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# Conformity Demonstration for the FY2016-2020 Regional Transportation Improvement Program

Report Number 02-2016

Adopted by the COMPASS Board on September 21, 2015

Resolution No. 19-2015

**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 (40CFR93), 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. 19-2015**

**FOR THE PURPOSE OF APPROVING THE  
FY2016-2020 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 Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) Act, Title 23 United States Code Section 134, and Title 49 United States Code Section 5303 require 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**, MAP-21, 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**, MAP-21, Title 23 United States Code Section 134, and Title 49 United States Code Section 5303 require Transportation Improvement Programs be developed and amended in consultation with all interested parties;

**WHEREAS**, a public comment period was held between July 20 and August 18, 2015, 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 FY2016-2020 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 Final FY2016-2020 Regional Transportation Improvement Program and the associated Air Quality Conformity Demonstration.

**DATED** this 21<sup>st</sup> day of September 2015.

**APPROVED:**

for By:   
\_\_\_\_\_  
**Garret Nancolas, Chair  
Community Planning Association  
of Southwest Idaho Board of Directors**

**ATTEST:**

By:   
\_\_\_\_\_  
**Matthew J. Stoll, Executive Director  
Community Planning Association  
of Southwest Idaho**

# TABLE OF CONTENTS

LIST OF FIGURES .....	2
LIST OF TABLES .....	2
LIST OF ACRONYMS .....	3
FOREWORD .....	4
SUMMARY .....	5
I. INTRODUCTION .....	7
Community Planning Association of Southwest Idaho .....	7
Clean Air Act Designations .....	7
Rules .....	8
II. EMISSIONS ESTIMATION .....	12
Emissions Analysis Assumptions and Tools .....	12
2016 Baseline Scenario .....	15
2020 Scenario .....	16
2025 Scenario .....	178
2035 Scenario and 2040 Scenario .....	20
Carbon Monoxide Emissions .....	24
III. CONCLUSIONS .....	25
PM <sub>10</sub> Budget Test .....	25
VOC Budget Test .....	26
NO <sub>x</sub> Budget Test .....	27
CO Planning Analyses .....	28
Appendix A: Northern Ada County PM <sub>10</sub> and CO Maintenance Area .....	30
Appendix B: Approved Regional Emission Assumptions .....	32

## LIST OF FIGURES

Figure 1: COMPASS Model Travel Modes.....	13
Figure 2: PM <sub>10</sub> Budget Test Results .....	25
Figure 3: VOC Budget Test Results .....	26
Figure 4: NO <sub>x</sub> Budget Test Results .....	27
Figure 5: CO Build/No Build Comparison .....	28

## LIST OF TABLES

Table 1: Projects Included in the 2016 Network for the 2016 Baseline Scenario .....	15
Table 2: 2016 Estimated Emissions, Tons per Day .....	15
Table 3: Projects Added to the 2016 Network for the 2020 Scenario .....	16
Table 4: 2020 Estimated Emissions, Tons per Day .....	16
Table 5: 2023 Interpolated Emissions, Tons per Day.....	17
Table 6: Projects Added to the 2023 Network for the 2025 Scenario .....	18
Table 7: 2025 Estimated Emissions, Tons per Day .....	19
Table 8: Projects Added to the 2025 Network for the 2035 Scenario and 2040 Scenario .....	20
Table 9: 2035 Estimated Emissions, Tons per Day .....	23
Table 10: 2040 Estimated Emissions, Tons per Day .....	23
Table 11: Build/No Build Scenario CO Emissions.....	24

## LIST OF ACRONYMS

ACHD	Ada County Highway District
ATR	Automatic Traffic Recorder
AVFT	Alternative Vehicle Fuels and Technology
CFR	Code of Federal Regulations
CIM	<i>Communities in Motion</i>
CIM 2040	<i>Communities in Motion 2040</i>
CIP	ACHD's Capital Improvement Plan
CNG	Compressed Natural Gas
CO	Carbon Monoxide
COMPASS	Community Planning Association of Southwest Idaho
DEQ	Idaho Department of Environmental Quality
E10	10% ethanol in gasoline
EPA	US. Environmental Protection Agency
IC	Interchange
ICC	Interagency Consultation Committee
ITD	Idaho Transportation Department
MOVES	Motor Vehicle Emission Simulator
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NO <sub>x</sub>	Oxides of Nitrogen
OBD	On-board Diagnostics
PM <sub>10</sub>	Particulate Matter with a Diameter Less than 10 Micrometers (i.e. 1x10 <sup>-6</sup> ) (Coarse Particulate Matter)
RPM	Revolutions Per Minute
SH	State Highway
SIP	State Implementation Plan
TIP	Transportation Improvement Program
TMAC	Transportation Modeling Advisory Committee
VIN	Vehicle Identification Number
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 (40CFR93). 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 pollutants<sup>1</sup> 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 FY2016-2020 Regional Transportation Improvement Program, covering northern Ada County and the Nampa Urbanized Area.

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<sup>1</sup> 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 are the two most widespread health threats.



## SUMMARY

The U.S Environmental Protection Agency'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 *Communities in Motion 2040* and the FY2016-2020 Regional Transportation Improvement Program (TIP). A TIP is a short-range (five-year) 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 2014, are 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 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. Northern Ada County is a "maintenance area" for two air pollutants – coarse particulate matter (PM<sub>10</sub>) and carbon monoxide (CO).

The *Northern Ada County PM<sub>10</sub> State Implementation Plan, Maintenance Plan: Ten-Year Update*<sup>2</sup> contains motor vehicle emissions budgets for three pollutants: coarse particulate matter, oxides of nitrogen, and volatile organic compounds. Emissions budget tests, as required by 40CFR93.118, demonstrate conformity of FY2016-2020 TIP. The *Northern Ada County Air Quality Maintenance Area Second 10-Year Carbon Monoxide Limited Maintenance Plan*<sup>3</sup> does not contain any motor vehicle emissions budgets. However, COMPASS conducts a carbon monoxide emissions analysis as requested by the Idaho Department of Environmental Quality to aid in regional air quality planning.

While areas with maintenance plans approved under EPA's limited maintenance plan option are not subject to the budget test, the areas remain subject to other transportation conformity requirements of 40CFR93, subpart A. Thus, the metropolitan planning organization (MPO) in the area or the state must document and ensure that:

- a. *Transportation plans and projects provide for timely implementation of SIP [State Implementation Plan] transportation control measures in accordance with 40CFR93.113;*
- b. *Transportation plans and projects comply with the fiscal constraint element per 40CFR93.108;*
- c. *The MPO's interagency consultation procedures meet applicable requirements of 40CFR93.105;*
- 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 40CFR93.104;*
- e. *The latest planning assumptions and emissions model are used as set forth in 40CFR93.110 and 40CFR93.111;*

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<sup>2</sup> [http://www.deq.idaho.gov/media/971222-ada\\_county\\_pm1\\_0\\_sip\\_0213.pdf](http://www.deq.idaho.gov/media/971222-ada_county_pm1_0_sip_0213.pdf)

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

- f. Projects do not cause or contribute to any new localized carbon monoxide or particulate matter violations, in accordance with procedures specified in 40CFR93.123; and*
- g. Project sponsors and/or operators provide written commitments as specified in 40CFR93.125. [40CFR93, subpart A]*

**The estimated emissions demonstrate that the projects contained in the FY2016 – 2020 TIP meet air quality conformity requirements for northern Ada County and will not degrade air quality.** Figures 2 – 5 (pages 25 – 28) show estimated emissions as compared to pollutant budgets coarse particulate matter, volatile organic compounds, oxides of nitrogen, and carbon monoxide.

## 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 northern 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 (PM<sub>10</sub>) 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 (40CFR93). 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 (PM<sub>10</sub>)

Northern Ada County is designated as a maintenance area in attainment of the 24-hour PM<sub>10</sub> NAAQS. Appendix A shows the extent of the maintenance area boundaries. While exceedances of the 24-hour PM<sub>10</sub> NAAQS have occurred due to wind-blown dust events, no violations of the 24-hour PM<sub>10</sub> 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 PM<sub>10</sub>. 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 PM<sub>10</sub> 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 PM<sub>10</sub> State Implementation Plan (SIP). In September 2003, the EPA approved the *Northern Ada County PM<sub>10</sub> SIP Maintenance Plan and Redesignation Request*. In March 2013, the *Northern Ada County PM<sub>10</sub> State Implementation Plan, Maintenance Plan: Ten-Year Update*<sup>4</sup> (PM<sub>10</sub> 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.

