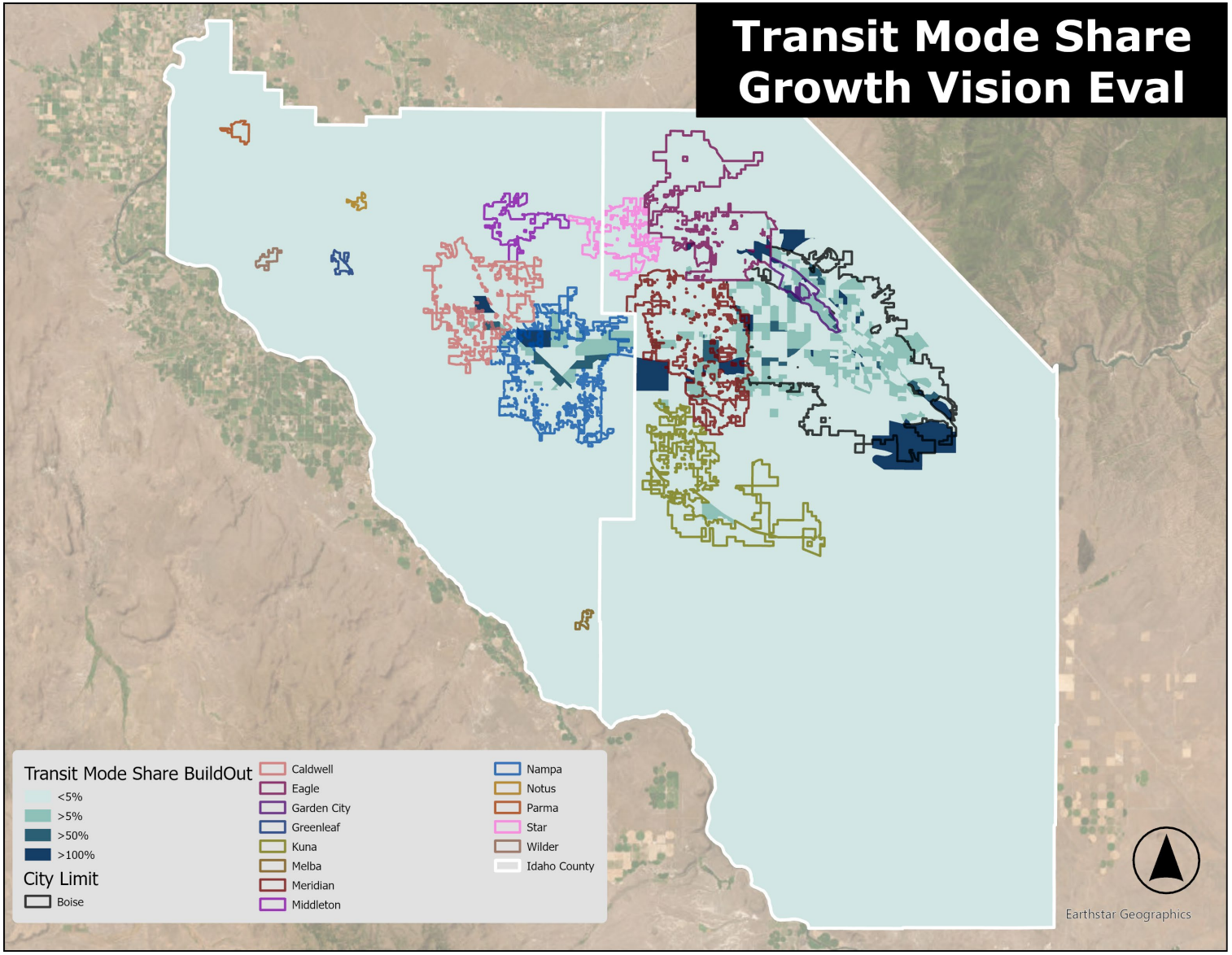
# BIKE/WALK SCENARIO 1 – BIKE MODE CHANGE



