

sierra research



FINAL Report

**FINAL Air Quality Conformity
Determination for the Federally
Approved FMATS 2017-2020
Transportation Improvement
Program (TIP)**

Prepared for:

**Fairbanks Metropolitan Area
Transportation System**

February 15, 2017

prepared by:

Sierra Research, Inc.
1801 J Street
Sacramento, California 95811
(916) 444-6666

FINAL REPORT

FINAL
Air Quality Conformity Determination for the Federally Approved
FMATS 2017-2020 Transportation Improvement Program (TIP)

prepared for:

Fairbanks Metropolitan Area Transportation System

February 15, 2017

Principal author:

Thomas R. Carlson

Sierra Research, Inc.
1801 J Street
Sacramento, CA 95811
(916) 444-6666

FINAL
Air Quality Conformity Determination for the Federally Approved
FMATS 2017-2020 Transportation Improvement Program (TIP)

Table of Contents

	<u>Page</u>
1. Executive Summary	1
1.1 Conformity Tests	3
1.2 Results of the Conformity Determination.....	4
1.3 Report Organization.....	4
2. Conformity Requirements.....	5
2.1 Background.....	5
2.2 Conformity Regulation Requirements	6
2.3 Conformity Analysis Years.....	8
3. Latest Planning Assumptions and Modeling	10
3.1 Latest Planning Assumptions.....	10
3.2 Transportation Modeling	11
3.3 Traffic Estimates.....	13
3.4 Use of Previous Regional Emissions Modeling from 2040 MTP.....	13
3.5 Vehicle Emissions Modeling	19
4. Consultation Procedures	20
4.1 Interagency Consultation	20
4.2 Public Consultation.....	20
5. TIP Conformity.....	22
5.1 TCM Implementation Requirements	22
5.2 PM _{2.5} Conformity.....	23
5.3 CO Conformity	24

- Appendix A – Conformity Checklist
- Appendix B – Transportation Project Listing
- Appendix C – Consultation Correspondence
- Appendix D – Public Meeting Process Documentation
- Appendix E – Response to Comments

List of Tables

<u>Table</u>	<u>Page</u>
Table 2-1 2008 Baseline Vehicle Emissions (tons per average winter day).....	8
Table 5-1 PM _{2.5} Conformity Test Results.....	23

List of Figures

<u>Figure</u>	<u>Page</u>
Figure 3-1 Fairbanks Metropolitan Area Transportation System (FMATS) Planning Areas	12

1. EXECUTIVE SUMMARY

This report presents the carbon monoxide (CO) and fine particulate matter (PM_{2.5}) Air Quality Conformity Determination (AQCD) for the federally approved 2017-2020 FMATS Transportation Improvement Program (2017 TIP). The Fairbanks Metropolitan Area Transportation System (FMATS) is the designated Metropolitan Planning Organization (MPO) for the urbanized area of the Fairbanks North Star Borough (FNSB), including the cities of Fairbanks and North Pole, Alaska, and is responsible for regional transportation planning. The 2017 TIP is a four-year spending plan for all federal highway funds anticipated for the FMATS area for Federal Fiscal Years (FFY) 2017-2020. The associated Metropolitan Transportation Plan (MTP) is a 27-year look at transportation needs and potential solutions through FFY 2040 and was approved by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) on January 30, 2015.

The 2017 TIP and the associated 2040 MTP have been financially constrained in accordance with the requirements of 40 CFR 93.108 and consistent with the U.S. DOT metropolitan planning regulations (23 CFR Part 450). A discussion of financial constraint and funding sources is included in the MTP and 2017 TIP documents. The 2017 TIP was adopted by the Policy Board of the MPO on February 17, 2017 and a conformity determination is expected by the end of the month.

The U.S. Environmental Protection Agency (EPA) originally designated a portion of the Fairbanks North Star Borough (FNSB) as a Moderate Nonattainment Area for CO. This was based on an 8-hour average design value of 10.4 parts per million (ppm) of CO. Fairbanks failed to reach attainment by the end of 1995, and effective March 30, 1998, EPA formally reclassified Fairbanks to a “Serious CO Nonattainment Area,” as mandated by the 1990 Clean Air Act Amendments. Effective April 5, 2002, EPA made a determination that the Fairbanks area had attained the CO NAAQS. The State submitted an Air Quality Maintenance Plan on June 21, 2004, and EPA made a formal “CO Maintenance Area” designation approving this plan on September 27, 2004. Fairbanks has not recorded an exceedance of the ambient CO standard since 2000. The original ten-year Maintenance Plan has been amended several times since the 2004 submission, including revisions that were adopted by the State on April 4, 2008,¹ that reflected a decision to terminate the Fairbanks I/M Program at the end of 2009. On March 22, 2010, EPA approved² this revised version of the Maintenance Plan.

¹ <http://www.dec.state.ak.us/air/sip.htm>

² Federal Register, Vol. 75, No. 54, March 22, 2010.

On April 22, 2013, the State submitted a CO Limited Maintenance Plan (LMP) designed to keep the Fairbanks area in attainment with the CO NAAQS for a second ten-year period beyond re-designation to a Maintenance Area. On August 9, 2013, EPA approved³ the CO LMP for Fairbanks. As explained further in Section 2.2, areas with approved LMPs no longer require emission budget tests and a regional emissions analysis for the pollutant(s) addressed in the LMP, although conformity requirements still apply. As explained in Section 5, these requirements are met. Therefore, a finding of CO conformity for the 2017 TIP is supported.

EPA designated Fairbanks nonattainment for the 2006 PM_{2.5} standard, effective December 14, 2009. Conformity for the PM_{2.5} standard applies one year after the effective date (December 14, 2010). EPA published the Transportation Conformity Rule PM_{2.5} and PM₁₀ Amendments on March 24, 2010; the rule became effective on April 23, 2010.⁴ This PM Amendments Final Rule amends the conformity regulation to address the 2006 PM_{2.5} (NAAQS). The analysis presented in this report demonstrates that the criteria specified in the federal transportation conformity rule for a conformity determination are satisfied by the TIP. A finding of conformity for the FMATS 2017 TIP is therefore supported.

Interagency consultation occurred in June and July 2016 on the proposed methodology for the conformity analysis for the 2017 TIP. Issues addressed in those consultations included models, associated methods, and assumptions for use in regional emissions analyses; and the basic steps for completing the conformity demonstration. Interagency review of the project list in the 2017 TIP was performed in November and December 2016. A key finding during interagency consultation was that the specific projects contained in the 2017 TIP were either consistent with those contained in the earlier 2040 MTP or were found to be exempt from conformity or regional emissions analysis requirements as defined under 40 CFR 93.126 and 93.127. Since all non-exempt projects were consistent with those in the previous plan (the 2040 MTP), 40 CFR 93.122(g)(1) permits reliance on the regional emissions analysis from that plan. As further explained in Section 3.4, each of the criteria under 40 CFR 93.122(g)(1) was met and the 2040 MTP regional emissions analysis was utilized for the conformity determination for this 2017 TIP.

