



Working together to plan for the future

Conformity Demonstration for the FY2021-2027
Regional Transportation Improvement Program and
Communities in Motion 2040 2.0 as Amended
Report No. 02-2021
Adopted by the COMPASS Board on October 19, 2020
Resolution No. 03-2021

THIS DOCUMENT IS SUBMITTED TO THE U.S. DEPARTMENT OF TRANSPORTATION IN FULFILLMENT OF THE REQUIREMENTS OF THE 1990 CLEAN AIR ACT AMENDMENTS, THE FEDERAL TRANSPORTATION AIR QUALITY CONFORMITY RULES (40 CFR 51 and 40 CFR 93), AND THE STATE OF IDAHO ADMINISTRATIVE CODE ON TRANSPORTATION CONFORMITY (IDAPA 58-01.01.563-574).



Working together to plan for the future

RESOLUTION NO. 3-2021

**FOR THE PURPOSE OF APPROVING THE
FY2021-2027 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM AND
ASSOCIATED AIR QUALITY CONFORMITY DEMONSTRATION**

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 Fixing America's Surface Transportation (FAST) Act, Title 23 United States Code Section 134, and Title 49 United States Code Section 5303 requires metropolitan planning organizations to develop and approve a Transportation Improvement Program;

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

WHEREAS, FAST Act, Title 23 United States Code Section 134 and Title 49 United States Code Section 5303 require projects contained in the Transportation Improvement Program to be financially constrained;

WHEREAS, FAST Act, Title 23 United States Code Section 134 and Title 49 United States Code Section 5303 require the Transportation Improvement Program be developed and amended in consultation with all interested parties;

WHEREAS, a public comment period was held between August 14 and September 14, 2020, for people to review and comment on proposed projects in the program;

WHEREAS, the Community Planning Association of Southwest Idaho desires to take timely action to ensure the availability of federal funds; and

WHEREAS, the Community Planning Association of Southwest Idaho has developed the FY2021-2027 Regional Transportation Improvement Program for Ada and Canyon Counties, and corresponding air quality conformity demonstration for Northern Ada County, in compliance with all applicable state and federal regulations.

NOW, THEREFORE, BE IT RESOLVED, that the Community Planning Association of Southwest Idaho Board of Directors approves the FY2021-2027 Regional Transportation Improvement Program and the associated air quality conformity demonstration.

Adopted this 19th day of October 2020.

By: 

Elaine Clegg, 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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LIST OF ACRONYMS

ACHD	Ada County Highway District
ATR	Automatic traffic recorder
AVFT	Alternative vehicle fuels and technology
CFR	Code of Federal Regulations
CIM 2040 2.0	<i>Communities in Motion 2040 2.0</i>
CIP	ACHD's Capital Improvements Plan
CO	Carbon monoxide
COMPASS	Community Planning Association of Southwest Idaho
DEQ	Idaho Department of Environmental Quality
E10	10% ethanol in gasoline
EPA	U.S. Environmental Protection Agency
ICC	Interagency Consultation Committee
IFYWP	ACHD's Integrated Five-Year Work Plan
IM	Inspection Maintenance
ITD	Idaho Transportation Department
MOVES	Motor Vehicle Emission Simulator
MPO	Metropolitan planning organization
NAAQS	National Ambient Air Quality Standards
NO _x	Oxides of nitrogen
OBD	On-board diagnostics
PM ₁₀	Particulate matter with a diameter less than 10 micrometers (i.e., 1x10 ⁻⁶) (coarse particulate matter)
RPM	Revolutions per minute
SIP	State Implementation Plan
STIP	Statewide Transportation Improvement Program (statewide version of the regional TIP)
TIP	Transportation Improvement Program
TMAC	Transportation Model Advisory Committee
TPD	Tons per Day
TTOP	State Street Transit and Traffic Operational Plan
VIN	Vehicle identification number
VMT	Vehicle miles of travel
VOC	Volatile organic compounds

FOREWORD

The Clean Air Act mandates that any transportation project using federal funds or deemed to be “regionally significant” in nonattainment or maintenance areas cannot contribute to a degradation of air quality. Thus, transportation plans must “conform” to air quality plans. Transportation conformity is demonstrated in a nonattainment or maintenance area when it can be shown, within the applicable guidelines and regulations, that planned transportation projects listed in a transportation program or plan will not cause or contribute to exceedances of the U.S. Environmental Protection Agency’s (EPA’s) health-based air quality standards. A finding of nonconformity would prevent the implementation of certain federally funded and/or regionally significant transportation projects.

Only EPA’s criteria pollutants¹ are subject to conformity analyses. One of two tests is used in a conformity demonstration:

Budget: State air quality implementation and maintenance plans for nonattainment and maintenance areas will often have maximum limits on the amounts of pollutants that transportation related sources emit. These maximum emissions limits on transportation related sources are known as “budgets.” A transportation conformity budget test consists of a comparison between regional emissions estimates that include the impacts associated with planned transportation projects and the established budget. If the budget is not exceeded by the emissions estimate, then conformity has been demonstrated.

Build/No Build: Conceptually, this process is rather simple - estimate the amount of a given pollutant emitted in a region before the programmed projects are built (no build scenario) and after construction (build scenario). If the emissions from a build scenario are equal to or less than the emissions from a no build scenario, conformity has been demonstrated. This test is used for nonattainment or maintenance areas where motor vehicle emissions budgets have not been established.

This document contains the information and analyses necessary for the Federal Highway Administration and the Federal Transit Administration to make a transportation conformity finding for the FY2021-2027 Regional Transportation Improvement Program and an amendment to the regional long-range transportation plan, *Communities in Motion 2040 2.0*.

¹ EPA sets air quality standards for six common pollutants, referred to as ["criteria" air pollutants](#). These standards are developed based on human health and/or environmental criteria (science-based guidelines). Of the six criteria pollutants, particulate pollution and ground-level ozone pose the two most widespread health threats.

SUMMARY

The U.S. Environmental Protection Agency's (EPA's) Motor Vehicle Emission Simulator (MOVES) and the Community Planning Association of Southwest Idaho's (COMPASS') most current travel demand model were used to estimate pollutant emissions from the transportation projects contained in the regional long-range transportation plan, *Communities in Motion 2040 2.0* as amended on October 19, 2020, and the FY2021-2027 Regional Transportation Improvement Program. A Transportation Improvement Program is a fiscally-constrained², short-range capital improvement program (budget) of transportation projects in a given planning area. The Interagency Consultation Committee approved the modeling methodologies and assumptions used in the regional emissions analyses including the applicable transportation model networks. Growth and demographic assumptions from the region's *Communities in Motion 2040* Vision, updated and reconciled in summer 2020, were used in this demonstration.

Transportation conformity is demonstrated in a nonattainment or maintenance area when it can be shown, within the applicable guidelines and regulations, that planned transportation projects listed in a transportation program or plan will not cause or contribute to exceedances of EPA's health-based air quality standards. A finding of nonconformity would prevent the implementation of certain federally funded and/or regionally significant transportation projects. Northern Ada County is a "maintenance area" for two air pollutants – coarse particulate matter (PM₁₀) and carbon monoxide.

The *Northern Ada County PM₁₀ State Implementation Plan, Maintenance Plan: Ten-Year Update*³ contains motor vehicle emissions budgets for three pollutants: PM₁₀, oxides of nitrogen, and volatile organic compounds. Emissions budget tests, as required by 40 CFR 93.118, demonstrate conformity of the FY2021-2027 Transportation Improvement Program and proposed amendment to *Communities in Motion 2040 2.0*. The *Northern Ada County Air Quality Maintenance Area Second 10-Year Carbon Monoxide Limited Maintenance Plan*⁴ does not contain any motor vehicle emissions budgets. However, COMPASS conducted a build versus no build carbon monoxide emissions analysis per the carbon monoxide limited maintenance plan in accordance with EPA's limited maintenance plan option.

Figures 4 – 6 (pages 27 – 29) show estimated emissions as compared to pollutant budgets for PM₁₀, volatile organic compounds, and oxides of nitrogen.

As mentioned above, the area is subject to transportation conformity requirements for direct PM₁₀ and precursor pollutants per 40 CFR 93, subpart A, including:

- a. *Transportation plans and projects provide for timely implementation of SIP [State Implementation Plan] transportation control measures in accordance with 40 CFR 93.113;*
- b. *Transportation plans and projects comply with the fiscal constraint element per 40 CFR 93.108;*
- c. *The MPO's interagency consultation procedures meet applicable requirements of 40 CFR 93.105;*
- d. *Conformity of transportation plans is determined no less frequently than every four years, and conformity of plan amendments and transportation projects is demonstrated in accordance with the timing requirements specified in 40 CFR 93.104;*

² Section IX: Financial Constraint of the Regional Transportation Improvement Program – Full Report
<https://www.compassidaho.org/prodserv/transimprovement.htm>

³ http://www.deq.idaho.gov/media/971222-ada_county_pm1_0_sip_0213.pdf

⁴ <http://www.deq.idaho.gov/media/909866-ada-county-co-maintenance-plan-2011.pdf>

- e. *The latest planning assumptions and emissions model are used as set forth in 40 CFR 93.110 and 40 CFR 93.111;*
- f. *Projects do not cause or contribute to any new localized carbon monoxide or particulate matter violations, in accordance with procedures specified in 40 CFR 93.123; and*
- g. *Project sponsors and/or operators provide written commitments as specified in 40 CFR 93.125. [40 CFR 93, subpart A]*

Public comments on the Air Quality Conformity Demonstration for the FY2021-2027 Regional Transportation Improvement Program and proposed changes to *Communities in Motion 2040 2.0* were solicited from August 14 through September 14, 2020. The public comments are available on the COMPASS website with the FY2021-2027 Regional Transportation Improvement Program⁵, approved by the COMPASS Board of Directors on October 19, 2020.

⁵ FY2021-2027 TIP, Public comments on the FY2021-2027 TIP <https://www.compassidaho.org/prodserv/transimprovement.htm>

I. INTRODUCTION

Community Planning Association of Southwest Idaho

The Community Planning Association of Southwest Idaho (COMPASS) is an association of local governments in Ada and Canyon Counties, Idaho. It provides transportation planning and a host of other planning and community services to its member agencies and the general public. Since 1977, COMPASS, formerly known as the Ada Planning Association, has been designated as the metropolitan planning organization (MPO) for Ada County. In April 2003, COMPASS was designated as the MPO for the Nampa Urbanized Area, located in neighboring Canyon County. The agency's service area covers Ada and Canyon Counties⁶.

Clean Air Act Designations

The federal government sets health-based air quality standards for air pollutants, called the National Ambient Air Quality Standards, or NAAQS. Areas that have violated (not attained) the NAAQS are referred to as "nonattainment areas"; areas that were nonattainment in the past, but have been redesignated to attainment of the standard with an approved maintenance plan, are termed "maintenance areas." Northern Ada County is a maintenance area for two air pollutants – coarse particulate matter (PM₁₀) and carbon monoxide (CO). Northern Ada County violated the NAAQS for these pollutants in the 1980s and early 1990s, and has been in compliance ever since.

The federal government mandates that any transportation projects using federal funds or deemed to be "regionally significant" in nonattainment or maintenance areas cannot contribute to a degradation of air quality (40 CFR 93). Thus, transportation plans must "conform" to air quality plans. Transportation conformity is demonstrated in a nonattainment or maintenance area when it can be shown, within the applicable guidelines and regulations, that planned transportation projects listed in a transportation program or plan will not cause or contribute to exceedances of the NAAQS. A finding of nonconformity would prevent the implementation of certain federally funded and/or regionally significant transportation projects.