# BIKE/WALK SCENARIO 1 – WALK MODE CHANGE



# TRANSIT SCENARIO - MODE SPLIT CHANGE



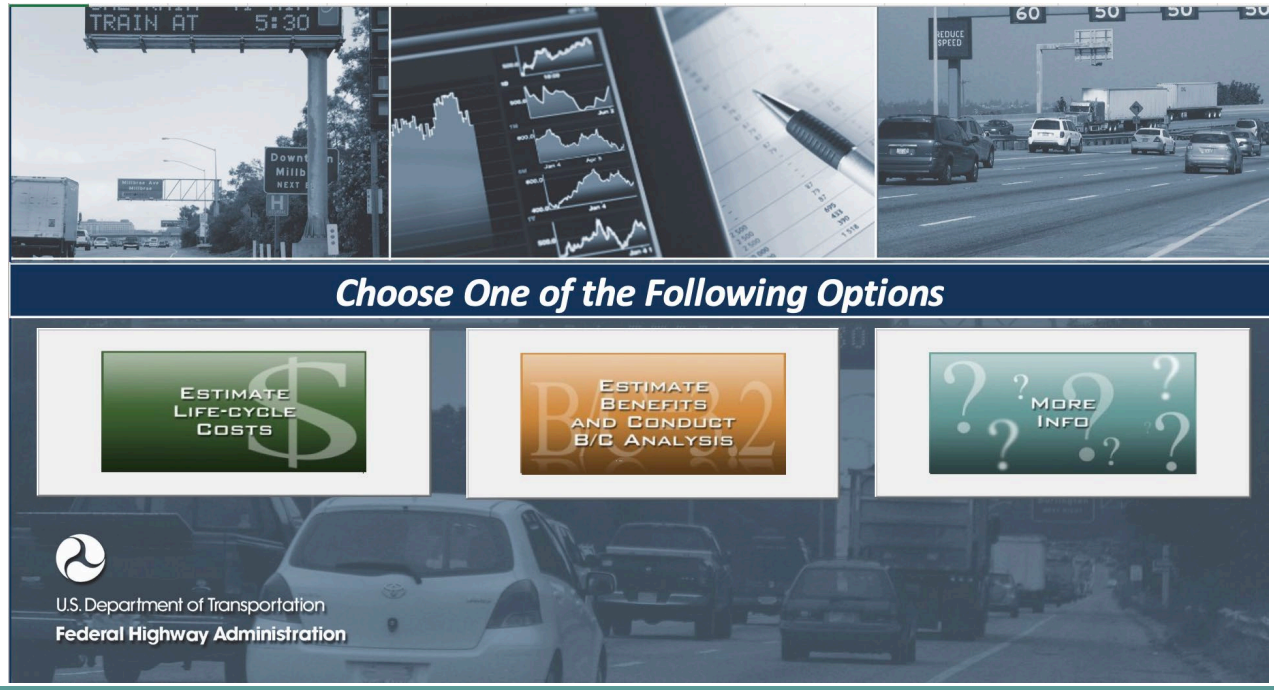
# SAMPLE EMISSIONS REDUCING TSMO PROJECTS

| Quantitative Measures | Emissions Reduction[1] |
|---|---|
| Ramp Metering | 10% |
| Traffic Signal Coordination | 6% |
| Weigh-in-Motion | 13% |
| **Qualitative Measures** | |
| Traffic Incident Management | |
| Transportation Management Center | |
| Traveler Information | |

[1] *Source: TOPS-BC and ITS Benefits-Cost Database*

# RESOURCES FOR CALCULATING TSMO BENEFITS

- Connecting TSMO and Environment - https://ops.fhwa.dot.gov/publications/fhwahop18089/index.htm
- ITS Cost-Benefits Database - https://www.itskrs.its.dot.gov/benefits
- TOPS-BC - https://ops.fhwa.dot.gov/plan4ops/topsbctool/index.htm




# PRIORITIZATION

# PERFORMANCE MEASURES & ANALYSIS TOOLS

- Decrease in heavy truck delay – TOPS BC
- Increase in public transit trips – VisonEval
- Increase in walk trips - VisionEval
- Increase in bike trips – VisionEval
- Reduction in heavy truck Vehicle Miles Traveled (VMT) - VisionEval
- Decrease in arterial roadway delay – TOPS BC
- Decrease in freeway delay – TOPS BC
- Reduced VMT per capita – VisionEval
- Reduced crash rate on congested and non-/or unreliable corridors – COMPASS Travel Time Reliability Data and CMFs
- Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians – ACHD Methodology
- Increase in trips diverted to 'low-speed' travel modes – VisionEval
- Decrease in vehicle travel cost - VisonEval
- Reduced Carbon Emissions – VisionEval and TOPS BC

# INITIAL SCORING METHOD

- Quantified
  - **0 = no benefit**
  - **1 = Some Benefit (up to 50% of the maximum benefit for the project geography)**
  - **2 = 50%-100% of the maximum benefit identified for the project geography**
- Qualitative/Quantitative – TSMO projects
  - **0 = no benefit**
  - **1 = benefit, but not quantified**
  - **2 = Quantified benefit**