As described in greater detail in the following sub-section, the applicable conformity requirements differed for PM_{2.5} and CO; thus, separate methodologies were developed that addressed the requirements of each test and were approved by the interagency consultation participants.

The applicable federal criteria or requirements for conformity determinations, the conformity tests applied, the results of the conformity assessment, and an overview of the organization of this report are summarized below.

³ Federal Register, Vol. 78, No. 154, August 9, 2013.

⁴ U.S. Environmental Protection Agency, 2010. 40 CFR Part 93. "Transportation Conformity Rule PM_{2.5} and PM₁₀ Amendments; Final Rule." Federal Register, March 24, 2010, Vol. 75, No. 56, p. 14260.

FHWA has developed a Conformity Checklist (included in Appendix A) that contains the required items to complete a conformity determination. Appropriate references to these items are noted on the checklist.

1.1 Conformity Tests

The conformity tests specified in the federal transportation conformity regulation are (1) the emissions budget test, and (2) the interim emission test. If there is no approved air quality plan for a pollutant for which the region is in nonattainment or no emission budget has been found to be adequate for transportation conformity purposes, the interim emission test applies. For air quality planning areas with approved Limited Maintenance Plans, no emission tests (budget or interim) are required.

At this time Fairbanks has an approved Limited Maintenance Plan for CO. In December 2014, the State submitted a Moderate Area State Implementation Plan (SIP) for PM_{2.5} to EPA. As of the time of preparation of this 2017 TIP, EPA has not yet formally taken action on Moderate PM_{2.5} SIP. Thus, there is no emission test required for CO, and the interim emission test currently applies to PM_{2.5} as described separately below.

CO Conformity – For areas with an approved Limited Maintenance Plan, EPA has concluded that vehicle emissions need not be capped for regional transportation conformity purposes over the course of the maintenance period and a regional emissions analysis and associated budget test (40 CFR 93.118 and 93.119) are not required.

PM_{2.5} Conformity – For areas without an approved air quality plan (and emission budgets), conformity may be demonstrated if the emissions from the proposed transportation system are no greater than baseline year motor vehicle emissions in a given area (see Section 93.119). Conformity may also be demonstrated if the emissions from the proposed transportation system (“build” scenario) are less than or equal to emissions from the existing transportation system (“no-build” scenario).

The rule allows PM_{2.5} nonattainment areas to choose between the two interim emissions tests each time that they determine conformity before adequate or approved PM_{2.5} SIP budgets are established. However, the same test must be used for each analysis year in a given conformity determination.

FMATS chooses to use the “no-greater-than-2008 emissions” test for PM_{2.5} (and precursor emissions of oxides of nitrogen [NO_x]) using EPA’s MOVES2010b vehicle emissions model. (Although the latest version of MOVES is MOVES2014a, the PM_{2.5} conformity determination for this TIP references the regional emissions analysis conducted under the approved 2040 MTP, which was based on MOVES2010b. Moreover, the differences between these versions of MOVES would not adversely affect the MOVES2010b-based conformity findings.)

1.2 Results of the Conformity Determination

A regional emissions analysis was conducted to meet the PM_{2.5} conformity requirements. Although a regional emissions test was not required for CO since Fairbanks has an approved CO Limited Maintenance Plan in place, regional CO emissions were also estimated for informational purposes to ensure that the 2040 MTP is consistent with the LMP. All analyses were conducted using the latest planning assumptions and emissions models. The major conclusions of the FMATS 2040 MTP Conformity Analysis are outlined below.

- Total regional vehicle-related PM_{2.5} and NO_x precursor emissions associated with implementation of the 2040 MTP for the analysis years 2020, 2030, and 2040 have been estimated and are no greater than the 2008 baseline motor vehicle emissions, thus passing the required “not to exceed baseline” interim emissions test. Section 5.2 contains the regional emissions summary for the Fairbanks nonattainment area and explains how the PM_{2.5} conformity requirements are met.
- All CO conformity requirements are met. Even though an emissions test is not required since the area has an approved CO LMP in place, other criteria still apply that ensure the MTP is consistent with the projections/assumptions in the LMP. As explained in Section 5.3, each of these criteria has been fulfilled.
- Interagency consultation has been conducted in accordance with federal requirements, which are incorporated into Alaska Department of Environmental Conservation’s (ADEC’s) Conformity Regulations.⁵

1.3 Report Organization

Following this Executive Summary, Section 2 provides an overview of the applicable PM_{2.5} conformity rule and requirements, including an approach to meet requirements and the conformity analysis years. Section 3 contains a discussion of the latest planning assumptions, transportation modeling, and air quality modeling used to estimate regional emissions. Section 4 provides an overview of the interagency consultation conducted by FMATS. The results of the conformity analysis for the MTP are provided in Section 5.

Consultation documentation and other related information are contained in the appendices. FHWA’s checklist for conformity documentation is provided in Appendix A. Appendix B contains a listing of the transportation projects included in the 2017 TIP. Appendix C includes copies of interagency consultation correspondence. Appendix D contains public meeting process documentation. Comments received on the conformity analysis and responses made as part of the public involvement process are included in Appendix E.

###

⁵ State of Alaska Environmental Conservation Regulation, Title 18, Chapter 50. Air Quality Control. Article 7. Conformity (18 AAC 50.700 – 18 AAC 50.720)

2. CONFORMITY REQUIREMENTS

The criteria for determining conformity of transportation programs and plans under the federal transportation conformity rule (40 CFR Parts 51 and 93) and the applicable and CO and PM_{2.5} conformity tests for the Fairbanks nonattainment areas are summarized in this section.

FMATS is the designated Metropolitan Planning Organization for Fairbanks, Alaska. As a result of this designation, FMATS prepares the MTP and associated conformity analyses.

Presented first is a review of the development of the applicable conformity regulation and requirements and the analysis years for this CO and PM_{2.5} Conformity Analysis.

