COMMUNITIES IN MOTION 2050

Regional Long-Range Transportation Plan

Ada and Canyon Counties, Idaho

December 19, 2022

COMPASS
COMMUNITY PLANNING ASSOCIATION
of Southwest Idaho

RESOLUTION NO. 06-2023

FOR THE PURPOSE OF APPROVING *COMMUNITIES IN MOTION 2050* AS THE REGIONAL LONG-RANGE TRANSPORTATION PLAN FOR ADA AND CANYON COUNTIES AND THE ASSOCIATED AIR QUALITY CONFORMITY DEMONSTRATION FOR NORTHERN ADA COUNTY

WHEREAS, the Community Planning Association of Southwest Idaho has been designated by the Governor of Idaho as the metropolitan planning organization responsible for transportation planning in Ada and Canyon Counties;

WHEREAS, the Infrastructure Investment and Jobs Act (IIJA), Title 23 United States Code Section 134, and Title 49 United States Code Section 5303 require metropolitan planning organizations to prepare regional long-range transportation plans covering a period of no less than 20 years;

WHEREAS, the IIJA, Title 23 United States Code Section 134, and Title 49 United States Code Section 5303 require that regional long-range transportation plans be financially constrained, a condition that has been demonstrated in *Communities in Motion 2050*;

WHEREAS, the 1990 Clean Air Act Amendments requires all transportation plans and programs in nonattainment or maintenance areas demonstrate conformity to applicable state implementation plans for air quality improvement;

WHEREAS, the Community Planning Association of Southwest Idaho has performed an air quality conformity demonstration for Northern Ada County and has concluded the recommended plan does comply with applicable state implementation plans;

WHEREAS, a 30-day public comment period was held September 16 – October 16, 2022, for *Communities in Motion 2050,* meeting the requirements of the IIJA and the Community Planning Association of Southwest Idaho's Participation Policy. All comments were shared with the COMPASS Board of Directors for consideration;

WHEREAS, an additional 15-day public comment period was held October 25 – November 8, 2022, to add three funded projects to *Communities in Motion 2050,* meeting the requirements of the IIJA and the Community Planning Association of Southwest Idaho's Participation Plan. All comments were shared with the COMPASS Board of Directors for consideration;

WHEREAS, the Community Planning Association of Southwest Idaho developed *Communities in Motion 2050* in compliance with all applicable state and federal regulations; and

NOW, THEREFORE, BE IT RESOLVED, that the Community Planning Association of Southwest Idaho Board of Directors approves the finding that *Communities in Motion 2050* conforms to relevant provisions of the state implementation plans for Idaho and hereby adopts *Communities*

in Motion 2050, dated December 19, 2022, as the regional long-range transportation plan for Ada and Canyon Counties; and

BE IT FURTHER RESOLVED, that the Community Planning Association of Southwest Idaho Board of Directors authorizes the submittal of this plan to the appropriate local, state, and federal agencies for their consideration.

ADOPTED this 19th day of December 2022.

By: _____
Joe Stear, Chair
Community Planning Association
of Southwest Idaho Board of Directors

ATTEST:

By: _____
Matthew J. Stoll, Executive Director
Community Planning Association
of Southwest Idaho

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Acknowledgements

Developing a regional long-range transportation plan such as *Communities in Motion 2050* is a complex endeavor involving individuals with expertise in a wide variety of subjects, including transportation, finance, demographics, environmental issues, land use, and much more.

The COMPASS Board of Directors; COMPASS and member agency staff; private consultants; and committee, workgroup, and discussion group members put in countless hours to develop this plan.

It could not have come to fruition without the input and expertise of the following:

LEADERSHIP

- COMPASS Board of Directors
- Executive Director Matt Stoll
- Project Manager Liisa Itkonen

WORKGROUPS AND COMMITTEES

- Active Transportation Workgroup
- Demographic Advisory Workgroup
- Environmental Review Workgroup
- Freight Advisory Workgroup
- Interagency Consultation Committee
- Public Participation Workgroup
- Public Transportation Workgroup
- Rails with Trails Workgroup
- Regional Operations Workgroup
- Regional Transportation Advisory Committee

DISCUSSION GROUPS

- Growth and Economic Vitality
- Safety
- Travel and Tourism

CONSULTANTS

- AECOM
- Fehr & Peers
- Neighborhood Allstars and Dawg Haus, Inc.
- TischlerBise, Inc.
- Walker Consultants

In addition, this plan could not have come to fruition without the input and assistance of Treasure Valley residents who provided feedback on the draft plan and participated in three COMPASS surveys that laid the groundwork for the plan and helped shape the vision for the future of the Treasure Valley.

Thank you for helping to make *Communities in Motion 205*0, and Ada and Canyon Counties, the best they can be.

Communities in Motion 2050

Technical Documents

Communities in Motion 2050 is an online plan; as such, the technical documents (what would constitute "chapters" in a printed document) are each freestanding documents and not written to be read in consecutive order.

All technical documents have been combined here to allow for easy printing of the entire plan if desired. With the exception of the Introduction, all other technical documents are combined below in alphabetical order.

Introduction

Communities in Motion is the plan for Ada and Canyon County's future transportation system. *Communities in Motion 2050* (CIM 2050) lays out a 28-year two-county vision for growth and transportation. It sets regional goals,[1] identifies needed investments for all transportation modes, and includes strategies for managing congestion and achieving identified goals.

CIM 2050 is constrained by an anticipated budget. It lists projects that are funded[2] in the short-term—through Fiscal Year 2026—and in the long-term, to year 2050. In addition, the plan includes needed, but unfunded, roadway, public transportation, and regional pathway projects, as well as unfunded studies. The highest priority projects for all modes will be the focus of future funding efforts. For roadway projects, these include unfunded, as well as long-term funded, projects.

Community Planning Association of Southwest Idaho

The Community Planning Association of Southwest Idaho (COMPASS)[3] is an association of local governments working together to plan for the future of Ada and Canyon Counties. COMPASS functions as the metropolitan planning organization (MPO) for two urbanized areas in southwest Idaho: the Boise Urbanized Area in Ada County and the Nampa Urbanized Area in Canyon County. COMPASS has served as the MPO for the Boise Urbanized Area since 1977 and the Nampa Urbanized Area since early 2003. The COMPASS planning area consists of all of Ada and Canyon Counties (Figure 1).

COMPASS members[4] consider factors that affect the quality of life for area residents when making decisions about transportation and setting priorities for spending federal transportation dollars over the next 20+ years. The COMPASS Board of Directors[5] adopts the regional long-range transportation plan, *Communities in Motion,* to reflect those decisions and priorities.

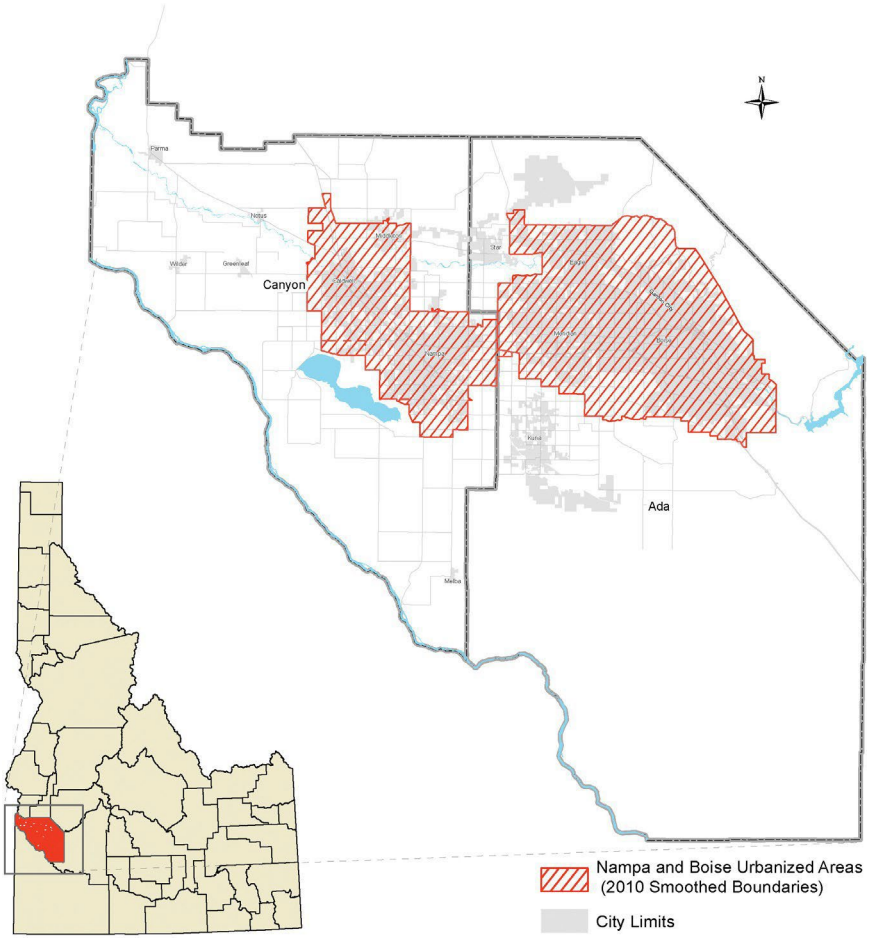

Figure 1. The COMPASS planning area

Regional Long-Range Transportation Plan: *Communities in Motion 2050*

A long-range transportation plan such as CIM 2050 is a plan for a multimodal transportation system, addressing future auto, freight, bicycle, pedestrian, and public transportation needs. The federal government requires a plan be in place before providing funds for transportation projects. The plan is updated (or a new plan written) every four years and must look at least 20 years into the future to address future needs of the region based on projected growth, land use, demographics, and other factors. Public participation is an important part of the planning process and is discussed in more detail in Public Participation.[6]

CIM 2050 is an update to CIM 2040 2.0,[7] which was adopted in 2018. It extends the planning horizon to the year 2050 and includes a new CIM 2050 Vision for growth,[8] four regional goal areas,[9] and associated objectives and performance measures.[10] The four goal areas are:

- safety
- economic vitality
- convenience
- quality of life

To implement the goals, COMPASS will follow nine regional policy statements,[11] including a funding policy[12] and a Complete Network Policy,[13] to ensure the transportation system serves the needs of all users. The process used to prioritize transportation projects for funding was grounded in the goals, funding policy, Complete Network Policy, and CIM 2050 Vision.

While the financial forecast and funding plan[14] have been updated for CIM 2050, the ultimate conclusion, that funding is inadequate to fully address future transportation needs, remains unchanged from previous plans.

Federal Requirements

CIM 2050 meets all federal requirements for a regional long-range transportation plan. Guidelines for transportation planning are included in past and current federal transportation laws, including 2021's Infrastructure Investment and Jobs Act (IIJA),[15] which states that metropolitan planning[16] shall consider projects and strategies that will:

1. support economic vitality, especially by enabling global competitiveness, productivity, and efficiency;
2. increase the safety of the transportation system for motorized and non-motorized users;
3. increase the security of the transportation system for motorized and non-motorized users;
4. increase the accessibility and mobility of people and freight;
5. protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns;

7

6. enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
7. promote efficient system management and operation;
8. emphasize the preservation of the existing transportation system;
9. improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
10. enhance travel and tourism.

IIJA provides additional funding, which is reflected in the CIM 2050 financial forecast, and compels MPOs to include the integration of housing, transportation, and economic development strategies in transportation planning.

Conclusion

This regional plan meets all requirements for a long-range transportation plan. While funding has increased as compared to previous long-range transportation plans, the increase in funding has not kept pace with the increase in needs. The bottom line remains that funding is insufficient to fully meet the future needs for maintenance, congestion management, and growth[17] as identified in CIM 2050. COMPASS will continue to seek additional funding[18] to address this discrepancy.

The funding that *is* available is slated to be invested[19] in current maintenance needs, short-term and long-term capital projects, and projects addressing safety and operational needs, studies, and more to serve motorists, public transportation users, cyclists, pedestrians, and freight.

ENDNOTES

1 CIM 2050 goals, https://cim2050.compassidaho.org/cim-2050-goals

2 CIM 2050 funded projects, https://cim2050.compassidaho.org/wp-content/uploads/CIM2050Funded_All.pdf

3 COMPASS, www.compassidaho.org

4 COMPASS members, www.compassidaho.org/about.htm#members

5 COMPASS Board of Directors, www.compassidaho.org/people/boardmemberslist.htm

6 Public Participation, CIM 2050, https://cim2050.compassidaho.org/PublicParticipation.pdf

7 CIM 2040 2.0, compassidaho.org/CIM2040-2.0

8 CIM 2050 Vision for growth, https://cim2050.compassidaho.org/regional-vision/cim-2050-vision

9 CIM 2050 goals, https://cim2050.compassidaho.org/cim-2050-goals

10 CIM 2050 performance measures, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Performance_Measures_Final.pdf

11 Implementation, CIM 2050, https://cim2050.compassidaho.org/Implement.pdf

12 CIM 2050 funding policy, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM2050FundingPolicyGoals.pdf

13 Complete Network Policy, www.compassidaho.org/documents/people/policies/CompleteNetworkPolicy_Final_Dec2021_2022-01.pdf

14 Financial Plan, CIM 2050, https://cim2050.compassidaho.org/FinancialPlan.pdf

15 Infrastructure Investment and Jobs Act of 2021, https://www.fhwa.dot.gov/bipartisan-infrastructure-law/

16 Federal regulations outlining planning requirements: “Scope of the metropolitan transportation planning process.” Code of Federal Regulations. Title 23, 450.306. www.ecfr.gov/current/title-23/part-450#p-450.306(a), and “Development and content of the metropolitan transportation plan.” Code of Federal Regulations. https://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title23-section134&num=0&edition=prelim

17 CIM 2050 unfunded future needs, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/PriorityProjectListsCIM2050.pdf

18 See note 14.

19 See note 2.

Active Transportation

Active transportation—mainly biking and walking—relies primarily on human energy. The goal for active transportation planning in the Treasure Valley is to provide safe, comfortable, and convenient infrastructure to allow residents access to places that are important to them without getting in a car. In addition to providing access, active transportation investments also afford environmental,[1] health,[2] economic,[3] and quality of life benefits.

The Complete Network Policy[4] discusses bicycle and pedestrian modes, including safety and other considerations, identified pathways, and primary and secondary bicycle corridors. The policy also addresses the relationships and sometimes conflicting needs among different travel modes. For example, sidewalks and bicycle facilities along transit routes can provide safe and comfortable first- and last-mile connections to transit stops or stations, but can also be a source of conflict among modes.[5] The facilities should be designed to reduce conflicts with other modes to ensure the safety of all users, especially those who are most vulnerable (e.g., pedestrians, bicyclists).

ACTIVE TRANSPORTATION AND CIM 2050 GOAL

CIM 2050 was developed to address four goal areas,[6] each with specific objectives. Appropriate planning for active transportation in the region is key to realizing the individual objectives to support each of the goal areas.

Goal Area	Active Transportation-Related Objectives
 **Safety** is a vital consideration for active transportation. It is imperative to provide safe accommodations for bicyclists and pedestrians, the most vulnerable network users.	• Provide a **safe** transportation system for all users, especially the network's most vulnerable users.
 **Economic Vitality** is complementary to active transportation. Studies show a variety of economic benefits are positively correlated with an increase in active transportation.	• Provide for a **reliable** transportation system to ensure all users can count on consistent travel times for all modes. • Promote transportation improvements and scenic byways that support the Treasure Valley as a regional hub for **travel and tourism**.

Goal Area	Active Transportation-Related Objectives
 **Convenience** is an important aspect of active transportation and can be improved if human-powered transport is made easily accessible to all.	• Reduce **congestion** with cost-effective solutions to improve **efficiency** of the transportation system. • Develop a transportation system with high **connectivity** that preserves capacity of the regional system and encourages walk and bike trips.
 **Quality of Life** is closely linked to active transportation, as it bolsters mental and physical health, serves as an environmentally considerate means of transportation, and provides options for those who can't or don't drive.	• Provide **equitable** access to safe, affordable, and reliable transportation options. • Develop and implement a regional vision and transportation system that enhance **public health**. • Develop and implement a regional vision and transportation system that protect and preserve the natural **environment**.

TRACKING SUPPLY AND DEMAND

To support these goals, COMPASS collects and analyzes multiple types of bicycle and pedestrian data and shares those data with agencies, organizations, and developers to help plan projects that increase the number and quality of active transportation opportunities in the Treasure Valley.

Supply

Bike Walk Compass

The Bike Walk Compass[7] is an interactive map that portrays existing and planned regional bicycle and pedestrian facilities. The planned facilities reflect bicycle/pedestrian plans from agencies across the Treasure Valley. The interactive map is updated frequently to reflect changes to on-the-ground infrastructure and local plans. COMPASS employs information from the Bike Walk Compass in its development review process,[8] which provides feedback to decision makers regarding how proposed developments align with *Communities in Motion* goals.

Data Bike

In 2018, COMPASS applied for, and received, a Technology Transfer grant from the Federal Highway Administration to develop a measurement tool to generate quantitative pavement condition data for pathways and other off-street facilities in Ada and Canyon Counties. The COMPASS Data Bike (Figure 1) was purchased and outfitted with this funding and was fully functional for testing in 2020.[9] Data collection began in 2021. These data are used to identify and prioritize pathway maintenance needs.

The data collected by the COMPASS Data Bike is intended to complement field inspections performed by local agency staff and is not meant to replace thorough physical inspections. The primary metric reported from the data bike is trail roughness; other measures toward a holistic assessment of trail condition include 360-degree images of the deployment area, pavement-condition imagery, and a standardized score reflecting pavement condition rating (i.e., International Roughness Index) (Figure 2).

Figure 1. The COMPASS Data Bike was funded through a Technology Transfer grant from the Federal Highway Administration.

Figure 2. The COMPASS Data Bike measures roughness on paved pathways to help identify and prioritize pathway maintenance needs.

Demand

COMPASS' counter program provides data on the "demand" side of the equation—to what extent pathways are used, and when.

COMPASS manages 16 permanent bicycle/pedestrian counters on offroad pathways around the Treasure Valley (Figure 3) in addition to 41 portable counters, which are used on trails and roads, and at intersections. These portable counters capture information about small areas for short periods of time before being moved elsewhere. When several portable counters are used together, they can measure all the bicycle and pedestrian movements at an entire intersection at one time. The counter program is an important tool in transportation planning, as it provides information about how people get from place to place without the use of cars. It also helps identify where pathways, sidewalks, bike routes, and bike lanes are most needed in the Treasure Valley.

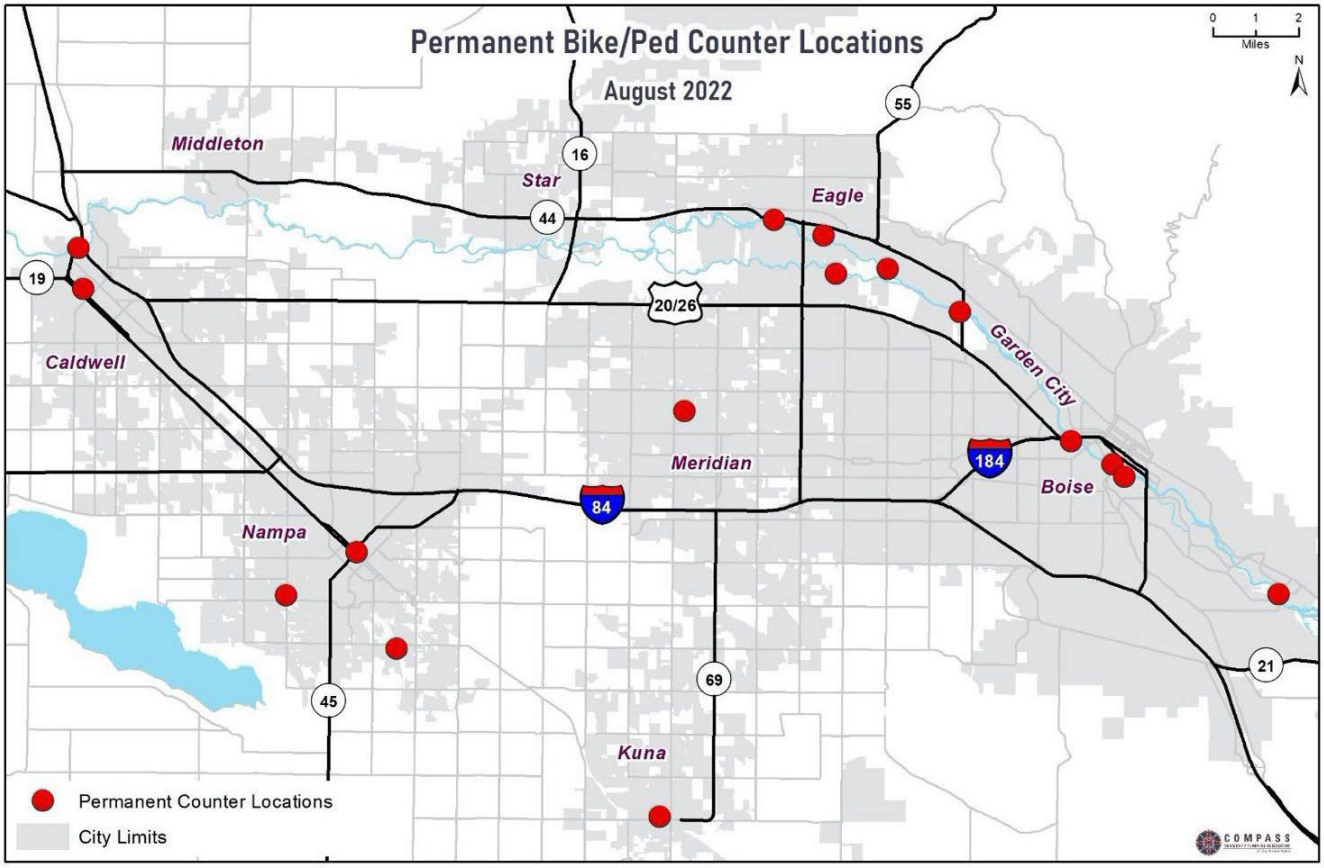

Figure 3. COMPASS manages 16 permanent bicycle/pedestrian counters.

Since the program began in June 2015, over 18 million cyclists and pedestrians have been counted on the Treasure Valley's pathways, sidewalks, and streets. The permanent counters provide year-round, long-term data that show trends on the pathway systems. These data help planners identify different types of uses and users. For example, high use on weekends indicates recreational use, while high use on weekdays is more indicative of commuter use. Year-round data (Figure 4) can reveal seasonal peaks and valleys, as well as spikes and dips related to special events, holidays, or even extreme weather. The data are versatile and can be organized into a variety of time bins for analysis (Figure 5). Data from the permanent counters are posted on the COMPASS website.[10]

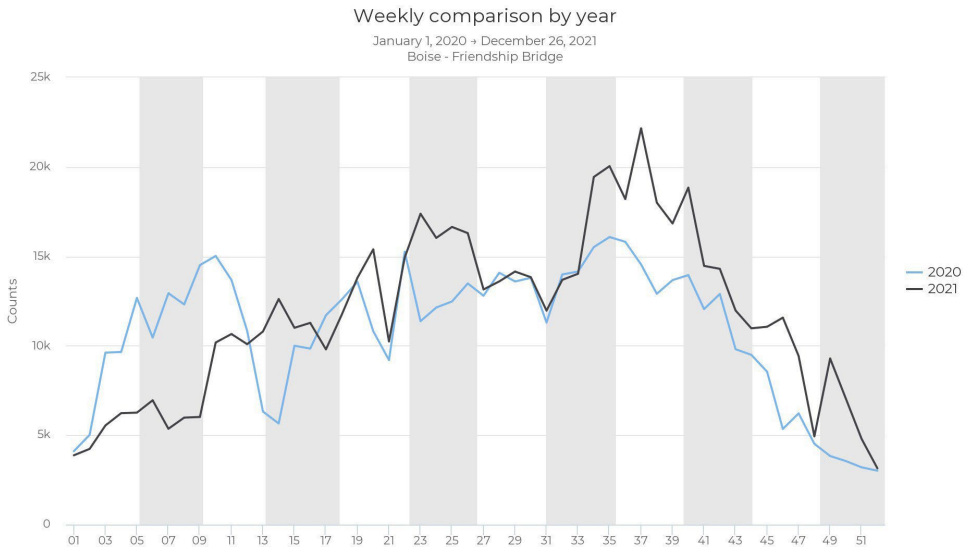

Figure 4. Annual bicycle and pedestrian data illustrate annual trends and anomalies, such as the sharp decrease in the 13th week of 2020, which reflects the cancellation of classes at nearby Boise State University due to the COVID-19 pandemic.

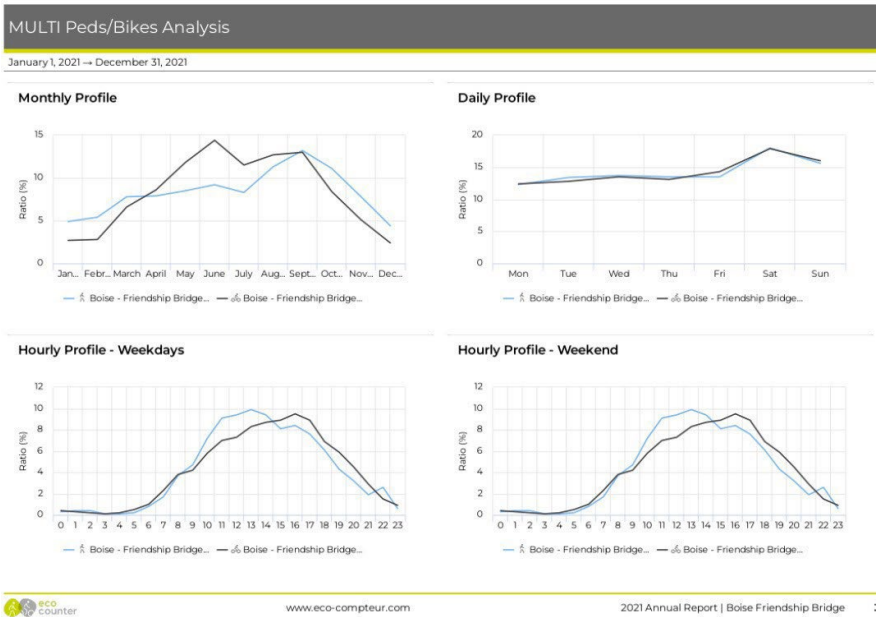

Figure 5. Permanent bicycle/pedestrian count data can be organized into a variety of time bins for different analyses.

2050 REGIONAL PATHWAYS AND BIKEWAYS PRIORITIES

Since 2019, COMPASS staff have worked with the Active Transportation Workgroup[11] to develop the CIM 2050 pathways plan—a valley-wide off-street connectivity plan for bicyclists and pedestrians that prioritizes unfunded segments for implementation.

COMPASS, with its Active Transportation Workgroup, examined several data sets to identify needed pathway corridors and segments for prioritization, focusing on those that were not funded or planned. The data included existing routes and conditions, crash data, crowdsourced bicycle/pedestrian data sets, demographic trends, public transportation routes, unbuilt segments, and priority corridors identified in Communities in Motion 2040 2.0.[12] Combined, the identified network accounts for almost 500 miles of pathways and trails (Figure 6).

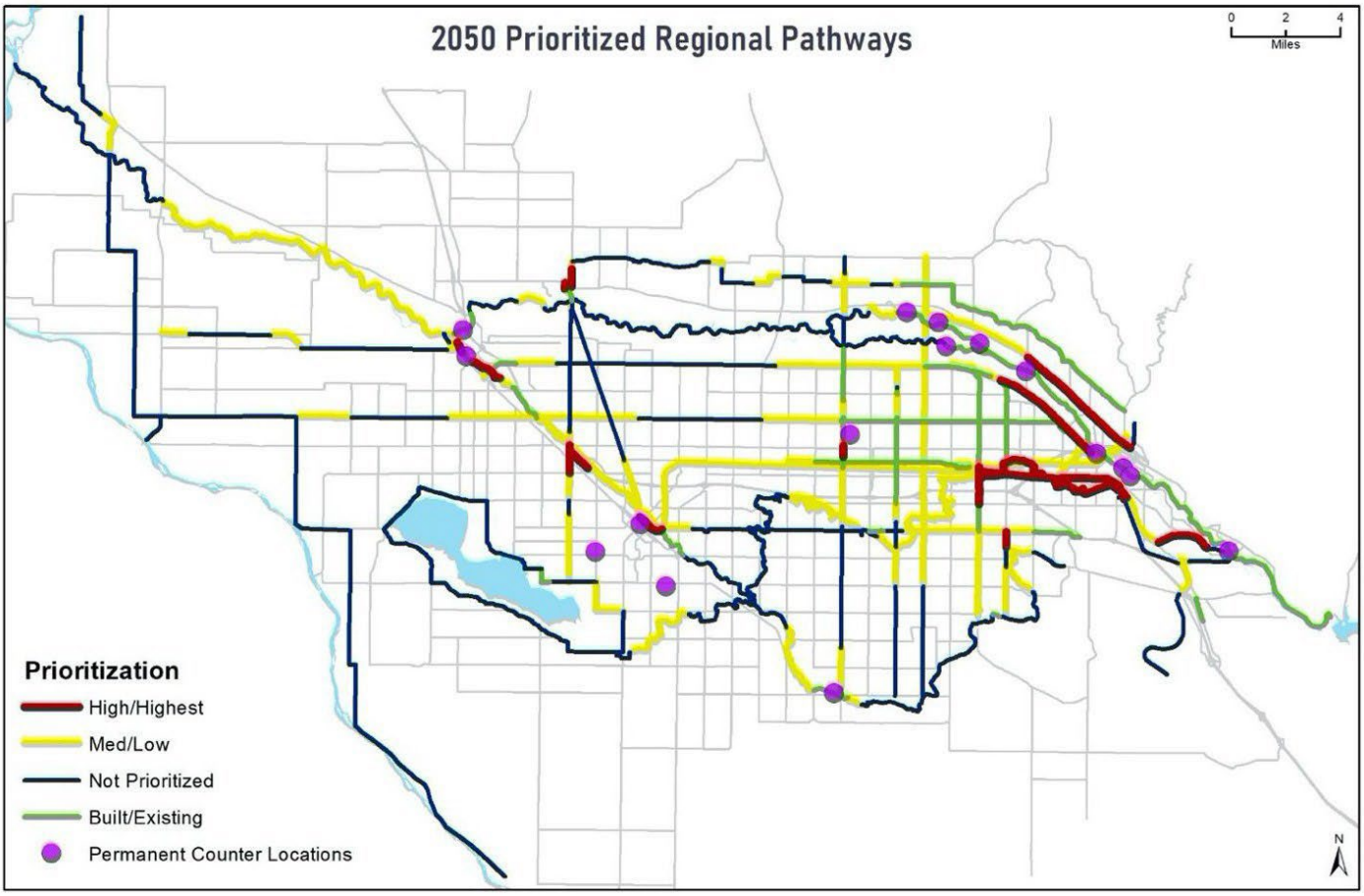

Figure 6. Nearly 500 miles of pathways and trails were initially identified as regional priorities.

Pathway Prioritization Process

Once the initial unplanned/unfunded pathway segments were identified, they were further prioritized using a four-step process (Figure 7) based on proximity, equity, connectivity, and parcel ownership.

The "proximity" factor placed a high priority on projects close to places that could generate bicycle and pedestrian traffic, including

- employment centers,
- schools,
- transit stops,
- groceries,
- libraries,
- recreation,
- healthcare,
- housing/neighborhoods,
- existing pathways, and
- other key designations.

Figure 7. The pathway prioritization process was used to further prioritize initially identified pathway priorities.

At the time of this prioritization process, COMPASS was in the midst of developing an equity index,[13] but it was not yet complete. As the ability to access jobs and transit without a car is of particular importance to underserved individuals, access to employment and transit was re-assessed at a finer scale to provide a proxy for measuring equity. Destinations within a quarter mile of the segment were deemed accessible. Future analyses will use COMPASS' equity index.

The proximity and equity data were used to provide a "first-blush" list of highest-priority pathway segments.

The workgroup then evaluated the potential for improved connections using a "walkshed" analysis (Figure 8).

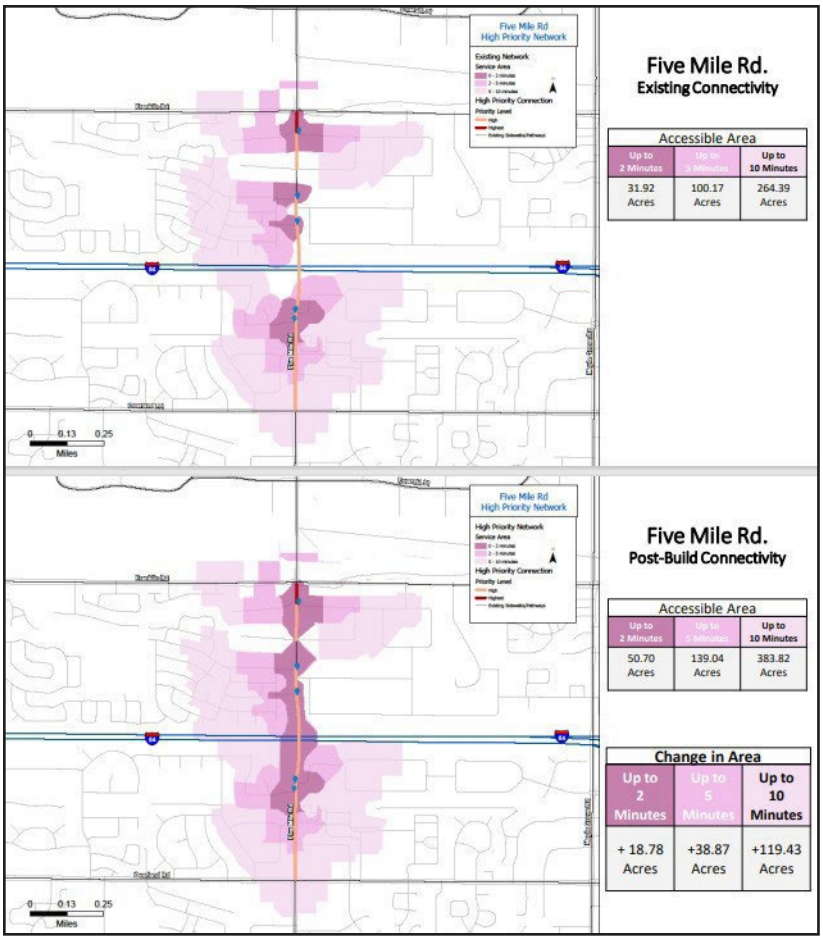

Figure 8. A sample walkshed analysis demonstrates "before and after" differences in areas walkable within 2, 5, and 10 minutes based on proposed improvements.

The prioritization process[14] also included a qualitative review of these analyses. For example, if segment "A" showed a walkshed improvement of 10 acres greater than segment "B," quantitative data would imply that the former option is better. The qualitative review looked at connectivity *to what* and *for whom* to put greater emphasis on improved connections to key destinations, such as schools, and/or for vulnerable or underserved users.

Finally, parcel ownership was reviewed, including if segments were within or near city- or county-owned parcels. Ownership by municipalities could make it easier to build identified segments.

Through this process, 13 pathway segments were determined to be the highest priorities and were approved by the COMPASS Board of Directors as the unfunded regional pathway priorities for CIM 2050 (Table 1). The estimated cost is based on an average pathway cost-per-mile of $900,000 and does not include the purchase of land/right-of-way.

Table 1. Unfunded Priority Pathway Segments

Segment Name	Description	Cost Estimate
Chinden Boulevard (Boise/ Garden City)	Construct 4.3 miles of new pathway between Maple Grove Road and Fairview Avenue	$3,834,000
Five Mile Road (Boise)	Construct 0.8 miles of new pathway between Emerald Street and Overland Road	$756,000
Middleton Road (South) (Nampa)	Construct 2.5 miles of new pathway between State Highway 55 (Karcher Road) and Chacartegui Lane (south to north) and Chacartegui Lane to State Highway 55 (Karcher Road) (west to east, along rail)	$2,205,000
Middleton Road (North) (Middleton)	Construct 0.8 miles of new pathway between Boise Street and Main Street (section 1 | south to north) and Main Street to Triumph Drive (section 2 | south to north)	$747,000
Indian Creek Pathway (Caldwell)	Construct 1.6 miles of new pathway between Centennial Way and Arthur Street, (section 1 | south to north) and 11th Avenue/ Archer Street to Sparrow Avenue (section 2 | west to east)	$1,431,000
Linder Road (Meridian)	Construct 0.4 miles of new pathway between Washington Street and West Emerald Falls Drive	$342,000
Maple Grove Road (Boise)	Construct 0.5 miles of new pathway between Victory Road and Aquarius Street	$486,000
Rail with Trail Boise Spur (North) (Boise)	Construct 3.9 miles of new pathway between Five Mile Road and Orchard Street	$3,537,000
Rail with Trail Boise Spur (South) (Boise)	Construct 2.9 miles of new pathway between North Hartman Street and Kootenai Street	$2,637,000
Rail with Trail Nampa Spur (Nampa)	Construct 1 mile of new pathway between 9th Avenue North and 3rd Street North	$927,000
Ridenbaugh Canal (East) (Boise)	Construct 2.6 miles of new pathway between Gekeler Lane and East Park River Drive	$2,376,000
Ridenbaugh Canal (West) (Boise)	Construct 5.8 miles of new pathway between Five Mile Road and Kootenai Street/Protest Street	$5,211,000
State Street (Garden City/ Boise)	Construct 5.0 miles of new pathway between State Highway 44 (Glenwood Street)/Gary Lane and 11th Street	$4,500,000
Total Unfunded Regional Pathway Top Priority Projects		$28,989,000

Cost per mile used to estimate costs: $900,000

RAILS WITH TRAILS

Rails with trails are similar to, but distinguished from, their counterpart, "rails to trails." The former is a title given to pathways developed adjacent to or within an active rail corridor, while the later refers to rail corridors that have been abandoned and converted to trails. Both types provide opportunities for bolstering networks that are safe, separated, and convenient.

COMPASS' Rails with Trails Feasibility and Probable Cost Study[15] was completed in September 2019 to identify a feasible route along the Boise Cutoff rail corridor, provide examples of trail design (cross-sections) and crossing treatments at roads, quantify probable costs of trail development, and identify barriers associated with trail development. This study will help prepare the region to negotiate with the Union Pacific Railroad on a potential future rail with trail pathway, develop a preferred right of way alignment and design, and secure funding. In 2021, COMPASS produced a *Rail with Trail Progress Report*[16] that details the progress and developments that have taken place since rails with trails have been studied in the region. The full rail-with-trail network is included in the 2050 regional pathway network and three rail-with-trail segments are included in the highest-priority 2050 segment list.

FUTURE NEEDS AND CONSIDERATIONS

Micromobility options, such as e-scooters and bike-share programs, are growing rapidly as new technologies assist with their deployment and ease of use. These technologies can augment traditional bike and pedestrian modes to address first- and last-mile needs or serve as alternatives to single-occupancy vehicles for short trips (e.g., groceries). However, they are not without their growing pains. The addition of these technologies into existing traffic on pathways, bike lanes, and sidewalks can lead to congestion-related conflicts or even collisions. Assuming micromobility technologies continue to grow and gain in popularity, they should be included in future active transportation planning efforts or planned for as their own distinct mode.

CONCLUSION

As the valley continues to grow, so too do the number of active transportation network users. These volumes infer many things, but most of all they demonstrate that people value the ability to navigate their communities without a car. Implementing this plan will help provide safe, comfortable, and convenient facilities for cyclists and pedestrians now and to 2050 to transform the areas we live, work, and play into communities that are cherished and loved for years to come.

ENDNOTES

1 Assessing the economic benefits of active transport policy pathways: Opportunities from a local perspective, Transportation Research Interdisciplinary Perspectives, www.sciencedirect.com/science/article/pii/S2590198221001615

2 Active Transportation: Relationship to public health, US Department of Transportation, www.transportation.gov/mission/health/active-transportation - :~:text=Benefits of active transportation,as diabetes and cardiovascular disease

3 See note 1.

4 Complete Network Policy, www.compassidaho.org/documents/people/policies/CompleteNetworkPolicy_Final_Dec2021_2022-01.pdf

5 Complete Streets Network Policy map, www.arcgis.com/home/webmap/viewer.html?webmap=15b81c9a92684b6b8c9fdfa7fd2d3639&extent=-116.7871,43.4583,-115.9179,43.8052

6 CIM 2050 goals, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Goals_Objectives_apprDec2020.pdf

7 Bike Walk Compass interactive map, https://compassidaho.maps.arcgis.com/apps/webappviewer/index.html?id=8a567a39377a46bfb7e38f8172261809

8 Development review process, COMPASS, www.compassidaho.org/dashboard/devreview.htm

9 2020 Data Bike Pilot Report, COMPASS, www.compassidaho.org/documents/prodserv/reports/2020PilotReport.pdf

10 Bicycle and pedestrian counts, COMPASS, www.compassidaho.org/prodserv/traffic_counts.htm#BPCount

11 Active Transportation Workgroup, https://www.compassidaho.org/people/workgroups.htm#atwg

12 CIM 2040 2.0, https://compassidaho.org/CIM2040-2.0/

13 Environment, CIM 2050, https://compassidaho.maps.arcgis.com/apps/instant/portfolio/index.html?appid=6c1eebca233d49c4935825136f338fac

14 CIM 2050 prioritization process, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM2050_PrioritizationProcess.pdf

15 Rails with Trails Feasibility and Probable Cost Study, www.compassidaho.org/documents/prodserv/CIM2040_20/COMPASS_FINAL_RWT_COST_STUDY_090419_web.pdf

16 Rail with Trail 2019-2021 Progress Report, COMPASS, www.compassidaho.org/documents/prodserv/activetrans/2019-21_RWT_Progress_Report_Final.pdf

Demographic and Economic Changes

What's it like to live in the fastest growing region of the fastest growing state? For Treasure Valley residents, it's meant new retail stores and more job opportunities, but also higher housing prices, more crowding in schools and on the road, and other impacts on quality of life.

Communities in Motion 2050 (CIM 2050) transportation needs are largely determined by the projected population, housing, and economic changes over the next three decades. Knowing where people will need to travel and the resulting impacts on the transportation system requires an understanding of where residents will live, work, shop, and recreate today and into the future.

CURRENT CONDITIONS

Population

As of April 2022, Ada and Canyon Counties were home to approximately 782,430 people—that's twice as many as just one generation ago.[1] This growth has made the Treasure Valley the fastest-growing mid-sized metropolitan area in the nation over the last decade (Table 1).[2]

Table 1. Fastest-Growing Metropolitan Statistical Areas (Population Between 500,000 and 1 Million)

Metropolitan Statistical Area (MSA)	2020 Census	2010 Census	Increase
Boise City, ID MSA	764,718	616,561	+148,157
Provo-Orem, UT MSA	671,185	526,810	+144,375
Cape Coral-Fort Myers, FL MSA	760,822	618,754	+142,068
Charleston-North Charleston, SC MSA	799,636	664,607	+135,029
North Port-Sarasota-Bradenton, FL MSA	833,716	702,281	+131,435

Source: US Census Bureau, 2020 census data

Annual Population Estimates

To ensure transportation analyses are up to date, COMPASS develops population, housing, and employment estimates annually using a housing unit method. This method is based on the premise that changes in the number of occupied housing units reflect changes in population.

The calculation COMPASS uses to build population estimates is as follows:

Population = [(h + r) * s * o] + q

where

- h = decennial census households
- r = new residential units permitted
- s = household size
- o = residential occupancy rate
- q = group quarters population

Population estimates are calculated and assigned to the cities and unincorporated county areas based on city limits at the time. COMPASS uses decennial census counts as one of the factors for developing estimates; the release of the 2020 census enabled COMPASS to update population estimates based on these new data.

More information about COMPASS population estimates is available on COMPASS' website.[3] In addition, COMPASS publishes annual residential permit data in its Development Monitoring Report.[4]

Demographics

The Treasure Valley as a whole is younger and less ethnically mixed than most of the United States. However, there are some distinct differences between Ada County and Canyon County (Table 2), as Ada County is slightly older, wealthier, and less ethnically diverse than in Canyon County.

Table 2. Treasure Valley Demographics

	Median Age	Non-White Ethnicity	Median Household Income
Ada County	37.2	10.6%	$69,952
Canyon County	33.8	19.4%	$56,916
Region (Ada and Canyon Counties)	36.1	13.4%	$65,607
Idaho	36.6	11.6%	$58,915
United States	38.2	29.6%	$64,994

Source: US Census Bureau American Community Survey, 2020 5-year estimates

When looking at age and gender, the distribution of a population typically forms the shape of a pyramid; the wide base and narrow tip reflect a young population, with more children and fewer seniors (Figure 1). However, with a sharp decline in birth rates and longer life expectancies, the traditional "population pyramid" is forecasted to more closely resemble a rectangle by 2050—fewer children are being born (narrower at the bottom) and seniors are enjoying longer lives (wider at the top) (Figure 2). This demographic shift could have wide-ranging implications for housing, land use, and transportation, as an older population may alter traditional commute patterns, demand on public transportation, and housing needs.

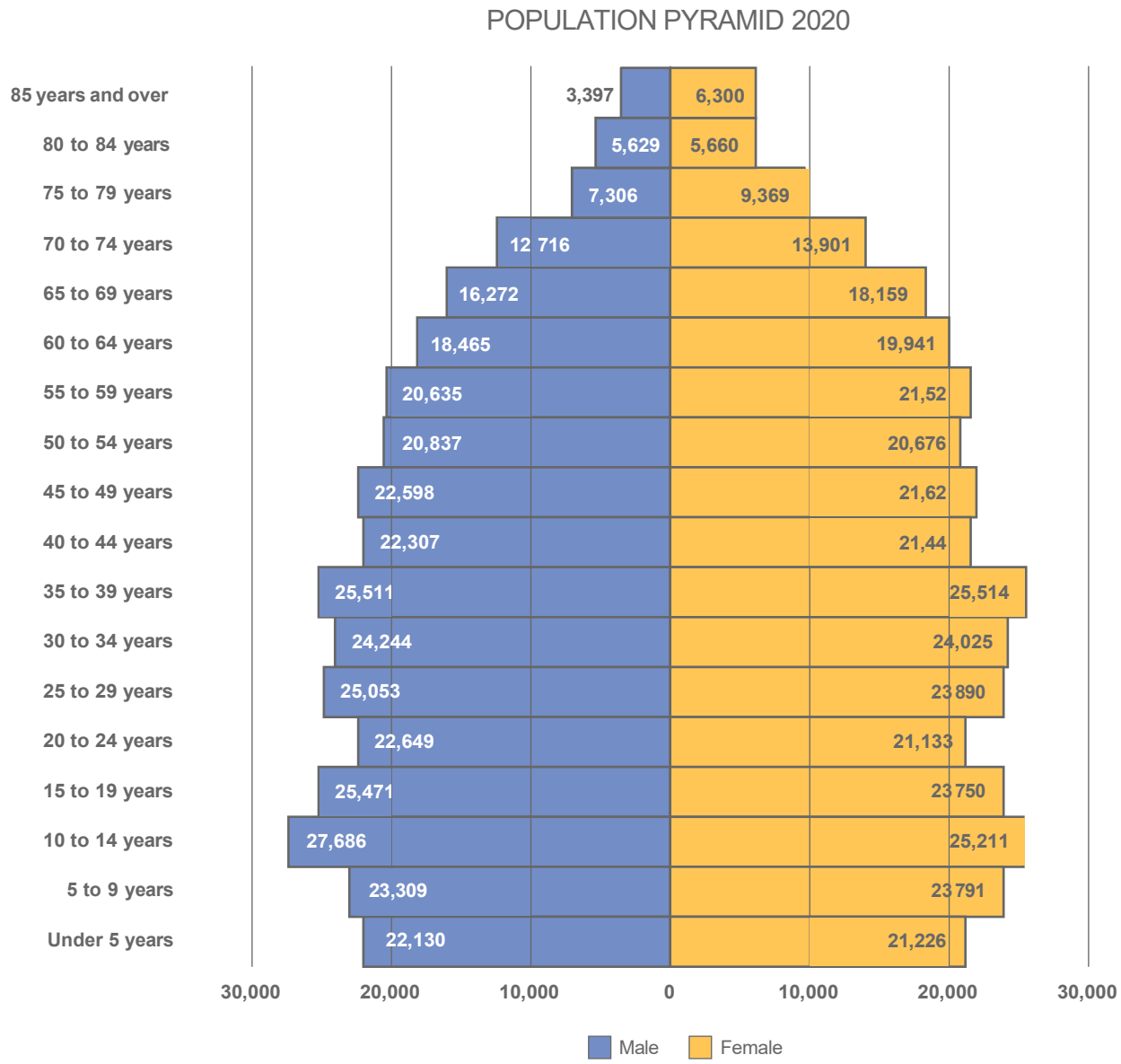

Figure 1. US population pyramid 2020.

Source: American Community Survey 2020, 5-year data.

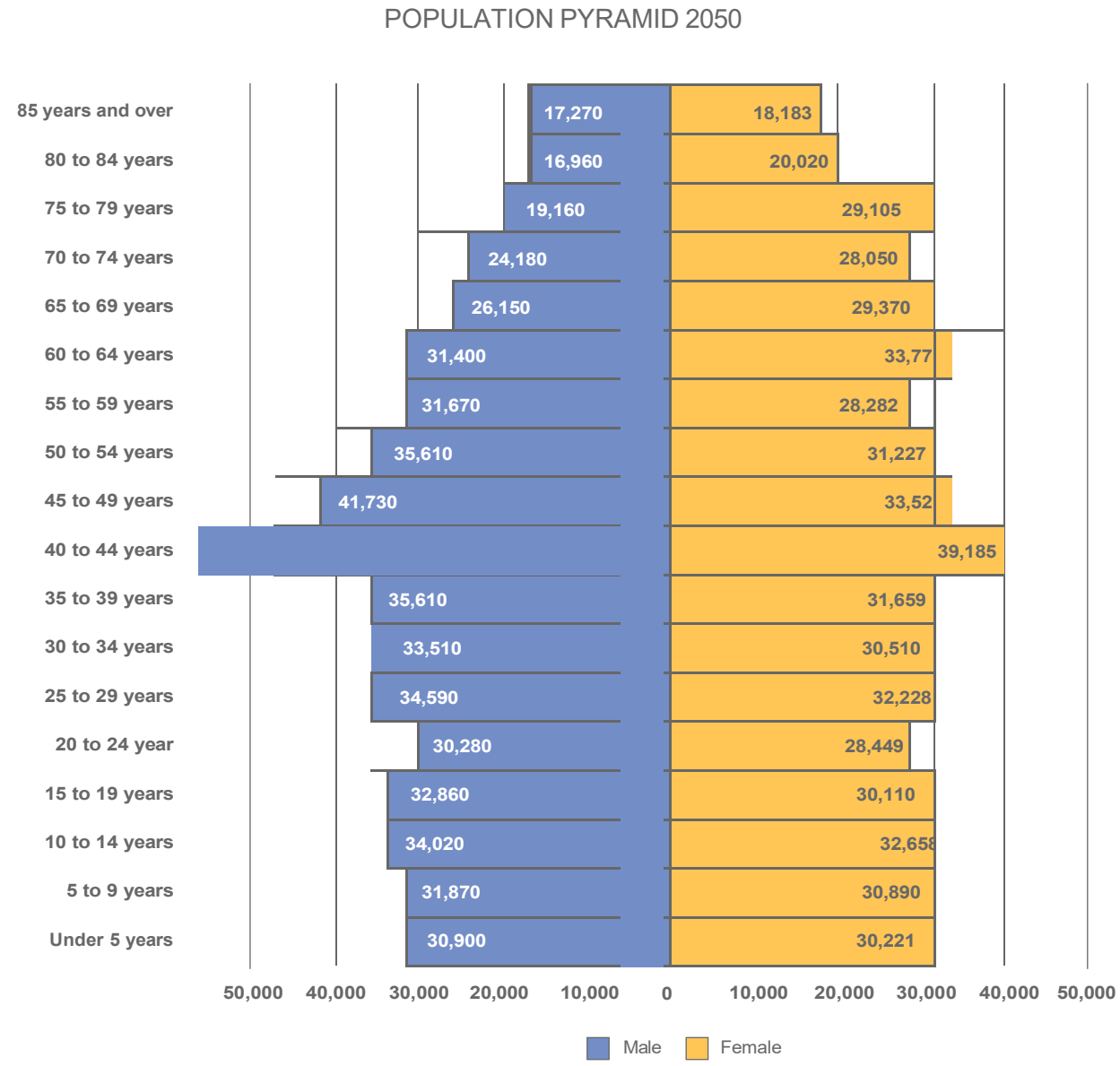

Figure 2. Treasure Valley population pyramid 2050.
Source: COMPASS.

Housing

Housing types and distribution

Most housing in the region is single-family, detached housing. The remaining housing is a mix of single-family attached, multi-family, and mobile homes (Figure 3). The distribution of housing is not uniform throughout the region. In more urban areas, the proximity to job centers increases land prices and leads to more diverse and dense housing.