# DRAFT PRIORITIZATION TOOL

| Goal | Objective | Performance Measure | Goal Weighting | Objective Weighting | Measure Weighting | Sample Project |
|---|---|---|---|---|---|---|
| ECONOMIC VITALITY | *Economic Vitality* | Decrease in heavy truck delay | 1 | 0.33 | 0.25 | |
| | | Increase in public transit trips | 1 | 0.33 | 0.25 | |
| | | Increase in walk trips | 1 | 0.33 | 0.25 | |
| | | Increase in bike trips | 1 | 0.33 | 0.25 | |
| | *Preservation and Reliability* | Decrease in heavy truck delay | 1 | 0.33 | 0.25 | |
| | | Reduction in heavy truck Vehicle Miles Traveled (VMT) | 1 | 0.33 | 0.25 | |
| | | Decrease in arterial roadway delay | 1 | 0.33 | 0.25 | |
| | | Decrease in freeway delay | 1 | 0.33 | 0.25 | |
| | *Growth Management* | Reduced VMT per capita | 1 | 0.33 | 1 | |
| SAFETY | *Safety, Security, and Resiliency* | Reduced crash rate on congested and non-/or unreliable corridors | 1 | 1 | 0.5 | |
| | | Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians | 1 | 1 | 0.5 | |
| CONVENIENCE | *Organized Transportation* | Increase in public transit trips | 1 | 0.5 | 0.25 | |
| | | Increase in walk trips | 1 | 0.5 | 0.25 | |
| | | Increase in bike trips | 1 | 0.5 | 0.25 | |
| | | Increase in trips diverted to 'low-speed' travel modes | 1 | 0.5 | 0.25 | |
| | *Organized Development* | Decrease in arterial roadway delay | 1 | 0.5 | 0.5 | |
| | | Reduced VMT per capita | 1 | 0.5 | 0.5 | |
| QUALITY OF LIFE | *Environment and Open Space* | Increase in walk trips | 1 | 0.5 | 0.5 | |
| | | Increase in bike trips | 1 | 0.5 | 0.5 | |
| | *Housing Affordability and Equity* | Decrease in vehicle travel cost | 1 | 0.5 | 1 | |
| ***CRP Goal*** | *Reduce Carbon Emissions* | Reduced VMT per capita | 1 | 1 | 0.5 | |
| | | Reduced Carbon Emissions | 1 | 1 | 0.5 | |

# DRAFT PRIOR

Example Project:
Freight freeway focused ITS Strategy between Nampa & Caldwell

| Goal | Objective | Performance Measure | Goal Weighting | Objective Weighting | Measure Weighting | Sample Project |
|---|---|---|---|---|---|---|
| ECONOMIC VITALITY | *Economic Vitality* | Decrease in heavy truck delay | 1 | 0.33 | 0.25 | 2 |
| | | Increase in public transit trips | 1 | 0.33 | 0.25 | 0 |
| | | Increase in walk trips | 1 | 0.33 | 0.25 | 0 |
| | | Increase in bike trips | 1 | 0.33 | 0.25 | 0 |
| | *Preservation and Reliability* | Decrease in heavy truck delay | 1 | 0.33 | 0.25 | 2 |
| | | Reduction in heavy truck Vehicle Miles Traveled (VMT) | 1 | 0.33 | 0.25 | 1 |
| | | Decrease in arterial roadway delay | 1 | 0.33 | 0.25 | 0 |
| | | Decrease in freeway delay | 1 | 0.33 | 0.25 | 2 |
| | *Growth Management* | Reduced VMT per capita | 1 | 0.33 | 1 | 0 |
| SAFETY | *Safety, Security, and Resiliency* | Reduced crash rate on congested and non-/or unreliable corridors | 1 | 1 | 0.5 | 1 |
| | | Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians | 1 | 1 | 0.5 | 0 |
| CONVENIENCE | *Organized Transportation* | Increase in public transit trips | 1 | 0.5 | 0.25 | 0 |
| | | Increase in walk trips | 1 | 0.5 | 0.25 | 0 |
| | | Increase in bike trips | 1 | 0.5 | 0.25 | 0 |
| | | Increase in trips diverted to 'low-speed' travel modes | 1 | 0.5 | 0.25 | 0 |
| | *Organized Development* | Decrease in arterial roadway delay | 1 | 0.5 | 0.5 | 0 |
| | | Reduced VMT per capita | 1 | 0.5 | 0.5 | 0 |
| QUALITY OF LIFE | *Environment and Open Space* | Increase in walk trips | 1 | 0.5 | 0.5 | 0 |
| | | Increase in bike trips | 1 | 0.5 | 0.5 | 0 |
| | *Housing Affordability and Equity* | Decrease in vehicle travel cost | 1 | 0.5 | 1 | 0 |
| ***CRP Goal*** | *Reduce Carbon Emissions* | Reduced VMT per capita | 1 | 1 | 0.5 | 1 |
| | | Reduced Carbon Emissions | 1 | 1 | 0.5 | 2 |
| | | | | | | ***2.58*** |