2.1 Background

CO – EPA originally designated a portion of the FNSB as a Moderate Nonattainment Area for CO. This was based on an 8-hour average design value of 10.4 parts per million (ppm) of CO. Fairbanks failed to reach attainment by the end of 1995, and effective March 30, 1998, EPA formally reclassified Fairbanks to a “Serious CO Nonattainment Area,” as mandated by the 1990 Clean Air Act Amendments. Effective April 5, 2002, EPA made a determination that the Fairbanks area had attained the CO NAAQS. The State submitted an Air Quality Maintenance Plan on June 21, 2004, and EPA made a formal “CO Maintenance Area” designation approving this plan on September 27, 2004. Fairbanks has not recorded an exceedance of the ambient CO standard since 2000. The original ten-year Maintenance Plan has been amended several times since the 2004 submission, including revisions that were adopted by the State on April 4, 2008,⁶ that reflected a decision to terminate the Fairbanks I/M Program at the end of 2009. On March 22, 2010, EPA approved⁷ this revised version of the Maintenance Plan.

On April 22, 2013, the State submitted a CO LMP designed to keep the Fairbanks area in attainment with the CO NAAQS for a second ten-year period beyond re-designation to a Maintenance Area. On August 9, 2013, EPA approved⁸ the CO LMP for Fairbanks. As explained further in Section 2.2, areas with approved LMPs no longer require emission budget tests and a regional emissions analysis for the pollutant(s) addressed in the LMP.

PM_{2.5} – EPA published the Transportation Conformity Rule PM_{2.5} and PM₁₀ Amendments on March 24, 2010; the rule became effective on April 23, 2010.⁹ This PM Amendments Final Rule amends the conformity regulation to address the 2006 PM_{2.5}

⁶ <http://www.dec.state.ak.us/air/sip.htm>

⁷ Federal Register, Vol. 75, No. 54, March 22, 2010.

⁸ Federal Register, Vol. 78, No. 154, August 9, 2013.

⁹ U.S. Environmental Protection Agency, 2010. op. cit.

NAAQS. The final PM Amendments rule also addresses hot-spot analyses in PM_{2.5}, PM₁₀, and carbon monoxide nonattainment and maintenance areas.

EPA's nonattainment area designations for the 2006 PM_{2.5} standard became effective on December 14, 2009. Conformity for a given pollutant and standard applies one year after the effective date of EPA's initial nonattainment designation. Therefore, conformity for the 2006 PM_{2.5} standard began to apply on December 14, 2010, for Fairbanks, Alaska. On June 2, 2014, EPA published in the Federal Register (Vol. 79, No. 105, p. 31566-31782) a new rule that identified those States in nonattainment for PM_{2.5} as 'moderate' areas and proposed a new due date for submittal of moderate nonattainment area Subpart 4 SIPs to EPA. Under the 2014 rule, the PM_{2.5} SIP for the moderate nonattainment area in the Fairbanks North Star Borough is due to the EPA by December 31, 2014.

Interagency Consultation – In accordance with the conformity rule, the interagency consultation process is being used for demonstrating conformity for the applicable NAAQS. Interagency consultation on the 2017 TIP began on June 30, 2016. The consultation process was used to reach concurrence that a new regional emissions analysis was not required for the 2017 TIP because the projects in the TIP subject to conformity were consistent with those contained in the 2040 MTP; the conformity determination for the 2017 TIP references the regional emissions analysis in the 2040 MTP. Public review of the Draft 2017 TIP occurred from November 9, 2016 through December 9, 2016. The public review draft included a summary of these conformity findings reached through interagency consultation. The 2017 TIP is slated for MPO approval on February 15, 2017. The conformity demonstration for the 2040 MTP was submitted to FHWA/FTA on January 22, 2015 and approved on January 30, 2015.

2.2 Conformity Regulation Requirements

As summarized earlier in Section 1.1, conformity test requirements differ for areas and pollutants with an EPA-approved air quality plan (i.e., a State Implementation Plan or a Maintenance Plan) and those without an approved plan. Fairbanks has an approved Limited Maintenance Plan for CO, but an air quality plan for PM_{2.5} has not yet been approved by EPA.

Separate requirements for areas or pollutants under each category are described in separate sub-sections that follow.

2.2.1 Areas/Pollutants with a Limited Maintenance Plan

Fairbanks is a CO maintenance area with an approved Limited Maintenance Plan. The LMP policy essentially states that vehicle emission budgets test for transportation conformity can be treated as unnecessary because it is not reasonable to expect that an LMP area will experience so much growth during the maintenance period that a violation of the ambient CO standards would occur.

Although CO emission budget tests are not necessary, the following conformity requirements still apply:

- Transportation plans must still meet interagency consultation criteria and implementation of TCMs in the conformity rule (40 CFR 93.112 and 93.113); and
- In addition, projects in CO LMP areas must still meet criteria for CO hot-spots and screening analyses (40 CFR 93.116 and 93.123).

2.2.2 Areas/Pollutants without SIP-Based Budgets

Before an adequate or approved SIP budget is available, as is currently the case for PM_{2.5} in Fairbanks, conformity is generally demonstrated with interim emission tests. Conformity may be demonstrated if the emissions from the proposed transportation system are no greater than baseline year motor vehicle emissions in a given area (see 40 CFR 93.119).

In the Fairbanks Moderate Area PM_{2.5} SIP adopted by the state and currently pending EPA review, the baseline year for the attainment demonstration is calendar year 2008. Thus, 2008 is the baseline year for the interim emissions test.

The 2008 baseline year emissions level must be based on the latest planning assumptions available for the year 2008, the latest emissions model, and appropriate methods for estimating travel and speeds as required by the conformity regulation.

PM_{2.5} nonattainment areas may also elect to use the “build-no-greater-than-no-build test.” Conformity is demonstrated if the emissions from the proposed transportation system (“build” scenario) are less than or equal to emissions from the existing transportation system (“no-build” scenario).

The rule allows PM_{2.5} nonattainment areas to choose between the two interim emissions tests each time that they determine conformity before adequate or approved PM_{2.5} SIP budgets are established. However, the same test must be used for each analysis year in a given conformity determination. Fairbanks chooses to use the “no-greater-than-2008 emissions test.”

The regional emissions analyses in PM_{2.5} nonattainment areas must consider directly emitted PM_{2.5} motor vehicle emissions from tailpipe, brake wear, and tire wear. EPA’s on-road mobile source emissions model MOVES quantifies emissions from these sources. Since MOVES was chosen for use in this conformity analysis, this requirement is satisfied.

Prior to adequate or approved PM_{2.5} SIP budgets, re-entrained road dust and construction-related fugitive dust from highway or transit projects will be included in the regional emissions analyses only if EPA or ADEC has determined that it is a “significant

contributor” to the PM_{2.5} regional air quality problem. Until a significance finding is made, PM_{2.5} areas can presume that re-entrained road dust is not a significant contributor and not include road dust in the PM_{2.5} transportation conformity analysis prior to the SIP. In addition, construction-related dust emissions are not to be included in any PM_{2.5} conformity analyses before adequate or approved PM_{2.5} SIP budgets are established. ADEC has indicated the significance determination will be made as part of the SIP process. As a result, the Fairbanks PM_{2.5} conformity analysis will not include re-entrained road dust or construction-related fugitive dust from transportation projects.

