

# MEMORANDUM

# State of Alaska

## Department of Transportation & Public Facilities Division of Program Development

**TO:** Patrick J. Kemp, P.E.  
Commissioner

**DATE:** October 24, 2014

**THRU** Jeff Ottesen, Director  
Program Development

**PHONE** 465-2744

**NO:**

**FAX NO:** 465-6984

**FROM:** Maren Brantner  
STIP Planner

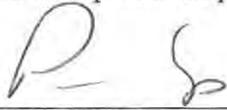
**SUBJECT:** Recommend Approval of AMATS  
2015-2018 TIP

The Anchorage Metropolitan Area Transportation Solutions (AMATS) Policy Committee approved the AMATS FFY 2015-2018 Transportation Improvement Program (TIP) on August 28, 2014.

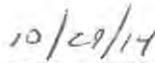
We find that the AMATS FFY 2015-2018 TIP meets all the requirements of US Code Title 23, Section 134, meets conformity and is fiscally constrained by the allocations made in the approved 2012-2015 Statewide Transportation Improvement Program (STIP).

Your approval of the AMATS FFY 2015-2018 TIP is recommended and required as the statutory designee for all state transportation planning matters.

Approved: \_\_\_\_\_

  
Patrick J. Kemp, P.E.  
Commissioner

Date: \_\_\_\_\_



Attachments: AMATS FFY 2015-2018 TIP Transmittal Memo  
AMATS FFY 2015-2018 TIP Tables  
2015-18 TIP Air Quality Conformity Determination  
Air Quality Conformity Determination Report

CC: James Boyle, AMATS Area Transportation Planner  
Ned Conroy, FTA  
Sandra Garcia-Aline, FHWA  
Richard F. Krochalis, FTA  
Bob Laurie, Planner, Bicycle/Pedestrian Coordinator, ADOT&PF  
Craig Lyon, AMATS Coordinator, MOA  
Jeff Ottesen, Program Development Director  
Mike Vigue, FHWA  
Jennifer Witt, Central Region Chief Planner  
David Post, Central Region Planner

# MEMORANDUM

# STATE OF ALASKA

Department of Transportation and Public Facilities  
Central Region

**TO:** Pete Christensen  
Manager, Capital Improvement  
Programs

**DATE:** November 3, 2014

**FAX:** 907-269-0521

**PHONE:** 907-269-0515

**FROM:** James D. Boyle  
Anchorage Transportation  
Planner

**SUBJECT:** AMATS 2015-2018 TIP adoption

The Anchorage Metropolitan Area Transportation Solutions (AMATS) Policy Committee approved the AMATS FFY 2015-2018 Transportation Improvement Program (TIP) on August 28, 2014. Attached as a separate document are the FFY 2015-18 TIP tables.

We find the 2015-2018 TIP to be in conformance with 23 USC 134 and all applicable federal requirements for Metropolitan Planning Organizations and is financially constrained. A new conformity determination per 23 CFR 450.104 was completed and approved by the AMATS Policy Committee on August 28, 2014.

AMATS requests that appropriate action be taken to incorporate the 2015-2018 TIP into the State Transportation Improvement Program.

Attachments (4)

cc: Maren Branter, STIP Planner III, ADOT&PF  
Liz Balstad, Transportation Planner, ADOT&PF  
Bob Laurie, Federal Planning Programs Manager, ADOT&PF  
Jennifer Witt, Chief, Planning and Admin, Central Region, ADOT&PF  
Dustin Heintzelman, Project Control Chief, Central Region, ADOT&PF  
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A RESOLUTION OF THE AMATS POLICY COMMITTEE  
2015-18 TIP Air Quality Conformity Determination

WHEREAS AMATS must make an affirmative air quality conformity determination prior to adopting the 2015-18 Transportation Improvement Program (TIP) because the Anchorage bowl area is currently designated as a limited maintenance area for carbon monoxide (CO) and a portion of Eagle River is designated as a limited maintenance area for particulate matter less than ten microns in diameter (PM-10) under the Clean Air Act; and

WHEREAS, the conformity analysis report for the TIP has undergone interagency consultation with local, state and federal agencies and has gone through public review in accordance with the AMATS Public Participation Plan; and

