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**DRAFT Conformity Demonstration for the FY2020-
2026 Regional Transportation Improvement
Program**

Report No. TBD

Adopted by the COMPASS Board on TBD

Resolution No. TBD

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 93), AND THE STATE OF IDAHO ADMINISTRATIVE CODE ON TRANSPORTATION CONFORMITY (IDAPA 58-01.01.563-574).

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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 federal government mandates that any transportation project using federal funds or deemed to be “regionally significant” in nonattainment and 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 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 to 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 are not 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 FY2020-2026 draft Regional Transportation Improvement Program.

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 FY2020-2026 draft Regional Transportation Improvement Program (TIP). A TIP is a short-range capital improvement budget for the transportation system in a given urbanized 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 spring 2019, 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*² 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 FY2020-2026 draft TIP. The *Northern Ada County Air Quality Maintenance Area Second 10-Year Carbon Monoxide Limited Maintenance Plan*³ does not contain any motor vehicle emissions budgets. However, COMPASS conducts 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.

As mentioned above, the area is subject to transportation conformity requirements for the other pollutants per 40 CFR 93, subpart A:

- 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;*
- 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]*

² http://www.deq.idaho.gov/media/971222-ada_county_pm1_0_sip_0213.pdf

³ <http://www.deq.idaho.gov/media/909866-ada-county-co-maintenance-plan-2011.pdf>

Figures 4 – 6 (pages 29 – 31) show estimated emissions as compared to pollutant budgets for PM₁₀, volatile organic compounds, and oxides of nitrogen.

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 Counties.

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 areas in the past, but have re-attained the standard, 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 and 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. 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 ([64FR12257](#)). 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 the Idaho Department of Environmental Quality (DEQ) to update Northern Ada County's PM₁₀ State Implementation Plan (SIP). In September 2003, the EPA approved the *Northern Ada County PM₁₀ SIP Maintenance Plan and Redesignation Request*. In March 2013, the *Northern Ada County PM₁₀ State Implementation Plan, Maintenance Plan: Ten-Year Update*⁴ (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 emission budgets for transportation conformity purposes.

⁴http://www.deq.idaho.gov/media/971222-ada_county_pm10_sip_0213.pdf

Commonly, past exceedances of the 24-hour PM₁₀ NAAQS in Northern Ada County occurred 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. EPA approved the limited maintenance plan and subsequently redesignated the area in December 2002. The *Northern Ada County Air Quality Maintenance Area Second 10-Year Carbon Monoxide Limited Maintenance Plan*⁵ (CO maintenance plan) was approved by EPA September 2012. 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 the FY2020-2026 draft Regional Transportation Improvement Program (TIP). 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.*⁶

Therefore, CO motor vehicle emissions budget tests are not federally required for Northern Ada County. However, COMPASS conducts a build/no build analysis per the CO limited maintenance plan for the fifth year of the TIP (2024). If the results of this analysis show an unacceptable increase in CO emissions, DEQ may choose to require mitigation measures.

⁵ <http://www.deq.idaho.gov/media/909866-ada-county-co-maintenance-plan-2011.pdf>

⁶ 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>

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

The Northern Ada County ICC approved the assumptions and methodologies employed in the development of the regional emissions analyses in this demonstration on June 24, 2019. The approved assumptions and methodologies are listed in Appendix B. The roadway project list was also approved by the ICC on June 24, 2019. 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(b), 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. Budget tests and analysis were performed for:

- 2020 - Base year of the FY2020-2026 draft TIP
- 2024 – fifth year the FY2020-2026 draft TIP
- 2030 - Intermediate analysis year
- 2040 - Horizon year of the regional long-range transportation plan, *Communities in Motion 2040 2.0* (CIM 2040 2.0)

Projects for the scenarios are shown in Tables 1, 4, 6, and 8; the results are shown in Tables 2, 4, 6, and 8.

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.

40 CFR 93.101⁷ 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)⁸ 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.*

⁷ [Code of Federal Regulations Title 40: Protection of Environment](#)

⁸ [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. 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 meets 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 daily 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 model 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. To learn more about the travel demand model

visit <http://www.compassidaho.org/prodserv/traveldemand.htm>.

Demographic Data

The COMPASS Board of Directors approves the official population and employment forecast control totals for Ada and Canyon Counties. 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. To learn more about the process and growth allocations visit http://www.compassidaho.org/prodserv/cim2040_scenarioplanning.htm.

In early 2019, COMPASS updated and reconciled the demographic forecasts to account for building permit activity and approved developments since the *Communities in Motion 2040* Vision was approved in 2012. This is an annual process coordinated with land use agencies and the Demographic Advisory Workgroup.

The *Communities in Motion 2040* Vision forecasts the demographic data in five-year increments (Figure 1). Demographic data for the analysis years of 2020 and 2024 were developed (interpolated) using the current estimates and/or the appropriate reconciled demographic forecast. For example, both the 2020 and 2024 demographics used the 2019 estimates and the reconciled 2025 forecasted demographics.

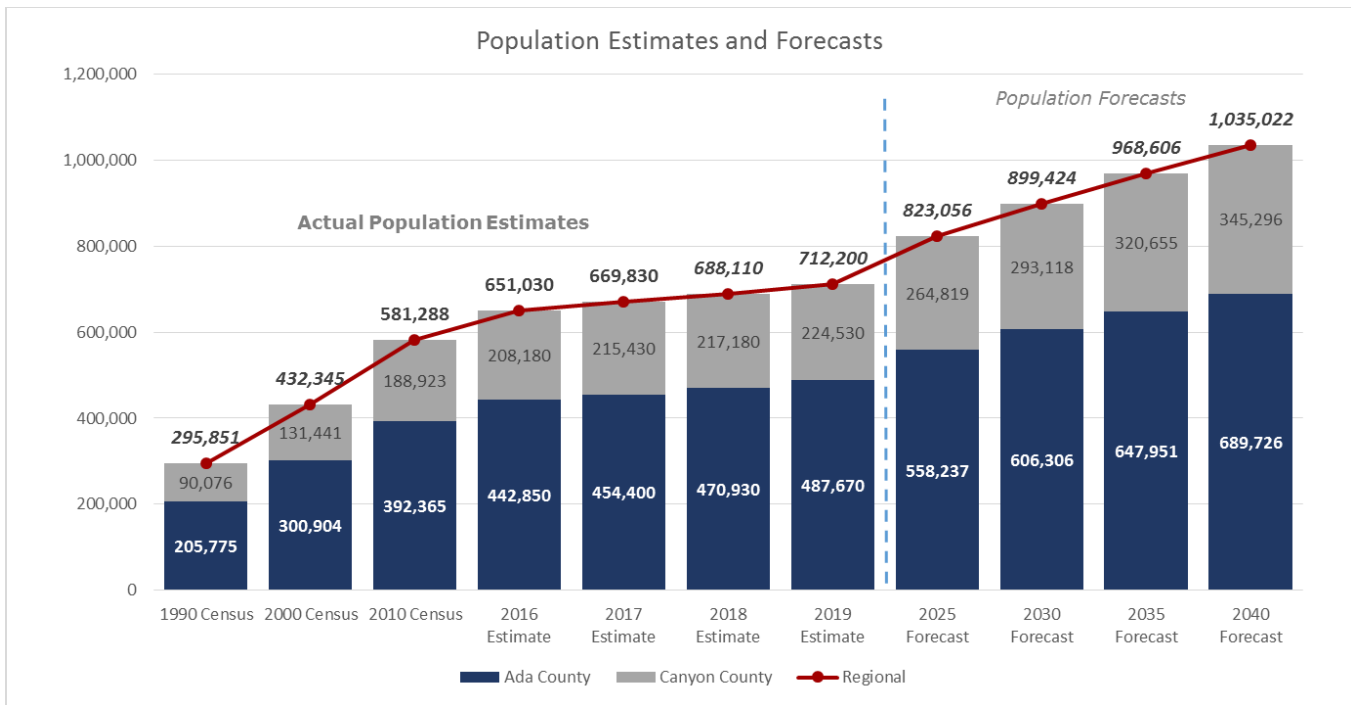


Figure 1: COMPASS Population Estimates⁹ and Forecasts

Roadway Network Assumptions

The projects used in the regional emissions analysis for the FY2020-2026 draft TIP were derived from:

- COMPASS’ FY2020-2026 draft TIP
- ACHD’s FY2019-2023 Integrated Five-Year Work Plan
- FY2020-2026 draft Idaho Statewide Transportation Improvement Program (STIP)
- ACHD’s 2016 Capital Improvements Plan (CIP) (FY2016-2035)
- CIM 2040 2.0, the regional long-range transportation plan for Ada and Canyon Counties

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, even those designated as “exempt,” in its conformity analysis. This is reflected in the projects listed in Tables 1, 4, 6, and 8. 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 go to construction without an accompanying emissions analysis.