In addition, prior to the submission of a SIP, NO_x emissions must be considered, unless both ADEC and EPA make a finding that NO_x is not a “significant contributor” to the PM_{2.5} air quality problem. Conversely, volatile organic compounds (VOC), sulfur oxides (SO_x), and ammonia emissions do not have to be considered in conformity, unless either ADEC or EPA makes a finding that on-road emissions of any of these precursors is a “significant contributor” to the area’s PM_{2.5} air quality issues. ADEC made the significance determinations as part of the SIP process. As a result, the PM_{2.5} conformity analysis will address only the precursor NO_x emissions.

Table 2-1 summarizes PM_{2.5} and NO_x emission estimates for the 2008 baseline year. These emission estimates were calculated by running EPA’s MOVES2010b model as explained in Section 3.4 using transportation modeling outputs for the Fairbanks PM_{2.5} nonattainment area described in Section 3.3.

Table 2-1 2008 Baseline Vehicle Emissions (tons per average winter day)	
PM _{2.5}	NO _x
0.584	5.478

2.3 Conformity Analysis Years

Nonattainment areas that do not have adequate or approved budgets are not required to demonstrate conformity and perform a regional emissions analysis for their attainment year. Under Section 93.119(g)(1) of the conformity rule, nonattainment areas using interim emission tests are required to perform a regional emissions analysis for the following years:

- A year no more than five years beyond the year in which the conformity determination is made (e.g., 2017);
- The last year of the transportation plan’s forecast period (e.g., 2040); and
- Any additional years within the time frame of the transportation plan so that

analysis years are no more than ten years apart (e.g., 2030).

Regional emissions were thus estimated for calendar years 2008 (emission test baseline), 2020, 2030, and 2040 in the CO and PM_{2.5} conformity analysis, in accordance with the conformity rule requirements. These years were certified in the Interagency Consultation process.

###

3. LATEST PLANNING ASSUMPTIONS AND MODELING

The Clean Air Act states that “the determination of conformity shall be based on the most recent estimates of emissions, and such estimates shall be determined from the most recent population, employment, travel, and congestion estimates as determined by the MPO or other agency authorized to make such estimates.”

According to the conformity regulation (40 CFR 93.110(a)), the time the conformity analysis begins is “the point at which the MPO or other designated agency begins to model the impact of the proposed TIP on travel and/or emissions.” Modeling began in June 2016 with interagency consultation regarding this 2017 TIP that discussed the analysis approach and assumptions, including concurrence that new regional emissions modeling would not be required if those projects in the TIP subject to conformity were consistent with those modeled in the 2040 MTP.

Since conformity applies to the CO and PM_{2.5} nonattainment areas, new transportation projects within the “donut area” have been included. Donut areas are geographic areas outside a metropolitan planning area boundary, but inside the boundary of a nonattainment area that contains any part of the metropolitan area.

3.1 Latest Planning Assumptions

A series of updates developed for the Alaska Department of Transportation and Public Facilities (ADOT&PF) were implemented within the recent 2040 MTP transportation modeling performed by Kittelson and Associates, Inc. (Kittelson). Local travel survey data were collected from roughly 1,300 homes during fall 2013 and data recorders were installed on vehicles from a subset of the Fairbanks households (166), with trip data collected electronically for a week for each vehicle (roughly 300 across the sampled households). In addition, the number of traffic analysis zones (TAZs) was roughly doubled, and the modeling network was revised to include more roadway links.

An updated demographic forecasting methodology was also developed by Kittelson that relies on 2010 Census data, current Alaska Department of Labor and Workforce Development (ADLWD) population and Woods and Poole (W&P) employment projections, and Borough activity forecasts. The methodology employs a three-pronged approach to forecasting growth: (1) identifying accessibility/desirable locations; (2) reviewing regulation-based land ownership to identify areas where growth can occur; and (3) assessing the potential for redevelopment.

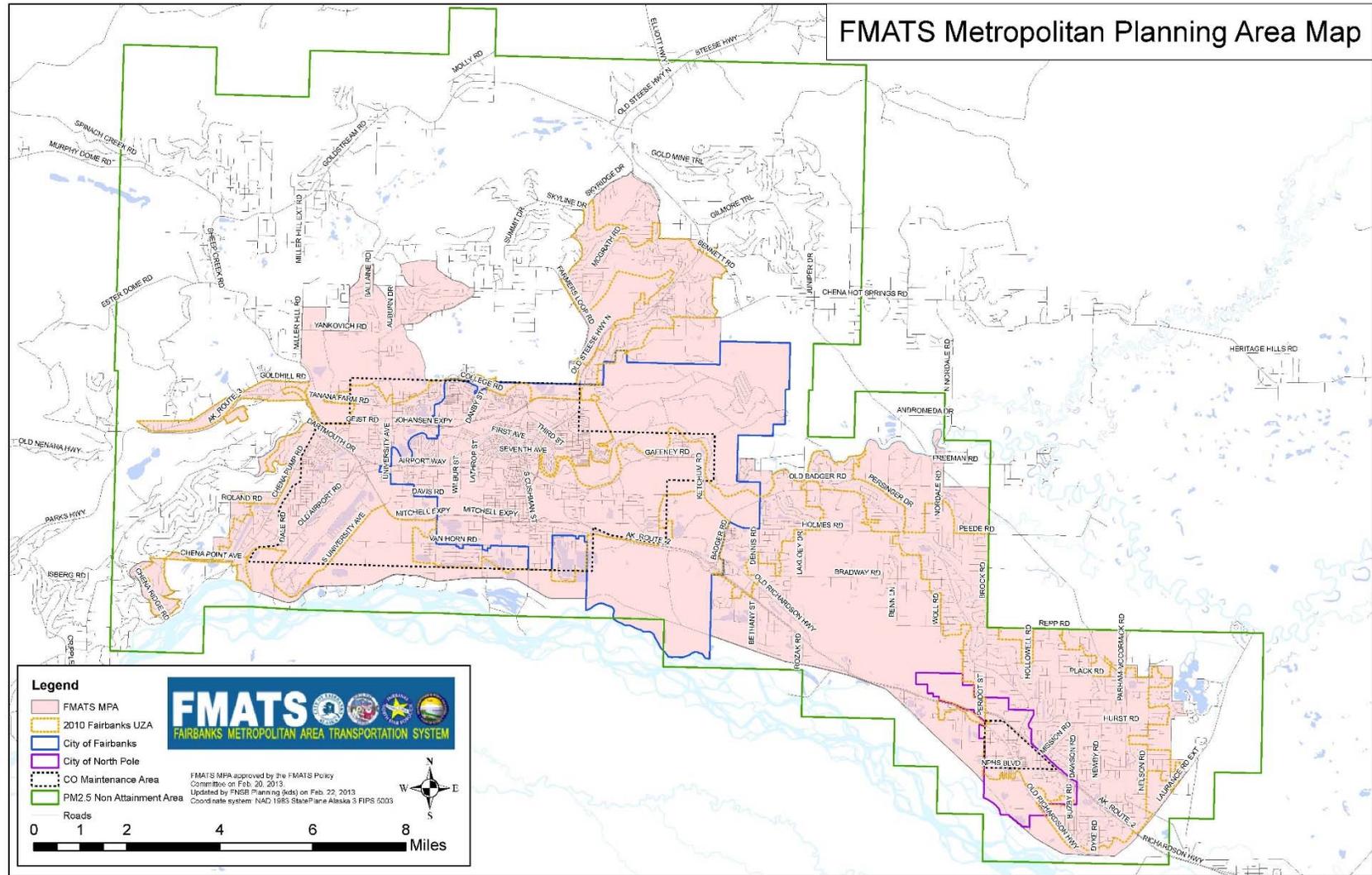
Since the 2040 MTP transportation modeling was conducted during fall 2014, no additional planning forecast data have become available. Thus, in accordance with the “latest planning assumptions” section of the federal conformity rule (40 CFR 93.110), the most recent estimates of population and employment projections that have been officially approved by the Metropolitan Planning Organization were used.