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<sup>4</sup>[http://www.deq.idaho.gov/media/971222-ada\\_county\\_pm10\\_sip\\_0213.pdf](http://www.deq.idaho.gov/media/971222-ada_county_pm10_sip_0213.pdf)

Commonly, past exceedances of the 24-hour PM<sub>10</sub> 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 form in the atmosphere out of gaseous pollutants such as oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOCs). Thus, both NO<sub>x</sub> and VOCs are considered precursors of PM<sub>10</sub>. As a result, the PM<sub>10</sub> maintenance plan contains approved PM<sub>10</sub>, NO<sub>x</sub>, and VOC motor vehicle emissions budgets.

### **Carbon Monoxide (CO)**

Additionally, Northern Ada County is designated as an attainment area with an approved limited maintenance plan of 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* (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 PM<sub>10</sub> maintenance plan established motor vehicle emissions budgets for PM<sub>10</sub>, NO<sub>x</sub>, and VOCs. Therefore, to satisfy transportation conformity requirements established by 40CFR93.118, budget tests must be performed for FY2016-2020 Regional Transportation Improvement Program (TIP). Budget tests are satisfied when regional emissions estimates based on the transportation projects outlined in a Regional Transportation Improvement Program (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.<sup>5</sup>*

Therefore, CO motor vehicle emissions budget tests are not federally required for Northern Ada County. However, DEQ requires COMPASS conduct a build/no build analysis of its programs and long-range plans in order to facilitate good air quality planning. If the results of this analysis show an unacceptable increase in CO emissions, DEQ may choose to require mitigation measures.

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<sup>5</sup> 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 nonattainment and maintenance areas establish an Interagency Consultation Committee (ICC) on transportation conformity. The Northern Ada County ICC approved the assumptions and methodologies employed in the development of the regional emissions analyses in this demonstration on June 16, 2015. The approved assumptions and methodologies are listed in Appendices B and C. The roadway project list was also approved by the ICC on June 16, 2015. 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 40CFR93.118(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 PM<sub>10</sub> maintenance plan established motor vehicle emissions budgets for 2008, 2015 and 2023. Demographics 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 CO build/no-build analysis are performed for:

- 2016 - Base year of the FY2016-2020 TIP
- 2020 - Last year of the FY2016-2020 TIP
- 2025 - Intermediate analysis year
- 2035 - Intermediate analysis year
- 2040- Long-range transportation plan (*Communities in Motion 2040* [CIM 2040]) horizon year

Projects for the five scenarios are shown in Tables 1, 3, 6, and 8. The results for these five scenarios are shown in Table 2, 4, 7, 9 and 10. Table 5 shows 2023 PM<sub>10</sub>, VOC, and NO<sub>x</sub> emissions and the 2023 established budget for all three pollutants. The 2023 emissions were interpolated using 2020 and 2025 emissions as allowable per 40CFR93.118(d)(2):

*The regional emissions analysis may be performed for any years in the timeframe of the conformity determination (as described under §93.106(d)) provided they are not more than ten years apart and provided the analysis is performed for the attainment year (if it is in the timeframe of the transportation plan and conformity determination) and the last year of the timeframe of the conformity determination. Emissions in years for which consistency with motor vehicle emissions budgets must be demonstrated, as required in paragraph (b) of this section, may be determined by interpolating between the years for which the regional emissions analysis is performed.*

## 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.

40CFR93.101<sup>6</sup> 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)<sup>7</sup> 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. 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.**

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<sup>6</sup> [Code of Federal Regulations Title 40: Protection of Environment](#)

<sup>7</sup> [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 40CFR93.126 (Exempt Projects), certain projects listed in a long-range transportation plan or TIP 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 40CFR93.126 are not considered exempt if the ICC concludes that they may have an adverse impact on air quality.

In addition, 40CFR93.127 (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 40CFR93.126, the projects listed in 40CFR93.127 may not be considered exempt if the ICC concludes they may have an adverse impact on air quality.

### **Transportation Control Measures**

As per 40CFR93.113(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 PM<sub>10</sub> maintenance plan or the CO maintenance plan. Therefore, the FY2015-2019 TIP meets the requirements of 40CFR93.113(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 MOVES2010b). 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.

COMPASS’ travel demand modeling activities are performed under the review of the Transportation Model Advisory Committee (TMAC). TMAC is a technical committee formed by the COMPASS Board of Directors. The committee is made up of local experts, technical staff from COMPASS member agencies, and local traffic engineers from both the public and private sectors. TMAC works with COMPASS staff to periodically calibrate and validate the travel demand model to reflect the actual travel patterns and behaviors in the Ada and Canyon Counties. A major update to the regional travel demand model was completed in January 2015. To learn more about the travel demand model visit <http://www.compassidaho.org/prodserv/traveldemand.htm>.

#### **Demographic Data**

The COMPASS Board 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 plan, was based on approved population and employment forecasts and was adopted by the COMPASS Board in October 2012. To learn more about the process and growth allocations visit [http://www.compassidaho.org/prodserv/cim2040\\_scenarioplanning.htm](http://www.compassidaho.org/prodserv/cim2040_scenarioplanning.htm).

In early 2014, COMPASS updated and reconciled the demographic forecasts to account for building permit activity and approved development since the CIM 2040 Vision was approved in 2012. The reconciled demographics were accepted by the COMPASS Demographic Advisory Committee on July 22, 2014, and adopted by the COMPASS Board August 18, 2014.

The CIM 2040 Vision forecasts demographic data in five-year increments. Demographic data for the analysis year of 2016 were developed (interpolated) using the 2015 and 2020 reconciled CIM 2040 demographic forecasts.



## Roadway Network Assumptions

The projects used in the regional emissions analysis for the FY2016-2020 TIP were derived from:

- COMPASS' FY2016-2020 TIP
- Ada County Highway District's (ACHD's) FY2015-2019 Integrated Five-Year Work Plan
- FY2016-2020 draft Idaho Transportation Investment Program
- ACHD's FY2012 Capital Improvement Plan (CIP) (FY2012-2031)
- CIM 2040, 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 ACHD's CIP and staff. Other future roadway projects listed on the funded list of both CIM 2040 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, 3, 6, and 8. Roadway projects listed as unfunded in CIM 2040 **and** right-of-way only/unfunded in ACHD's CIP were not included in the roadway networks. These "unfunded" projects could not 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.

Figure 1 shows the motorized 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.

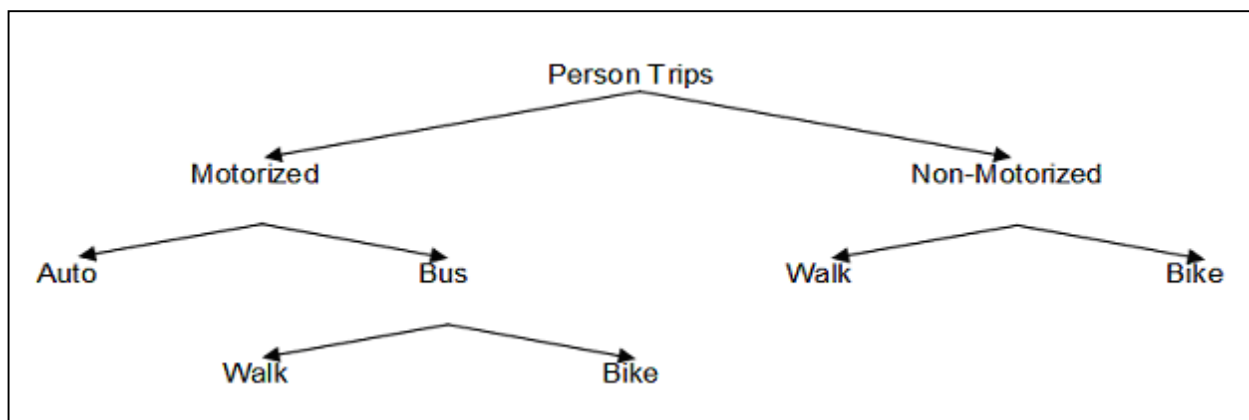


Figure 1: COMPASS Model Travel Modes

Currently, no major system expansion is funded for the region's transit system in either the FY2016-2020 TIP or CIM 2040. Therefore, only the transit system as it exists today is included in the analysis through 2040. The current system includes:

- Sixteen routes and approximately 718 stops with peak hour headways between 20-60 minutes in the Boise/Garden City service area.
- Five Nampa and Caldwell fixed routes with peak hour headways up to 60 minutes and one Nampa/Caldwell dial-a-ride service route.
- Five 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.