Coarse Particulate Matter (PM₁₀)

Northern Ada County is designated as a maintenance area in attainment of the 24-hour PM₁₀ NAAQS. Figure 9 in Appendix A shows the extent of the maintenance area boundaries. While exceedances of the 24-hour PM₁₀ NAAQS have occurred due to wind-blown dust events, no violations of the 24-hour PM₁₀ NAAQS have occurred since the area was designated as a maintenance area in attainment of the standard. Prior to March 12, 1999, Northern Ada County was designated as a nonattainment area for PM₁₀. However, on that date, the U.S. Environmental Protection Agency (EPA) administrator signed a revocation of Northern Ada County's nonattainment designation based on changes made to the PM₁₀ NAAQS ([64 FR 12257](#))⁷. This ruling was challenged in the Ninth District Circuit Court. On January 31, 2001, the U.S. Department of Justice approved a settlement agreement for the Idaho Clean Air Force et al. v. EPA et al. lawsuit. A major component of the settlement agreement required that the Idaho Department of Environmental Quality (DEQ) update Northern Ada County's PM₁₀ State Implementation Plan (SIP). In November 2003, the *Northern Ada County PM₁₀ SIP Maintenance Plan and Redesignation Request* became effective ([68 FR 61106](#))⁸. In March 2013, the *Northern Ada County PM₁₀ State Implementation Plan, Maintenance Plan: Ten-Year Update*⁹ (PM₁₀ maintenance plan) was submitted to EPA. On May 17, 2013, EPA announced receipt of the "maintenance plan" and issued determination of adequacy of the motor vehicle

⁶https://www.compassidaho.org/documents/prodserv/maps/2020/COMPASS_PlanningArea.pdf

⁷<http://www.gpo.gov/fdsys/granule/FR-1999-03-12/99-5380/content-detail.html>

⁸<https://www.govinfo.gov/app/details/FR-2003-10-27/03-26919>

⁹http://www.deq.idaho.gov/media/971222-ada_county_pm10_sip_0213.pdf

emission budgets for transportation conformity purposes. In November 2014, the second ten-year PM₁₀ maintenance plan became effective ([79 FR 59435](#))¹⁰.

Past exceedances of the 24-hour PM₁₀ NAAQS in Northern Ada County occurred primarily during severe wintertime air stagnation events. These events, known as atmospheric inversions, are caused when cold, stagnant air is held close to the valley floor by warmer air aloft. During these events, particulates, including those formed in the atmosphere out of gaseous pollutants such as oxides of nitrogen (NO_x) and volatile organic compounds (VOCs), are trapped near the earth's surface. Because NO_x and VOCs combine to create particulates, they are considered precursors of PM₁₀. As a result, the PM₁₀ maintenance plan contains approved PM₁₀, NO_x, and VOC motor vehicle emissions budgets.

Carbon Monoxide (CO)

Northern Ada County is designated as an attainment area with an approved limited maintenance plan for the CO NAAQS. Northern Ada County has not experienced a violation of the CO NAAQS since 1987. DEQ submitted the *Limited Maintenance Plan and Request for Redesignation to Attainment for the Northern Ada County Carbon Monoxide Not-Classified Nonattainment Area* to EPA in December 2001. The limited maintenance plan and subsequent redesignation of the area became effective in December 2002 ([67 FR 65713](#))¹¹. The *Northern Ada County Air Quality Maintenance Area Second 10-Year Carbon Monoxide Limited Maintenance Plan*¹² (CO maintenance plan) became effective in October 2012 ([77 FR 45962](#))¹³. Maintenance areas under a limited maintenance plan are not required to demonstrate their transportation programs or long-range transportation plans conform through a regional emissions analysis. Therefore, there are no applicable CO motor vehicle emissions budgets established for Northern Ada County.

Rules

As described previously, the PM₁₀ maintenance plan established motor vehicle emissions budgets for PM₁₀, NO_x, and VOCs. Therefore, to satisfy transportation conformity requirements established by 40 CFR 93.118, budget tests must be performed for *Communities in Motion 2040 2.0* (CIM 2040 2.0) and the FY2021-2027 Regional Transportation Improvement Program (TIP). Projects included in the conformity analysis for CIM 2040 2.0 included all projects previously funded in the plan, as well as project additions and subtractions included in the October 2020 amendment. Budget tests are satisfied when regional emissions estimates based on the transportation projects outlined in a TIP or transportation plan are less than or equal to "budgets" established by SIPs and/or air quality maintenance plans.

As noted above, EPA guidance related to "limited maintenance plans" eliminates this requirement with regard to CO for Northern Ada County's conformity demonstrations:

*...in areas with approved limited maintenance plans, Federal actions requiring conformity determinations under the transportation conformity rule could be considered to satisfy the budget test required in section 93.118, 93.119, and 93.120 of the rule.*¹⁴

¹⁰ <https://www.govinfo.gov/app/details/FR-2014-10-02/2014-23365>

¹¹ <https://www.govinfo.gov/content/pkg/FR-2002-10-28/pdf/FR-2002-10-28.pdf>

¹² <http://www.deq.idaho.gov/media/909866-ada-county-co-maintenance-plan-2011.pdf>

¹³ <https://www.govinfo.gov/app/details/FR-2012-08-02/2012-18787/summary>

¹⁴ Page 8 of the *Northern Ada County Air Quality Maintenance Area Second 10-Year Carbon Monoxide Limited Maintenance Plan* <http://www.deq.idaho.gov/media/909866-ada-county-co-maintenance-plan-2011.pdf>

Therefore, CO motor vehicle emissions budget tests are not federally required for Northern Ada County. However, COMPASS conducted a build/no build analysis per the CO limited maintenance plan¹⁵ for 2023. If the results of this analysis had shown an unacceptable increase in CO emissions, DEQ could have required mitigation measures.

Interagency Consultation

Idaho Administrative Code (IDAPA 58.01.01.567) requires that agencies within nonattainment and maintenance areas establish Interagency Consultation Committees (ICCs) on transportation conformity. The Northern Ada County ICC is comprised of the following agencies:

- Ada County Highway District (ACHD)
- ACHD Commuteride
- City of Boise
- COMPASS as the MPO
- DEQ
- Idaho Transportation Department, District 3
- Valley Regional Transit
- Federal Highway Administration Idaho Division, ex-officio
- Environmental Protection Agency, Region X, ex-officio
- Federal Transit Administration, ex-officio

The Northern Ada County ICC approved the assumptions and methodologies employed in the development of the regional emissions analyses used in this demonstration on June 23, 2020. The approved assumptions and methodologies are listed in Appendix B. The roadway project list was also approved by the ICC on June 23, 2020. A complete listing of the ICC requirements can be found in Idaho Administrative Code (IDAPA 58.01.01.563-574).

Budget Test

A budget test is a comparison of emissions estimates to an established limit (or budget) for motor vehicles. As per 40 CFR 93.118, budget tests must be performed:

...each year for which the applicable ... implementation plan specifically establishes motor vehicle emissions budget(s), for the last year of the transportation plan's forecast period, and for any intermediate years as necessary so that the years for which consistency is demonstrated are no more than ten years apart...

The PM₁₀ maintenance plan established motor vehicle emissions budgets for 2008, 2015, and 2023. Demographic data and transportation projects are grouped in five-year increments. Therefore, the conformity analysis also uses those increments, adhering to the applicable guidelines and regulations of no more than ten years between analysis years. Therefore, budget tests and analyses were performed for:

- 2023 – SIP budget year
- 2030 – Intermediate analysis year
- 2040 – Horizon year of the regional long-range transportation plan, CIM 2040 2.0

Projects included in the analyses are shown in Tables 1, 3, and 5; the results are shown in Table 2, 4, 6, and 7.

Regionally Significant Projects

Regional emissions analyses, for the purposes of demonstrating transportation conformity of a TIP or long-range plan, must include all regionally significant and/or federally funded projects in the nonattainment or maintenance area.

¹⁵ Page 9 of the Northern Ada County Air Quality Maintenance Area Second 10-Year Carbon Monoxide Limited Maintenance Plan <http://www.deq.idaho.gov/media/909866-ada-county-co-maintenance-plan-2011.pdf>

40 CFR 93.101¹⁶ defines a regionally significant project as:

... a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

Idaho Administrative Code (IDAPA 58.01.01.566)¹⁷ further defines a regionally significant project as:

A transportation project, other than an exempt project, that is on a facility which serves regional transportation needs... and would normally be included in the modeling of a metropolitan area's transportation network, including, at a minimum:

- a. All principal arterial highways;*
- b. All fixed guideway transit facilities that offer an alternative to regional highway travel; and*
- c. Any other facilities determined to be regionally significant through Section 570, interagency consultation.*

The ICC maintains discretionary authority in interpreting and applying these definitions to the area's transportation programs, plans, and projects. Definitions for regionally significant road projects and regionally significant transit projects, as developed by the ICC, are below. For the purposes of this conformity determination, all applicable roadway projects, despite their significance, were included in the travel demand model networks.

Regionally Significant Roadway Project Definition

On January 30, 2002, the ICC developed the following definition of a "Regionally Significant" transportation project:

- A transportation project in Ada County, Idaho is designated "Regionally Significant" if:*
- (a) the project is for the improvement of either:*
 - (i) a principal arterial or higher functional classification; or*
 - (ii) a minor arterial which will have a twenty (20) year projected traffic volume of at least 45,000 vehicles a day after completion of the project; and*
 - (b) the project will add at least one new continuous vehicular lane which either:*
 - (i) extends from one intersecting principal or minor arterial to another intersecting principal or minor arterial; or*
 - (ii) in the case of an interstate, extends from the on ramp of one interstate interchange to a point beyond the off ramp of the next adjacent interstate interchange.*

¹⁶ [Code of Federal Regulations Title 40: Protection of Environment](#)

¹⁷ [Idaho Administrative Code Rules for the Control of Air Pollution in Idaho](#)

Regionally Significant Transit Project Definition

On August 31, 2005, the ICC adopted the following definition of a "Regionally Significant" transit project:

A transit project in Ada County, Idaho is designated "Regionally Significant" if the transit project:

- (a) has the potential to change the vehicle demand of an existing roadway classified as a principal arterial or higher by 400 vehicles per hour, or 4,000 vehicles per weekday; and*
- (b) is a transit service or facility that provides services to (or connects) at a minimum:
 - (i) two counties and;*
 - (ii) three incorporated cities**

Exempt Projects

Pursuant to 40 CFR 93.126 (Exempt Projects), certain projects listed in a TIP or long-range transportation plan may proceed even in the absence of a conformity finding/demonstration. Exempt projects include highway safety or mass transit projects, landscaping projects, roadway rehabilitation and repair projects, transportation enhancement projects, and transportation planning activities that do not lead directly to construction. However, the exempt projects listed in 40 CFR 93.126 are not considered exempt if the ICC concludes that they may have an adverse impact on air quality.

In addition, 40 CFR 93.127 (Projects Exempt from Regional Emissions Analyses) considers projects, such as intersection signalization, changes in alignment, bus terminals, and transit transfer points, exempt from regional emissions analyses. However, these projects must demonstrate project-level conformity if they meet the requirements of 93.123(b)(1). This is determined through consultation. As with the types of exempt projects listed in 40 CFR 93.126, the projects listed in 40 CFR 93.127 may not be considered exempt if the ICC concludes they may have an adverse impact on air quality.

Transportation Control Measures

As per 40 CFR 93.113(c), in order for a TIP or long-range transportation plan to be conforming, it cannot interfere with the implementation of any transportation control measures. There are no transportation control measures requiring implementation in either the PM₁₀ maintenance plan or the CO maintenance plan. Therefore, the TIP and long-range transportation plan meet the requirements of 40 CFR 93.113(c).

II. EMISSIONS ESTIMATION

Emissions Analysis Assumptions and Tools

This air quality conformity demonstration is based upon average speed distributions for each roadway type by 16 speed “bins.” The regional travel demand model’s average weekday (intended to represent a typical weekday Monday - Thursday) estimates or forecasts for each roadway segment provide the necessary data for this input. Emissions factors are generated using the latest version of EPA’s motor vehicle emissions model (Motor Vehicle Emission Simulator, or MOVES2014b). A regional emission analysis was conducted as described below.

COMPASS’ Travel Demand Model

The COMPASS travel demand model provides estimates of average weekday and peak hour travel demand for each link of a given transportation network based on current and future growth assumptions. In addition to travel demand, the model produces weekday vehicle miles of travel forecasts, congested network speeds, and other data relevant to regional emissions analyses. The travel demand model is regularly maintained and updated to include all completed roadway projects. Future-year model networks include anticipated widening and new roadway projects, regardless of significance or exemption status. Transportation network components include interstates, principal arterials, minor arterials, collectors, and select local roads in Ada and Canyon Counties.