3.2 Transportation Modeling

The modeling network for the updated ADOT&PF Fairbanks Regional Travel Demand Model contains the entire extents of the CO and PM_{2.5} nonattainment areas. Figure 3-1 illustrates the differences between the CO and PM_{2.5} nonattainment areas as well as the different urban planning boundaries. The modeling network roughly extends over the area shown in Figure 3-1. As can be seen, the PM_{2.5} nonattainment area is significantly larger than the CO nonattainment area, although both planning areas are entirely encompassed within the travel modeling network.

For the earlier 2040 MTP analysis, the TransCAD model (Version 6.0 r2 Build 9105) was updated to employ these latest socioeconomic data from the 2010 Census and household travel survey data. The base year for these updated runs was set to 2013. The base year model runs were calibrated and validated using 2013 measured traffic volumes collected by ADOT&PF at over 50 screenline stations across the entire modeling domain. Long-range growth and activity forecasts were based on the aforementioned ADLWD, W&P and Borough projections. As explained later in Section 3.4, travel model outputs for 2013 and 2040 were interpolated or extrapolated to the other analysis years.

**Figure 3-1
Fairbanks Metropolitan Area Transportation System (FMATS) Planning Areas**



3.3 Traffic Estimates

Traffic estimates supporting the conformity determination are incorporated by reference from the 2040 MTP Conformity Analysis, Section 3.3.

3.4 Use of Previous Regional Emissions Modeling from 2040 MTP

Under conditions where the list of projects in a new transportation plan or TIP match those modeled in the prior plan, the regional emissions analysis prepared to satisfy regional conformity requirements in the prior plan can also be applied or used for the new plan or TIP. The specific conditions which must be met are contained in 40 CFR 93.122(g) as follows:

(g) Reliance on previous regional emissions analysis.

(1) Conformity determinations for a new transportation plan and/or TIP may be demonstrated to satisfy the requirements of §§ 93.118 (“Motor vehicle emissions budget”) or 93.119 (“Interim emissions in areas without motor vehicle emissions budgets”) without new regional emissions analysis if the previous regional emissions analysis also applies to the new plan and/or TIP. This requires a demonstration that:

- (i) The new plan and/or TIP contain all projects which must be started in the plan and TIP’s timeframes in order to achieve the highway and transit system envisioned by the transportation plan;*
- (ii) All plan and TIP projects which are regionally significant are included in the transportation plan with design concept and scope adequate to determine their contribution to the transportation plan’s and/or TIP’s regional emissions at the time of the previous conformity determination;*
- (iii) The design concept and scope of each regionally significant project in the new plan and/or TIP are not significantly different from that described in the previous transportation plan; and*
- (iv) The previous regional emissions analysis is consistent with the requirements of §§ 93.118 (including that conformity to all currently applicable budgets is demonstrated) and/or 93.119, as applicable.*

(2) A project which is not from a conforming transportation plan and a conforming TIP may be demonstrated to satisfy the requirements of § 93.118 or § 93.119 without additional regional emissions analysis if allocating funds to the project will not delay the implementation of projects in the transportation plan or TIP which are necessary to achieve the highway and transit system envisioned by the transportation plan, the previous regional emissions analysis is still consistent with the requirements of § 93.118 (including that conformity to all currently applicable budgets is demonstrated) and/or § 93.119, as applicable, and if the project is either:

- (i) Not regionally significant; or*
- (ii) Included in the conforming transportation plan (even if it is not specifically included in the latest conforming TIP) with design concept and scope adequate to determine its contribution to the transportation plan’s regional emissions at the time of the transportation plan’s conformity determination, and the design concept and scope of the project is not significantly different from that described in the transportation plan.*

(3) A conformity determination that relies on paragraph (g) of this section does not satisfy the frequency requirements of § 93.104(b) or (c).

Once the list of projects included in the 2017 TIP was finalized, interagency consultation was held to determine whether the TIP projects met each of the conditions of 93.122(g). Lists of the projects in both the 2017 TIP and 2040 MTP were circulated to interagency consultation participants in conjunction with circulation of the public review draft. Participants concurred with FMATS project consistency findings between the 2017 TIP and 2040 MTP and affirmed that the conditions of 93.122(g) were met.

Table 3-1 lists the projects contained in the 2017 TIP and identifies whether they were included or modeled within the preceding 2040 MTP. Two projects are highlighted that were not included in the MTP (Wickersham Street Upgrades and Paratransit Vehicles). As concurred during interagency consultation, these are exempt from conformity as defined under 40 CFR 93.126 and summarized below:

- Wickersham Street Upgrades (NID 30098) – Shoulder and pavement improvements are exempt under the Safety section of exempt project types in 93.126. Sidewalks are exempt under the Air Quality section of 93.126 (bicycle and /pedestrian facilities).
- Paratransit Vehicles (NID 30251) – Paratransit van replacement is exempt under the Mass Transit section of 93.126 (purchase of new buses to replace existing vehicles).¹⁰

All remaining 2017 TIP projects listed in Table 3-1 satisfy each of the four conditions of 93.112(g)(1), which are summarized below.