# DRAFT PRIOR

Example Project:
A sidewalk completion in south Boise

| Goal | Objective | Performance Measure | Goal Weighting | Objective Weighting | Measure Weighting | Sample Project |
|---|---|---|---|---|---|---|
| ECONOMIC VITALITY | *Economic Vitality* | Decrease in heavy truck delay | 1 | 0.33 | 0.25 | 0 |
| | | Increase in public transit trips | 1 | 0.33 | 0.25 | 1 |
| | | Increase in walk trips | 1 | 0.33 | 0.25 | 2 |
| | | Increase in bike trips | 1 | 0.33 | 0.25 | 0 |
| | *Preservation and Reliability* | Decrease in heavy truck delay | 1 | 0.33 | 0.25 | 0 |
| | | Reduction in heavy truck Vehicle Miles Traveled (VMT) | 1 | 0.33 | 0.25 | 0 |
| | | Decrease in arterial roadway delay | 1 | 0.33 | 0.25 | 0 |
| | | Decrease in freeway delay | 1 | 0.33 | 0.25 | 0 |
| | *Growth Management* | Reduced VMT per capita | 1 | 0.33 | 1 | 1 |
| SAFETY | *Safety, Security, and Resiliency* | Reduced crash rate on congested and non-/or unreliable corridors | 1 | 1 | 0.5 | 0 |
| | | Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians | 1 | 1 | 0.5 | 2 |
| CONVENIENCE | *Organized Transportation* | Increase in public transit trips | 1 | 0.5 | 0.25 | 1 |
| | | Increase in walk trips | 1 | 0.5 | 0.25 | 2 |
| | | Increase in bike trips | 1 | 0.5 | 0.25 | 0 |
| | | Increase in trips diverted to 'low-speed' travel modes | 1 | 0.5 | 0.25 | 1 |
| | *Organized Development* | Decrease in arterial roadway delay | 1 | 0.5 | 0.5 | 0 |
| | | Reduced VMT per capita | 1 | 0.5 | 0.5 | 1 |
| QUALITY OF LIFE | *Environment and Open Space* | Increase in walk trips | 1 | 0.5 | 0.5 | 2 |
| | | Increase in bike trips | 1 | 0.5 | 0.5 | 0 |
| | *Housing Affordability and Equity* | Decrease in vehicle travel cost | 1 | 0.5 | 1 | 1 |
| ***CRP Goal*** | *Reduce Carbon Emissions* | Reduced VMT per capita | 1 | 1 | 0.5 | 1 |
| | | Reduced Carbon Emissions | 1 | 1 | 0.5 | 1 |
| | | | | | | ***4.33*** |

# NEXT STEPS

# NEXT STEPS

- Finalize the VisionEval model validation through project testing
- Align TSMO benefits with corridors, particularly corridors unreliable corridors
- Calculate the unit benefit of active transportation projects (mileage vs %change in mode split) by geography
- Run the projects provided by stakeholders through the draft scoring to validate the methodology
- Documentation of the methodology and scenario evaluation approach, shared with the project stakeholder for input

# THANK YOU

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# NOTES

## COMPASS CRS

**STAKEHOLDER WORKSHOP #2**
JUNE 24, 2025 9:00-10:30 AM
COMPASS BOARD ROOM

### 1. MEETING ATTENDEES

Hunter Mulhall – COMPASS (Project Manager)
Aaron Berger – DKS Associates (Consultant Project Manager)
Colby GeDeros – DKS Associates
Jim Peters – Citizen Engineers
Austin Miller - COMPASS
Alex Yann – ACHD
Carl Anderson – City of Meridian
Marina Lundy – City of Kuna
Randi Walkins – City of Boise
Abby Peterson – ITD
Wendy Howell – ITD
Scott Luekenca – ITD
Shirley Wentland – ITD

### 2. ACTION ITEMS

| ACTION ITEM REVIEW | PARTY RESPONSIBLE |
|---|---|
| Obtain ITD's TSMO benefit numbers for more region specific estimates | Jim |

### 3. MEETING NOTES

**Slide 2 –** Aaron provided an overview of the agenda for the day

**Slide 4 –** Aaron provided an overview of the Carbon Reduction Program.

- Bill comes to an end at the end of 2026
- Rural areas compete statewide for rural funds
- Large urban and small urban projects compete amongst projects within the COMPASS footprint only. Approx $640,000 in this bucket.