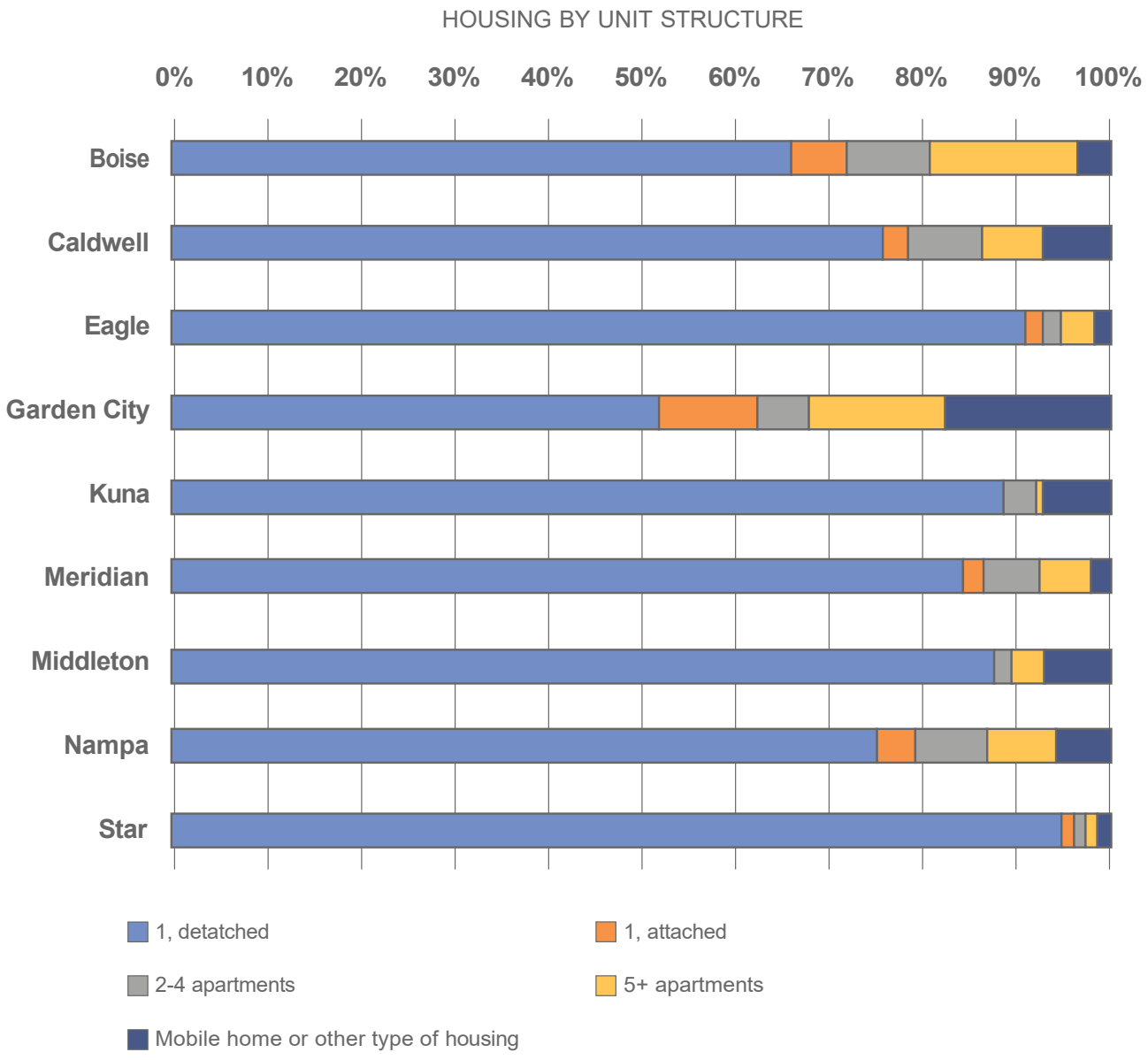

Figure 3. Housing by unit structure, for select Treasure Valley cities.

Source: US Census Bureau American Community Survey, 2019 5-year estimates.

Similarly, while all cities in the region have felt the impact of growth, the distribution in the amount of new housing built across the last decade has not been dispersed evenly. Some cities have been relatively stagnant, while others have seen rapid growth (Figure 4).

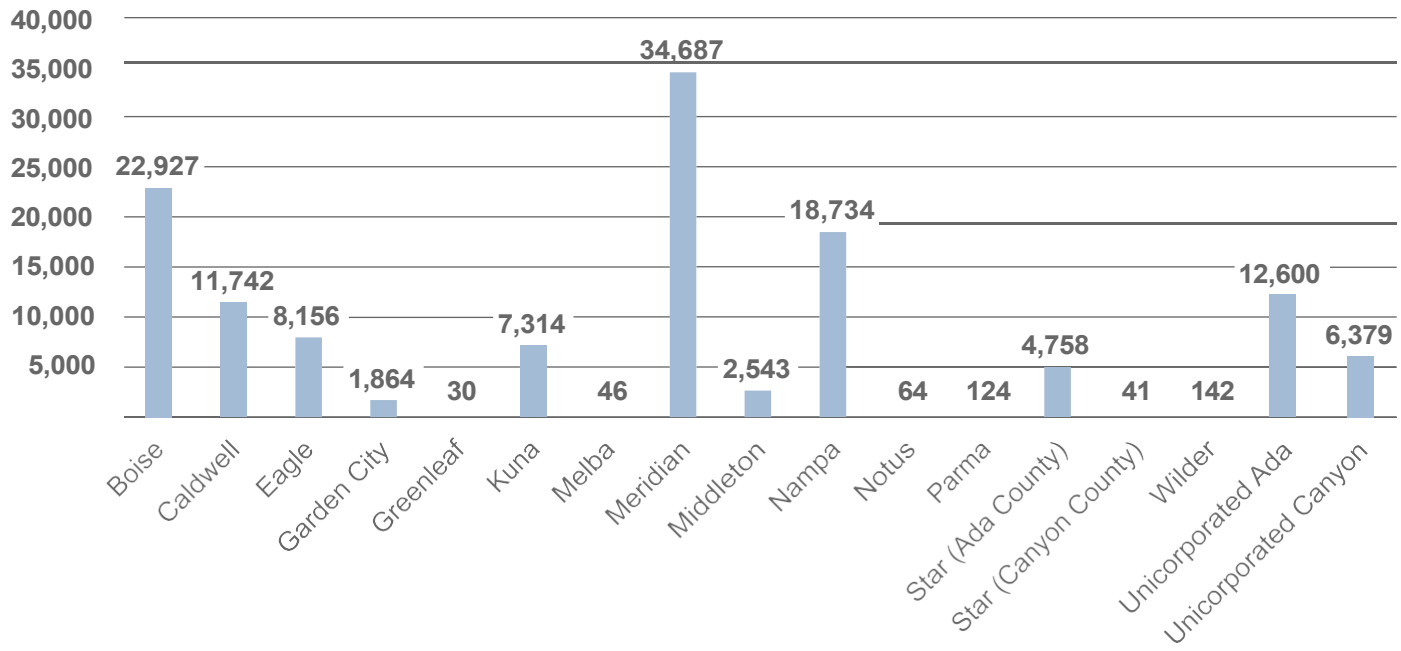

Figure 4. New residential units by city, 2001-2021.
Source: COMPASS.

Housing Affordability

The Treasure Valley's high quality of life has caused the rest of the nation to notice. The increase in net migration has driven an increase in demand for housing, and affordability has suffered (Figure 5).

The search for more affordable housing has often pushed homebuyers further from employment centers to locations where land is cheaper. However, this can often mean longer commutes and the accompanying higher costs of car maintenance and gas. High gas prices can cause a significant burden to household budgets.

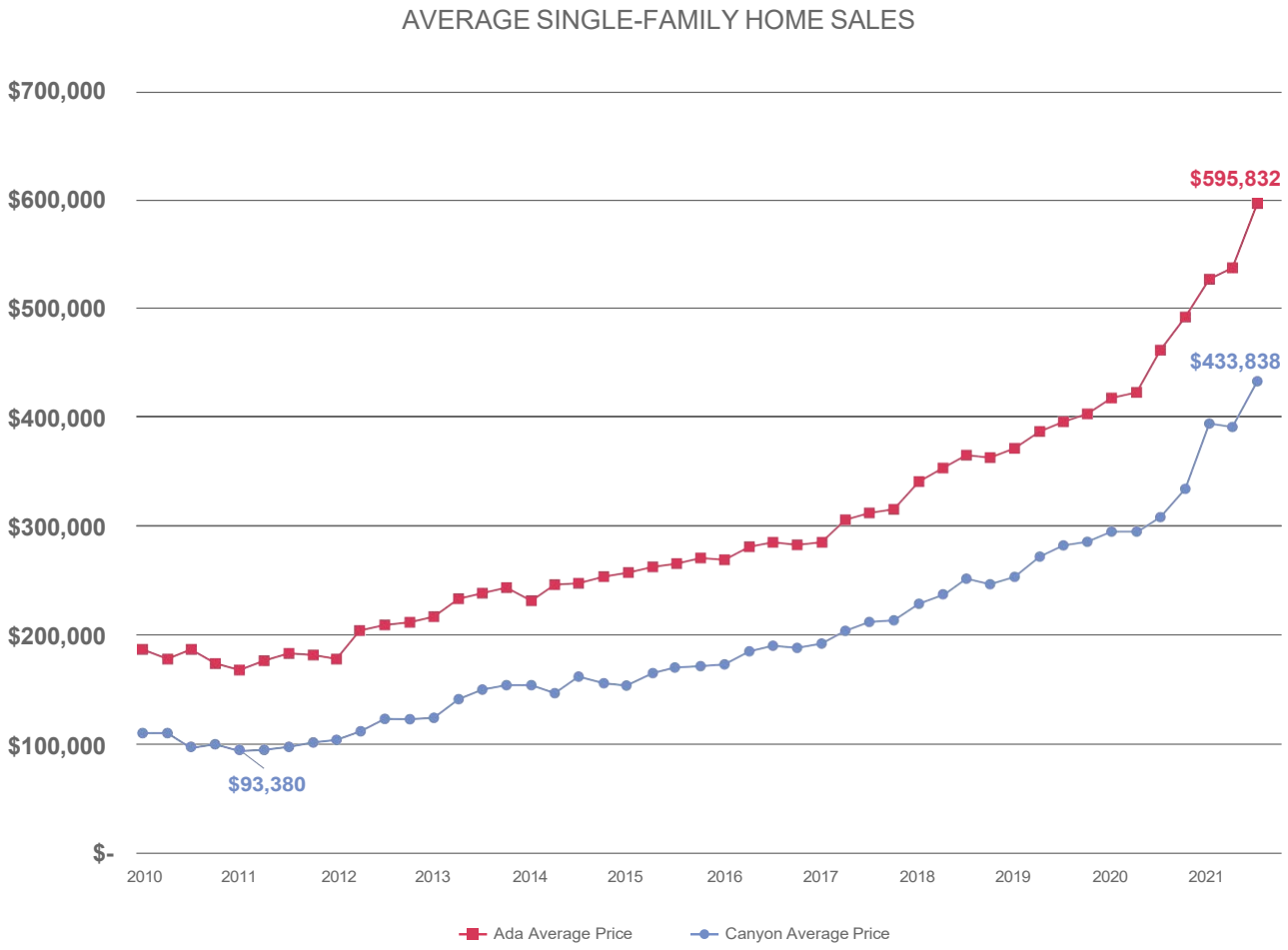

Figure 5. Average sales price of a single-family home, 2010–2021.
Source: Intermountain Multiple Listing Service 2022.

Jobs and Economic Conditions

COMPASS uses Idaho Department of Labor data, which includes firms' locations, industry sector types, and numbers of employees, to develop annual regional employment estimates. Despite the worldwide pandemic and subsequent global and national recessions, the Treasure Valley has weathered the economic storm well. As of March 2022, the unemployment rate in the Boise/Nampa Metropolitan Statistical Area was 2.6%, less than the national average of 3.6%.[5]

FUTURE CONDITIONS

Predicting macro-scale migration, regional housing preferences, and the residential and commercial real estate markets over the next several decades is difficult. The recent pandemic has shown the complexity of predicting the future. However, that does not preclude the need to plan for it.

> *"I skate to where the puck is going to be, not where it has been."*
> —Wayne Gretzky

2050 Forecast Methodology

COMPASS developed the CIM 2050 forecast using best practices in population forecasting. Several methodologies were considered, including:

- cohort component
- econometric
- trend
- peer or analogous area
- top-down or ratio

COMPASS reviewed these methodologies (Table 3) and the resulting forecasts with the COMPASS Demographic Advisory Workgroup. These forecasts were averaged for a forecasted 2050 two-county population of 1.075 million (Figure 6).

Table 3. Forecast Method Comparison

	Method	Forecast base on	Considerations	Forecasted Population
	Cohort component	Anticipated births and expected survival of the existing population.	Birth rates are declining, while life expectancy is increasing.	981,522
	Econometric	Relationship among economic variables such as the size of labor force and gross metropolitan product.	The job market in the region has been strong, but history tells us that while the Treasure Valley has seen incredible growth, there have also been periods of slowdowns.	1,055,916

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	Method	Forecast base on	Considerations	Forecasted Population
	Peer or analogous area	How metropolitan areas with similar characteristics grew over a specific period of time.	These forecasts not only assist in forecasting future population, but also provide insight into how and why peer areas grew to inform local growth assumptions. COMPASS compared the Treasure Valley to: • Oklahoma City, OK • Omaha, NE • Salt Lake City, UT • Tucson, AZ	1,021,952
	Top-down or ratio	The relationship of population growth among different areas.	COMPASS used the Woods and Poole econometric forecast of the larger Mountain Region as the basis for the Treasure Valley forecast.	1,047,000
	Trend	Extending the rate of past population changes into the future.	Past performance is no guarantee of future results; however, rapid growth due to births and in-migration is expected to likely continue into the future.	1,168,799

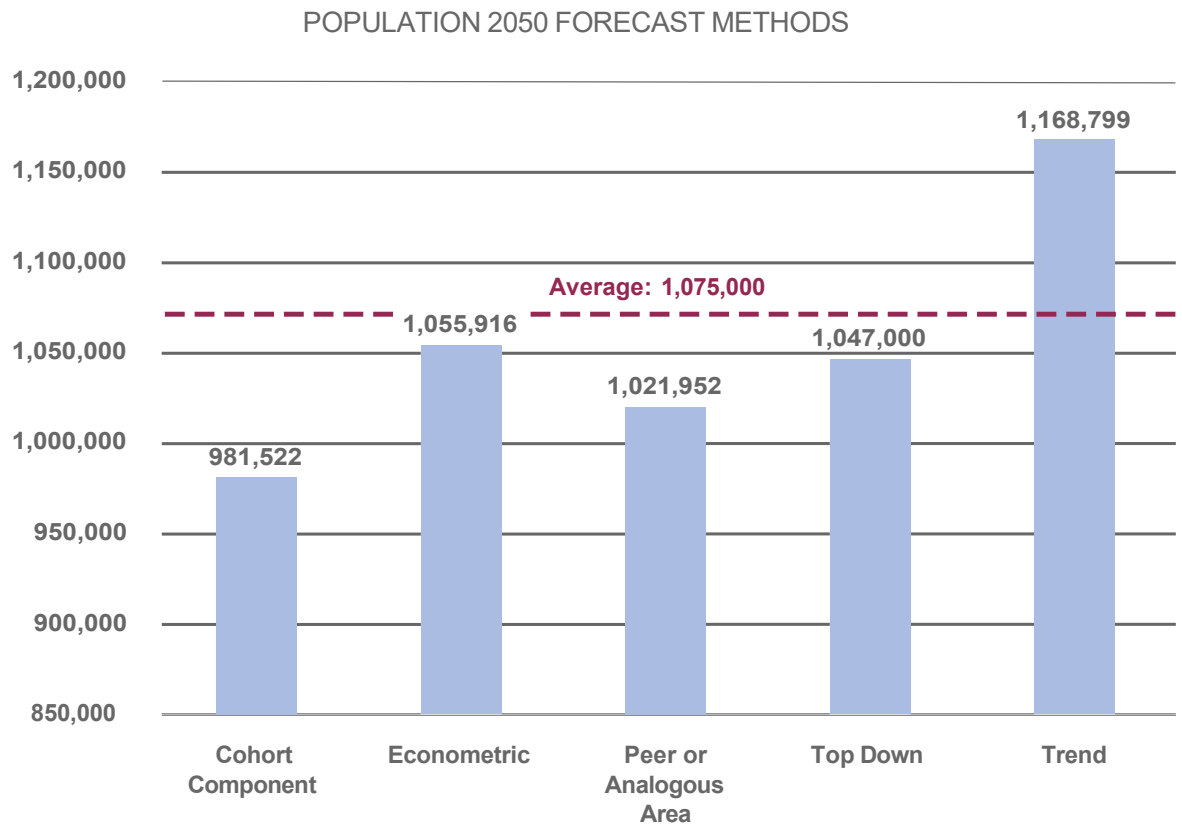

Figure 6. Forecast method comparisons

CIM 2050 VISION

The Treasure Valley's growth may be exciting, annoying, or scary, depending on how well the region prepares and responds. To plan for this growth in a way that provides a plausible vision for the future while addressing public values and needs, COMPASS used a series of three interactive public involvement surveys to ask residents how they want to see their region grow. Learn more about the three surveys in *Public Participation*.[6]

> *"Change is the law of life. And those who look only to the past or present are certain to miss the future."*
> —John F. Kennedy

Using survey results as a guide, COMPASS worked with cities and counties to develop the CIM 2050 Vision[7]—a growth forecast that incorporates community ideals while also aligning with local land use plans.

The CIM 2050 Vision (Figure 7) allocates future growth across the region (Table 4) and establishes the official demographic assumptions for CIM 2050 transportation analyses based on a total regional 2050 population of 1,075,000 (see above) and the results of the three surveys. The CIM 2050 Vision helps maintain the high quality of life that the region has enjoyed by focusing growth in areas where services can be made easily available, preserving farmland, supplying a variety of transportation choices, and providing affordable housing and transportation options in the valley.

COMPASS conducted an analysis of the net fiscal impact (revenues minus expenditures) of the *Communities in Motion 2050* (CIM 2050) Vision growth allocation, the net fiscal impact of recent growth trends to the 2050 horizon year, and a comparison of the two sets of results. Overall, the CIM 2050 Vision yields an approximately $34,000,000 annual net fiscal benefit compared to trend.

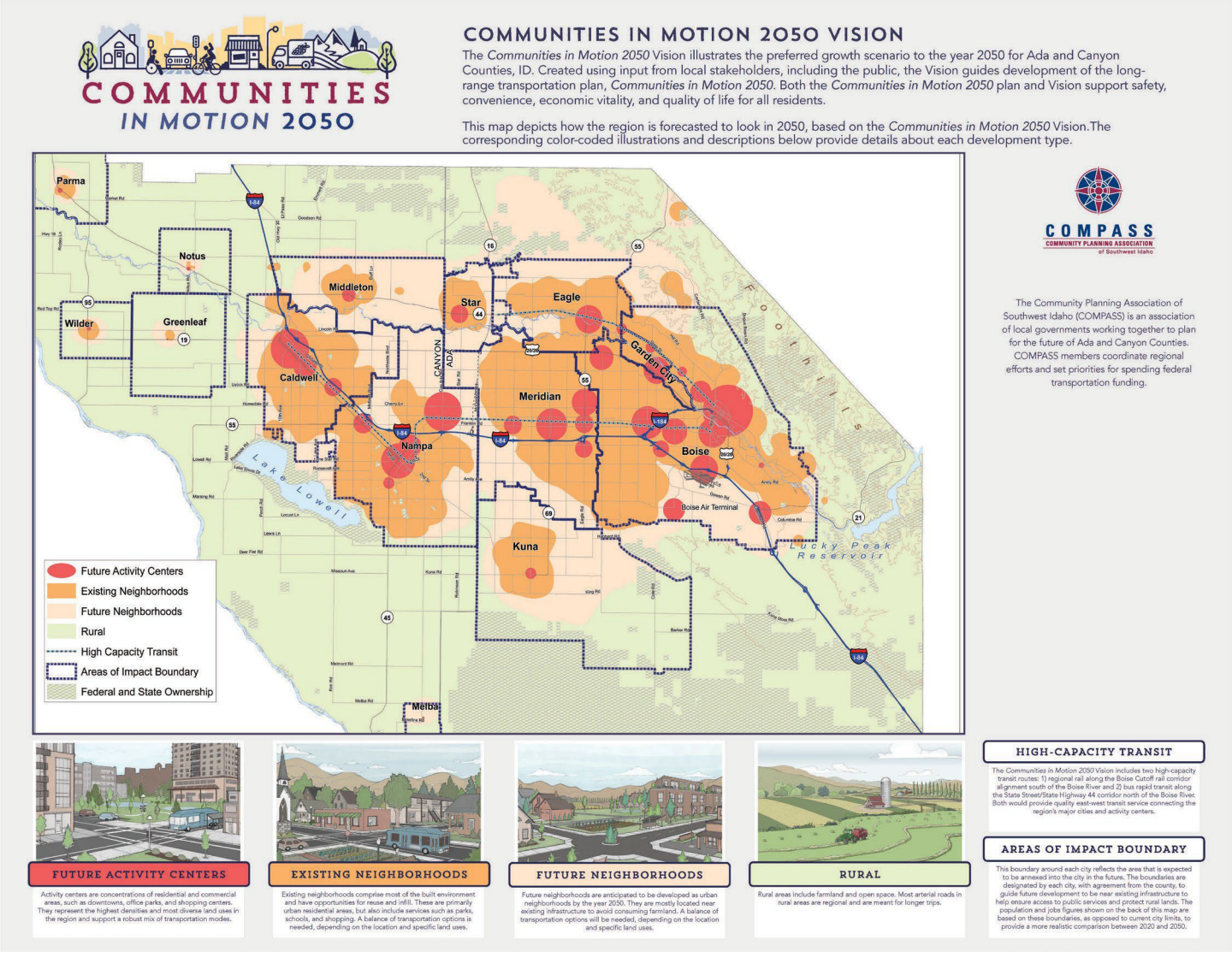

Figure 7. CIM 2050 Vision Map[8]

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Table 4. 2020 and 2050 Population by City

	2020 Population	2050 Population
Ada County		
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
Ada County Total	494,970	715,820
Canyon County		
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
Canyon County Total	231,110	359,180
Region (Ada + Canyon Counties)	**726,080**	**1,075,000**

Note: The figures in this table are based on areas of city impact as of July 2021 and rounded to the nearest 10.

Source: COMPASS.

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While the CIM 2050 Vision sets the expectations for future growth in a rapidly growing area, it is also flexible; COMPASS updates, or reconciles, the growth allocation annually to account for new entitled developments and changing land use plans and policies. This process helps maintain consistency between the forecast and entitled development. It also provides more accurate data for travel model analyses and helps meet federal requirements for using the most recent data for air quality conformity demonstrations.[9]

CONCLUSION

Ada and Canyon Counties have been growing rapidly for several decades. Multiple factors support the assumption of continued strong growth into the future—demographic and economic conditions in the region, historical trends, and overall the quality of life all continue to entice migration from around the nation and especially the West Coast.

> *"The best way to predict the future is to create it."*
> —Abraham Lincoln

However, there are some considerations that could curtail that growth. While the economy is currently strong, a national recession could impact the local job market. In addition, inadequate transportation funding has hampered the region's ability to provide a robust transportation system that adequately serves all modes and users, an issue that will be exacerbated if additional funding is not secured. Accessing transportation funding will be key to the region's continued growth and prosperity.[10]

Working toward the CIM 2050 Vision will require a cooperative and coordinated effort throughout the region. Successful implementation will help maintain the region's quality of life and make the best use of limited transportation dollars by aligning transportation investments with anticipated growth.

ENDNOTES

1 US Census Bureau, 2020

2 Ibid.

3 Current and Historical Population Estimates, COMPASS, www.compassidaho.org/prodserv/demo-current.htm

4 Development Monitoring Reports, COMPASS, www.compassidaho.org/prodserv/gtsm-devmonitoring.htm

5 State Employment and Unemployment Summary, Bureau of Labor Statistics, www.bls.gov/news.release/laus.nr0.htm

6 Public Participation, CIM 2050, https://cim2050.compassidaho.org/PublicParticipation.pdf

7 CIM 2050 Vision, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Vision_Map_Final.pdf

8 Ibid.

9 "Determining Conformity of Federal Actions to State or Federal Implementation Plans," Code of Federal Regulations, Title 40, 93.110. www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-93/subpart-A/section-93.110

10 Financial Plan, CIM 2050, https://cim2050.compassidaho.org/FinancialPlan.pdf

Environmental Considerations and Mitigation Strategies

Federal regulations require metropolitan planning organizations (MPOs) to take a comprehensive approach to environmental and natural resource issues when developing long-range transportation plans such as *Communities in Motion 2050* (CIM 2050). Specifically, federal law[1] directs MPOs to consult with federal and state agencies to identify potential mitigation activities that can help restore and maintain environmental functions affected by the plan.

ENVIRONMENTAL REVIEW PROCESS

COMPASS has collaborated with environmental and natural resource agencies and organizations and other stakeholders through its Environmental Review Workgroup since 2008 to address environmental issues relevant to long-range transportation planning. Early in the development of CIM 2050, COMPASS worked with the Environmental Review Workgroup to identify environmental values and help develop plan goals. Details about the workgroup's earlier activities can be found in the *COMPASS Environmental Review Process, 2008–2013*[2] and *COMPASS Environmental Review Process, 2014-2022*[3].

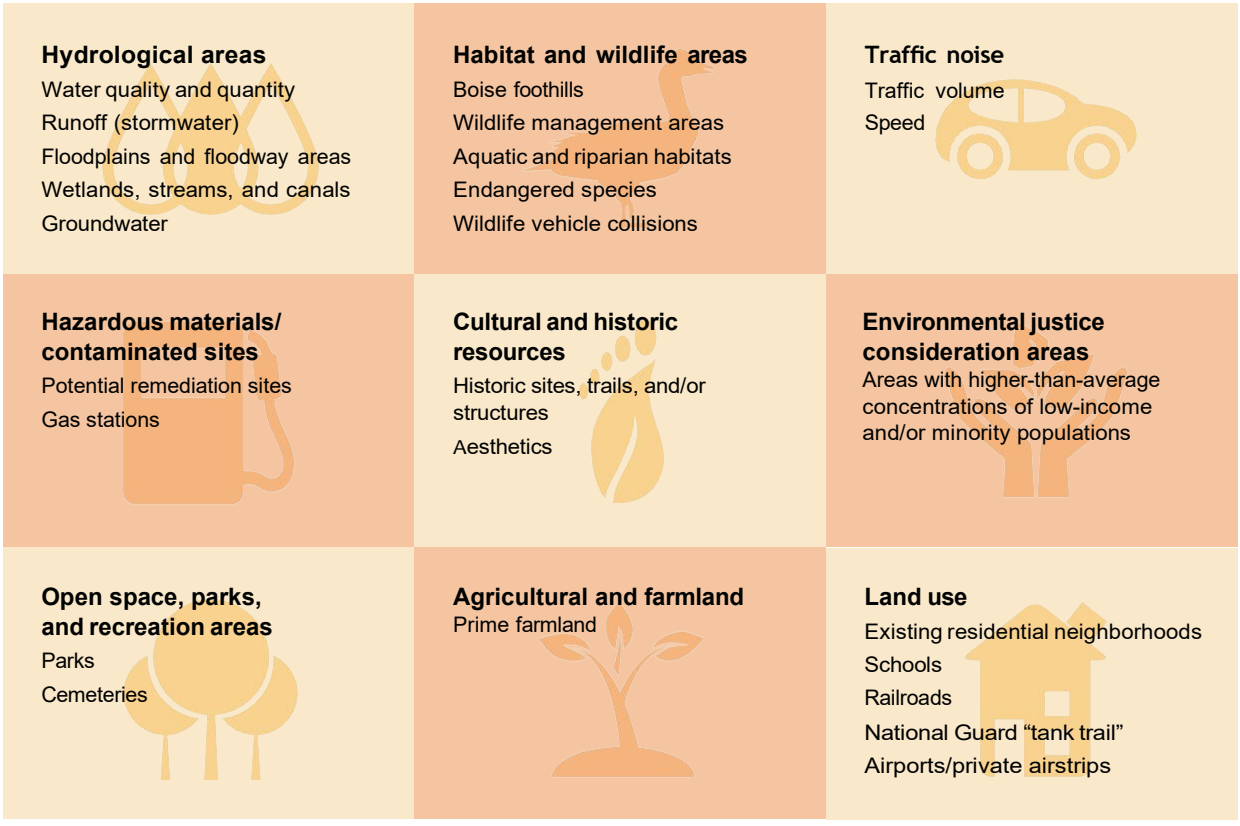


Figure 1 Environmental issues included in analysis[3][5]

As COMPASS updated the transportation system needs for CIM 2050, the environmental analysis for the resulting priority transportation corridors was also updated. Environmental issues were grouped into nine categories (Figure 1) and mapped. Priority transportation corridors were then added to the map (Figure 2)[4] to determine environmental suitability scores. Scores were based on the number of environmental data layers a project overlaps: an area with a higher score contains more potential environmental issues that could be impacted by a transportation project than an area with a lower score. On the map in Figure 2, the higher scores are depicted in a darker color. This same information is also displayed in a matrix, organized by priority roadway corridors (see Appendix).

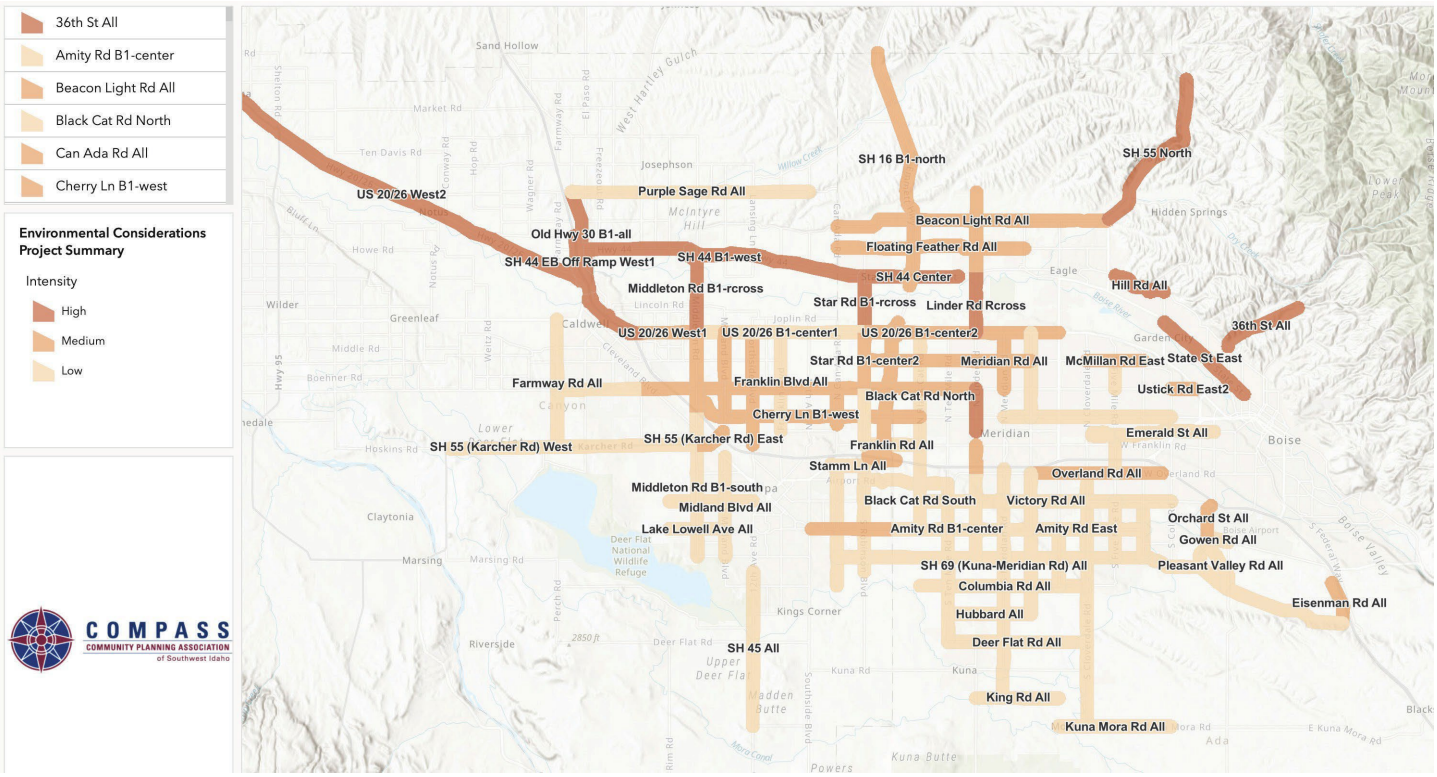


Figure 2. Potential environmental issues along priority corridors. View interactive version.

The Regional Transportation Advisory Committee used the results of this analysis for each priority corridor to assist in the prioritization of needed corridors and projects.[5]

MITIGATION STRATEGIES

Mitigation strategies refer to actions that can avoid or lessen the environmental impact of a project. Participating environmental and natural resource agencies provided and reviewed general mitigation strategies for potential environmental impacts of transportation projects, based on the environmental suitability analysis conducted for CIM 2050.

Mitigation strategies should be approached in the following order, per the National Environmental Policy Act:[6]

1. Avoid the impact altogether by not taking a certain action or parts of an action.
2. Minimize impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action.
5. Compensate for the impact by replacing or providing substitute resources or environments.

COMPASS used the Federal Highway Administration's (FHWA) *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects*[7] framework, which encourages federal, state, tribal, and local partners involved in infrastructure planning, design, review, and construction to use flexibility in regulatory processes, integrate plans across agency boundaries, and endorse ecosystem-based mitigation of infrastructure impacts that cannot be avoided.

The recommended mitigation strategies for the nine categories are described below.

Hydrological Areas

Water Quality and Quantity

Water quality and quantity are key considerations in any planning process. To minimize impacts in this arena, planning efforts should[8]

- encourage redevelopment, rather than new development, to preserve existing permeable lands;
- require low-impact development and strongly encourage zero-impact development;
- restore permeability, habitats, and ecosystems wherever possible; and
- avoid and/or fully accommodate sensitive ecological areas such as streams, riparian areas, wetlands, buffers, and groundwater recharge areas.

Runoff (Stormwater)

Runoff from roads, parking lots, and other impermeable surfaces can collect pollutants and carry them to local rivers and other water bodies such as the Boise River and Lake Lowell. Permeable surfaces, where water can sink into the ground, such as lawns, fields, and even some types of cement, filter water as it passes through, reducing the amount of pollutants carried into local bodies of water while recharging underground aquifers.

General runoff mitigation strategies include

- establishing procedures to control runoff from construction projects;
- designing storm sewers to catch sediment runoff and prevent it from reaching streams and rivers;
- using water catch basins to detain runoff and allow water filtration;
- reducing the use of materials such as sand on icy roads;
- increasing road/surface sweeping to pick up materials before they enter storm drains; and
- using permeable surfaces where appropriate.

A road construction project may be subject to a federal Construction General Permit; if not, a stand-alone Stormwater Pollution Prevention Plan (SWPPP)[9] or a Stormwater Management Plan must be developed.

General mitigation strategies include

- ensuring stormwater requirements are planned/met prior to project implementation;
- implementing a SWPPP or other stormwater management best practices;[10]
- implementing erosion- and sediment-control practices; and
- involving relevant agencies early, including the Idaho Transportation Department (ITD), Idaho Department of Water Resources (IDWR), Idaho Department of Environmental Quality (DEQ), US Environmental Protection Agency (EPA), US Army Corps of Engineers (ACE), local canal or drainage districts, health districts, city/county public works, and local highway districts.

Wetlands, Streams, and Canals

When planning transportation-related projects, avoiding streams and wetlands is the preferred strategy. Federal “no net loss” policies protect, restore, and enhance natural wetlands and other aquatic resources that could be adversely impacted by construction, maintenance, and operations activities. In the event of unavoidable impacts, federal mitigation rules require some sort of mitigation to help ensure no overall net loss of wetland functions; this may include wetland mitigation banking or wetland or stream corridor preservation.

Generally, all transportation projects that may result in the placement of fill (soil or rock) into wetlands, streams, rivers, and other water bodies must be evaluated to determine how to avoid the filling and, if unavoidable, how to minimize and mitigate for the loss. If federal funds are used for a project, the agency building or maintaining the road will be subject to FHWA or Western Federal Lands Highway Division policies regarding wetland mitigation.[11]

All permitting requirements, such as those falling under federal 401/404 "dredge and fill" permits, short-term activity exemptions from DEQ, and Stream Channel Protection Act permits from IDWR, must be met prior to project construction. Transportation agencies should involve IDWR, DEQ, EPA, and ACE early in the planning and/or design process.

Streams and wetlands are governed under federal mitigation standards,[12] which require projects to:

- adhere to "avoid, minimize, compensate" sequencing—that is, avoid impacts to a wetland or other aquatic resource but, if that's not possible, minimize impacts and compensate for them; or
- when impacts can't be avoided, compensate for the lost functions of the impacted aquatic resources and set measurable and enforceable ecological performance standards to ensure successful mitigation.

Groundwater

Groundwater provides a significant portion of the drinking water in southwest Idaho, and thus is extremely important to our growing population. However, population growth has the potential to negatively impact groundwater via increased pollution and new development, which can prevent water from seeping into the ground to recharge the groundwater storage (aquifers).

General strategies to mitigate construction impacts on groundwater include:

- avoiding building in areas of high groundwater (where groundwater is close to the surface);
- closely monitoring activities near aquifer recharge areas;
- disposing of excavation materials in approved areas to avoid leaching;
- implementing steps in DEQ's short-term activity exemption for dewatering operations to prevent intrusion into groundwater; and
- involving city/county public works, local highway districts, ITD, IDWR, DEQ, and EPA in groundwater mitigation activities.

Floodplains and Floodway Areas

Floodplains are areas that are likely to flood. They possess significant natural features and perform numerous functions important to the public interest. Federally funded projects and those involving federal lands must be evaluated for their impact on floodplains.[13]

Local agencies require permits under floodplain ordinances for structures in floodplains, including roads and berms. Most local ordinances do not allow structures in a floodway, the channel that carries water in a river or stream. Regulations are intended to reduce the risk of floodplain loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains.

Habitat and Wildlife Areas

Transportation projects can severely impact wildlife and wildlife habitat. Road construction activities may spread exotic or invasive species, impair crucial habitat and wildlife resources, and/or divide—or "fragment"—wildlife corridors, which often causes animals to cross roadways, resulting in automobile crashes. The Infrastructure Investment and Jobs Act includes funding to conserve, connect, and restore 30% of our lands and waters by 2030.[14]

Crucial habitat contains the space, food, water, and shelter necessary for the survival and reproduction of wildlife. During the transportation planning process, no net loss of habitat should be the desired outcome. Mitigation, in order of priority, should include the following:

- avoidance, such as relocation of the entire project or most impactful portions of the project to a less sensitive area
- minimization, or modifying the project proposal to use means that do not cause as great an impact
    - Minimal habitat disruptions can be specified through conditions of approval and/or alterations in project design, such as providing a wildlife corridor.
- repair and restoration of an affected area to pre-disturbance conditions, or mitigating adverse impacts by restoring or even improving conditions
- compensation, such as replacing animal or habitat value; rectifying functions, habitat types, and species impacted
- providing financial mitigation or restitution to the public for the lost wildlife and/or habitat values

Crucial habitat also includes wildlife corridors and areas that provide connectivity among wildlife populations. Habitat fragmentation can be avoided by consulting mapped habitat areas when planning roads and modifying routes accordingly. When a project unavoidably affects wildlife habitat throughways, impacts can be mitigated by providing strategic placement (or removal) of fences and/or animal passage systems such as wildlife bridges (underpasses) or other structures to span streams, wetlands, seepage areas, riparian areas, shorelines, and open water. These structures are often designed to accommodate both wildlife and water movement. Effective techniques for facilitating wildlife movement and maintaining overall habitat connectivity consider multiple factors such as placement, size, substrate, noise, temperature, light, and moisture.[15]

Several agencies should be involved early in the planning process: Idaho Department of Fish and Game, Idaho Department of Lands, EPA, US Forest Service, Bureau of Land Management (BLM), other public land management agencies (if lands are affected by the project), US Fish and Wildlife Service (if threatened, endangered, or proposed species habitat is involved), FHWA, Idaho Office of Species Conservation, ITD, IDWR, DEQ, counties, and local highway districts.

Traffic Noise

Traffic noise can be an ongoing issue for homes and businesses located along or near busy roads. General strategies to mitigate traffic noise address heavy truck volumes and high speeds, both of which typically increase noise levels.

Planners need to incorporate noise impact abatement techniques into projects and developments within or encroaching any major highway corridor or major local arterial roadway. Abatement options include the use of noise barrier walls, siting less-noise-sensitive uses such as commercial or industrial facilities closer to major roads, and designing buildings with no windows or other openings toward the roadway.

Noise can also be a short-term issue during road construction. Construction noise can be mitigated by controlling hours of work, sequence of operations, and project layout; shielding the work site; requiring certain equipment types and mufflers; and eliminating the use of backup beepers on equipment. Beepers may be eliminated if a flagger is used for backing of equipment or could be replaced by a flashing strobe light at night. FHWA's Construction Noise handbook and construction noise model provide guidance for mitigating construction noise.[16]

Hazardous Materials/Contaminated Sites

If there are any indications that a tract of land pending development could possibly be contaminated with hazardous materials—such as from a leaking or abandoned underground storage tank (e.g., from an old gas station)—a site assessment must be conducted.[17] The property should also be crosschecked against DEQ's inventory of prior uses. If contamination is encountered, a remedial investigation should be conducted using DEQ's *Risk Evaluation Manual for Petroleum Releases*.[18]

The presence of contamination or hazardous materials should not be cause to relocate a project. The cleanup and re-use of contaminated sites for transportation projects actually has several advantages, including avoiding impacts to uncontaminated sites and providing economic and safety benefits to the community. EPA, DEQ, ITD, local highway districts, and cities and counties should be involved early in the site assessment and remediation process.

Cultural and Historical Resources

Impacts to cultural and historic resources, such as historic buildings and areas with tribal significance, should be avoided if at all possible, and may be regulated under the National Historic Preservation Act[19] and Section 4(f) of the Department of Transportation Act of 1966.[20] General mitigation strategies include

- consulting early with the state historic preservation officer and other interested persons and parties to determine what resources may exist in a specific area;
- working with tribal communities to identify cultural resources;
- engaging in community discussion; and
- employing relocation, marking, and other measures as appropriate.

Environmental Justice

State and local transportation agencies have a legal obligation to prevent discrimination and to protect the environment through their plans and programs. Any projects funded with federal dollars and those requiring federal action (such as a permit) must comply with the 1994 Executive Order Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,[21] which states that each federal agency is required to develop an agency-wide environmental justice strategy that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The environmental justice strategy also requires effective community outreach to identify potential impacts. This process is intended to ensure projects avoid, minimize, or mitigate adverse effects on minority and low-income populations.

COMPASS has developed a regional equity index[22] (Figure 3) that aggregates 23 societal, environmental, and transportation factors to score and map the level of equity/inequity by geographic location (based on Transportation Analysis Zones), relative to the region as a whole. Measures include income; educational attainment; proximity by walking to grocery stores, transit, and schools; vehicle ownership; and more.

In addition, locations of concentrations of minority and low-income populations are identified with mapped[23] CIM 2050 transportation projects. This information was, and will continue to be, considered when prioritizing projects and developing participation plans for the long-range transportation plan and the regional transportation improvement program (TIP),[24] a budget of federally funded and regionally significant transportation projects in the Treasure Valley.

Mitigation strategies are guided by the following environmental justice principles:[25]

- avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations
- provide the opportunity for full and fair participation by all potentially affected communities in the transportation decision-making process
- prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

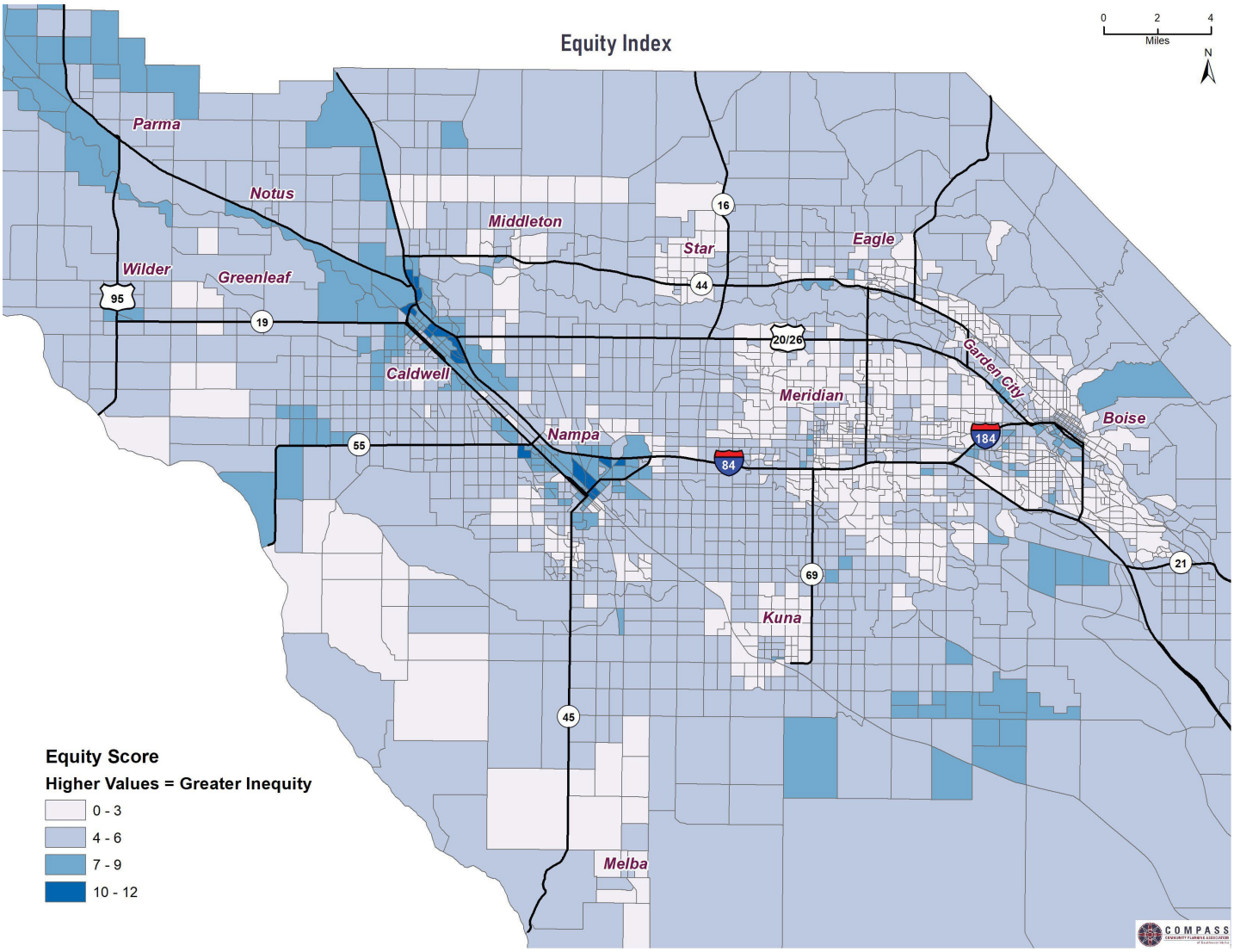


Figure 3. Regional equity index

Open Space, Parks, and Recreation Areas

A publicly owned park, recreation area, wildlife or waterfowl refuge, or historic site, as well as designated wild and scenic rivers, are subject to federal requirements under Section 4(f) of the Department of Transportation Act of 1966. Section 4(f) declares a national policy to preserve, where possible, "the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."[26]

Transportation projects can cross these “special lands” only if there is no other “feasible and prudent alternative” and the sponsoring agency demonstrates that all possible planning to minimize harm has been accomplished. Mitigation measures shall include one or more of the following:[27]

- replacing lands used with lands of reasonably equivalent usefulness and location, and of at least comparable value
- replacing facilities impacted by the project, including sidewalks, paths, benches, lights, trees, and other facilities
- restoring and landscaping disturbed areas
- incorporating design and habitat features where necessary to reduce or minimize impacts to the Section 4(f) property.
    - Such features should be designed in a manner that will not adversely affect the safety of the highway facility.
- paying the fair market value of the land and improvements taken or improvements to the remaining Section 4(f) site
- performing additional or alternative mitigation measures that may be determined necessary based on consultation with the officials having jurisdiction over the parkland, recreation area, or wildlife or waterfowl refuge

Section 4(f) is also called into effect when a project’s impacts in the proximity of the protected area are so severe that the resources’ activities, features, or attributes are substantially impaired, even if the project does not actually intrude into the protected area.

Section 6(f) of the Land and Water Conservation Fund Program[28] provides matching funds to states and municipalities for planning, improving, or acquiring outdoor recreational lands. Typically, such properties are also regulated under Section 4(f), as discussed above.

Agricultural and Farmland

The Farmland Protection Policy Act[29] requires agencies to minimize federally aided conversion of “prime or unique” farmland, consider alternative options, and ensure that federal programs are compatible with state and local programs to protect farmland. Resource lands such as farmlands provide a wealth of benefits, including local goods and economic vitality, preserved agricultural heritage, sense of place, and environmental benefits such as wildlife habitat and groundwater recharge potential.

There are no mitigation strategies to counter the loss of prime farmland or a change in use to non-agricultural uses once farmland is converted. Encouraging growth within an existing community footprint is the primary way to minimize encroachment and development on agricultural lands. To preserve prime farmland, planners should work closely with local land use agencies and others such as the BLM and the Land Trust of the

Treasure Valley to preserve open space and minimize low-density development. Transportation planners working on projects near farmland should involve local planning and zoning agencies and the Natural Resources Conservation Service in the process to preserve and minimize the loss of farmland.

Cities and counties could consider agricultural zoning based on soil quality, mandating minimum parcel sizes based on the quality of the land and other locational factors, and/or mitigating for development next to farmland by using vegetation barriers or topographic buffers. If farmland conversion is unavoidable, some examples of compensation include providing equivalent agricultural acreage elsewhere or paying fees to help fund farmland conservancy programs.

Land Use

The density and mix of buildings and other constructed features shape people's travel needs and habits, which in turn also shape urban form. For example, in areas with higher densities and mixed commercial and residential buildings, people walk, cycle, and use other non-motorized transport more because trip distances are typically shorter and are less likely to require travel on major roadways. When personal vehicles are used in these areas, trips tend to be shorter, and ride sharing is more feasible because there is a greater likelihood that individuals are traveling to and from similar locations.[30]

Transportation planning and design should incentivize high-density and mixed-use building to minimize land consumption from urban sprawl. Siting and design considerations that mitigate impacts include:

- considering the relationship between land-use patterns and travel modes; and
- zoning for open space and developing adequate facility provision ordinances.

To preserve open space and minimize low-density development, planners should work closely with local land-use agencies and others such as the BLM and the Land Trust of the Treasure Valley.

Air Quality

Air quality was not included in the environmental suitability analysis, as Ada and Canyon Counties share one airshed. However, this does not imply that air quality issues are any less important than issues addressed in the suitability analysis. Common near-roadway air quality concerns include public health impacts from vehicle traffic along heavily traveled highways or large roadways.[31]

Strategies to preserve air quality, reduce pollution, and mitigate its impacts can be incorporated into general land-use and transportation planning. For example, locating schools, daycare centers, and nursing homes away from corridors with significant truck traffic or heavily traveled roadways, and installing solid or vegetative barriers to protect nearby residents, can help mitigate health impacts. Designing compact and walkable communities, expanding public and non-motorized transportation systems, and maintaining and maximizing the use of existing transportation infrastructure can reduce transportation-related air pollution. Practical examples of these strategies include providing infrastructure to support carpooling and implementing bicycle and pedestrian plans.

Northern Ada County is an air quality "maintenance area" for carbon monoxide and coarse particulate matter (PM_{10}), meaning that Northern Ada County has violated federal health-based air quality standards for these pollutants in the past, but is now in compliance with those standards and has federally approved plans to maintain compliance in the future. As an MPO in a maintenance area, COMPASS must demonstrate that federally funded and "regionally significant" transportation projects will not degrade air quality in the Treasure Valley. This is referred to as an "air quality conformity demonstration."[32]

Through required computer modeling, COMPASS has demonstrated that the estimated impacts of the funded projects in CIM 2050 meet air quality conformity requirements for Northern Ada County and will not degrade air quality.[33]

The Treasure Valley airshed is subject to stagnant air, which exacerbates the concentration of air pollutants and contributes to the possibility of exceeding health standards again in the future. Pollutants of particular concern are fine particulate matter ($PM_{2.5}$) and ground-level ozone. Strategies in this plan address these pollutants and are intended to reduce the likelihood of future exceedances.