Calibration, validation, and updates to COMPASS’ travel demand model¹⁸ were performed under the review of the Transportation Model Advisory Committee (TMAC). TMAC was a technical committee formed by the COMPASS Board of Directors. The committee was made up of local experts, technical staff from COMPASS member agencies, and local traffic engineers from both the public and private sectors. TMAC worked with COMPASS staff to calibrate and validate the regional travel demand model to reflect the actual travel patterns and behaviors in Ada and Canyon Counties. A major update to the regional travel demand model was completed in January 2015. The committee was disbanded after this work was completed as part of a larger change in COMPASS committee structure; if needed, a workgroup can be established in the future to advise on modeling activities.

Demographic Data

The COMPASS Board of Directors approves the official population and employment forecast control totals for Ada and Canyon Counties¹⁹. Between September 2011 and October 2012, COMPASS, its member agencies, stakeholders, and the general public participated in the development of a preferred growth scenario for the year 2040 — the *Communities in Motion 2040* Vision. This preferred growth scenario, used for the CIM 2040 2.0 plan, was based on approved population and employment forecasts and was adopted by the COMPASS Board of Directors in October 2012.

Each year, COMPASS updates and reconciles the demographic forecasts to account for building permit activity and approved developments since the *Communities in Motion 2040* Vision was approved in 2012. This annual process is coordinated with land use agencies and the Demographic Advisory Workgroup. The most recent update was completed in summer 2020.

The *Communities in Motion 2040* Vision forecasts the demographic data in five-year increments (Figure 1). Demographic data for the analysis year of 2023 were developed (interpolated) using 2020 population estimates and reconciled 2025 forecasted demographics.

¹⁸ To learn more about the travel demand model visit www.compassidaho.org/prodserv/traveldemand.htm

¹⁹ To learn more about the process and growth allocations visit www.compassidaho.org/prodserv/cim2040_scenarioplanning.htm

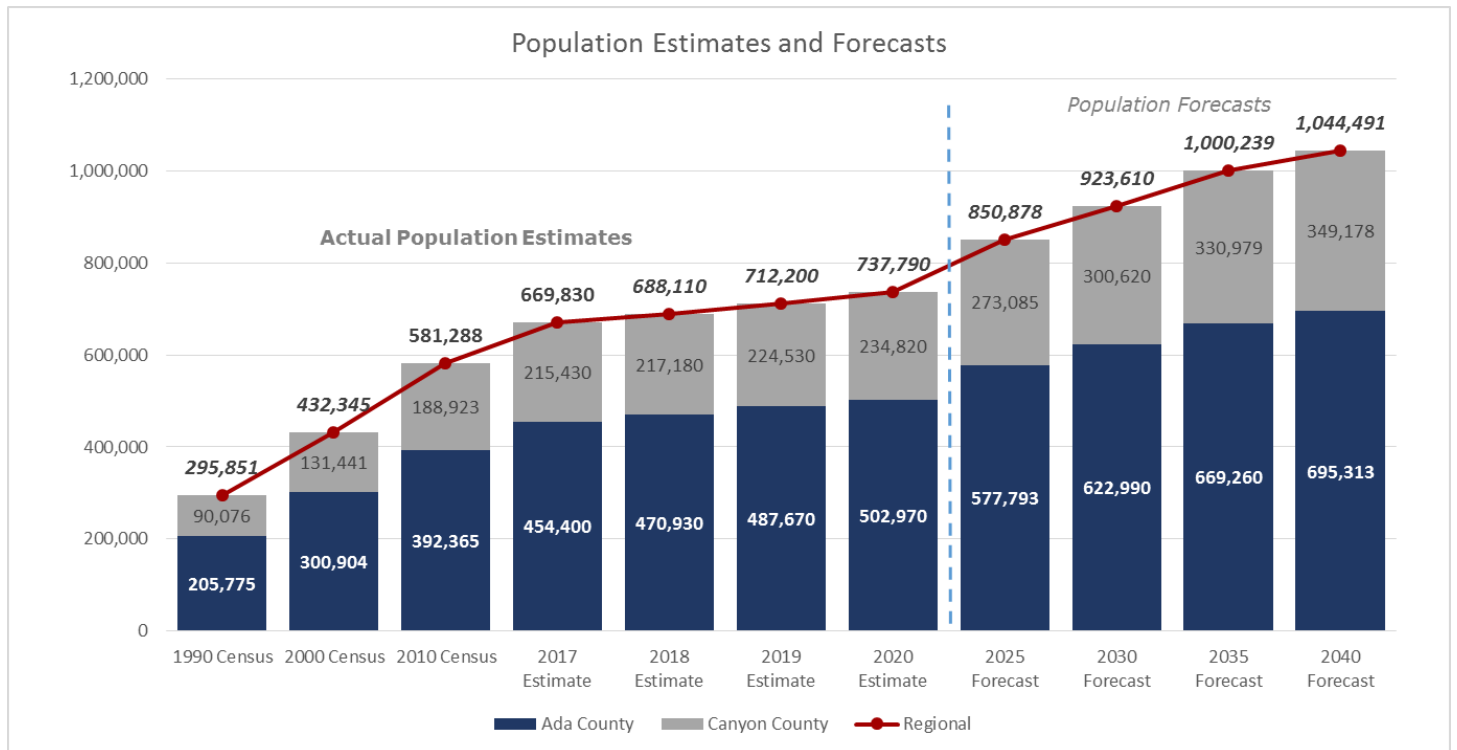


Figure 1: COMPASS Population Estimates²⁰ and Forecasts

Roadway Network Assumptions

The projects used in the regional emissions analysis for the FY2021-2027 TIP and CIM 2040 2.0 were derived from:

- COMPASS' FY2021-2027 TIP
- ACHD's FY2020-2024 and draft FY2021-2025 Integrated Five-Year Work Plans
- ITD's draft FY2021-2027 Idaho Statewide Transportation Improvement Program (STIP)
- ACHD's draft 2020 Capital Improvements Plan (CIP) (FY2020-2040)
- CIM 2040 2.0, the regional long-range transportation plan for Ada and Canyon Counties, including the proposed amendment

Roadway projects were placed into analysis (or budget) year networks based on information contained in the above sources. The anticipated project completion date is used to place the transportation project in the appropriate network year. Projects listed as "preliminary development" in the TIP were placed in the roadway network year based on information provided by the transportation agencies. Other future roadway projects listed on the funded lists of both the CIM 2040 2.0 plan and ACHD's CIP were placed in a roadway network year based on information contained in ACHD's CIP. For transparency, COMPASS includes all roadway projects that can be modeled, even those that are not regionally significant, in its conformity analysis. This is reflected in the projects listed in Tables 1, 3, and 5. Roadway projects listed as unfunded in CIM 2040 2.0 **and**, for ACHD projects, right-of-way only/unfunded in ACHD's CIP, were not included in the roadway networks. These "unfunded" projects cannot be considered funded or move to the construction phase without an accompanying emissions analysis.

²⁰ <http://www.compassidaho.org/prodserve/demo-current.htm>

Transit Service Assumptions

Regional impacts from access to the area's transit system were included in the emissions analysis. This was done within COMPASS' travel demand model using a "mode choice" model. A "mode choice" model is the third step in a traditional four-step travel demand model, such as the one maintained by COMPASS. It takes estimates of "person trips" and predicts the mode of travel the trip will use.

Figure 2 shows the modes available to the travel demand model for assignment. Transit trips are assigned to a transit network input into the travel demand model. Non-motorized trips are not assigned to a network.

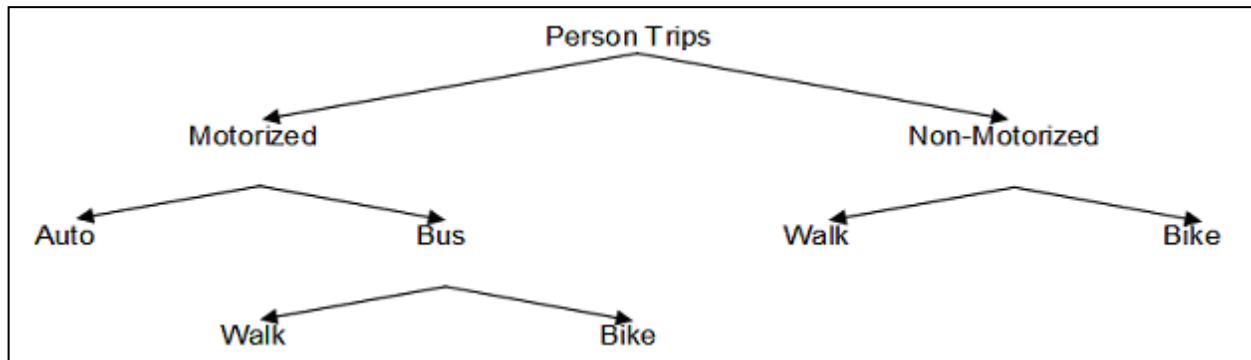


Figure 2: COMPASS Model Travel Modes

Annually, COMPASS reviews the transit system and proposed changes with Valley Regional Transit (VRT) and updates the model accordingly. Currently, no major system expansion is funded for the region's transit system in the FY2021-2027 TIP or CIM 2040 2.0. Therefore, only the transit system as it exists today, including minor changes to four routes, are included in the build analysis years. The current system includes:

- Seventeen all-day routes and one express route with peak hour headways varying between 15-60 minutes in the Boise/Garden City service area.
- Three Nampa and Caldwell fixed routes with peak hour headways up to 60 minutes.
- Four inter-county routes (between Ada and Canyon Counties); two run all day and two run during peak hours only. Three of the four are express routes, including one of the all-day routes. Peak hour headways vary between 30-60 minutes.
- Americans with Disabilities Act required paratransit service in both Ada and Canyon Counties.

In 2019, VRT's fixed route system served 1.2 million riders. Specific information on the routes, schedules and planned changes used to model the transit system can be found at VRT's website at <http://www.valleyride.org/>.

Travel demand models are used to calculate vehicle miles of travel (VMT). VMT is an estimate of the amount of vehicular travel in a given geographical area and is dependent upon land use (growth) and assumptions about the transportation system (programmed and funded projects). VMT and roadway speed are the outputs of the regional travel demand model necessary to run MOVES for emission estimates. The VMT for select years between 2000 and 2040 is shown in Figure 3.

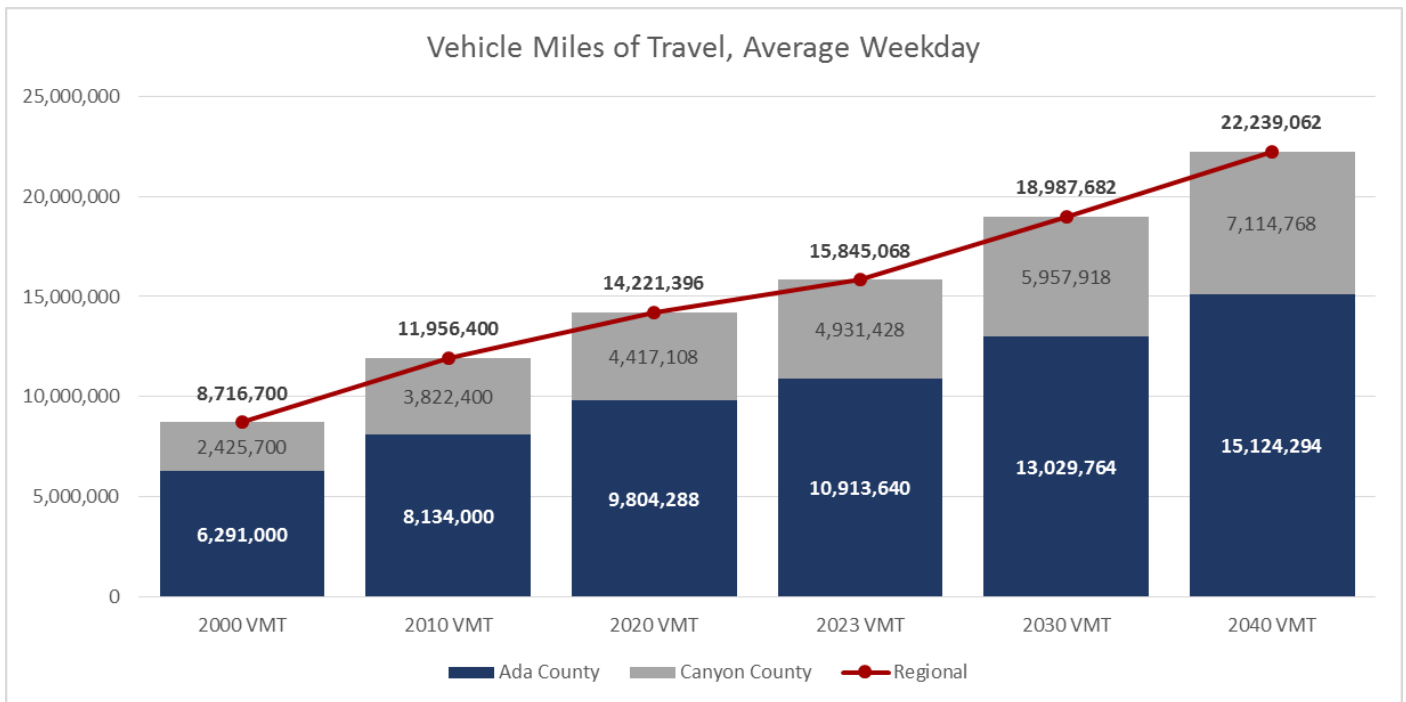


Figure 3: Vehicle Miles of Travel Estimated by the Travel Demand Model

Emissions Modeling

EPA’s emissions model, MOVES, was used to estimate the air quality impacts associated with current and future roadway networks.