**Slide 5** – Aaron provided an overview of the purpose of the carbon reduction strategy

**Slide 7/8** – Aaron reviewed the CRS key tasks and identified the current status of the project – evaluating projects and programs, and developing scoring criteria

**Slide 9** – Aaron provided an overview of the project schedule

**Slide 10** – Aaron provided an overview Project/Program scenarios that have been included. Transit & Walking/Biking

- Transit scenarios – based on the 2027 VRT transit network
- Are transit operations are fundable through the carbon reduction program?
    - Yes, but it is not a indefinite funding source
- Walking/biking improvements – looked at unfunded bike/walk COMPASS (a list of proposed connections from COMPASS partner agencies) for scenarios. 100% build it is the aspiration goal, providing fully complete low stress network.
    - Walking/biking facilities have to be shown to be a commuter benefit, not a recreational trail
        - We can include a "recreational/commuter" focused scoring criteria

**Slide 11** – TSMO project scenarios are based on existing TSMO related plans developed by ITD and COMPASS

**Slide 13** – Aaron provided an overview of the visioneval tool for determining emissions

- Co2 per capita is based on total population for this study area. Working on nationwide Co2 per capita that uses the same factors for comparison.

**Slide 14** – Aaron provided an overview of the results from visioneval for determining Daily VMT

- Average daily VMT is based per household

**Slide 15** – Aaron provided an overview of the COMPASS estimate for walking mode split

- COMPASS model isn't sensitive to network availability of facilities for alternative modes. More sensitive to land use

**Slide 16** – Aaron talked about the COMPASS estimate for walking mode split changes from 2023-2050

**Slide 17** – Aaron provided an overview of the COMPASS estimate for bike mode split in 2023

**Slide 18** – Aaron talked about the COMPASS estimate for biking mode split changes from 2023-2050

**Slide 19** – Aaron provided an overview of the COMPASS estimate for transit mode split in 2023

**Slide 20** – Aaron talked about the COMPASS estimate for transit mode split changes from 2023-2050

**Slide 22** – Aaron provided an overview of the 1st bike/walk scenario – bike mode changes

- Based on the 100% COMPASS walk/bike build out scenario
- Shows that the biggest growth potential tends to be in outlying suburban areas
- How does the tool factor in the difference between a lower percentage increase, but higher total increase versus a higher percentage increase to a lower number of tripds
    - Will be developed further in the scoring development.

    - The tool is showing the increase to the mode split towards bikes, not the increase to the total number of bike tripds. Could look at it to the target mode split percentage
- Tool is going to be looking at the 2050 land use map?
    - Yes

**Slide 23** - Aaron provided an overview of the 1st bike/walk scenario – walk mode changes

- This is the baseline compared to the scenario, not the baseline compared to current, correct?
    - Yes
    - Future "baseline" is year 2050 with identified projects
- Have you looked at actual bike/ped counts vs the model results?
    - Have not because bike/ped trips are difficult to model to specific networks
- How does changing mode split have a more direct affect on carbon reduction, compared to reducing the total number of trips
    - There will be several other performance measures included, including VMT
    - Scoring will be scaled appropriately to not disproportionately weigh certain changes (i.e. mode split) if the net benefit is less than other changes

**Slide 24** – Aaron provided an overview of the transit scenario – mode split change

- This scenario is based on the COMPASS 2050 unfunded network
- Model is not very sensite to transit changes (i.e. frequency)
    - Could be due to the results of prior surveys

**Slide 25** – Jim provided an overview of the scenarios ran for TSMO strategies

- Cannot run many TSMO strategies through the vision eval tool. Needed an alternative methodology
- Weigh-in-motion in TOPS-BC tool is 13%.
    - ITD saw over 20% benefit in model ran in Marsing. Also saw higher benefit in the signal coordination
    - ITD developed a comparative weigh-in-motion tool, as well as ramp metering
        - May look at adding a range of benefits to these strategies
    - **ACTION:** Obtain ITD's TSMO benefit numbers for more region specific estimates
- Traveler information use case that ITD looked at included travel information that directed trucks to a designated truck parking area when snow conditions blocked travel

**Slide 26** – Jim provided an overview of the resources used for calculating TSMO benefits

**Slide 28** – Aaron provided an overview of the performance measures and analysis tools

- Decrease in heavy truck delay (TOPS-BC) vs. reduction in heavy truck VMT (visioneval)
    - Might drop the vision eval measure
- Have data that this region is an important 1st mile/last mile area for trucks. Data shows that trucks need to stage/wait outside of the region due to inability to find truck parking facilities

**Slide 29** – Aaron provided an overview of the initial scoring method. A 0, 1, 2 scoring system.

- Ideally won't have a need for negative scoring, but could go down to -2 if needed

**Slide 30** – Aaron provided an overview of the draft prioritization tool.

- Default scoring system has equal weighting for each goal, objective, and measure
    - These will need to be adjusted for TMA and non-TMA scoring