Chapter 5 in CIM 2040<sup>8</sup> contains more general information on the region's current transit system. Specific information on the routes and schedules used to model the transit system can be found at Valley Regional Transit's website: <http://www.valleyride.org/>.

### **Emissions Modeling**

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

The MOVES model uses local data inputs for climate, elevation, Northern Ada County's vehicle emissions testing program, and travel demand model forecasted 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. Both the PM<sub>10</sub> and CO maintenance plans were updated by DEQ's Boise Regional Office. 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:

PM<sub>10</sub> Maintenance Plan

[http://www.deq.idaho.gov/media/971222-ada\\_county\\_pm10\\_sip\\_0213.pdf](http://www.deq.idaho.gov/media/971222-ada_county_pm10_sip_0213.pdf)

PM<sub>10</sub> Maintenance Plan appendices

[http://www.deq.idaho.gov/media/971226-ada\\_county\\_pm10\\_sip\\_appendices\\_0213.pdf](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>

EPA's model Motor Vehicle Emissions Estimator

(MOVES) <http://www.epa.gov/otaq/models/moves/index.htm>.

As described on page 10, PM<sub>10</sub>, VOC, and NO<sub>x</sub> budget tests were performed under the five scenario years: 2016, 2020, 2025, 2035, and 2040. Results are shown in Table 2, 4, 7, 9 and 10. Table 5 shows interpolated 2023 PM<sub>10</sub>, VOC, and NO<sub>x</sub> emissions and the 2023 established budget for all three pollutants.

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<sup>8</sup> <http://www.compassidaho.org/prodserv/cim2040.htm#Plan>

## 2016 Baseline Scenario

The 2016 baseline scenario uses near-term population and employment estimates with the 2016 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 currently under-construction, with expected completion by the end of 2015.

No.	Project	Location	Lanes	Regionally Significant?	Federal Aid?	Exempt from Regional Conformity	Identification No. <sup>1</sup>
1.	Broadway Ave IC	Reconstruct interchange	NA	Yes	Yes	Yes - (40CFR 93.127)	09821
2.	Five Mile Rd	Franklin Rd – Fairview Ave	5	No	Yes	Yes	11582 / F038
3.	Gowen Rd IC	Reconstruct interchange	NA	Yes	Yes	Yes - (40CFR 93.127)	09822
4.	Hill Rd Extension	State St - Horseshoe Bend Rd	3	No	No	Yes	RD308
5.	I-84	Broadway Ave IC to Gowen IC	6	Yes	Yes	No	13812
6.	Lake Hazel Rd Extension	Connect existing Lake Hazel Rd to Cole Rd	2	Yes	No	No	RD213-17
7.	McMillan Rd	Locust Grove Rd - Eagle Rd	5	No	No	Yes	RC0240/ RD2012-100
8.	Meridian Rd IC	Reconstruct interchange	NA	Yes	Yes	Yes - (40CFR 93.127)	10939
9.	Ten Mile Rd	Cherry Ln - Ustick Rd	5	No	No	Yes	RD188/ RD2012-131
10.	Broadway Bridge Replacement	Front St to University Dr	6	Yes	Yes	No	11588
11.	Eagle Rd (SH 55)	Franklin Rd - Fairview Ave (Northbound)	6	Yes	No	No	13349 / 13473
12.	Five Mile Rd	Fairview Ave - Ustick Rd	5	No	No	Yes	RD195a/ RD2012-57

<sup>1</sup>Identification No: Numeric numbers refer to projects in the TIP. Alphanumeric identification numbers refer to projects in ACHD's Five-Year Work Plan or CIP.

Table 2 shows estimated motor vehicle emissions for PM<sub>10</sub>, VOC, and NO<sub>x</sub> from the 2015 baseline scenario.

2016	PM <sub>10</sub>				VOC	NO <sub>x</sub>
	Unpaved Road Dust Emissions	Paved Road Dust Emissions	Tailpipe, Tire, and Brakewear Emissions	Total PM <sub>10</sub> Emitted		
Estimated Emissions	2.65	22.64	0.70	26.0	6.57	13.48
<b>Budget</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>42.9</b>	<b>12.6</b>	<b>29.5</b>

## 2020 Scenario

The 2020 scenario uses 2020 population and employment forecasts with the 2020 roadway network. The 2020 roadway network includes the projects listed in Tables 1 and 3. (Note: The numbers in the "No." column are for reference only).

<b>Table 3: Projects Added to the 2016 Network for the 2020 Scenario</b>							
No.	Project	Location	Lanes	Regionally Significant?	Federal Aid? <sup>1</sup>	Exempt from Regional Conformity	Identification No. <sup>2</sup>
13.	Eagle Rd (SH 55)	River Valley Rd to Franklin Rd (Southbound)	6	Yes	No	No	13349 / 13473
14.	Cloverdale Rd	Franklin Rd – Fairview Ave	5	No	No	Yes	RD202-14/ RD2012-30 / RC0087
15.	Cloverdale Rd	Fairview Ave – Ustick Rd	5	No	No	Yes	RD202-14/ RD2012-31 / RC0087
16.	Cole Rd	I-84 WB ramps – Franklin Rd	5	Yes	No	No	RD207-16/ RD2012-34
17.	Emerald St / Americana Ave-sb only	Orchard St – Latah St (removing 2 travel lanes) and Latah St to Ann Morrison Park Entrance (removing 1 SB travel lane)	-2	No	No	Yes	CM212-08
18.	Executive Dr	Parkdale Ave – President Dr	5	No	No	Yes	UB212-07/ RD2012-119
19.	Franklin Rd	Black Cat Rd – Ten Mile Rd	5	Yes	Yes	No	RC0152/ RD2012-60/12368
20.	Pine Ave	Meridian Rd – Locust Grove Rd	3	No	No	Yes	RD2012-118
21.	Plaza Dr Extension	2 <sup>nd</sup> St to Iron Eagle Dr	2	No	No	Yes	RD203-08
22.	Ustick Rd	Linder Rd -Meridian Rd	5	Yes	TBD	No	RD205-05/ RD2012-139
23.	Ustick Rd	Meridian Rd – Locust Grove Rd	5	Yes	No	No	RD202-35/ RD2012-140

<sup>1</sup> The fiscal constraints of a long-range plan are more flexible than those of a TIP. Therefore, TBD means To Be Determined, as a funding source has not been identified.

<sup>2</sup> Identification No: Numeric numbers refer to projects in the TIP. Alphanumeric identification numbers refer to projects in ACHD's Five-Year Work Plan or CIP.

Table 4 shows estimated motor vehicle emissions for PM<sub>10</sub>, VOC, and NO<sub>x</sub> from the 2020 scenario.

<b>Table 4: 2020 Estimated Emissions, Tons per Day</b>						
2020	PM <sub>10</sub>				VOC	NO <sub>x</sub>
	Unpaved Road Dust Emissions	Paved Road Dust Emissions	Tailpipe, Tire, and Brakewear Emissions	Total PM <sub>10</sub> Emitted		
Estimated Emissions	2.65	24.99	0.61	28.3	5.36	10.11
<b>Budget</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>42.9</b>	<b>12.6</b>	<b>29.5</b>

Table 5 shows interpolated motor vehicle emissions for PM<sub>10</sub>, VOC, and NO<sub>x</sub> for the budget year of 2023. Emission estimates from 2020 and 2025 are used to interpolate the 2023 emissions.

<b>Table 5: 2023 Interpolated Emissions, Tons per Day</b>						
<b>2023</b>	<b>PM<sub>10</sub></b>				<b>VOC</b>	<b>NO<sub>x</sub></b>
	Unpaved Road Dust Emissions	Paved Road Dust Emissions	Tailpipe, Tire, and Brakewear Emissions	Total PM <sub>10</sub> Emitted		
Estimated Emissions	2.65	26.75	0.59	30.0	4.99	9.01
<b>Budget</b>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<b>60.1</b>	<b>17.2</b>	<b>34.2</b>

## 2025 Scenario

The 2025 scenario uses 2025 population and employment estimates with the 2025 roadway network. The 2025 roadway network includes all projects listed in Tables 1, 3, and 6. (Note: The numbers in the "No." column are for reference only).