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.

⁹ <http://www.compassidaho.org/prodserv/demo-current.htm>

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.

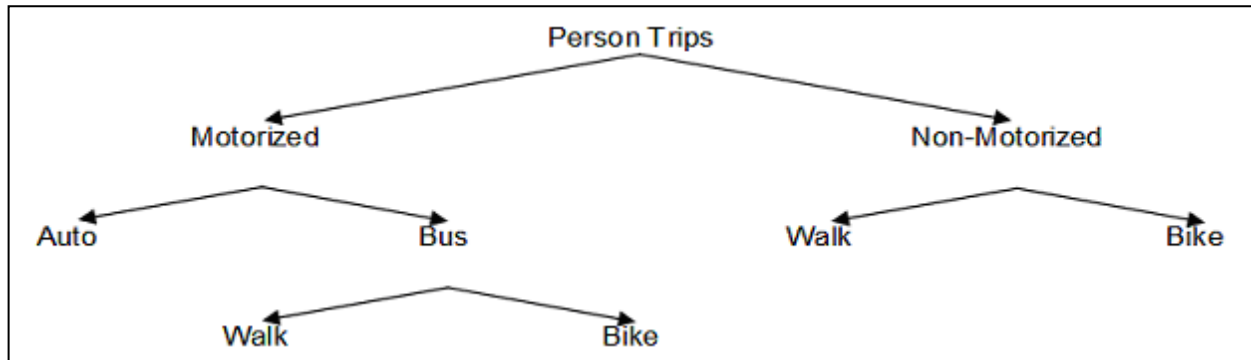


Figure 2: COMPASS Model Travel Modes

Currently, no major system expansion is funded for the region's transit system in the FY2020-2026 draft TIP. Therefore, only the transit system as it exists today is included in the build analysis years. The current system includes:

- Nineteen all-day routes and two express routes with peak hour headways between 20-60 minutes in the Boise/Garden City service area.
- Three Nampa and Caldwell fixed routes with peak hour headways up to 60 minutes.
- Six inter-county routes (between Ada and Canyon Counties) with up to 30 minute headways during the morning/afternoon peak periods and 2-3 hour headways during off peak periods.
- ADA required paratransit service in both Ada and Canyon Counties.

Specific information on the routes and schedules used to model the transit system can be found at Valley Regional Transit'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. Figure 3 shows the vehicle miles of travel for 2000 and 2010, and for 2020, 2024, 2030, and 2040, which coincide with the analysis years for this conformity demonstration.

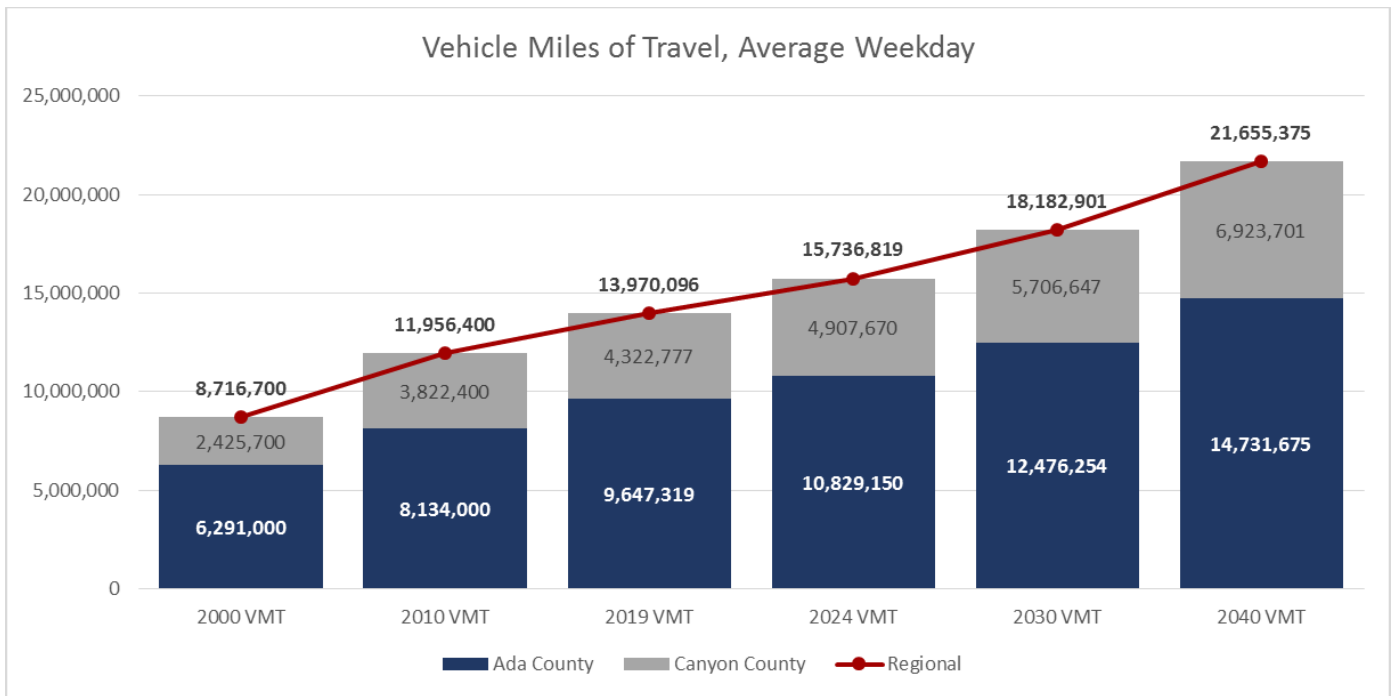


Figure 3: Vehicle Miles of Travel Estimated by the Travel Demand Model

Emissions Modeling

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

The MOVES model¹⁰ 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. 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>

As described on page 9, PM₁₀, VOC, and NO_x budget tests were performed under the four scenario years: 2020, 2024, 2030, and 2040. Results are shown in Table 2, 4, 6, and 8.

¹⁰ <http://www.epa.gov/otaq/models/moves/index.htm>

2020 Baseline Scenario

The 2020 baseline scenario uses near-term population and employment estimates with the 2020 roadway network listed in Table 1. *(Note: The numbers in the "No." column are for reference only.)* Projects 1 through 9 are included for information purposes only. These projects were recently completed, or are currently under construction, with expected completion by the end of 2019.