**Slide 31 and 32** – Aaron provided an overview of two sample project scenarios.

- Highlighted the need to adjust the weighting in the scoring criteria for TMA vs. non-TMA scoring
- Clarified for ITD that scoring weighting would not vary by project type, only by TMA vs non-TMA location

**Slide 33** – Next Steps

# COMPASS CARBON REDUCTION STRATEGY (CRS)

## STAKEHOLDER WORKSHOP #3

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# AGENDA

## 1 / CRS UPDATE

- Work Completed to Date
- Goals for this meeting

## 2 / VISIONEVAL REFRESH

- Data Inputs
- What the model can (and cannot) do
- Scenarios Considered

## 3 / UPDATED EVALUATION RESULTS

- Key Findings
- Mode Split and VMT Trends

## 4 / PROJECT EVALUATION TOOL

- Link to VisionEval Data
- TSMO project evaluation approach

## 5 / PROJECT EVALUATION RESULTS

- Project Scoring Results Comparison
- Live project evaluation
- Scoring Discussion

## 6 / NEXT STEPS

1

# CRS UPDATE

# CRS PROJECT UPDATE

1. **Work completed since last Stakeholder Meeting**
    - VisionEval Refinement
    - Project Evaluation Tool
    - Project Evaluation Testing
2. **Goals for this worksession**
    - Review and adjust project scoring methodology

# CRS KEY TASKS

- Baseline Emissions
- Goals, Objectives, and Performance Measures
- Develop Evaluation Tool (VisionEval)
- Develop Projects/Programs Scenarios
- Develop Scoring Criteria
- Evaluate Projects/Programs
- Refine Scoring Criteria
- Develop Project Scoring Dashboard

← We are here

- Carbon Reduction Strategy Documentation

2

# VISIONEVAL REFRESH

# DATA INPUTS

- Geographies (azone = city, bzone = TAZ/Census Tract or Block Group)
- Land Use
- Household demographics
- Network Design (non-auto mode friendliness) – Sourced off the EPA Smart Location Database (SLD) for baseline conditions, the "Design" D of the 4D's (Density, Diversity, Design, and Destination Accessibility). Represents street network characteristics such as intersection density, block length, and pedestrian-oriented design features.
- Fleet characteristics

# WHAT THE MODEL CAN DO

- Estimate changes in
  - **VMT**
  - **Emissions**
  - **trips by mode**
- These changes can be captured by modifying:
  - **Network Design inputs reflecting active transportation projects**
  - **Updated transit coverage to reflect new or enhanced transit lines**

# WHAT THE MODEL CANNOT DO

- Generate network (roadway) level results
- Capture full delay/congestion improvement benefits of capacity enhancement projects
- Directly reflect the sensitivity of a project that provides a critical regional connection (there are methods to workaround this issue)

# SCENARIOS CONSIDERED

- Built out walk network
- Built out bike network
- Build out transit network
- Combined built out bike/walk/transit network

**Note that we only evaluated one future land use condition, the 2050 COMPASS land use projections**

  - The tool could be used to evaluate VMT, emissions, and travel mode changes based on a TOD scenario, or other land use change exercises

# UPDATED EVALUATION RESULTS

# KEY FINDINGS

https://arcg.is/1Hz0Hy1

- Walk trip increase potential highest in Caldwell/Nampa areas
- Bike trip increase potential highest in the TMA
- Transit trip increase potential mainly reflects higher population areas with demographics that support transit mode choices
- VMT reduction opportunities reflect anticipated growth areas and walking/transit opportunities

# PROJECT EVALUATION TOOL

# PROJECT EVALUATION TOOL

- Link to VisionEval Data
  - **Incorporates VisionEval Scenario results, identifying the maximum performance potential by geography**
  - **Relates extent of proposed improvement to extent of improvements needed to achieve the maximum benefit**
- TSMO project evaluation approach
  - **TSMO projects were evaluated qualitatively, establishing scoring thresholds for different strategies**
  - **Need to upgrade functions in the tool to allow for projects with multiple strategies**