In addition to air quality impacts of using the transportation system, dust generated by transportation-related construction can also cause short-term impacts. These impacts can be mitigated by developing and following a dust prevention and control plan and employing control measures such as

- watering roadways;
- covering loads;
- sweeping roadways;
- applying gravel on dirt roads;
- applying environmentally safe soil stabilizers on dirt roads;
- limiting vehicle traffic on dirt roads; and
- reducing speed limits through construction zones.

Additional air quality mitigation measures during construction can include

- properly maintaining construction equipment;
- evaluating the use of available alternative engines and diesel fuels;
- reducing construction-related traffic trips and unnecessary idling;
- using newer, "cleaner" construction equipment;
- installing emissions-reduction equipment on diesel construction equipment; and
- rerouting truck traffic away from communities and schools.

Adopting a construction emissions mitigation plan will help ensure procedures are sufficiently defined, thereby reducing air quality impacts. Design and implementation of mitigation measures should include consultation with ITD, DEQ, local highway districts, cities, and counties.

State and local agencies and even private businesses have been proactive in protecting air quality throughout the Treasure Valley for several decades. An emissions testing program has been in place in Ada County since 1984, due to violations of the carbon monoxide ambient air quality standard. The program is implemented under local ordinances through the Air Quality Board. In 2005, then-Governor Dirk Kempthorne signed the Regional Air Quality Council Act into law. The act established the Treasure Valley Air Quality Council, which then developed the Treasure Valley Air Quality Plan[34] in 2007.

In 2008, the Idaho Legislature passed House Bill 39-1116b, which required emissions testing in areas that met certain criteria. Both Ada and Canyon Counties met the criteria, so in 2010, an emissions testing program for Canyon County and the City of Kuna[35] was established to fulfill the requirements of this law.

On March 22, 2022, Governor Little signed Senate Bill 1254,[36] which repealed the state's emissions testing requirement and created a process for DEQ to recommend the legislature create any new regional air quality councils when air pollutants reach certain levels. The actions will become effective July 1, 2023.

While this will eliminate the Canyon County/City of Kuna program, additional federal and local actions are needed before the Ada County program could be terminated.

Aside from emissions testing, most other specific actions to curb air pollution have focused on recommendations such as educating the public, planning a transportation system that encourages forms of transportation other than single-occupancy vehicles and discourages idling, planning land use to reduce (or slow the growth of) vehicle miles traveled, and facilitating changes in government and business practices and processes through incentives or, when necessary, regulation.

A few of the many programs that support clean air in the Treasure Valley include

- regional long-range transportation plans for Ada and Canyon Counties that promote development patterns that support the use of transportation alternatives, and thus decrease reliance on single-occupancy vehicles;
- an expanding alternative transportation network, including improvements in public transportation, vanpools/carpools, and bicycle and pedestrian facilities;
- public education and awareness campaigns, including campaigns in the early to mid-2000s sponsored by the Treasure Valley Partnership and DEQ and an ongoing campaign initiated in 2013 funded by the Air Quality Board and DEQ and managed by COMPASS;
- a Stage I Vapor Recovery program;[37]
- employer-based programs to reduce employees' vehicle miles traveled, including incentives to use alternative transportation and/or work from home;[38]

- signal timing to reduce idling of cars in traffic;
- local ordinances regulating open burning and limiting indoor residential burning based on air quality forecasts;[39]
- a crop residue burning program to enable growers to burn crop residue under certain conditions while protecting public health from smoke impacts;[40] and
- organization-specific initiatives, such as purchasing fuel-efficient and alternative-fueled vehicles and maintenance equipment and using paints and other chemicals low in volatile organic compounds (contributors to air pollution).

In addition, any business or industry that emits air pollutants into the air is required to have an air pollution control permit from DEQ[41] to ensure compliance with all state and federal air pollution control rules, which are designed to protect public health and the environment.

FUNDING FOR MITIGATION STRATEGIES

The Infrastructure Investment and Jobs Act provides many new programs and competitive grants that could be used to fund mitigation measures. These programs include the following:

- Wildlife Crossing Safety Program[42]
- National Culvert Removal, Replacement, & Removal Grant[43]
- Carbon Reduction Program[44]
- National Electric Vehicle Infrastructure (NEVI) Formula Program[45]
- Reconnecting Communities Pilot Program[46]
- Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Program[47]

The bill also significantly expands funding for existing programs such as the

- Brownfields Program;[48]
- Bridge Replacement, Rehabilitation, Preservation, Protection, and Construction Program (Bridge Formula Program);[49] and
- Congestion Mitigation and Air Quality Program.[50]

In total, funding for these programs represents a historic opportunity to mitigate the adverse effects of transportation on the environment.

SUMMARY

COMPASS collaborates with environmental and natural resource agencies and organizations and other stakeholders to identify and address environmental issues relevant to long-range transportation planning. COMPASS has worked closely with both transportation and natural resource agencies and organizations in the development of CIM 2050 to consider environmental and resource issues and identify general mitigation strategies.

COMPASS continues to pursue more and better data for a more complete view of potential environmental impacts of transportation improvements, and ways to mitigate them. Other impacts, including effects on quality of life, are discussed in *Prioritization Process*.[51]

Appendix: 2050 Environmental Issues Matrix

Prioritized Projects	Environmental Issues (Low, Medium, High)	Hydrological Areas	Habitat and Wildlife Areas	Hazardous Materials/ Contaminated Sites	Cultural/Historic Resources	Open Space, Parks, and Recreation Areas	Agricultural and Farmland	Land Use	Environmental Justice
Cherry Lane / Fairview Avenue, Middleton Road to Black Cat Road	Medium	●				●		●	●
Five Mile Road and Overpass, Overland Road to Franklin Road	Medium	●	●	●		●		●	
Interstate 84, Centennial Way (Exit 27) to Franklin Road (Exit 29)	High	●	●	●	●	●		●	●
Middleton Road, Cherry Lane to State Highway 44	Medium (south) High (north)	●	●	●	●	●		●	●
Middleton Road, Greenhurst Road to Caldwell-Nampa Boulevard	Medium	●		●	●	●		●	●
Midland Boulevard, Cherry Lane to US 20/26	High	●				●		●	●
Old Highway 30 Corridor US 20/26 to Purple Sage Road	High	●	●	●	●	●		●	●
Robinson Boulevard, Greenhurst Road to Stamm Lane	Medium	●			●			●	
Robinson Boulevard/Star Road, Franklin Road to Ustick Road	Medium	●	●	●		●		●	
State Highway 16, Interstate 84 to State Highway 44 (Phase 3)	Medium	●	●		●	●		●	

Prioritized Projects	Environmental Issues (Low, Medium, High)	Hydrological Areas	Habitat and Wildlife Areas	Hazardous Materials/ Contaminated Sites	Cultural/Historic Resources	Open Space, Parks, and Recreation Areas	Agricultural and Farmland	Land Use	Environmental Justice
State Highway 16 North, State Highway 44 to Deep Canyon Road	High	●	●		●	●			
State Highway 44, Interstate 84 to Star Road	High	●	●	●	●	●		●	●
State Highway 69, Kuna Road to Interstate 84	Low	●	●	●	●	●		●	
Stamm Lane, Garrity Boulevard to Robinson Boulevard	Medium	●		●	●				●
US Highway 20/26, Middleton Road to Star Road (Interim)	Medium	●	●	●					
US Highway 20/26, State Highway 16 to State Highway 55 (Eagle Road) (Ultimate)	Medium (west) High (east)	●	●			●		●	
Ustick Road, Midland Boulevard to Star Road	Medium	●						●	●

Note: Public transportation projects are not included in this environmental analysis as public transportation operates on existing transportation infrastructure.

ENDNOTES

1 23 USC 134:Metropolitan Transportation Planning https://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title23-section134&num=0&edition=prelim

2 COMPASS Environmental Review Process 2008-2013, COMPASS, www.compassidaho.org/documents/prodserv/reports/COMPASS Environmental Review Process 2008_2013.pdf

3 COMPASS Environmental Review Process, 2014-2022, https://www.compassidaho.org/documents/prodserv/COMPASSEnvironmentalReview_2014-2022.pdf

4 CIM 2050 environmental review map, https://www.arcgis.com/apps/dashboards/06b44c3005564daeb2cb9b43602480b0

5 Prioritization Process, CIM 2050, cim2050.compassidaho.org/Prioritization.pdf

6 National Environmental Policy Act, www.ecfr.gov/current/title-40/chapter-V/subchapter-A/part-1508#1508.1

7 Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects, FHWA, www.environment.fhwa.dot.gov/env_initiatives/eco-logical/report/eco_index.aspx

8 Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, Council on Environmental Quality, www.energy.gov/sites/prod/files/NEPA-40CFR1500_1508.pdf

9 Stormwater Pollution Prevention Plan Template, ITD, https://apps.itd.idaho.gov/Apps/FormFinder2DMZ/Home/OpenLink?formnumber=2950

10 National Menu of Best Management Practices (BMPs) for Stormwater, US EPA, www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater

11 Policies based on Executive Order 11990 of May 24, 1977, Protection of Wetlands, www.epa.gov/cwa-404/protection-wetlands-executive-order-11990

12 Ibid.

13 Executive Order 11988 of May 24, 1977, Floodplain Management, www.fema.gov/glossary/executive-order-11988-floodplain-management

14 Conserving and Restoring America the Beautiful, US Departments of the Interior, Agriculture, and Commerce, and the Council on Environmental Quality, https://doi.gov/sites/doi.gov/files/report-conserving-and-restoring-america-the-beautiful-2021.pdf

15 Overview of Transportation Impacts on Wildlife Movement and Populations, Department of Natural Resources Conservation University of Massachusetts, https://ag.umass.edu/sites/ag.umass.edu/files/pdf-doc-ppt/tws_overview_ms.pdf

16 Construction Noise, FHWA, www.fhwa.dot.gov/environment/noise/construction_noise

17 Brownfields All Appropriate Inquiries, US EPA, www.epa.gov/brownfields/brownfields-all-appropriate-inquiries

18 Idaho Risk Evaluation Manual for Petroleum Releases, Idaho DEQ, www2.deq.idaho.gov/admin/LEIA/api/document/download/10602

19 National Historic Preservation Act of 1966, www.achp.gov/sites/default/files/2018-06/nhpa.pdf

20 Section 4(f) of the US Department of Transportation Act of 1966 declares a national policy to preserve, where possible, "the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." www.transit.dot.gov/sites/fta.dot.gov/files/docs/SOP_18.pdf

21 Executive Order 12898 of February 11, 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice

22 Regional Equity Index, https://arcg.is/0znCST0

23 CIM projects with Environmental Justice Areas, https://arcg.is/0znCST0

24 Transportation Improvement Program (TIP), COMPASS, www.compassidaho.org/prodserv/transimprovement.htm

25 Department of Transportation Environmental Justice Strategy, FHWA, www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/dot_ej_strategy

26 Department of Transportation Act of 1966, Section 4(f), www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/faa_nepa_order/desk_ref/media/5-dot-act-section4f.pdf

27 Final Nationwide Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with Minor Involvements with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges, FHWA, www.environment.fhwa.dot.gov/legislation/section4f/4f_minor_parks.aspx

28 Land and Water Conservation Fund Act, Section 6(f), http://ddotsites.com/documents/environment/Files/Chapters/Chapter_23_-_Section_6(f)_-_Land_and_Water_Conservation_Fund_Areas.pdf

29 Farmland Protection Policy Act, www.gpo.gov/fdsys/pkg/CFR-2013-title7-vol6/pdf/CFR-2013-title7-vol6-part658.pdf

30 Reference Sourcebook for Reducing Greenhouse Gas Emissions from Transportation Sources, FHWA, https://rosap.ntl.bts.gov/view/dot/50817

31 Near Roadway Air Pollution and Health, US EPA, https://www.epa.gov/mobile-source-pollution/how-mobile-source-pollution-affects-your-health#best-practices-for-schools

32 Air Quality Conformity Demonstrations, COMPASS, www.compassidaho.org/prodserv/aq-demo.htm

33 CIM 2050 Draft Air Quality Conformity Demonstration, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/DRAFTFY2329TIPConformity.pdf

34 Treasure Valley Air Quality Plan, Treasure Valley Air Quality Board, www.compassidaho.org/documents/planning/studies/TVAirQualityPlan_Feb2007.pdf

35 The City of Kuna is located in Ada County, but did not participate in the Ada County program established in 1984. The emissions testing program in the City of Kuna is administered as part of the Canyon County program.

36 Senate Bill 1254 – Frequently Asked Questions https://docs.google.com/document/d/12BxI4ATAtS9pfISV_vsJvM3elmJG6R9Z/edit

37 Vapor recovery is a process of capturing gasoline vapors that would otherwise escape during the transfer of fuel from delivery trucks to storage tanks at retail gas stations; when unchecked, these vapors contribute to air pollution.

38 Commuteride Works, ACHD Commuteride, www.commuteride.com/employers

39 Can I Burn?, Idaho DEQ, www.deq.idaho.gov/air-quality/smoke-and-burning/can-i-burn

40 Crop Residue Burning, Idaho DEQ, www.deq.idaho.gov/air-quality/smoke-and-burning/crop-residue-burning

41 Air Quality Permitting, Idaho DEQ, www.deq.idaho.gov/permits/air-quality-permitting

42 Building a Better America Fact Sheet for Rural Communities, US Department of Transportation, www.transportation.gov/briefing-room/building-better-america-fact-sheet-rural-communities

43 New Infrastructure Law Funds Dam and Culvert Removal, PEW Trusts, www.pewtrusts.org/en/research-and-analysis/articles/2021/11/19/new-infrastructure-law-funds-dam-and-culvert-removal

44 Carbon Reduction Program, FHWA, www.fhwa.dot.gov/bipartisan-infrastructure-law/crp_fact_sheet.cfm

45 National Electric Vehicle Infrastructure Formula Program, FHWA, www.fhwa.dot.gov/bipartisan-infrastructure-law/nevi_formula_program.cfm

46 Reconnecting Communities Pilot Program – Planning Grants and Capital Construction Grants, US Department of Transportation, www.transportation.gov/grants/reconnecting-communities.

47 Get Ready to Apply for PROTECT Resilience Grants, National League of Cities, www.nlc.org/article/2022/05/09/get-ready-to-apply-for-protect-resilience-grants/

48 Bipartisan Infrastructure Law: A Historic Investment in Brownfields, EPA, www.epa.gov/brownfields/bipartisan-infrastructure-law-historic-investment-brownfields

49 Bridge Formula Program (BFP), FHWA, www.fhwa.dot.gov/bipartisan-infrastructure-law/bfp.cfm

50 Congestion Mitigation and Air Quality Improvement Program, US Department of Transportation, www.fhwa.dot.gov/fastact/factsheets/cmaqfs.cfm

51 Prioritization Process, CIM 2050, cim2050.compassidaho.org/Prioritization.pdf

Financial Plan

Communities in Motion 2050 (CIM 2050) plans a future transportation system based on forecasted growth and present and future transportation needs. However, it is not simply a "wish list" of transportation projects. CIM 2050 is grounded in a solid financial plan, which lays the foundation for what projects can, *and cannot,* realistically be implemented by 2050.

The financial analysis for CIM 2050 estimates funds available for the operation, preservation, and expansion of the transportation system within the COMPASS region through 2050.

In October 2021, the COMPASS Board of Directors adopted a funding policy[1] for CIM 2050 to guide how federal funds are programmed (budgeted) through this plan and the regional transportation improvement program (TIP)[2]:

- Use anticipated available funding in Ada and Canyon Counties to strategically address regional priorities[3] as identified in the regional long-range transportation plan.
- Focus federal formula funds in Ada County (Surface Transportation Block Grant–Transportation Management Area [STBG-TMA]) to maintain the existing transportation network and fill gaps in the alternative transportation system. Use new available funding to strategically address regional priorities.
- Use federal formula funds in Canyon County (STBG-Urban) to address regional priorities as identified in the regional long-range transportation plan.

COMPASS will implement the funding policy using performance-based planning[4] and programming.

WHY PREPARE A FINANCIAL ANALYSIS?

Federal rules require plans produced by metropolitan planning organizations such as COMPASS include only projects that have a reasonable expectation of being funded. This is due in part to the fact that plans must demonstrate that the future transportation system (the existing transportation system plus all projects funded in the plan) will conform to federal air quality regulations.[5] Projects that do not have funding identified to pay for them cannot be included in the analysis.

However, of equal or even greater importance, local and state officials and residents need to understand the fiscal outlook for the transportation system over the next 20+ years so they can plan, govern, and participate effectively.

TRANSPORTATION AGENCIES INCLUDED IN THE ANALYSIS

The financial analysis took into consideration the plans and operations of the 15 public agencies in Ada and Canyon Counties that provide transportation services and infrastructure (each are described in more detail below):

- Ada County Highway District/Commuteride
- Canyon Highway District No. 4
- City of Caldwell
- City of Greenleaf
- City of Melba
- City of Middleton
- City of Nampa
- City of Notus
- City of Parma
- City of Wilder
- Golden Gate Highway District No. 3
- Idaho Transportation Department
- Nampa Highway District No. 1
- Notus-Parma Highway District No. 2
- Valley Regional Transit

Treasure Valley Transit and Boise State University also provide limited public transportation services but are not included in this financial analysis.

Ada County Highway District (ACHD). Ada County is unique in Idaho and the nation in that it has a single, county-wide highway district with an independently elected commission. ACHD maintains roadways and sidewalks and makes improvements throughout the county except for public roads under Idaho Transportation Department (ITD) jurisdiction. No cities have roadway jurisdiction in Ada County.

ACHD Commuteride. ACHD Commuteride is a program of the Ada County Highway District. ACHD Commuteride's mission is to promote smart commute options through education, ride-share services, and effective partnerships. ACHD Commuteride is best known for its vanpools, with routes that extend from the City of Ontario (Oregon) on the west to Mountain Home on the east, and from Emmett on the north to Melba on the south. While most vanpools bring commuters into Boise-area employment centers, there are also reverse routes such as a route from the City of Boise to the Mountain Home Air Force Base near the City of Mountain Home. In fiscal year (FY) 2021, Commuteride provided almost 104,000 one-way passenger trips in approximately 73 vanpool routes. In FY2019 (pre-pandemic), Commuteride reported almost 175,000 one-way passenger trips in approximately 80 vanpool routes.

Canyon County agencies. Unlike Ada County, the cities in Canyon County have jurisdiction over their roadways. The Cities of Nampa, Caldwell, Middleton, Parma, and Wilder have their own road departments; the remaining smaller cities contract with highway districts to maintain roads within the city limits. The four highway districts that serve the smaller cities and unincorporated areas in Canyon County are Nampa Highway District No. 1, Notus-Parma Highway District No. 2, Golden Gate Highway District No. 3, and Canyon Highway District No. 4 (Figure 1).

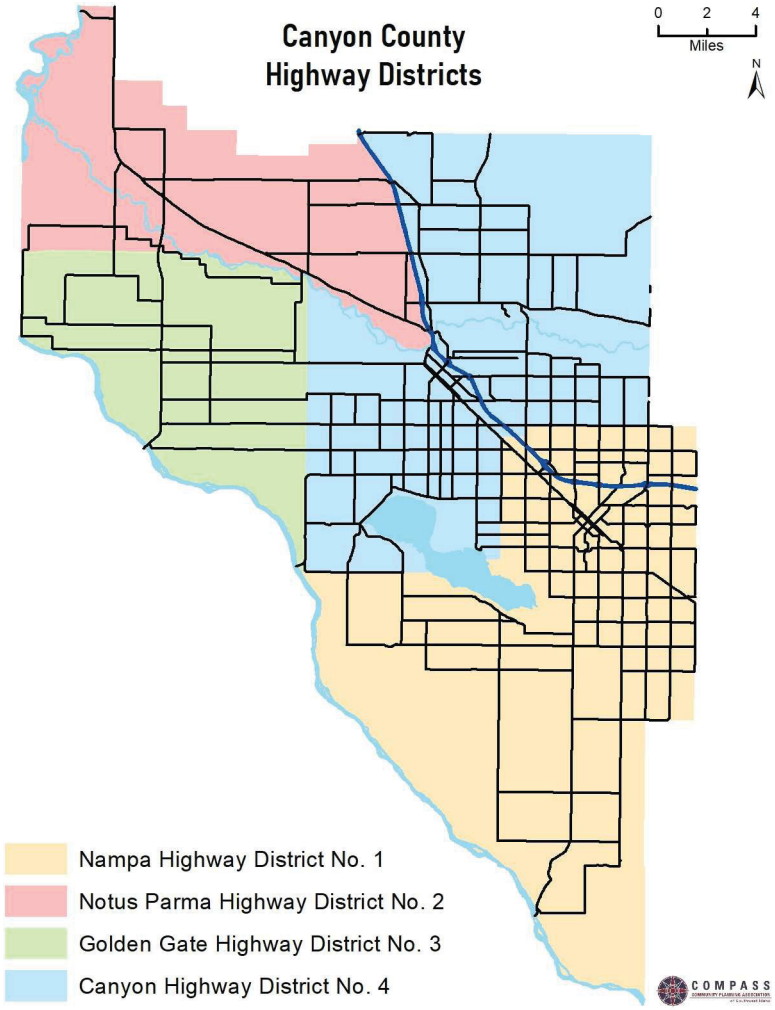


Figure 1. Canyon County highway districts

Idaho Transportation Department. ITD has jurisdiction over state and federal roadways throughout the state and has programs addressing rail and air transportation. ITD District 3 comprises 10 counties in southwest Idaho, including Ada and Canyon Counties. These 10 counties contain 46.0% of the state's population; Ada and Canyon Counties alone contain 39.5% of the state's population.[6]

Valley Regional Transit (VRT). VRT was established by vote in 1998 as the Regional Public Transportation Authority for Ada and Canyon Counties. It plans, manages, and coordinates public transportation,[7] including fixed-route bus services within and between Ada and Canyon Counties. VRT currently has five transit centers and approximately 800 physical bus stops in the two counties. It also provides paratransit services—door-to-door service for people who have special needs and live within three-quarters of a mile of a fixed route. In addition, VRT offers on-demand transit in the Cities of Caldwell and Nampa and multiple specialized transportation services that connect low-income, minority, and senior residents to medical services,

employment opportunities, and recreation. In FY2021, VRT reported almost 1 million one-way passenger trips on all types of public transportation services (excluding ACHD Commuteride, which is described above). In FY2019 (pre-pandemic), VRT reported almost 1.5 million one-way passenger trips.

OVERVIEW OF AGENCY BUDGET CATEGORIES

In any given year, transportation agency revenues may exceed expenditures, or vice versa, but over the long term, revenues and expenditures must balance.

Agency budgets include three primary cost categories:

- Operations: administration, utilities, fuel, labor, insurance, etc.
- Preservation and rehabilitation (maintenance of the existing system): sweeping roadways, patching potholes, applying chip seals and overlays, repairing and replacing buses and other equipment, and replacing bridge decks
- Expansion: building or expanding roads, bridges, or pathways; adding new services and equipment, such as buses

Debt service is also included in some agencies' budgets when bonding, such as Grant Anticipation Revenue Vehicle (GARVEE) bonds, is used to fund transportation projects.

Transportation agencies budget for debt service and operating costs first, then preservation and rehabilitation costs. By estimating future revenues, then subtracting estimated future debt service, operations, maintenance, and preservation costs, agencies can determine if there are funds left for new capacity, such as adding lanes or buses.

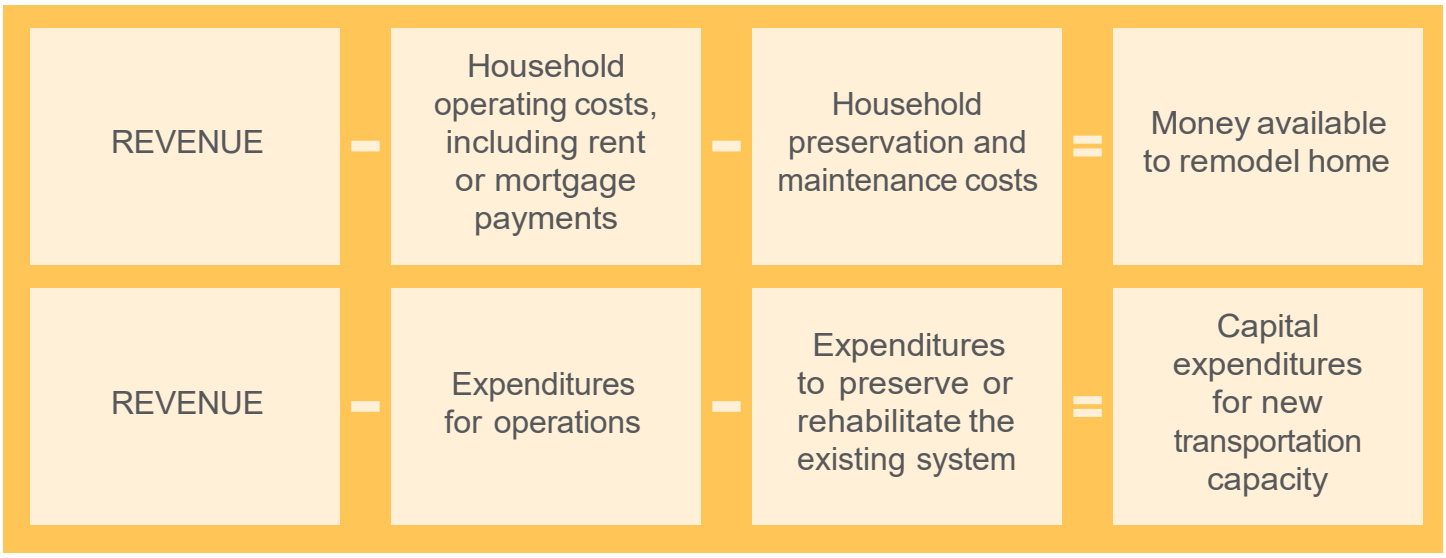


Figure 2. The budgeting process used by transportation agencies is similar to that of a homeowner.

This process is similar to budgeting for a home (Figure 2). If a homeowner knows her income (revenue), the cost to operate and maintain the home (mortgage, utilities, routine upkeep), and the cost to preserve/rehabilitate the home (larger repairs such as replacing a broken furnace), she can figure out if she has enough money left for something new, such as a kitchen remodel or an additional room.

REVENUE ASSUMPTIONS

Funds for transportation infrastructure and services come mainly from federal, state, and local taxes (Figure 3). Funding sources are described below, along with the assumptions used to project future revenues for each source.

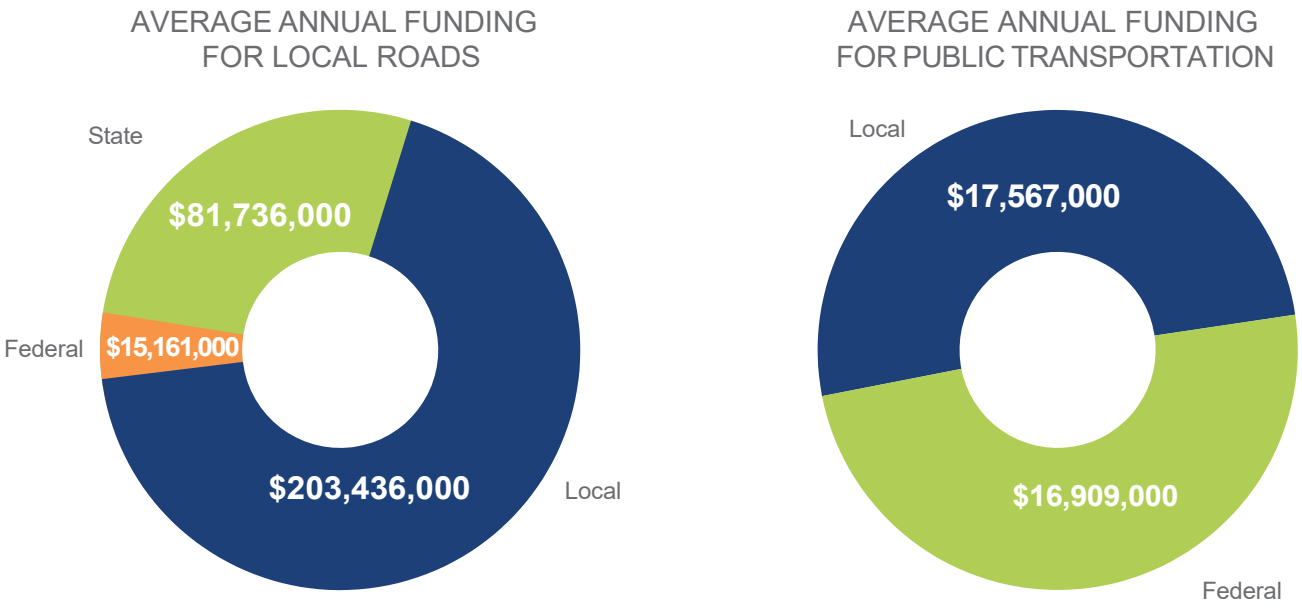


Figure 3. Transportation funding sources, Ada and Canyon Counties (approximate values based on a 28-year projected average)

Federal Funding Sources for Roadways and Transit

The Highway Trust Fund is the primary source of federal funds for local roads and many transit projects across the country. It is funded by the federal fuel tax, which has been fixed since 1993 at 18.4 cents per gallon of gasoline and 24.4 cents per gallon of diesel.

In November 2021, the Infrastructure Investment and Jobs Act (IIJA),[8] also known as the Bipartisan Infrastructure Law, was signed into law, authorizing federal funding for transportation for a five-year period (FY2022–2026). The IIJA provides over $550 billion nationwide in *new* federal infrastructure investments, including roads, bridges, and mass transit; water infrastructure; and broadband.

Several federal funding programs address transportation. Most of these require some level of local cost share, or "match," which typically comes from state or local funding, described below.

The National Highway Performance Program is the largest federal funding program, with approximately $209 million apportioned to Idaho in 2022; most of this is used on Idaho's state and national highway system. The Surface Transportation Block Grant Program, with a little over $101 million in 2022 for Idaho, provides flexible funding that may be used by state and local jurisdictions to preserve and improve the conditions and performance of any road, pedestrian, bicycle, or transit capital project on any federal-aid-eligible facility.[9, 10] The Boise Urbanized Area[11] received approximately $11 million for local projects specifically within the Boise area. Jurisdictions outside the Boise Urbanized Area compete for funds with similarly sized jurisdictions across the state.

For non-motorized modes, such as pathways and other active transportation[12] needs, the IIJA expanded the Transportation Alternatives Set-Aside Program. Over $9 million was apportioned to Idaho in 2022, with almost $1 million specifically for projects in the Boise Urbanized Area. In addition, the Carbon Reduction Program is a new program for projects that will reduce the carbon footprint. The State of Idaho was apportioned over $9 million in FY2022 for this program, as well, with more than $1.3 million specifically for projects in the Boise Urbanized Area.

Also in FY2022, the State of Idaho was also allocated nearly $22 million for safety improvements, $2 million for railway/highway crossings, $10 million for freight improvements, and $11 million for projects to prepare for natural disasters and develop resilient infrastructure across the state.

The IIJA authorized $35 million to the State of Idaho in FY2022 in public transportation formula funding programs, an increase of 25% over FY2021 appropriations. Most federal public transportation funding is based on a formula that is tied closely to transit ridership.

For FY2022–2026, the financial analysis used the federal funding amounts in the FY2022–2028 TIP,[13] which reflect funds already programmed (budgeted) for projects. However, based on the US Congress' reluctance to increase the federal fuel tax, a very modest increase in total fuel usage over time, and fluctuating historic federal revenues for local jurisdictions, the COMPASS financial analysis for FY2027–2050 is based on a five-year average of historic federal revenues from 2016-2022.

The IIJA includes many opportunities for transportation funding through nationally competitive grant programs as well, including, but not limited to the following (dollar amounts reflect expected funding available nationally in FY2022 and annually thereafter through FY2026):

- Bridge Investment Program, for bridge replacements ($2.36 billion)
- Rebuilding American Infrastructure with Sustainability and Equity, for projects that assist communities in developing and constructing projects with significant local or regional impact ($2.3 billion)

- Multimodal Project Discretionary Grants
  - National Infrastructure Project Assistance, specific for very large projects ($1 billion)
  - Infrastructure for Rebuilding America Grants, specific for nationally significant multimodal freight and highway projects ($1.6 billion)
  - Rural Surface Transportation Grants, specific to projects in rural areas ($300 million)
- Low or No Emission Grants, for expanding or replacing buses with low or no emission vehicles ($1.1 billion)
- Safe Streets and Roads for All, for safety improvements ($1 billion)
- Railroad Crossing Elimination Program, for projects that create grade separations, such as overpasses and underpasses, or close at-grade rail crossings, relocate rail, or improve warning devices at rail/ highway crossings ($573 million)
- Reconnecting Communities Pilot Program, which assists communities previously cut off by transportation facilities to reconnect to economic opportunities ($195 million)

State Funding Sources for Roadways

Most state funding for roadways comes from Idaho's Highway Distribution Account, with additional new funding through sales tax and other means. Bonding also provides much needed funds for transportation projects in the valley; however, bonds do not provide "additional" funding, per se, as they must be paid back.

As of 2019, state fuel taxes made up the largest portion (65.5%) of Idaho's Highway Distribution Account, which allocates money to ITD and local jurisdictions.[14] Vehicle registration fees on cars and trucks, as well as driver licensing and miscellaneous fees, supply the remaining percentage.

In 2017, the Idaho Legislature passed Senate Bill 1206, known as the "GARVEE bill," which allowed a portion of the highest-priority unfunded project in the 2014 *Communities in Motion 2040*[15] plan (widening I-84 in Canyon County) to be funded. The bill also included a new funding source for transportation expansion and congestion mitigation ("TECM" funds) and adjusted Surplus Eliminator funds (surplus funds from the state's general fund, dedicated to transportation).[16]

The TECM program uses sales tax transfers to address and mitigate transportation congestion. In FY2021, House Bill 362 increased the transfer of sales tax from 1% to 4.5%, or a minimum of $80 million, beginning in state fiscal year 2022. These funds made construction of the State Highway 16 extension possible.[17] In addition, the bill includes a provision for funds in excess of $80 million to be distributed to local agencies through the Local Highway Distribution Account.

Senate Bill 1201, passed during the 2019 Legislative Session, removes the Idaho State Police funding from the Highway Distribution Account formula over a period of five years beginning with FY2022. This action will result in an additional $1.9 million per year for transportation projects over those five years, for a total of approximately $11 million when the transition is complete in state fiscal year 2026.

The COMPASS financial analysis assumes highway user revenues will increase by approximately 0.9% per year based on high-level planning estimates provided by ITD's econometric models. The analysis assumes other state revenues will increase linearly based on a 10-year (2011–2020) trend of historic revenues.

Vehicle Registration Fees

ACHD and ITD both collect vehicle registration fees. ACHD's fees are for Ada County only and were passed by county voters in 2008. They are collected in addition to the statewide registration fees collected by ITD. The fees are a fixed rate based on the age of the vehicle, so revenue will only grow if the Idaho Legislature increases the rate, the number of licensed vehicles increases, and/or voters approve a local increase in the registration fee. The latest statewide increase in registration fees (passed by the Idaho Legislature) came into effect in 2015. Electric vehicles pay a higher registration fee than other vehicles to help offset the lack of contribution to the fuel tax.

Local Funding Sources for Roadways

Property Taxes

Property taxes are the single largest source of local funding for roads and are assessed directly by the cities in Canyon County and the highway districts in both counties. In Canyon County, the highway districts also return a portion of the property tax revenue to the cities within their boundaries (Caldwell, Greenleaf, Melba, Middleton, Nampa, Notus, Parma, and Wilder). Each jurisdiction's property tax revenues are projected forward linearly based on a 10-year (2011–2020) trend of historic revenues.

Impact Fees

ACHD, the City of Nampa, and the City of Middleton collect impact fees on new development; the fees are designed to partially recover the costs associated with the increase in traffic on major streets in the general area of the development. Impact fee levels can increase with inflation, but revenues depend on a relatively volatile local construction market.

Under Idaho law, impact fees can recover only the "proportionate" costs associated with improving capacity. The fees cannot be used for existing problems, repairs, safety enhancements, transit, or improvements such as sidewalks that do not expand the road system. To determine the impact fee revenues that may be available through 2050 for ACHD and City of Nampa, the financial analysis applied a linear 10-year (2011–2020) projection of historic impact fees. With the recent adoption of transportation impact fees for the City of Middleton, historic fee data were not available. These fees were projected forward by multiplying the current fee-schedule rate for a single-family dwelling unit by the net new households estimated for each year in COMPASS's demographic forecasts.

In ACHD's 2020 Capital Improvements Plan (2020–2040), of $1.169 billion in total costs for roadway improvements, $642 million, or 55%, are eligible for funding with impact fees.[18]

In the City of Nampa's Impact Fee Study and Capital Improvement Plan (2021–2030), of $223 million total costs for streets and intersections, equipment, facilities, and growth-related research, $93 million, or 42%, are eligible for funding with impact fees.[19]

The City of Caldwell and Canyon Highway District are currently considering implementing impact fees, which, if enacted, will impact future financial projections.

Vehicle Registration Fees

ACHD collects vehicle registration fees. These fees are for Ada County only and were passed by county voters in 2008. They are collected in addition to the statewide registration fees collected by ITD. (See "State Funding Resources for Roadways" above for more detail.)

Other Local Revenue Sources

Other local revenue sources include items such as interest earnings and bond proceeds. The City of Nampa has historically supplemented its transportation budget by periodically issuing General Obligation bonds and intends to continue this practice. But, like a loan, bonds must be repaid with revenue from existing or new sources.

Local Funding Sources for Transit Services

Local transit funding comes from rider fares, service contributions from local institutions such as Boise State University, employer pass sales, contributions from local governments and other entities, and advertising revenues. Before the pandemic, fares covered almost 7% of local transit operations costs. However, with ridership struggling to reach pre-pandemic levels, revenues from fares are lower. VRT is reviewing opportunities to increase fare and other directly generated revenues by improving the productivity of services and identifying other revenue streams. Additionally, VRT plans to review fare revenues to determine if the fare structure should change. Contributions from local jurisdictions are expected to increase over time. In 2019, the City of Boise made a commitment to provide 5% of its general fund towards the transit system within the City of Boise.

Idaho does not have a dedicated funding source for public transportation. The lack of a consistent source of local funding for transit services strongly inhibits development of the plans and vision for high occupancy transit services in the Treasure Valley.

OPERATIONS, MAINTENANCE, AND PRESERVATION ASSUMPTIONS

The financial analysis assumes that operations and preservation/reconstruction expenditures for roads and transit will trend at their historic levels; therefore, a historic linear 10-year (2011–2020) trend to project annual expenditures for operations, maintenance, and preservation to 2050 was used. This method provides a reasonable estimate of future expenditures but is reliant on assumptions about current road conditions and that historic spending patterns will be sufficient to keep roads adequately maintained. Current roadway conditions vary across the region, and some agencies need to address deferred maintenance needs.

VRT is in the process of transitioning to an all-electric fleet[20] (Figure 4) for fixed-route services, which will impact costs. Electric buses cost up to 69% more than the compressed natural gas buses VRT has been using; however, they are anticipated to cost less to operate and maintain. As VRT's conversion to electric is in the infancy stage, historic data on the overall financial impact are not yet available. VRT has been successful in obtaining competitive grant funding to help offset the cost of purchasing electric buses and related infrastructure.

Based on the size and age of the current vehicle fleets, and current annual expenditures for bus replacements, VRT and Commuteride could fall behind in bus and van replacements, which is another form of deferred maintenance.

Figure 4. VRT is converting its bus fleet to electric buses. Photo: Valley Regional Transit.

If roadway and transit agencies are not able to address deferred maintenance, it is reasonable to expect that preservation/reconstruction expenditures in future years will trend higher than historic levels, even after adjusting for inflation, as costs to reconstruct or replace deteriorated infrastructure are greater than costs to preserve well-maintained infrastructure.

FUNDED CAPITAL PROJECTS

CIM 2050 includes nearly $3.5 billion in funded transportation capital improvements between 2022 and 2050. Roadway capital projects are projects that add capacity (e.g., widen the roadway with additional through lanes) on roads functionally classified as a principal arterial or higher. These projects are listed as short-term funded projects (2022–2026)[21] and long-term funded projects (2027–2050).[22]

NON-CAPITAL FEDERALLY FUNDED PROJECTS

Non-capital federally funded investments in the transportation system are divided into nine categories of projects in the FY2022-2028 TIP.[23] The percentages shown correspond to the cost of all projects budgeted in the program. These categories account for approximately 30% of the total funds; the remaining funds are budgeted for capital projects (above).

ROADWAY MAINTENANCE

Thirty-six roadway maintenance projects are funded in the TIP throughout Ada and Canyon Counties. These projects cover a range of maintenance elements, such as seal coating and resurfacing of existing roadways, at a total cost of **$173.4 million**, or about 13.5% of the budgeted projects.

PUBLIC TRANSPORTATION

Thirty-four public transportation projects are funded over the next five years throughout Ada and Canyon Counties. These projects cover bus service operations, maintenance of existing facilities, and bus replacements, with a combined cost of **$99 million**, or about 8% of the budgeted projects.

BRIDGE REHABILITATION AND REPLACEMENT

Four bridge rehabilitation or replacement projects are funded over the next five years throughout Ada and Canyon Counties. Bridge project costs range from about $1 million to $18 million depending on the length of bridge and type of structure. These bridge projects have a total cost of $68.5 million and consume about 5% of the budget.[24]

STUDIES/PLANNING/SPECIAL PROJECTS

Five studies, planning efforts, or special projects are funded in the TIP. These projects range from supporting planning efforts for various municipalities to conducting an environmental reevaluation on a major corridor. These types of projects have a combined cost of **$23 millio**n, or just under 2% of the FY2022–2028 budget.

The IIJA includes a new requirement that COMPASS must use 2.5% of its planning funds toward planning activities related to complete streets or multi-modal travel. The COMPASS Board of Directors adopted the COMPASS Complete Network Policy[25] on December 20, 2021. Staff is incorporating that policy in project selection and reporting criteria. The IIJA also includes a high emphasis on reducing fatalities and serious injuries due to design-related crashes. COMPASS will be developing a Safety Action Plan to determine priorities and strategies to greatly decrease serious crashes.

SAFETY

Twenty safety projects are funded in the TIP. These projects cover a range of elements such as sidewalk improvements and road and railroad intersection improvements at a total cost of **almost $9.5 million**. While these 20 projects specifically categorized as "safety" consume less than 1% of the budget, nearly all construction projects (part of the 70% of funding budgeted for capital projects) include safety components.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

ITS is the application of sensing, analysis, control, and communication technologies to improve transportation safety, mobility, and efficiency. One ITS project is funded in the TIP at a cost of **$2.3 million**, less than 1% of the budget.

Transportation Demand Management (TDM)

TDM is a general term for strategies that result in more efficient use of transportation resources. Two TDM projects—both improvements to the ACHD Commuteride program—are funded over the next five years and account for a total of **$2.6 million**, or less than 1% of the budget.

Paved Pathways

Nine paved pathway projects are funded in the TIP to help improve connectivity for active transportation modes. These projects costs **over $12 million**, just under 1% of the budget.

Bicycle/Pedestrian Enhancements

Two bicycle/pedestrian enhancement projects are funded in the TIP—a sidewalk ramp to meet design requirements under the Americans with Disabilities Act and a safe roadway pedestrian crossing. These projects cost **$373,000**, or less than 1% of the budget.

Local Investments

Combined, local transportation agencies in Ada and Canyon Counties are projected to spend an average of $322 million each year on the local road system between 2022 and 2050. This includes maintenance and operational costs (equipment, administration, etc.), but does not include deferred maintenance or transit improvements to offset the effects of the area's projected growth through 2050. It is estimated that local agencies in Ada and Canyon Counties will defer approximately $29 million of their needed maintenance annually.

AVAILABLE STATE FUNDING FOR NEW ROADWAY CAPACITY

ITD estimates approximately $1.7 billion in inflated costs will be available for capacity and safety improvements on the state system within Ada and Canyon Counties through 2050. This is based on obtaining statewide competitive funding as well as $80 million per year (statewide) in TECM funds discussed earlier.

AVAILABLE LOCAL FUNDING FOR NEW ROADWAY CAPACITY

Based on the assumptions discussed above, the financial analysis estimates that funding available for local roadway expansion (adding capacity to the system) in Ada and Canyon Counties between 2022–2050 will be about $1.5 billion in inflated costs.

The main source of this local funding is impact fees (Figure 5). Impact fees can only be used for the additional proportionate capacity required from new development and may not be used for maintenance or repair of the existing system.

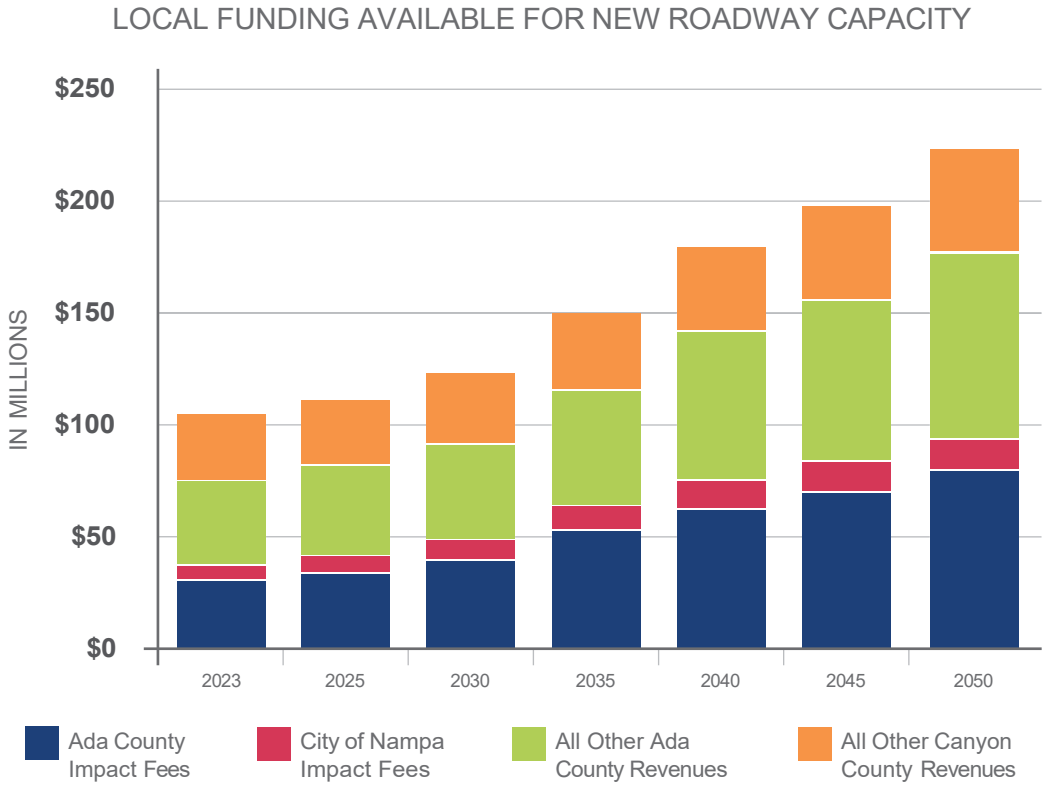


Figure 5. Estimated annual revenue available for roadway system expansion projects

The financial analysis indicates that the costs to cover all transportation needs on local roadways exceed available funding (Figure 6). Funds for expanding the roadway system are insufficient for all agencies except ACHD and the Cities of Nampa and Middleton, which collect impact fees. If additional agencies adopt impact fees or other revenue mechanisms, roadway jurisdictions will be better able to address capacity needs.

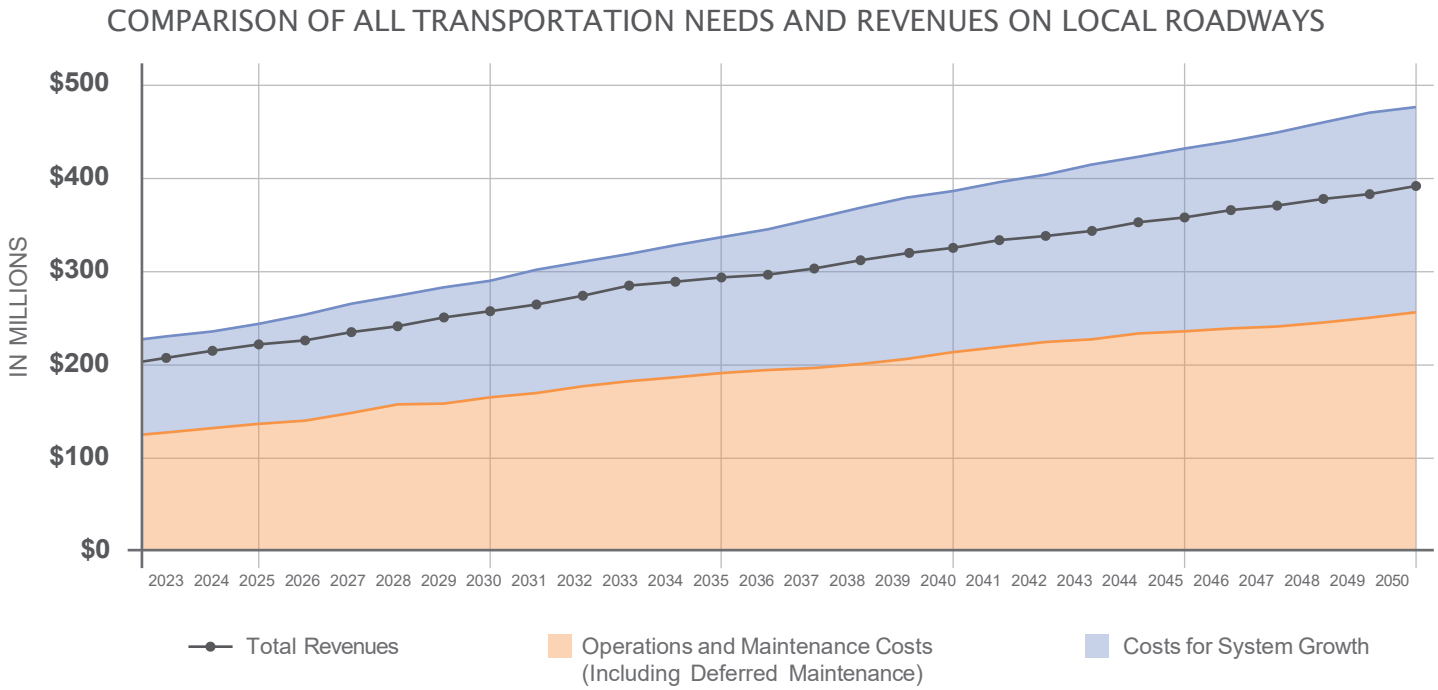


Figure 6. Future revenues, expenditures, and remaining funds available for system growth on local roadways, Ada and Canyon Counties combined, assuming 4% inflation for expenditures

AVAILABLE FUNDING FOR TRANSIT EXPANSION

VRT is the regional public transportation authority for Ada and Canyon Counties and oversees the ValleyRide bus system. ACHD's Commuteride vanpool program operates in both counties, but routes must connect to or travel through Ada County. VRT is exploring options to expand vanpool service in Canyon County.

Current contributions from local municipalities to VRT, coupled with projected federal revenues, are insufficient to maintain existing service levels. Approximately 42% of the service needed to meet future demand can be funded with current and forecasted revenue sources.

ValleyConnect 2.0,[26] adopted in 2018, is a plan that lays out how the region's transit system should grow to meet growth forecasted in *Communities in Motion 2040 2.0*[27] (the previous long-range transportation plan) and levels of transit service consistent with other mid-sized metropolitan areas. ValleyConnect 2.0 seeks to increase directly generated revenues by improving the productivity of the existing network, increasing fare sales and advertising revenues, and working with local jurisdictions to identify new revenues to quadruple fixed-route transit services and expand specialized services to fill gaps in the transit network. Additionally, VRT plans to aggressively pursue competitive grant opportunities to help expand transit service in Ada and Canyon Counties. VRT's Transportation Development Plan[28] is the five-year workplan to realize service levels laid out in ValleyConnect 2.0.

While efforts to increase funding for public transportation are ongoing, by 2050 public transportation will still face a significant shortfall. The COMPASS financial analysis assumes municipalities will maintain their current levels of contributions to VRT over time, adjusted for inflation. Regardless, costs are assumed to increase more rapidly than revenue (Figure 7). By 2050, the system will face an estimated $328 million deferred maintenance need, in addition to $982 million in unfunded public transportation costs.