Table 1: Projects Included in the 2020 Network for the 2020 Baseline 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. | Cloverdale Rd. and Overpass | Camas St (north of Overland Rd) to Ridenbaugh Canal (south of Franklin Rd) | Replace and widen the overpass from 2 to 4 lanes. Widen the roadway on each side from 2 to 5 lanes. | STIP, 2016 CIP | KN 20842, RD2016-24 | No | minor arterial | No |
| 2. | Cloverdale Rd. | Fairview Ave. to Ustick Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RC0087, RD2016-25 | No | minor arterial | No |
| 3. | Cloverdale Rd. | Ustick Rd. to McMillan Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RC0092, RD2016-26 | No | minor arterial | No |
| 4. | Cloverdale Rd. | McMillan Rd. to US Hwy 20/26 (Chinden Blvd.) | Widen roadway from 3 lanes to 5 lanes | IFYWP, 2016 CIP | RD207-13, RD2016-27 | No | minor arterial | No |
| 5. | Cole Rd. | Overland Rd. to Franklin Rd. | Widen roadway from 3 lanes to 5 lanes | IFYWP, 2016 CIP | IN203-14, RD207-16, RD2016-29 | Yes | principal arterial | No |
| 6. | Linder Rd. | Ustick Rd. to McMillan Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP, CIM 2040 2.0 | RD202-18, RD2016-78 RD202-18 | Yes | principal arterial | No |
| 7. | Linder Rd | Cayuse Creek Dr. to Chinden Blvd. (US 20/26) | Widen roadway from 2 lanes to 5 lanes | IFWYP, 2016 CIP | RD202-17, RD2016-79 | Yes | principal arterial | No |
| 8. | Fairview Ave. lane reconfiguration | Garden St. to 16 th St. | Reconfiguring one way roadway from 4 lanes to 3 lanes | ACHD | MIC219 | Yes | principal arterial | No |
| 9. | Main St. lane reconfiguration | Garden St. to 16 th St. | Reconfiguring one way roadway from 4 lanes to 3 lanes | ACHD | MIC219 | Yes | principal arterial | No |
| 10. | Cole Rd. | McGlochlin St. to Victory Rd. (with intersection project) | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | IN205-97, RD2016-28 | Yes | principal arterial | No |
| 11. | Linder Rd. | Franklin Rd. to Pine Ave. | Widen roadway from 2 lanes to 5 lanes | IFYWP, draft CIP, CIM 2040 2.0 | RD213-16, RD2016-76 | Yes | principal arterial | No |
| 12. | Meridian Rd. | Cherry/ Fairview Ave. to Ustick Rd. | Widen roadway from 3 lanes to 5 lanes | IFYWP, 2016 CIP | RD207-23, RD2016- 100 | 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 |
| 13. | Ten Mile Rd. | Ustick Rd. to McMillan Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD202-32, RD2016- 123 | No | minor arterial | No |
| 14. | Ten Mile Rd. | McMillan Rd. to US Hwy 20/26 (Chinden Blvd.) | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD202-31, RD2016- 124 | No | minor arterial | No |
| 15. | US Hwy 20/26 | Black Cat Rd. to Linder Rd. | Widen roadway from 2 lanes to 4 lanes | Draft TIP, CIM 2040 2.0 | 21858 | Yes | principal arterial | Yes* |
| 16. | US Hwy 20/26 | Linder Rd. to Meridian Rd. | Widen roadway from 2 lanes to 4 lanes | Draft TIP, CIM 2040 2.0 | 20594 | Yes | principal arterial | Yes* |
| 17. | US Hwy 20/26 | Locust Grove Rd. to State Hwy 55 (Eagle Rd.) | Widen roadway from 2 lanes to 4 lanes | Draft TIP, CIM 2040 2.0 | 19944 | 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 2020 baseline scenario.

Table 2: 2020 Estimated Emissions, Tons per Day

| 2020 | 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 | 22.96 | 0.79 | 26.4 | 5.86 | 9.02 |
| Budget | n/a | n/a | n/a | 42.9 | 12.6 | 29.5 |

Table 3 shows interpolated motor vehicle emissions for PM₁₀, VOC, and NO_x for the budget year of 2023. Emission estimates from 2020 and 2024 are used to interpolate the 2023 emissions.

Table 3: 2023 Interpolated 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 | 25.52 | 0.78 | 29.0 | 5.31 | 7.17 |
| Budget | n/a | n/a | n/a | 60.1 | 17.2 | 34.2 |

2024 Scenario

The 2024 scenario uses 2024 population and employment forecasts with the 2024 roadway network. The 2024 roadway network includes the projects listed in Tables 1 and 4. *(Note: The numbers in the "No." column are for reference only.)*

Table 4: Projects Added to the 2020 Network for the 2024 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 |
| 18. | Cloverdale Rd. | Victory Rd. to Overland Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD2016-23 | No | minor arterial | No |
| 19. | Eagle Rd. | Amity Rd. to Victory Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP, CIM 2040 2.0 | RD207-33, RD2016-32 | Yes | principal arterial | No |
| 20. | Locust Grove Rd. | Victory Rd. to Overland Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD202-44, RD2016-83 | No | minor arterial | No |
| 21. | Maple Grove Rd. | Amity Rd. to Victory Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD207-21, RD2016-88 | No | minor arterial | No |
| 22. | Maple Grove Rd. | Victory Rd. to Overland Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD207-22, RD2016-89 | No | minor arterial | No |
| 23. | Orchard St. Realigned | Gowen Rd. to I-84 Interchange | Realign and widen from 2 lanes to 5 lanes | IFYWP, 2016 CIP, CIM 2040 2.0 | RD207-01, RD2016- 105 | Yes | principal arterial | No |
| 24. | Ten Mile Rd. | Victory Rd. to Overland Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP, CIM 2040 2.0 | RC0299, RD2016- 122 | Yes | principal arterial | No |
| 25. | State Hwy 44 | Star Rd. to State Hwy 16 | Widen roadway from 2 lanes to 4 lanes | Draft TIP, CIM 2040 2.0 | 20574 | Yes | principal arterial | Yes* |
| 26. | State Hwy 44 | State Hwy 16 to Linder Rd. | Widen roadway from 2 lanes to 4 lanes | Draft TIP, CIM 2040 2.0 | 20266 | Yes | principal arterial | Yes* |
| 27. | State Hwy 55 (Eagle Rd.) | Southbound River Valley Rd. to Franklin Rd. | Widen southbound from 2 lanes to 3 lanes | STIP | 13349 | Yes | principal arterial | Yes* |
| 28. | US Hwy 20/26 | SH 16 to Black Cat Rd. | Widen roadway from 2 lanes to 4 lanes | Draft TIP, CIM 2040 2.0 | 21858 | Yes | principal arterial | Yes* |
| 29. | US Hwy 20/26 | Meridian Rd. to Locust Grove Rd. | Widen roadway from 2 lanes to 4 lanes | Draft TIP, CIM 2040 2.0 | 20594 | Yes | principal arterial | Yes* |
| 30. | US Hwy 20/26 | Star Rd. to SH 16 | Widen roadway from 2 lanes to 4 lanes | Draft TIP, CIM 2040 2.0 | 20367 | Yes | principal arterial | Yes* |

¹ STIP = Idaho 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 and alphanumeric identification numbers beginning with "ORN" refer to projects in the STIP. All other alphanumeric identification numbers refer to projects in ACHD's IFYWP or CIP.

Yes* = previous phases funded with federal dollars.

Table 5 shows estimated motor vehicle emissions for PM₁₀, VOC, and NO_x from the 2024 scenario.

Table 5: 2024 Estimated Emissions, Tons per Day

| 2024 | PM₁₀ | | | | VOC | NO_x |
|----------------------|-----------------------------|---------------------------|---|--------------------------------|--------------------|-----------------------|
| | Unpaved Road Dust Emissions | Paved Road Dust Emissions | Tailpipe, Tire, and Brakewear Emissions | Total PM ₁₀ Emitted | | |
| Estimated Emissions | 2.65 | 26.37 | 0.78 | 29.8 | 5.13 | 6.55 |
| <i>Budget</i> | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>42.9</i> | <i>12.6</i> | <i>29.5</i> |

2030 Scenario

The 2030 scenario uses 2030 population and employment estimates with the 2030 roadway network. The 2030 roadway network includes all projects listed in Tables 1, 4, and 6. (*Note: The numbers in the "No." column are for reference only.*)