# 5

# PROJECT EVALUATION RESULTS

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| Goal | Objective | Performance Measure | Goal Weighting | Objective Weighting | Measure Weighting | 11th Avenue Sidepath | Garrity Boulevard Sidepath | Indian Creek Pathway Repair | Indian Creek Pathway Rebuild | Fairview Avenue Bridge | Swan Falls Road RRX Elimination | DMS Event Management | DMS Message Boards for Major Routes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECONOMIC VITALITY | *Economic Vitality* | Decrease in heavy truck delay | 1 | 0.33 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Increase in public transit trips | 1 | 0.33 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| | | Increase in walk trips | 1 | 0.33 | 0.25 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| | | Increase in bike trips | 1 | 0.33 | 0.25 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| | *Preservation and Reliability* | Decrease in heavy truck delay | 1 | 0.33 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | Reduction in heavy truck Vehicle Miles Traveled (VMT) | 1 | 0.33 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | | Decrease in arterial roadway delay | 1 | 0.33 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| | | Decrease in freeway delay | 1 | 0.33 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| | *Growth Management* | Reduced VMT per capita | 1 | 0.33 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 0 | 0 |
| SAFETY | *Safety, Security, and Resiliency* | Reduced crash rate on congested and non-/or unreliable corridors | 1 | 1 | 0.5 | 1 | 2 | 0 | 0 | 2 | 1 | 2 | 2 |
| | | Improved Level of Traffic Stress (LTS) for bicycles and/or pedestrians | 1 | 1 | 0.5 | 2 | 2 | 0 | 0 | 1 | 2 | 0 | 0 |
| CONVENIENCE | *Organized Transportation* | Increase in public transit trips | 1 | 0.5 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| | | Increase in walk trips | 1 | 0.5 | 0.25 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| | | Increase in bike trips | 1 | 0.5 | 0.25 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| | | Increase in trips diverted to 'low-speed' travel modes | 1 | 0.5 | 0.25 | 0 | 0 | 1 | 1 | 2 | 2 | 0 | 0 |
| | *Organized Development* | Decrease in arterial roadway delay | 1 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| | | Reduced VMT per capita | 1 | 0.5 | 0.5 | 1 | 1 | 2 | 2 | 1 | 1 | 0 | 0 |
| QUALITY OF LIFE | *Environment and Open Space* | Increase in walk trips | 1 | 0.5 | 0.5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| | | Increase in bike trips | 1 | 0.5 | 0.5 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| | *Housing Affordability and Equity* | Decrease in vehicle travel cost | 1 | 0.5 | 1 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 |
| ***CRP Goal*** | *Reduce Carbon Emissions* | Reduced VMT per capita | 1 | 1 | 0.5 | 1 | 1 | 2 | 2 | 1 | 1 | 0 | 0 |
| | | Reduced Carbon Emissions | 1 | 1 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | | | | | | ***2.58*** | ***3.58*** | ***2.29*** | ***2.75*** | ***4.75*** | ***4.25*** | ***2.71*** | ***2.17*** |

# NEXT STEPS

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- Documentation
  - Draft CRS Report to stakeholder on 10/1, comments due by 10/10
  - Submit to RTAC on 10/15 for 10/22 meeting
  - Project Evaluation Dashboard live by 10/22 (COMPASS to review on 10/10)

# THANK YOU

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# AGENDA / NOTES

## COMPASS CRS

**STAKEHOLDER WORKSHOP #3**
AUGUST 22, 2025 9:00-10:30 AM
COMPASS BOARD ROOM

ATTENDEES:
Hunter Mulhall – COMPASS (Project Manager)
Aaron Berger – DKS Associates (Consultant Project Manager)
Colby GeDeros – DKS Associates
Jim Peters – Citizen Engineers
Austin Miller – COMPASS
Olivia Vielstich McKinnon – COMPASS
Alexa Reitman - COMPASS
Alex Yann – ACHD
Carl Anderson – City of Meridian
Marina Lundy – City of Kuna
Randi Walkins – City of Boise
Abby Peterson – ITD
Stephen Hunt – VRT
Stacey Dupuis – Ada County Development Services

| ACTION ITEM REVIEW | PARTY RESPONSIBLE |
|---|---|
| Double check that the county provided data doesn't create bias in the model for bike/ped | DKS |
| Add available layers to the GIS for assumptions and inputs | DKS |
| Incorporate VMT change per capita into GIS | DKS |
| Add census tracts and TAZ layers to the GIS database | DKS |
| Send sample projects for testing by 8/29 | All |
| Review and provide input on the project scoring and the measures weighting | All |

## 1. AGENDA ITEMS — 80 MINS

- CRS Update
  - Work Completed to date
    - VisionEval Refinement
    - Project Evaluation Tool
    - Project Evaluation Testing
  - Goals for this worksession
    - Review and adjust project scoring methodology
- VisionEval Refresh
  - Data Inputs
    - Geographies (azone = city, bzone = TAZ/Census Tract or Block Group)
    - Land Use
    - Household demographics
    - Network Design (non-auto mode friendliness) – Sourced off the EPA Smart Location Database (SLD) for baseline conditions, the "Design" D of the 4D's (Density, Diversity, Design, and Destination Accessibility). Represents street network characteristics such as intersection density, block length, and pedestrian-oriented design features.
    - Fleet characteristics –