The MOVES model²¹ uses local data inputs for climate, elevation, Northern Ada County’s vehicle emissions testing program, and travel demand model forecasted VMT and roadway speeds to develop emission factors for specified air pollutants. For detailed information on the conformity modeling process, see “[Air Quality Conformity Process](#)”²². Appendix B summarizes the MOVES modeling assumptions approved by the ICC for use in this demonstration. These model settings and inputs were reviewed during the interagency consultation process. The CO and PM₁₀ maintenance plans were updated by DEQ’s Boise Regional Office in 2011 and 2013, respectively. All of the methodologies, assumptions, processes, and results are documented in the updated maintenance plans. Both plans and associated appendices are available on DEQ’s website, as listed below:

PM₁₀ Maintenance Plan

http://www.deq.idaho.gov/media/971222-ada_county_pm10_sip_0213.pdf

PM₁₀ Maintenance Plan appendices

http://www.deq.idaho.gov/media/971226-ada_county_pm10_sip_appendices_0213.pdf

CO Maintenance Plan

<http://www.deq.idaho.gov/media/909866-ada-county-co-maintenance-plan-2011.pdf>

CO Maintenance Plan appendices

<http://www.deq.idaho.gov/media/909870-ada-county-co-maintenance-plan-2011-appendices.pdf>

²¹ <http://www.epa.gov/otaq/models/moves/index.htm>

²² <http://www.compassidaho.org/documents/prodserv/airquality/AirQualityConformityProcess.pdf>

As described on page 9, PM₁₀, VOC, and NO_x budget tests were performed under the three scenario years: 2023, 2030, and 2040. Results are shown in Table 2, 4, and 6.

2023 Scenario

The 2023 scenario uses 2023 population and employment estimates with the 2023 roadway network listed in Table 1. (Note: The numbers in the "No." column are for reference only.) Projects 1 through 12 are included for information purposes only. These projects were recently completed, are currently under construction, or are expected to be complete by the end of 2021.

Table 1: Projects Included in the 2023 Network for the 2023 Scenario

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
1.	Cole Rd.	McGlochlin St. to Victory Rd. (with intersection project)	Widen roadway from 2 lanes to 5 lanes	IFYWP, Draft 2020 CIP	M-IN205-97, RD2020-0290	Yes	Principal arterial	No
2.	Linder Rd.	Franklin Rd. to Pine Ave.	Widen roadway from 2 lanes to 5 lanes	IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RD213-16, RD2020-0810	Yes	Principal arterial	No
3.	Meridian Rd.	Cherry/Fairview Ave. to Ustick Rd.	Widen roadway from 3 lanes to 5 lanes	IFYWP, 2016 CIP	M-RD207-23, RD2020-1040	No	Minor arterial	No
4.	Ten Mile Rd.	Ustick Rd. to McMillan Rd.	Widen roadway from 2 lanes to 5 lanes	IFYWP	M-RD202-32, RD2020-1320	No	Minor arterial	No
5.	Ten Mile Rd.	McMillan Rd. to US Hwy 20/26 (Chinden Blvd.)	Widen roadway from 2 lanes to 5 lanes	IFYWP	M-RD202-31, RD2020-1330	No	Minor arterial	No
6.	US Hwy 20/26	State Hwy 16 to Linder Rd.	Widen roadway from 2 lanes to 4 lanes	TIP, CIM 2040 2.0	21858	Yes	Principal arterial	Yes*
7.	US Hwy 20/26	Locust Grove Rd. to State Hwy 55 (Eagle Rd.)	Widen roadway from 2 lanes to 4 lanes	TIP, CIM 2040 2.0	19944	Yes	Principal arterial	Yes*
8.	Eagle Rd.	Amity Rd. to Victory Rd.	Widen roadway from 2 lanes to 5 lanes	IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RD207-33, RD2020-0350	Yes	Principal arterial	No
9.	Maple Grove Rd.	Victory Rd. to Overland Rd.	Widen roadway from 2 lanes to 5 lanes	IFYWP, Draft 2020 CIP	M-RD207-22, RD2020-0930	No	Minor arterial	No
10.	State Hwy 55 (Eagle Rd.)	Southbound River Valley Rd. to Franklin Rd.	Widen southbound from 2 lanes to 3 lanes	ITIP	13349	Yes	Principal arterial	No

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
11.	US Hwy 20/26	Linder Rd. to Meridian Rd.	Widen roadway from 2 lanes to 4 lanes	TIP, CIM 2040 2.0	20594	Yes	Principal arterial	Yes*
12.	US Hwy 20/26	Meridian Rd. to Locust Grove Rd.	Widen roadway from 2 lanes to 4 lanes	TIP, CIM 2040 2.0	20594	Yes	Principal arterial	Yes*
13.	Eagle Rd.	Lake Hazel Rd. to Amity Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP CIM 2040 2.0	M-RD216- 04, RD2020- 0340	Yes	Principal arterial	No
14.	Fairview Ave.	Locust Grove Rd. to State Hwy 55 (Eagle Rd.)	Widen roadway from 5 lanes to 7 lanes	Draft IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RC0133, RD2020- 0420	Yes	Principal arterial	No
15.	Locust Grove Rd.	Victory Rd. to Overland Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD202- 44, RD2020- 0870	No	Minor arterial	No
16.	State Hwy 44	State Hwy 16 to Linder Rd.	Widen roadway from 2 lanes to 4 lanes	TIP, CIM 2040 2.0	20266	Yes	Principal arterial	Yes*
17.	Ten Mile Rd.	Victory Rd. to Overland Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP CIM 2040 2.0	RC0299, RD2020- 1310	Yes	Principal arterial	No
18.	US Hwy 20/26	Star Rd. (Phyllis Canal bridge) to State Hwy 16	Widen roadway from 2 lanes to 4 lanes	TIP, CIM 2040 2.0	20367	Yes	Principal arterial	Yes*

¹ STIP = Statewide Transportation Improvement Program (statewide equivalent of the regional TIP); IFYWP = ACHD's Integrated Five-Year Work Plan; CIP = ACHD's Capital Improvements Plan

² Key #: Numeric identification numbers refer to projects in the STIP. Alphanumeric identification numbers refer to projects in ACHD's IFYWP or CIP.

Yes* = previous phases funded with federal dollars.

Table 2 shows estimated motor vehicle emissions for PM₁₀, VOC, and NO_x from the 2023 scenario. Appendix B contains links to the documentation on how unpaved and paved road dust are calculated outside of MOVES using AP-42.

Table 2: 2023 Estimated Emissions, Tons per Day

2023	PM ₁₀				VOC	NO _x
	Unpaved Road Dust Emissions	Paved Road Dust Emissions	Tailpipe, Tire, and Brakewear Emissions	Total PM ₁₀ Emitted		
Estimated Emissions	2.65	25.98	0.81	29.4	5.44	7.38
Budget	n/a	n/a	n/a	60.1	17.2	34.2

2030 Scenario

The 2030 scenario uses 2030 population and employment estimates with the 2030 roadway network (Table 3). The 2030 roadway network also includes all projects listed in Table 1. (Note: The numbers in the "No." column are for reference only.)

Table 3: Projects Added to the 2023 Network for the 2030 Scenario

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
19.	Cloverdale Rd.	Amity Rd. to Victory Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD207- 10, RD2020- 0270	No	Minor arterial	No
20.	Cloverdale Rd.	Victory Rd. to Overland Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD-207- 11, RD2020- 0280	No	Minor arterial	No
21.	Lake Hazel Rd.	Eagle Rd. to Cloverdale Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RD209- 18, RD2020- 0700	Yes	Principal arterial	No
22.	Lake Hazel Rd.	Cloverdale Rd. to Five Mile Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RD207- 29, RD2020- 0710	Yes	Principal arterial	No
23.	Linder Rd.	State Hwy 44 (State St.) to Floating Feather Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD209- 28, RD2020- 0850	Yes	Principal arterial	No
24.	Maple Grove Rd.	Amity Rd. to Victory Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD207- 21, RD2020- 0920	No	Minor arterial	No
25.	Orchard St. Realigned	Gowen Rd. to I-84 Interchange	Realign and widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RD207- 01, RD2020- 1100	Yes	Principal arterial	No
26.	State Hwy 44	Star Rd. to State Hwy 16	Widen roadway from 2 lanes to 4 lanes	TIP, CIM 2040 2.0	20574	Yes	Principal arterial	Yes*
27.	Ustick Rd.	Ten Mile Rd. to Linder Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RD207- 24, RD2020- 1370	Yes	Principal arterial	No
28.	Victory Rd.	Meridian Rd. to Locust Grove Rd.	Widen roadway from 2 lanes to 3 lanes	Draft IFYWP, Draft 2020 CIP	M-200462, RD2020- 1420	No	Minor arterial	No

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
29.	Cloverdale Rd.	Lake Hazel Rd. to Amity Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD207-09, RD2020-0260	No	Minor arterial	No
30.	Executive Dr.	Cloverdale Rd. to Five Mile Rd.	Widen roadway from 3 lanes to 5 lanes. Includes the one-way couplet between President Dr. and Meadowland Dr. ("the peanut")	Draft 2020 CIP	RD2020-0400	No	Minor arterial	No
31.	Five Mile Rd.	Lake Hazel Rd. to Amity Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD215-07, RD2020-0470	No	Minor arterial	No
32.	Five Mile Rd.	Amity Rd. to Victory Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-200401, RD2020-0480	No	Minor arterial	No
33.	Five Mile Rd.	Overland Rd. to Franklin Rd. Does NOT include widening of the overpass	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD203-04, RD2020-0490	No	Minor arterial	No
34.	Franklin Rd.	McDermott Rd. to Black Cat Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020-0580	Yes	Principal arterial	No
35.	Lake Hazel Rd.	Five Mile Rd. to Maple Grove Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RD207-30, RD2020-0720	Yes	Principal arterial	No
36.	Lake Hazel Rd.	Maple Grove Rd. to Cole Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RD216-05, RD2020-0730	Yes	Principal arterial	No
37.	Linder Rd.	US Hwy 20/26 (Chinden Blvd.) to State Hwy 44 (State St.)	Widen roadway from 2 lanes to 7 lanes	Draft IFYWP, Draft 2020 CIP, CIM 2040 2.0	M-RD207-19, RD2020-0840	Yes	Principal arterial	No
38.	Locust Grove Rd.	Fairview Ave. to Ustick Rd.	Widen roadway from 3 lanes to 5 lanes	Draft 2020 CIP	RD2020-0880	No	Minor arterial	No
39.	Maple Grove Rd	Lake Hazel Rd. to Amity Rd	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD207-20, RD2020-0910	No	Minor arterial	No
40.	Meridian Rd.	Ustick Rd. to McMillan Rd.	Widen roadway from 2 lanes to 3 lanes	Draft IFYWP, Draft 2020 CIP	M-200407, RD2020-1050	No	Minor arterial	No

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
41.	Meridian Rd.	McMillan Rd. to US Hwy 20/26 (Chinden Blvd.)	Widen roadway from 2 lanes to 3 lanes	Draft IFYWP, Draft 2020 CIP	M-200607, RD2020- 1060	No	Minor arterial	No
42.	Ustick Rd.	Star Rd. to McDermott Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 1340	Yes	Principal arterial	No
43.	Ustick Rd.	McDermott Rd. to Black Cat Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 1350	Yes	Principal arterial	No
44.	Ustick Rd.	Black Rd. to Ten Mile Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 1360	Yes	Principal arterial	No
45.	Victory Rd.	Locust Grove Rd. to Eagle Rd.	Widen roadway from 2 lanes to 3 lanes	Draft IFYWP, Draft 2020 CIP	M-200450, RD2020- 1430	No	Minor arterial	No
46.	Victory Rd.	Eagle Rd. to Cloverdale Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD215- 11, RD2020- 1440	No	Minor arterial	No
47.	Victory Rd.	Cloverdale Rd. to Five Mile Rd.	Widen roadway from 2 lanes to 5 lanes	Draft IFYWP, Draft 2020 CIP	M-RD207- 26, RD2020- 1450	No	Minor arterial	No

¹IFYWP = ACHD's Integrated Five-Year Work Plan projects listed above are anticipated for construction sometime after 2025;
CIP = ACHD's Capital Improvements Plan

² Key #: Numeric identification numbers refer to projects in the STIP. Alphanumeric identification numbers refer to projects in ACHD's IFYWP or CIP.