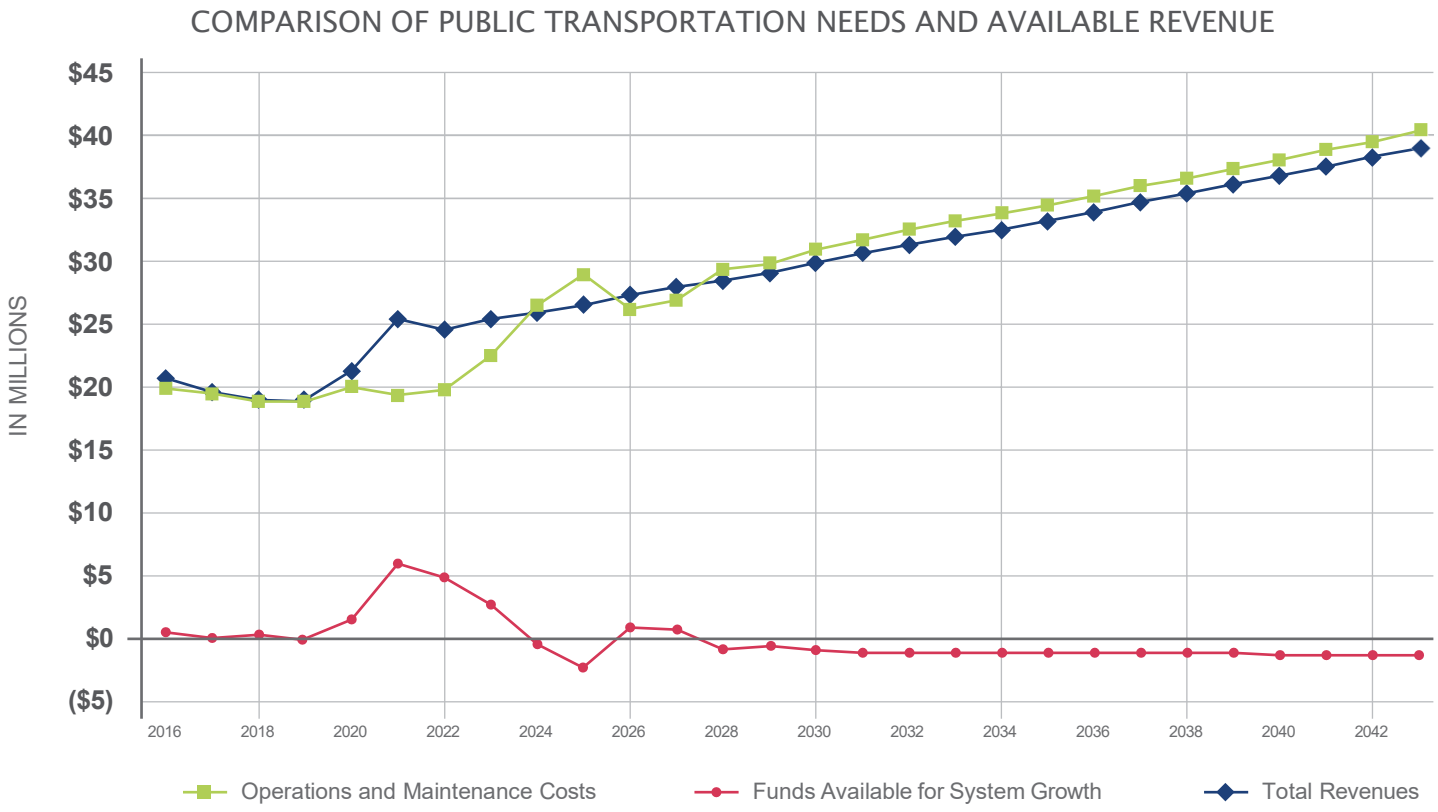


Figure 7. Annual transit revenues, operations, and maintenance expenditures, and remaining funds available for increasing service levels

No funds will remain for increasing the level of transit service. Even with the federal funding boost under IIJA, there will not be sufficient funding to meet the long-term need. Without additional revenue from existing or new sources, the potential consequence of this gap could be reductions in transit service to match available funding. Learn more about these potential consequences in *Public Transportation*.[29]

The financial situation for the ACHD Commuteride vanpool program is stable, as 100% of its operational costs (fuel, maintenance, and vanpool administration) are covered by rider fares, which are adjusted annually to cover those costs. However, federal funding is needed to cover 80% of vehicle replacement costs (20% is covered with local funds). From 2017 through 2021, Commuteride costs amounted to roughly $900,000

per year (excluding capital and depreciation costs), with an average of 77 vans in operation. Capital needs average $513,000 per year. Based on current assumptions, Commuteride can sustain its existing level of service, but will continue to be reliant on federal funds to replace vans as they reach the end of their useful life, on average every eight years or 100,000 miles.

FUTURE COSTS AND FUNDING OUTLOOK

The previous discussion and analyses include inflation and point to the inadequacy of projected available revenues to meet the future transportation system needs. These regional future needs have been analyzed and prioritized[30] to guide COMPASS in funding projects, should additional revenues become available.

Of all the revenue sources, only property tax revenues, impact fees, and transit fares are likely to keep pace with inflation. Increasing other revenue streams such as fuel taxes and registration fees requires congressional, legislative, local government, or voter approval.

There are $16.5 billion in transportation needs to the year 2050, but only $11.1 billion in funding, leaving an overall funding shortfall of approximately $5.4 billion, or $193 million per year (rounded) (Table 1). This shortfall takes into account the cost of all funded projects and the estimated costs of the unfunded needs, including deferred maintenance. Some unfunded needs do not include cost estimates; therefore, the total shortfall is inherently conservative and will grow as additional cost estimates become available.

Table 1. Summary of projected transportation needs, revenues, and shortfall to year 2050 (in year of expenditure, except unfunded, which is reported in current-year dollars)

	Total Needed	Total Revenue	Shortfall
Short-term Funded Costs@	**$1,581,223,000**	**$1,830,000,000**	
Short-term Funded - Listed in CIM 2050	$1,324,274,000	$1,340,000,000	
Remaining TIP Projects (NOT in CIM 2050)	$256,949,000	$490,000,000	
Long-term Funded Costs	**$2,163,658,000**	**$2,160,000,000**	
Long-term Funded - Regional Public Transportation#	$166,686,000	$170,000,000	
Long-term Funded - Regional Pathways	$5,565,000	$4,000,000	
Long-term Funded - State System	$541,617,000	$540,000,000	
Long-term Funded - Local (Regionally Significant)	$1,015,341,000	$1,010,000,000	
ACHD CIP Segment Costs Unlisted in CIM 2050^	$434,449,000	$400,000,000	

Table 1. Continued

	Total Needed	Total Revenue	Shortfall
Unfunded Costs	**$3,989,401,000**	**$4,200,000,000**	
Unfunded Public Transportation (Capital)	$128,825,000	$130,000,000	
Unfunded Public Transportation (Operations)	$52,529,000	$50,000,000	
Unfunded Regional Rail (Capital)**	$700,000,000	$700,000,000	
Unfunded Regional Rail (Operations)**	$100,000,000	$100,000,000	
Unfunded Pathways	$364,689,000	$360,000,000	
Unfunded State System (Projects and Studies)	$1,034,870,000	$1,030,000,000	
Unfunded Local System (Projects and Studies)	$525,413,000	$530,000,000	
Unfunded ACHD CIP Costs Unlisted in CIM 2050^^	$0	$0	
Other Unfunded Needs Not Exclusively Listed in CIM 2050	$305,910,000	$310,000,000	
Unfunded Unlisted Capital Costs	$905,990,000	$1,120,000,000	
Other Costs	**$8,568,919,000**	**$8,330,000,000**	
Public Transportation Maintenance and Operations Expenses	$823,595,000	$820,000,000	
Local Maintenance and Operations Expenses	$4,593,490,000	$4,590,000,000	
Funded Unlisted Capital Costs	$1,917,831,000	$1,690,000,000	
Deferred Maintenance State Roads*	$91,603,000	$90,000,000	
Deferred Maintenance Local Roads	$813,960,000	$810,000,000	
Deferred Maintenance Public Transportation	$328,440,000	$330,000,000	
Other Unlisted Capital Costs	**$2,823,821,000**	**$2,810,000,000**	
All Local Capital Expenses Less Local Short-term and Long-term Costs Above	$2,823,821,000	$2,810,000,000	

Table 1. Continued

	Total Needed	Total Revenue	Shortfall
Revenues			
Projected Public Transportation Revenue##		$970,000,000	
Projected State Revenue***		$1,710,000,000	
Projected Local Revenue		$8,410,000,000	
Total	**$16,520,000,000**	**$11,090,000,000**	
Long-term Total Shortfall			**($5,430,000,000)**

@Based on the FY2023-2029 TIP[31]

*Assumes annual maintenance costs keep 80% of state roads in good or fair condition

**Assumes generalized high-level cost estimate for locally-favored regional rail. Budgeted Planning and Environmental Linkages study will determine next steps.

***Equal to ITD short/long term

^ACHD's CIP (capital improvements plan) includes many projects that are not considered regionally significant and thus not explicitly listed in CIM project list[32]

^^All unfunded CIP projects considered funded by 2050 with current CIP horizon year at 2040. Costs may be added when ACHD updates its CIP

#Long-term funded public transportation costs based on inflated expansion costs in the Transportation Development Plan[33]

##VRT local assistance revenue portion of projected revenue reflects a percentage of each partner agency's property taxes based on historical percentages received

Short-term and long-term funded costs listed in CIM 2050 are based on year of expenditure; short-term covers projects up to 2026 and based on FY2023-2029 TIP

POTENTIAL SOURCES OF NEW OR ADDITIONAL REVENUE

With a transportation funding shortfall of $193 million per year, COMPASS continually strives to increase transportation funding with new or enhanced revenue sources. This includes educating the public on transportation funding issues, working with Congress and the Idaho Legislature[34] in support of transportation funding legislation, and applying for competitive grant funds. Several potential sources of additional funding have been explored, from enhancing existing fees and taxes to adding new revenue sources (Table 2).

Local option sales tax is one of the primary funding sources used elsewhere in the nation. It is currently not available for use in the Treasure Valley. COMPASS has been working with the Legislature to enable local option sales tax since 2007. Legislation has been introduced from time to time but never passed.

Table 2. Examples of possible sources to raise $193 million per year in Ada and Canyon Counties $247 per person, per year, based on 782,430 persons in 2022.

Existing taxes and fees that could be enhanced to raise $193 million per year					
Tax/fee source	Tax Type	Added Rate	Current Rate	Total Rate	Current Legal Uses
Unit fuel tax	Fixed cents per gallon	$0.40	$0.32	$0.72	Roadway construction and maintenance
Vehicle registration fee	Dollars per vehicle	$335	$45 to $69 plus up to an additional $70 depending on age of vehicle and county of registration	Up to $474	Roadway construction and maintenance
Sales tax on goods	Percentage of price	1.90%	6.0%	7.90%	Any transportation or for other in jurisdiction

Other potential funding sources			
	Type	Probable Benefit	Current Legal Uses
Impact fees	Variable fee paid when a building permit is issued.	High revenue expectation	Capital needs tied to effects of growth. Cannot be used for maintenance and operations, existing problems, or non-capacity improvements such as landscaping or drainage.
Tolls	Variable charge. Often applied to limited-access facilities such as expressways, tunnels, and bridges.	High revenue expectation	Typically limited to construction and maintenance of the specific facility (e.g., toll road) and any feeder highways.
Vehicle miles of travel fees	Road usage charge for number of miles driven.	High revenue expectation	Legal uses are unclear. To be a fee, the charge must be tied to a specific benefit conferred upon the user.
Rental car tax	An add-on to the base fee.	Low revenue expectation	Fee base is tied to use of transportation system.

SUMMARY

Ada and Canyon Counties have a total unmet transportation funding need of $5.4 billion, or $193 million per year, to 2050. While revenues are likely to increase through 2050, costs are expected to increase at a faster rate. This means that only agencies with funding dedicated to expansion—specifically, impact fees—will have long-term capacity to expand. To allow for new transportation capacity and services, there is a need to increase existing revenue streams and/or develop new funding sources.

ENDNOTES

1 CIM 2050 funding policy, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM2050FundingPolicyGoals.pdf

2 Transportation improvement program (TIP), COMPASS, www.compassidaho.org/prodserv/transimprovement.htm

3 CIM 2050 priority projects, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/PriorityProjectListsCIM2050.pdf

4 Prioritization, CIM 2050, https://cim2050.compassidaho.org/Prioritization.pdf

5 "General Information for Transportation and Conformity," US Environmental Protection Agency, www.epa.gov/state-and-local-transportation/general-information-transportation-and-conformity

6 US Census Bureau, Idaho State Profile, www.census.gov/library/stories/state-by-state/idaho-population-change-between-census-decade.html

7 Public Transportation, CIM 2050, https://cim2050.compassidaho.org/PublicTransportation.pdf

8 Bipartisan Infrastructure Law, www.fhwa.dot.gov/bipartisan-infrastructure-law

9 US Federal Highway Administration notice reflecting Surface Transportation Block Grant Program funding, www.fhwa.dot.gov/legsregs/directives/notices/n4510868/

10 Bipartisan Infrastructure Law fact sheets detailing federal funding eligibility, US Federal Highway Administration, www.fhwa.dot.gov/bipartisan-infrastructure-law/fact_sheets.cfm

11 The Boise Urbanized Area includes the Cities of Boise, Eagle, Garden City, and Meridian, as well as parts of unincorporated Ada County.

12 Active Transportation, CIM 2050, https://cim2050.compassidaho.org/ActiveTransportation.pdf

13 See note 2.

14 ITD 2019 revenue and fund sources, https://itd.idaho.gov/wp-content/uploads/2016/12/quick_facts-itd.pdf

15 Communities in Motion 2040, www.compassidaho.org/documents/prodserv/CIM2040/CIM2040_Printer_Friendly.pdf

16 Idaho Senate Bill 1206, 2017 https://legislature.idaho.gov/wp-content/uploads/sessioninfo/2017/legislation/S1206.pdf

17 Short-term budgeted projects, https://cim2050.compassidaho.org/wp-content/uploads/CIM2050ShortTermFunded.pdf

18 2020 Ada County Highway District Capital Improvements Plan, www.achdidaho.org/Documents/Engineering/ImpactFees/Ordinance246A/ExhibitC_CIP.pdf

19 Impact Fee Study and Capital Improvement Plans, City of Nampa, www.cityofnampa.us/DocumentCenter/View/14294/Nampa-Development-Impact-Fee-Reports-Combined_02082022

20 Our buses are now going electric!, VRT, www.valleyregionaltransit.org/electric

21 CIM 2050 short-term funded projects, https://cim2050.compassidaho.org/wp-content/uploads/CIM2050ShortTermFunded.pdf

22 CIM 2050 long-term funded projects, https://cim2050.compassidaho.org/wp-content/uploads/CIM2050LongTermFunded.pdf

23 FY2022-2028 Regional Transportation Improvement Program (TIP), www.compassidaho.org/documents/prodserv/trans/FY22/FY22_28TIPdoc.pdf

24 Projects that add travel lanes on bridges or overpasses are included as capital projects.

25 Complete Network Policy, www.compassidaho.org/documents/people/policies/CompleteNetworkPolicy_Final_Dec2021_2022-01.pdf

26 ValleyConnect 2.0, VRT, www.valleyregionaltransit.org/planning/valley-connect-2-0

27 Communities in Motion 2040 2.0, https://compassidaho.org/CIM2040-2.0

28 Transportation Development Plan, https://www.valleyregionaltransit.org/wp-content/uploads/2022/10/TDP_2023_Adopted.pdf

29 See note 7.

30 See note 4.

31 See note 2.

32 See note 18.

33 Transportation Development Plan, https://www.valleyregionaltransit.org/wp-content/uploads/2022/10/TDP_2023_Adopted.pdf

34 “Legislative Services,” COMPASS, http://www.compassidaho.org/prodserv/legislative.htm

Freight

The role of transportation is to move both people and goods; therefore, *Communities in Motion 2050* (CIM 2050) includes freight—the movement of goods—in planning for a complete transportation network.[1]

The purpose of COMPASS freight planning is to enhance freight movement within the region's transportation system to better serve urban deliveries, rural economies, and global connections.

Data collection and analysis, coupled with a better understanding of freight's impact in the region, provide the foundation for freight planning. To that end, COMPASS conducted its first truck freight data collection project in 2008, followed by additional data collection in 2014, 2015, and 2017. More information on freight data and studies can be found on the COMPASS website.[2]

COMPASS' Freight Advisory Workgroup[3] advises COMPASS staff on data collection and analysis and provides input about how to best integrate freight considerations into its plans. The workgroup has helped COMPASS identify regional freight needs and deficiencies, determine appropriate freight performance measures, and stay informed of the issues facing the freight community.

FREIGHT IN A COMPLETE NETWORK

In recent years, freight has evolved from simply bringing goods from manufacturing areas to retail centers, to bringing freight into our neighborhoods. The surge in home deliveries means that freight is now ubiquitous on many roadways as more and more products are delivered to more and more places throughout the valley.

The majority of freight travels along primary freight corridors — large roadways that link commercial centers to the interstate and to other key corridors (Figure 1). However, freight also uses other corridors, so should be considered a secondary, but important, mode on those roadways as well. All freight corridors should provide for the needs of other road users to the extent possible.

The rapid increase in freight delivery to residential neighborhoods must be a consideration throughout the region and coordinated with other needs to ensure safety for all users and modes.

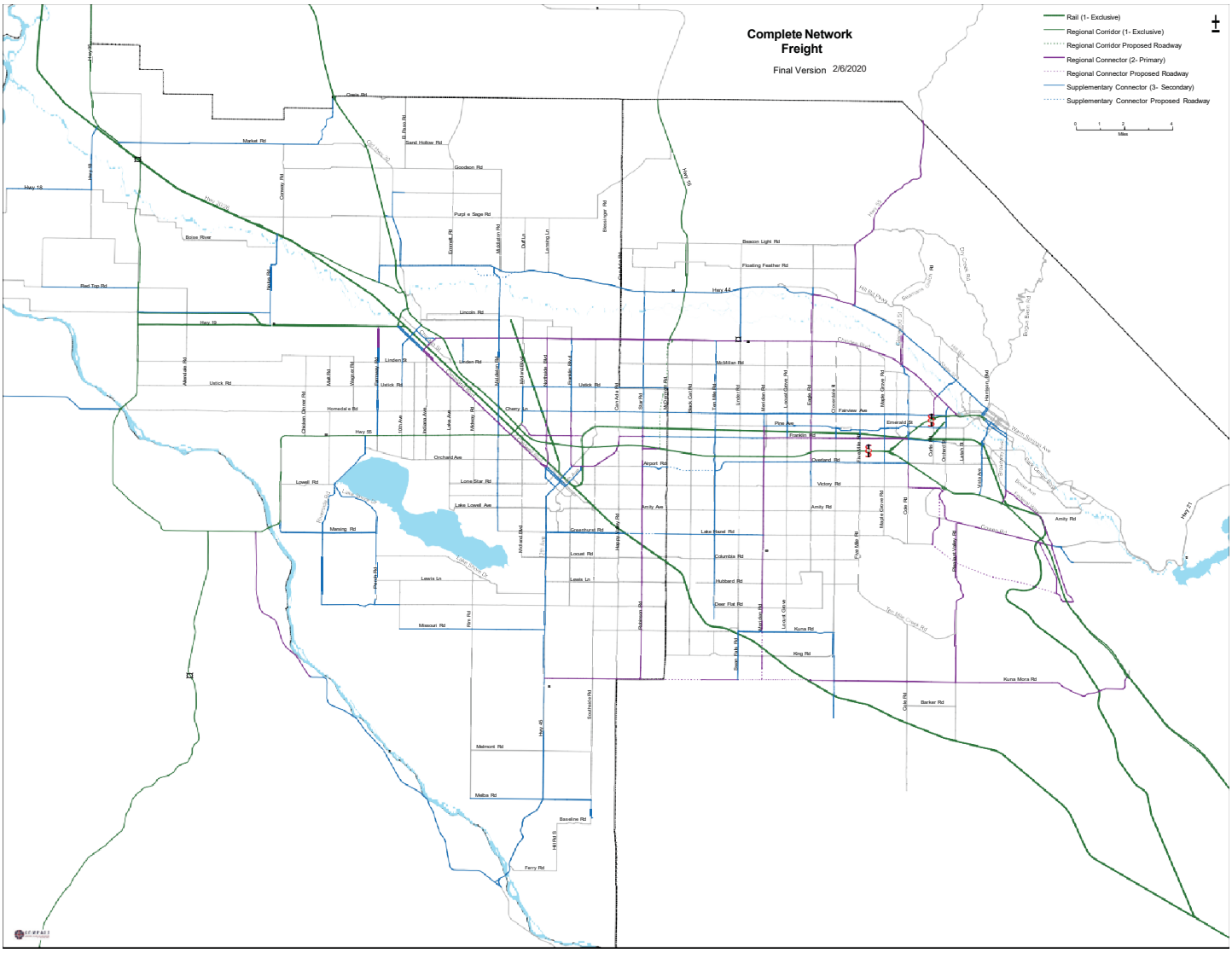


Figure 1. Freight in a complete network

Two interrelated issues for supporting freight are managing congestion[4] and enabling reliable travel speeds to help goods move to and from commercial centers efficiently. However, these are not the only considerations. A few other ways to support freight functionality include

- providing enhanced signal timing that is responsive to changing traffic patterns and ensures efficient timing of green traffic lights, thus reducing delay and improving safety;
- using access-management strategies to better control freight movements, reduce conflict points, and provide predictable traffic patterns;
- managing parking, including at the curb in town centers, to help freight access final destinations while balancing the needs of other users;
- identifying and protecting manufacturing areas from infringement from other land uses, especially residential, to reduce conflicts;
- designing turning radii to enable large vehicles to maneuver safely; and
- identifying loading and unloading zones to prevent double parking and delays due to lack of parking.

CRITICAL URBAN FREIGHT CORRIDORS

Critical freight corridors are roadways that connect two or more important freight routes and/or provide access to commercial centers and freight generators in rural or urban areas. Federal freight funding is available for projects in these corridors, as established in the 2015 Fixing America's Surface Transportation Act (FAST Act).[5] Critical freight corridors in urban areas are eligible for the funds if they meet one or more of the following criteria:

- connect an intermodal facility to the primary highway freight system, the interstate system, or another intermodal freight facility
- be located within a corridor of a route on the primary highway freight system and provide an alternative highway option important to goods movement
- serve a major freight generator, logistic center, or manufacturing and/or warehouse industrial land
- be important to the movement of freight within the region, as determined by the state

COMPASS worked with its Freight Advisory Workgroup to provide a list of critical urban freight corridors in Ada and Canyon Counties for inclusion in the update to the Idaho Transportation Department's statewide freight strategic plan. After receiving additional input from other stakeholders, 14 corridors or segments in Ada and Canyon Counties were requested as critical urban freight corridors in the plan (Figure 2). These designations would allow several projects in Canyon County to be prioritized for statewide federal freight funding over the next four years. At this time, there are no designated critical rural freight corridors in the region.

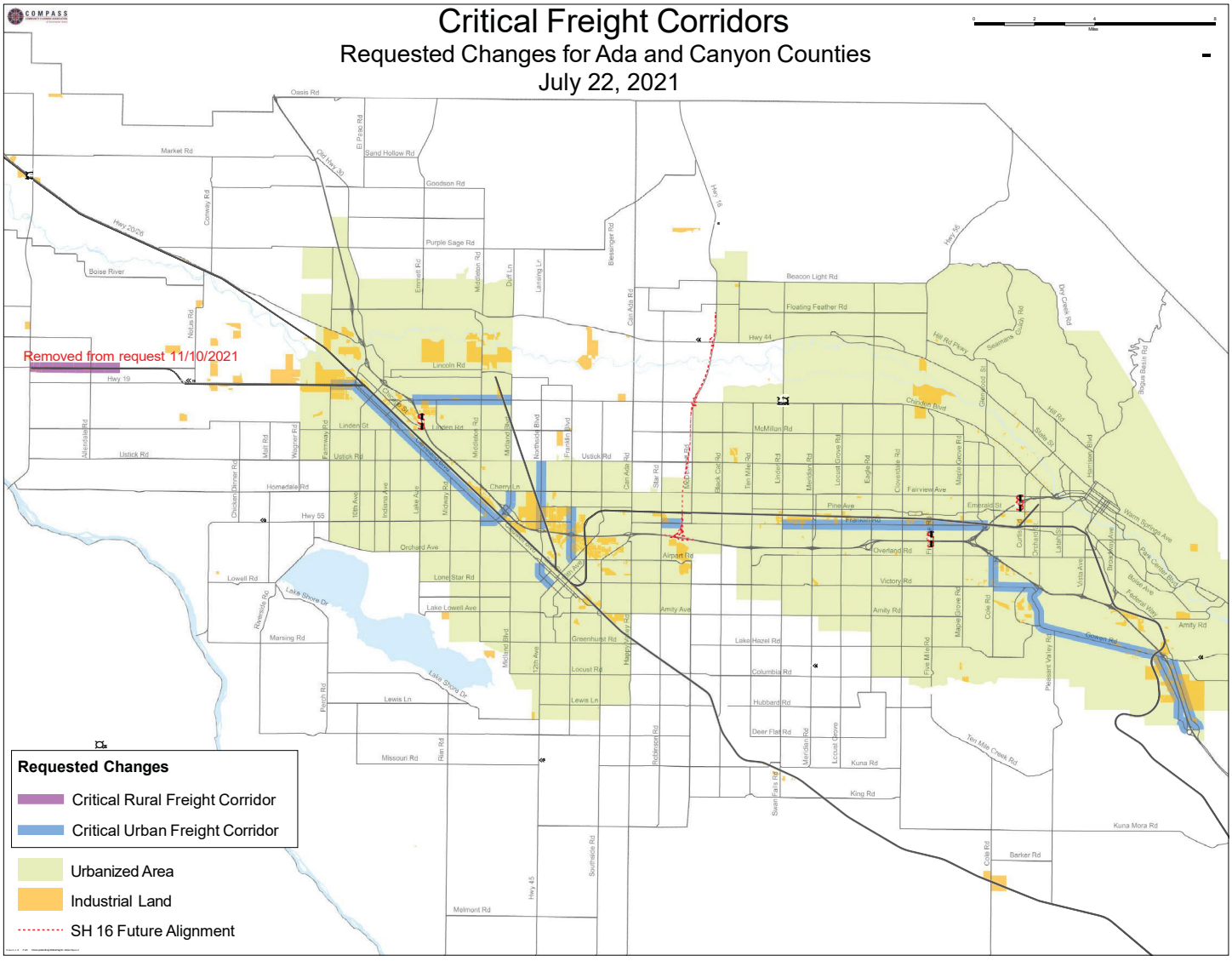


Figure 2. Critical urban freight corridors requested for inclusion in ITD's updated statewide freight strategic plan

FREIGHT AND CIM 2050 GOALS

CIM 2050 was developed to address four goal areas,[6] each with specific objectives. Appropriate planning for freight movement in the region is key to realizing the individual objectives to support each of the goal areas:

Goal Area	Freight-Related Objectives
 **Safety** is a key consideration for providing efficient and reliable freight routes while providing safe accommodations for bicyclists and pedestrians.	• Provide a **safe** transportation system for all users. • Support a **resilient** transportation system by anticipating societal, climatic, and other changes; maintaining plans for response and recovery; and adapting to changes as they arise.
 **Economic Vitality** is supported by a reliable and efficient transportation system that prioritizes freight on certain routes. Freight promotes economic vitality to enable people and businesses to prosper.	• Promote freight **accessibility and mobility** via truck and rail improvements to support the efficient movement of goods and encourage economic development. • Provide for a **reliable** transportation system to ensure all users can count on consistent travel times for all modes.
 **Convenience** is important for freight. Land uses that enable freight to access distribution and destinations quickly ensure goods are delivered on time. The increased availability of home deliveries also increases the convenience for customers.	• Reduce **congestion** with cost-effective solutions to improve **efficiency** of the transportation system.
 **Quality of Life** is served by the efficient and equitable transport of goods.	• Provide **equitable** access to safe, affordable, and reliable transportation options.

FREIGHT-RELATED NEEDS

Freight improvements go beyond narrow freight-specific issues and can encompass other modes, planning issues, and policies. Often, projects that benefit freight also benefit other modes. For example, signal timing/priority or intersection improvements can benefit buses as well as freight vehicles. This was considered in the prioritization of transportation projects for CIM 2050.[7] A multi-criteria evaluation matrix indicated whether a project was located on a freight corridor, including critical urban freight corridors (see Figures 1 and 2), helping to identify freight-related projects that could be eligible for freight-specific funding.

Opportunities for mode shift, such as truck to rail, can affect other transportation components or modes. For example, more freight rail customers may make developing a rail-with-trail pathway more challenging. However, more freight rail could decrease truck traffic on some roadways, making those routes safer and more convenient for pedestrians and bicyclists.

From a land-use perspective, considerations such as providing a buffer between residential areas and manufacturing areas, truck freight corridors, and rail lines can impact how well freight integrates with other land uses. Similarly, designated loading/unloading zones and curb management can help freight better integrate with other modes and users.

FUTURE CONSIDERATIONS

With the COVID-19 pandemic, the nation experienced the vulnerability of supply chains that deliver the goods we need and want. It revealed a need to refashion supply chains to make them more resilient to unexpected shocks, and also to the many changes and innovations to transportation and communication technologies that already affect how we produce, deliver, and receive goods. As indicated in the "A Lot Can Change in 30 Years" survey,[8] people are becoming increasingly comfortable with, and reliant on, online shopping and expedient home deliveries.

CONNECTED FREIGHT AND OTHER TECHNOLOGIES

Freight is seeing a myriad of innovations related to autonomous and/or connected vehicles, especially in long-haul trucking. Truck "platooning" syncs multiple trucks together into a convoy with connective technology and automated driving systems, resulting in cleaner, safer, and more efficient driving that can save up to 17% of fuel costs.[9] Dedicated short-range communications technologies can monitor driving conditions and congestion, and can be used at weigh stations to "read" the necessary information as trucks drive by; similarly, radar at intersections can detect trucks and adjust signal timing to allow them to move through the intersection without stopping. These technologies could dramatically improve supply-chain operations and lead to decreased costs of durable goods.

Drones or Unmanned Aerial Vehicles

Drones have the potential to supplement freight deliveries and make the last-mile connection cheaper and quicker. Drone delivery could reduce the amount of truck traffic on local roads, increasing overall safety and reducing conflicts between freight vehicles and other roadway users such as bicyclists. Of course, with drones come airspace conflicts with nearby airports, privacy issues, and barriers related to regulation and enforcement.

Electric Freight Vehicles

Electric vehicles (EVs) have emerged as a rapidly growing part of the personal transportation fleet, and commercial medium- and heavy-duty EVs are poised to break into the freight sector.[10] Electrified heavy-duty trucks are starting to be adopted for medium- and long-haul trips,[11] while battery-powered cargo vans and electric cargo scooters provide new options for last-mile deliveries.

The increase of EVs in the freight fleet will reduce the sector's greenhouse gas emissions and negative impacts on both climate change and local air quality. Additionally, EVs tend to be quieter, making them more appropriate for neighborhoods and dense urbanized areas.

CONCLUSION

COMPASS' Freight Advisory Workgroup will convene public- and private-sector stakeholders to identify freight-related issues and develop solutions and projects to address them.

In CIM 2050, freight needs and deficiencies are converted into improvement projects that were evaluated, prioritized, funded,[12] and implemented as part of overall transportation system improvements. The identified solutions will also inform land-use and development decisions adjacent to freight corridors and industrial areas.

Innovations to transportation connection and communication technologies will improve how we transport and deliver goods, and create resource efficiencies.

ENDNOTES

1 Complete Network Policy, www.compassidaho.org/documents/people/policies/CompleteNetworkPolicy_Final_Dec2021_2022-01.pdf

2 Freight, COMPASS, www.compassidaho.org/prodserv/CIM2040_2.0/freight.html

3 Freight Advisory Workgroup, www.compassidaho.org/people/workgroups.htm#fawg

4 Congestion Management Process, www.compassidaho.org/documents/prodserv/reports/2022CongestionManagementSystemTechnicalDocument.pdf

5 FAST Act Section 1116 Implementation Guidance, US Department of Transportation Federal Highway Administration, ops.fhwa.dot.gov/fastact/crfc/sec_1116_gdnce.htm

6 CIM 2050 goals, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Goals_Objectives_apprDec2020.pdf

7 Prioritization, CIM 2050, https://cim2050.compassidaho.org/Prioritization.pdf

8 A Lot Can Change in 30 Years survey, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/SurveyResults_Fall2019.pdf

9 Truck Platooning, National Renewable Energy Laboratory, www.nrel.gov/transportation/fleettest-platooning.html

10 Breakthrough Analysis Finds Electrified Heavy-Duty Vehicle Powertrains Could Provide Lower Total Cost of Ownership, National Renewable Energy Laboratory, www.nrel.gov/news/program/2021/breakthrough-analysis-finds-electrified-heavy-duty-powertrains-could-provide-lower-total-cost-ownership.html

11 Advanced Clean Trucks, California Air Resources Board, ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks

12 CIM 2050 funded projects, https://cim2050.compassidaho.org/wp-content/uploads/CIM2050Funded_All.pdf

Implementing the Plan

COMPASS has developed *Communities in Motion 2050* (CIM 2050) to not only be a "plan," but also to outline how it will be implemented to truly make a difference in the future of the region. CIM 2050

- documents the present state of the transportation system in Ada and Canyon Counties across all transportation modes, and
- charts a course for the maintenance and improvement of the transportation system based on anticipated needs and revenues.

> *"A plan without action is not a plan. It's a speech."*
> —T. Boone Pickens

CIM 2050 strives to realize the regional vision[1] and is guided by the region's goals,[2] which focus on safety, economic vitality, convenience, and quality of life. These goal areas are defined by 18 objectives[3] that relate to both traditional measures of transportation performance, such as safety, congestion, and reliability, and other measures of regional importance, including farmland preservation, health, and housing affordability.

IMPLEMENTATION POLICIES

Regional implementation policies provide a bridge from the goal areas and objectives to programs and tasks by serving as a reference for the COMPASS Board of Directors and guiding COMPASS staff-level work (Table 1). These policies

- use anticipated available funding in Ada and Canyon Counties to strategically address regional priorities as identified in the regional long-range transportation plan as outlined in the funding policy;[4]
- coordinate[5] local plans for land use and transportation investments to implement the CIM 2050 Vision and goals;
- incorporate the Congestion Management Process[6] in project prioritization and funding considerations and continue to collect data to help implement appropriate congestion mitigation measures;
- consider the COMPASS Complete Network Policy[7] in transportation planning and funding decisions to promote appropriate design of transportation facilities for the needs of all users;
- integrate equitable and sustainable practices in transportation and land use planning and decision-making;
- employ a grant program[8] and seek additional funding through competitive funding sources to assist agencies in finding innovative ways to implement CIM 2050;
- educate and actively engage[9] the public and stakeholders on best practices for implementing CIM 2050;
- monitor, track, and report on development activity[10] and changes to comprehensive plans and other related documents; and
- consider the CIM 2050 Vision and goals when developing projects and tasks for the annual COMPASS Unified Planning Work Program.[11]

In addition to the contributions described in Table 1, the annual COMPASS Unified Planning and Work Program and Budget allocates COMPASS resources to programs and tasks that address CIM 2050 goals.

Table 1. Implementation policy contributions to CIM 2050 goals and objectives

Goal Area	Objectives	Implementation Policies
Safety 	• Provide a **safe** transportation system for all users. • Proactively assess risks and safeguard the **security** of all transportation users and infrastructure. • Support a **resilient** transportation system by anticipating societal, climatic, and other changes; maintaining plans for response and recovery; and adapting to changes as they arise.	• **Funding Policy** allocates funds to improve safe access to schools and provide active transportation facilities. • **Congestion Management Process** places safety in the forefront of analysis and discussion of congestion mitigation. • **Complete Network Policy** emphasizes the safety needs of each mode and highlights areas of modal conflict. • **Development Monitoring and Review** identify opportunities to leverage development to improve safety. • **Local Plan Coordination** highlights how current developments can acknowledge wildland boundaries and reduce impacts to the environment and improve future resilience. • **Complete Network Policy** develops modal redundancies, improving system resiliency should any one facility fail. • **Grant Program** seeks additional funding for projects to improve safety, security, and resilience.

Goal Area	Objectives	Implementation Policies
Economic Vitality 	• Develop a multimodal transportation system, including public transportation, bicycle, pedestrian, and auto modes, that promotes **economic vitality** to enable people and business to prosper. • Promote **freight accessibility and mobility** via truck and rail improvements to support the efficient movement of goods and encourage economic development. • **Preserve** and maintain existing transportation **infrastructure**. • Provide for a **reliable** transportation system to ensure all users can count on consistent travel times for all modes. • Promote transportation improvements and scenic byways that support the Treasure Valley as a regional hub for **travel and tourism**. • Develop and implement a regional vision to **manage** the impacts of **growth** through quantitative tools and objective feedback. • Protect and **preserve farmland** to support the region's economy, provide a local and sustainable food supply, and retain the cultural heritage of the valley.	• **Complete Network Policy** promotes multi-modal access to regional activity centers and identifies and supports a regional freight accessibility and mobility network. • **Funding Policy** allocates funds directly to maintain and preserve the condition of existing infrastructure. • **Congestion Management Process** identifies unreliable sections of roadway and prioritizes strategies that improve reliability without expanding capacity. • **Local Plan Coordination** promotes land-use best practices, supports the preservation of farmland, and incorporates local travel and tourism destinations into regional planning. • **Development Monitoring and Review** provide qualitative and quantitative analyses of development proposals to promote well-managed growth and support the preservation of farmland. • **Grant Program** seeks additional funding for projects to support economic vitality.

Goal Area	Objectives	Implementation Policies
Convenience 	• Develop a regional transportation system that provides **access and mobility** for all users via safe, efficient, and convenient transportation options. • Develop a transportation system with high **connectivity** that preserves capacity of the regional system and encourages walk and bike trips. • Manage and reduce **congestion** with cost-effective solutions to improve **efficiency** of the transportation system.	• **Complete Network Policy** promotes multi-modal connectivity, accessibility, and mobility, identifying key corridors and fostering connections to important destinations. • **Congestion Management Process** identifies and manages congested roadways, prioritizing efficient and cost-effective solutions over increased capacity. • **Funding Policy** allocates funds specifically to support regional multi-modal connectivity. • **Local Plan Coordination** and **Development Monitoring and Review** promote efficient land-use patterns that support active and public transportation while reducing congestion. • **Grant Program** seeks additional funding for projects to improve access and mobility, connectivity, and efficiency, and manage congestion.

Goal Area	Objectives	Implementation Policies
Quality of Life 	• Develop and implement a regional vision and transportation system that protect and preserve the natural **environment**. • Develop and implement a regional vision and transportation system that enhance **public health**. • Develop and implement a regional vision and transportation system that preserve open space and promote connectivity to **open space** areas, natural resources, and trails. • Promote development patterns and a transportation system that provide for **affordable housing and transportation** options for all residents. • Provide **equitable** access to safe, affordable, and reliable transportation options.	• **Local Plan Coordination** and **Development Monitoring and Review** support affordable housing and help to preserve open space by encouraging efficient development patterns. • **Complete Network Policy** promotes a complete active transportation network, supporting healthier mode choices while preserving key connections to public parks and access to open space. • **Congestion Management Process** reduces congestion, which has a dramatic impact on emissions, addressing environmental concerns and improving public health. • **Equitable and Sustainable Practices** promote regional equity by highlighting the particular needs and safety concerns of underserved communities. • **Educating and Engaging** the public in two-way dialogue helps ensure a diverse set of voices are heard and the needs, desires, and concerns of traditionally underserved populations are considered.

IMPLEMENTATION PROGRAMS

To support the implementation of CIM 2050 goals, COMPASS works to bring additional funding into the region and manages the following three programs to support member agencies' implementation efforts.

Resource Development Plan

COMPASS develops an annual Resource Development Plan[12] to guide efforts to increase the amount of outside resources invested in the Treasure Valley to support the implementation of CIM 2050.

The plan includes specific projects and general focus areas submitted to COMPASS by member agencies through an application process. The plan is then approved annually by the COMPASS Board of Directors and is used to direct COMPASS staff efforts in supporting member agencies as they seek competitive and/or external funding.

The member agency projects are matched with applicable funding sources, including federal-aid transportation funding, *Communities in Motion* Implementation Grants (discussed below), and others. They are then prioritized within those funding categories.

The highest ranked projects are funded to the extent that available funding allows. However, as funds are limited, not all projects in the plan can be funded through traditional sources. The remaining unfunded projects and general focus areas become the priorities for COMPASS grant assistance efforts.

COMPASS assists with developing grant applications in several ways, including

- finding and sharing grant opportunities;
- matching projects with funding sources;
- determining funding eligibility and interpreting guidelines;
- reviewing grants;
- writing grants;
- managing grants; and
- providing letters of support.

Communities in Motion Implementation Grants

The *Communities in Motion* Implementation Grant program[13] provides financial assistance directly to member agencies in support of important local projects that contribute toward CIM 2050 goals and objectives. The grant program requires that projects

- provide better access to public transportation, bike, and pedestrian facilities to offset congestion; and/or
- invest in town centers, main streets, and existing infrastructure as identified in *Communities in Motion;* and/or
- develop specific area plans for activity centers consistent with *Communities in Motion* and with planned integration of alternative transportation systems.

Communities in Motion Implementation Grants are more flexible than other funding sources and can be applied to many project types, including planning products, regulatory tools, economic/market analyses, concepts/designs, and construction. A grant may fund a single stand-alone project or support a phase or component of a larger project.

Project Development Program

The Project Development Program[14] also helps COMPASS member agencies secure funding to develop projects that implement the CIM 2050 goals and objectives. It helps transform member agency needs and ideas into well-defined projects with cost estimates, purpose and need statements, environmental scans, and public involvement information to ensure readiness for future funding applications. A well-defined and well-scoped project supports a stronger grant application and, once funding is awarded, is more likely to be delivered on time and within budget.

Several consulting firms with a wide range of expertise are pre-screened by COMPASS to conduct project development work in partnership with COMPASS staff. Projects selected for the program are matched with consulting firm(s) with the appropriate expertise, based on the project type and needs. Projects that enter the program as vaguely defined concepts emerge the next year with all the essentials to compete for funding.

Together, the Resource Development Plan, the *Communities in Motion* Implementation Grant program, and the Project Development Program animate the "grant program"-related implementation policy. They direct staff fund-seeking efforts toward regional priorities as identified by the CIM 2050 goals and offer support to the CIM 2050 goal implementation efforts of others.

MOVING FORWARD

A plan helps visualize a destination and offers a broad set of directions for getting there. But fully realizing the vision described here requires careful consideration of how the transportation system is designed and making transportation investments that contribute toward safety, economic vitality, convenience, and quality of life for all users.

In addition to the funding programs discussed above, other efforts outlined in the implementation policies, including Appendix A of the Congestion Management Toolkit,[15] Development Review Checklists,[16] Development Monitoring Report[17] and the COMPASS Complete Network Policy,[18] support the implementation of the plan. It is important to remember this is not a conclusion, but a beginning. The adoption of *Communities in Motion 2050* is not our destination; it is the start of the journey.

ENDNOTES

1 CIM 2050 Vision, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Vision_Map_Final.pdf

2 CIM 2050 goals and objectives, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Goals_Objectives_apprDec2020.pdf

3 Ibid.

4 CIM 2050 funding policy and goals, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM2050FundingPolicyGoals.pdf

5 Development Review, COMPASS, www.compassidaho.org/dashboard/devreview.htm

6 Congestion Management Process, www.compassidaho.org/prodserv/cms-intro.htm

7 Complete Network Policy, www.compassidaho.org/documents/people/policies/CompleteNetworkPolicy_Final_Dec2021_2022-01.pdf

8 Communities in Motion Implementation Grants, COMPASS, www.compassidaho.org/prodserv/reglrtranpl-CIM_implementation_grants.htm

9 Communication and Public Awareness, COMPASS, https://www.compassidaho.org/comm/intro.htm

10 Development Monitoring Report, COMPASS, www.compassidaho.org/prodserv/gtsm-devmonitoring.htm

11 Unified Planning Work Program, COMPASS, www.compassidaho.org/people/budget.htm

12 Resource Development Plan, COMPASS, www.compassidaho.org/prodserv/resourcedev.html#RDP

13 See note 8.

14 Project Development Program, COMPASS, www.compassidaho.org/prodserv/projectdev.html

15 Congestion Management Toolkit, Appendix A. www.compassidaho.org/documents/prodserv/reports/2022CongestionManagementSystemTechnicalDocument.pdf

16 See note 5.

17 See note 10.

18 See note 7.

Prioritization Process and Performance-Based Planning

Communities in Motion 2050 (CIM 2050) identifies transportation needs to the year 2050, as well as the availability of funding to meet them. The needs are based on the regional vision[1] and plan goals[2]—safety, economic vitality, convenience, and quality of life.

Federal code[3] requires a long-range transportation plan include a financial plan[4] demonstrating how the transportation plan can be implemented. The plan must be "fiscally constrained" to show only projects that can reasonably be expected to be funded with the revenues anticipated over the life of the plan. CIM 2050 contains $5.7 billion in funded capital projects (including some Ada County Highway District projects not listed in short-term and long-term funded lists), plus $5.4 billion in maintenance, operations, and similar expenses. The transportation system needs that are funded in this plan have been identified in local transportation agencies' capital improvement plans and by the Idaho Transportation Department. Regionally significant capital projects are included in the short-term and long-term funded lists,[5] and the other costs are included in the financial projections.

However, there is not sufficient funding to pay for all the needs identified in CIM 2050. While the long-range plan can only include as "funded" the projects that have been allocated anticipated funding, federal code does allow the plan to identify "unfunded" projects that would be included in the plan if additional resources were to become available. To that end, CIM 2050 identifies additional unfunded regional transportation needs. The unfunded projects[6] include public transportation improvements, roadway projects, regional pathways, and studies.

PERFORMANCE-BASED PLANNING

The 2021 Infrastructure Investment and Jobs Act (IIJA)[7] includes provisions requiring state transportation agencies and metropolitan planning organizations such as COMPASS to report performance measures and set targets for safety, infrastructure condition, and system performance for their planning areas. The Federal Highway Administration refers to this practice as Transportation Performance Management (TPM). TPM is a strategic approach that uses system metrics to inform investment priorities and policy decisions to achieve national performance goals.[8]

COMPASS uses federal TPM performance measures as well as CIM 2050-specific performance measures to monitor progress toward meeting national and regional transportation goals. Several measures are tied to the performance of the regional roadway network, including criteria relating to pavement and bridge infrastructure condition, congestion, travel time reliability, and safety. The biennial Change in Motion score card[9] tracks changes in the TPM and CIM 2050 performance measures and reports progress toward meeting regional goals, objectives, and targets established in CIM 2050.

NEEDS AND PRIORITIES

COMPASS staff worked with the Active Transportation Workgroup, Freight Advisory Workgroup, Public Transportation Workgroup, and Regional Transportation Advisory Committee to identify needs for each transportation mode. The initial needs included unfunded corridors and projects from CIM 2040 2.0,[10] the predecessor to CIM 2050, as amended.[11] Data from the congestion management process[12] informed congestion mitigation needs in the regional transportation system. These data were combined with information provided by COMPASS member agencies and workgroup members to develop a list of transportation needs for CIM 2050.

COMPASS then employed TPM principles in a quantitative, performance-based approach to prioritize[13] those needs. Due to inherent differences in types of projects and funding streams, state roadways, local roadways, public transportation projects, pathways, and studies were each prioritized, or listed, separately.

State and Local Roadways

COMPASS used the Travel Demand Forecast Model[14] to determine an estimated "year of need," or the timeframe when demand on an identified roadway corridor would surpass the capacity of existing infrastructure. Prioritization then focused on projects needed to meet regional demand by 2030, using an objective, two-part scoring process that included an evaluation of each project's contributions to the CIM 2050 goals based on the performance measures and a "technical analysis" capturing the project's impact on the transportation network (Figure 1).

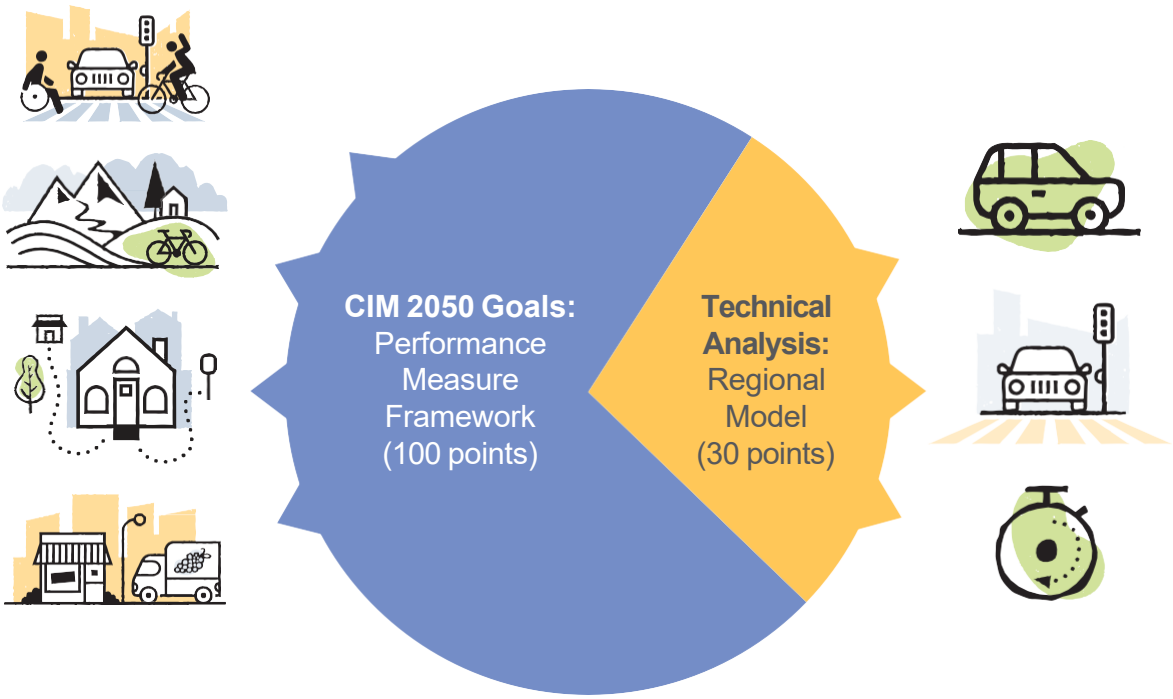


Figure 1. Roadway scoring inputs

CIM 2050 Goal Area Analysis

Each project's contribution toward CIM 2050 goals[15]—safety, economic development, convenience, and quality of life—was evaluated using criteria derived from the Performance Measure Framework, including bicycle and pedestrian comfort, auto and public transportation accessibility, auto speed and reliability, environmental protection, and farmland preservation. Each project was evaluated and scored for each goal area separately, then those scores were averaged to produce a "CIM 2050 goal" score (up to 100 points).

Transportation Technical Analysis

COMPASS used its Travel Demand Forecast Model to evaluate each project's impact on performance of the transportation network—vehicle miles of travel, congested vehicle miles of travel, and vehicle hours of delay. The impacts were quantified by comparing how network performance would be affected if the project was completed versus if it was not. The results were combined to provide the "technical analysis" score (up to 30 points).

Roadway Project Prioritization

COMPASS staff developed corridor summaries and score sheets[16] to provide context and data to inform project prioritization. Corridor summaries concisely described the project's location, the current condition of facilities, and the needs for each mode. Project scoresheets listed the total score for each project, as well as the CIM 2050 goal and transportation technical analysis scores individually, and provided an initial ranking based on the scores. The sheets also described any environmental or equity concerns for each project.[17]

Using this information, state[18] and local[19] roadway projects needed by 2030 were prioritized to ensure that any future funding is allocated to projects that address most immediate needs.

Public Transportation

The unfunded public transportation needs were prioritized by the Public Transportation Workgroup[20] using the process approved as part of the CIM 2050 Project Prioritization Process.[21]

The workgroup considered a future unfunded high-capacity network ("premium network"), frequent network, and express network for prioritization and ranked them in that order. Only the routes in the premium network were prioritized as projects based on three quantitative criteria:

1. Access: *Does the route provide more access to residential and commercial services in 2050?*
2. Equity: *Does the route improve service in minority and low-income areas?*
3. Productivity: *Does the route attract riders by 2050?*

The rankings of the unfunded public transportation needs and the prioritized premium routes[22] will be used to inform future funding decisions.

Pathways

The Active Transportation Workgroup[23] identified needed regional pathways, focusing on unfunded portions of off-street segments. The identified needs were then prioritized to generate a list of the highest-priority needs using a methodology[24] that considered proximity, equity, and connectivity (Figure 2). When data were available, right-of-way information and parcel ownership were shared with the workgroup but were not considered as part of the prioritization process.

The workgroup identified a group of 13 pathway segments[25] as regional priorities of equal importance for future funding.