<b>Table 6: Projects Added to the 2020 Network for the 2025 Scenario</b>							
No.	Project	Location	Lanes	Regionally Significant?	Federal Aid? <sup>1</sup>	Exempt from Regional Conformity	Identification No. <sup>2</sup>
24.	Black Cat Rd	Overland Rd - Franklin Rd (no widening of the overpass)	5	No	No	Yes	RD2012-18
25.	Black Cat Rd	Franklin Rd – Cherry Ln	5	No	No	Yes	RD2012-19
26.	Black Cat Rd	Cherry Ln – Ustick Rd	5	No	No	Yes	RD2012-20
27.	Cloverdale Rd	Overland Rd - Franklin Rd (no widening of the overpass)	5	No	No	Yes	RD2012-29
28.	Cloverdale Rd	Overland Rd – Victory Rd	5	No	No	Yes	RD2012-28
29.	Cloverdale Rd	Amity Rd – Victory Rd	5	No	No	Yes	RD2012-27
30.	Cloverdale Rd	Lake Hazel Rd – Amity Rd	5	No	No	Yes	RD2012-26
31.	Cloverdale Rd	Columbia Rd – Lake Hazel Rd	5	No	No	Yes	RD2012-25
32.	Cloverdale Rd	Ustick Rd – Chinden Blvd	5	No	No	Yes	RC0092/ RD2012-32
33.	Eagle Rd	SH 44 to Plaza Dr	5	No	No	Yes	RD2012-38
34.	Eagle Rd	Amity Rd – Victory Rd	5	Yes	No	No	RD2012-37
35.	Emerald St	Five Mile Rd – Curtis Rd	5	No	No	No	RD2012-41/42/43
36.	Executive St / Presidential	1000' east of Cloverdale Rd – Five Mile Rd (3 In couplet with Presidential)	5	No	No	Yes	RD2012-45
37.	Fairview Ave	Meridian Rd - Locust Grove Rd	7	Yes	No	No	RD2012-46
38.	Fairview Ave	Locust Grove Rd – Eagle Rd	7	Yes	No	No	RD2012-47
39.	Five Mile Rd	Victory Rd – Amity Rd	5	No	No	No	RD2012-54
40.	Five Mile Rd	Overland Rd - Franklin Rd (no widening of the overpass)	5	No	No	No	RD2012-55
41.	Hill Rd	Horseshoe Bend Rd – Seaman's Gulch Rd	5	No	No	No	RD2012-63
42.	Linder Rd	Chinden Blvd – SH 44	7	Yes	TBD	No	RD2012-85
43.	Linder Rd	McMillan Rd to Chinden Blvd (eastside of road only)	5	Yes	No	No	RD2012-84
44.	Linder Rd	SH 44 – Floating Feather Rd	5	Yes	TBD	No	RD2012-86
45.	Linder Rd	Floating Feather Rd – Beacon Light Rd	5	Yes	TBD	No	RD2012-87
46.	Linder Rd	Franklin Rd – Pine Ave	5	Yes	No	No	RD213-16
47.	Linder Rd	Pine Ave – Cherry Ln	5	Yes	No	No	RD2012-81
48.	Locust Grove Rd	Amity Rd – Victory Rd	3	No	No	Yes	RD2012-88
49.	Locust Grove Rd	Fairview Ave – Ustick Rd	5	No	No	Yes	RD2012-90
50.	Locust Grove Rd	Ustick Rd - McMillan Rd	3	No	No	Yes	RD2012-91
51.	Maple Grove Rd	Fairview Ave - McMillan Rd	5	No	TBD	Yes	RD2012-94/95
52.	Maple Grove Rd	Victory Rd to Overland Rd	5	No	No	Yes	RD207-22/ RD2012-93

No.	Project	Location	Lanes	Regionally Significant?	Federal Aid? <sup>1</sup>	Exempt from Regional Conformity	Identification No. <sup>2</sup>
53.	Maple Grove Rd	Amity Rd – Victory Rd	5	No	No	Yes	RD207-21/ RD2012-92
54.	McMillan Rd	Star Rd - McDermott Rd	3	No	No	Yes	RD2012-97
55.	McMillan Rd	McDermott Rd – Black Cat Rd	3	No	No	Yes	RD2012-98
56.	McMillan Rd	Black Cat Rd – Ten Mile Rd	3	No	No	Yes	RD2012-99
57.	Meridian Rd	Cherry Ln – Ustick Rd	5	No	No	Yes	RD207-23/ RD2012-104
58.	Meridian Rd	Ustick Rd – McMillan Rd	3	No	No	Yes	RD2012-105
59.	SH 44	SH 16 – Linder Rd	4	Yes	TBD	No	TBD
60.	Star Rd	McMillan Rd – Chinden Blvd	5	No	No	Yes	RD2012-121
61.	Star Rd	Chinden Blvd – SH 44	5	No	TBD	Yes	RD2012-122
62.	Ten Mile Rd	Victory Rd – Overland Rd	5	Yes	TBD	No	RC0299/ RD2012-130
63.	Ten Mile Rd	Ustick Rd – McMillan Rd	5	No	TBD	Yes	RD202-32/ RD2012-132
64.	Ustick Rd	Ten Mile Rd – Linder Rd	5	Yes	TBD	No	RD2012-138
65.	Ustick Rd	Cole Rd - Curtis Rd	5	No	No	Yes	RD2012-143
66.	Victory Rd	Meridian Rd – Locust Grove Rd	3	No	No	Yes	RD2012-148
67.	Victory Rd	Locust Grove Rd – Eagle Rd	3	No	No	Yes	RD2012-149
68.	Victory Rd	Cloverdale Rd – Five Mile Rd	5	No	No	Yes	RD2012-151
69.	Victory Rd	Five Mile Rd – Maple Grove Rd	5	No	No	Yes	RD2012-152

<sup>1</sup> The fiscal constraints of a long-range plan are more flexible than those of a TIP. Therefore, TBD means To Be Determined, as a funding source has not been identified.

<sup>2</sup> Identification No: Alphanumeric identification numbers refer to projects in ACHD's Five-Year Work Plan or CIP.

Table 7 shows estimated motor vehicle emissions for PM<sub>10</sub>, VOC, and NO<sub>x</sub> from the 2025 scenario.

2025	PM <sub>10</sub>				VOC	NO <sub>x</sub>
	Unpaved Road Dust Emissions	Paved Road Dust Emissions	Tailpipe, Tire, and Brakewear Emissions	Total PM <sub>10</sub> Emitted		
Estimated Emissions	2.65	27.92	0.57	31.1	4.75	8.28
<b>Budget</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>60.1</b>	<b>17.2</b>	<b>34.2</b>

## 2035 Scenario and 2040 Scenario

The 2035 scenario uses 2035 population and employment estimates with the 2035 roadway network. The 2035 roadway network includes all projects listed in Tables 1, 3, 6, and 8. (Note: The numbers in the "No." column are for reference only). The 2040 scenario uses 2040 population and employment estimates with the 2035 roadway network since no additional roadways projects are planned for funding.