- i. TIP contains all projects that must be started in TIP timeframe to achieve transportation system envisions by the long-range plan (MTP).
- ii. All TIP projects which are regionally significant are included in the MTP with design concept and scope adequate to determine their contribution to the MTP's regional emissions at the time of the previous conformity determination.
- iii. The design concept and scope of each regionally significant project in the TIP are not significantly different from that described in the previous MTP.
- iv. The previous regional emissions analysis is consistent with the requirements of 93.119 (interim emissions test).

¹⁰ This project is also in compliance with control measures in the applicable PM_{2.5} implementation plan.

**Table 3-1
Comparison of 2017 TIP Projects to 2040 MTP**

NID	Project Description	MTP ID
30011	Barnette Street Reconstruction	
	Reconstruct Barnette Street from 1st Avenue to Airport Way to include signal upgrades, decorative lighting, a dedicated bike lane, drainage improvements, intersection and sidewalk upgrades, utility relocation, signing and striping and landscaping. This project should be consistent with the Complete Streets concept of Cushman Street	SR-8
30099	College Road Bus Pullouts	
	Install seven bus stop facilities at high-use locations along College Road in coordination with the MACS Transit System and the College Road Corridor Study from University Avenue to the Steese Expressway	SR-33
30012	Cowles Street Reconstruction: Fairbanks	
	Reconstruct Cowles Street from 1st Avenue to East Cowles to include sidewalk, drainage and illumination improvements	SR-12
3847-1	Fairbanks Cushman Street Bridge Rehabilitation or Replacement Repair or replace the Cushman Street Bridge. The bridge should be consistent with the Complete Street concept south of the Chena River and the parent Illinois Street project.	
	Repair or the Cushman Street Bridge. The bridge should be consistent with the Complete Street concept south of the Chena River and the parent Illinois Street project.	MR-1
22255	Fairbanks Rail Realignment	
	The Alaska Railroad Corporation (ARRC) proposes to optimize the alignment of mainline and branch track within the Fairbanks Area to improve safety, customer response, and minimize transportation conflicts with the adjacent communities. A Memorandum of Understanding between the Fairbanks North Star Borough and ARRC is the guiding policy for implementing this project.	VLR-28
6448	FMATS Freight Mobility Plan	
	Characterize the movement of freight within the MPA, identify deficiencies and make recommendations for future freight investments.	SR-24
30093	FMATS Sign Replacement - Stage III	
	Replace signs in accordance with each entity's established sign management plans to meet the retro-reflectivity requirements of the MUTCD.	SR-14
16104	Gillam Way Reconstruction	
	Reconstruct Gillam Way between Airport Way to 22nd Avenue including pedestrian and drainage improvements, utilities and traffic calming. 50% local match / 50% state match	SR-9
30029	Lacey Street Reconstruction: Fairbanks	
	Reconstruct Lacey Street from 1st Avenue to 12th Avenue. Reconstruction includes drainage improvements, intersection and sidewalk upgrades, utility relocation, signing, striping and landscaping.	MR-26
30105	Lathrop Street Extension	
	Reconstruct sections of South Lathrop Street and extend it from the Alaska Railroad Crossing at Sanduri Street to the proposed entry road to the Tanana Lakes Recreation Area, at the Tanana River levee. Improvements include constructing a gravel road prism 30 feet wide and upgrade of the railroad crossing at Sanduri.	SR-37

**Table 3-1
Comparison of 2017 TIP Projects to 2040 MTP**

NID	Project Description	MTP ID
6587	McGrath Rd Upgrade: FNSB	
	Upgrade McGrath Road between Farmers Loop and the Old Steese Highway. Improve the existing separated path as needed.	SR-11
30097	Minnie Street Upgrade	
	Conduct a PEL Study to ultimately define the scope and design elements of the project, including a right of way survey. Rehabilitate Minnie Street from Erceg Street to the Old Steese Highway in accordance with the results of the study and approval of the Policy Board. Improvements may involve improving intersection geometries, upgrading sidewalks to meet ADA standards, storm drain system, utility relocations and rehabilitation or replacement of the Noyes Slough Bridge. 50% local match / 50% state match	MR-2
17975	Noble Street Upgrade: Fairbanks	
	Reconstruct Noble St. from 1st Avenue to Gaffney Road. 50% local match / 50% state match	SR-3
30106	North Pole Streetlight Standardization	
	Upgrade the streetlights in older subdivisions and illuminate several areas in the city currently not illuminated. Consolidate the streetlights on to one or a few circuits.	SR-36
30100	Old Richardson Highway Intersection Improvements	
	Analyze, design, and construct intersection and safety improvements with emphasis on pedestrian safety, road function, and quality of life. The intersections to be considered are Santa Claus Lane and E 5th Avenue and North Pole High School Boulevard at Old Richardson Highway and 8th Avenue. The railroad crossing will also be brought to current standards under this project.	SR-35
22095	Peridot Street Reconstruction	
	Reconstruct Peridot Street from the Richardson Highway to City limits, approximately 0.21 miles, and pave. Provide street lights and bike/pedestrian facilities as funding allows.	MR-8
26087	Tanana Loop and South Chandalar Drive Intersections	
	Reconstruct the intersections of Tanana Loop/Alumni Drive/South Chandalar Drive; and Salcha Street/South Chandalar Drive including the portions of South Chandalar Drive between the intersections and up to Ambler Lane. Project will also include reconstructing the pedestrian facilities and construction of new pedestrian facilities on Alumni Drive, Tanana Loop, Salcha Street and South Chandalar Drive.	MR-9
30098	Wickersham Street Upgrades - Stage II	
	Upgrade Wickersham Street from 4th to 6th Avenue, Perry Street from 6th to 8th Avenue, and 4th, 5th, 6th, 7th, 8th, and 9th Avenue from Cowles to Barnette Street. Improve drainage, replace existing sidewalks, install new sidewalks where needed, and repave the roads. Utility upgrades may also be coordinated with this project.	NONE
9939-2	Yankovich/Miller Hill Road Reconstruction and Multi-Use Path	
	Reconstruct Miller Hill Road and Yankovich Road from Sheep Creek to Ballaine Road. Construct a side path from LARS to Ballaine Road and tie into the existing side path on Farmers Loop.	SR-17, LR-17
30095	Airport Way Beautification	
	Provide a general toolkit for DOT&PF project managers and engineers that provides options for consistently themed aesthetic roadway treatments including landscape and hardscape improvements. Evaluate pedestrian/bicycle encroachment risks along the corridor and feasibility of aesthetic	SR-30