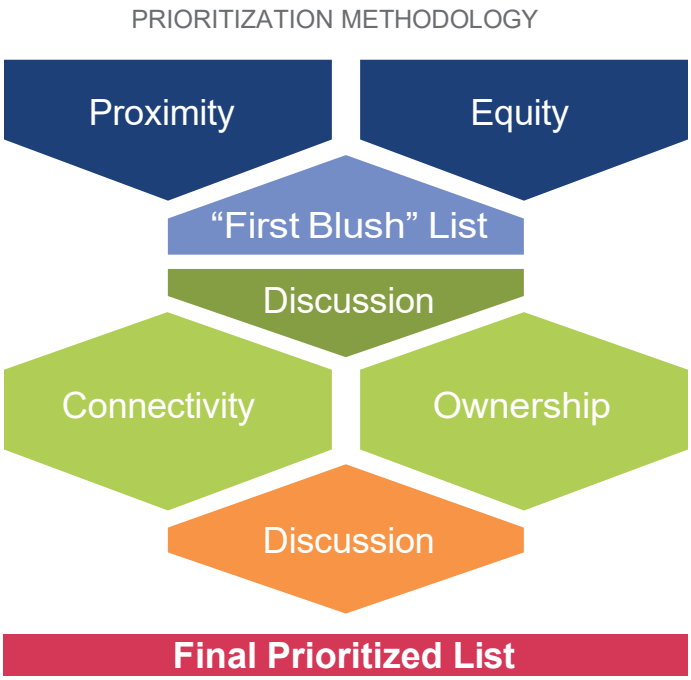


Figure 2. Pathway prioritization inputs

Studies and Unprioritized Roadway Needs

When examining future transportation needs, nine unfunded studies[26] were identified as priorities to help prepare the region for future transportation projects. In addition, 12 unfunded roadway projects[27] were identified as priorities for future funding between 2031 and 2050.

SUMMARY

Employing objective and performance-based criteria to identify needs and evaluate priorities is critical to ensuring limited resources are efficiently used to meet the region's goals. For CIM 2050, COMPASS employed TPM principles to identify and prioritize near-term needs across multiple travel modes. The results of that process[28] will be used to focus any additional funds that may become available, as well as COMPASS' efforts to pursue competitive grants, on the highest priority regional needs.

ENDNOTES

1 CIM 2050 Vision, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Vision_Map_Final.pdf

2 CIM 2050 goals, https://cim2050.compassidaho.org/cim-2050-goals

3 "Development and Content of Metropolitan Transportation Plan," *Code of Federal Regulations*, Title 23, 450.324(a). www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450 - p-450.324(a)

4 Financial Plan, CIM 2050, https://cim2050.compassidaho.org/FinancialPlan.pdf

5 CIM 2050 funded projects, https://cim2050.compassidaho.org/wp-content/uploads/CIM2050Funded_All.pdf

6 CIM 2050 unfunded projects, https://cim2050.compassidaho.org/wp-content/uploads/CIM2050Unfundedall.pdf

7 Infrastructure Investment and Jobs Act of 2021, https://www.fhwa.dot.gov/bipartisan-infrastructure-law/

8 Transportation Performance Management: What, Why, and How, www.fhwa.dot.gov/tpm/about/if13008.pdf

9 Change in Motion Reports and Tools, COMPASS, www.compassidaho.org/prodserv/gtsm-perfmonitoring.htm

10 Communities in Motion 2040 2.0, https://compassidaho.org/CIM2040-2.0/

11 CIM 2040 2.0 amendments, https://compassidaho.org/CIM2040-2.0/amendments

12 Congestion management process, https://www.compassidaho.org/documents/prodserv/reports/2022CongestionManagementSystemTechnicalDocument.pdf

13 CIM 2050 prioritization process, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM2050_PrioritizationProcess.pdf

14 Regional Travel Demand Modeling, COMPASS, www.compassidaho.org/prodserv/traveldemand.htm

15 CIM 2050 performance measures, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Performance_Measures_Final.pdf

16 CIM 2050 corridor score sheets and summaries, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/CIM2050_Priority_Corridor_ScoreSheets_Summaries.pdf

17 Ibid.

18 CIM 2050 state priority projects list, https://cim2050.compassidaho.org/wp-content/uploads/PriorityProjectsstate.pdf

19 CIM 2050 local priority project list, https://cim2050.compassidaho.org/wp-content/uploads/PriorityProjectsLocal.pdf

20 Public Transportation Workgroup, www.compassidaho.org/people/workgroups.htm#ptwg

21 See note 13.

22 CIM 2050 unfunded public transportation system priorities, https://cim2050.compassidaho.org/wp-content/uploads/PriorityProjectsPT.pdf

23 Active Transportation Workgroup, www.compassidaho.org/people/workgroups.htm#atwg

24 See note 13.

25 CIM 2050 unfunded regional pathway priorities, https://cim2050.compassidaho.org/wp-content/uploads/PriorityProjectsPathway.pdf

26 CIM 2050 unfunded study priorities, https://cim2050.compassidaho.org/wp-content/uploads/PriorityProjectsStudies.pdf

27 Unfunded roadway system priorities, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/PriorityProjectsRoadOther.pdf

28 See note 16. https://cim2050.compassidaho.org/wp-content/uploads/PriorityProjectListsCIM2050.pdf

Public and Stakeholder Participation

A quality transportation system should be safe and convenient and should support the region's economy and quality of life. That is, a transportation system should be planned and designed to serve the people who use it.

To that end, COMPASS sought and incorporated significant input from transportation users and stakeholders when developing *Communities in Motion 2050* (CIM 2050). That input included three public surveys, three discussion groups, feedback on 10 amendments to the *Communities in Motion 2040 2.0* plan (adopted in 2018), and feedback on the draft CIM 2050 plan itself (Figure 1). Each of these is discussed below.

Figure 1. CIM 2050 was developed based on public input throughout the planning process.

PUBLIC SURVEYS

COMPASS used three public surveys—one each in 2019, 2020, and 2021—to gather public opinion on topics that would lay the foundation for CIM 2050. The surveys received a combined total of over 18,500 responses.

COMPASS strives to ensure all residents are aware of opportunities to participate in COMPASS programs and that those opportunities are provided in a variety of settings and formats. This allows for an equitable, accessible, and welcoming planning process that includes individuals of all backgrounds and abilities.

To that end, each survey was available in English and Spanish in online, paper, and accessible formats. The opportunity to participate was promoted widely in English and Spanish throughout Ada and Canyon Counties through email, social media, news stories, presentations, postcards, radio and newspaper ads, billboards, posters, and word of mouth. In addition to seeking input on the topics discussed below, the surveys also collected demographic data to help improve future outreach efforts and check for any significant differences in responses among different populations.

Survey #1: *A Lot Can Change in 30 Years*

Predicting future trends is a difficult task even when change happens slowly. With the Treasure Valley's rapid growth, shifting demographics, and exponential advances in technology, getting it right is a significant challenge.

To harness the "wisdom of crowds" in assessing what the future could look like, COMPASS kicked off public input into CIM 2050 with the A Lot Can Change in 30 Years survey in fall 2019 (Figure 2). A copy of the survey can be found online.[1]

Figure 2. The *A Lot Can Change in 30 Years* survey explored how lifestyles in the Treasure Valley could change by the year 2050.

The survey sought people's opinions regarding their future housing, transportation, and quality of life preferences. Key findings are described below and a subset of quantitative results is provided in Figure 3. Read the complete survey results.[2]

Those results were used to inform two subsequent surveys, *Where Do We Grow From Here?* and *All Aboard!* (see below), and are also reflected in the CIM 2050 Vision,[3] a description of how the valley is forecasted to grow by 2050 and the transportation system needed to support it.

It is important to note that this survey was administered prior to the COVID-19 pandemic. Some responses, particularly regarding teleworking, shopping, and telehealth, may have received different responses if the survey had been conducted during or after the pandemic.

SURVEY SUMMARY: *A LOT CAN CHANGE IN 30 YEARS*

Dates: September 11 – November 3, 2019

Participants: 3,703

Focus Area: How do I see myself living in 30 years?

Key Takeaways:

Housing

- Rising costs are a significant concern
- Strong preference for single-family homes, primarily in suburban-type neighborhoods

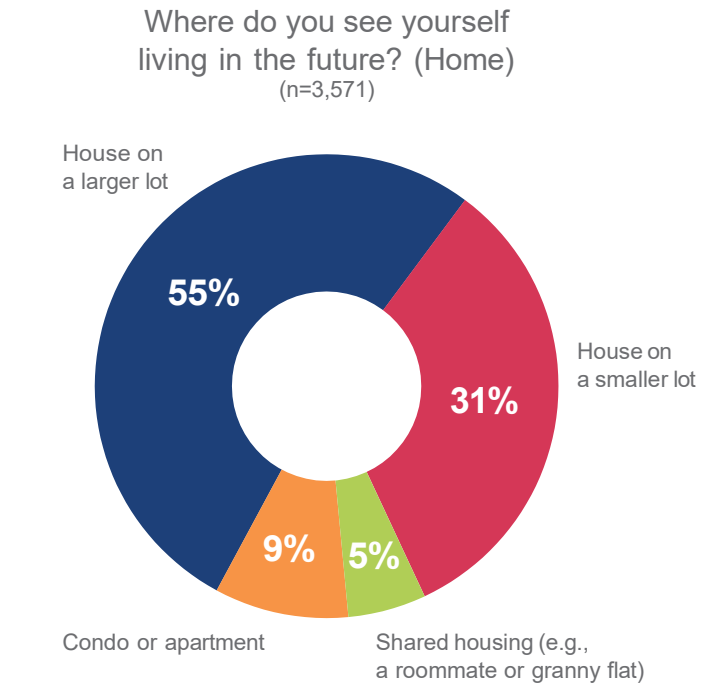
Transportation

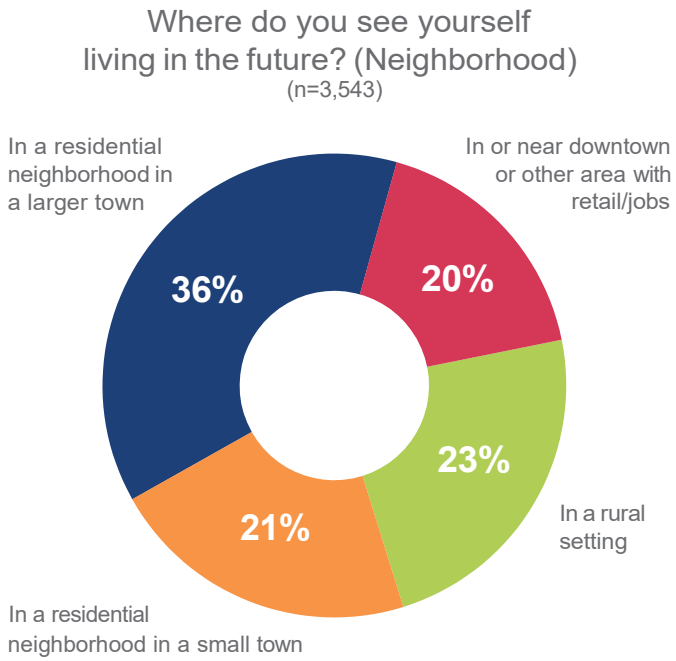
- Strong preference for driving ourselves, but also support for rail
- Cautiousness about new transportation technologies

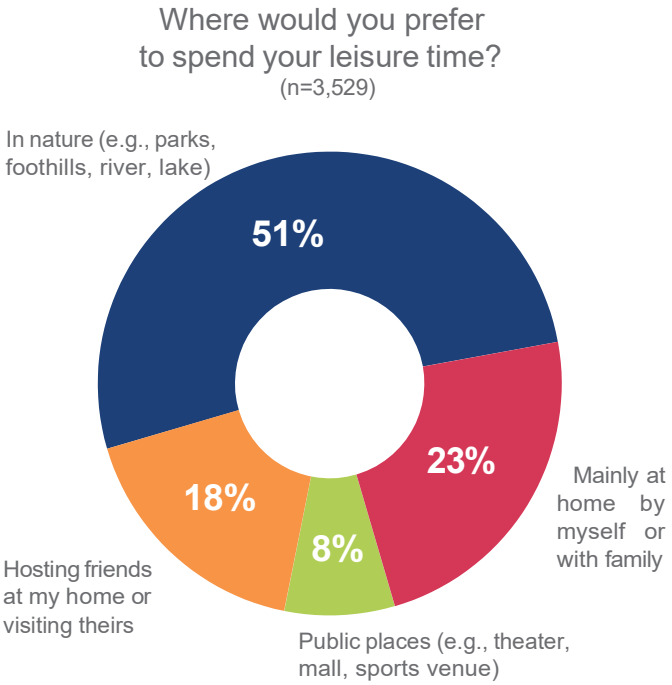
Quality of Life

- Access to nature for recreation is strongly desired
- High concern over fiscal and other impacts of growth
- Support for using technology to grow more food on less land
- Increasingly flexible work arrangements such as telecommuting, compressed work weeks, and alternate work schedules are envisioned for many jobs

View Survey View Results







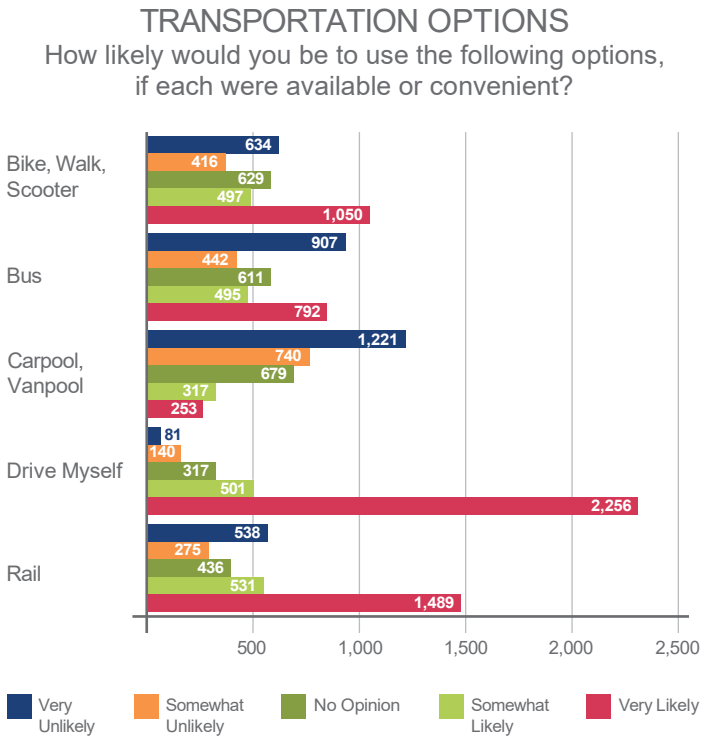


Figure 3. Results from the *A Lot Can Change in 30 Years* survey showed a preference for single-family homes in residential neighborhoods, spending time outdoors, and the potential use of rail in addition to personal vehicles. These results fed into the *Where Do We Grow From Here*? and *All Aboard!* surveys.

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Survey #2: *Where Do We Grow From Here?*

The second survey, *Where Do We Grow From Here?* (Figure 4), was developed using results from the *A Lot Can Change in 30 Years* survey and focused on three topic areas: values, growth scenarios, and implementation strategies. A copy of the survey can be found online;[4] read the complete qualitative and quantitative survey results.[5]

Figure 4. The Where Do We Grow From Here? survey focused on values, growth scenarios, and implementation strategies.

SURVEY SUMMARY: *WHERE DO WE GROW FROM HERE?*

Dates: June 1 – July 11, 2020

Participants: 3,145

Focus Area: Values, growth scenarios, implementation strategies

Key Takeaways:

Values

- Managing growth, affordability, environmental health, outdoor lifestyle, and economic vitality are key values for the Treasure Valley's future

Growth Scenarios

- Strong preference for the Ticket to Ride and Come Together growth scenarios, which focused on more compact growth and more transportation options, particularly transit

Implementation Strategies

- Support for implementation strategies varied, with strongest support for fiscal impact policies, open-space levies, and, broadly, strategies that better manage transportation as opposed to growing the transportation system

View Survey View Results

Values

The first portion of this survey asked participants to reflect on values that should be considered as the Treasure Valley grows. Participants viewed short descriptions and photos depicting eight values and were asked to rank the values in priority order from 1 to 8. Results fed into the next section of the survey ("growth scenarios") and were used to inform plan goals (Figure 5).[6]

The eight featured values came from a larger list that COMPASS compiled using Treasure Valley residents' responses from the 2019 *A Lot Can Change in 30 Years* survey, public comments received by COMPASS since 2012 on multiple plans and programs, input from COMPASS workgroups, and the results of other agencies' public surveys. COMPASS' Regional Transportation Advisory Committee narrowed and combined the larger list into those values used in the survey.

RANKED VALUES AND CORRESPONDING CIM 2050 GOALS

Rank	Value	Relected in Goal(s)
1	Growth Management	Economic Vitality
2	Affordability	Quality of Life
3	Environmental Health	Quality of Life
4	Outdoor Lifestyle	Quality of Life
5	Economic Vitality	Economic Vitality
6	Effective Transportation	Convenience, Safety
7	Transortation Options	Convenience, Economic Vitality
8	Choices In Where I Live	Quality of Life

Figure 5. Values ranked by participants in the *Where Do We Grow From Here?* survey were used to help inform CIM 2050 goals.

Growth Scenarios

This section of the survey asked participants to share their opinions on four scenarios that depicted different ways Ada and Canyon Counties could grow by 2050. Each of the four scenarios—Let it Be, Ticket to Ride, Penny Lane, and Come Together—focused on different aspects of the results from *A Lot Can Change in 30 Years* and all incorporated nuances regarding flexible work arrangements, multiple shopping options, and changing uses of technology (Figure 6).

Figure 6. Results from the *A Lot Can Change in 30 Years* survey were used to develop four distinct scenarios reflecting alternatives for growth in the Treasure Valley.

Participants reviewed information about the scenarios and then rated each on a scale of 1 to 5 stars. For each scenario, the survey included a brief description,[7] sample photos, and a simple graphic demonstrating how the scenario compared to the individual's top values from the first screen (Figure 7). Participants could also link to a fact sheet on each scenario that included a map, pros and cons, transportation costs, and more.

Let It Be

Continues the current trend of mostly suburban development, with some urban housing near downtowns and employment centers. Transportation funds focus on widening key corridors, road maintenance, and bus rapid transit on State Street.

Ticket to Ride

Provides a mix of housing, including apartments near transit (including rail) and single-family homes. Rail stops will be located near new urban activity centers, helping to preserve farmland. New local funding is needed to pay for increased transit.

Penny Lane

Provides affordable housing in less expensive suburban areas and on small lots and live/work units near employment centers. This leads to longer commutes for some and shorter commutes for others. Transportation improvements near town centers encourage walking/biking.

Come Together

Includes a variety of housing choices where services already exist to reduce impacts on community budgets and preserve farmland. Transportation funding is used to improve transit and regional pathways; buses serve most of the valley.

Figure 7. Descriptions of the four growth scenarios and feedback on how well each scenario aligns with the individuals' ranked values helped participants rate each scenario. Learn more about the scenarios here.[8]

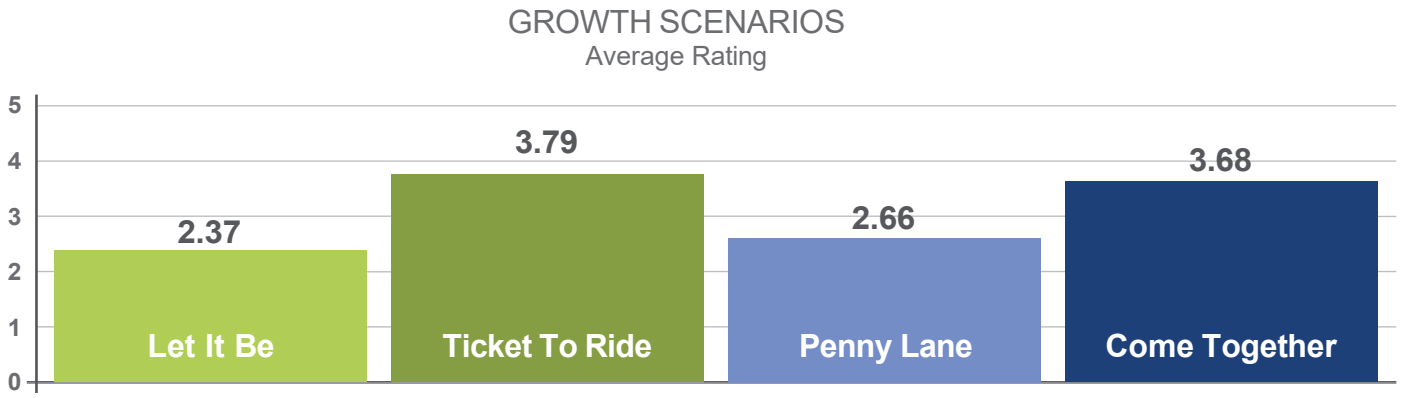


Figure 8. The Ticket to Ride and Come Together scenarios each scored just under four stars on a five-star scale. A higher number indicates higher preference for the scenario.

The Ticket to Ride and Come Together scenarios were strongly favored over Penny Lane and Let it Be (Figure 8). While each was distinct, the two favored scenarios shared some common characteristics, including an emphasis on transit, walking, and biking; a variety of housing options; more compact development; and preservation of farmland.

Features from the Ticket to Ride and Come Together scenarios, coupled with feedback from a third survey on high-capacity transit (see below) and a forecasted population of 1,075,000, were used to develop the CIM 2050 Vision.

Implementing the Scenarios

In the third section of the survey, participants rated strategies that could be used to implement the scenarios. Results were mixed, with highest overall support for open-space levies and fiscal impact policies, and lowest support for a vehicle-mile-travelled tax and location-based mortgages (Figure 9). This feedback, particularly as related to strategies to implement the Ticket to Ride and Come Together scenarios, should be considered as agencies work to implement the CIM 2050 Vision.

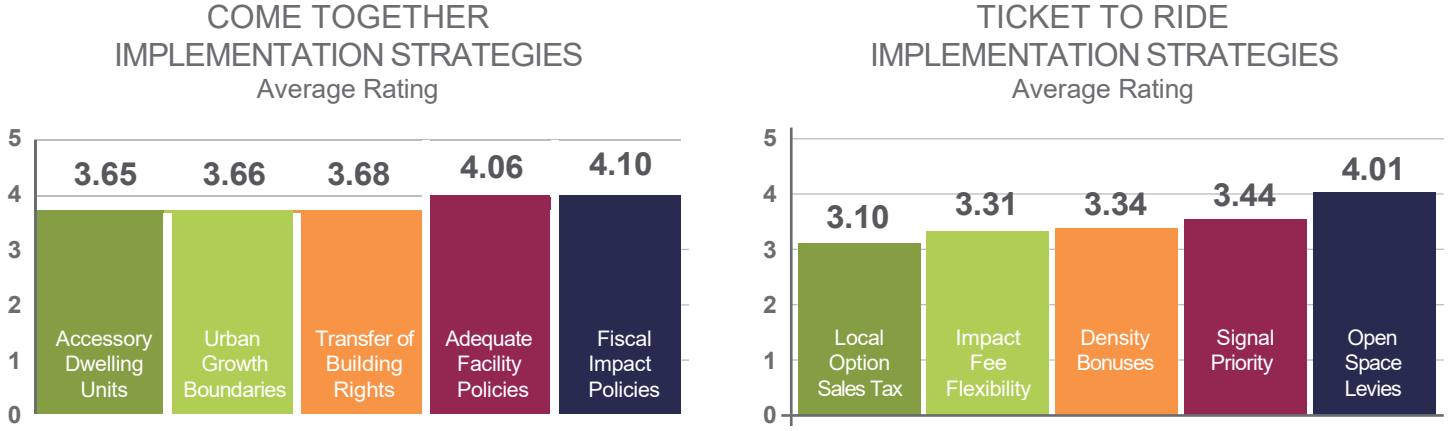


Figure 9. Public input informed which implementation strategies could best support the CIM 2050 Vision; strategies with public support are most likely to be successful. A higher number indicates higher preference for that strategy type.

SURVEY SUMMARY: *ALL ABOARD! EXPLORING TRANSIT OPTIONS FOR THE TREASURE VALLEY*

Dates: January 19 – February 27, 2021

Participants: 11,706

Focus Area: High-capacity transit preferences, tradeoffs, and destinations

Key Takeaways:

- There is a willingness to use high-capacity transit in the future if it meets needs
- For high-capacity transit to meet needs, it must be convenient, with an emphasis on ample and well-placed stops to provide easy access, as well as frequent and reliable service (Figure 11)
- There is support for investment in a quality system, even at a higher cost, with the sentiment that a "cheap" system would not serve the intended purpose nor attract ridership, and thus would fail
- High-capacity transit would primarily be used for work, school, or a night out

View Survey View Results

Survey #3: *All Aboard!* Exploring Transit Options for the Treasure Valley

The first two surveys showed public support for future high-capacity transit, specifically rail. In *A Lot Can Change in 30 Years*, 62% of respondents said they would "likely" or "very likely" use rail if it was available and convenient. In *Where Do We Grow from Here?*, the two highest-rated scenarios included a significant expansion of public transportation compared to today, with one, the Ticket to Ride scenario, featuring a rail system from Caldwell to Boise.

Building from these results and a 2020 study[9] on high-capacity transit options, COMPASS launched the *All Aboard! Exploring Transit Options for the Treasure Valley* survey in January 2021 (Figure 10). The purpose of the survey was to gain insight into public preferences regarding service offerings and likely destinations in order to narrow mode and alignment (route) options to those that would best serve residents' needs. A copy of the survey can be found online;[10] view complete qualitative and quantitative survey results.[11]

Figure 10. The *All Aboard!* survey explored high-capacity transit needs and preferences.

Survey results were used to identify a "locally favored" mode and alignment option—regional rail on the existing rail corridor parallel to I-84 between Caldwell and Boise (the "Boise Cutoff" alignment). COMPASS planners used the locally favored option to help determine the location and types of growth in the valley for the 2050 Vision. Learn more about the potential modes and alignments, and how survey results were used to help determine the locally favored option, in Public Transportation.[12]

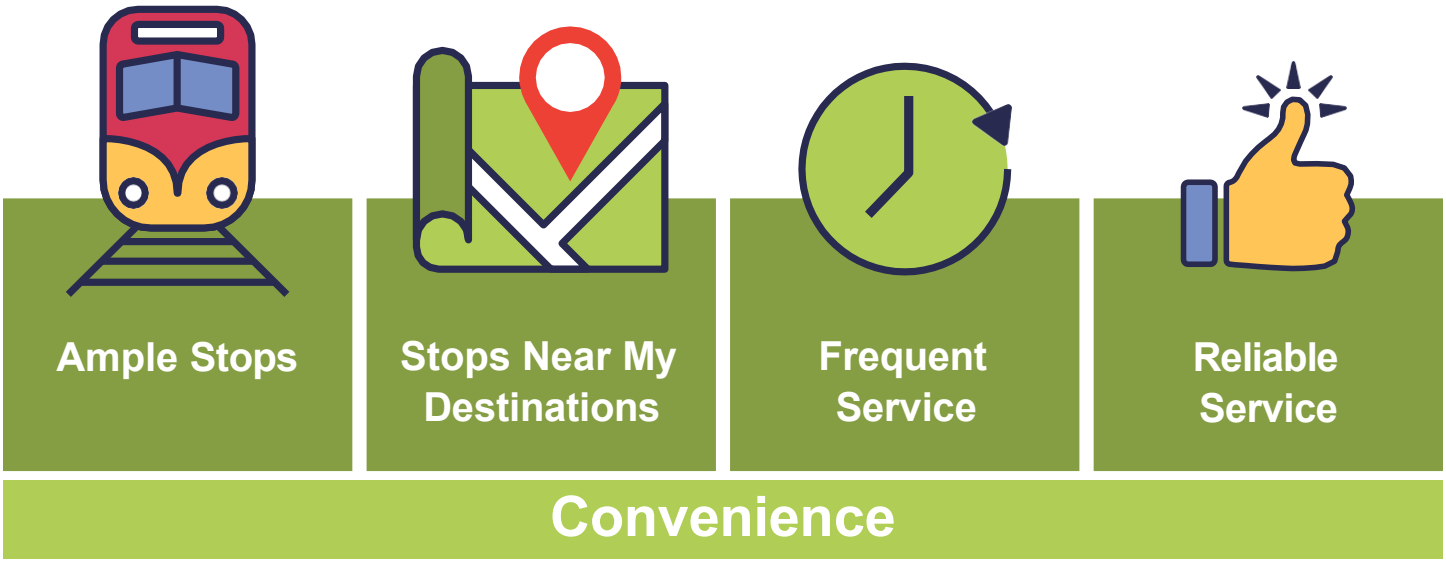


Figure 11. Qualitative and quantitative responses to the *All Aboard!* survey highlighted the importance of convenience in high-capacity transit service.

USING SURVEY RESULTS

The three surveys built upon one another and each provided unique public input to guide the development of CIM 2050. While survey results are reflected throughout the plan, they were specifically used to inform the CIM 2050 Vision[13] for growth and transportation, CIM 2050 goals[14] and implementation strategies,[15] and the 2050 public transportation system.[16] More on each of these can be found in their respective sections of this plan online.[17]

Discussion Groups

To complement the surveys' input from a broad cross-section of residents and stakeholders, COMPASS invited local stakeholders and experts to share their knowledge through small in-depth discussion groups on three specific topics: transportation safety, travel and tourism, and growth and development.

Each group met once for 1.5 hours in early February 2020, and each meeting followed the same format:

- Welcome and introductions
- Brief presentation by COMPASS staff to provide background and context for the discussion
- Facilitated group activity #1 to identify and rank transportation challenges related to the topic (safety, travel/tourism, growth/development)
- Facilitated group activity #2 to identify and rank solutions to the top-ranked challenges from activity #1

Wrap-up and next steps

The top-ranked challenges and solutions from each discussion group are shown in Tables 1-3 below. A list of attendees and verbatim meeting notes for each group can be found in the Appendix to this document.

Table 1. Meeting Notes from Transportation Safety Discussion Group

Transportation Safety Discussion Group February 4, 2020 (7 attendees)	
Top-Ranked Challenges	Top-Ranked Solutions for Challenge
Human behavior	• Create a culture shift—work toward "Vision Zero" (goal of zero transportation fatalities) • Develop well-written, enforceable, logical, emotionally understandable traffic laws
Roadways that are designed primarily for cars	• Create a "master safety committee" with all types of transportation users together • Implement policy changes to support safer design • Wake people up to traffic violence

Table 2. Meeting Notes from Travel and Tourism Discussion Group

Travel and Tourism Discussion Group February 16, 2020 (12 attendees)	
Top-Ranked Challenges	Top-Ranked Solutions for Challenge
Bottlenecks	• More efficient mass transit • Incentives for carpools • Road and bridge construction
Lack of flights to and from the East Coast	• Make the Boise airport an attractive maintenance base • Incentivize airlines • Attract an East Coast industry that would have a need for frequent travel to the Treasure Valley
Lack of efficient mass transit	• Dedicated commuter rail • Local option tax • High-Occupancy Vehicle (HOV) lanes

Table 3. Meeting Notes from Growth and Development Discussion Group

Growth and Development Discussion Group February 12, 2020 (13 attendees)	
Top-Ranked Challenges	Top-Ranked Solutions for Challenge
Lack of regional public transportation and related funding/funding tools	• Prioritize transit frequency on primary corridors/coordinate with businesses • Cultivate employer support for options/cost share • Initiate a local option sales tax or gas tax
Lack of a shared vision among leaders	• Develop an agreement to use current plans/resources in consistent ways across cities and counties • Use experiential learning opportunities • Provide education regarding public/private partnerships
Lack of public knowledge of transportation needs	• Use online interactive tools/games • Engage the media

The discussion groups' input on challenges and solutions are reflected in multiple sections of this plan, as well as related policies and processes, including:

- Safety[18]
- Demographics[19]
- Roadways[20]
- Public transportation[21]
- Complete Network Policy[22]
- Congestion Management Process[23]
- Priority projects[24]
- *Where Do We Grow From Here?* and *All Aboard!* surveys

AMENDMENTS TO *COMMUNITIES IN MOTION 2040 2.0*

Communities in Motion 2040 2.0 was adopted in 2018 and was the long-range transportation plan in effect during the development of CIM 2050. CIM 2040 2.0 has been amended 10 times since 2018.[25] Public comment was sought on each of the proposed amendments prior to action by the COMPASS Board of Directors.

Draft *Communities in Motion 2050*

COMPASS solicited feedback on the draft plan September 16 through October 16, 2022. Additional projects were proposed for funding in the plan after the public comment period ended; COMPASS solicited public comment on those proposed projects October 25 through November 8, 2022. COMPASS reviewed and responded to feedback and incorporated changes as appropriate.

How We Reached Out

COMPASS promoted the opportunity to comment on the draft plan throughout Ada and Canyon Counties in English and Spanish via:

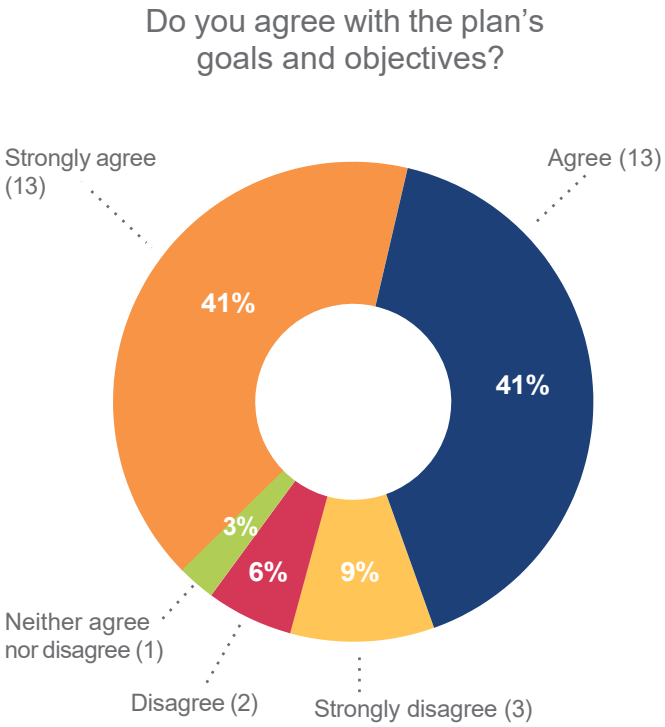
Radio ads – local and streaming	Newspaper ads
Presentations – in person and online	Email blasts
Social media	Popup banner ads
Flyers	Word of mouth

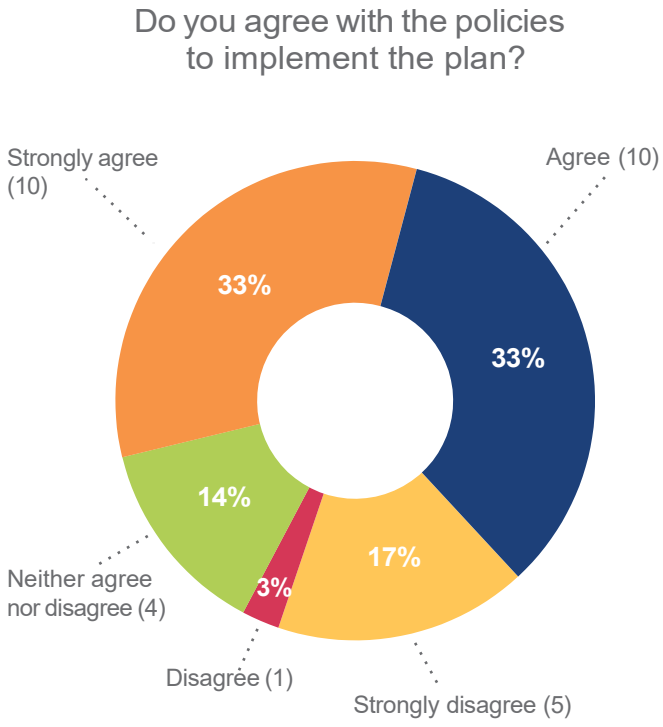
In addition, COMPASS provided comment materials at 20 libraries and other public buildings throughout the Treasure Valley and held open houses in Nampa and Boise to provide the opportunity to view materials and ask questions in person.

What You Told Us

Forty-four individuals and agencies reviewed the draft plan and provided feedback during the public comment period[26]; an additional 14 individuals provided feedback on the proposed additional funded projects.[27] During the comment period on the draft plan, we asked specific questions regarding plan goals, policies, and priorities.

While responses varied widely, most showed support for plan goals (82% strongly agree/agree), policies (66% strongly agree/agree), and project priorities (average 56% strongly agree/agree) (Figure 12).[28]
Note that many individuals submitted open-ended responses only, so are not captured in these quantitative results.





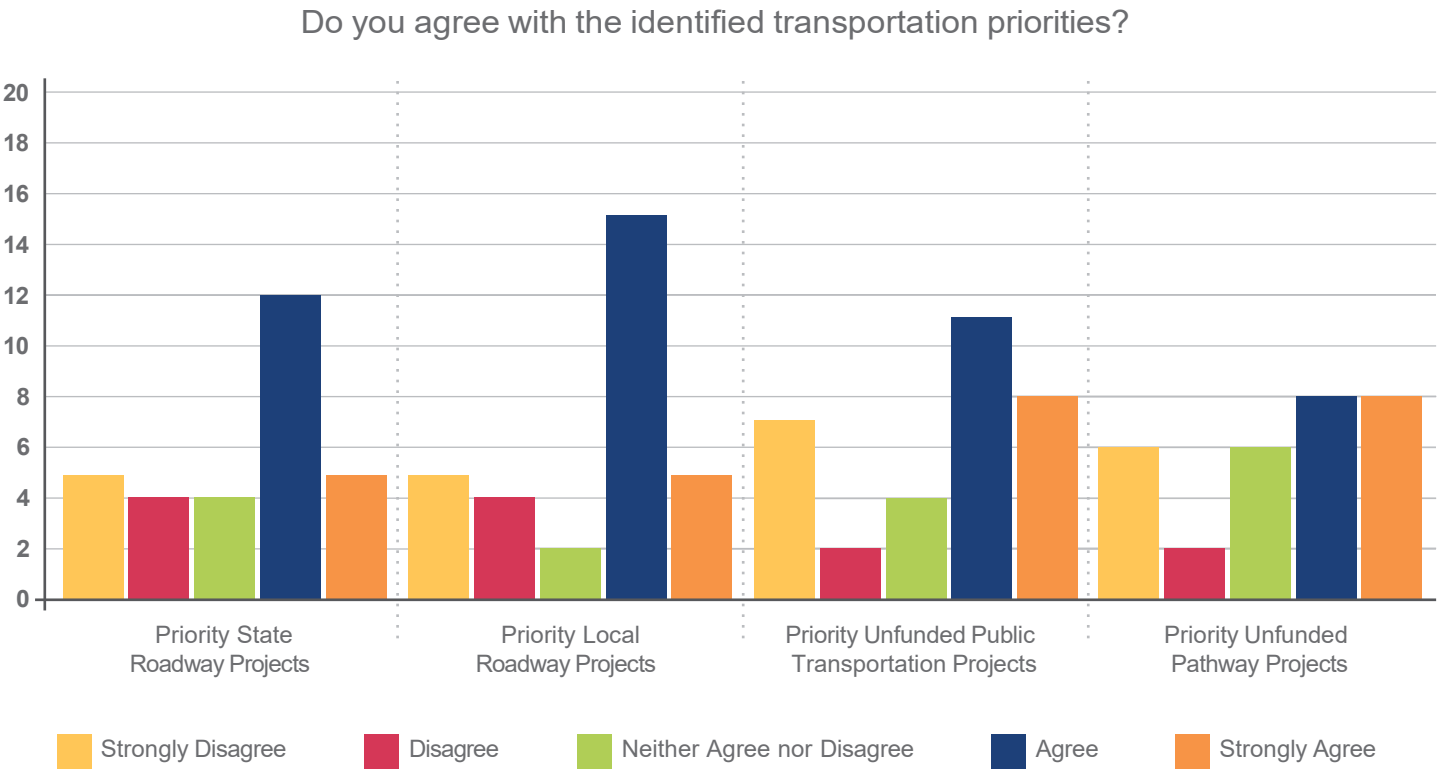


Figure 12. Respondents generally expressed support for plan goals, policies, and priority projects

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Most respondents also provided open-ended comments.[29] Among the most common topics addressed were roadways (36 comments), safety (16 comments), biking (15 comments), rail (14 comments), pathways (10 comments), and buses (8 comments) (Figure 13). However, the tenor of the comments on each topic varied widely, from strong support, to strong opposition, to specific needs, requests, and observations.

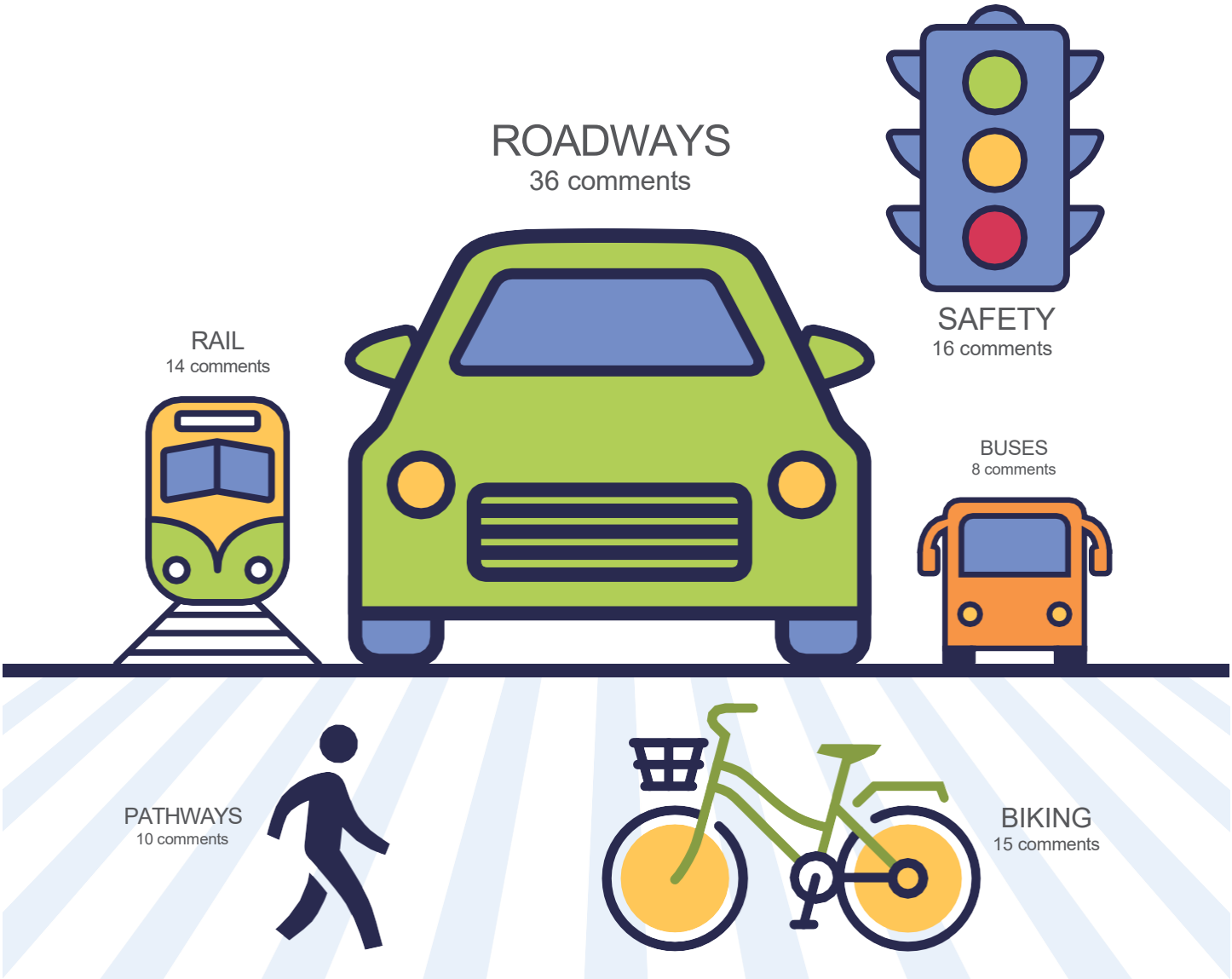

Figure 13. Common topics addressed

When comparing qualitative and quantitative results for priority projects, responses of "disagree" or "strongly disagree" were frequently paired with comments in opposition to that particular mode, as opposed to specific priorities for that mode. For example, disagreement with priorities for local or state roadway projects was often accompanied by a comment stating opposition to roadway expansion; similarly, disagreement with public transportation priorities was often accompanied by comments against public transportation in general.

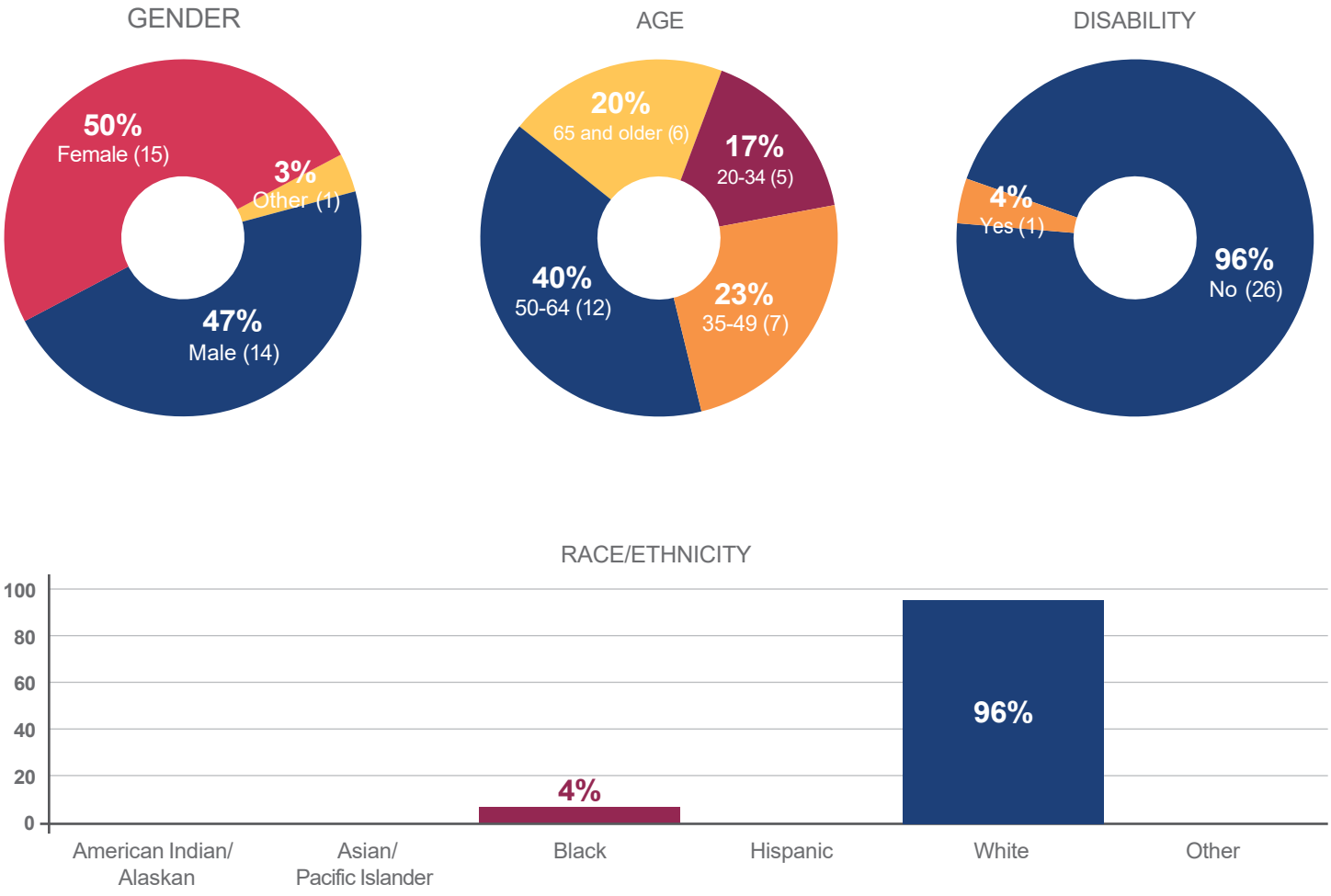

Figure 14. Demographic characteristics of respondents

Who Responded

Respondents were predominantly white, with an equal mix of male and female. While all age groups were represented, respondents skewed older, with 60% ages 50 and older (Figure 14). Respondents hailed from throughout the Treasure Valley (Figure 15).

How Comments Were Addressed

All comments were reviewed in detail and considered by COMPASS staff, shared with COMPASS' Regional Transportation Advisory Committee (RTAC) and Board of Directors, and forwarded to specific COMPASS member agencies when appropriate.

Changes made to the draft plan based on feedback received included correcting the location of a pathway project in the City of Nampa and adding detail on near-road air pollution and mitigation strategies.

Comments and responses are posted as part of this plan[30] and were featured on the home page of the COMPASS website at the time of plan adoption. Answers to questions and changes made to the plan based on feedback were noted in the response to comments document and shared with RTAC and the COMPASS Board of Directors prior to action to adopt the plan. While not all comments resulted in changes to the plan, all public input on the draft plan was thoughtfully considered and will inform future planning processes.

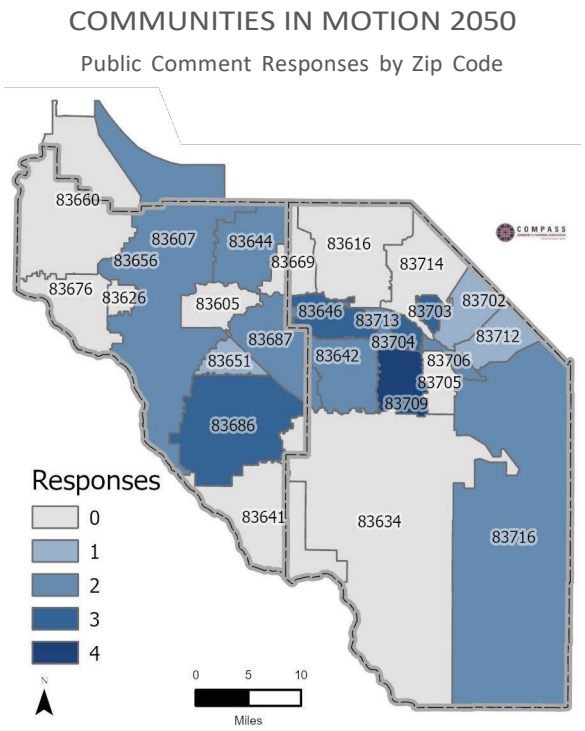

Figure 15. Geographic distribution of respondents

APPENDIX: DISCUSSION GROUP NOTES

In early February 2020, COMPASS invited local stakeholders and experts to share their knowledge on transportation safety, travel and tourism, and growth and development through in-depth discussion groups. Each 90-minute meeting followed the same format:

- Welcome and introductions
- Brief presentation by COMPASS staff to provide background and context for the discussion
- Facilitated group activity #1 to identify and rank transportation challenges related to the topic (safety, travel/tourism, growth/development)
- Facilitated group activity #2 to identify and rank solutions to the top-ranked challenges from activity #1
- Wrap-up and next steps

A list of attendees and full results of the two facilitated activities for each group are provided below. The challenges and solutions presented below are provided verbatim, as brainstormed by group attendees.