<b>Table 8: Projects Added to the 2025 Network for the 2035 Scenario and 2040 Scenario</b>							
No.	Project	Location	Lanes	Regionally Significant?	Federal Aid? <sup>1</sup>	Exempt from Regional Conformity	Identification No. <sup>2</sup>
70.	36th St Extension 1	Bison Dr to Cartwright Rd	2	No	No	Yes	2027-2031
71.	36 <sup>th</sup> St Extension 2	Cartwright Rd and Bogus Basin Rd	2	No	No	Yes	2027-2031
72.	Amity Rd	Black Cat Rd –Ten Mile Rd	5	Yes	TBD	No	2022-2026/ Funded
73.	Amity Rd	Ten Mile Rd – Linder Rd	5	No	TBD	Yes	2027-2031
74.	Amity Rd	Linder Rd – Meridian Rd	5	No	TBD	Yes	2027-2031
75.	Amity Rd	SH 69 – Locust Grove Rd	5	No	TBD	Yes	2022-2026/ Funded
76.	Amity Rd	Locust Grove Rd – Eagle Rd	5	No	TBD	Yes	2022-2026/ Funded
77.	Avalon Rd (Kuna Rd)	Linder Rd - Orchard St	3	No	No	Yes	2022-2026
78.	Beacon Light Rd	SH 16 – Palmer Ln	5	No	TBD	Yes	2022-2026/ Unfunded
79.	Beacon Light Rd	Palmer Rd - Linder Rd	5	No	TBD	Yes	2022-2026/ Unfunded
80.	Beacon Light Rd	Linder Rd – Ballantyne Rd	5	No	TBD	Yes	2022-2026
81.	Beacon Light Rd	Ballantyne Rd – Eagle Rd	5	No	TBD	Yes	2022-2026
82.	Beacon Light Rd	Eagle Rd – SH 55	5	No	TBD	Yes	2027-2031
83.	Deer Flat Rd	Linder Rd – SH 69	5	No	No	Yes	2027-2031
84.	Eagle Rd	Lake Hazel Rd – Amity Rd	5	Yes	No	No	2022-2026/ Funded
85.	Eisenmann Rd	New Lake Hazel Rd – I-84 IC	5	No	No	Yes	2027-2031
86.	Eisenmann Rd	New Lake Hazel Rd – Gowen Rd	3	No	No	Yes	2027-2031
87.	Fairview Ave	Eagle Rd – Cloverdale Rd	7	Yes	TBD	No	2022-2026/ Funded
88.	Fairview Ave	Maple Grove Rd - Cole Rd	7	Yes	TBD	No	2022-2026/ Funded
89.	Fairview Ave	Cole Rd - Orchard St (or e/o Curtis Rd)	7	Yes	No	No	2027- 2031/Funded
90.	Fairview Ave	Cloverdale Rd - Five Mile Rd	7	Yes	No	No	2027-2031/ Funded
91.	Fairview Ave	Five Mile Rd - Maple Grove Rd	7	Yes	No	No	2027-2031 /Funded
92.	Five Mile Rd	Lake Hazel Rd – Amity Rd	5	No	No	Yes	2022-2026
93.	Five Mile Rd	Ustick Rd - McMillan Rd	5	No	No	Yes	2022-2026
94.	Franklin Rd	McDermott Rd - Black Cat Rd	5	Yes	No	No	2022-2026 /Funded
95.	Glenwood St / Cole Rd couplet	Two way couplet - Mountain View Dr	3	Yes	TBD	No	2027-2031/ Funded



**Table 8: Projects Added to the 2025 Network for the 2035 Scenario and 2040 Scenario**

No.	Project	Location	Lanes	Regionally Significant?	Federal Aid? <sup>1</sup>	Exempt from Regional Conformity	Identification No. <sup>2</sup>
96.	Lake Hazel Rd	Linder Rd – SH 69	5	Yes	TBD	No	2022-2026/ Funded
97.	Lake Hazel Rd	SH 69 – Locust Grove Rd	5	Yes	TBD	No	2022-2026/ Funded
98.	Lake Hazel Rd	Locust Grove Rd – Eagle Rd	5	Yes	TBD	No	2022-2026/ Funded
99.	Lake Hazel Rd	Eagle Rd – Cloverdale Rd	5	Yes	TBD	No	2027-2031/ Funded
100.	Lake Hazel Rd	Cloverdale Rd – Five Mile Rd	5	Yes	TBD	No	2022-2026/ Funded
101.	Lake Hazel Rd	Five Mile Rd – Maple Grove Rd	5	Yes	TBD	No	2022-2026/ Funded
102.	Lake Hazel Rd	Maple Grove Rd – Cole Rd	5	Yes	TBD	No	2022-2026/ Funded
103.	Lake Hazel Rd Ext 1	Cole Rd – Orchard St	5	Yes		No	2022-2026/ Funded
104.	Lake Hazel Rd Ext 2	Orchard Ext 1 – Pleasant Valley Rd	5	Yes	TBD	No	2027-2031/ Funded
105.	Lake Hazel Rd Ext 3	Pleasant Valley Rd – Eisenmann Rd	5	Yes	TBD	No	2027-2031/ Funded
106.	Linder Rd	Cherry Ln – Ustick Rd	5	Yes	No	No	2022-2026/ Funded
107.	Linder Rd	Ustick Rd – McMillan Rd	5	Yes	No	No	2022-2026/ Funded
108.	Linder Rd	Overland Rd - Franklin Rd (new overpass is NOT included)	5	Yes	TBD	No	2027-2031/ Unfunded
109.	Locust Grove Rd	Victory Rd – Overland Rd	3	No	No	Yes	2022-2026
110.	McMillan Rd	Can Ada Rd - Star Rd	3	No	No	Yes	2022-2026
111.	McMillan Rd	Cloverdale - Maple Grove Rd	5	No	No	Yes	2022-2026
112.	Meridian Rd	McMillan Rd – Chinden Blvd	3	No	No	Yes	2022-2026
113.	Orchard Rd Ext 1	Lake Hazel Rd – Orchard Ext	5	No	TBD	Yes	2027-2031/ funded
114.	Orchard Rd Ext 2	Pleasant Valley Rd – Orchard Ext	5	No	TBD	Yes	2027-2031/ funded
115.	Orchard Rd Ext 3	Orchard Ext 1 – Gowen Rd	5	Yes	TBD	No	2027-2031/ funded
116.	Orchard Rd Ext 4	Gowen Rd – Victory Rd	7	Yes	TBD	No	2027-2031/ funded
117.	Overland Rd New Extension	Black Cat Rd – Ten Mile Rd	3	No	TBD	Yes	Development Dependent
118.	State St	Glenwood St – Peirce Park Ln	7	Yes	TBD	No	Unfunded /2017-2021 /Funded
119.	State St	Peirce Park Ln – Collister Dr	7	Yes	TBD	No	Unfunded /2017-2021 /Funded
120.	State St	Collister Dr – 36 <sup>th</sup> St	7	Yes	TBD	No	Unfunded /2017-2021 /Funded
121.	State St	36 <sup>th</sup> St – 27 <sup>th</sup> St	7	Yes	TBD	No	Unfunded /2017-2021 /Funded

<b>Table 8: Projects Added to the 2025 Network for the 2035 Scenario and 2040 Scenario</b>							
No.	Project	Location	Lanes	Regionally Significant?	Federal Aid? <sup>1</sup>	Exempt from Regional Conformity	Identification No. <sup>2</sup>
122.	Ten Mile Rd	McMillan Rd – Chinden Blv d	5	No	No	Yes	2027-2031
123.	Ten Mile Rd	Lake Hazel - Victory Rd	5	Yes	TBD	No	2027-2031 /Funded
124.	Ten Mile Rd	Columbia Rd - Lake Hazel Rd	5	No	No	Yes	2027-2031
125.	US 20/26	Locust Grove Rd – Eagle Rd	4	Yes	TBD	No	2030
126.	Ustick Rd	Black Cat Rd – Ten Mile Rd	5	Yes	TBD	No	2022-2026/Funded
127.	Ustick Rd	McDermott Rd – Black Cat Rd	5	Yes	TBD	No	2022-2026 /Funded
128.	Victory Rd	McDermott Rd – Black Cat Rd	3	No	No	Yes	2022-2026
129.	Victory Rd	Black Cat Rd – Ten Mile Rd	3	No	No	Yes	2022-2026
130.	Victory Rd	Ten Mile Rd – Linder Rd	3	No	No	Yes	2022-2026
131.	Victory Rd	Linder Rd – Meridian Rd	3	No	No	Yes	2022-2026
132.	Victory Rd	Eagle Rd - Cloverdale Rd	5	No	TBD	Yes	2022-2026

The fiscal constraints of a long-range plan are more flexible than those of a TIP. Therefore, TBD means To Be Determined, as a funding source has not been identified.

<sup>2</sup>Identification No: Alphanumeric identification numbers refer to projects in ACHD's Five-Year Work Plan or CIP. Blanks indicate an identification number has not been assigned.

Table 9 and Table 10 show estimated motor vehicle emissions for PM<sub>10</sub>, VOC, and NO<sub>x</sub> from the 2035 scenario and 2040 scenario.