**Table 3-1
Comparison of 2017 TIP Projects to 2040 MTP**

NID	Project Description	MTP ID
	treatments that consider right of way and operational constraints and with consideration of FMATS Green Streets Policy. Construct as funding allows.	
3874	Birch Hill Bicycle and Pedestrian Facility: FNSB	
	Construct a bike/pedestrian facility along Birch Hill Road to allow safe access to the Birch Hill Recreational Trail System.	SR-19
26078	Chena River Walk Stage III	
	Expand the Chena River Walk to the north side of the Chena River with approximately 2,200 linear feet of pathway from Peger Road to the existing Chena River pedestrian bridge crossing. Construct sidewalk along Peger Road from the Chena River bridge No. 1191 to Phillips Field Road intersection to connect the Chena River Walk to existing pedestrian facilities or consider a path connection under the bridge.	SR-27
26568	FMATS Pedestrian Improvements - Stage I	
	Construct new facilities to improve connectivity within the FMATS boundary on Wilbur Street, Davis Road Peger Road and Lathrop Street with possible mid-block crossing.	SR-28
20816	Gold Hill Road Bicycle and Pedestrian Facility: FNSB	
	Widen the shoulders on Gold Hill Road to accommodate bicycles and pedestrians. Improvements will also include resurfacing the roadway, approach work, signing and striping.	SR-10
30251	Paratransit Vehicles	
	Purchase nine paratransit vans to replace vans that are currently 5 to 13 years old. The useful life of a paratransit van is 5 years.	NONE
26077	Steese Expressway to Front Street Bicycle/Pedestrian Path	
	Construct a bicycle/pedestrian path from the Steese Expressway separated path to Front Street.	SR-18
30250	Transit Buses	
	Purchase six transit buses to replace buses purchased in 2007 that will reach their useful life in 2017. These buses are 29 foot Gillig buses that have a useful life of 10 years.	SR-66
29969	Wembley Avenue Improvements: Aurora Drive to Danby Street	
	Reconstruct Wembley Avenue from Aurora Drive to Danby Street and construct a pedestrian facility. CTP funds: 50% local match / 50% state match - CMAQ funds: 100% state match	SR-23
29673	FMATS Improvement Program	
19096	Pavement surface maintenance, traffic control signal upgrades, street light load center rehab, storm drain maintenance, reclaim/double chip, seal coat, crack sealing, roadway striping, dust control, signage replacement and intersection upgrades. (SOA pays design match and local governments pay construction match, per agreement)	SR-6, MR-12, LR-6, VLR-8
30229	FMATS Intersection Improvement Program	
	Intersection enhancements related to capacity, safety, and/or multimodal accessibility within the FMATS boundary.	SR-7, MR-10, VLR-7
30231	FMATS Safety and Efficiency Program	

**Table 3-1
Comparison of 2017 TIP Projects to 2040 MTP**

NID	Project Description	MTP ID
	Low-cost improvements to enhance the safety and efficiency of the existing transportation system. Projects may include but are not limited to signing, striping, lighting upgrades, signal timing, signal controller upgrades and maintenance.	SR-4, MR-11
30096	FMATS Sidewalk Improvement Program	
	This is an annual project. Fund projects that will improve connectivity, safety, mobility and access for pedestrians throughout the MPA.	SR-5, VLR-11

3.5 Vehicle Emissions Modeling

As noted earlier, 40 CFR 93.122(g)(1) permits reliance on the regional emissions analysis from an approved regional transportation plan for a TIP whose non-exempt projects are consistent with those in the approved plan. The regional emissions analysis from the 2040 MTP conformity determination¹¹ is incorporated herein by reference (Section 3.4 of the 2040 MTP Conformity Analysis).

###

¹¹ T. Carlson, et al., “Conformity Analysis for the FMATS 2040 Metropolitan Transportation Plan (MTP),” prepared for Fairbanks Metropolitan Area Transportation System, Sierra Research Report No. SR2015-01-01, January 5, 2015.

4. CONSULTATION PROCEDURES

The requirements for consultation procedures are listed in section 93.105 of the transportation conformity rule. Consultation is necessary to ensure communication and coordination among air and transportation agencies at the local, state, and federal levels on issues that would affect the conformity analysis, such as the underlying assumptions and methodologies used to prepare the analysis. Section 93.105 of the conformity rule notes that there is a requirement to develop a conformity SIP that includes procedures for interagency consultation, resolution of conflicts, and public consultation as described in paragraphs (a) through (e). Section 93.105(a)(2) states that prior to EPA approval of the conformity SIP, “MPOs and State departments of transportation must provide reasonable opportunity for consultation with State air agencies, local air quality and transportation agencies, DOT and EPA, including consultation on the issues described in paragraph (c)(1) of this section, before making conformity determinations.”

Section 93.112 of the conformity regulation requires documentation of the interagency and public consultation requirements according to Section 93.105. A summary of the interagency consultation and public consultation conducted to comply with these requirements is provided below. Interagency consultation on the Conformity Analysis for the 2012-2017 TIP is documented in Appendix C. The responses to comments received as part of the public comment process are included in Appendix E.

4.1 Interagency Consultation

On June 30, 2016, an interagency consultation meeting (and conference call) was conducted to review the PM_{2.5} conformity requirements, latest planning assumptions, and schedule. Follow-up coordination was held in early July 2016. In conjunction with the 30-day circulation of the Public Review Draft of the 2017 TIP in November and December 2016, the list of projects included in the TIP was circulated to the interagency consultation group for members to make a determination as to whether these projects met criteria under which new regional emissions analysis would not be required and that TIP conformity would be based on the regional emissions analysis from the earlier 2040 MTP. Interagency call notes are included as part of the consultation record in Appendix C.

FMATS Board adoption is scheduled for February 15, 2017. Federal approval of the 2017 TIP Air Quality Conformity Determination is anticipated by March 3, 2017.

4.2 Public Consultation

In general, agencies making conformity determinations shall establish a proactive public involvement process that provides the opportunity for public review and comment on a

conformity determination for an MTP or a TIP. In addition, all public comments must be addressed in writing.

On May 19, 2010, FMATS approved its Public Participation Plan (PPP). The purpose of this revision was to ensure that FMATS meets the requirements of SAFETEA-LU (Safe, Accountable, Flexible, Efficient, Transportation Equity Act, A Legacy for Users). On July 6, 2012, P.L. 112-141, the Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law. Funding surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005 and creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. One of the requirements is that government spending on transportation becomes more transparent to state and local officials, as well as the public.