Yes* = previous phases funded with federal dollars.

Table 4 shows estimated motor vehicle emissions for PM₁₀, VOC, and NO_x from the 2030 scenario.

Table 4: 2030 Estimated Emissions, Tons per Day

2030	PM ₁₀				VOC	NO _x
	Unpaved Road Dust Emissions	Paved Road Dust Emissions	Tailpipe, Tire, and Brakewear Emissions	Total PM ₁₀ Emitted		
Estimated Emissions	2.65	31.84	0.86	35.3	4.49	4.75
Budget	n/a	n/a	n/a	60.1	17.2	34.2

2040 Scenario

The 2040 scenario uses 2040 population and employment estimates with the 2040 roadway network (Table 5). The 2040 roadway network also includes all projects listed in Tables 1 and 3. (Note: The numbers in the "No." column are for reference only.)

Table 5: Projects Added to the 2030 Network for the 2040 Scenario

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
48.	36th St. Extension	Cartwright Rd. to Bogus Basin Rd.	Construct new 2- lane roadway	Draft 2020 CIP	RD2020- 0010	No	Minor arterial	No
49.	Amity Rd.	State Hwy 69 (Meridian Rd.) to Locust Grove Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0020	No	Minor arterial	No
50.	Amity Rd.	Locust Grove Rd. to Eagle Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0030	No	Minor arterial	No
51.	Amity Rd.	Eagle Rd. to Cloverdale Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0040	No	Minor arterial	No
52.	Amity Rd.	Cloverdale Rd. to Five Mile Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0050	No	Minor arterial	No
53.	Amity Rd.	Five Mile Rd. to Maple Grove Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0060	No	Minor arterial	No
54.	New Hope Rd.	Can Ada Rd. to Munger Rd.	Widen from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 1070	No	Minor arterial	No
55.	Beacon Light Rd. Extension	Munger Rd. to Pollard Rd.	Construct new 3- lane road	Draft 2020 CIP	RD2020- 0070	No	Minor arterial	No
56.	Beacon Light Rd.	Pollard Rd. to State Hwy 16	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0080	No	Minor arterial	No
57.	Beacon Light Rd.	State Hwy 16 to Palmer Ln.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0090	No	Minor arterial	No
58.	Black Cat Rd.	Amity Rd. to Victory Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0150	No	Minor arterial	No
59.	Black Cat Rd.	Victory Rd. to Overland Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0160	No	Minor arterial	No
60.	Black Cat Rd.	Overland Rd. to Franklin Rd.	Widen roadway from 2 lanes to 5 lanes (does not include widening of overpass)	Draft 2020 CIP	RD2020- 0170	No	Minor arterial	No
61.	Black Cat Rd.	Franklin Rd. to Cherry Ln.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0180	No	Minor arterial	No
62.	Black Cat Rd.	Cherry Ln. to Ustick Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0190	No	Minor arterial	No
63.	Black Cat Rd.	Ustick Rd. to McMillan Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0200	No	Minor arterial	No
64.	Black Cat Rd.	McMillan Rd. to US Hwy 20/26 (Chinden Blvd.)	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0210	No	Minor arterial	No

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
65.	Cloverdale Rd.	Kuna Rd. to Deer Flat Rd.	Widen roadway from 2 lanes to <u>5</u> lanes	Draft 2020 CIP	RD2020- 0220	No	Minor arterial	No
66.	Cloverdale Rd.	Deer Flat Rd. to Hubbard Rd.	Widen roadway from 2 lanes to <u>5</u> lanes	Draft 2020 CIP	RD2020- 0230	No	Minor arterial	No
67.	Cloverdale Rd.	Hubbard Rd. to Columbia Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0240	No	Minor arterial	No
68.	Cloverdale Rd.	Columbia Rd. to Lake Hazel Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0250	No	Minor arterial	No
69.	Deer Flat Rd.	Linder Rd. to State Hwy 69 (Meridian Rd.)	Widen roadway from 3 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0300	No	Minor arterial	No
70.	Deer Flat Rd.	State Hwy 69 (Meridian Rd.) to Locust Grove Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 0310	No	Minor arterial	No
71.	Deer Flat Rd.	Locust Grove Rd. to Eagle Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0320	No	Minor arterial	No
72.	Deer Flat Rd.	Eagle Rd. to Cloverdale Rd.	Construct new 3- lane road	Draft 2020 CIP	RD2020- 0330	No	Minor arterial	No
73.	Eisenman Rd.	Lake Hazel Rd. to Gowen Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0360	No	Minor arterial	No
74.	Fairview Ave.	Meridian Rd. to Locust Grove Rd.	Widen roadway from 5 lanes to 7 lanes	Draft 2020 CIP, CIM 2040 2.0	RD2020- 0410	Yes	Principal arterial	No
75.	Fairview Ave.	State Hwy 55 (Eagle Rd.) to Cloverdale Rd.	Widen roadway from 5 lanes to 7 lanes	Draft 2020 CIP, CIM 2040 2.0	RD2020- 0430	Yes	Principal arterial	No
76.	Fairview Ave.	Cloverdale Rd. to Five Mile Rd.	Widen roadway from 5 lanes to 7 lanes	Draft 2020 CIP, CIM 2040 2.0	RD2020- 0440	Yes	Principal arterial	No
77.	Floating Feather Rd. Ext.	Can Ada Rd. to Star Rd.	Construct new 3- lane road	Draft 2020 CIP	RD2020- 0510	No	Minor arterial	No
78.	Floating Feather Rd.	Star Rd. to Plummer Ln.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0520	No	Minor arterial	No
79.	Floating Feather Rd. Realignment	Plummer Ln. to State Hwy 16 (Emmett Hwy)	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0530	No	Minor arterial	No
80.	Floating Feather Rd. Realignment	State Hwy 16 (Emmett Hwy) to Palmer Ln.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0540	No	Minor arterial	No
81.	Floating Feather Rd.	Palmer Ln. to Linder Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0550	No	Minor arterial	No
82.	Floating Feather Rd.	Linder Rd. to Park St.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0560	No	Minor arterial	No
83.	Floating Feather Rd.	Park Ln. to Ballantyne Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 0570	No	Minor arterial	No

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
84.	Gowen Rd.	Orchard St. to Pleasant Valley Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020-0590	Yes	Principal arterial	No
85.	Hill Rd./ Hill Rd. Pkwy	Horseshoe Bend Rd. to Duncan Ln.	Widen roadway from 3 lanes to 5 lanes	Draft 2020 CIP	RD2020-0600	No	Minor arterial	No
86.	Hill Rd./ Hill Rd. Pkwy	Duncan Ln. to Seaman Gulch Rd.	Widen roadway from 3 lanes to 5 lanes	Draft 2020 CIP	RD2020-0610	No	Minor arterial	No
87.	Hill Rd./ Hill Rd. Pkwy	Seaman Gulch Rd. to Gary Ln.	Widen roadway from 3 lanes to 5 lanes	Draft 2020 CIP	RD2020-0620	No	Minor arterial	No
88.	Hubbard Rd.	Meridian Rd. to Locust Grove Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0630	No	Minor arterial	No
89.	Lake Hazel Rd.	State Hwy 69 (Meridian Rd.) to Locust Grove Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP, CIM 2040 2.0	RD2020-0680	Yes	Principal arterial	No
90.	Lake Hazel Rd.	Locust Grove Rd. to Eagle Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020-0690	Yes	Principal arterial	No
91.	Lake Hazel Rd.	Cole Rd. to Orchard Ext. W (built at 2 lanes in 2018)	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP, CIM 2040 2.0	RD2020-0740	Yes	Principal arterial	No
92.	Lake Hazel Rd.	Orchard Ext. W to Pleasant Valley Rd.	Construct new 5-lane road	Draft 2020 CIP, CIM 2040 2.0	RD2020-0750	Yes	Principal arterial	No
93.	Lake Hazel Rd.	Railroad Crossing to Eisenman Rd.	Construct new 5-lane road	Draft 2020 CIP, CIM 2040 2.0	RD2020-0765	Yes	Principal arterial	No
94.	Linder Rd.	Overland Rd. to Franklin Rd. Does NOT include overpass	Widen roadway from 2 lanes to 5 lanes	IFYWP, Draft 2020 CIP, CIM 2040 2.0	RD2020-0800	Yes	Principal arterial	No
95.	Locust Grove Rd.	Lake Hazel Rd. to Amity Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0855	No	Minor arterial	No
96.	Locust Grove Rd.	Amity Rd. to Victory Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0860	No	Minor arterial	No
97.	Locust Grove Rd.	Ustick Rd. to McMillan Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0890	No	Minor arterial	No
98.	Locust Grove Rd.	McMillan Rd. to US Hwy 20/26 (Chinden Blvd.)	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0900	No	Minor arterial	No
99.	McMillan Rd.	Star Rd. to McDermott Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0950	No	Minor arterial	No
100.	McMillan Rd.	McDermott Rd. to Black Cat Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0960	No	Minor arterial	No
101.	McMillan Rd.	Black Cat Rd. to Ten Mile Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0970	No	Minor arterial	No

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
102.	McMillan Rd.	Ten Mile Rd. to Linder Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0980	No	Minor arterial	No
103.	McMillan Rd.	Linder Rd. to State Hwy 69 (Meridian Rd.)	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-0990	No	Minor arterial	No
104.	McMillan Rd.	State Hwy 69 (Meridian Rd.) to Locust Grove Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-1000	No	Minor arterial	No
105.	McMillan Rd.	Five Mile Rd. to Maple Grove Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-1020	No	Minor arterial	No
106.	Meridian Rd. Ext.	King Rd. to Kuna Rd.	Construct new 3-lane road with railroad overpass	Draft 2020 CIP	RD2020-1030	Yes	Principal arterial	No
107.	Orchard St. Ext. W.	Lake Hazel Ext. to Orchard Ext. (built at 2 lanes in 2018)	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020-1080	Yes	Principal arterial	No
108.	Orchard St. Ext.	Orchard Ext. W to Gowen Rd. (built at 2 lanes in 2018)	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020-1090	Yes	Principal arterial	No
109.	Overland Rd. Ext. (Airport Rd.)	McDermott Rd. to Black Cat Rd.	Construct new 2-lane road	Draft 2020 CIP	RD2020-1110	No	Minor arterial	No
110.	Overland Rd.	Black Cat Rd. to Ten Mile Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020-1120	No	Minor arterial	No
111.	Pleasant Valley Rd. Ext.	Orchard Ext to Pleasant Valley Rd.	Construct new 5-lane road	Draft 2020 CIP	RD2020-1180	No	Minor arterial	No
112.	Star Rd.	Ustick Rd. to McMillan Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020-1190	No	Minor arterial	No
113.	Star Rd.	McMillan Rd. to US Hwy 20/26 (Chinden Blvd.)	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020-1200	No	Minor arterial	No
114.	Star Rd.	US Hwy 20/26 (Chinden Blvd.) to State Hwy 44 (State St.)	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020-1210	No	Minor arterial	No
115.	State St.	Glenwood St. to Pierce Park Ln.	Widen roadway from 5 lanes to 7 lanes consistent with the State St. TTOP ³	IFYWP, Draft 2020 CIP, CIM 2040 2.0	RD2020-1220	Yes	Principal arterial	No
116.	State St.	Pierce Park Ln. to Collister Dr.	Widen roadway from 5 lanes to 7 lanes consistent with the State St. TTOP ³	IFYWP, Draft 2020 CIP, CIM 2040 2.0	RD2020-1230	Yes	Principal arterial	No
117.	State St.	Collister Dr. to 36th St.	Widen roadway from 5 lanes to 7 lanes consistent with the State St. TTOP ³	IFYWP, Draft 2020 CIP, CIM 2040 2.0	RD2020-1240	Yes	Principal arterial	No