      Fleet conversions have a relatively big impact on emission results compared to trip reductions

      Fleet conversions are not captured in the tool, but it's a viable part of CRS funding
  - What the model can do
    - Estimate changes in VMT, Emissions, and trips by mode based on changes to network elements representing non-auto modes of travel and transit coverage changes
      - Model can capture transit and active transportation trips, and the resulting changes in vehicle trips
  - What the model cannot do
    - Provide network (roadway) level results, or capture the benefits of capacity enhancement projects
      - Estimates can be provided down to the "bzone" level, but not down to the specific street or location
    - Capacity enhancement projects
      - Cannot capture full delay/congestion improvement benefits of a capacity enhancement projects
      - Tool can be used to look at the active transportation elements of a capacity enhancement project, but any results related to VMT and emissions is not going to be applicable. The trip estimates can still be useful.

        - Abby: Can projects separated under different key numbers be analyzed for VMT reductions with the tool?
            - Aaron: We could use a project under an individual key number to estimate VMT, but it would need to be considered with the VMT changes associated with the other key numbers to have an understanding of the overall net changes with all key numbers associated.
    - Directly reflect the sensitivity of a project that provides a critical regional connection
        - There are methods to work around this issue
- Scenarios considered
    - Built out walk network
    - Built out bike network
        - We used both the COMPASS model and the VisionEval model in comparison because VisionEval tended to be more optimistic than the COMPASS model with effects on mode change
    - Build out transit network
    - Combined
- We only evaluated one future land use condition, the 2050 COMPASS land use projections
    - The tool could be used to evaluate VMT, emissions, and travel mode changes based on a TOD scenario, or other land use change exercises

- Updated Evaluation Results
    - https://arcg.is/1Hz0Hy1
    - Key Findings
        - Walk trip potential highest in Caldwell/Nampa areas
        - Bike trip potential highest in the TMA
            - Randi: Why is it so heavily concentrated to Ada Co?
                - Aaron: Could be influenced by demographics, and network
            - Abby: Are there seasonality considerations?
                - Aaron: No
            - Stephen: Are we sure were not missing something in Canyon Co?
                - **ACTION:** Double check that the county provided data doesn't create bias?
            - Randi: how are there such drastic changes from two adjacent areas in a similar part of the region?
                - Aaron: Likely being influenced by the fluctuation in demographics, and how quickly that can change from one neighborhood to the next
            - Carl: can we include layers for the various inputs and assumptions (i.e. network, demographics?)
                - **ACTION:** Add available layers to the GIS for assumptions and inputs
            - Abby: does this consider the number of traffic trips through neighboring counties (Emmet through SH16)?

        - Aaron: we don't have any external network consdierations since this is demographic based in Ada/Canyon Co only
    - Transit – potential mainly reflects higher population areas with demographics that support transit mode choices
        - Stephen: Future scenario is funded?
            - Aaron: Future baseline is funded scenario. Future scenario is unfunded scenario, with some additional lines to reach other population areas to check to see there is potential. This is why there might be some changes outside of the unfunded maps.
    - VMT – reflects anticipated growth areas and walking/transit opportunities
        - VMT change potential is shown as total decrease per day in the areas shown
        - Stephen: can we also look at VMT change per capita? Will that better reflect potential in areas that are built out today?
            - Hunter Yes
            - **ACTION:** Incorporate VMT change per capita
    - Abby: Can you add layers for census tracts and/or TAZs?
        - Aaron: Yes
        - **ACTION:** add census tracts and TAZ layers to the GIS database
- Project Evaluation Tool
    - Incorporates VisionEval Scenario results, identifying the maximum performance potential by geography
    - Relates extent of proposed improvement to extent of improvements needed to achieve the maximum benefit
    - TSMO projects were evaluated qualitatively, establishing scoring thresholds for different strategies – Will include functions in the tool to allow for projects with multiple strategies
- Project Evaluation Results
    - Tested projects provided by stakeholder plus additional project identified by COMPASS
    - Scoring results summarized on slide
    - Input three to four projects for scores
    - Discuss goal weighting proposed approach
        - TMA vs non-TMA
        - TSMO vs active transportation
    - **ACTION:** Send sample projects for testing. Due 8/29
        - Abby: Look at the Nampa-Caldwell ITS signs project
    - **ACTION:** Review and provide input on the project scoring and the measures weighting

## 2. NEXT STEPS — 5 MINS

- Upcoming schedule
    - Documentation

    - Draft CRS Report to stakeholder on 10/1, comments due by 10/10
    - Submit to RTAC on 10/15 for 10/22 meeting
- Project Evaluation Dashboard live by 10/22 (COMPASS to review on 10/10)