On October 18, 2013, FMATS approved the newest version of the Public Participation Plan in anticipation of the 2040 MTP. While there were many small updates from 2010 to 2013, the most significant was the inclusion of the new MAP-21 Surface Transportation Bill. MAP-21 has a requirement to include and report on performance measures concerning the effectiveness of changes to the transportation system. Another notable addition in this new PPP was the inclusion of the FMATS Planning Boundaries Map, which was updated in 2013 to reflect the new urbanized area as defined by the 2010 U.S. Census. For further outreach, FMATS now produces a quarterly newsletter to continue to address stakeholders, other organizations, and the community. As always, there are additional acronyms, terms, executive orders, and participation definitions as well.

The Plan defines a process for providing citizens, affected public agencies, representatives of public transportation employees, freight shippers and transportation services, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties with meaningful and measurable opportunities to be involved in the transportation planning process. For the 2017 TIP and associated conformity determination, FMATS has developed an outline of its public involvement efforts.

In general, the MTP and corresponding conformity analysis is the subject of a public notice and 30-day review period prior to adoption. A public meeting is also conducted prior to adoption and all public comments are responded to in writing. Appendix D contains documentation of the public meeting process for the MTP conformity determination. The responses to comments are provided in Appendix E.

###

5. TIP CONFORMITY

The principal requirements of the federal transportation conformity rule for MTP/TIP assessments are as follows:

1. For pollutants for which applicable SIP emission budgets have been established, vehicle emissions from the transportation plan represented in the MTP/TIP must not exceed the SIP-based budgets;
2. For pollutants for which emission budgets are not yet available, the MTP/TIP must pass an interim emissions budget (FMATS chose to use the “no-greater-than-2008 emissions test”);
3. The latest planning assumptions and emission models must be employed;
4. The MTP/TIP must provide for the timely implementation of transportation control measures (TCMs) specified in the applicable air quality implementation plans; and
5. Consultation procedures must be followed.

The final determination of conformity for the MTP/TIP is the responsibility of the Federal Highway Administration and the Federal Transit Administration (FTA).

The previous sections and the appendices present the documentation for all of the remaining requirements listed above for conformity determinations except for the conformity test results and timely implementation of TCM requirement. Prior sections have also addressed the updated documentation required under the federal transportation conformity rule for the latest planning assumptions.

The remainder of this section discusses the TCM implementation requirements and presents the results of the PM_{2.5} and CO and conformity tests, satisfying the remaining requirements of the federal transportation conformity regulation. The applicable conformity tests were reviewed in Section 2. For each test, the required emissions estimates were developed using the transportation and emission modeling approaches required under the federal transportation conformity rule and documented in Section 3. The results are summarized and discussed separately for each pollutant below.

5.1 TCM Implementation Requirements

Since an air quality plan for PM_{2.5} has not yet been finalized and approved by EPA, the applicable plan for satisfying the requirements for timely implementation of TCMs under

40 CFR 93.113 is the Fairbanks CO Limited Maintenance Plan, which was adopted by the state on February 22, 2013, and approved by EPA on August 9, 2013.

The applicable TCMs in the CO LMP are (1) expanded availability of plug-ins to promote use of engine block heaters to reduce CO cold start emissions; and (2) transit system improvements (although the LMP also includes additional transportation-related contingency measures that could be implemented in the event Fairbanks fails to meet the CO NAAQS). These measures have already been funded and implemented. Thus, the programs and projects contained in the FMATS 2040 MTP will not affect their timely implementation and therefore the MTP fulfills the applicable TCM implementation requirements under 40 CFR 93.113.

5.2 PM_{2.5} Conformity

Table 5-1 presents results for PM_{2.5} and NO_x (for the 2006 24-hour standard PM_{2.5} standard) in tons per winter day for each of the analysis years considered.

Table 5-1 PM_{2.5} Conformity Test Results				
Analysis Year	PM _{2.5} (tons per day)	PM _{2.5} Emissions ≤ Base Year?	NO _x (tons per day)	NO _x Emissions ≤ Base Year?
2008 Baseline	0.584	-	5.478	-
2020	0.327	Yes	2.207	Yes
2030	0.292	Yes	1.702	Yes
2040	0.314	Yes	1.771	Yes

In accordance with the Transportation Conformity Rule, if a 2006 PM_{2.5} area does not have adequate or approved budgets, it must use one of the interim tests. Conformity may be demonstrated if the emissions from the proposed transportation system are no greater than the 2008 motor vehicle emissions in a given area. For the PM_{2.5} conformity determination, FMATS chose to use the “no-greater-than-2008 emissions test” for the analysis years 2020, 2030, and 2040.

Emissions were estimated using the latest emissions model consistent with the conformity methodology. Both PM_{2.5} exhaust and NO_x exhaust were estimated for a winter average day, which was used for the 24-hour standard. The modeling results for all analysis years indicated that PM_{2.5} and NO_x exhaust emissions for each MTP “build” analysis year are no greater than the 2008 base year emissions estimates. The TIP therefore satisfies the interim conformity emissions tests for the 2006 PM_{2.5} standard.

As all requirements of the Transportation Conformity Rule have been satisfied, a finding of conformity for the new 2006 PM_{2.5} standard is supported for the 2017-2020 Transportation Improvement Program.

5.3 CO Conformity

As noted earlier, Fairbanks is a CO maintenance area with an approved Limited Maintenance Plan. The LMP policy essentially states that vehicle emission budgets test for transportation conformity can be treated as unnecessary because it is not reasonable to expect that an LMP area will experience so much growth during the maintenance period that a violation of the ambient CO standards would occur.

Although CO emission budget tests are not necessary, the conformity requirements listed below still apply.

- Transportation plans must still meet interagency consultation criteria and implementation of TCMs in the conformity rule (40 CFR 93.112 and 93.113).
- In addition, projects in CO LMP areas must still meet criteria for CO hot-spots and screening analyses (40 CFR 93.116 and 93.123).
- It must be affirmed that ambient CO monitoring is continuing and that there have been no exceedances of the CO NAAQS.
- Any major changes in planning assumptions that could affect CO must be identified.

Each of these requirements has been met. The conformity determination for this TIP included interagency consultation on both the PM and CO elements. TCMs contained in the LMP (such as availability of plug-ins) are still in place. Ambient CO monitoring is still continuing in Fairbanks and peak concentrations remain well under the applicable NAAQS with no exceedances; the highest ambient CO levels measure over the most recent three year period have been less than 40% of their applicable standards. In addition there are currently no significant changes anticipated in the modest long-term population growth rate in Fairbanks (which is roughly 1% per year).

Therefore, a finding of conformity for CO is supported for the 2017-2020 Transportation Improvement Program.

###