Table 6: Projects Added to the 2024 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 |
| 31. | Airport Rd./ Overland Rd. Ext. | McDermott Rd. to Black Cat Rd. | Construct new 2 lane road | 2016 CIP | RD2016-5 | No | minor arterial | No |
| 32. | Amity Rd. | State Hwy 69 (Meridian Rd.) to Locust Grove Rd. | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-2 | No | minor arterial | No |
| 33. | Amity Rd. | Locust Grove Rd. to Eagle Rd. | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-3 | No | minor arterial | No |
| 34. | Amity Rd. | Eagle Rd. to Cloverdale Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-4 | No | minor arterial | No |
| 35. | Black Cat Rd. | Franklin Rd. to Cherry Ln. | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-13 | No | minor arterial | No |
| 36. | Black Cat Rd. | Cherry Ln. to Ustick Rd. | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-14 | No | minor arterial | No |
| 37. | Black Cat Rd. | Ustick Rd. to McMillan Rd. | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-15 | No | minor arterial | No |
| 38. | Black Cat Rd. | Overland Rd. to Franklin Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-12 | No | minor arterial | No |
| 39. | Black Cat Rd. | McMillan Rd. to US Hwy 20/26 (Chinden Blvd.) | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-16 | No | minor arterial | No |
| 40. | Cloverdale Rd. | Lake Hazel Rd. to Amity Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD2016-21 | No | minor arterial | No |
| 41. | Cloverdale Rd. | Amity Rd. to Victory Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD2016-22 | No | minor arterial | No |
| 42. | Cloverdale Rd. | Columbia Rd. to Lake Hazel Rd. | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-20 | No | minor arterial | No |
| 43. | Deer Flat Rd. | Linder Rd. to State Hwy 69 (Meridian Rd.) | Widen roadway from 3 lanes to 5 lanes | 2016 CIP | RD2016-30 | No | minor arterial | No |
| 44. | Eagle Rd. | Lake Hazel Rd. to Amity Rd. | Widen roadway from 2 lanes to 5 lanes | IFWYP, 2016 CIP, CIM 2040 2.0 | RD216-04, RD2016-31 | Yes | principal arterial | No |
| 45. | Eisenman Rd. | Lake Hazel Rd. to Gowen Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-34 | No | minor arterial | No |
| 46. | Emerald St. | Cole Rd. to Curtis Rd. | Widen roadway from 3 lanes to 5 lanes (does not include widening of overpass) | 2016 CIP | RD2016-37 | 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 |
| 47. | Executive Dr. | Cloverdale Rd. to Five Mile Rd. | Widen roadway from 3 lanes to 5 lanes | 2016 CIP | RD2016-39 | No | minor arterial | No |
| 48. | Fairview Ave. | Five Mile Rd. to Maple Grove Rd. | Widen roadway from 5 lanes to 7 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-44 | Yes | principal arterial | No |
| 49. | Fairview Ave. | Locust Grove Rd. to State Hwy 55 (Eagle Rd.) | Widen roadway from 5 lanes to 7 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-41 | Yes | principal arterial | No |
| 50. | Fairview Ave. | State Hwy 55 (Eagle Rd.) to Cloverdale Rd. | Widen roadway from 5 lanes to 7 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-42 | Yes | principal arterial | No |
| 51. | Fairview Ave. | Maple Grove Rd. to Cole Rd. | Widen roadway from 5 lanes to 7 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-45 | Yes | principal arterial | No |
| 52. | Five Mile Rd. | Lake Hazel Rd. to Amity Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD215-07, RD2016-47 | No | minor arterial | No |
| 53. | Five Mile Rd. | Overland Rd. to Franklin Rd. Does NOT include widening of the overpass | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-49 | No | minor arterial | No |
| 54. | Floating Feather Rd. Realignment | Plummer Ln. to State Hwy 16 (Emmett Hwy) | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-52 | No | minor arterial | No |
| 55. | Floating Feather Rd. | Palmer Ln. to Linder Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-54 | No | minor arterial | No |
| 56. | Floating Feather Rd. | Linder Rd. to Park St. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-55 | No | minor arterial | No |
| 57. | Floating Feather Rd. | Park Ln. to Ballantyne Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-56 | No | minor arterial | No |
| 58. | Floating Feather Rd. Realignment | State Hwy 16 (Emmett Hwy) to Palmer Ln. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-53 | No | minor arterial | No |
| 59. | Hill Rd./ Hill Road Pkwy | Horseshoe Bend Rd. to Duncan Ln. | Widen roadway from 3 lanes to 5 lanes | 2016 CIP | RD2016-59 | No | minor arterial | No |
| 60. | Hill Rd./ Hill Road Pkwy | Duncan Ln. to Seaman Gulch Rd. | Widen roadway from 3 lanes to 5 lanes | 2016 CIP | RD2016-60 | No | minor arterial | No |
| 61. | Lake Hazel Rd. | Maple Grove Rd. to Cole Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP, CIM 2040 2.0 | RD216-05, RD2016-69 | Yes | principal arterial | No |
| 62. | Lake Hazel Rd. | Eagle Rd. to Cloverdale Rd. | Widen roadway from 2 lanes to 3 lanes | IFYWP, 2016 CIP, CIM 2040 2.0 | RD209-18, RD2016-66 | Yes | principal arterial | No |
| 63. | Lake Hazel Rd. | Cloverdale Rd. to Five Mile Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP, CIM 2040 2.0 | RD207-29, RD2016-67 | 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 |
| 64. | Lake Hazel Rd. | Five Mile Rd. to Maple Grove Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP, CIM 2040 2.0 | RD207-30, RD2016-68 | Yes | principal arterial | No |
| 65. | Lake Hazel Rd. | Black Cat Rd. to Ten Mile Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-61 | Yes | principal arterial | No |
| 66. | Lake Hazel Rd. | Ten Mile Rd. to Linder Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-62 | Yes | principal arterial | No |
| 67. | Lake Hazel Rd. | Linder Rd. to State Hwy 69 (Meridian Rd.) | Widen roadway from 2 lanes to 3 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-63 | Yes | principal arterial | No |
| 68. | Lake Hazel Rd. | State Hwy 69 (Meridian Rd.) to Locust Grove Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-64 | Yes | principal arterial | No |
| 69. | Lake Hazel Rd. | Locust Grove Rd. to Eagle Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-65 | Yes | principal arterial | No |
| 70. | Linder Rd. | State Hwy 44 (State St.) to Floating Feather Rd. | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD209-28, RD2016-81 | Yes | principal arterial | No |
| 71. | Linder Rd. | Victory Rd. to Overland Rd. | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-74 | No | minor arterial | No |
| 72. | Linder Rd. | US Hwy 20/26 (Chinden Blvd.) to State Hwy 44 (State St.) | Widen roadway from 5 lanes to 7 lanes | IFYWP, 2016 CIP, CIM 2040 2.0 | RD207-19, RD2016-80 RD207-19 | Yes | principal arterial | No |
| 73. | Locust Grove Rd. | Fairview Ave. to Ustick Rd. | Widen roadway from 3 lanes to 5 lanes | IFYWP, 2016 CIP | RD210-02, RD2016-84 | No | minor arterial | No |
| 74. | Locust Grove Rd. | Ustick Rd. to McMillan Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-85 | No | minor arterial | No |
| 75. | Maple Grove Rd | Lake Hazel Rd. to Amity Rd | Widen roadway from 2 lanes to 5 lanes | IFYWP, 2016 CIP | RD207-20, RD2016-87 | No | minor arterial | No |
| 76. | McMillan Rd. | Cloverdale Rd. to Five Mile Rd. | Widen roadway from 3 lanes to 5 lanes | 2016 CIP | RD2016-98 | No | minor arterial | No |
| 77. | McMillan Rd. | Five Mile Rd. to Maple Grove Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-99 | No | minor arterial | No |
| 78. | Meridian Rd. | Ustick Rd. to McMillan Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016- 101 | No | minor arterial | No |
| 79. | Pine Ave. | Ten Mile Rd. to Linder Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016- 112 | Yes | principal arterial | No |
| 80. | State St. | Glenwood to Pierce Park Ln. | Widen roadway from 5 lanes to 7 lanes consistent with the State St. TTOP | IFYWP, 2016 CIP, CIM 2040 2.0 | RD208-04, RD2016- 117 | 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 |
| 81. | State St. | Pierce Park Ln. to Collister Dr. | Widen roadway from 5 lanes to 7 lanes consistent with the State St TTOP | IFYWP, 2016 CIP, CIM 2040 2.0 | RD208-05, RD2016- 118, | Yes | principal arterial | No |
| 82. | State St. | Collister Dr. to 36th St. | Widen roadway from 5 lanes to 7 lanes consistent with the State St TTOP | IFYWP, 2016 CIP, CIM 2040 2.0 | RD208-06, RD2016- 119 | Yes | principal arterial | No |
| 83. | State St. | 36th St. to 27th St. | Widen roadway from 5 lanes to 7 lanes consistent with the State St TTOP | IFYWP, 2016 CIP, CIM 2040 2.0 | RD208-07, RD2016- 120 | Yes | principal arterial | No |
| 84. | Ustick Rd. | Cole Rd. to Curtis Rd. | Widen roadway from 3 lanes to 5 lanes | 2016 CIP | RD2016- 128 | No | minor arterial | No |
| 85. | Ustick Rd. | Ten Mile Rd. to Linder Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP, CIM 2040 2.0 | RD2016- 125 | Yes | principal arterial | No |
| 86. | Victory Rd. | Black Cat Rd. to Ten Mile Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016- 129 | No | minor arterial | No |
| 87. | Victory Rd. | Ten Mile Rd. to Linder Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016- 130 | No | minor arterial | No |
| 88. | Victory Rd. | Linder Rd. to Meridian Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016- 131 | No | minor arterial | No |
| 89. | Victory Rd. | Meridian Rd. to Locust Grove Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016- 132 | No | minor arterial | No |
| 90. | Victory Rd. | Locust Grove Rd. to Eagle Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016- 133 | No | minor arterial | No |
| 91. | Victory Rd. | Eagle Rd. to Cloverdale Rd. | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016- 134 | No | minor arterial | No |
| 92. | Victory Rd. | Cloverdale Rd. to Five Mile Rd. | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016- 135 | No | minor arterial | No |
| 93. | Victory Rd. | Maple Grove Rd. to Cole Rd. | Widen roadway from 4 lanes to 5 lanes | 2016 CIP | RD2016- 137 | No | minor arterial | No |

¹ IFYWP = ACHD's Integrated Five-Year Work Plan projects listed above are anticipated for construction sometime after 2024;
CIP = ACHD's Capital Improvements Plan

² Key #: Numeric identification numbers and alphanumeric identification numbers beginning with "ORN" refer to projects in the Idaho Statewide Transportation Improvement Program (STIP); the statewide equivalent of the regional TIP. All other alphanumeric identification numbers refer to projects in ACHD's IFYWP or CIP.