WHEREAS, the CO design value in the Anchorage remains less than or equal to 7.65 parts per million and the PM-10 design value in Eagle River remains below 98 micrograms per cubic meter and therefore exempts both areas from emission budget tests for those pollutants; and

WHEREAS, the transportation control measures in the Anchorage CO and Eagle River PM-10 areas continue to be implemented as required by the State Implementation Plan; and

WHEREAS, the TIP is fiscally constrained, was developed using the latest planning assumptions, and prepared according to state and federal air quality conformity regulations; and

WHEREAS, the AMATS Air Quality Advisory and Technical Advisory Committees have reviewed the report and its findings recommended its approval by the AMATS Policy Committee; and

NOW THEREFORE, BE IT RESOLVED, by the AMATS Policy Committee that the AMATS 2015-18 TIP is in conformance with Alaska State Implementation Plan for air quality, meets the conformity requirements outlined in 40 CFR 93 and does not undermine the ability of the Municipality of Anchorage to maintain compliance with the national ambient air quality standards for CO or PM-10.

PASSED AND APPROVED by the AMATS Policy Committee this 28<sup>th</sup> day of August 2014.

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Robert Campbell, P.E.  
Chair

## **Public Review Draft**

### **AIR QUALITY CONFORMITY DETERMINATION FOR THE 2015 - 2018 AMATS TRANSPORTATION IMPROVEMENT PROGRAM**

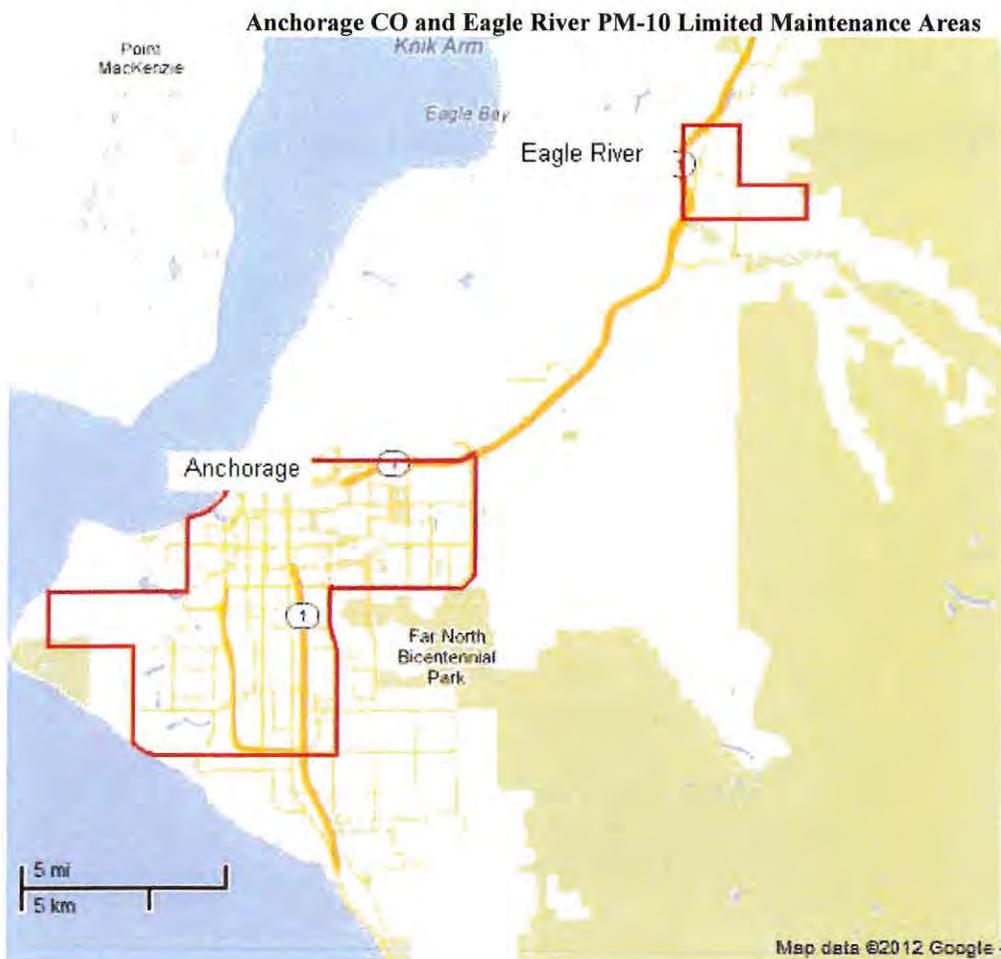
Prepared By:

Municipality of Anchorage  
Department of Health and Human Services  
Air Quality Section

June 30, 2014

## INTRODUCTION AND BACKGROUND

The 1990 Clean Air Act Amendments outline requirements for ensuring that federal transportation plans, programs and projects are consistent with the State Implementation Plan (SIP). In Alaska, the SIP is also known as the Alaska State Air Quality Control Plan. The purpose of these conformity requirements is to ensure that federally-funded transportation plans and programs do not hinder the attainment or continued maintenance of national ambient air quality standards. Metropolitan Planning Organizations (MPOs) like AMATS, that serve areas which have been designated nonattainment or maintenance for one or more air pollutants, must perform a conformity determination prior to approving transportation plans or programs.<sup>1</sup> The AMATS planning area contains limited maintenance areas for CO and PM-10. Conformity determinations must therefore be performed for these two pollutants.



Conformity requirements are outlined in federal regulation 40 CFR 93. These regulations describe who the regulation applies to, when and how conformity determinations are to be performed, and the required consultation process between the MPO, federal, State and local agencies. They also establish specific criteria that must be met in the development of assumptions and modeling used in conformity analyses.

<sup>1</sup> AMATS stands for Anchorage Metropolitan Area Transportation Solutions.

Part 1 of this report will describe the conformity analysis performed for the Anchorage CO Limited Maintenance Area. Part 2 will address conformity for the Eagle River PM-10 Limited Maintenance Area.

## Interagency Consultation

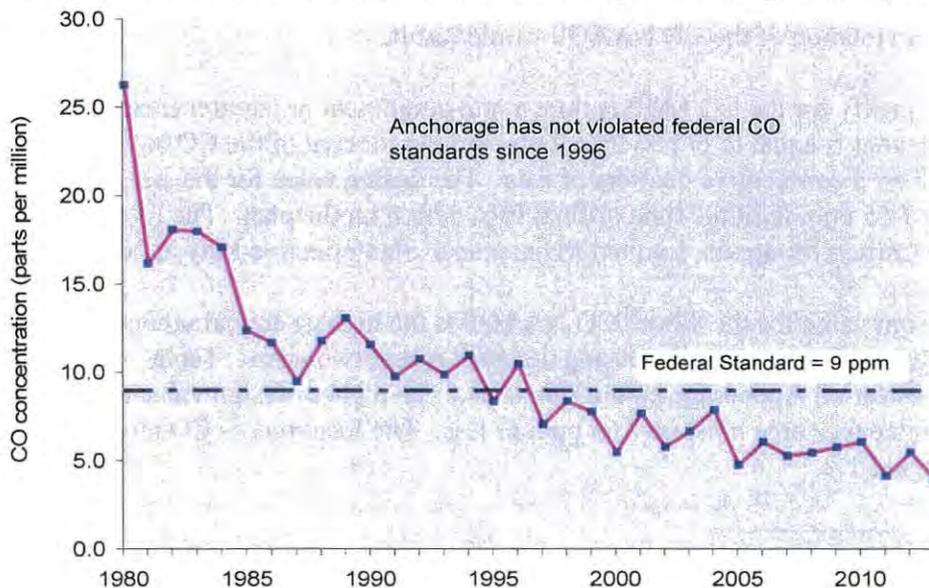
AMATS, State and local air quality officials, and representatives from Alaska DOT&PF, FHWA and EPA corresponded via email during April 16-18, 2014 and May 1-5, 2014 to discuss the approach used in this document to demonstrate CO and PM-10 conformity for the Anchorage 2015-2018 TIP. There was concurrence on the approach used to prepare this document. AMATS staff agreed to document continued eligibility for the Anchorage CO and Eagle River PM10 limited maintenance plans and to document compliance with the administrative requirements of the conformity rules to demonstrate conformity with the Alaska SIP. These include maintenance of transportation control measures in the SIP, an assurance that the transportation plan is fiscally constrained, use of the latest planning assumptions and adherence to the process of interagency and public review. This plan has been prepared and will be reviewed consistent with these requirements.