TRANSPORTATION SAFETY

Date: Tuesday, February 4, 2020

Attendees:

- Lisa Brady, Safe Routes to School
- Ryan Head, Ada County Highway District
- Lance Johnson, Federal Highway Administration, Idaho Division
- Lisa Losness, Idaho Transportation Department Office of Highway Safety
- Tim Riha, Nampa Police Department
- Steve Ritter, Boise State University
- Tom Trotter, AARP Idaho

Activity 1: Identify and Rank Challenges

Top Challenges (Ranked)

1. Human behavior
    - Aggressive driving
    - User speed
    - Distracted driving
2. Roadways designed for cars
3. Lack of options
4. Traffic volume
5. No "post" analysis
6. Parent fear
7. Not data driven
8. Lack of definition of "safe" / Shared vision of safe network does not exist

Other Challenges Identified (Alphabetical)

1. Better bus options for commuters
2. Bicycles on the wrong side of the road
3. Funding for infrastructure and enforcement – meeting expectations
4. Impaired driving
5. Lack of understanding of how middle turn lanes work
6. Motorcycles cutting lanes
7. People running red lights
8. People thinking they are kind by letting people cut traffic
9. Safe streets: RE speed limits on streets and highways
10. Transportation options…low cost alternatives to driving

Activity 2: Identify and Rank Solutions to Top-Ranked Challenges

Solutions to "Behavior" (Ranked)

1. Create a culture shift – work toward Vision Zero
    - Use term "crashes" and not "accidents"
2. Develop well-written, enforceable, logical, emotionally understandable traffic laws
3. Enforcement
4. Get the legislature, population, and law enforcement all on the same page
5. Education
6. Record video
7. Create intuitive infrastructure

Solutions to "Roadways Designed for Cars" (Ranked)

1. Create a "master safety committee" with all users (bike, ped, auto, public transportation, freight) in the same room
2. Implement policy changes to support safer design
3. Sensitize users – wake people up to traffic violence
4. Create more context sensitive active transportation infrastructure

TRAVEL AND TOURISM

Date: Thursday, February 6, 2020

Attendees:

- Moya Dolsby, Idaho Grape Growers and Wine Producers Commission
- Eric Gilbert, Treefort Music Fest
- Trevor Kesner, Boise Department of Parks and Recreation
- Scott Koberg, Ada County Parks and Waterways (Barber Park)
- Rhonda McCarvel, Boise Convention and Visitors Bureau
- Richard Mussler-Wright, Idaho Botanical Garden
- Gary Payne, Foundation for Ada-Canyon Trail Systems
- Pat Rice, Boise Centre/Boise Auditorium District
- Susan Saad, Bogus Basin Mountain Recreation Area
- Brian Thacker, Velma V. Morrison Center
- Jim Thomssen, Caldwell Chamber of Commerce/Destination Caldwell
- Virginia Treat, Velma V. Morrison Center

Activity 1: Identify and Rank Challenges

Top Challenges (Ranked)

1. Bottlenecks (lack of road/bridge capacity)
    - In general
    - Affecting access to events/destinations
2. Lack of air access from east coast
3. Lack of efficient mass transit
    - Few options for west valley to downtown Boise
    - Multi-modal accommodation
    - Buses get caught in traffic
    - Public transportation to campus
4. Parking
    - Lack of parking
    - Cost of parking
    - Perception of lack of parking
5. Lack of transportation options after hours
6. Lack of last-mile transportation options to downtown Boise/Boise State
    - Increase distance of available hotel rooms from downtown Boise
    - Time of commuter or guests getting to/from downtown
    - 1-2 miles out from downtown

Other Challenges Identified (Alphabetical)

- Access to Botanical garden – volume, recognition as a destination
- Funding
- Future growth – traffic from outlying new developments
- Lack of consistent way-finding signage (especially for wine country)
- Lack of north/south options
- Lack of safe crossings on Warm Springs
- Lack of shuttles
- Maps
- Meshing of mission – moving away from single car
- Need education on industry to county/city/COMPASS
- Need awareness tour
- Need tourism support

- Need collaboration
- Need contact person with problems
- Need signage
- Public reluctance to use public transit
- Road maintenance
- Regional LOS (level of service) coverage
- Traffic from outside Boise

Activity 2: Identify and Rank Solutions to Top-Ranked Challenges

More efficient mass transit

1. Staff training/incentives for carpools/site efficiency
2. Road and bridge construction
3. Alternative office hours / flex scheduling
4. Cost effective parking solutions – more people/vehicle discounts
5. Designated carpool lanes
6. Shut down exit lanes
7. Downtown shuttle to perimeter parking
8. Shuttles every 15 minutes to Ann Morrison
9. Assist chain up area (Bogus)
10. Home office option

Solutions to "Lack of East Coast Air" (Ranked)

1. Make BOI an attractive maintenance base
2. Incentivize airlines – e.g., economic development, maintenance
3. Attract an east coast industry that would have a need to travel to Boise a lot
4. Lobby airport staff

Solutions to "Lack of Efficient Mass Transit" (Ranked)

1. Dedicated commuter rail
2. Local option funding
3. HOV lanes
4. General funding (tie)
5. Make bus "sexier" (tie)
6. Marketing/education/awareness of these issues/options (tie)
7. Share business/commerce effects of this issue (tie)
8. Tolls (tie)

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GROWTH AND ECONOMIC DEVELOPMENT

Date: Wednesday, February 12, 2020

Attendees:

- Mick Armstrong, Meridian Chamber of Commerce
- Clay Carley, Old Boise LLC
- Lanette Daw, Boise School District
- Eric Forsch, Idaho Department of Commerce
- Peter Jurhs, Nampa School District
- Teresa McLeod, St. Luke's Health System
- Alexandra Monjar, ULI Idaho
- Charity Nelson, Boise Valley Economic Partnership
- Steven Sinek, Boise Hunter Homes
- Todd Tucker, Boise Hunter Homes
- Ian Updike, West Ada School District
- Jon Wardle, Brighton Corporation
- Kendra Witt-Doyle, Blue Cross of Idaho Foundation for Health

Activity 1: Identify and Rank Challenges

Top Challenges (Ranked)

1. Need for regional public transportation and related funding/funding tools
2. Lack of a shared vision among leaders
3. Lack of public knowledge of transportation needs
4. Lack of data/knowledge of changing demographics
5. Lack of Safe Routes to School

Other Challenges Identified (Alphabetical)

- Access to care
- Access to healthy foods
- Better coordination with cities on creation of industrial and commercial zones
- Community health: lack of understanding of impact of built environment
- Complete network that promotes physical activity
- Congestion on main arteries
- Conflicts between AV/AI [autonomous vehicles/artificial intelligence] and humans in the street
- Costs
- Development is often at blame – not paying our fair share, but this isn't always true

- Education (outreach)
- Experiential learning
- Funding (limited tools)
- Future transportation improvements impact on growth
- Getting students to school from outside Boise due to foster care/ homelessness
- HOV lanes on highway (lack of)
- Labor shortage
- Lack of coordination among cities and public agencies
- Lack of mobility options in some areas
- Land cost
- Legislative support
- Obesity and car commute
- Our transportation impacts on neighbors (e.g., employee parking, ride share, walk bike options)
- Parking: not enough space but no other viable options
- Patient access
- Poor driving habits
- Prioritizing movement of people vs cars
- Public education of real costs and funding sources
- Public transit for all locations
- Public transit for all work hours
- Rail service – no origination in the metro
- Reduced revenue from hybrid and electric vehicles
- Residents from high population areas thinking there isn't a problem
- Retail changes – more delivery
- School load zones are packed with parent vehicles
- Sprawl
- Thinking Valley Transit is what our residents want
- Time delay in answers from ACHD [Ada County Highway District] and ITD [Idaho Transportation Department]
- Traffic congestion at employment centers
- Travel time – can only go a short distance within bell times of schools
- Truck traffic competing with commuter traffic
- Understanding tradeoffs in growth

Activity 2: Identify and Rank Solutions to Top-Ranked Challenges

Solutions to "Need for Regional Public Transportation and Related Funding/Funding Tools" (Ranked)

Prioritize transit frequency on primary corridors/coordinate with businesses

1. Employer support for options/cost share
2. Local option sales tax or gas tax
3. Reallocate maintenance money into mobility needs
4. Use chambers of commerce data and contacts / survey chamber
5. Increase vehicle registration fees

Solutions to "Lack of a Shared Vision Among Leaders" (Ranked)

1. Agreement to utilize current plans/resources in consistent ways across cities/counties
2. Experiential learning opportunities – what is it like to be an underserved population
3. Education regarding public/private partnerships
4. Data: commuting, cross city impacts, resident behavior

Solutions to "Lack of Public Knowledge of Transportation Needs" (Ranked)

1. Use online interactive tools (gamification)
   - "Plan the growth" game
   - "Home to work cost" game
2. Engage the media
3. Explain funding with a game

ENDNOTES

1 *A Lot Can Change in 30 Years* survey, drivingthefuture-demo.metroquest.com

2 *A Lot Can Change in 30 Years* survey results, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/SurveyResults_Fall2019.pdf

3 CIM 2050 Vision, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Vision_Map_Final.pdf

4 *Where Do We Grow from Here?* survey, wheredowegrow-demo.metroquest.com

5 *Where Do We Grow from Here?* survey results, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/SurveyResults_WhereGrowSummer2020.pdf

6 CIM 2050 goals, https://cim2050.compassidaho.org/goals/cim-2050-goals

7 *Where Do We Grow from Here?* survey's growth scenario descriptions, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/CombinedDescriptions.pdf

8 Ibid.

9 Treasure Valley High Capacity Transit Study 2020 Update, COMPASS, compassidaho.org/documents/planning/studies/Treasure_Valley_High_Capacity_Transit_Study_2020_Update_Final0907.pdf

10 *All Aboard!* survey, live.metroquestsurvey.com/?u=9lh2x#!/?p=web&pm=dynamic&s=1

11 *All Aboard!* survey results, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/AllAboardResults.pdf

12 Public Transportation, CIM 2050, https://cim2050.compassidaho.org/wp-content/uploads/PublicTransportation.pdf

13 See note 3.

14 See note 6.

15 Implementation, CIM 2050, https://cim2050.compassidaho.org/Implement.pdf

16 Public Transportation, CIM 2050, https://cim2050.compassidaho.org/wp-content/uploads/PublicTransportation.pdf

17 CIM 2050 plan, https://cim2050.compassidaho.org

18 Safety, CIM 2050, https://cim2050.compassidaho.org/SafetySecurity.pdf

19 Demographics, CIM 2050, https://cim2050.compassidaho.org/Demographics.pdf

20 Roadways, CIM 2050, https://cim2050.compassidaho.org/Roadways.pdf

21 See note 16.

22 Complete Network Policy, www.compassidaho.org/documents/people/policies/CompleteNetworkPolicy_Final_Dec2021_2022-01.pdf

23 Congestion Management Process, www.compassidaho.org/documents/prodserv/reports/2022CongestionManagementSystemTechnicalDocument.pdf

24 CIM 2050 priority projects, https://cim2050.compassidaho.org/projects-and-priorities/project-priorities

25 CIM 2040 2.0 amendments, compassidaho.org/CIM2040-2.0/amendments

26 CIM 2050 public comments received, https://cim2050.compassidaho.org/wp-content/uploads/CIM2050_Public_Comments_Verbatim.pdf

27 CIM 2050 additional funded projects, public comments received, https://cim2050.compassidaho.org/wp-content/uploads/AdditionalProjects_Public_Comments_Verbatim.pdf

28 See note 26.

29 See note 26.

30 See note 26.

Public Transportation

Federal requirements for long-range transportation planning include identifying ways to increase accessibility and mobility and enhancing integration and connectivity across and among travel modes.[1] An expanded public transportation system is a critical part of the overall transportation system needed to reach the goals of Communities in Motion 2050 (CIM 2050). These goals are consistent with the U.S. Department of Transportation *Equity Action Plan*[2] and Executive Order 13985 *Advancing Racial Equity and Support for Underserved Communities*.[3]

This document discusses the current public transportation system, goals for the 2050 system, the funded and unfunded portions of the 2050 system, and the implications of underfunding public transportation.

In preparation for CIM 2050, COMPASS conducted several studies and surveys:

- *The Treasure Valley High Capacity Transit Study: 2020 Update* (2020)[4]
- *COMPASS Regional Park and Ride Study (2021)*[5]
- Public surveys: *A Lot Can Change In 30 Years (2019)*,[6] *Where Do We Grow From Here? (2020)*,[7] *All Aboard! (2021)*[8]

These studies and surveys helped inform how the public transportation system should expand to meet the region's future transportation needs and demonstrated which service features the public would like to see. Input from the COMPASS Public Transportation Workgroup[9] was integral in identifying present and future needs, coordinating planning efforts, and envisioning the 2050 public transportation system. The 2050 public transportation system also builds upon Valley Regional Transit's (VRT's) *Transportation Development Plan*[10], the *Coordinated Public Transit-Human Services Transportation Plan* ("Coordinated Plan"),[11] and other studies and plans to improve public transportation services.

PUBLIC TRANSPORTATION-RELATED CIM 2050 GOALS AND OBJECTIVES

CIM 2050 has four goal areas,[12] each with specific objectives. The following pertain to Treasure Valley public transportation:

Goal Area	Public-Transportation-Related Objectives
 **Safety** is important for first- and last-mile connections to transit stops, as well as in waiting areas. Transit may be used in an emergency to evacuate large numbers of people. It can also help reduce the region's carbon footprint.	• Provide a **safe** transportation system for all users. • Support a **resilient** transportation system by anticipating societal, climatic, and other changes; maintaining plans for response and recovery; and adapting to changes as they arise.
 **Economic Vitality** is supported by public transportation, as it reduces congestion for all road users, supports tourism, and promotes responsible growth and development.	• Develop a multimodal transportation system, including **public transportation**, bicycle, pedestrian, and auto modes, that promotes economic vitality to enable people and business to prosper. • Provide for a **reliable** transportation system to ensure all users can count on consistent travel times for all modes. • Promote **transportation improvements** and scenic byways that support the Treasure Valley as a regional hub for **travel and tourism.**
 **Convenience** is improved by a transit system that allows all persons to access destinations efficiently and reliably, while relieving users of the additional costs of private automobile ownership.	• Develop a regional transportation system that provides **access and mobility for all users** via safe, efficient, and convenient transportation options. • Develop a transportation system with **high connectivity** that **preserves capacity** of the regional system and **encourages walk and bike trips.** • Reduce **congestion** with cost-effective solutions to improve **efficiency** of the transportation system.

Goal Area	Public-Transportation-Related Objectives
Quality of Life is protected by public transportation through reduced impact on the environment, promotion of affordable housing + transportation, and increased equity.	• Develop and implement a regional vision and transportation system that **protect and preserve the natural environment.** • Develop and implement a regional vision and transportation system that **enhance public health.** • Promote development patterns and a transportation system that provide for **affordable** housing and **transportation options** for all residents. • Provide **equitable** access to safe, affordable, and reliable transportation options.

Plans to lay the groundwork for achieving these regional goals include the *COMPASS Congestion Management Process*,[13] the *COMPASS Complete Network Policy*,[14] and more. CIM 2050 performance measures[15] also support the public transportation goals of the *Idaho Transportation Department Transit Asset Management (TAM) Plan*.[16]

CURRENT PUBLIC TRANSPORTATION SERVICES

Multiple public transportation services are available in Ada and Canyon Counties provided by a variety of agencies and private companies (Table 2):

- VRT[17] is the regional public transportation authority for Ada and Canyon Counties. Its primary responsibilities are to operate the fixed route bus system and work with non-profit transportation providers[18] to provide specialized transportation services for those with mobility impairments (Figure 1).
- Ada County Highway District's (ACHD's) Commuteride[19] program operates a vanpool and rideshare program.
- Boise State University's Department of Public Safety[20] operates a shuttle near the university.
- CityGo[21] operates as the Transportation Management Association for downtown Boise and works with developers, businesses, and transportation providers to coordinate mobility needs in the downtown Boise area.

Table 2: Current Public Transportation Services and Providers

Fixed-Route Services

Fixed-route services are traditional bus services that operate using fixed routes, stops, and schedules. This mode serves both commute and non-commute trips.

Providers: VRT, Boise State University Department of Public Safety

Demand-Response Services

Demand response services are transit services that operate "on-call" without set schedules; they provide underserved residents access to healthcare, jobs, and community services. Examples of demand-response services include OnDemand bus service, non-emergency medical transport services, and taxi-style transit.

Providers: VRT, non-profits, private companies

Park and Ride Facilities

Park and ride facilities provide access to bus, vanpool, and carpool transportation services.

Providers: ACHD Commuteride, VRT

Carpool/Vanpool

Individuals may choose to join an informal carpool or formal vanpool with riders who share a common destination. Vanpools typically serve commute trips, while carpools serve all trip types. Drivers are volunteers.

Provider: ACHD Commuteride

Despite difficulties posed by the COVID-19 pandemic, VRT has implemented an on-demand bus service in Canyon County and an integrated payment system across its services, deployed 12 new electric buses, updated its scheduling software, and increased outreach efforts across the region.

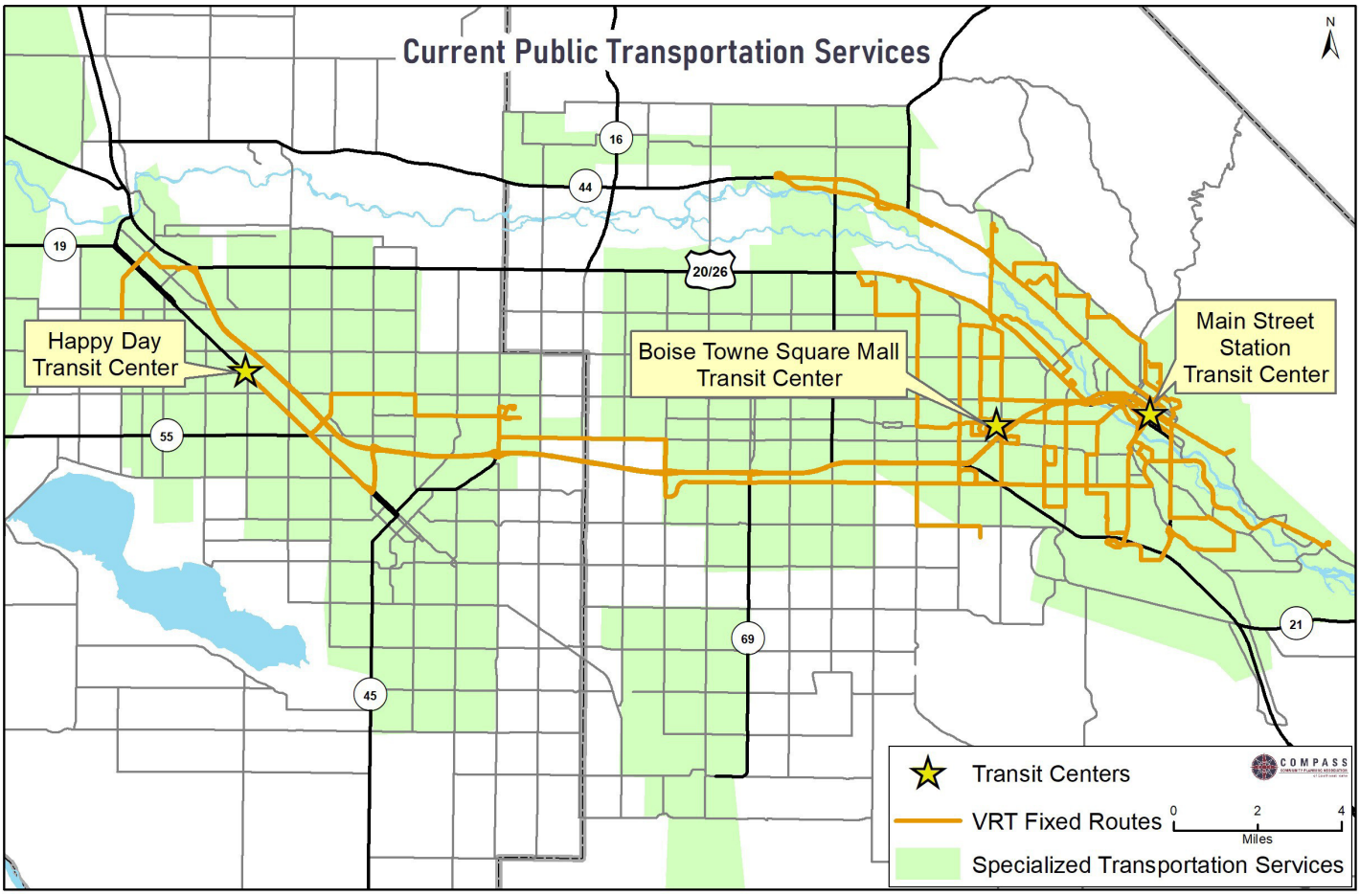

Figure 1: VRT's 2022 bus system; residents may request specialized transportation services in green shaded areas.

PUBLIC TRANSPORTATION IN A COMPLETE NETWORK

The seamless interfacing of public transportation modes with other roadway users and bicycle/pedestrian networks is a key element of an integrated transportation system. In fact, investments in the public transportation system often make other modes of transportation more efficient by taking cars off the road.

COMPASS' Complete Network Policy[22] describes and maps[23] how various land uses and types of transportation infrastructure function to form a complete transportation network. The VRT Bus Stop Typology Study[24] (anticipated adoption January 2023) also provides site specifications for bus stop placement and designs to accommodate all modes and users.

In the Complete Network Policy, transit corridors provide a competitive travel option through transit-specific investments such as safety, lighting, bus stop amenities, benches, shelter, real-time information, transit priority signals, additional right-of-way for future park and ride facilities, and street design elements such as bus pads and islands. These corridors also emphasize first- and last-mile connections[25]—sidewalks, bicycle routes, and park and ride facilities—that allow riders to get to bus stops safely and comfortably. Finally, efficient flow of

automobiles along transit corridors is important, as public transportation usually travels on the road alongside or mixed with other traffic. As roads continue to facilitate more users, roadway design should consider conflicts among modes to ensure the safety of all users.

LAND USE TO SUPPORT PUBLIC TRANSPORTATION

Transit-oriented development principles help ensure that land uses along transit corridors support transit services. Transit-oriented development creates higher-density mixed-use communities that are easily traversed by bike, foot, and public transportation. In the Treasure Valley, State Street[26] is an example of a corridor that encourages transit-oriented development principles to support public transportation and other non-motorized modes of travel (Figure 2).

Figure 2: Collister Station concept design, from *State Street Corridor Transit Oriented Development*[27]

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2050 PUBLIC TRANSPORTATION SYSTEM

By 2050, Ada and Canyon Counties are forecasted to be home to over one million people. The number of accessible, reliable, and competitive travel options available to support that growth will need to greatly expand to meet that future demand.

Public Preferences

To understand public preferences and values for how the region should grow, COMPASS conducted three public surveys: *A Lot Can Change In 30 Years (2019)*,[28] *Where Do We Grow From Here? (2020)*,[29] and *All Aboard! (2021)*.[30] More on each survey can be found in Public Participation.[31]

Generally, survey respondents favored more and better public transportation services, including high-capacity transit. The *All Aboard!* survey asked participants about specific needs and preferences for high-capacity transit. Of more than 11,700 respondents, 92% indicated that they would use high-capacity transit or at least support it. Respondents preferred a service with many easily accessible stops, all-day operations, and separated from other traffic.

When survey results were matched to service characteristics of modes included in the *2020 Treasure Valley High Capacity Transit Study*,[32] regional rail—a hybrid between commuter rail and light rail—on the Boise Cutoff alignment was identified as the best fit. On June 21, 2021, the COMPASS Board of Directors approved a regional rail on the Boise Cutoff alignment as the locally favored high-capacity transit option south of the Boise River (State Street is planned for high-capacity transit service north of the Boise River). This mode and alignment are included in the *CIM 2050 Vision*.[33]

While regional rail is the locally favored high-capacity transit option, further technical analyses are still needed. A future environmental study[34] will be conducted to refine technical analyses for high-capacity transit modes and alignments from the *2020 Treasure Valley High Capacity Transit Study*.[35]

FUNDED PUBLIC TRANSPORTATION SYSTEM

Assuming local jurisdictions continue to fund VRT at their current levels,[36] 18 new public transportation projects could be funded by 2050 (Figure 3). These projects would include premium route improvements on State Street, Fairview Avenue, and Vista Avenue; inter-county improvements serving the Boise Airport and Micron; route restructuring on Boise's West and Central Benches; and new services to the City of Kuna and Gowen Road. The total cost of funded public transportation projects is about $166.6 million.

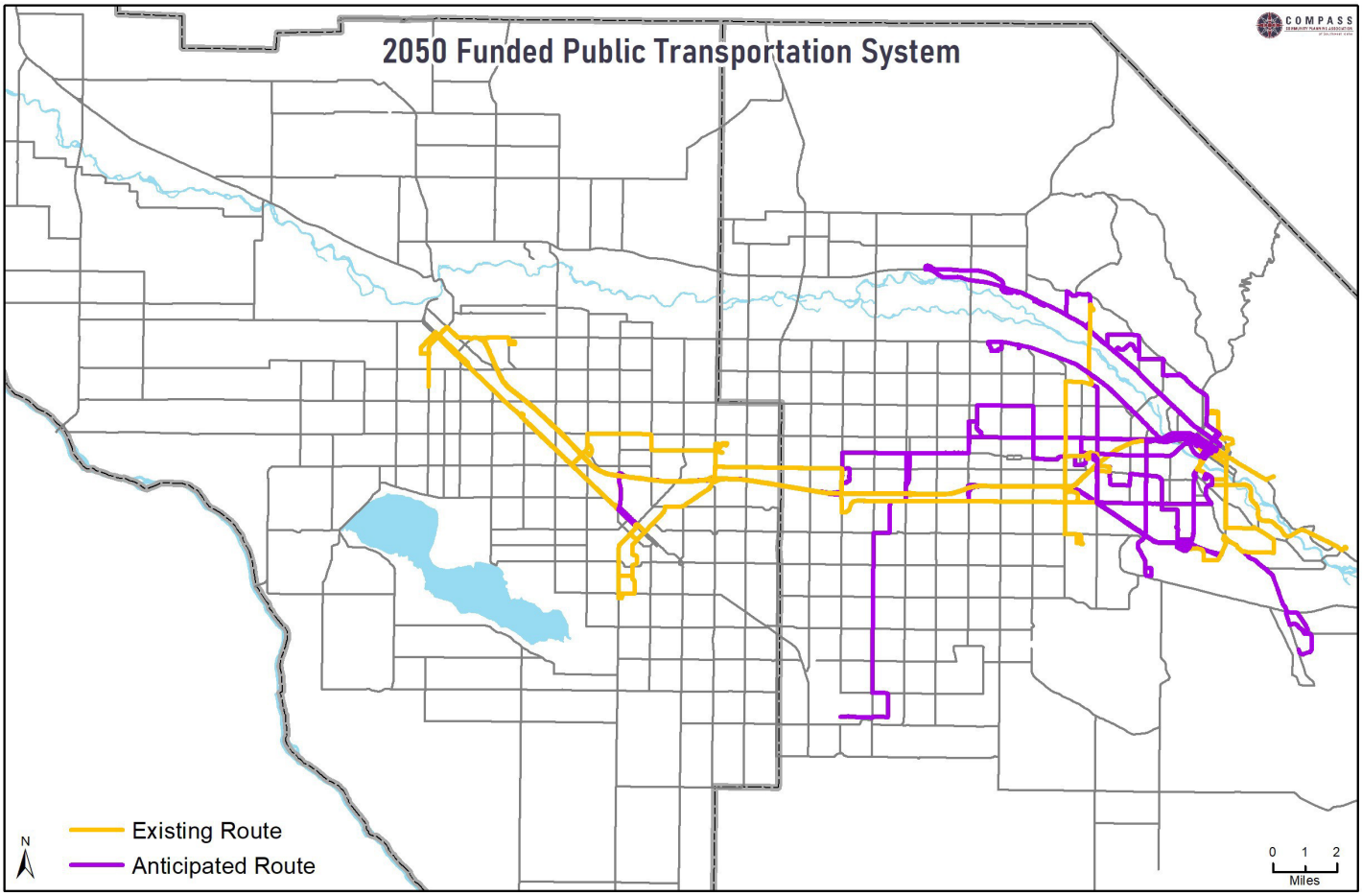


Figure 3: 2050 Funded Public Transportation System

UNFUNDED PUBLIC TRANSPORTATION SYSTEM

Additional currently *unfunded* improvements would build on the funded system by providing frequent fixed-route services across the two-county region and a high-capacity transit option south of the Boise River (Figure 4). Despite a significant increase in population by 2050, this system could increase the number of households within one-half mile of a transit stop from 36%[37] of all households in 2019 to about 40%[38] by 2050. The system would also significantly increase the number of jobs within one-half mile of a transit stop from about 100,000 in 2019 to about 200,000 in 2050. The total cost of building and operating the unfunded system (including regional rail on the Boise Cutoff alignment) by 2050 is about $982 million. The Premium, Frequent, and Express bus networks were prioritized to provide the most benefit to the most people in an equitable manner. Remaining public transportation networks and projects were not prioritized, as they rely on other networks in the unfunded system.

Together, the funded and unfunded 2050 public transportation systems are estimated to cost about $1.1 billion dollars.

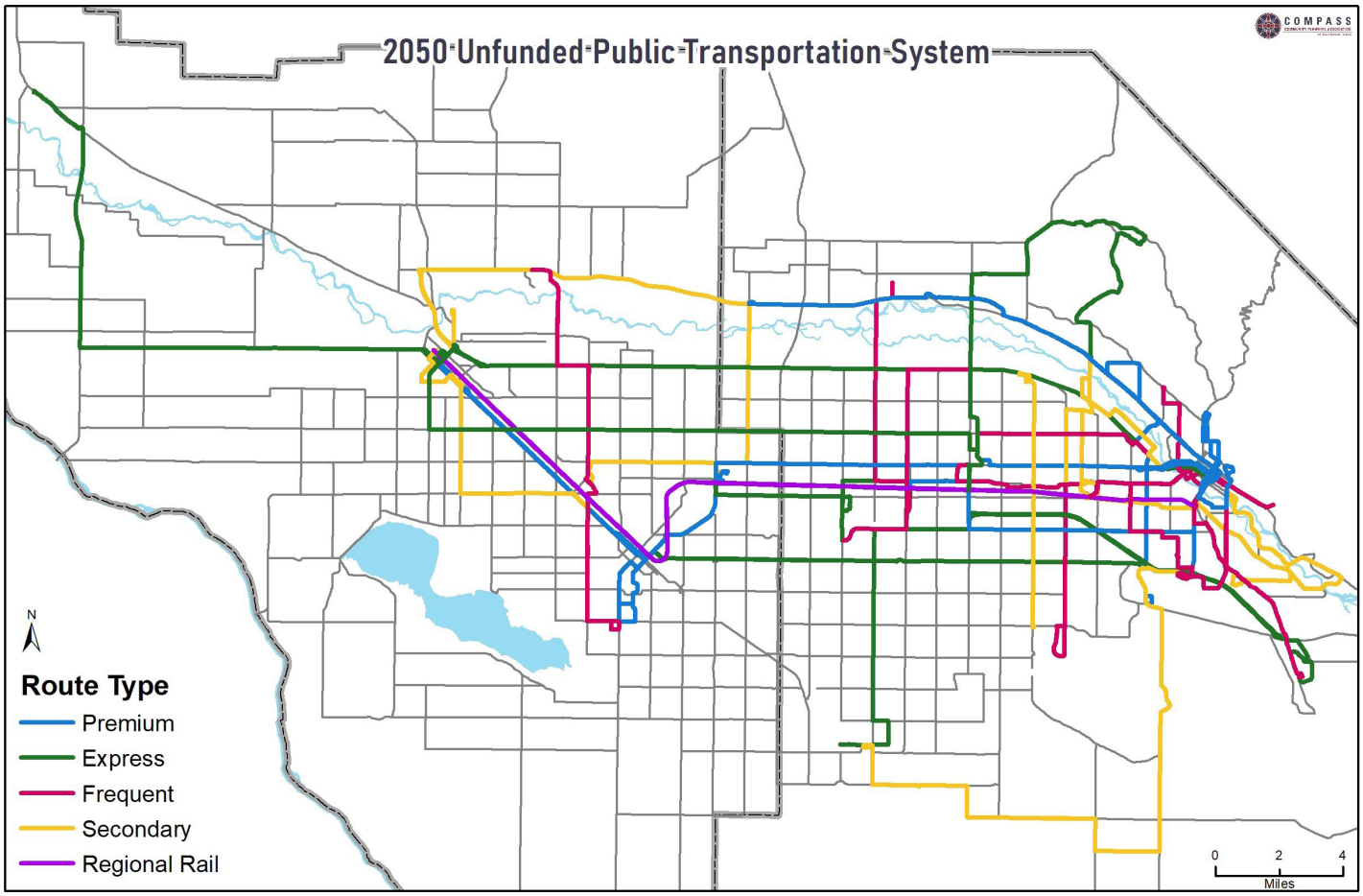


Figure 4: 2050 Unfunded Public Transportation System. Note: Routes shown are unfunded; however, some portions of unfunded routes may be partially funded to 2050 service levels. More information and detailed maps are available in the Appendix. The routes shown are representative and NOT prescriptive. VRT will work with land use and transportation agencies for route development.

Prioritized Unfunded Public Transportation Projects

Unfunded public transportation projects were prioritized based on three criteria:

1. Access: *Does the route provide more access to residential and commercial services in 2050?*
2. Equity: *Does the route improve service in minority and low-income areas?*
3. Productivity: *Does the route attract riders by 2050?*

More information on the prioritization methodology can be found in Prioritization.[39] The resulting priorities are described below; additional information on each can be found in the Appendix.

Priority No 1: Premium Bus Network

- Cost: $43.2 million
- Most frequent bus service
- Highest capital investments
- Seven routes serving about 117,400 households and 210,400 jobs by 2050
- Sub-prioritized at the route level (Table 3 and Appendix)

Priority No. 2: Frequent Bus Network

- Cost: $56 million
- 15-minute service and weekend service
- Nine routes serving about 113,500 households and 195,100 jobs by 2050

Priority No. 3: Express Bus Network

- Cost: $37.5 million
- 30-minute service and weekend service
- Connect rural and suburban areas to urban centers and higher-frequency routes
- Eight routes serving about 89,800 households and 169,000 jobs by 2050

Table 3. Premium Bus Route Rankings

Rank		Premium Route	Description	Estimated Cost
1	403	Overland Road	From Meridian City Hall to the Boise Veteran's Affairs Medical Center, via Overland Road.	$7 million
	402	*Vista Avenue	From Bogus Basin Road to the Boise Airport, via Vista Avenue.	$4.8 million
	400	*Cherry Lane/ Fairview Avenue	From the College of Western Idaho to Boise State University, via Fairview Avenue.	$3.4 million[40]
2	401	*State Street	From North Star Road to Main Street Station, via State Street.	$7.8 million
3	404	Orchard Street	From Gowen Road/Harvard Street to State Street/Gary Lane, via Orchard Street.	$4.7 million
4	405	Garrity Boulevard	From East Greenhurst Road to the College of Western Idaho, via Garrity Boulevard.	$4.7 million
5	406	Nampa-Caldwell Boulevard	From East Greenhurst Road/South Canyon Street to Blaine Street/Kimball Avenue, via Nampa-Caldwell Boulevard.	$10.8 million

**A portion of the route is funded.*

Unprioritized Unfunded Public Transportation Projects

Several components of the 2050 unfunded public transportation system are unprioritized, as they rely on networks identified in the prioritized unfunded public transportation system. These are described below, with additional information in the Appendix.

Secondary Bus Network

- Cost: $44.5 million
- Provide local connections to higher-frequency routes
- Eight routes serving about 96,800 households and 158,600 jobs by 2050

Regional Rail

- Cost: $800 million
- Would provide a critical east-west high-capacity transit system
- An environmental study[41] is planned to provide a more detailed analysis of cost estimates and feasibility

Park and Ride Facilities

- Cost: $TBD
- Provide riders with parking facilities to access carpool, vanpool, and transit services
- Relatively low level of capital investment

FINANCING THE PUBLIC TRANSPORTATION SYSTEM

In the Treasure Valley, funding for public transportation services is generated from local and federal contributions.[42] Local contributions vary from city to city. The largest local contributor to public transportation is the City of Boise. In 2021, VRT's total expenditures were about $19.3 million[43] for operating and maintaining more than 600 bus stops, 18 Ada County fixed bus routes, 4 intercounty routes, the OnDemand service in Canyon County, and numerous specialized transportation services.

As the region continues to grow, local interest in expanding public transportation services is growing. For the first time, the CIM 2050 funding policy[44] identifies a set-aside amount of $1.4 million annually to strategically address public transportation capital costs. Despite these gains, the public transportation system faces a daunting funding shortfall. In addition to the $982 million needed to fund the unfunded system; the funded system is estimated to experience about a $328 million deferred maintenance need by 2050. Additional information on funding the public transportation system can be found in the *Financial Plan*.[45]

IMPLICATIONS OF UNDERFUNDING PUBLIC TRANSPORTATION

The current public transportation system is an essential service to many in the Treasure Valley since public transportation provides an affordable mode of transportation. According to a 2021 COMPASS survey of bus riders, about 60% have an annual household income of less than $25,000.[46] Moreover, for those who may have trouble driving, public transportation offers a safe mode of transport. From 2010–2019, the population of individuals who are more likely to rely on public transportation grew. Findings from the 2022 Coordinated Plan[47] show that the total number of seniors (65 years and older) and people with low-incomes or disabilities increased, with older adults growing in both number and share of the total population from 2010 to 2019. This growth is occurring at a faster rate in Canyon County than Ada County, especially significant because Canyon County does not have as many public transportation options as Ada County.

Underfunding public transportation can also have far-reaching impacts on the future economy of the region. A robust and reliable public transportation system allows residents to live closer to jobs and essential services by promoting denser development patterns. Without this increased density, distances between people and jobs will increase, with an associated increase in congestion. Longer commutes may impact the labor industry as individuals search for jobs with shorter commute times. A robust public transportation system is also shown to attract new jobs and encourage tourism. A study by the American Public Transportation Association found that investment in transit can yield 50,731 jobs per $1 billion invested and offers a 4 to 1 economic return.[48]

Today, public transportation provides safe and reliable transportation to places of work for many in the region. According to a survey respondent from the 2022 Coordinated Public Transit-Human Services Transportation

Plan, "Many people are forced to live far from where they work because they cannot afford to live there. If they rely on public transit and they are forced to move to an area without adequate public transportation, they are faced with the possibility of losing their job." Underfunding public transportation in this region will continue to impact those who rely on public transportation to reach essential services.

Lastly, public transportation is less carbon intensive than vehicular travel. Nationally, transportation is responsible for about 27% of greenhouse gas emissions in the United States.[49] As the region continues to grow, there will be an associated increase in vehicle miles of travel, roadway wear and tear, and vehicle emissions. Increased investment in, and use of, public transportation can reduce greenhouse gas emissions[50] as transit vehicles transport more people at a time than personal automobiles.

The 2022 Coordinated Plan[51] identified the highest priority transportation needs of underserved populations in Ada and Canyon Counties:

- Improve access to transit
- Expand service hours and days
- Increase service frequency/availability
- Improve access to employment
- Meet service needs in rural/suburban areas
- Co-locate affordable and accessible housing with transit lines
- Improve access to necessary social services and medical providers

The Coordinated Plan matched strategies with the needs to guide future funding and planning efforts.

CONCLUSION

Public transportation provides necessary services for many in the area and will be a critical component of an efficient transportation system in 2050. Across all populations, CIM 2050 surveys[52] reflected a growing desire for improved and expanded public transportation services. The 2050 funded public transportation system represents a significant improvement to the existing system, but those gains are limited in geography. The 2050 unfunded public transportation system integrates regional rail and includes a bus system that supports the regional rail line and covers the two-county region. These investments across the region are key to supporting future economic and population growth.

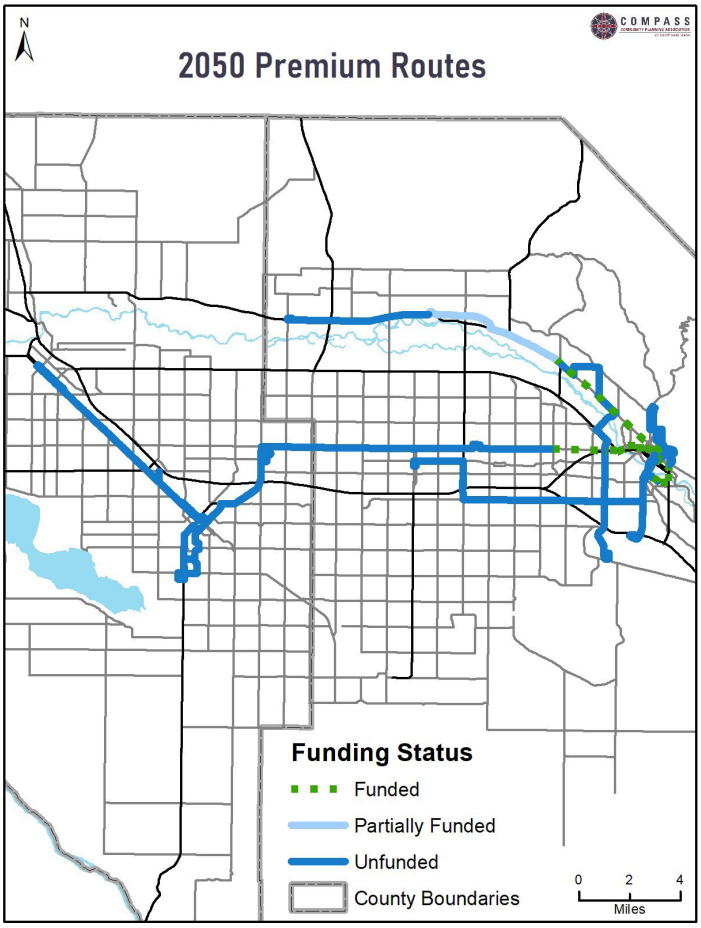
APPENDIX

This appendix provides additional information on prioritized and unprioritized projects within the unfunded public transportation system. Unfunded public transportation projects were prioritized based on three criteria:

1. Access: *Does the route provide more access to residential and commercial services in 2050?*
2. Equity: *Does the route improve service in minority and low-income areas?*
3. Productivity: *Does the route attract riders by 2050?*

#1 | PREMIUM BUS NETWORK — UNFUNDED COST: $43.2 MILLION

Premium bus routes provide the most frequent bus service with the highest capital investments by 2050 and are the #1 unfunded public transportation priority in CIM 2050. Premium routes provide all-day service with 15-minute service frequencies and weekend service. Capital improvements at major intersections may include queue jumps and transit signal priority. The vision for land use along premium transit corridors is for compact, mixed-use, and walkable developments.



Seven premium bus routes make up the backbone of the 2050 public transportation system, serving approximately 117,400 households and 210,400 jobs by 2050. The premium network is estimated to cost $43.2 million, in 2022 dollars, to construct, operate, and maintain.

Premium Bus Route Ranking

Given the network's importance to the 2050 system, it is the only network "sub-prioritized," or ranked at the route level. Routes in the frequent and express networks are not ranked as routes and will be developed based on system needs.

Ranking of the premium routes in CIM 2050 is intended to show potential ridership and service reach for each route in 2050. Several premium routes have long-term funded portions that by 2050 would provide premium-level service. Such partially funded routes include Route 402 (Vista Avenue), Route 400

(Cherry Lane/Fairview Avenue), and Route 401 (State Street). These investments signify local interest from municipalities and partner agencies in the continued development of these routes and should be considered when determining future investments.

Ranking of premium routes shows a three-way tie between Route 403 (Overland Road), Route 402 (Vista Avenue), and Route 400 (Cherry Lane/Fairview Avenue) for the top-ranked premium routes. These routes are forecasted to be highly productive and serve a high number of households, jobs, and underserved populations in 2050.

The second highest ranked premium route is Route 401 (State Street), a highly productive route with a slightly lower forecasted number of households and jobs within one-half mile than higher-ranked routes. It is important to note that the eastern portion of Route 401 (State Street) has had the highest level of investment of all premium routes and is in an urban renewal district until 2042.[53] CIM 2050 includes both the funded and unfunded portions of Route 401 (State Street), which by 2050 extends to Star Road to capture future growth in the Cities of Eagle and Star.

The next group of premium routes are relatively less productive and are not forecasted to serve as many households and jobs in 2050. However, they serve the greatest number of low-income and minority populations and are an essential part of connecting Ada and Canyon Counties via transit. While estimated costs for each route are listed, cost was not a factor in prioritization.

Rank		Premium Route	Description	Score
1	403	Overland Road	14.5-mile-long route from Meridian City Hall to the Boise Veteran's Affairs Medical Center, via Overland Road. The estimated cost to build and operate this route is $7 million.	4.02
	402	*Vista Avenue	6.5-mile-long route from Bogus Basin Road to the Boise Airport, via Vista Avenue. The estimated cost to build and operate the unfunded portion of this route is $4.8 million. **Long-term funded from the Boise Airport to Main Street Station.*	4.01
	400	*Cherry Lane/ Fairview Avenue	19-mile-long route from the College of Western Idaho to Boise State University, via Fairview Avenue. The estimated cost to build and operate the unfunded portions of this route is $3.4 million.[54] **Long-term funded from Boise Towne Square to Boise State University.*	3.98

**A portion of the route is funded.*

Rank		Premium Route	Description	Score
2	401	*State Street	17.5-mile-long route from North Star Road to Main Street Station, via State Street. The estimated cost to build and operate the unfunded portion of this route is $7.8 million. **Long-term funded from Main Street Station to Glenwood Street and partially long-term funded from Glenwood Street to Ballantyne Lane.*	3.60
3	404	Orchard Street	11-mile-long route from Gowen Road/Harvard Street to State Street/Gary Lane, via Orchard Street. The estimated cost to build and operate this route is $4.7 million.	2.88
4	405	Garrity Boulevard	7.5-mile-long route from East Greenhurst Road to the College of Western Idaho, via Garrity Boulevard. The estimated cost to build and operate this route is $4.7 million.	2.50
5	406	Nampa-Caldwell Boulevard	13.5-mile-long route from East Greenhurst Road/South Canyon Street to Blaine Street/Kimball Avenue, via Nampa-Caldwell Boulevard. The estimated cost to build and operate this route is $10.8 million.	2.45

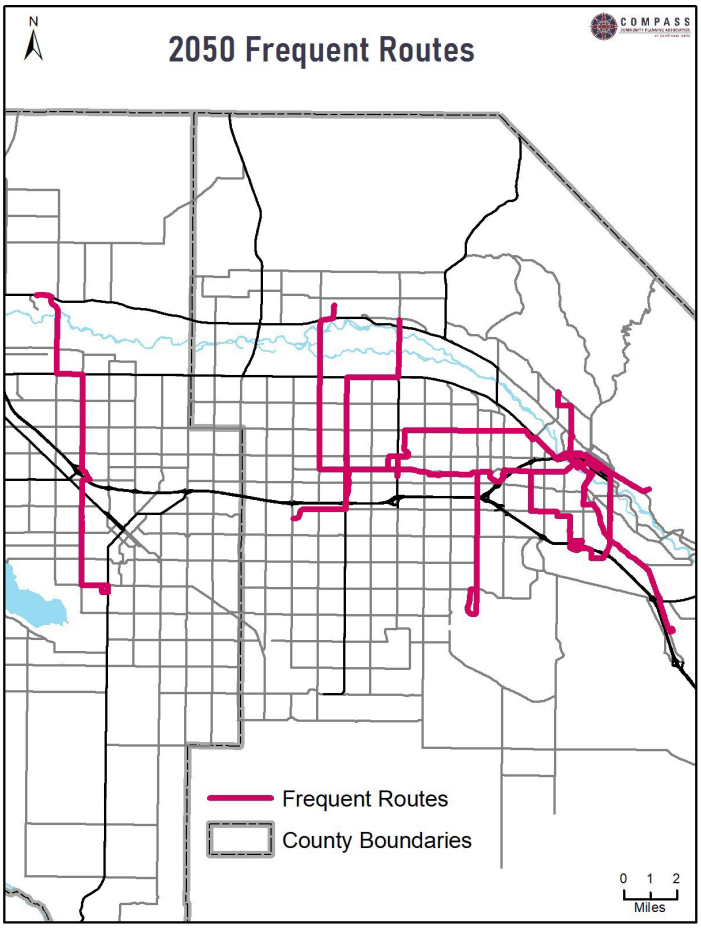
**A portion of the route is funded.*

#2 | FREQUENT BUS NETWORK

UNFUNDED COST: $56 MILLION

Frequent bus routes have similar frequency levels as premium routes, but fewer capital investments in bus stop amenities and operational improvements along the corridors. They are the #2 unfunded public transportation priority in CIM 2050. Frequent routes provide all-day service with 15-minute service frequency and weekend service. The vision for land use along frequent transit corridors is for compact, mixed use, and walkable developments.

The frequent bus network includes nine routes in the 2050 system that will serve approximately 113,500 households and 195,100 jobs by 2050. When operational, the network is estimated to cost $56 million in 2022 dollars to construct, operate, and maintain. The frequent network routes will be funded and developed based on local needs.

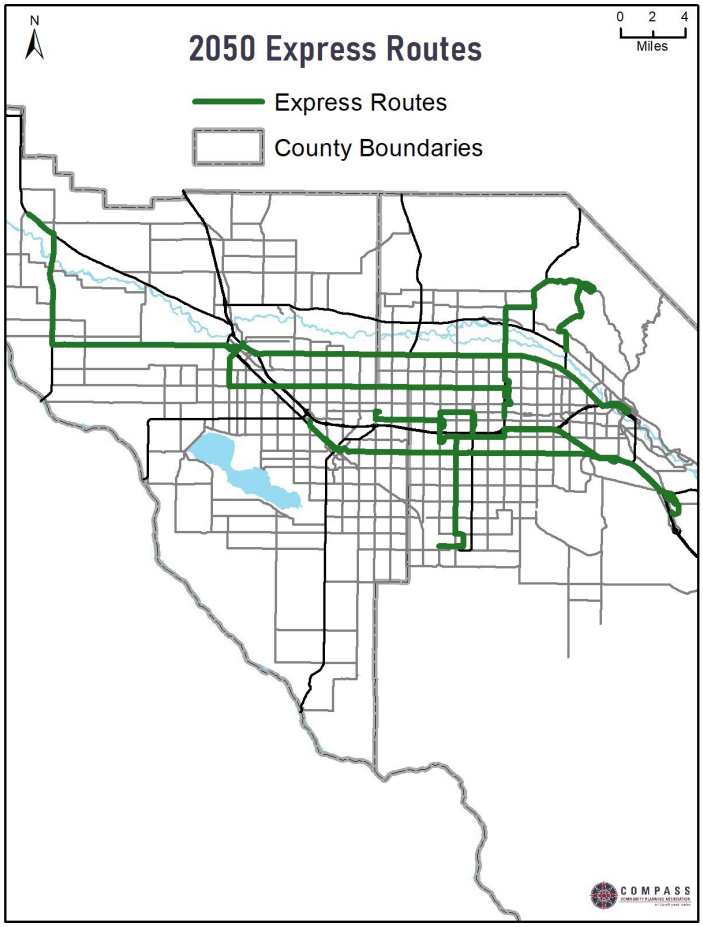


#3 | EXPRESS BUS NETWORK

UNFUNDED COST: $37.5 MILLION

Express bus routes have moderate levels of capital investments. They are the #3 unfunded public transportation priority in CIM 2050. Express routes provide 30-minute service during peak hours and weekend service. These routes seek to connect rural and suburban areas to more dense urban areas or higher frequency routes. Land use along express transit corridors is not prescribed, but walkability and safe pathway connections to transit stops is paramount. Dedicated transit right-of-way on the high-speed roadways may also improve the speed and reliability of the route, making it a competitive commute option.

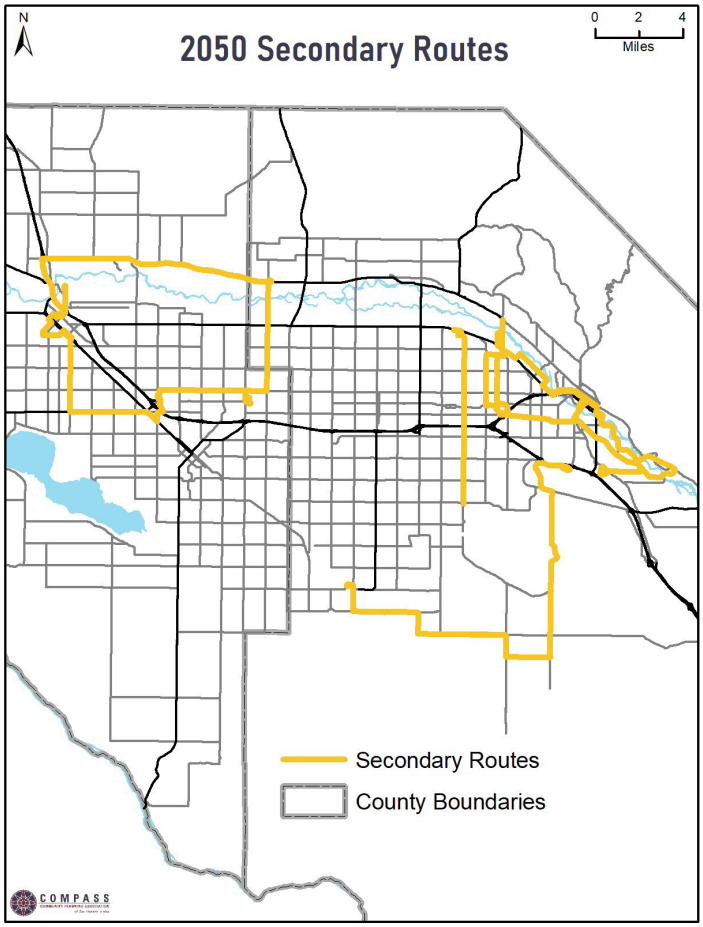
There are eight express bus routes in the 2050 system. The express network will serve approximately 89,800 households and 169,000 jobs by 2050. The express network is estimated to cost $37.5 million in 2022 dollars to construct, operate, and maintain. The express routes will be funded and developed based on local needs.