No.	Street Name	Location	Description	Source ¹	Key # ² (STIP, IFYWP, CIP)	Reasons for Inclusion in Regional Conformity		
						Regionally Significant	Functional Class	Federally Funded
118.	State St.	36th St. to 27th St.	Widen roadway from 5 lanes to 7 lanes consistent with the State St. TTOP ³	IFYWP, Draft 2020 CIP, CIM 2040 2.0	RD2020- 1250	Yes	Principal arterial	No
119.	Ten Mile Rd.	Deer Flat Rd. to Hubbard Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 1260	No	Minor arterial	No
120.	Ten Mile Rd.	Hubbard Rd. to Columbia Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 1270	No	Minor arterial	No
121.	Ten Mile Rd.	Columbia Rd. to Lake Hazel Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 1280	No	Minor arterial	No
122.	Ten Mile Rd.	Lake Hazel Rd. to Amity Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 1290	Yes	Principal arterial	No
123.	Ten Mile Rd.	Amity Rd. to Victory Rd.	Widen roadway from 2 lanes to 5 lanes	Draft 2020 CIP	RD2020- 1300	Yes	Principal arterial	No
124.	US Hwy 20/26	Can Ada Rd to Star Rd.	Widen roadway from 2 lanes to 4 lanes	CIM 2040 2.0	TBD	Yes	Principal arterial	Yes*
125.	US Hwy 20/26	Linder Rd. to Eagle Rd.	Widen from 4 lanes to 6 lanes	CIM 2040 2.0	TBD	Yes	Principal arterial	Yes*
126.	Victory Rd.	Linder Rd. to Meridian Rd.	Widen roadway from 2 lanes to 3 lanes	Draft 2020 CIP	RD2020- 1410	No	Minor arterial	No

¹ CIP = ACHD's Capital Improvements Plan

² Key #: Alphanumeric identification number in ACHD's CIP.

³ TTOP = Transit and Traffic Operational Plan; see <http://www.compassidaho.org/prodserv/specialprojects-statestreet.htm>

Yes* = previous phases funded with federal dollars.

Table 6 shows estimated motor vehicle emissions for PM₁₀, VOC, and NO_x from the 2040 scenario.

Table 6: 2040 Estimated Emissions, Tons per Day

2040	PM ₁₀				VOC	NO _x
	Unpaved Road Dust Emissions	Paved Road Dust Emissions	Tailpipe, Tire, and Brakewear Emissions	Total PM ₁₀ Emitted		
Estimated Emissions	2.65	38.04	0.97	41.7	3.80	3.84
Budget	n/a	n/a	n/a	60.1	17.2	34.2

Carbon Monoxide Emissions

As noted earlier in the document, maintenance areas under a limited maintenance plan are not required to demonstrate their transportation programs or long-range transportation plans conform through a regional emissions analysis. To satisfy DEQ requirements, which were committed to voluntarily, a build versus no build emissions analysis for CO was conducted using EPA’s MOVES model and the COMPASS travel demand model. Other requirements such as interagency consultation and timely implementation of control measures were met as part of this process. Specific information on the models and their inputs can be found in previous sections of this document. Build emissions were estimated and compared to no build emissions estimates. A build scenario estimates emissions for a given analysis year assuming the programmed/planned roadway/transit projects have been constructed. Conversely, a no build scenario estimates emissions for a given analysis year using the transportation system as it exists in the base year (i.e., before programmed or planned projects are built). This comparison provides the CO emissions impacts to the region from the planned transportation system.

Build/No Build Scenarios

The build scenarios use transportation networks and demographic assumptions specific to each analysis year. These are the same scenarios used to estimate PM₁₀, NO_x, and VOC emissions, above. Tables 1, 3, and 5 provide more detailed information on the roadway projects used to develop the build scenario networks.

The no build scenarios use the 2020 (baseline) transportation network with the demographic assumptions specific to 2023. Table 1 provides more detailed information on the roadway projects included in the 2020 baseline transportation network. As mentioned above, Northern Ada County is subject to a Limited Maintenance Plan for CO, *Northern Ada County Air Quality Maintenance Area Second 10-Year Carbon Monoxide Limited Maintenance Plan*; due to expire in December 2022. The Clean Air Act §176(c)(7)(C) allows an area with an approved Second 10-Year Maintenance Plan to adjust the last year of conformity to match the last year of the maintenance period covered by the plan, which is 2022. In spring 2018, COMPASS worked with EPA Region X, the Federal Highway Administration, and DEQ regarding the requirements for the CO no build model runs. On July 10, 2018, COMPASS put forth a recommendation to ICC, which was approved, to run one CO build/no build analysis. On June 23, 2020, the ICC approved a proposal to conduct the analysis for 2023 instead of the last year of the maintenance period (2022), to match the PM₁₀ analysis. COMPASS will continue to provide the build CO emissions for the same years as the budget tests for the other pollutants.

Table 7 shows the build CO emissions estimates for 2023, 2030, and 2040 and the no build CO emissions estimates for 2023.

Table 7: Build/No Build Scenario CO Emissions

	Year		
	2023	2030	2040
Build CO Emissions (<i>Ton/day</i>)	53.11	42.11	31.45
No Build CO Emissions (<i>Ton/day</i>)	53.12	n/a	n/a

III. CONCLUSIONS

Combustion emissions - NOx, VOC and CO – continue to decrease in all modeled years due to the motor vehicle fleet turn over since newer vehicles have more stringent emission standards to meet. The PM₁₀ emissions, related to brake wear, tire wear and road dust, increase in modeled years because of the rise in VMT attributable to the assumed growth in population.

PM₁₀ Budget Test

The results of the PM₁₀ budget test for the FY2021-2027 TIP and CIM 2040 2.0 show that the emissions impacts associated with the planned improvements to the Northern Ada County transportation system (projects listed in Tables 1, 3, and 5) will not exceed the PM₁₀ emissions budgets established by the PM₁₀ maintenance plan (Figure 4).

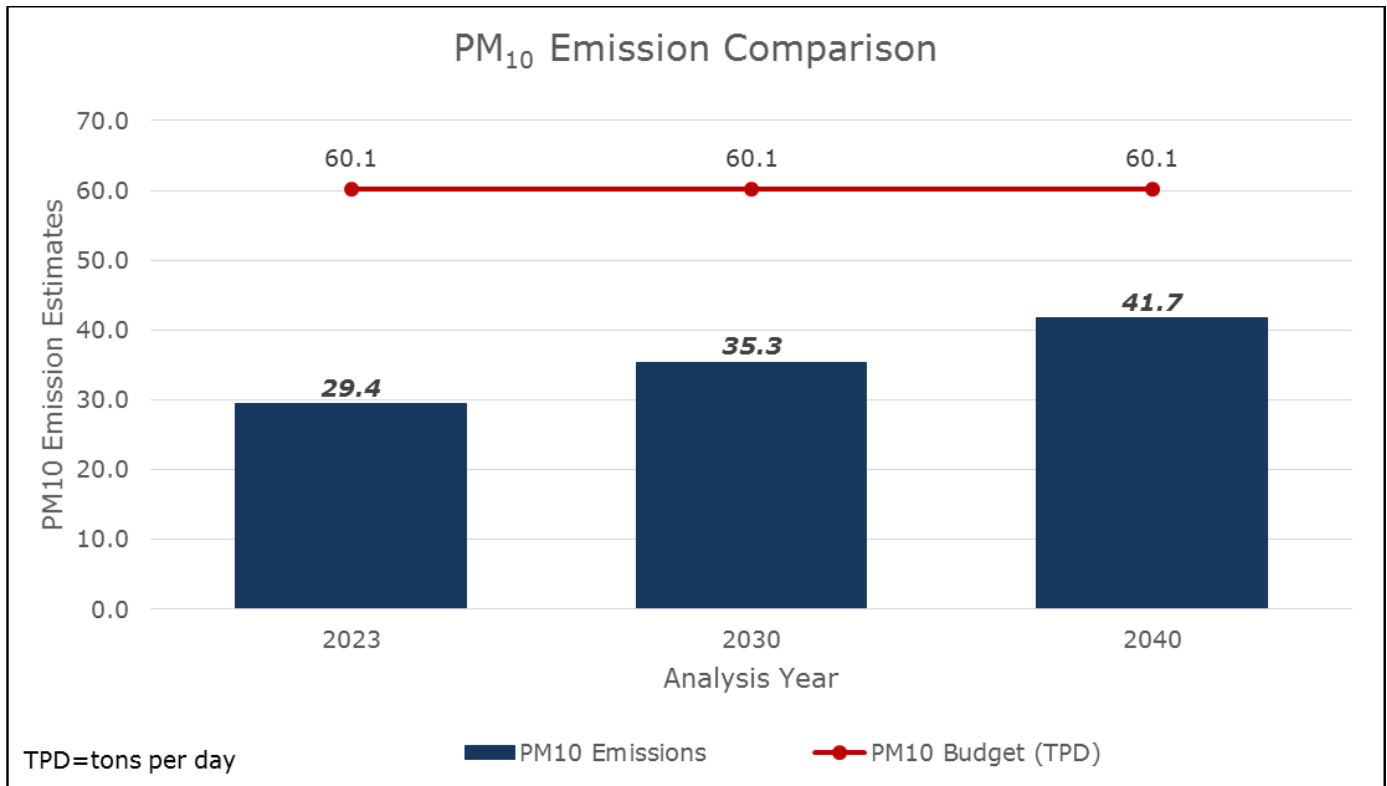


Figure 4: PM₁₀ Budget Test Results

VOC Budget Test

The results of the VOC budget test for the FY2021-2027 TIP and proposed amendment to CIM 2040 2.0 show that the emissions impacts associated with the planned improvements to the Northern Ada County transportation system (projects listed in Tables 1, 3, and 5) will not exceed the VOC emissions budgets established by the PM₁₀ maintenance plan (Figure 5).