<b>Table 9: 2035 Estimated Emissions, Tons per Day</b>						
<b>2035</b>	<b>PM<sub>10</sub></b>				<b>VOC</b>	<b>NO<sub>x</sub></b>
	Unpaved Road Dust Emissions	Paved Road Dust Emissions	Tailpipe, Tire, and Brakewear Emissions	Total PM <sub>10</sub> Emitted		
Estimated Emissions	2.65	36.79	0.69	40.1	4.41	8.17
<b>Budget</b>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<b>60.1</b>	<b>17.2</b>	<b>34.2</b>

<b>Table 10: 2040 Estimated Emissions, Tons per Day</b>						
<b>2040</b>	<b>PM<sub>10</sub></b>				<b>VOC</b>	<b>NO<sub>x</sub></b>
	Unpaved Road Dust Emissions	Paved Road Dust Emissions	Tailpipe, Tire, and Brakewear Emissions	Total PM <sub>10</sub> Emitted		
Estimated Emissions	2.65	42.93	0.80	46.4	4.96	9.09
<b>Budget</b>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<b>60.1</b>	<b>17.2</b>	<b>34.2</b>

## 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 PM<sub>10</sub>, NO<sub>x</sub>, and VOC emissions, above. Table 1, 3, 6, and 8 provide more detailed information on the roadway projects used to develop the build scenario networks.

The no build scenarios use the 2016 (baseline) transportation network with the demographic assumptions specific to the analysis year. Table 1 provides more detailed information on the roadway projects included in the 2016 baseline transportation network.

Table 11 shows the build and no build CO emissions estimates for 2015, 2020, 2025, 2035, and 2040.

<b>Table 11: Build/No Build Scenario CO Emissions</b>					
	Year				
	2016	2020	2025	2035	2040
Build CO Emissions (Ton/day)	81.07	81.07	81.15	97.99	111.67
No Build CO Emissions (Ton/day)	n/a	81.06	81.15	98.26	112.36

Note: Table 11 and Figure 5 (page 28) show identical 2025 CO emissions in tons/day for both the build and no build scenarios. MOVES estimates all pollutants in tons/year, which are then converted to tons/day. Prior to being converted to tons/day, the estimated tons/year CO emissions for the 2020 no build scenario are slightly higher than for the build scenario.

### III. CONCLUSIONS

#### PM<sub>10</sub> Budget Test

The results of the PM<sub>10</sub> budget test for FY2016-2020 TIP show that the emissions impacts associated with the planned improvements to the northern Ada County transportation system (projects listed in Tables 1, 3, 6, and 8) will not exceed the PM<sub>10</sub> emissions budgets established by the PM<sub>10</sub> maintenance plan (Figure 2).

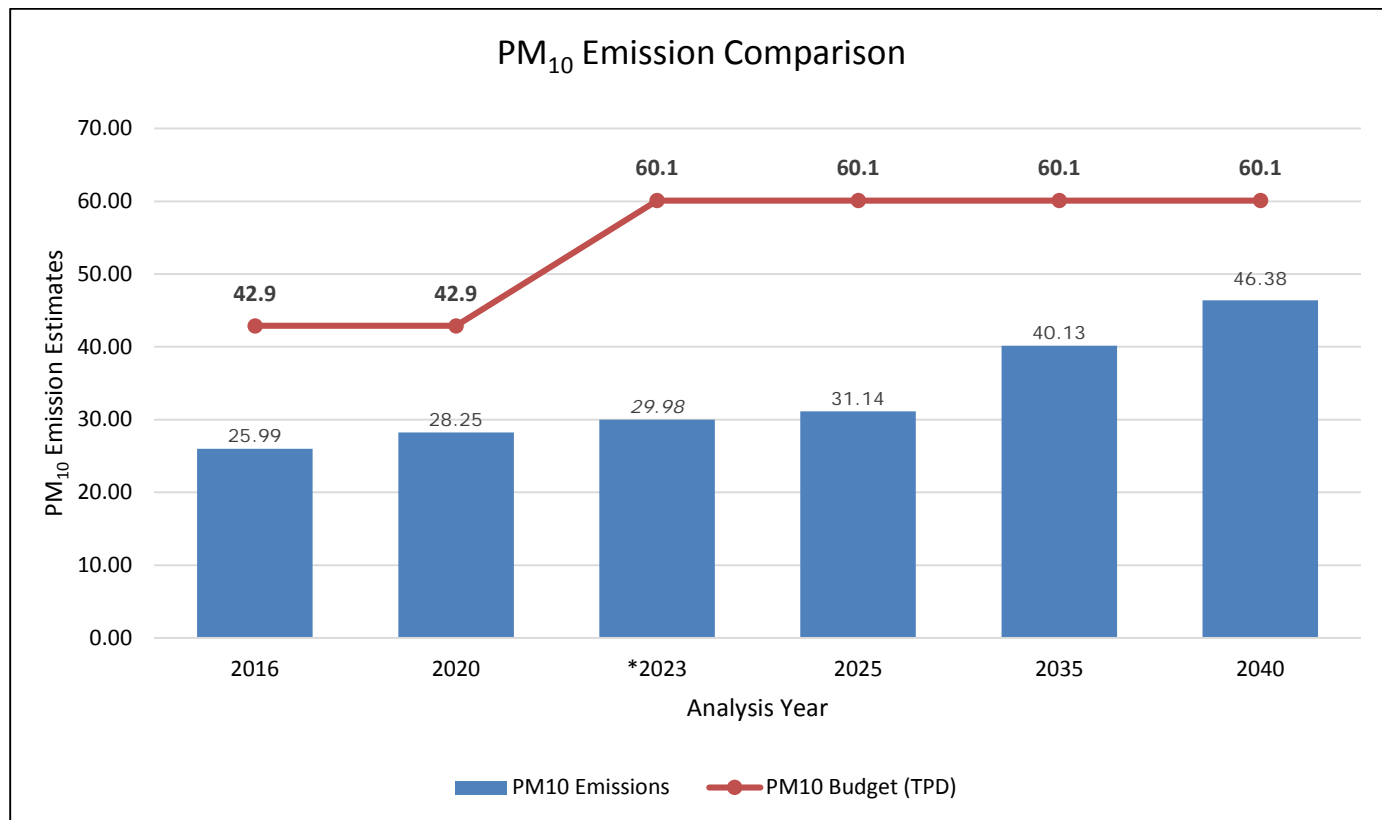


Figure 2: PM<sub>10</sub> Budget Test Results

## VOC Budget Test

The results of the VOC budget test for FY2016-2020 TIP show that the emissions impacts associated with the planned improvements to the northern Ada County transportation system (projects listed in Tables 1, 3, 6, and 8) will not exceed the VOC emissions budgets established by the PM<sub>10</sub> maintenance plan (Figure 3).