N/A | SECONDARY NETWORK

UNFUNDED COST: $44.5 MILLION

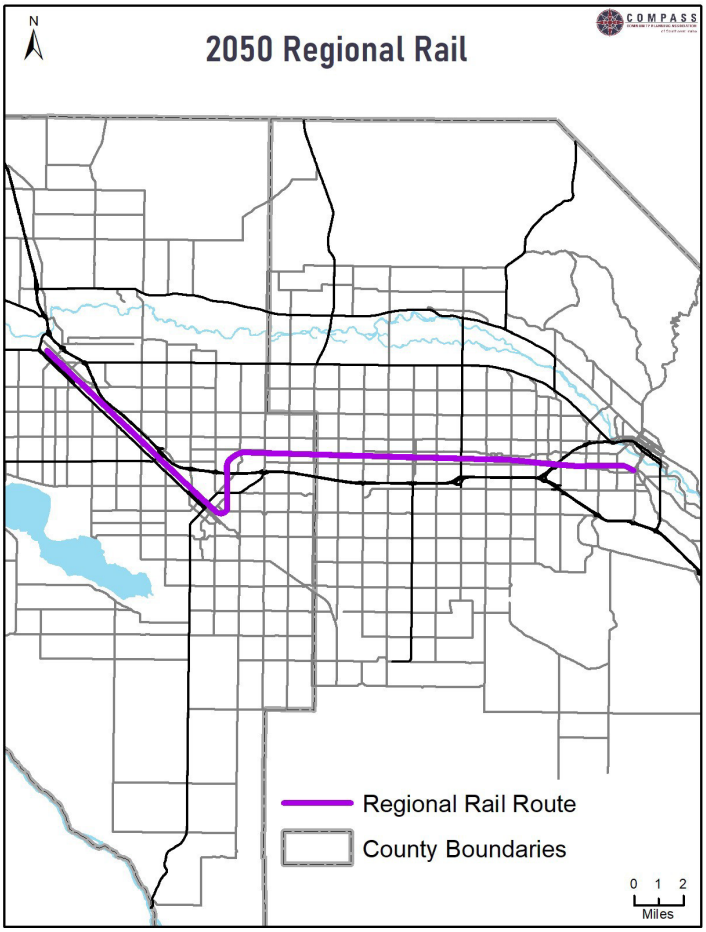
Secondary bus routes have low levels of capital investment. These routes are mixed-traffic bus routes that provide local connections to higher-frequency routes. Since the aim of the secondary network is to fill gaps in the system, the secondary network is not included as an unfunded public transportation system priority in CIM 2050. The secondary network is estimated to cost $44.5 million in 2022 dollars to construct, operate, and maintain.



N/A | REGIONAL RAIL

UNFUNDED COST: $800 MILLION

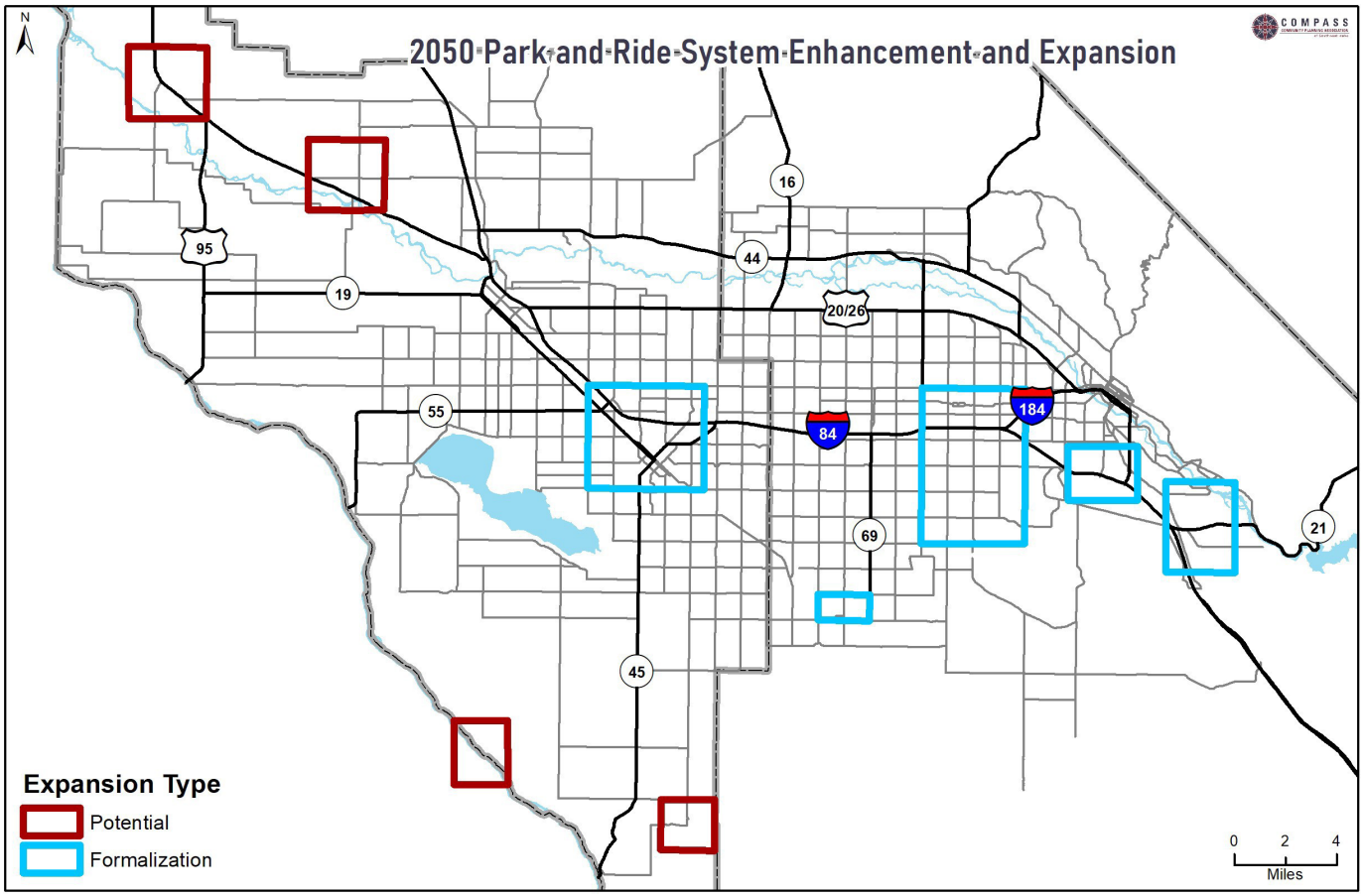
Regional rail requires a high level of capital investment. This system would provide a critical east-west high-capacity transit system, serving four major cities and destinations in the Treasure Valley. Regional rail on the Boise Cutoff alignment is included in the CIM 2050 Vision[55] and the 2050 unfunded public transportation system, but is not prioritized. However, an environmental study[56] is planned to provide a more detailed analysis of cost estimates and feasibility.



N/A | PARK AND RIDE FACILITIES — UNFUNDED COST: TBD

Park and ride facilities provide riders with parking facilities to access carpool, vanpool, and transit services and require a relatively low level of capital investment. The *2021 Regional Park and Ride Study*[57] identified enhancement and expansion areas for park and ride facilities. Existing park and ride facility locations in enhancement areas (blue) should be improved while expansion areas (red) identify prime locations for new park and ride facilities.

Since the goal of park and ride facilities is to support the transit system, they are not included as an unfunded public transportation system priority in CIM 2050 but will be considered in future route and land use planning.



ENDNOTES

1 "Planning assistance and standards." Code of Federal Regulations. Title 23, 450. www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450

2 Equity Action Plan, US Department of Transportation, www.transportation.gov/sites/dot.gov/files/2022-04/Equity_Action_Plan.pdf

3 Executive Order: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government

4 Treasure Valley High Capacity Transit Study, COMPASS, www.compassidaho.org/documents/planning/studies/Treasure_Valley_High_Capacity_Transit_Study_2020_Update_Final0907.pdf

5 COMPASS Regional Park and Ride Study, www.compassidaho.org/documents/prodserv/reports/FinalReport_COMPASS_Park&Ride_FINAL_20210203.pdf

6 A Lot Can Change in 30 Years survey results, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/SurveyResults_Fall2019.pdf

7 Where Do We Grow from Here? survey results, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/SurveyResults_WhereGrowSummer2020.pdf

8 All Aboard! survey results, https://cim2050.compassidaho.org/wp-content/uploads/2022/08/AllAboardResults.pdf

9 COMPASS Public Transportation Workgroup, www.compassidaho.org/people/workgroups.htm#ptwg

10 Transportation Development Plan, Valley Regional Transit, https://www.valleyregionaltransit.org/wp-content/uploads/2022/10/TDP_2023_Adopted.pdf

11 Coordinated Public Transit-Human Services Transportation Plan, COMPASS, www.compassidaho.org/documents/prodserv/reports/FINALCoordinatedPlan_August2022.pdf

12 CIM 2050 goals and objectives, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Goals_Objectives_apprDec2020.pdf

13 Congestion Management Process, www.compassidaho.org/documents/prodserv/reports/2022CongestionManagementSystemTechnicalDocument.pdf

14 Complete Network Policy, www.compassidaho.org/documents/people/policies/CompleteNetworkPolicy_Final_Dec2021_2022-01.pdf

15 CIM 2050 performance measures, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Performance_Measures_Final.pdf

16 Transit Asset Management Plan, Idaho Transportation Department, https://apps.itd.idaho.gov/apps/pt/compliance/2018ITDPTTAMPlan.pdf

17 Valley Regional Transit, www.valleyregionaltransit.org

18 Nonprofit transportation service providers, www.valleyregionaltransit.org/services

19 ACHD Commuteride, www.commuteride.com

20 Boise State University Bronco shuttle, www.boisestate.edu/publicsafety-transportation/bronco-shuttle

21 CityGo, www.citygoboise.com

22 See note 14.

23 Complete Streets Network Policy map, www.arcgis.com/home/webmap/viewer.html?webmap=15b81c9a92684b6b8c9fdfa7fd2d3639&extent=-116.7871,43.4583,-115.9179,43.8052

24 Bus Stop Typology Study, VRT, https://www.valleyregionaltransit.org/wp-content/uploads/2022/08/FinalDraft_VRT_Kit_of_Parts.pdf

25 First- and last-mile connections, www.arcgis.com/home/webmap/viewer.html?webmap=15b81c9a92684b6b8c9fdfa7fd2d3639&extent=-116.7871,43.4583,-115.9179,43.8052

26 Building a Better State Street, www.buildabetterstatestreet.org

27 State Street Corridor Transit Oriented Development, https://spaces.hightail.com/space/kWmsOiu0PX/files/fi-e47ab63b-ceaa-41a9-9e88-0be926aba806/fv-2e3d8d41-cd59-44b1-b8b1-eca54a19192d/StateStreetTOD_June2019_highres.pdf

28 See note 6.

29 See note 7.

30 See note 8.

31 Public Participation, CIM 2050, https://cim2050.compassidaho.org/PublicParticipation.pdf

32 See note 4.

33 CIM 2050 Vision, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Vision_Map_Final.pdf

34 Public Transportation in Communities in Motion 2050, COMPASS, https://www.compassidaho.org/prodserv/publictrans/publictrans.htm#cim2050

35 See note 4.

36 Financial Plan, CIM 2050, https://cim2050.compassidaho.org/FinancialPlan.pdf

37 2020 Change in Motion Scorecard, www.compassidaho.org/documents/prodserv/reports/Change_in_motion_2020_final.pdf

38 Estimate is based on data from the CIM 2050 Vision—i.e., the distribution of new jobs and households across the two-county region.

39 Prioritization, CIM 2050, https://cim2050.compassidaho.org/Prioritization.pdf

40 The unfunded portion of the #400 Cherry Lane/Fairview Avenue route only includes operating and vehicle costs. Facility costs are assumed to be funded.

41 See note 34.

42 The official legislative position of COMPASS is to create a local option taxing authority. See more: www.compassidaho.org/documents/prodserv/leg/2022StatePositions.pdf

43 See note 36.

44 Communities in Motion 2050 Funding Policy and Goals, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM2050FundingPolicyGoals.pdf

45 See note 36.

46 COMPASS On Board Survey Report, internal survey of bus riders

47 See note 11.

48 Economic Impact of Public Transportation Investment, American Public Transportation Association, www.apta.com/wp-content/uploads/APTA-Economic-Impact-Public-Transit-2020.pdf

49 Fast Facts on Transportation Greenhouse Gas Emissions, US Environmental Protection Agency, https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions

50 Public Transportation Reduces Greenhouse Gases and Conserves Energy, American Public Transportation Association, www.apta.com/wp-content/uploads/Resources/resources/reportsandpublications/Documents/greenhouse_brochure.pdf

51 See note 11.

52 Public Participation, CIM 2050, https://cim2050.compassidaho.org/PublicParticipation.pdf

53 Urban Renewal Plan for the State Street District Urban Renewal Project, Capital City Development Corporation, www.ccdcstatestreet.com/wp-content/uploads/2021/10/State-Street-UR-Plan-with-attachments.pdf

54 The unfunded portion of the #400 Cherry Lane/Fairview Avenue route only includes operating and vehicle costs. Facility costs are assumed to be funded.

55 See note 33.

56 See note 34.

57 COMPASS Regional Park and Ride Study, www.compassidaho.org/documents/prodserv/reports/FinalReport_COMPASS_Park&Ride_FINAL_20210203.pdf

Roadways

Communities in Motion 2050 (CIM 2050) focuses on four transportation system components—roadways, public transportation, freight, and bicycle/pedestrian (active transportation)—and how they integrate to comprise a complete transportation system.

FUNCTIONAL CLASSIFICATION AND THE COMPLETE NETWORK POLICY

The roadways in Ada and Canyon Counties are classified, designed, and built with intended purposes and objectives defined by who they will serve and how they will support the overall transportation system—an approach called "functional classification."[1] For example, local streets are intended to serve residential areas, not heavy through traffic, while interstate highways are designed for heavy traffic and high speeds. Functional classification is determined based on a range of how a road provides mobility and access (Figure 1).

Mobility is determined by vehicular speed and distance on the roadway without interruptions; its focus is moving travelers from point A to point B in the most efficient way. Arterial roads, highways, and interstates are good examples of roadways with high mobility because they move larger volumes of vehicles, at higher speeds, with fewer access points than other types of roads. Access is determined by the frequency of entry and exit opportunities on a road; local and collector roads typically provide better access because they have more intersections and driveways.

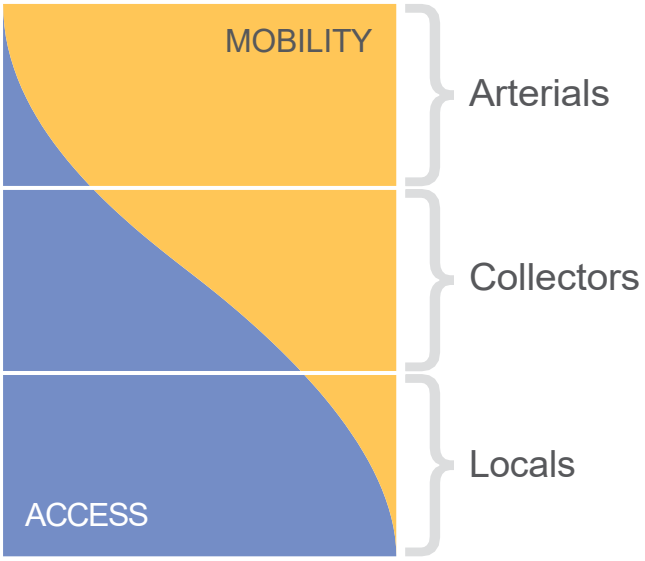


Figure 1. Functional classification is based on a continuum of mobility vs. access.

Sixty-six percent of Ada and Canyon Counties' 5,300 centerline roadway miles are local streets (Figure 2). However, over 70% of traffic (in terms of vehicle miles traveled, or "VMT") is on the interstate, state highways, and principal arterials, which account for only 11% of the roadway centerline miles.

Functional classification is a good tool for defining how roadways should serve motor vehicles, but it does not account for other users of the transportation and roadways system. COMPASS' Complete Network Policy[2] is an approach to ensuring that the entire transportation system serves all users (pedestrians, bicyclists, transit users, freight, and motor vehicles). The policy is based on the premise that not all roadways should be intended to be all things to all modes. It defines the expected accommodations, considerations, and safety measures on roadway, pathway, and transit systems to serve each mode with consideration of the surrounding land uses, parallel routes, and potential destinations.

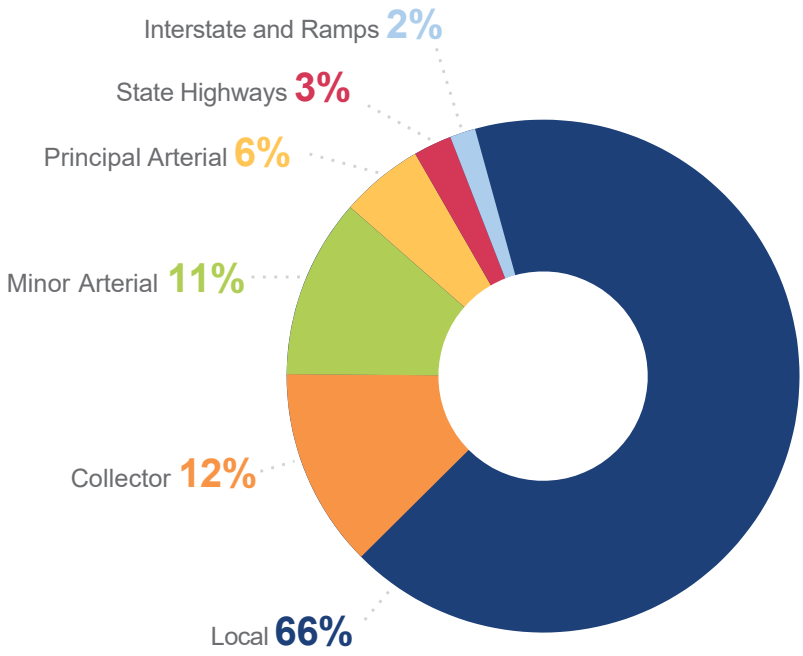


Figure 2. Total centerline miles by classification, Ada and Canyon Counties

ROADWAY USAGE AND THE COVID-19 PANDEMIC

In Ada and Canyon Counties, most traffic is comprised of private vehicles. According to the American Community Survey, over 85% of residents in the area travel to work by auto, and a majority of them (78%) do so by themselves[3] (Table 1).

Table 1. Commute-to-work travel modes, Ada and Canyon Counties

	Ada County		Canyon County	
Drove alone	187,364	78.2%	77,372	78.3%
Carpooled	17,489	7.3%	10,169	10.3%
Public transportation (excluding taxicab)	751	0.3%	197	0.2%
Walked	4,849	2.0%	1,371	1.4%
Other means	6,769	2.8%	2,000	2.0%
Worked at home	22,526	9.4%	7,708	7.8%
Total	239,748	100%	98,817	100%

Source: US Census Bureau, 2015–2020 American Community Survey 5-year estimates

The 2021 roadway system served over 1.8 million passenger vehicle trips on an average weekday and is forecasted to serve almost 3 million per average weekday by 2050. To put this in a different perspective, on the average weekday in 2021, over 150,000 vehicles traveled on Interstate 84 between the Eagle Road interchange and the Flying Wye (Figure 3).

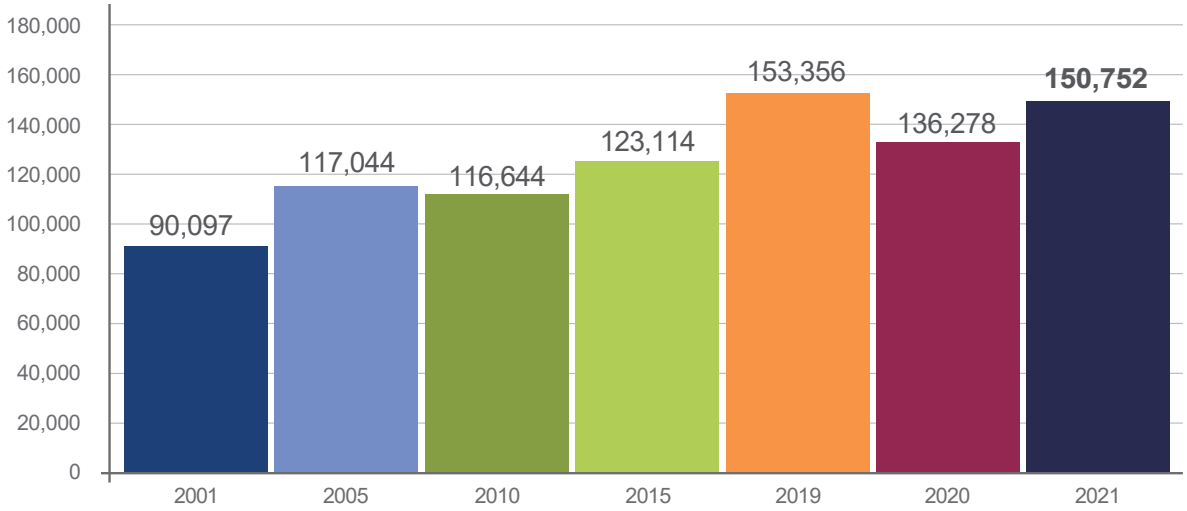


Figure 3. Weekday volumes on I-84 between Eagle Road and the Wye Interchange

In 2020, the COVID-19 pandemic changed how, where, and when people worked, shopped, and socialized. Average weekday traffic volumes across the Treasure Valley dropped significantly during the early months of the pandemic due to work-from-home orders and the shuttering of many dining and retail establishments. The commute to downtown Boise, the largest employment hub in the region, saw the most significant changes in average weekday traffic volumes. State Highway 44/State Street, US Highway 20/26/Chinden Boulevard, and Interstate 84/184 near downtown Boise were the most impacted corridors. At one point, the average weekday volumes on I-184 coming into downtown Boise dropped by nearly 50% (Figure 4). Traffic volumes on I-184 in 2021 trended upward but were still lower than pre-pandemic volumes.

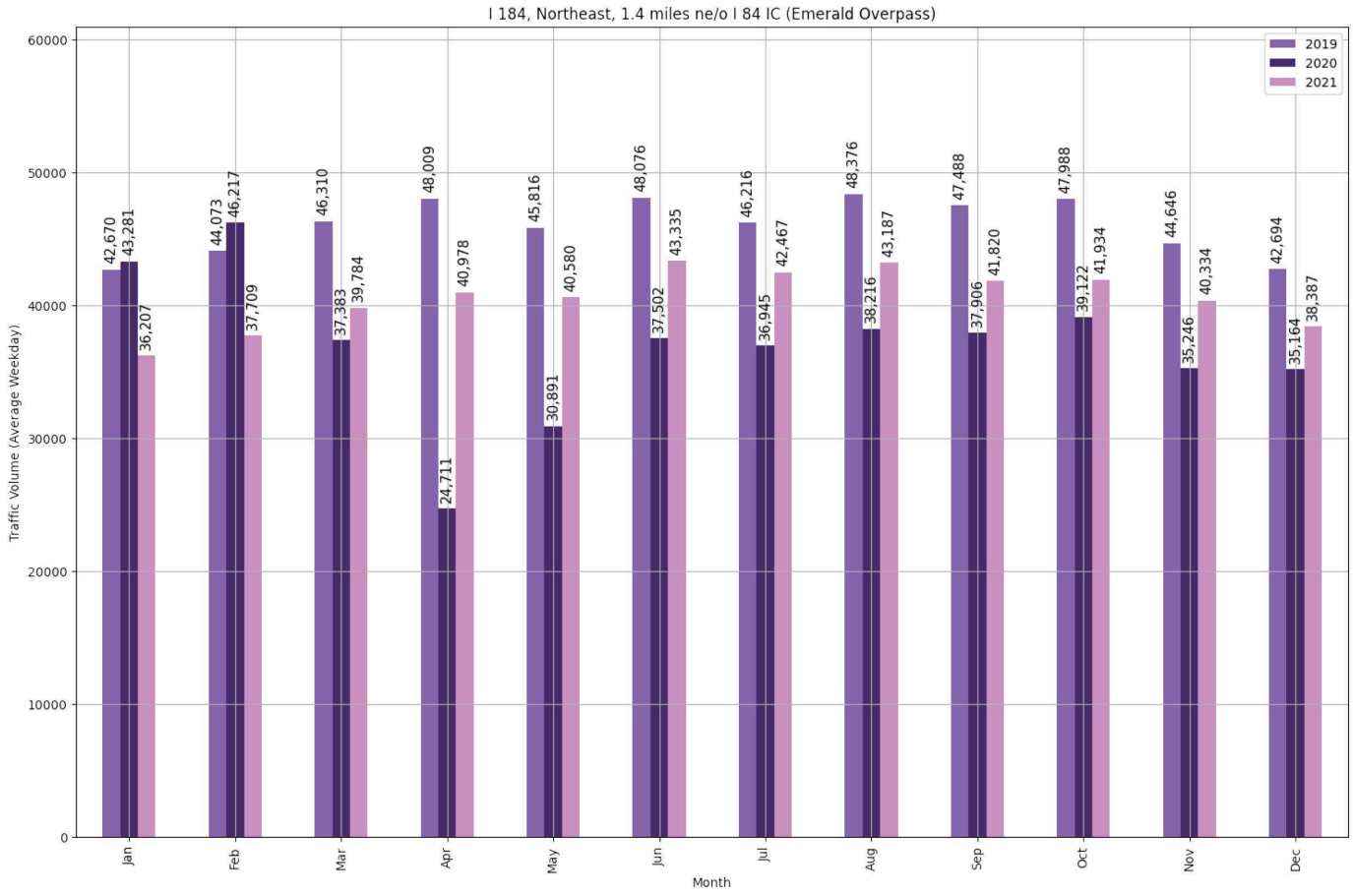


Figure 4: Average weekday traffic Volumes on I-184 northeast of Emerald overpass, 2019-2021

Traffic volumes for state highway and interstate corridors on the western side of the Treasure Valley (State Highway 55/Karcher Road and US Highway 20/26/Chinden Boulevard) experienced the same initial impact as the area near downtown Boise, but quickly returned to or surpassed pre-pandemic levels in early 2021. The average weekday volumes in 2021 on the west end of US Highway 20/26/Chinden Boulevard were 15% higher than 2019 pre-pandemic volumes (Figure 5). This trend is most likely due to the amount of growth in the region.[4]

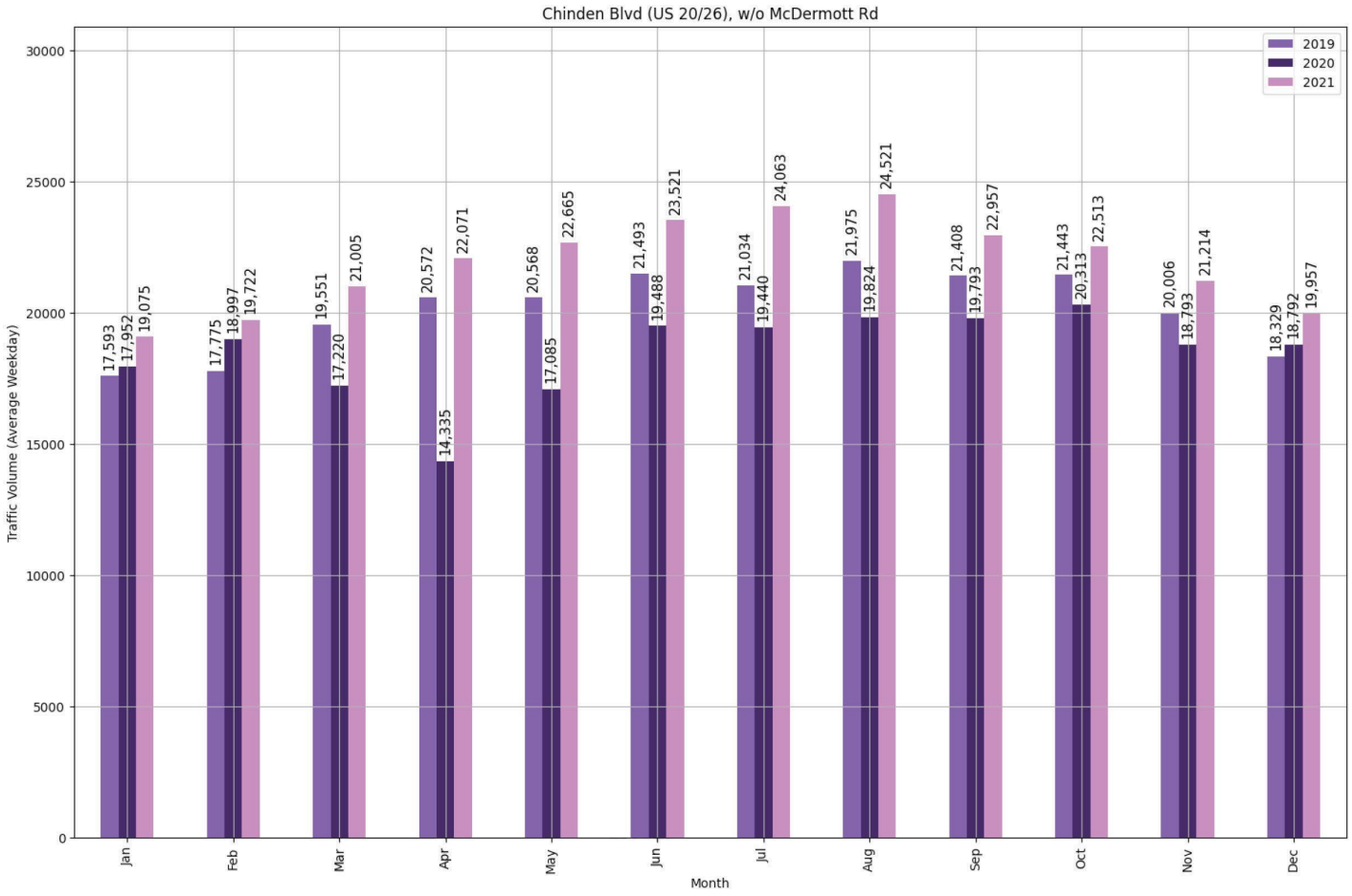


Figure 5: Average weekday traffic volumes on US Highway 20/26/Chinden Boulevard west of McDermott Road, 2019-2021

By 2022, most traffic volumes were returning to or exceeding pre-pandemic levels. Results from the 2021 COMPASS household travel survey showed that only 50% of workers that do not exclusively telework commute to work five days a week. That was down from 63% of workers commuting five days a week pre-COVID. We may see new work commute trends emerge as more people have the option to telework but will most likely continue to see volumes increase across the region as the region's population continues to boom.

ROADWAYS AND CIM 2050 GOALS AND OBJECTIVES

CIM 2050 has four goal areas,[5] each with specific objectives. The following pertain to Treasure Valley roadways:

Goal Area	Roadway-Related Objectives
 **Safety** is a key consideration for providing efficient and reliable roadways for all users.	• Provide a **safe** transportation system for all users. • Support a **resilient** transportation system by anticipating societal, climatic, and other changes; maintaining plans for response and recovery; and adapting to changes as they arise.
 **Economic Vitality** is supported by a reliable and efficient transportation system that provides access to key destinations.	• **Preserve** and maintain existing transportation **infrastructure**. • Provide for a **reliable** transportation system to ensure all users can count on consistent travel times for all modes. • Promote transportation improvements and scenic byways that support the Treasure Valley as a regional hub for **travel and tourism**.
 **Convenience** is important for the traveling public. Land uses that enable roadway connections and appropriate access can help manage congestion.	• Develop a regional transportation system that provides **access and mobility** for all users via safe, efficient, and convenient transportation options. • Develop a transportation system with high **connectivity** that preserves capacity of the regional system and encourages walk and bike trips. • Manage **congestion** with cost-effective solutions to improve **efficiency** of the transportation system.

Goal Area	Roadway-Related Objectives
Quality of Life is served by an efficient and equitable transportation system.	• Develop and implement a regional vision and transportation system that protect and preserve the natural **environment**. • Develop and implement a regional vision and transportation system that enhance **public health**. • Develop and implement a regional vision and transportation system that preserve open space and promote connectivity to **open space** areas, natural resources, and trails. • Promote development patterns and a transportation system that provide for **affordable housing and transportation** options for all residents. • Provide **equitable** access to safe, affordable, and reliable transportation options.

MANAGING CONGESTION

What is Congestion?

Congestion usually relates to an excess of vehicles on a portion of roadway at a particular time, resulting in speeds that are slower—sometimes much slower—than normal or "free flow" speeds.[6] Congestion is characterized as recurring and non-recurring. Recurring congestion is caused by predictable day-to-day traffic patterns and is usually the result of insufficient capacity and high demand on the transportation system. Traffic in Ada and Canyon Counties typically peaks during traditional morning (6:00–9:00 am) and afternoon/evening (3:00–7:00 pm) hours. Some corridors are beginning to experience heavy congestion during the noontime hours in addition to the traditional peak periods due to the nature of the adjacent land uses such as universities, retail/commercial centers, major employment centers, and hospitals. Transportation users generally plan their trips around recurring congestion to account for the expected delays.

Non-recurring congestion is temporary and often unpredictable. Non-recurring congestion is often caused by road construction, traffic crashes, inclement weather, special events, and/or emergencies. This unpredictability is an inconvenience that forces commuters to budget extra time for their commutes.

Congestion is impossible to eliminate, but active management of congestion can help improve reliability, predictability, and dependability, which can allow travelers to more accurately plan the time to reach their destinations.

Although congestion has many negative impacts on fuel consumption, productivity, and the environment, it can also be an indicator of a vibrant economy, as it is a sign that people are commuting to work, shopping, and recreating.

Congestion Management Process

The Congestion Management Process (CMP)—a federal requirement for areas with populations exceeding 200,000—is a systematic, cyclical, and regionally accepted approach for managing congestion. It provides accurate, up-to-date information on transportation system performance, identifies congestion mitigation needs, and offers alternative strategies to mitigate the effects of congestion. The most recent update to the COMPASS CMP[7] was accepted by the COMPASS Board of Directors in April 2022. The updated process includes CIM 2050 goals, objectives, and performance measures, an updated toolbox of congestion management strategies, and new travel time data sets. The CMP outlines how congestion management strategies move toward implementation through projects identified and funded in CIM 2050 and the regional transportation improvement program (TIP).[8]

Congestion Data

In 2016, COMPASS started using the National Performance Management Research Data Set (NPMRDS) and INRIX travel time data to analyze, identify, and report congestion. The NPMRDS covers the National Highway System and is procured by the Federal Highway Administration (FHWA) and made available to state and local governments to assist with performance measure research. The CMP and annual reports refer to this roadway network as Tier 1. COMPASS acquires INRIX travel time data through a partnership with the Idaho Transportation Department (ITD). This dataset covers many of the principal and minor arterials that are not included in the NPMRDS. These additional roadways make up the Tier 2 network in the CMP. Together, these two tiers provide the data that comprise the transportation network analyzed for the CMP (Figure 6).

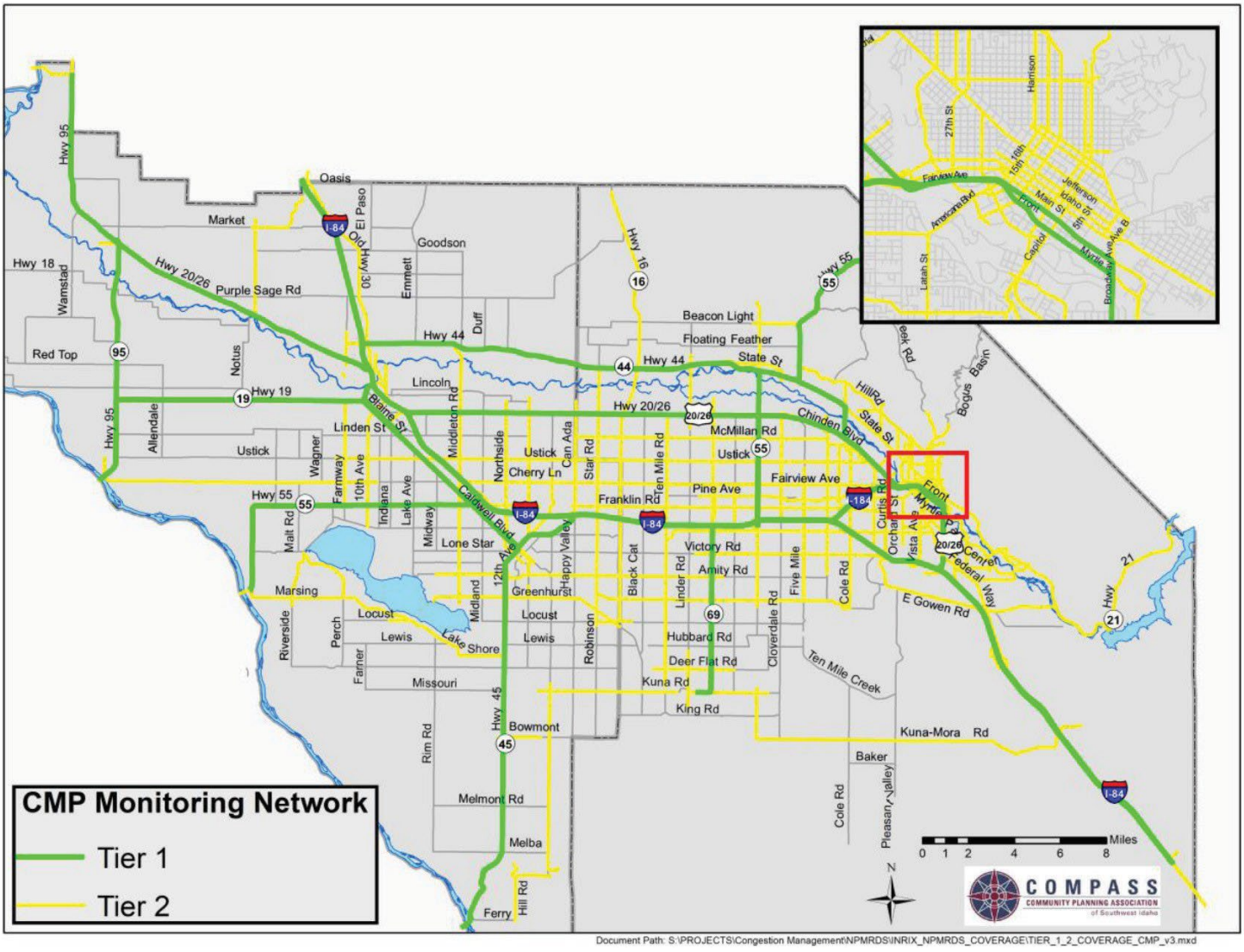


Figure 6. Tier 1 and Tier 2 data coverage of National Highway System roads

These datasets are comprised of travel time records averaged in five-minute intervals for segments of roads and are collected nationally from millions of cars, trucks, and mobile devices that supply location and movement data. These data are used to identify congestion in the region, monitor progress toward achieving the goals of CIM 2050, and report federal performance measures. A summary of 2017–2021 congestion data can be found in Table 2; archived annual reports[9] are available on the COMPASS website.

Table 2. Miles and percentage of high, medium, and low congestion, Ada and Canyon Counties, on the Tier 1 Congestion Management Network (2017–2021)

Year	High		Medium		Low		Total Miles
	Miles	Percent	Miles	Percent	Miles	Percent	
2021	23.0	5.0%	96.9	21.0%	341.9	74.0%	461.8
2020*	15.1	3.2%	89.8	18.7	374.5	78.1%	479.4
2019	30.6	6.5%	108.5	23.2%	329.5	70.3%	468.6
2018	22.8	6.2%	81.6	22.3%	261.3	71.5%	365.7
2017	23.2	6.3%	108.3	29.6%	234.2	64.1%	365.6

**The percentage of miles of highly congested roadway segments decreased dramatically from 2019 to 2020 due to the COVID-19 pandemic.*

Strategies for Mitigating Congestion

Congestion management is the application of strategies to improve transportation system performance and reliability by reducing the adverse impacts of congestion on the movement of people and goods. Using the travel time data and analyses from the annual CMP report, local transportation agencies can identify areas of high congestion and determine the best strategies to mitigate it. The CMP includes the four categories of congestion management strategies identified in FHWA's *Congestion Management Process: A Guidebook*[10] as well as a fifth strategy to improve the mobility of freight and goods (Table 3). More detail on how these strategies can be implemented is described in Appendix A (CMP Toolkit of Strategies and Tactics) of COMPASS' 2022 CMP.[11]

Table 3. Federal Highway Administration congestion management strategies

Strategy	Description	Examples
Transportation demand management	Providing travelers with more options of how and when they commute in order to reduce the number of trips during congested hours	• Pedestrian/bicycle infrastructure • Ridesharing • Flexible work arrangements • Transit-oriented development
Transportation Systems Management and Operations (TSMO)/Intelligent Transportation Systems (ITS)	Implementing improvements focused on optimizing the current transportation infrastructure	• Optimized signal timing • Intersection improvements • Transit signal priority
Transit operations improvements	Improving transit operations, access, and services to encourage more usage to reduce the number of vehicles on the road	• Bus rapid transit • Expanded frequency/hours of service • Expanded public transportation system
Additional system capacity	Expanding capacity by adding lanes, new roads, or improving intersections	• Add travel lanes • Fill gaps in the street network • Construct overpass/ underpasses
Freight and goods mobility	Strategies specifically aimed toward moving freight and goods more efficiently on the transportation system	• Freight signal priority • Intersection improvements • Designated loading, unloading, and parking zones

Source: Congestion Management Process: A Guidebook

Transportation Systems Management and Operations (TSMO) Plan

As defined by FHWA, TSMO is a set of strategies that focus on operational improvements to maintain, manage, and even restore the performance of the existing transportation system before extra capacity is needed.[12] TSMO strategies are effective and relatively low-cost investments when compared to roadway capacity projects that face larger fiscal, environmental, and right-of-way constraints.

A TSMO plan includes a vision and strategies (projects) for the management and operation of the transportation system. COMPASS' most recent TSMO plan, *Treasure Valley Transportation Systems Management and Operations (TSMO) Strategic Plan 2020-2030 Update*,[13] outlines cost-effective strategies to meet the mobility, safety, environmental, and economic development goals of the region. The timeframe for the plan is 10 years (2020 through 2030), reflecting the near-term focus of operational strategies as well as rapid advancement of transportation technologies.

While some of the strategies in the plan include tangible products such as traffic signals, others focus on behind-the-scenes elements that make the transportation system work, such as technology, communications, and collaboration. TSMO strategies benefitting all modes of transportation are integrated into the planning process to improve efficiency, safety, and reliability.

Intelligent Transportation Systems

Another aspect of management and operations is Intelligent Transportation Systems, or "ITS." The Treasure Valley transportation system is comprised of nearly 1,000 technological devices—individual pieces of the ITS system—that help the transportation system run more efficiently. These devices range from traffic signals, school flashers, cameras, and pedestrian crossing signals to less obvious devices such as roadway weather sensors. These systems are connected through a fiber broadband network and provide transportation operators with real-time conditions, while archived data from these devices help transportation planners analyze historical operational performance. Together, these data help guide impactful decision making for operators and planners alike.

The ITS architecture[14] provides a framework for regional collaboration to guide the planning and deployment of ITS strategies to address transportation challenges. The regional ITS architecture was developed through a cooperative effort by the region's transportation agencies, covering all modes and all roads in the region. It represents how all agencies' systems currently operate and establishes a vision of how these systems will work together in the future to share information and resources to provide a safer, more efficient, and more effective transportation system. A map of the existing ITS inventory is available on the COMPASS website.[15]

I-84 CORRIDOR OPERATIONS PLAN

The I-84 Corridor Operations Plan,[16] a collaborative effort led by COMPASS and ITD, identifies operational challenges and innovative TSMO and ITS solutions to improve safety, maximize reliability/capacity, and improve integrated operations of the interstate corridor in Ada and Canyon Counties. Transportation, law enforcement, emergency response, and land use agencies spanning the corridor collaborated to identify operational challenges, goals, and objectives, and screened and prioritized potential TSMO and ITS strategies for implementation.

The TSMO and ITS strategies in the I-84 Corridor Operations Plan are relatively low-cost options for improving operations and safety on the corridor where additional capacity is not feasible. They can also extend or preserve the benefits of large high-cost capacity projects, such as the widening projects taking place on the corridor between the Cities of Nampa and Caldwell.

The I-84 Corridor Operations Plan outlines the proposed implementation of TSMO/ITS projects that best fit the goals and objectives of the plan, are supported by the project stakeholders, and are technically, fiscally, and politically feasible.

TRANSPORTATION INNOVATION AND TECHNOLOGIES

New technologies and innovations to our roads and vehicles will impact how we live, travel, and build the cities of tomorrow. There isn't always a straight line from idea to implementation; often a labyrinth of economic, political, legal, demographic, and market factors can impede progress. Some of the most promising near-term technologies and innovations are discussed below.

Zero Emission/Electric Vehicles

Electrification of our transportation system is here and gaining momentum each year. Zero emission and electric vehicles (EVs) have several environmental and economic benefits, including reduced emissions, greater efficiency, reduced noise pollution, and lower maintenance costs. The global fleet of passenger EVs and fuel cell vehicles (FCVs) nearly doubled to 12.6 million in the first half of 2021 from 6.9 million in 2019.[17] About 2 million of those vehicles are in use in the US. In 2021, Idaho had approximately 6,000 registered plug-in electric vehicles, including fully electric and hybrid-electric vehicles. That number is expected to grow to nearly 150,000 by 2030[18] to meet a target of 30 million EVs in the US by the year 2030. Automakers have responded to increased demand for EVs by offering new models and shifting their fleets to accommodate more EVs. At the end of 2020, there were 83 different EV/FCV models to choose from in the US; for comparison, in China drivers could select from 355 models.[19] The EV fleet will continue to grow and be a more viable option as technology improves charging times, vehicle ranges, and battery manufacturing.

With the increase in electrification of the vehicle fleet, there will be a need for the infrastructure to support it. In 2022, Idaho had 104 public charging station locations with about 260 charging ports. ITD has identified alternative fuel corridors across the state and is gathering public feedback and other information to determine site placement and types of chargers needed to support these corridors (Figure 7).[20] To support the charging demand of 30 million vehicles in the US by 2030, Idaho will need over 4,000 ports.[21] The 2021 Infrastructure Investment and Jobs Act (IIJA) includes $5 billion to build out a national EV charging network, with $4 million of that dedicated to Idaho.[22] It will take several large investments, such as the one included in the IIJA, as well as smaller investments from state and local jurisdictions, homeowners, and the private sector to meet the EV infrastructure needs.

The services and designs of traditional fueling stations will likely change as the EV fleet continues to grow. Traditional fuel pumps will likely be replaced with chargers, and stations will likely add new and additional services as drivers spend more time recharging their vehicles. EV owners will also have the option to recharge at home rather than going to a fueling station. The need to travel to a fueling station will dwindle as retailers, shopping malls, restaurants, and large employers offer vehicle charging stations in their parking lots.

Several municipalities, states, and countries have adopted policies to phase out the sale of new internal combustion vehicles within the next 10 to 30 years; Washington state has set one of the most aggressive goals in the US with a target to end sales by 2030.[23] We will also likely see a shift in policy regarding taxation of road use. The current taxation model relies on taxes paid at the fuel pump. A shift to a tax based on vehicle miles traveled is one of the most popular of many ideas to make up this shortfall.

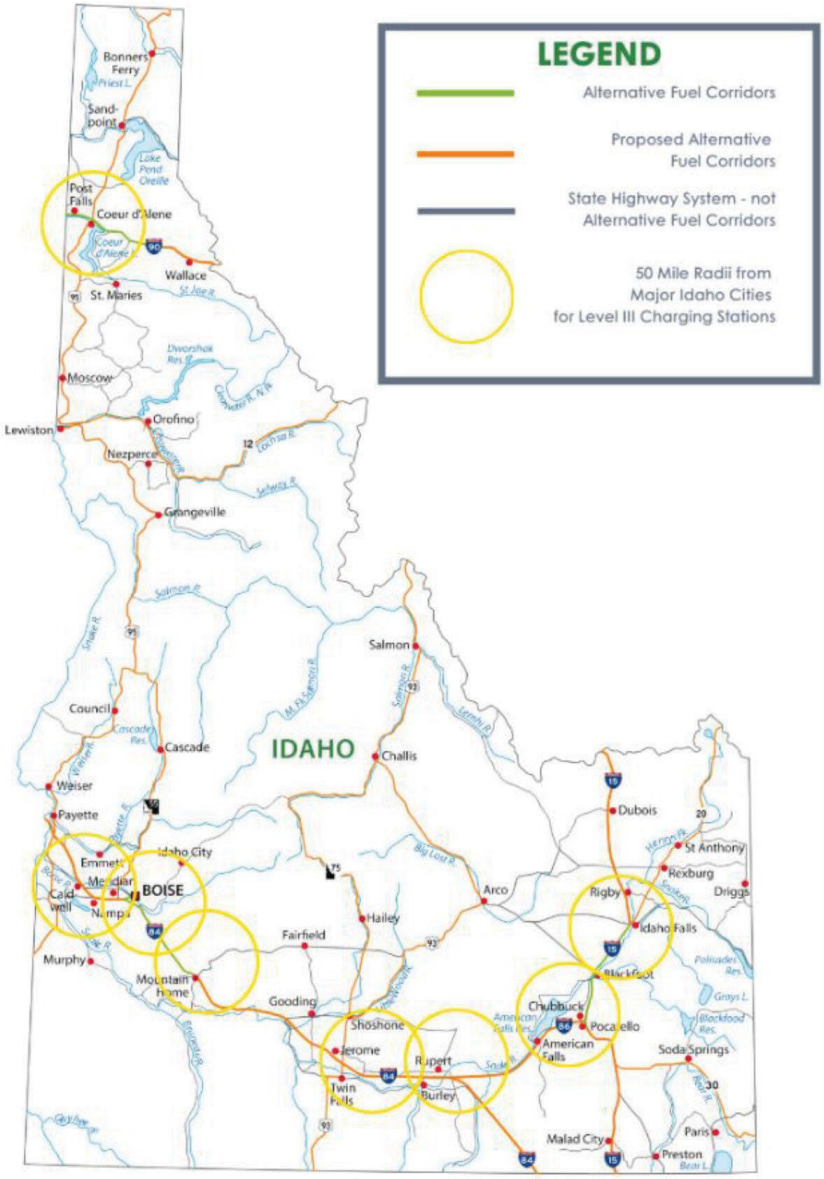


Figure 7. Current and proposed Idaho alternative fuel corridors[24]

Connected and Autonomous Vehicles

Connected and autonomous vehicles are already in use to some extent and evolving quickly. Connected vehicles use communications technologies to receive and send information to a driver, surrounding vehicles, roadside infrastructure, cell phones, and other devices to make traveling safer, more reliable, and more efficient. Several connected vehicle features are offered in vehicles today, including connection to GPS systems to relay directions and traffic conditions, connection to cell phones for hands-free use and infotainment, remote vehicle diagnostics, and remote vehicle start and entry.

The vision for connected vehicle technologies is to transform surface transportation systems to create a future where

- highway crashes and their tragic consequences are significantly reduced;
- traffic managers have data to accurately assess transportation system performance and actively manage the system in real time;
- travelers have continual access to accurate travel time information about mode choice and route options, and the potential environmental impacts of their choices; and
- vehicles can talk to traffic signals to eliminate unnecessary stops and help drivers operate vehicles for optimal fuel efficiency.[25]

Connected vehicle technologies rely on a network-based architecture that needs to be reliable and fast. Advances in cellular communications technologies such as the 5G network could be used to support connected vehicles in the near future.

Autonomous vehicles can drive themselves or take on certain aspects of driving in “autopilot” mode using various in-vehicle technologies and sensors. There are currently no fully autonomous vehicles available to consumers, but several models offered today include automated features such as automatic emergency braking, parking and lane assist, adaptive cruise control, and lane departure and blind spot warnings. Autonomous vehicles have the potential to increase safety, mobility, and efficiency of travel for all modes by reducing crashes caused by human error. However, several infrastructure, legal, and regulatory barriers must be overcome before implementing fully autonomous vehicles.

Future Roadway Features and Composition

As vehicles become more connected, electrified, and autonomous, the design and composition of roads will likely shift to accommodate these technologies. Sensors embedded in or along the roadway can provide connected vehicles with instructions and information, potentially replacing or supplementing traditional visual cues such as signage or signals. Lane sizes may shrink and the need for less right-of-way is a real possibility as vehicle automation evolves.[26] Concepts of an electric priority lane that could enable EVs to charge wirelessly while traveling are currently being tested by researchers around the world.[27]

As more extreme weather patterns impact infrastructure, the need to develop more resilient roads is critical to avoiding severe economic costs. There are several innovations and efforts underway that include improved drainage on roadways, using recycled materials as asphalt alternatives, and even research to develop “self-healing” roads.[28] The Minnesota Department of Transportation has implemented a de-icing technology that consists of an overlay that acts like a sponge, storing de-icing chemicals and automatically releasing them as snow and ice develop to help mitigate weather-related crashes.[29] Luminescent striping and marking of roadways can improve safety and awareness and is currently being implemented on roadways across the world.[30]

VISITORS TO THE VALLEY

The Treasure Valley attracts visitors from around the globe for business and pleasure alike. In addition, the region is the "jumping off point" for accessing many of Idaho's outdoor recreational areas and activities. These visitors provide a boon to the region's economy; however, they also bring additional transportation needs.