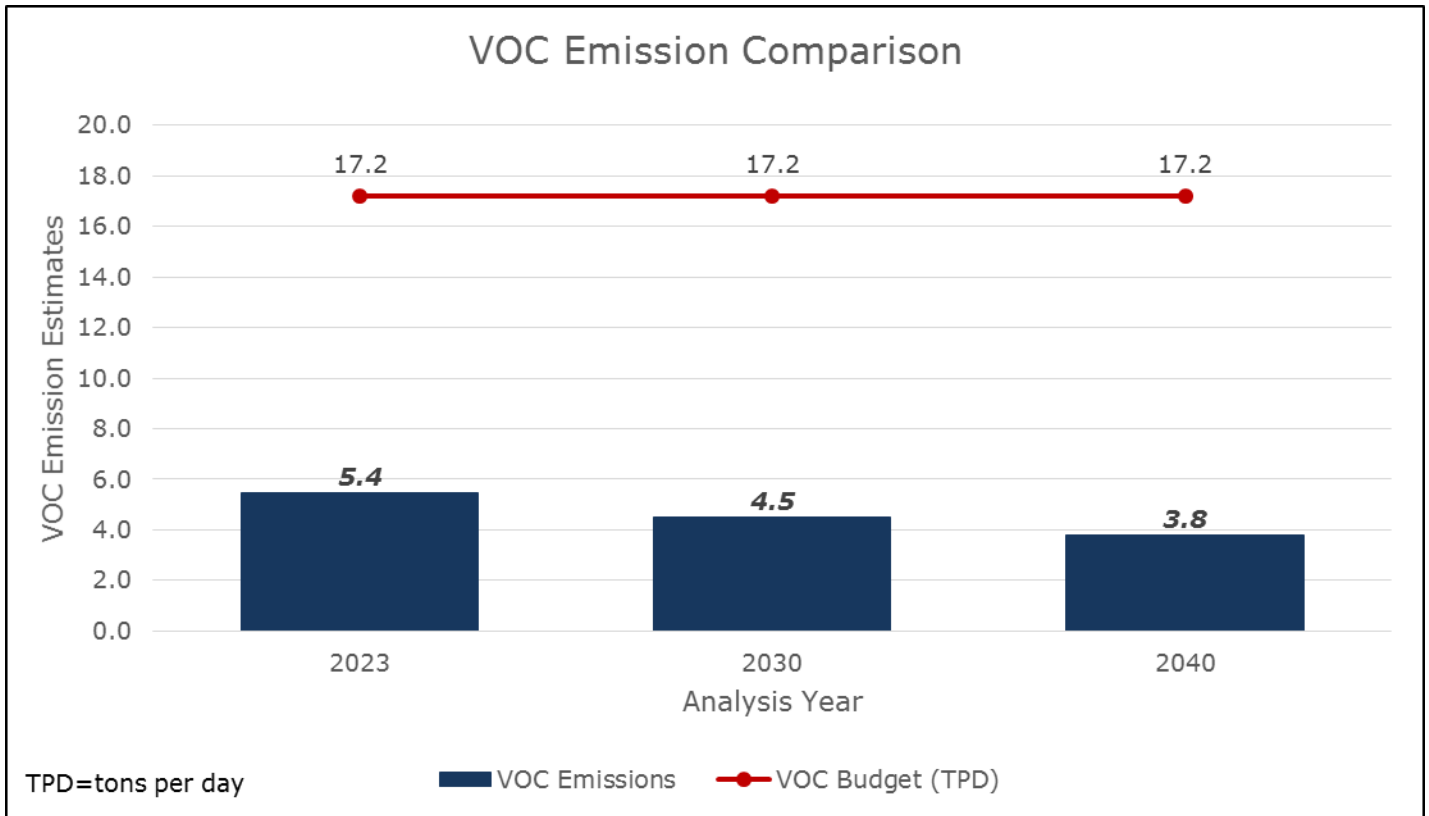


Figure 5: VOC Budget Test Results

NO_x Budget Test

The results of the NO_x budget test for the FY2021-2027 TIP and proposed amendment to CIM 2040 2.0 show that the emissions impacts associated with the planned improvements to the Northern Ada County transportation system (projects listed in Tables 1, 3, and 5) will not exceed the NO_x emissions budgets established by the PM₁₀ maintenance plan (Figure 6).

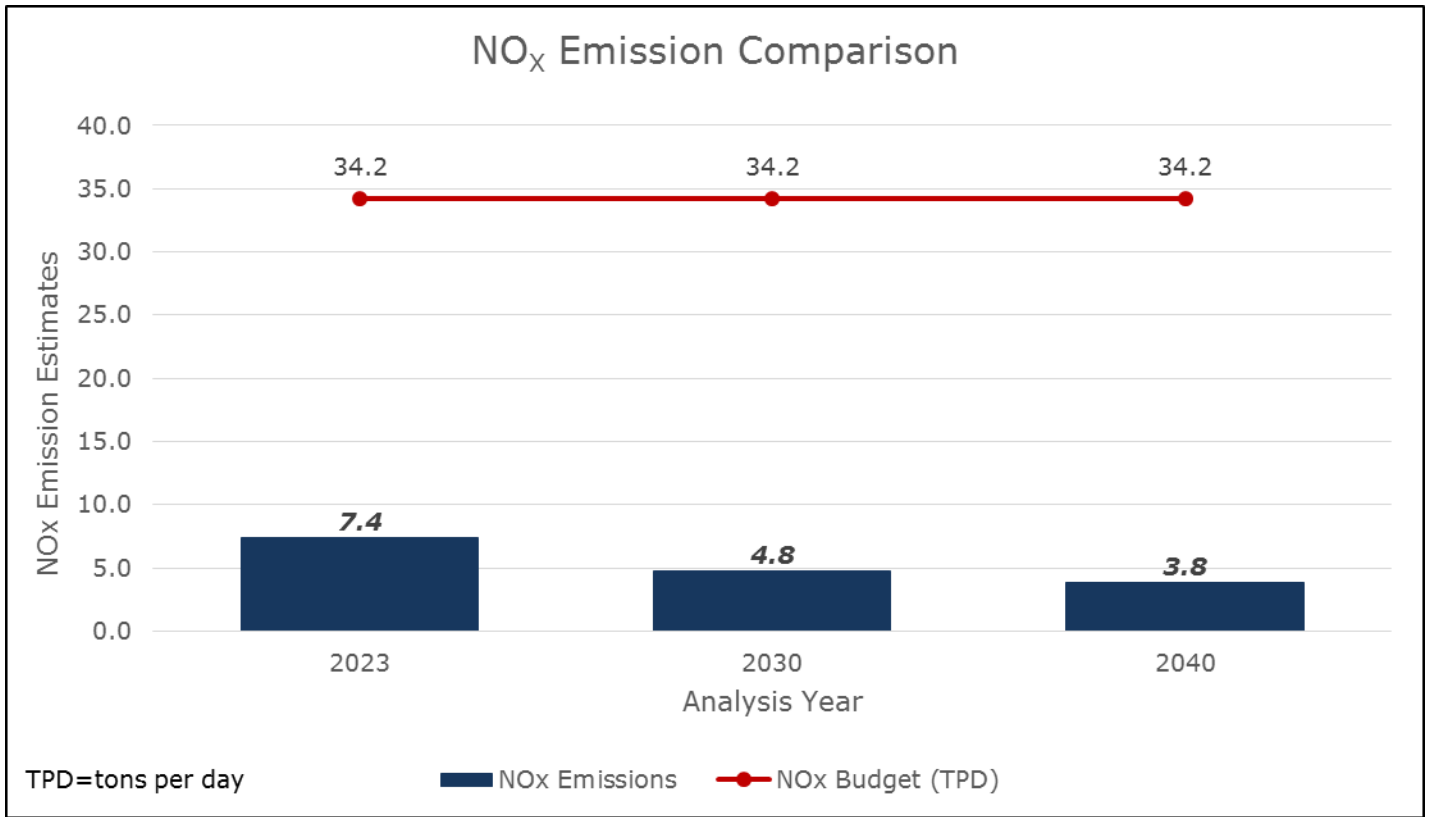


Figure 6: NO_x Budget Test Results

CO Planning Analyses

Build/No Build Emissions Comparison:

Figure 7 shows the comparison between the build and no build emissions scenarios for 2023. Figure 8 shows the comparison of CO emissions for the build scenario across analysis years as information only. The purpose of build and no build comparison is fulfill the requirements per the Northern Ada County CO limited maintenance plan.

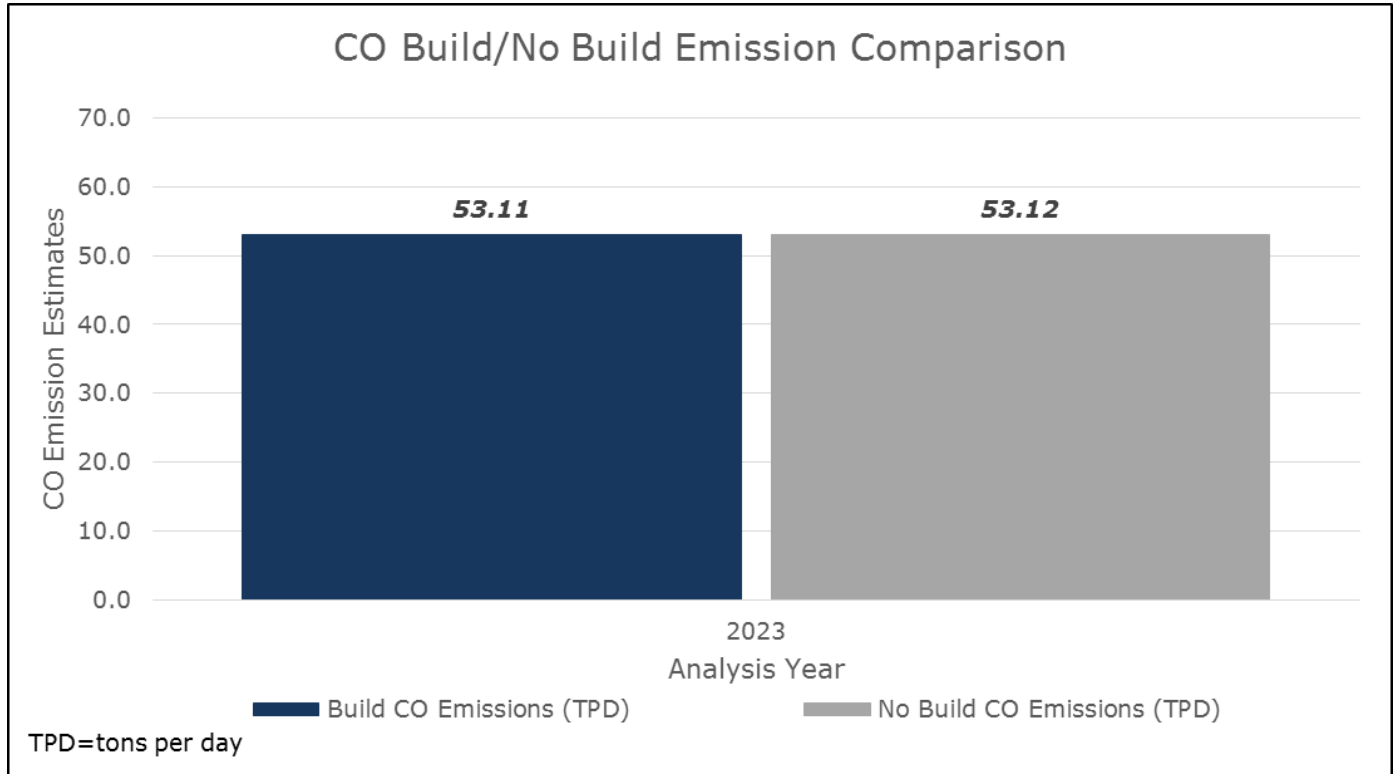


Figure 7: CO Build/No Build Comparison (2023)