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

Yes* = previous phases funded with federal dollars.

Table 7 shows estimated motor vehicle emissions for PM₁₀, VOC, and NO_x from the 2030 scenario.

Table 7: 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 | 30.85 | 0.83 | 34.3 | 4.31 | 4.49 |
| Budget | <i>n/a</i> | <i>n/a</i> | <i>n/a</i> | <i>60.1</i> | <i>17.2</i> | <i>34.2</i> |

2040 Scenario

The 2040 scenario uses 2040 population and employment estimates with the 2040 roadway network. The 2040 roadway network includes all projects listed in Tables 1, 4, 6, and 8. (Note: The numbers in the "No." column are for reference only.)

Table 8: 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 |
| 94. | 36th Street Extension | Cartwright Rd. to Bogus Basin Rd. | Construct new 2 lane roadway | 2016 CIP | RD2016-1 | No | minor arterial | No |
| 95. | Beacon Light Rd. | State Hwy 16 (Emmett Hwy) to Palmer Ln. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-6 | No | minor arterial | No |
| 96. | Beacon Light Rd. | Palmer Ln. to Linder Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-7 | No | minor arterial | No |
| 97. | Beacon Light Rd. | Linder Rd. to Park Ln. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-8 | No | minor arterial | No |
| 98. | Beacon Light Rd. | Park Ln. to Ballantyne Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-9 | No | minor arterial | No |
| 99. | Beacon Light Rd. | Ballantyne Rd. to Eagle Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-10 | No | minor arterial | No |
| 100. | Beacon Light Rd. | Eagle Rd. to State Hwy 55 | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-11 | No | minor arterial | No |
| 101. | Cloverdale Rd. | Kuna Rd. to Deer Flat Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-17 | No | minor arterial | No |
| 102. | Cloverdale Rd. | Deer Flat Rd. to Hubbard Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-18 | No | minor arterial | No |
| 103. | Cloverdale Rd. | Hubbard Rd. to Columbia Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-19 | No | minor arterial | No |
| 104. | Eagle Rd. | Floating Feather Rd. to Beacon Light Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-33 | No | minor arterial | No |
| 105. | Emerald St. | Curtis Rd. to Orchard St. | Widen roadway from 3 lanes to 5 lanes | 2016 CIP | RD2016-38 | No | minor arterial | No |
| 106. | Fairview Ave. | Cloverdale Rd. to Five Mile Rd. | Widen roadway from 5 lanes to 7 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-43 | Yes | principal arterial | No |
| 107. | Fairview Ave. | Meridian Rd. to Locust Grove Rd. | Widen roadway from 5 lanes to 7 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-40 | Yes | principal arterial | No |
| 108. | Fairview Ave. | Cole Rd. to Curtis Rd. | Widen roadway from 5 lanes to 7 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-46 | Yes | principal arterial | No |
| 109. | Floating Feather Rd. | Star Rd. to Plummer Ln. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-51 | No | minor arterial | No |
| 110. | Glenwood Couplet | Cole Rd. to Goddard Rd. | Construct new 3 lane road | 2016 CIP, CIM 2040 2.0 | RD2016-58 | 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 |
| 111. | Lake Hazel Rd. | Orchard Ext. W to Pleasant Valley Rd. | Construct new 5 lane road | 2016 CIP, CIM 2040 2.0 | RD2016-71 | Yes | principal arterial | No |
| 112. | Lake Hazel Rd. | Pleasant Valley Rd. to Eisenman Rd. | Construct new 5 lane road | 2016 CIP, CIM 2040 2.0 | RD2016-72 | Yes | principal arterial | No |
| 113. | Lake Hazel Rd. | Cole Rd. to Orchard Ext. W (build at 2 lanes by 2018) | Widen roadway from 2 lanes to 5 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-70 | Yes | principal arterial | No |
| 114. | Linder Rd. | Amity Rd. to Victory Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-73 | No | minor arterial | No |
| 115. | Linder Rd. | Overland Rd. to Franklin Rd. Does NOT include overpass | Widen roadway from 2 lanes to 5 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-75 | Yes | principal arterial | No |
| 116. | Linder Rd. | Cherry Ln. to Ustick Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-77 | No | minor arterial | No |
| 117. | Linder Rd. | Pine Ave. to Cherry Ln. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-76 | No | minor arterial | No |
| 118. | Locust Grove Rd. | Amity Rd. to Victory Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-82 | No | minor arterial | No |
| 119. | Locust Grove Rd. | McMillan Rd. to US Hwy 20/26 (Chinden Blvd.) | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-86 | No | minor arterial | No |
| 120. | McMillan Rd. | Star Rd. to McDermott Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-92 | No | minor arterial | No |
| 121. | McMillan Rd. | McDermott Rd. to Black Cat Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-93 | No | minor arterial | No |
| 122. | McMillan Rd. | Black Cat Rd. to Ten Mile Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-94 | No | minor arterial | No |
| 123. | McMillan Rd. | Ten Mile Rd. to Linder Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-95 | No | minor arterial | No |
| 124. | McMillan Rd. | Linder Rd. to State Hwy 69 (Meridian Rd.) | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-96 | No | minor arterial | No |
| 125. | Meridian Rd. | McMillan Rd. to US Hwy 20/26 (Chinden Blvd.) | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-102 | No | minor arterial | No |
| 126. | Orchard Ext. | Orchard Ext. W to Gowen Rd. (build at 2 lanes by 2018) | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-104 | Yes | principal arterial | No |
| 127. | Orchard Ext. W. | Lake Hazel Ext. to Orchard Ext. (build at 2 lanes by 2018) | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-103 | Yes | principal arterial | No |
| 128. | Overland Rd. | Black Cat Rd. to Ten Mile Rd. | Construct new 3 lane road | 2016 CIP | RD2016-106 | 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 |
| 129. | Overland Rd. | Locust Grove Rd. to Five Mile Rd. | Widen roadway from 5 lanes to 7 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-107, 108, 109, 110 | Yes | principal arterial | No |
| 130. | Overland Rd. | Maple Grove Rd. to Cole Rd. | Widen roadway from 5 lanes to 7 lanes | 2016 CIP, CIM 2040 2.0 | RD2016-111 | Yes | principal arterial | No |
| 131. | Pleasant Valley Ext. | Orchard Ext to Pleasant Valley Rd. | Construct new 5 lane road | 2016 CIP | RD2016-114 | No | minor arterial | No |
| 132. | Star Rd. | McMillan Rd. to US Hwy 20/26 (Chinden Blvd.) | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-115 | No | minor arterial | No |
| 133. | Star Rd. | US Hwy 20/26 (Chinden Blvd.) to State Hwy 44 (State St.) | Widen roadway from 2 lanes to 5 lanes | 2016 CIP | RD2016-116 | No | minor arterial | No |
| 134. | Ten Mile Rd. | Deer Flat Rd. to Hubbard Rd. | Widen roadway from 2 lanes to 3 lanes | 2016 CIP | RD2016-121 | No | minor arterial | No |
| 135. | 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* |
| 136. | 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* |

¹ CIP = ACHD's Capital Improvements Plan

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

Yes* = previous phases funded with federal dollars.

Table 9 shows estimated motor vehicle emissions for PM₁₀, VOC, and NO_x from the 2040 scenario.

Table 9: 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 | 37.64 | 0.95 | 41.2 | 3.70 | 3.65 |
| Budget | n/a | n/a | n/a | 60.1 | 17.2 | 34.2 |

Carbon Monoxide Emissions

To satisfy DEQ requirements, a regional CO emissions analysis was conducted using EPA’s MOVES model and the COMPASS travel demand model. 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 the analysis year. These are the same scenarios used to estimate PM₁₀, NO_x, and VOC emissions, above. Tables 1, 4, 6, and 8 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 2024. 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 (CO LMP)*. The CO LMP will 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 for the fifth year of the TIP (2023 at that time; now 2024) instead of the last year of the maintenance period (2022). COMPASS will continue to provide the build CO emissions for the same years as the budget tests for the other pollutants.