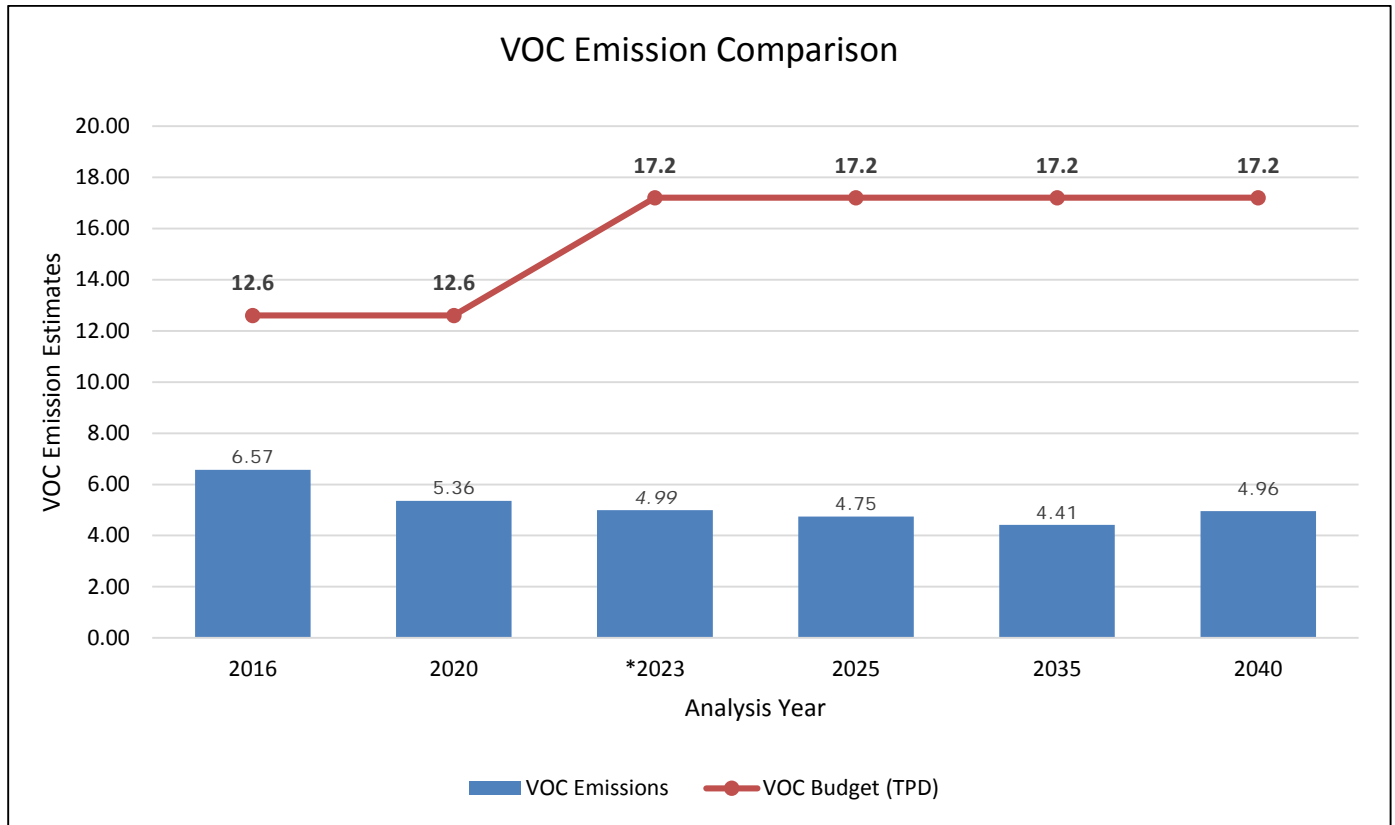


Figure 3: VOC Budget Test Results

## NO<sub>x</sub> Budget Test

The results of the NO<sub>x</sub> budget test for FY2016-2020 TIP show that the emissions impacts associated with the planned improvements to the northern Ada County transportation system (projects listed in Tables 1, 3, 6, and 8) will not exceed the NO<sub>x</sub> emissions budgets established by the PM<sub>10</sub> maintenance plan (Figure 4).

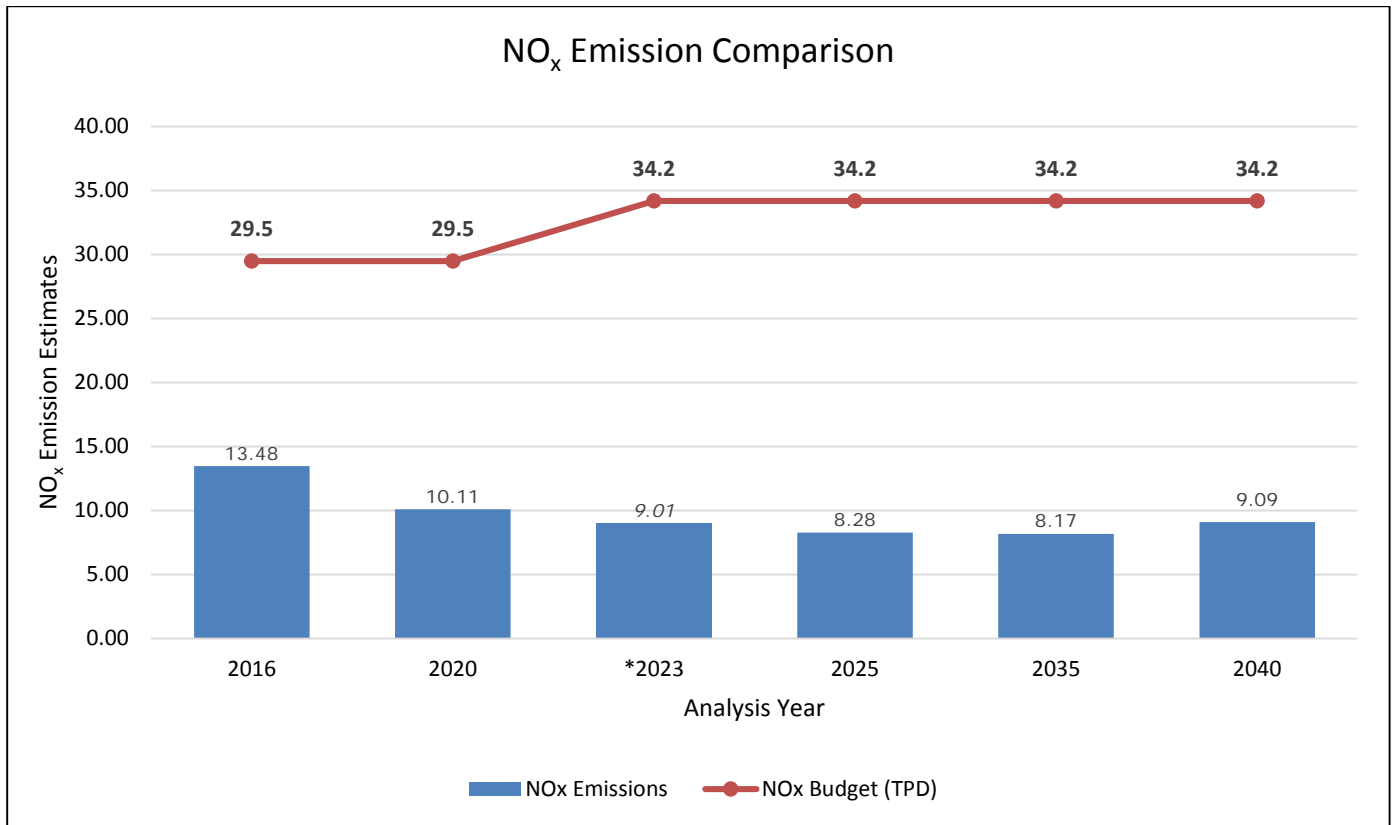
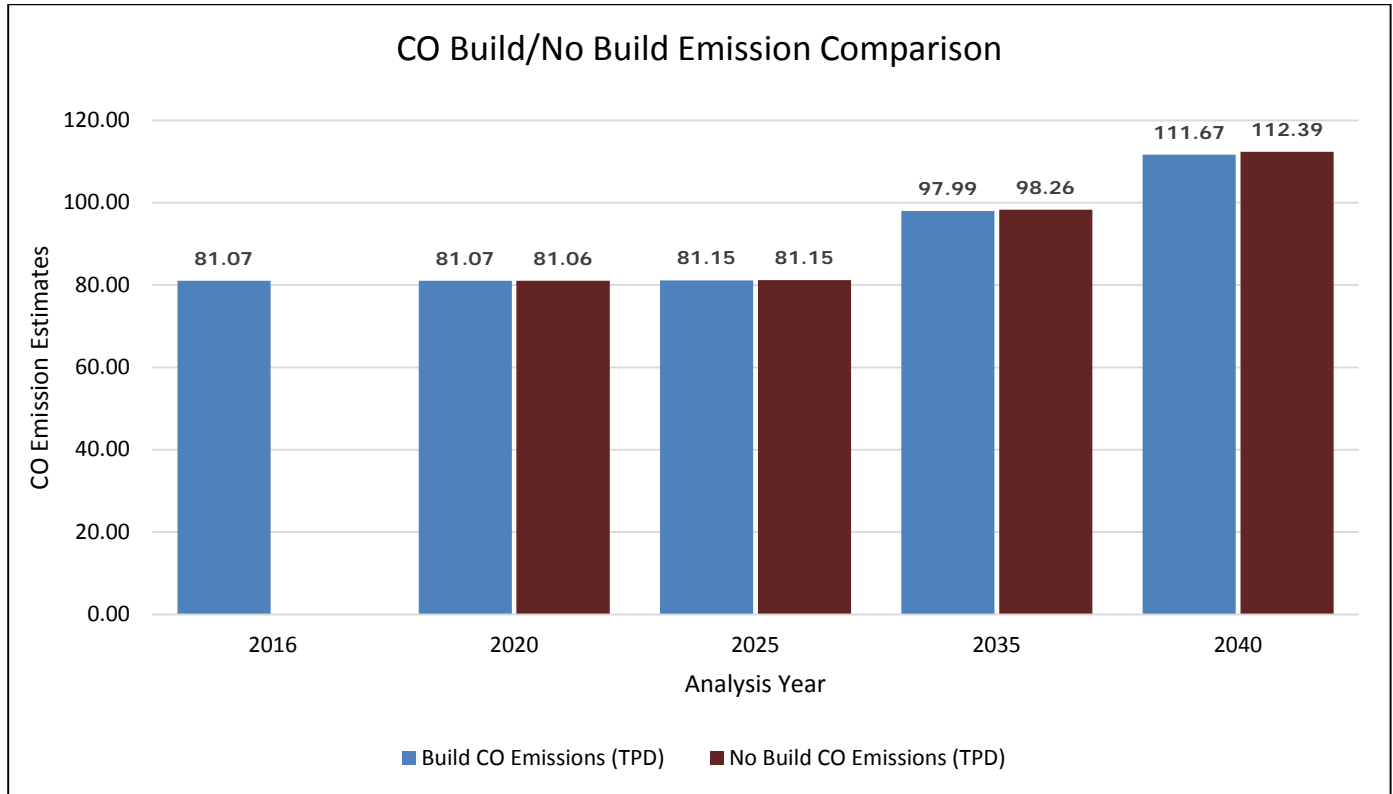