To help inform *Communities in Motion 2050* and ensure that COMPASS is considering the transportation needs of the travel and tourism industry, COMPASS convened a discussion group of regional tourism leaders in February 2020.

The group identified and ranked transportation challenges faced by their industry, as well as solutions to those challenges. The top challenge identified by the group was the bottlenecks that occur at events and tourist destinations, hindering access and egress. To exacerbate this issue, many of these locations are at or near locations with recurring traffic congestion.

Many of the projects funded through this plan, or identified as high-priority needs, will help alleviate this congestion. In addition, the Congestion Management Process provides a toolkit of strategies, many of which are relatively easy and inexpensive to implement, that can alleviate event-related congestion to support the travel and tourism industry.

Additional top challenges identified included lack of air service to the East Coast and insufficient public transportation. While air service is beyond the scope of CIM 2050, plans are in place to bolster public transportation. These are addressed in *Public Transportation*[31]; however, a lack of dedicated funding to support those improvements remains a barrier.

Learn more about the discussion group, including the full list of the group's identified challenges and solutions, in *Public Participation*.[32]

SUMMARY

Roadways are the backbone of the transportation system in Ada and Canyon Counties. Buses, commuter vans, and freight vehicles run on them, while bike lanes and sidewalks along roadways provide a significant portion of the local bicycle and pedestrian network. CIM 2050 focuses on integrating all transportation system components to better plan for a future transportation system that can meet demands of growth and changing travel patterns. We are using more and better tools to evaluate and manage congestion, make investments in smart technology, and provide safe and complete roads and streets for all users.

ENDNOTES

1 Highway Functional Classification Concepts, Criteria and Procedures, US Department of Transportation, www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/section03.cfm

2 COMPASS Complete Network Policy, www.compassidaho.org/documents/people/policies/CompleteNetworkPolicy_Final_Dec2021_2022-01.pdf

3 American Community Survey 5-Year Data (2009-2020), US Census Bureau, www.census.gov/data/developers/data-sets/acs-5year.html

4 COMPASS Development Monitoring Report, www.compassidaho.org/prodserv/gtsm-devmonitoring.htm

5 CIM 2050 goals and objectives, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Goals_Objectives_apprDec2020.pdf

6 Traffic Congestion and Reliability: Trends and Advanced Strategies for Congestion Mitigation, FHWA, https://ops.fhwa.dot.gov/congestion_report/chapter2.htm

7 Congestion Management Process, www.compassidaho.org/documents/prodserv/reports/2022CongestionManagementSystemTechnicalDocument.pdf

8 Transportation improvement program (TIP), www.compassidaho.org/prodserv/transimprovement.htm

9 Congestion Management System Reports Archive, COMPASS, http://www.compassidaho.org/prodserv/cms-archive.htm

10 Congestion Management Process: A Guidebook, FHWA, www.fhwa.dot.gov/planning/congestion_management_process/cmp_guidebook/cmpguidebk.pdf

11 See note 7.

12 Developing and Sustaining a Transportation Systems Management & Operations Mission for Your Organization: A Primer for Program Planning, FHWA, https://ops.fhwa.dot.gov/publications/fhwahop17017/fhwahop17017.pdf

13 Treasure Valley Transportation Systems Management and Operations (TSMO) Strategic Plan 2020-2030 Update, COMPASS, www.compassidaho.org/documents/prodserv/tsmo/COMPASSTSMOPlan_FINAL.pdf

14 Treasure Valley ITS Architecture, COMPASS, www.compassidaho.org/prodserv/trans-mgmt.htm#arch

15 Ibid.

16 I-84 Corridor Operations Plan, COMPASS, ITD, DKS Associates, and IBI, www.compassidaho.org/documents/prodserv/tsmo/I84_Ops/COMPASS_I-84_CorridorOperationsPlan_6-13-22.pdf

17 Zero-Emission Vehicle Factbook, BloombergNEF, https://assets.bbhub.io/professional/sites/24/BNEF-Zero-Emission-Vehicles-Factbook_FINAL.pdf

18 EV Charging Infrastructure Analysis, presented by Eric Wood, Senior Engineer at National Renewable Energy Laboratory, www.compassidaho.org/documents/comm/Edseries/2022/EV_Ed_Series_Jan2022.pdf

19 See note 17.

20 Idaho Department of Transportation National Electric Vehicle Infrastructure (NEVI) Program, National Electric Vehicle Infrastructure Program - Idaho Transportation Department Projects, https://itdprojects.org/projects/https-itdprojects-org-projects-nevi-progam

21 See note 18.

22 Press release: President Biden, USDOT and USDOE Announce $5 Billion over Five Years for National EV Charging Network, Made Possible by Bipartisan Infrastructure Law, FHWA, https://highways.dot.gov/newsroom/president-biden-usdot-and-usdoe-announce-5-billion-over-five-years-national-ev-charging

23 WA sets 2030 goal to phase out gas cars, The Seattle Times, www.seattletimes.com/seattle-news/transportation/wa-sets-2030-goal-to-phase-out-gas-cars

24 See note 10.

25 What Public Officials Need to Know About Connected Vehicles, US Department of Transportation ITS Joint Program Office, https://www.its.dot.gov/factsheets/pdf/JPO_PublicOfficials.pdf

26 The history—and future—of hitting the road, Popular Science, www.popsci.com/history-future-roads-feature/

27 Roads That Charge Electric Cars Wirelessly Are Springing Up Everywhere!, Intelligent Living, www.intelligentliving.co/roads-that-charge-electric-cars-wirelessly-springing-up-everywhere

28 See note 26.

29 I-94 bridge in Minnesota getting de-icing technology, Roads & Bridges, www.roadsbridges.com/i-94-bridge-minnesota-getting-de-icing-technology

30 This Is What It's Like to Drive on a Glow-in-the-Dark Highway, The Atlantic, www.theatlantic.com/technology/archive/2014/04/this-is-what-its-like-to-drive-on-a-glow-in-the-dark-highway/360737/

31 https://cim2050.compassidaho.org/wp-content/uploads/PublicTransportation.pdf

32 https://cim2050.compassidaho.org/wp-content/uploads/PublicParticipation.pdf

Transportation Resilience

Transportation resilience is an integral component of a reliable transportation system. Resilience refers to the system's "ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from [natural-caused] disruptions".[1] A resilient system, therefore, will continue to function safely and securely in the face of a changing climate with more frequent extreme weather events. (Human-caused disruptions are addressed in *Transportation Safety and Security*.[2])

This document identifies major hazards in the Treasure Valley—Ada and Canyon Counties—and their potential adverse impacts on transportation system functionality. Planning for such occurrences protects overall investments in the Treasure Valley's transportation system and increases quality of life for all in the region. Special attention is paid during the planning process to potential impacts on vulnerable populations.

FEDERAL REQUIREMENTS

The 2015 Fixing America's Surface Transportation Act (FAST Act) expanded the scope of the metropolitan transportation planning process to include actions that improve transportation system resilience and reliability and increase the security of all motorized and non-motorized users.[3] The 2021 Infrastructure Investment and Jobs Act defines resilience to include actions that ensure a transportation project can withstand or reduce the magnitude of, and adapt to and recover from, impacts from weather events and natural disasters.[4]

Additional guidance from federal agencies on how to build resilient transportation systems is ongoing. Notably, Federal Highway Administration Order 5520 encourages proactive management by "developing engineering solutions, operations and maintenance strategies, asset management plans and transportation programs [to] address risk and promote resilience at both the project and systems level."[5] August 2021's Climate Action Plan: Revitalizing Efforts to Bolster Adaptation & Increase Resilience by the US Department of Transportation provides additional guidance on policies and priorities.[6]

PLANNING FOR A RESILIENT TRANSPORTATION SYSTEM

Environmental changes and disasters can adversely affect transportation system functionality. In the Treasure Valley, hotter temperatures are a prime concern. The frequency of days over 91ºF will "increase from a historical baseline of around 16 days per summer to 66 days per summer by the mid-21st century."[7] As a result, moderate drought conditions are expected to increase from once every four years to once every two years.[8] In addition to secondary impacts of heat and drought (below), hot temperatures can directly damage transportation infrastructure (Figure 1).

Figure 1. Heat-related pavement buckle on Veterans Memorial Parkway in Boise. Photo: Ada County Highway District.

Hotter temperatures have also caused more wildfires across the Northwest. From 2015–2020, the US Bureau of Land Management recorded 152 fires that burned 15,415 total acres in Ada County and 22 fires that burned 1,263 acres in Canyon County (Figure 2).[9] A climate mapper tool suggests that by the year 2100, the probability of very large fires (over 12,500 acres) in the Treasure Valley will increase by over 200%, based on changes in humidity, precipitation, and solar radiation.[10]

Figure 2. Foothills near the City of Eagle after the October 2021 Goose Fire. Photo: City of Eagle Trails and Pathways Department.

In the same time frame, the Treasure Valley is projected to double the number of heavy precipitation days (days where daily total precipitation exceeds 0.7") from 0.72 to 1.44 annually.[11] With temperatures rising, snowpack will melt earlier and cause higher seasonal stream flows on the Boise and Snake Rivers in the winter and spring, resulting in increased flooding of roadways and pathways (Figure 3).

Figure 3. Flooded pathway along the Boise Greenbelt.

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According to the 2017 Ada County Multi-Hazard Mitigation Plan, "the potential impacts of climate change on the operations of Lucky Peak Dam are real. The Boise River could see increased flows in response to a changing hydrograph that dictates dam operations" (Figure 4).[12]

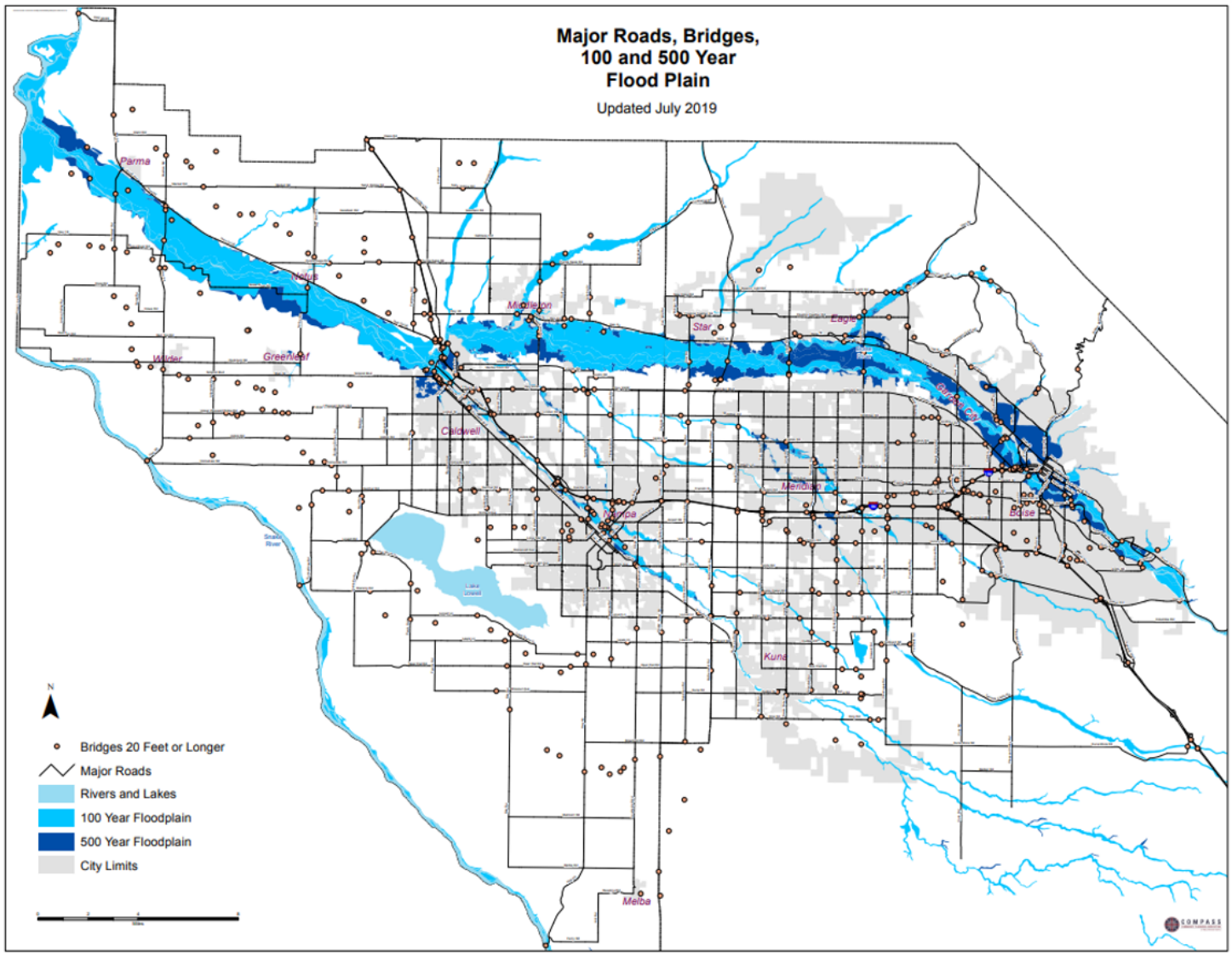

Figure 4. Major roads, bridges, and 100- and 500-year floodplains in Ada and Canyon Counties

The Treasure Valley experiences minor earthquakes frequently, but most are too small to cause damage or for people to even notice. While it is unlikely that Idaho will experience its own major earthquake, nearby regions have a potential for massive earthquakes. The Cascadia subduction zone, which runs along the Washington and Oregon coastline, has a 37% chance of experiencing a megathrust earthquake (7.1+ magnitude) in the next 50 years.[13] In California, there is 48% probability that a magnitude 7.0 or greater earthquake will strike along the San Andreas Fault Line in the next 30 years.[14] If such earthquakes were to occur, Idaho's transportation infrastructure would be critical for transporting equipment and supplies to the affected areas while evacuees from those areas may head to Idaho.

Over time, any or all of these changing environmental conditions could cause critical components of the Treasure Valley's transportation system to fail (Table 1).

Table 1: Environmental hazards in the Treasure Valley

Hazard	Infrastructure Damage	Description	Vulnerable Infrastructure
Warmer Temperatures	Pavement buckles	Pavement buckles present safety concerns to all who use sidewalks. This issue disproportionately affects older adults and people with disabilities who cannot easily navigate pavement buckles.	Older roadways and pathways
	Sinkholes	Sinkholes present safety concerns to all drivers and pedestrians.	Roadways with degraded foundations that asphalt can melt into
	Degradation of roadway materials	Roadway signage may degrade faster under warmer temperatures, potentially causing visibility issues for drivers. Roadway materials may degrade faster under warmer temperatures, causing safety issues such as potholes and pavement buckles.	Roadways and related infrastructure built with materials with a low heat index
Changing Precipitation Patterns	Minor and major flooding	Changing precipitation patterns may increase the frequency of minor and major flooding. Floods affect everyone in the inundation zone but may disproportionately impact those with fewer resources or less physical mobility, including older adults and people with disabilities, low incomes, and/or limited English proficiency.	Bridges Roadways and transportation infrastructure in the floodplain
	Potholes	Potholes present safety concerns to all drivers and pedestrians.	Roadways and pathways

Hazard	Infrastructure Damage	Description	Vulnerable Infrastructure
Wildfire	Landslides	Wildfires may trigger landslides in areas with steep slopes. Landslides affect everyone in the affected zone but may disproportionately impact those with fewer resources or less physical mobility, including older adults and people with disabilities, low incomes, and/or limited English proficiency.	Roadways and transportation infrastructure near steep slopes and steep cuts and fills.
	Degradation of roadway materials	Heavy fire trucks and emergency vehicles on roads can cause damage to roadways, especially if the pavement is softened due to high temperatures from the fire. Wildfires can also cause pavement to crack, develop potholes, or melt, and in very intense heat, burn.	Roadways, pathways, and transportation infrastructure
Regional Earthquake	Increased traffic due to assisting in emergency response	A large regional earthquake (e.g., near the Washington or Oregon coast) would not present immediate safety concerns to Idaho drivers or pedestrians, but Idaho's interstate highways will be critical in delivering emergency response to affected areas, which will affect daily travel for those in the Treasure Valley.	Increased traffic on main arterials into Idaho (I-84, US-95)

GROWING RISK

In the Treasure Valley, market pressures due to a growing population have increased development in high-risk areas such as floodplains and the wildland-urban interface. In 2020, 4.7% of all newly permitted housing developments occurred in the wildland-urban interface and 5.2% occurred in a floodplain. Building in these high-risk areas makes residents and infrastructure more vulnerable to disaster. For example, on October 7, 2021, a 441-acre grass fire that was started by fireworks in the Boise foothills threatened residents near a City of Eagle sports complex (Figure 5). Luckily, no homes were damaged and no residents were injured. To mitigate the risk, development in these areas requires multiple access routes to reduce bottlenecks or blockage in an emergency. Even with adequate emergency planning, older adults and people with disabilities, low incomes, and/or limited English proficiency remain vulnerable, as they are less likely to own a vehicle or be able to drive, impacting their ability to escape in a timely manner.

Figure 5. Big Springs Boulevard south of the Eagle Sports Complex during the Goose Fire in October 2021. Photo: City of Eagle Trails and Pathways Department.

Inadequate funding for maintenance of the existing transportation system can also exacerbate risks, as older roads may lack adequate emergency access or be especially susceptible to environmental hazards.

Ada County participates in the National Flood Insurance Program (NFIP), and the Ada County Cities of Eagle, Garden City, Boise, and Meridian participate in the Community Rating System (CRS)—a voluntary incentive program through the US Federal Emergency Management Agency that encourages management practices that exceed the minimum requirements of the NFIP.[15] Canyon County and its cities do not participate in NFIP or CRS.

ADDRESSING DISRUPTIONS

COMPASS works with local agencies to plan for the transportation system to continue to operate throughout a disruptive event. The Idaho Transportation Department (ITD) addresses emergency and security issues statewide and deploys the 511 Travel Information Line and website.[16] The *2017 Ada County Multi-Hazard Mitigation Plan*[17] and the *2021 Canyon County All-Hazard Mitigation Plan*[18] identify each county's goals, objectives, and strategies to mitigate hazards.

Intelligent transportation system investments on roadways help inform travelers of crashes or other impediments via dynamic message boards. These investments also provide operators with data to reroute traffic and deal with disruptions more efficiently. The *2020 Treasure Valley Transportation System Management and Operations (TSMO) Plan* outlines strategies to maintain, manage, and even restore the performance of the Treasure Valley's transportation system, including after a temporary outage.[19] As investments in next-generation transportation technology increase, the region will continue to improve the resilience of the transportation system to nature-caused disruptions.

PLANNING FOR A RESILIENT SYSTEM

Communities in Motion 2050 includes performance measures and targets addressing resilience (Table 2).

Table 2. CIM 2050 performance measures and targets addressing resilience

Description	Baseline Condition	CIM 2050 Target
Percentage of newly permitted housing units located in the wildland-urban interface	4.7% (2020)	< 5% (2030)
Percentage of newly permitted housing units located in the floodplain	5.2% (2020)	< 5% (2030)
Percentage of bridges located in the floodplain considered to be in "poor" condition	0.3% (2019)	0% (2030)

These performance measures were used to help prioritize transportation projects for future funding. For example, projects in the floodplain or wildland-urban interface were specifically identified during initial project ranking, and that information helped inform prioritization decisions.[20]

Mitigation Strategies

Performance data were also used to develop mitigation strategies to improve future transportation resilience in the region. Table 3 offers strategies for near-term and long-term activities that agencies can implement (individually and through regional partnerships) to sustain the momentum of plan development and address identified hazards.

Table 3. Near- and long-term strategies for increased resilience

Strategies	Status	Responsible Agency
Near-Term Strategies		
Review local emergency management plans (hazards mitigation plans, local continuity of operations plans, stormwater management plans, etc.)* • Identify vulnerable critical roadway infrastructure • Determine capacity and availability of alternate routes	Ongoing	Local agencies
Identify locations of vulnerable populations, first-responder facilities, and sheltering sites* • Nursing homes, retirement communities, medical facilities, schools, etc.	Ongoing	COMPASS
Include stakeholders, including the public, when planning for regional transportation resilience	Ongoing	COMPASS
Collect data on weather-induced unplanned maintenance events	Pending	Local agencies
Integrate weather hazard scenarios into the *Treasure Valley Incident Management Operations Manual and Detour Route Plan*[21]	Pending	Ada and Canyon Counties
Develop a resilience improvement plan, including an emergency evacuation route map for the region	Pending	COMPASS
Improve education on existing services that provide real-time data to residents on heavy traffic and weather-caused road closures in the Treasure Valley	Ongoing	Local agencies
Encourage higher regulatory standards in hazard-vulnerable zones through zoning overlays, subdivision and development reviews, conservation easements,[22] and/or a community rating system	Ongoing	Local agencies
Support research that investigates the link between harsh weather and transportation system impacts in the Treasure Valley through collaborations with local universities and other organizations	Ongoing	Local agencies

Strategies	Status	Responsible Agency
Long-Term Strategies		
Continue to collaborate with local agencies and organizations involved in resilience*	Ongoing	Local agencies
Promote open space in the wildland-urban interface and the floodplain by implementing planned-unit developments, easements, setbacks, and sensitive-area tracks	Pending	Local agencies
Integrate floodplain management policies into other planning mechanisms within the Treasure Valley	Ongoing	Local agencies
Engage in environmental remediation activities for transportation infrastructure	Ongoing	ITD/Local agencies
Locate or relocate critical facilities outside the wildland-urban interface and the floodplain*	Pending	Local agencies
Incorporate retrofitting or replacement of critical system elements in capital improvement plans*	Pending	ITD/Local agencies
Identify opportunities to increase system redundancy through alternate transit routes	Ongoing	Local agencies

*Strategy aligns with initiatives identified in the *2017 Ada County Multi-Hazard Mitigation Plan*: Countywide Elements[23] and/or the *2021 Canyon County All-Hazard Mitigation Plan:* Countywide Initiatives.[24]

CONCLUSION

As the region continues to grow, a strong proactive approach to identifying the vulnerabilities of the transportation system to environmental hazards will help maintain a resilient and functioning system for all. COMPASS will continue to work with its members and other stakeholders to develop solutions to address hazards, implement strategies, track performance measures, and consider emergency response in regional transportation planning and decision making. Proactive preparedness and hazard management protects the lives and livelihoods of current and future generations.

ENDNOTES

1 Presidential Policy Directive 21, Critical Infrastructure Security and Resilience, February 2013. obamawhitehouse.archives.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil

2 Transportation Safety and Security, CIM 2050, https://cim2050.compassidaho.org/SafetySecurity.pdf

3 Fixing America's Surface Transportation Act (Fast Act), www.govinfo.gov/content/pkg/PLAW-114publ94/pdf/PLAW-114publ94.pdf

4 Infrastructure Investment and Jobs Act, https://www.fhwa.dot.gov/bipartisan-infrastructure-law/

5 FHWA Order 5520, Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events, December 2014. www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm

6 Climate Action Plan: Revitalizing Efforts to Bolster Adaptation & Increase Resilience, US Department of Transportation, www.sustainability.gov/pdfs/dot-2021-cap.pdf

7 Boise Climate Adaptative Assessment, prepared by Climate Impacts Research Consortium et al. for the City of Boise, pnwcirc.org/sites/pnwcirc.org/files/ho2_boise_climate_adaptive_assessment_2_pager.pdf

8 Ibid.

9 US Bureau of Land Management email to COMPASS, November 2021

10 Climate Mapper Tool, Climate Toolbox, https://climatetoolbox.org/tool/Climate-Mapper

11 See note 7.

12 2017 Ada County Multi-Hazard Mitigation Plan, Ada County Emergency Management & Community Resilience, adacounty.id.gov/emergencymanagement/mitigation

13 Cascadia Subduction Zone, Oregon Office of Emergency Management, www.oregon.gov/oem/hazardsprep/Pages/Cascadia-Subduction-Zone.aspx

14 Edward Field et al., A New Earthquake Forecast for California's Complex Fault System, United States Geological Survey, pubs.usgs.gov/fs/2015/3009/pdf/fs2015-3009.pdf

15 Idaho: Top 50 National Flood Insurance Program (NFIP) Policy Count Communities and Community Rating System (CRS) Participation, Federal Emergency Management Agency, crsresources.org/files/100/maps/states/idaho_crs_map_october_2021.pdf

16 Idaho 511 Travel Information, Idaho Transportation Department, 511.idaho.gov

17 See note 12.

18 2021 Canyon County All-Hazard Mitigation Plan, Canyon County Emergency Management, www.canyonco.org/elected-officials/sheriff/emergency-management

19 Treasure Valley Transportation Systems Management and Operations (TSMO) Strategic Plan 2020-2030 Update, COMPASS, compassidaho.org/documents/prodserv/tsmo/COMPASSTSMOPlan_FINAL.pdf

20 Prioritization, CIM 2050, https://cim2050.compassidaho.org/Prioritization.pdf

21 Treasure Valley Incident Management Operations Manual and Detour Route Plan (2017 Update), COMPASS, www.compassidaho.org/documents/prodserv/reports/TVIMReport_Final12-29-17.pdf

22 Idaho Uniform Conservation Easement Act, Idaho Code § 55-2101 (1988). https://legislature.idaho.gov/statutesrules/idstat/title55/t55ch21/sect55-2101/#:~:text=(1)%20%22Conservation%20easement%22,forest%2C%20recreational%2C%20or%20open%2D

23 See note 12.

24 See note 18.

Transportation Safety and Security

In 2020 in the State of Idaho, someone—a driver, passenger, pedestrian, or cyclist—was injured in a traffic crash every 46 minutes.[1] In Ada and Canyon Counties alone, 50,436 traffic crashes (including crashes involving bicyclists and pedestrians) occurred from 2016 to 2020. As a result of those crashes, 2,478 people were seriously injured and 258 were killed.[2]

Crashes not only have societal impacts, but they also place a large financial burden on drivers and the public through increased insurance premiums, taxes, and healthcare costs.[3] The cost of the 50,000-plus crashes involving over 130,000 people in Ada and Canyon Counties during 2016–2020 totaled $6.6 billion.[4] Serious and fatal crashes made up more than three-fifths of those economic impacts (Table 1). COMPASS and its member agencies work to reduce the number and impacts of crashes through driver education, roadway/infrastructure design, and enforcement of traffic laws.

Table 1. Economic Impacts to Persons Involved in Crashes in Ada and Canyon Counties (2016-2020)[5]

	2016	2017	2018	2019	2020	Total
Estimated economic impact of fatal injuries	$536.8 million	$536.8 million	$609.0 million	$516.1 million	$464.5 million	$2.7 billion
Estimated economic impact of serious injuries	$280.9 million	$275.5 million	$271.0 million	$219.2 million	$176.7 million	$1.2 billion
Estimated economic impact of other outcomes	$574.5 million	$546.7 million	$569.6 million	$586.2 million	$466.1 million	$2.7 billion
TOTAL	$1.4 billion	$1.4 billion	$1.4 billion	$1.3 billion	$1.1 billion	$6.6 billion

Note: Financial impacts are calculated for each occupant involved in a crash.

Transportation security is closely related to transportation safety as both aim to protect the welfare of system users, but there is some distinction between the two:[6]

- Safety is the protection of persons or property from unintentional damage or destruction caused by accidental or natural events.
- Security is the protection of persons or property from intentional damage or destruction caused by vandalism, criminal activity, or terrorist events.

Federal, state, county, and local law enforcement and emergency response agencies coordinate and plan for significant public safety and security risks. COMPASS addresses safety and security through roles of planner, facilitator, expert, and implementer (Table 2).

Table 2. COMPASS' Roles in Transportation Safety and Security

Role	Responsibilities
Planner	• Research and identify transportation safety and security strategies and countermeasures • Support the development of regional transportation safety and security policies
Facilitator	• Identify regional transportation safety and security needs by working with COMPASS stakeholders and workgroups • Promote transportation safety and security strategies through public outreach and communication campaigns • Provide opportunities for peer exchange and education regarding transportation safety and security
Expert	• Perform safety data analyses • Develop new and additional tools to analyze safety data • Disseminate safety data to member agencies • Develop transportation safety and security measures and targets
Implementor	• Prioritize safety and security projects in CIM 2050 and the transportation improvement program (TIP)[7] • Identify funding sources for safety and security projects

Federal regulations state that regional transportation plans such as *Communities in Motion 2050* (CIM 2050) shall "increase the safety of the transportation system for motorized and non-motorized users" and "should be consistent with other safety and security planning and review processes, plans, and programs, as appropriate".[8] Similarly, the metropolitan planning process must provide for consideration and implementation of projects, strategies, and services that will increase the security of the transportation system for all modes and users.[9]

COMPASS works closely with its member agencies through workgroups and committees to ensure consistency among safety goals, objectives, and planning efforts in the region. COMPASS is also frequently consulted by other transportation agencies during their safety planning efforts to strengthen this consistency.

STRATEGIC HIGHWAY SAFETY PLAN

A Strategic Highway Safety Plan (SHSP) is a federally mandated safety plan that coordinates goals and highway safety programs across the state to reduce fatalities and serious injuries on roadways.

Idaho's SHSP[10] is developed and maintained by the Idaho Office of Highway Safety of the Idaho Transportation Department (ITD); COMPASS and federal, state, local, and private stakeholders provide input during the planning process. The SHSP integrates the "4 Es" of safety: engineering, education, enforcement,

and emergency medical services. It also establishes goals, emphasis areas, performance measures, and strategies to reduce or eliminate fatalities and serious injuries. Idaho's 2021–2025 SHSP vision statement is to "continue to move toward zero deaths on all roadways in Idaho." Table 3 outlines the 2021–2025 SHSP's vision, mission, and goals.

Table 3. Vision, Mission, and Goals of Idaho's 2021–2025 SHSP[11]

Vision	Continue to move Toward Zero Deaths on all roadways in Idaho.
Mission	Provide the safest transportation system possible.
Goals	Primary • Reduce number of traffic deaths to 230 or fewer Secondary • Reduce the fatality rate to 1.26 per 100 million annual VMT • Reduce the number of serious injuries to 1,219 or fewer • Reduce the serious injury rate to 6.60 by 100 million VMT

Data analysis, guidance from the National Highway Traffic Safety Administration (NHTSA), and input from stakeholders all help identify the most critical traffic safety problems in the state. ITD examines the severity and economic impacts of these issues, resulting in the selection of several safety focus areas for the SHSP; COMPASS then analyzes crash data related to these focus areas in Ada and Canyon Counties to better understand regional safety trends (Table 4). ITD's strategies to meet statewide goals are outlined in the SHSP; COMPASS' actions to help achieve a safer transportation system can be found in "Advancing Transportation Safety" below.

Table 4. SHSP Focus Areas[12] and Regional Safety Trends

Focus Area	Definition	Regional Trends in Ada and Canyon Counties (2016-2020)[13]
Aggressive driving	Aggressive driving is when an individual commits a combination of moving traffic offenses so as to endanger other persons or property.	40% of fatal accidents were aggressive driver related. Failure to yield, an aggressive driving behavior, was a contributing factor in over 20% of fatal and serious injury crashes.
Distracted driving	Inattention that occurs when drivers divert their attention away from the driving task to focus on another activity instead. The distracting tasks can affect drivers in different ways and can be categorized into the following types: visual distraction, manual distraction, cognitive distraction.	17% of fatal crashes were distracted driving related. Electronic communication devices were the most common type of distraction documented in fatal and serious injury crashes.
Impaired driving	Driving while impaired can refer to operating a motor vehicle while under the influence of alcohol, drugs, or both.	39% of all fatal crashes were impaired driving related. Overturn and pedestrian-related events were the most harmful events in impaired driving crashes.
Occupant protection	Idaho's seat belt use law requires seat belt use for all seating positions and has enhanced penalties for drivers younger than 18 years of age. Drivers and occupants, 18 years of age and older, receive separate tickets.	31% of all fatalities were persons who were unbelted. Over 20% of unbelted fatalities were people under the age of 20.
Vulnerable roadway users: bicycles and pedestrians	Bicyclists and other cyclists include riders of two-wheel non-motorized vehicles, tricycles, and unicycles powered solely by pedals, also known as pedalcyclists. A pedestrian is a person on foot, walking, running, jogging, hiking, sitting or lying down who is involved in a motor vehicle traffic crash where at least one vehicle was in transport and the crash originated on a public traffic way.	14% of all fatal crashes were pedestrian related. Alcohol was involved in over 25% of fatal and serious injury pedestrian-related crashes. 34% of percent of fatal and serious injury crashes involving a pedestrian involved a driver under the age of 20. 16% of bicycle-related crashes resulted in a fatality or serious injury.

Focus Area	Definition	Regional Trends in Ada and Canyon Counties (2016-2020)[13]
Vulnerable roadway users: mature drivers	Mature drivers are age 65 or older and make up 16% of all licensed drivers.	26% of fatal crashes were mature driver related.
Vulnerable roadway users: motorcycles	A motorcycle is a motor vehicle having a seat or saddle for the use of the rider designed to travel on not more than three wheels in contact with the ground, but excluding a tractor and moped. Idaho law requires all motorcycle operators and passengers under the age of 18 to wear a helmet.	14% of fatal and serious injury crashes were motorcycle related.
Vulnerable roadway users: youthful drivers	Youthful driver crashes are those where the driver is 15 through 20 years old.	16% of fatal crashes were youthful driver related.
Vulnerable roadway users: commercial motor vehicles	For the purpose of crash reporting, commercial motor vehicles are buses, truck tractors, tractor-trailer combinations, trucks with more than two axles, trucks with more than two tires per axle, or trucks exceeding 10,000 pounds gross vehicle weight. This also includes pickups with dual rear wheels and smaller vehicles that are carrying hazardous materials.	8% of fatal and serious injury crashes involved a commercial motor vehicle.
Infrastructure: intersections	A crash involving roadway users at or related to a public road intersection.	Over 50% of fatal and serious injury crashes were intersection related.
Infrastructure: lane departures	A lane departure crash is defined as a non-intersection-related crash which occurs after a vehicle crosses an edge line, a center line, or otherwise leaves the anticipated travel lane. Lane departure crash incidents primarily include single-vehicle run-off-road, head-on, and side-swipe crashes.	14% of fatal and serious injury crashes were lane departure crashes.

CIM 2050 SAFETY GOAL AND OBJECTIVES

Reducing the number and rate of fatal and serious injuries for all modes of transportation (auto, bicycle, freight, pedestrian, transit) is a primary consideration throughout the transportation planning process.

To that end, safety, which includes transportation security and resiliency, is one of CIM 2050's four primary goal areas.[14] Three objectives further define this goal:

- Provide a safe transportation system for all users.
- Proactively assess risks and safeguard the security of all transportation users and infrastructure.
- Support a resilient transportation system by anticipating societal, climatic, and other changes; maintaining plans for response and recovery; and adapting to changes as they arise.

Both safety and security are discussed in more detail below, while additional information on resilience can be found in *Environmental Issues*.[15]

REGIONAL PERFORMANCE MEASURES AND TRENDS

The Fixing America's Surface Transportation Act (FAST Act)[16] of 2015 and the Infrastructure Investment and Jobs Act[17] of 2021 emphasize performance management as a key facet in transportation planning. Metropolitan planning organizations are required to report five-year safety performance measures for all public roads and adopt either their own safety targets or support targets established by the state across five categories:

- Number of serious injuries
- Rate of serious injuries (per 100 million vehicles miles of travel [VMT])
- Number of fatalities
- Rate of fatalities (per 100 million VMT)
- Number of non-motorized serious injuries and non-motorized fatalities

ITD and COMPASS are responsible for setting the targets and reporting these safety performance measures to the Federal Highway Administration. In 2021, the COMPASS Board of Directors agreed to support ITD's statewide safety targets as well as set regional aspirational targets for CIM 2050 safety performance measures.[18] These targets are used to measure progress toward achieving the safety goal of CIM 2050 as well as the statewide safety goals established in accordance with the FAST Act (Table 5).

Table 5. Compass Regional and ITD Statewide Safety Performance Measures and Targets 2016-2020 (5-year rolling averages)

Performance Measure		2013-2017	2014-2018	2015-2019	2016-2020	State and Regional Safety Targets
Number of auto fatalities	ITD	222.80	226.80	234.40	234.00	<247.00 (FY2021)
	COMPASS	45.0	49.0	52.2	51.6	<13.1 (2030)
Number of auto serious injuries	ITD	1,303.00	1,297.40	1,269.40	1,217.00	<1,285.00 (FY2021)
	COMPASS	542.0	553.2	542.6	495.6	<123.9 (2030)
Ratio of auto fatalities per 100 million VMT*	ITD	1.34	1.33	1.35	1.34	<1.38 (FY2021)
	COMPASS	1.03	1.10	1.16	1.11	TBD
Ratio of auto serious injuiries per 100 million VMT	ITD	7.76	7.59	7.29	6.94	<7.21 (FY2021)
	COMPASS	12.47	12.51	12.09	10.73	TBD
Non-motorized fatalities and serious injuries	ITD	118.40	121.80	121.20	120.60	<120.00 (FY2021)
	COMPASS	64.80	66.80	67.00	63.00	<21.90 (2030)

**Vehicle miles traveled*

As assessing transportation security is more qualitative in nature, no specific performance measures or targets have been established to address security. Instead, COMPASS will prepare periodic fact sheets to highlight regional security issues, trends, challenges, and solutions to ensure security is consistently considered in the planning process.

SAFETY IN CIM 2050 PROJECT PRIORITIZATION

Safety was one of several criteria used to prioritize roadway projects[19] for CIM 2050. Identified projects were analyzed and scored using the most recent five years of crash data to determine the number of auto and non-motorized fatalities and serious injuries recorded in the project area. That information was averaged with scores from the other goal areas (economic vitality, quality of life, and convenience) to develop a project score reflecting all four CIM 2050 goal areas. These scores, along with additional qualitative and quantitative information, were used by the Regional Transportation Advisory Committee to prioritize projects for funding.

ADVANCING TRANSPORTATION SAFETY

A critical component of regional transportation planning is reviewing data and monitoring the performance of implemented policies, such as the Complete Network Policy,[20] and projects from Communities in Motion and the transportation improvement program (TIP),[21] a budget of federally funded and regionally significant transportation projects. The COMPASS Change in Motion Scorecard[22] is a reporting tool that highlights progress made toward meeting the goals and objectives of CIM.

In spring 2021, a subcommittee of the Regional Transportation Advisory Committee reviewed the results of the 2020 Change in Motion Scorecard[23] to prioritize a subset of underperforming measures for deeper analysis. Safety measures, especially those related to the number and rate of serious and fatal injuries, were identified as top priorities. The subcommittee discussed current projects, policies, plans, and actions targeted at decreasing the number and rate of serious and fatal injuries in the region and regional trends that may potentially be contributing to more serious injuries and fatalities. It also identified potential actions that COMPASS could take to further improve the safety measures for CIM 2050.

The subcommittee organized the recommended actions to align with COMPASS' four roles: planner, facilitator, expert, and implementer. Table 6 lists the recommended actions that COMPASS will further review for near-term implementation.

Table 6. Recommended actions to improve regional transportation safety

Plan	• Develop a Regional Safety Action Plan • Discuss the potential of adopting a Vision Zero goal/policy and adopting the Federal Highway Administration's safe systems approach to transportation safety • Focus on regional crash and safety trends to support long-range planning
Implement	• Prioritize safety projects in COMPASS' Project Development Program and *Communities in Motion* Implementation Grant program • Fund safe routes to school with off-the-top federal funding
Provide technical expertise	• Make crash data, statistics, and analyses more easily accessible to member agencies to use in their planning and decision making • Work with member agencies and safety experts to further analyze safety data to identify regional trends and solutions • Acquire useful data and analyses to support member agencies and COMPASS planning efforts
Facilitate	• Conduct public outreach, such as hosting transportation safety-related speakers and training, sponsoring bicycle safety public service announcements, and raising awareness of safety issues through social media

COMPASS continues to work toward creating a safe transportation system for all users by supporting safety planning efforts, developing safety policies, providing technical expertise to identify safety issues/trends, educating the public about safety laws and best practices, and prioritizing projects in the TIP and CIM 2050 that improve safety for all users.

TECHNOLOGICAL ADVANCES SUPPORTING TRANSPORTATION SAFETY

New and emerging transportation technologies can improve the safety of the transportation system for all modes. The ever-growing network of connected infrastructure, assets, and vehicles on our system provides more information than ever before—on roadways and in our vehicles—about real-time conditions. The information generated through this connectedness, or "internet of things," enables faster or automated responses to hazardous roadway conditions.

Intelligent Transportation Systems

The *Treasure Valley Transportation Systems Management and Operations (TSMO) Strategic Plan*[24] presents a cooperative approach to managing and operating the region's multimodal transportation system to maximize the safety, efficiency, and reliability of existing transportation facilities and infrastructure. TSMO encompasses a very broad set of active and passive strategies that rely on advanced transportation technologies, personnel, coordinated plans, supportive policies, and collaboration among agencies to proactively operate the transportation system. The *Treasure Valley TSMO Strategic Plan* identifies several different TSMO strategies, including intelligent transportation systems (ITS) that are currently implemented, planned, or desired in the region.

Several of the TSMO and ITS strategies identified in the plan focus on informing travelers ahead of time of hazardous road conditions, roadway construction, or traffic incidents. Broadcasting warnings of crashes, roadway debris, severe weather, and the like through digital message signs, mobile alerts, and traveler information applications can help travelers make safer decisions both during and before their trips. Other TSMO strategies rely more heavily on physical assets and technologies to alert travelers of mode conflicts, intersections, road features, and potential hazards using devices such as rectangular rapid flashing beacons, high-intensity activated crosswalk beacons, traffic signals, and digital messaging signs.

TSMO strategies can also help support emergency services in their response to crashes. Closed-circuit television cameras can enhance both crash detection and response by providing responders with critical information ahead of a response, and traffic signal preemption can help response vehicles reach the crash scene more quickly. TSMO also includes developing plans and training for quick, safe, coordinated responses to support first-responder safety and prevent secondary crashes.

TSMO and ITS will likely play a larger role in transportation safety in the mid- to long-term future. Emerging technologies suggest that widespread capabilities to connect transportation infrastructure to vehicles, vehicles to surrounding vehicles, and even vehicles/infrastructure to mobile or wearable devices aren't far off. These capabilities will likely lead to innovative and effective safety solutions for all modes of travel.

Connected and Autonomous Vehicles

Connected vehicles have the capability to send and receive information from surrounding vehicles, infrastructure, and devices via a wireless network (Figure 1). This communication enables quicker detection of traffic conditions and safety hazards, allowing more time for an automated or driver-induced response. These systems operate in the background and notify the driver only when a safety hazard is detected.

Figure 1. Connected vehicles concept from the Treasure Valley TSMO plan

The US Department of Transportation has outlined several safety features that could be leveraged by connected vehicles (Figure 2):[25]

- Do not pass warning
- Emergency electric brake light warning
- Intersection movement assist
- Lane change warning/blind spot warning
- Forward collision warning
- Truck forward collision warning
- Left turn across path
- Vehicle turning right in front of bus
- Red light violation warning
- Stop sign gap assistance
- Work zone warning
- Curve speed warning
- Pedestrian in signalized crosswalk
- Connected vehicle safety for safety railway
- Transit bus stop pedestrian warning

Figure 2. Connected-vehicle technologies can improve transportation safety for drivers and pedestrians. Image: US Department of Transportation

Another safety benefit of connected vehicles is the ability to capture and archive events—such as harsh braking maneuvers, excess speeding, or near misses—that often go unreported because they did not result in a reportable incident such as a crash. These data could help inform planners and engineers of safety issues before a fatal or serious injury occurs.

According to NHTSA, 94% of serious crashes are due to dangerous choices or errors people make behind the wheel.[26] Most newer vehicles on the road today incorporate varying degrees of automation that help remove human error when reacting to hazardous events or conditions. These systems include lane keeping assist, adaptive cruise control, rear cross traffic alert, automatic emergency braking, blind spot detection, and lane departure warning.

Fully autonomous, or self-driving, cars are currently not available on the market, but several automotive manufacturers and technology companies are pursuing research and development to make them a reality. This evolution of vehicle automation promises to deliver even more safety benefits for all road users.[27]

To accommodate these emerging technologies, transportation agencies should continue to

- perform regular roadway maintenance activities—such as high-visibility signage and striping—that benefit all users, including autonomous vehicles; and
- expand the regional communications backbone that enables connected vehicle safety applications.

It's also important for regional stakeholders to continue to stay abreast of technology advances and related federal, state, and local regulatory activities.

ADVANCING TRANSPORTATION SECURITY

As noted above, the metropolitan planning process must consider and implement projects, strategies, and services that increase the security of the transportation system. Ada and Canyon Counties have developed all-hazard mitigation plans[28] to identify risks and mitigation strategies for a range of threats, from natural disasters to human-caused hazards. COMPASS supports these planning efforts by participating as a transportation stakeholder and by providing data to identify and analyze risks on the transportation system. Security hazards in these plans include terrorism, cyberterrorism, and civil unrest. Planning efforts around natural disasters are described in *Transportation Resilience*.[29]

Transit providers in the region, including Valley Regional Transit (VRT), Boise State University, Ada County Highway District Commuteride, and Treasure Valley Transit, include passenger and operator security measures in their planning and operating procedures. Security measures in these processes include selecting and designing safe transit stop locations, providing lighting at transit stops, requiring badge access for employee-only areas, placing cameras on buses and at facilities (including some park and ride lots), providing security staff at transit stations, and implementing processes to report and assess safety and security concerns or incidents.

VRT has a close working relationship with the City of Boise Police Department. Its Main Street Station transit hub in downtown Boise has a designated police substation, and VRT staff work with the Boise Police Department's Gang Unit when facilities have been vandalized by gang-related activities.

Several physical security countermeasures can and should be incorporated into transportation infrastructure projects to protect people from physical harm from malicious actors as well as protect transportation facilities and infrastructure from vandalism, destruction, or damage (Figure 3). Depending on the types of risks associated with the infrastructure, these measures could include but are not limited to:[30]

- Signage
- Fencing
- Barriers, including fencing, bollards, cables, and landscaping
- Emergency phones, duress alarms, assistance stations
- Key control and locks, including electronic control systems
- Lighting
- Alarm systems
- Surveillance systems

Figure 3. Physical security measures can deter vandalism and other damage to facilities and infrastructure

Cybersecurity

A good working definition of cybersecurity for transportation is "electronic security"; its compromise could result in any or all the following situations:[31]

- Endangerment of public or employee safety
- Loss of public confidence
- Violation of regulatory requirements
- Loss of proprietary or confidential information
- Economic loss
- Impact on national security

Today's roadways and vehicles are more integrated and connected than ever and offer a range of advanced technologies that improve safety, increase efficiency, and reduce environmental impacts. However, these advances also create new cybersecurity vulnerabilities, as hackers have more opportunities to breach these transportation systems. In the Treasure Valley, ITS investments on roadways include over 545 miles of fiber, advanced traffic management system software, a traffic management center, emergency vehicle and transit preemption software, closed-circuit television cameras, dynamic and variable message signs, 16 road/weather information stations, and a range of traffic monitoring sensors.[32] COMPASS and its member agencies also manage troves of transportation data. If compromised by a cyber-attack, some of these systems and data have the potential to endanger public safety, cause economic loss, or impact national security.

There are several resources, practices, and technologies available for mitigating the risks of cyber-attacks. The National Institute of Standards and Technology has developed a framework that provides a common organizing structure for multiple approaches to cybersecurity by assembling standards, guidelines, and practices that are working effectively today.[33] The US Department of Transportation Intelligent Transportation Systems Joint Program Office continues to develop and maintain references and guides on implementation and research of cybersecurity as it pertains to ITS.[34] COMPASS will continue to work with its member agencies to ensure cybersecurity best practices are considered and incorporated in the planning and development of ITS projects.

CONCLUSION

Safety and security incidents on our transportation system have significant impacts on Treasure Valley residents. Planners, engineers, emergency responders, and law enforcement work together to proactively identify risks to public safety and security. COMPASS will continue to work toward meeting the safety targets identified in CIM 2050 by identifying safety/security risks and implementing proven countermeasures categorized in the "4 Es" of the Idaho SHSP (engineering, education, enforcement, emergency response).

Moreover, COMPASS will continue to look for opportunities to take advantage of new and emerging technologies that can be used to improve safety and security. Transportation projects that exemplify established safety and security countermeasures and promote innovative technologies will be prioritized in CIM 2050 to help ensure a safer tomorrow.

ENDNOTES

1 Idaho Traffic Crashes 2020, Idaho Transportation Department, Office of Highway Safety, https://apps.itd.idaho.gov/Apps/OHS/Crash/20/Analysis.pdf

2 ITD Numetric Safety Dashboard, https://itd.aashtowaresafety.net/itd-safety-dashboards#/

3 See note 1.

4 Ibid.

5 US Department of Transportation memorandum: Guidance on Treatment of the Economic Value of a Statistical Life (VSL) in US Department of Transportation Analyses – 2014 Adjustment, www.transportation.gov/sites/dot.gov/files/docs/VSL_Guidance_2014.pdf

6 Incorporating Security into the Transportation Planning Process, National Cooperative Highway Research Program; Transportation Research Board; and National Academies of Sciences, Engineering, and Medicine, www.trb.org/NCHRP/Blurbs/155903.aspx

7 Transportation improvement program (TIP), COMPASS, www.compassidaho.org/prodserv/transimprovement.htm

8 "Scope of the metropolitan transportation planning process," Code of Federal Regulations, Title 23, 450.306 (a), (h). www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450#450.306

9 "Scope of the metropolitan transportation planning process," Code of Federal Regulations, Title 23, 450.306 (b)(3). www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450#450.306

10 Strategic Highway Safety Plan Idaho: 2021-2025, Idaho Transportation Department, Office of Highway Safety, https://apps.itd.idaho.gov/Apps/OHS/Plan/SHSP_2021-2025.pdf

11 Ibid.

12 Ibid.

13 ITD Numetric Safety Dashboard, https://itd.aashtowaresafety.net/itd-safety-dashboards

14 CIM 2050 goals, https://cim2050.compassidaho.org/cim-2050-goals/

15 Environmental Issues, CIM 2050, https://cim2050.compassidaho.org/Environment.pdf

16 Fixing America's Surface Transportation Act (Fast Act), www.govinfo.gov/content/pkg/PLAW-114publ94/pdf/PLAW-114publ94.pdf

17 Infrastructure Investment and Jobs Act, https://www.fhwa.dot.gov/bipartisan-infrastructure-law/

18 CIM 2050 safety performance measures, https://cim2050.compassidaho.org/wp-content/uploads/2022/07/CIM_2050_Performance_Measures_Final.pdf

19 Prioritization, CIM 2050, https://cim2050.compassidaho.org/Prioritization.pdf

20 Complete Network Policy, www.compassidaho.org/documents/people/policies/CompleteNetworkPolicy_Final_Dec2021_2022-01.pdf

21 See note 7.

22 Change in Motion scorecards, COMPASS, www.compassidaho.org/prodserv/gtsm-perfmonitoring.htm

23 2020 Change in Motion Scorecard, COMPASS, www.compassidaho.org/documents/prodserv/reports/Change_in_motion_2020_final.pdf

24 Treasure Valley Transportation Systems Management and Operations (TSMO) Strategic Plan 2020-2030 Update, COMPASS, www.compassidaho.org/documents/prodserv/tsmo/COMPASSTSMOPlan_FINAL.pdf

25 Connected Vehicle Basics, USDOT Intelligent Transportation Systems Joint Program Office, www.its.dot.gov/cv_basics/cv_basics_how_used.htm

26 Traffic Safety Facts: Crash Stats, NHTSA's National Center for Statistics and Analysis, https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812115

27 Automated Vehicles for Safety, NHTSA, www.nhtsa.gov/technology-innovation/automated-vehicles-safety

28 2021 Canyon County All-Hazard Mitigation Plan, Canyon County Emergency Management, www.canyonco.org/elected-officials/sheriff/emergency-management; 2017 Ada County Multi-Hazard Mitigation Plan, Ada County Emergency Management & Community Resilience, adacounty.id.gov/emergencymanagement/mitigation

29 Transportation Resilience, CIM 2050, https://cim2050.compassidaho.org/Resilience.pdf

30 Update of Security 101: A Physical Security and Cybersecurity Primer for Transportation Agencies, National Cooperative Highway Research Program, www.trb.org/NCHRP/Blurbs/179516.aspx

31 Ibid.

32 See note 24.

33 Framework for Improving Critical Infrastructure Cybersecurity, Version 1.1, National Institute of Standards and Technology, https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.04162018.pdf

34 ITS Cybersecurity Research Program, US Department of Transportation, www.its.dot.gov/research_areas/cybersecurity/index.htm