Table 10 shows the build CO emissions estimates for 2020, 2023 (interpolated), 2024, 2030, and 2040 and the no build CO emissions estimates for 2024.

Table 10: Build/No Build Scenario CO Emissions

| | Year | | | | |
|--|-------|-------|-------|-------|-------|
| | 2020 | 2023 | 2024 | 2030 | 2040 |
| Build CO Emissions (<i>Ton/day</i>) | 56.66 | 52.07 | 50.54 | 40.51 | 30.75 |
| No Build CO Emissions (<i>Ton/day</i>) | n/a | n/a | 50.59 | n/a | n/a |

III. CONCLUSIONS

PM₁₀ Budget Test

The results of the PM₁₀ budget test for the FY2020-2026 draft TIP show that the emissions impacts associated with the planned improvements to the Northern Ada County transportation system (projects listed in Tables 1, 4, 6, and 8) will not exceed the PM₁₀ emissions budgets established by the PM₁₀ maintenance plan (Figure 4).

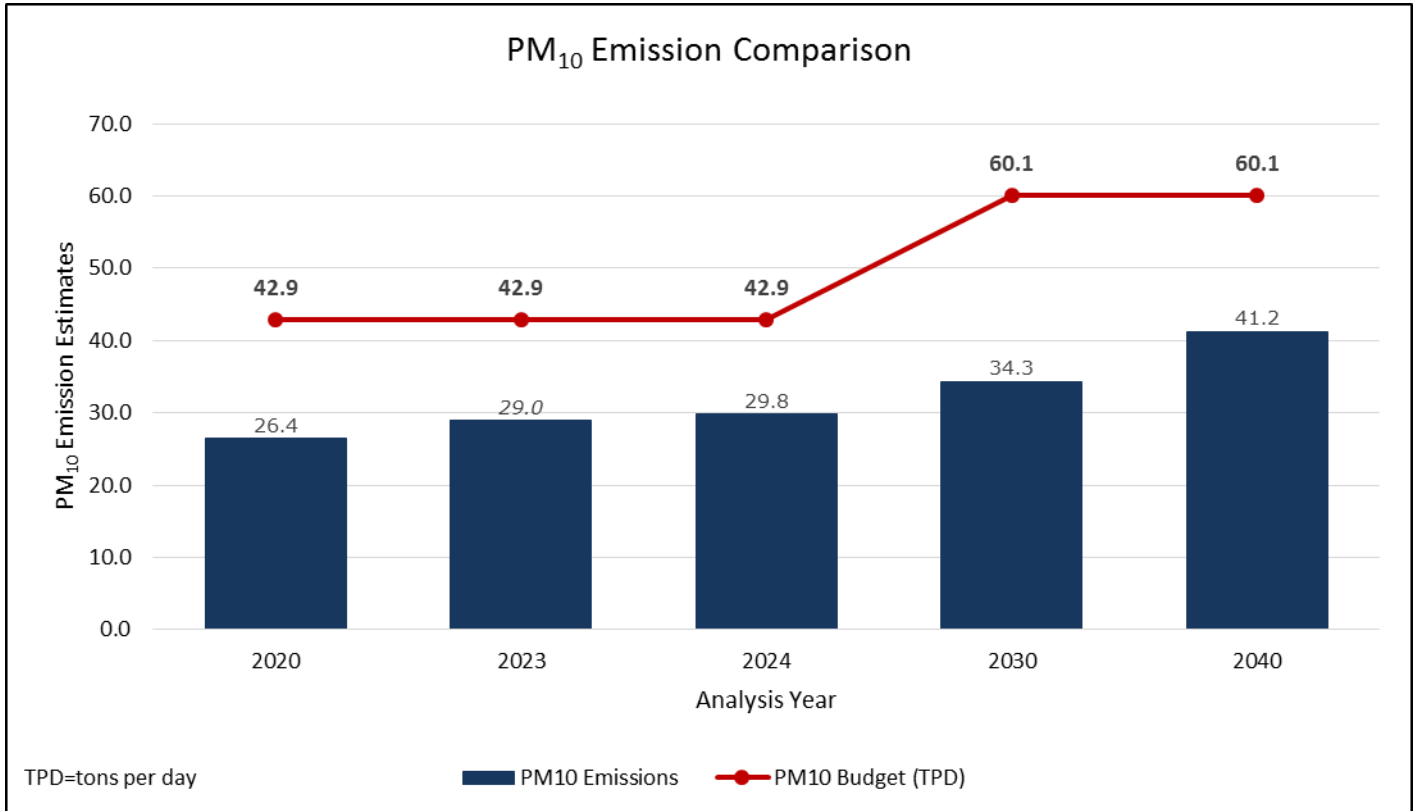


Figure 4: PM₁₀ Budget Test Results

VOC Budget Test

The results of the VOC budget test for the FY2020-2026 draft TIP show that the emissions impacts associated with the planned improvements to the Northern Ada County transportation system (projects listed in Tables 1, 4, 6, and 8) will not exceed the VOC emissions budgets established by the PM₁₀ maintenance plan (Figure 5).

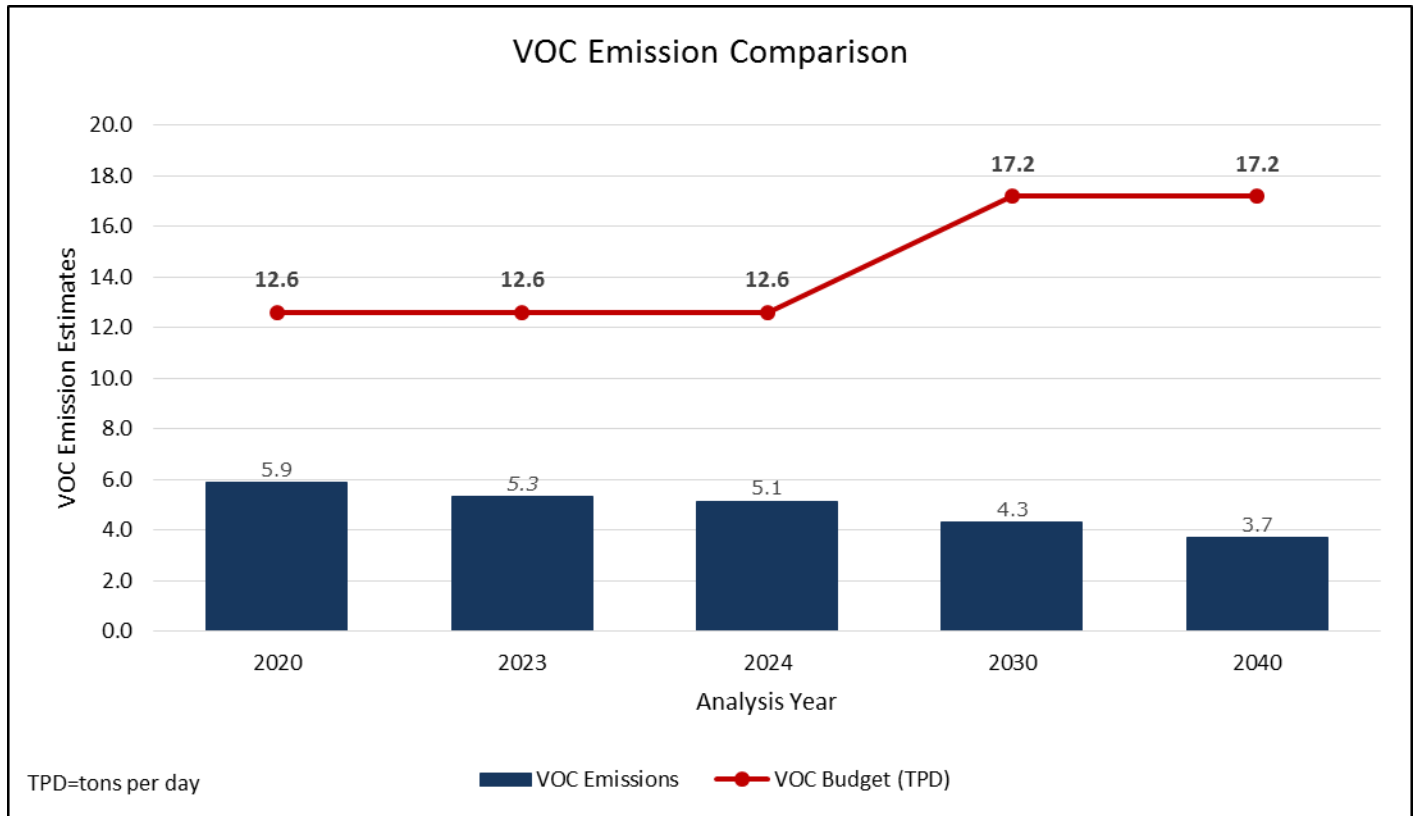


Figure 5: VOC Budget Test Results

NO_x Budget Test

The results of the NO_x budget test for the FY2020-2026 draft TIP show that the emissions impacts associated with the planned improvements to the Northern Ada County transportation system (projects listed in Tables 1, 4, 6, and 8) will not exceed the NO_x emissions budgets established by the PM₁₀ maintenance plan (Figure 6).