Figure 4: NO<sub>x</sub> Budget Test Results

## CO Planning Analyses

### Build/No Build Emissions Comparison:

Figure 5 shows the comparison between the build and no build emissions scenarios for each analysis year. Again, the purpose of these comparisons is not to demonstrate conformity with the CO limited maintenance plan, but rather to facilitate good air quality planning in northern Ada County.



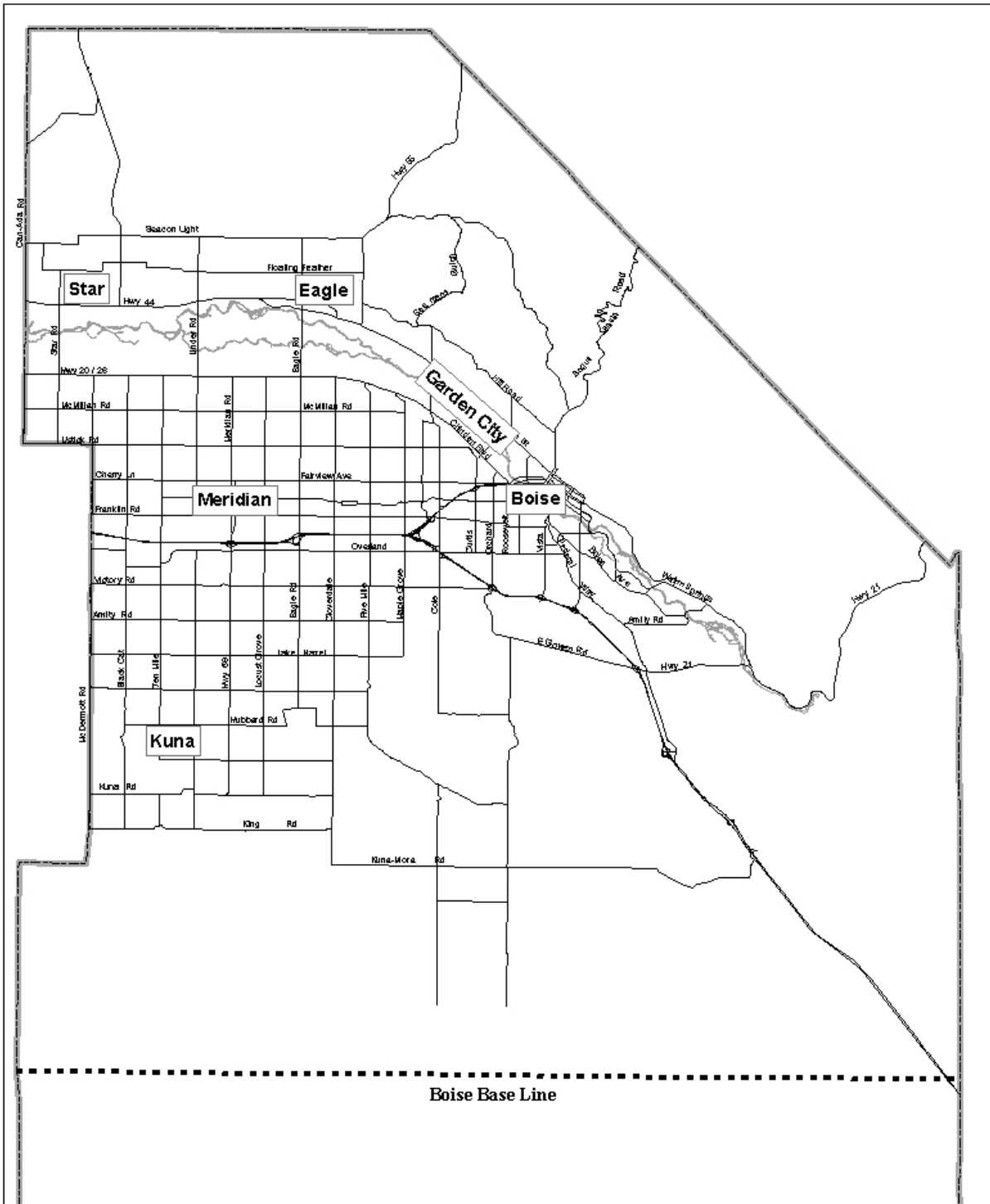
**Figure 5: CO Build/No Build Comparison**

The comparisons show that the CO emissions for the build scenario are slightly higher than the no build scenario in 2020, and slightly lower in 2035 and 2040. As noted earlier, the CO emissions are the same for the 2025 build and no build scenarios. MOVES estimates all pollutants in tons/year, which are then converted to tons/day. Prior to being converted to tons/day, the estimated tons/year CO emissions for the 2020 build scenario are slightly higher than for the no build scenario. The higher estimate for the build scenario in 2020 is due to a reduction in roadway congestion, which increased network speeds forecasted by the regional travel demand model. Carbon monoxide emissions factors are very sensitive to speed. Since the 2020 build scenario emission estimates are higher than the no build, the build scenario is compared to the 1990 CO emissions as allowed by the conformity rule under 40CFR93.119(c)(ii). The 1990 on-road mobile source emissions are 58,777.3 tons per year (161.03 tons per day). Clearly, the 2025 CO emission estimate of 81.07 tons per day is below the 1990 CO emissions.



# **APPENDICES**

# Appendix A: Northern Ada County PM<sub>10</sub> and CO Maintenance Area



## **Legal Description for Northern Ada County PM<sub>10</sub> 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 Ada and Canyon Counties using the Polk vehicle identification number (VIN) decoding system. The decoded VINs provide information regarding the vehicle make, model, age, and fuel types. This information was then used to develop the MOVES input.

### Inspection Maintenance Program – June 1, 2010 - future

#### **Ada County:**

- 1) Two speed test (idle and 2500 RPM) for pre 1996 vehicles only.
- 2) Exhaust on-board diagnostics (OBD) check for 1996 and newer vehicles.
- 3) Evaporative system OBD check for 1996 and newer vehicles.
- 4) Compliance rate = 98.0%.
- 5) Waiver rate = 1.0%
- 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) Compliance rate = 98.0%.
- 6) Waiver rate = 1.0%
- 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 same AVFT input was used for base and future years.

**Fuel Supply:** National default fuel supply inputs were used for all source types except transit buses. A large portion of the transit bus fleet in Ada and Canyon Counties operates on compressed natural gas (CNG). For this reason, CNG fuels were included in base- and future-year modeling.

**Fuel Formulation:** With the exception of 10% ethanol in gasoline (E10), MOVES national default fuel formulations were used as base-year inputs for each county. These default values were judged to be reasonable based on local knowledge, except for the E10 market share. The base-year E10 market share was updated with information provided by fuel suppliers.

### 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 Ada and Canyon Counties and detailed ATR data provided by ITD.