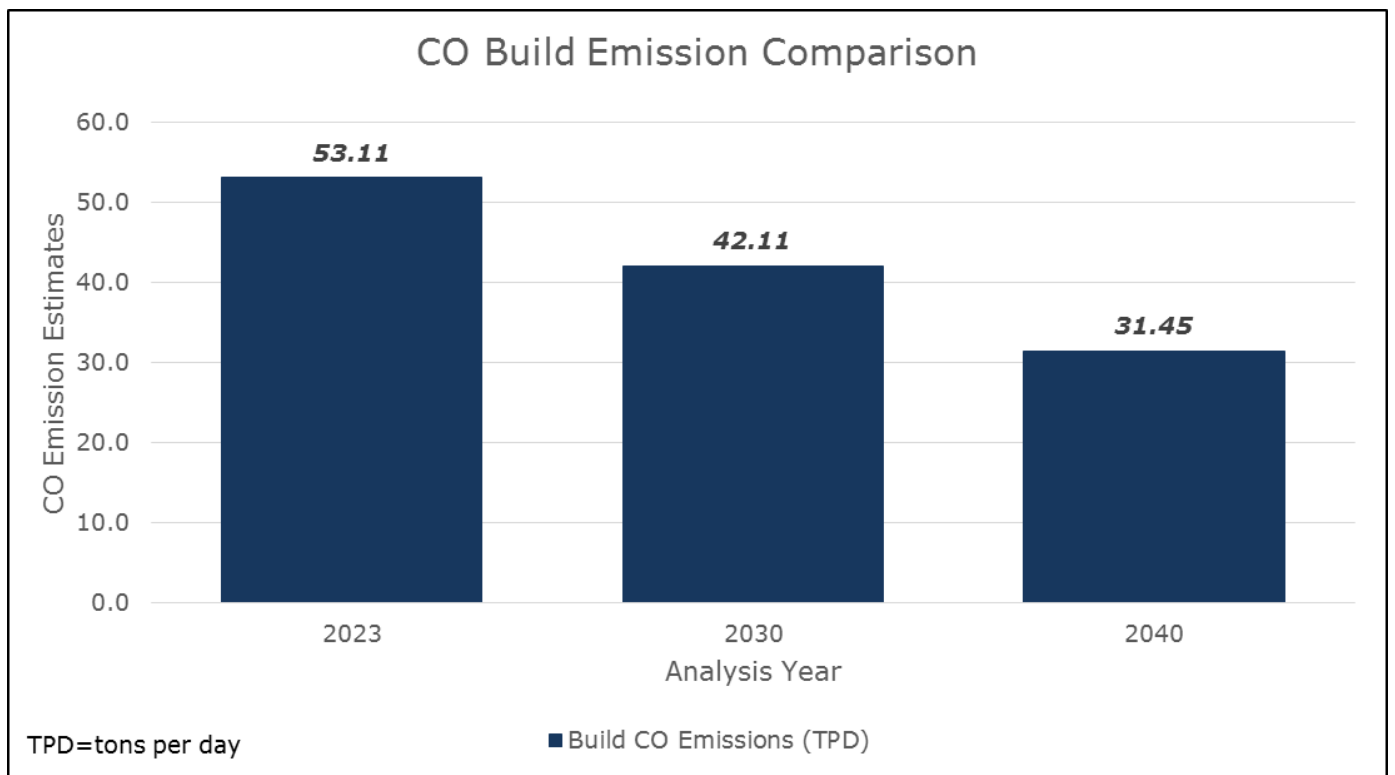


Figure 8: CO Build Comparison (2023 – 2040)

APPENDICES

Appendix A: Northern Ada County PM₁₀ and CO Maintenance Area Legal Description and Map

Legal Description

The legal description of the area boundaries is as follows:

- Beginning at a point in the center of the channel of the Boise River where the section line between Sections 15 and 16 of Township 3 North, Range 4 East, crosses the Boise River.

Northern Boundary

- Thence down the center of the channel of the Boise River to a point opposite the mouth of Mores Creek.
- Thence in a straight-line going 44 degrees north and 38 minutes west until said line intersects the north line of Township 5 North in Range 1 East.
- Thence west to the northwest corner of Section 6, Township 5 North, Range 1 West.

Western Boundary

- Thence south to the northwest corner of Section 6, Township 3 North, Range 1 West.
- Thence east to the northeast corner of Section 5, Township 3 North, Range 1 West.
- Thence south to the southeast corner of Section 32, Township 2 North, Range 1 West.
- Thence west to the northwest corner of Section 6, Township 1 North, Range 1 West.
- Thence south to the southwest corner of Section 31, Township 1 North, Range 1 West.

Southern Boundary

- Thence east to the southeast corner of Section 33, Township 1 North, Range 4 East.

Eastern Boundary

- Thence north to the point of beginning.

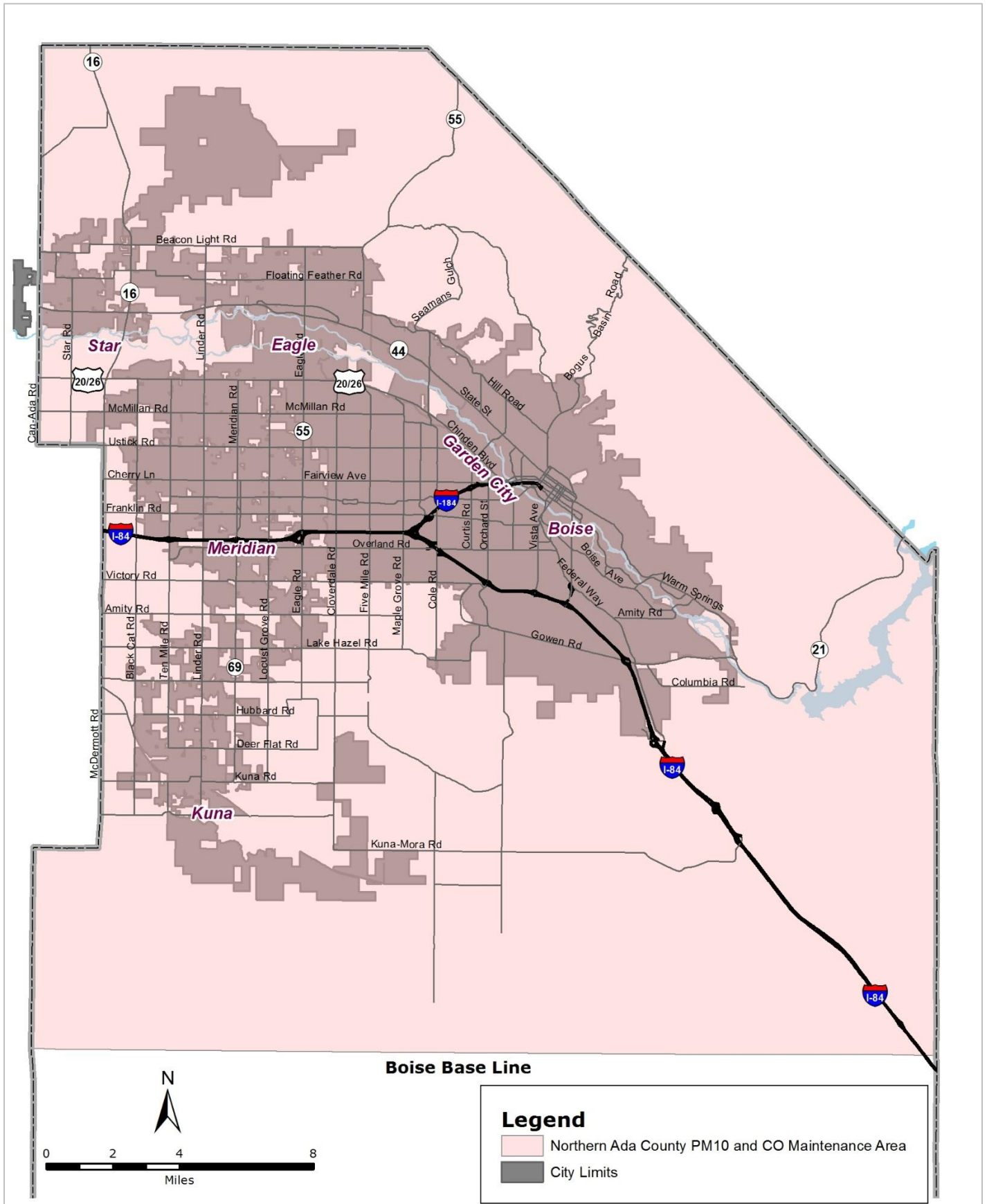


Figure 9: Northern Ada County PM₁₀ and CO Maintenance Area Map

Appendix B: Approved Regional Emission Assumptions

On-Road Mobile Source

Source type population and fleet age distribution:

DEQ decoded individual Idaho Division of Motor Vehicles registration records of vehicles registered in the Treasure Valley using the Data One, Inc. and CVINA vehicle identification number (VIN) decoding system. The decoded VINs provide information regarding the vehicle make, model, type, age, and fuel types. This information was then used to develop source-related MOVES input. These data represented the registration records for early 2018.

Inspection Maintenance (IM) Program: June 1, 2010 - future

Ada County:

- 1) Two speed test (idle and 2500 RPM) for pre 1996 vehicles only.
- 2) Exhaust OBD check for 1996 and newer vehicles.
- 3) Evaporative system OBD check for 1996 and newer vehicles.
- 4) Vehicles with a model year of 1980 and older are exempt from testing.
- 5) Compliance Factor – This factor is calculated annually from the previous year’s IM program statistics.
- 6) Four-year grace period for new vehicles
- 7) Biennial testing – effective January 1, 2010.

Canyon County:

- 1) Two speed test (idle and 2500 RPM) for pre 1996 vehicles only.
- 2) Evaporative gas cap check for 1996 and newer vehicles.
- 3) Exhaust OBD check for 1996 and newer vehicles.
- 4) Evaporative system OBD check for 1996 and newer vehicles.
- 5) Vehicles with a model year of 1980 and older are exempt from testing.
- 6) Compliance Factor – This factor is calculated annually from the previous year’s IM program statistics.
- 7) Five-year grace period for new vehicles
- 8) Biennial testing – effective January 1, 2010.

Meteorology

The meteorology input compiles the average hourly temperature and relative humidity data for each county. Base- and future-year inventories were modeled using average hourly temperature and relative humidity data by county for each month from a representative weather station for each county. Ada County is represented by the National Weather Service station at the Boise Air Terminal and Canyon County is represented by the data set from the Caldwell Industrial Airport.

Fuel-Related Inputs

Alternative Vehicle Fuels and Technology (AVFT): Ada and Canyon Counties were modeled using a custom AVFT input file derived from VIN-decoded registration data, the Idaho Department of Education school bus database, and telephone surveys of local garbage collection and public transportation providers.

Fuel Supply, and Fuel Formulation: National default fuel supply inputs were used for all source types.

Fuel Usage Fractions: Assume that all E-85 capable vehicles are using conventional (E10) gasoline

Average Speed Distribution

The average speed distribution allocates the different source types (vehicles) for each roadway type to 16 speed bins ranging from 0 to >75 miles per hour. *Average* speed distributions were developed from the regional travel demand model average daily estimates or forecasts for each roadway segment and hourly traffic count statistics developed from detailed automatic traffic recorder (ATR) traffic count data (2016 and 2017) provided by ITD.

The hourly ATR-based traffic count profiles for each roadway type were used to estimate hourly volume on each segment and the modified Bureau of Public Roadways volume/capacity curve was used to develop the average speed distribution database for each hour.

$$\text{Hourly Vehicle Speed} = \text{Free Flow Speed} * \left(1 + A * \left(\frac{\text{Volume}}{\text{Capacity}} \right)^B \right)$$

Where A and B are local coefficients used in the regional travel demand model as provided by COMPASS.

Base- and future-year average speed distributions were developed for all four MOVES road types using travel demand model base and future-year outputs developed by COMPASS for the Treasure Valley and detailed ATR data provided by ITD.

Documentation for the development of the on-road mobile sources listed above are provided in the [Development of the 2017 Idaho On-road \(MOVES\) Mobile Source Inventory](#)²³ report.

²³ http://www.compassidaho.org/documents/prodserv/airquality/2017NEI_OnroadMobile_FinalReport%20_20190108.pdf

Paved and Unpaved Road Dust Emissions

Both paved and unpaved road dust emissions are calculated outside of the MOVES model.

Paved Road Dust: The paved road dust emissions were calculated for the 2017 national emissions inventory and documented in the [Development of the 2017 Paved Road Dust Inventory for the National Emissions Inventory](#)²⁴.

Unpaved Road Dust: The unpaved road dust emissions, 2.65 tons per day, are held constant for all scenario years. Detailed documentation of how the unpaved road dust emissions were calculated are provided in section 3.1.4 of Appendix D. 2008, 2015, and 2023 Emissions Inventories for the Treasure Valley Airshed which is found in the [PM₁₀ Maintenance Plan appendices](#)²⁵.

Appendix D also references the [section 5 of the Treasure Valley Road Dust Study](#)²⁶ completed by Desert Research Institute in 2002.

MOVES input files are available online: <http://www.compassidaho.org/prodserv/aq-demo.htm>

²⁴ [http://www.compassidaho.org/documents/prodserv/airquality/PavedRoadDustFinalReport_NEI_2017_20181127%20\(002\).pdf](http://www.compassidaho.org/documents/prodserv/airquality/PavedRoadDustFinalReport_NEI_2017_20181127%20(002).pdf)

²⁵ http://www.deq.idaho.gov/media/971226-ada_county_pm10_sip_appendices_0213.pdf

²⁶ [http://www.compassidaho.org/documents/prodserv/airquality/TVRDS_Section_5_F%20\(002\).pdf](http://www.compassidaho.org/documents/prodserv/airquality/TVRDS_Section_5_F%20(002).pdf)