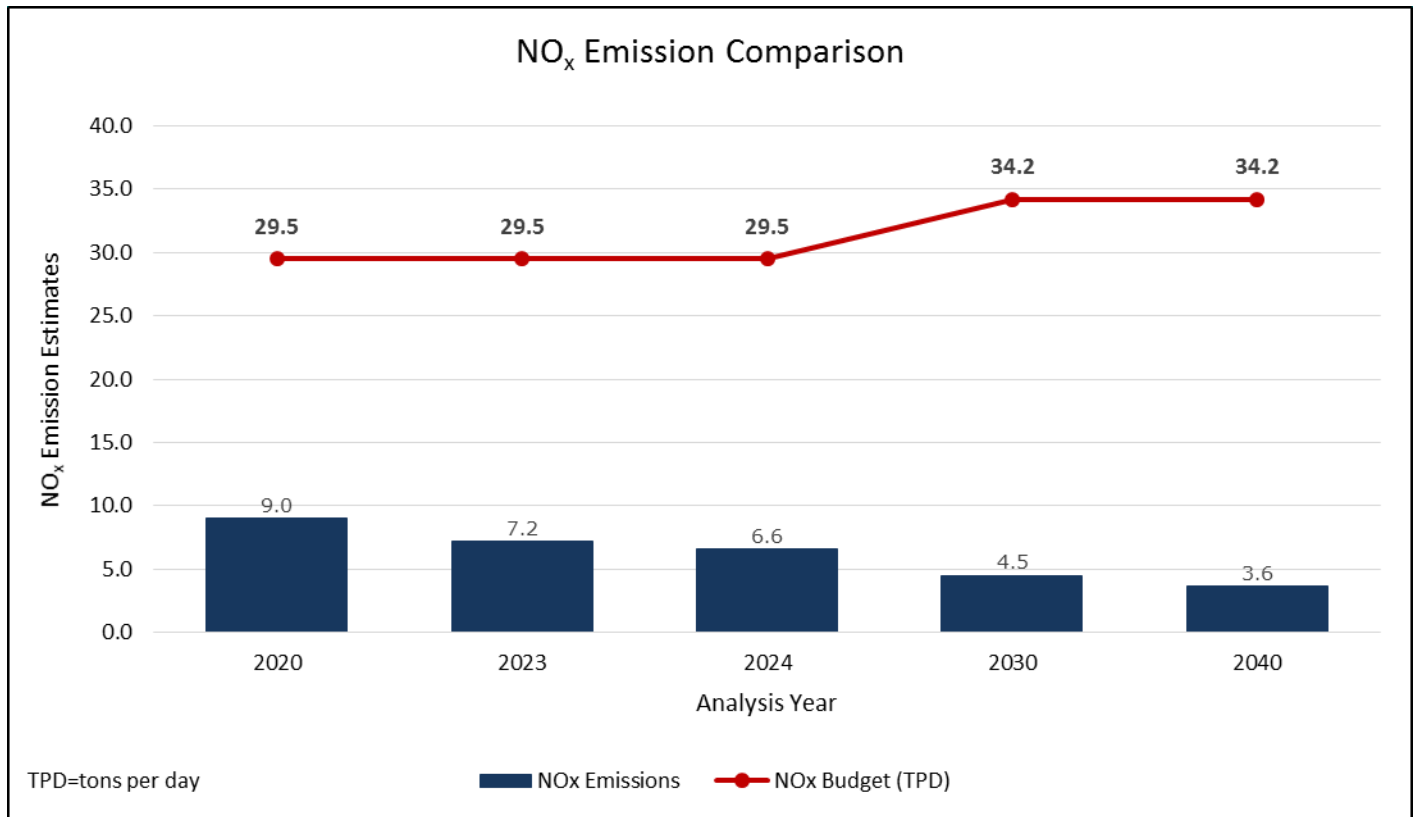


Figure 6: NO_x Budget Test Results

CO Planning Analyses

Build/No Build Emissions Comparison:

Figure 7 shows the comparison between the build and no build emissions scenarios for 2024. Figure 8 shows the comparison of CO emissions for the build scenario across analysis years as information only. Again, the purpose of build and no build comparison is fulfill the requirements per the Northern Ada County CO limited maintenance plan.

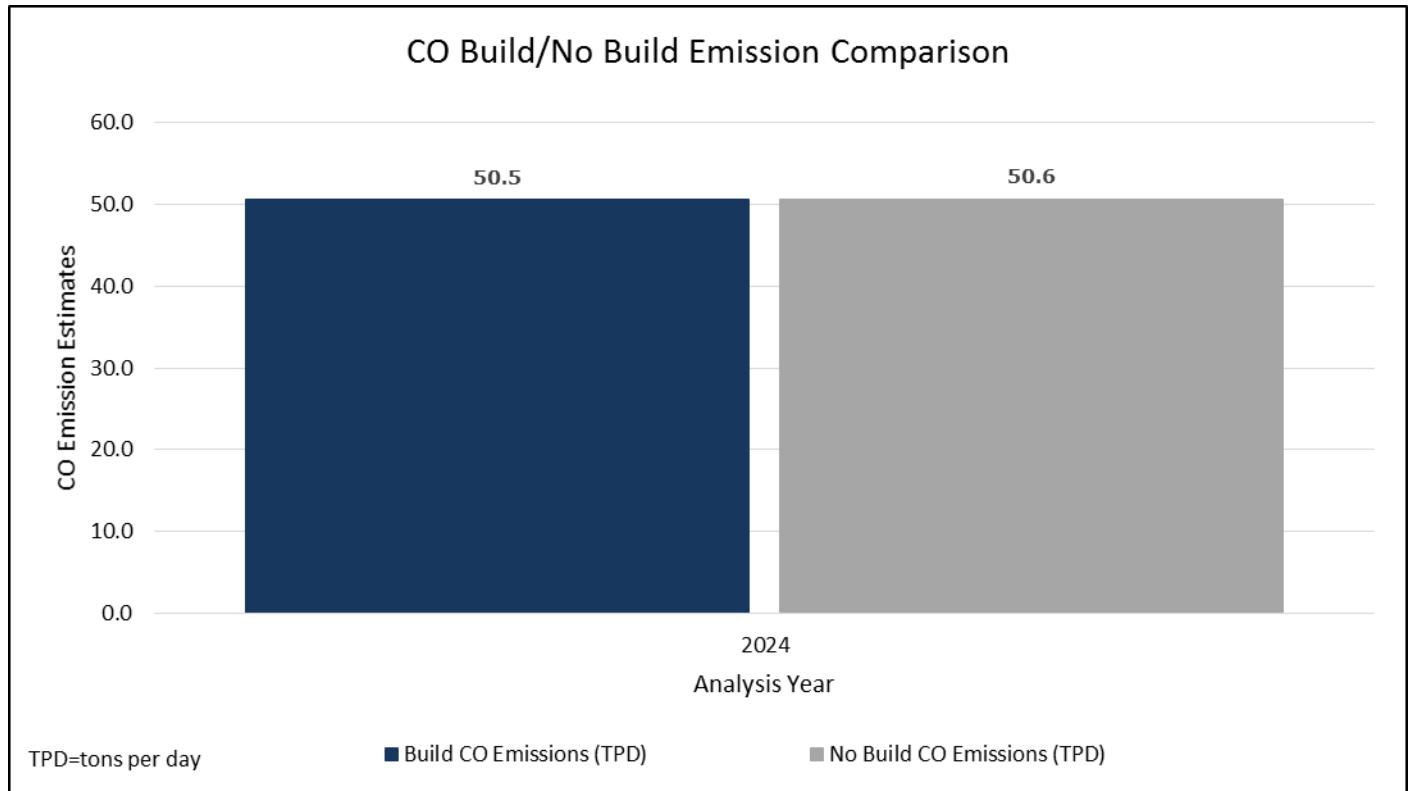


Figure 7: CO Build/No Build Comparison (2024)

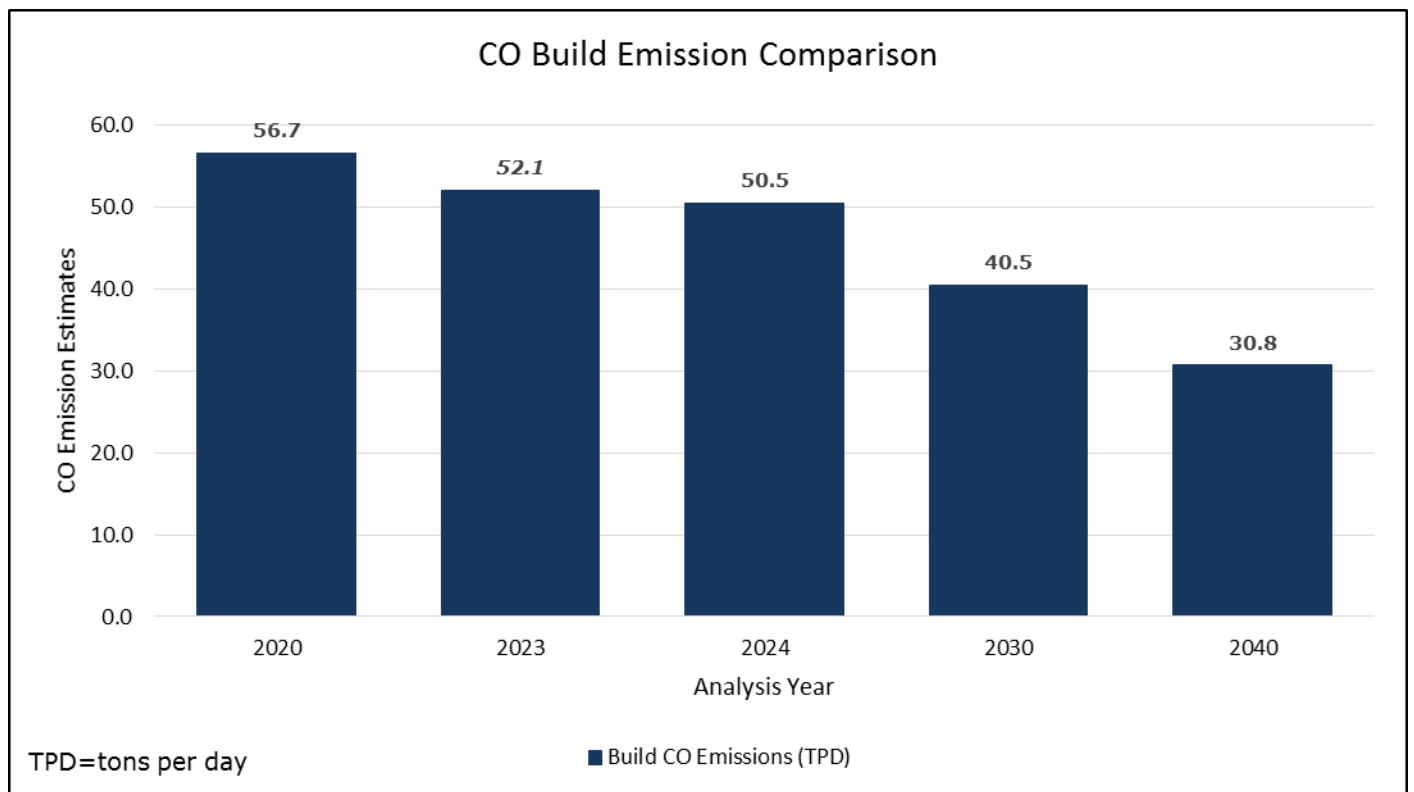
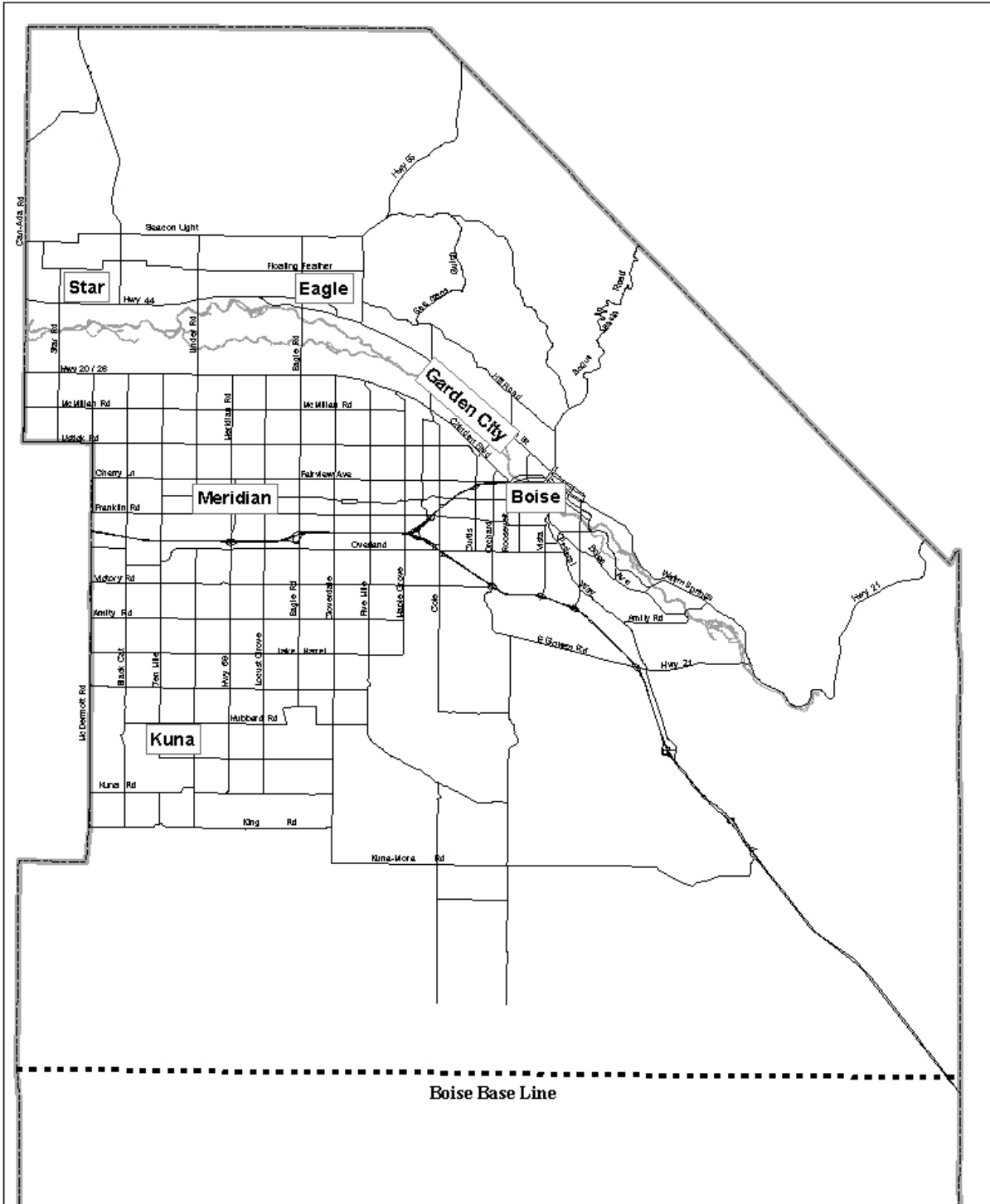


Figure 8: CO Build Comparison (2020 - 2040)

APPENDICES

Appendix A: Northern Ada County PM₁₀ and CO Maintenance Area



Legal Description for Northern Ada County PM₁₀ and CO Maintenance Area

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.

Appendix B: Approved Regional Emission Assumptions

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.

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 onboard diagnostics (OBD) check for 1996 and newer vehicles.
- 3) Evaporative system OBD check for 1996 and newer vehicles.
- 4) Compliance factor – This factor is calculated annually from the previous year's IM program statistics.
- 5) Four-year grace period for new vehicles
- 6) 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) Compliance factor – This factor is calculated annually from the previous year's IM program statistics.
- 6) Five-year grace period for new vehicles
- 7) 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 provided by Idaho Transportation Department (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.

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