## Part 1 - Conformity Analysis for the Anchorage CO Maintenance Area

### 1.1 Anchorage CO Attainment Status

Anchorage was first identified as experiencing high levels of ambient CO concentrations in the early 1970s. In the early 1980s as many as 50 violations of the national ambient air quality standard (NAAQS) were measured in a single year. However, in the past three decades there has been a steady decline in ambient CO due to improvements in motor vehicle emission control technology. Local control programs such as carpooling and vanpooling programs and public awareness programs that encourage motorists to reduce cold start CO emissions by plugging-in engine block heaters prior to starting have also contributed to emission reductions. CO concentrations have declined by 60% since the 1980s and there have been no violations of the NAAQS since 1996. The trend in CO concentrations is shown in Figure 1.1.

Figure 1.1  
Trend in 2nd Maximum 8-hour CO Concentration at Anchorage Monitoring Stations (1980 – 2013)



In February 2004, on behalf of the Municipality of Anchorage, the State of Alaska requested that the EPA redesignate Anchorage from a nonattainment area to an area that has attained the standard. This request was accompanied by a maintenance plan that showed that Anchorage should continue to maintain compliance with the NAAQS through at least 2023. The EPA approved this plan on June 23, 2004 (69 CFR 34935). Anchorage is now considered a CO maintenance area: an area that has attained compliance with the NAAQS.

The CO Maintenance Plan has been amended several times since 2004. The EPA recently approved the Anchorage Carbon Monoxide Limited Maintenance Plan which streamlines the air quality conformity demonstration process ([79 FR 11707](#))<sup>2</sup>. Under the Limited Maintenance Plan (LMP) option, an emissions budget test is not required because maintenance of the eligibility criteria to qualify for the LMP assures a very low potential to exceed the NAAQS. However, the MPO must still adhere to the administrative procedures for conformity with the state implementation plan. These include the requirements to complete interagency consultation in accordance with 40 CFR Part 93.112; and to fulfill the public consultation process in accordance with 23 CFR Part 450. In addition the MPO must adhere to the requirements for fiscal constraint of transportation plans and improvement plans consistent with 23 CFR Part 450, and ensure that all transportation plans provide for the timely implementation of transportation control measures as committed to in the SIP. Although the transportation conformity rule (40 CFR Part 93) does not require AMATS to demonstrate current compliance with the limited maintenance plan eligibility criteria, AMATS agreed to do so for this conformity determination as an outcome of the interagency consultation process.

## **1.2 Compliance with CO Limited Maintenance Area Eligibility Criteria**

Under the LMP there is no requirement to project emissions over the maintenance period in order to demonstrate conformity with the CO emission budget. EPA believes if the area is at or below 85 percent of exceedance levels, continuation of transportation control measures already in the SIP should provide adequate assurance of maintenance over the applicable 10-year maintenance period. When EPA approves a limited maintenance plan, EPA is concluding that an emissions budget may be treated as essentially not constraining for the length of the maintenance period because it is unreasonable to expect that such an area will experience so much growth in that period that a violation of the CO NAAQS would result.

In order to qualify for the CO LMP option, a non-attainment or maintenance area must have a design value that is equal to or less than 7.65 ppm (85 percent of the CO NAAQS exceedance level) based on 8 consecutive quarters of data. The design value for the area must continue to be at or below 7.65 ppm until the time of final EPA action on the plan. The EPA approved the Anchorage Carbon Monoxide Limited Maintenance Plan effective May 2, 2014.

The CO design value for the 8-hour CO NAAQS is the highest annual second maximum non-overlapping 8-hour concentration during the most recent two years. Table 1-1 below shows the design values for all Anchorage monitoring sites. The highest design value recorded within the limited maintenance area must be 7.65 ppm or less. The locations of CO monitoring sites are shown in figure 1.2.

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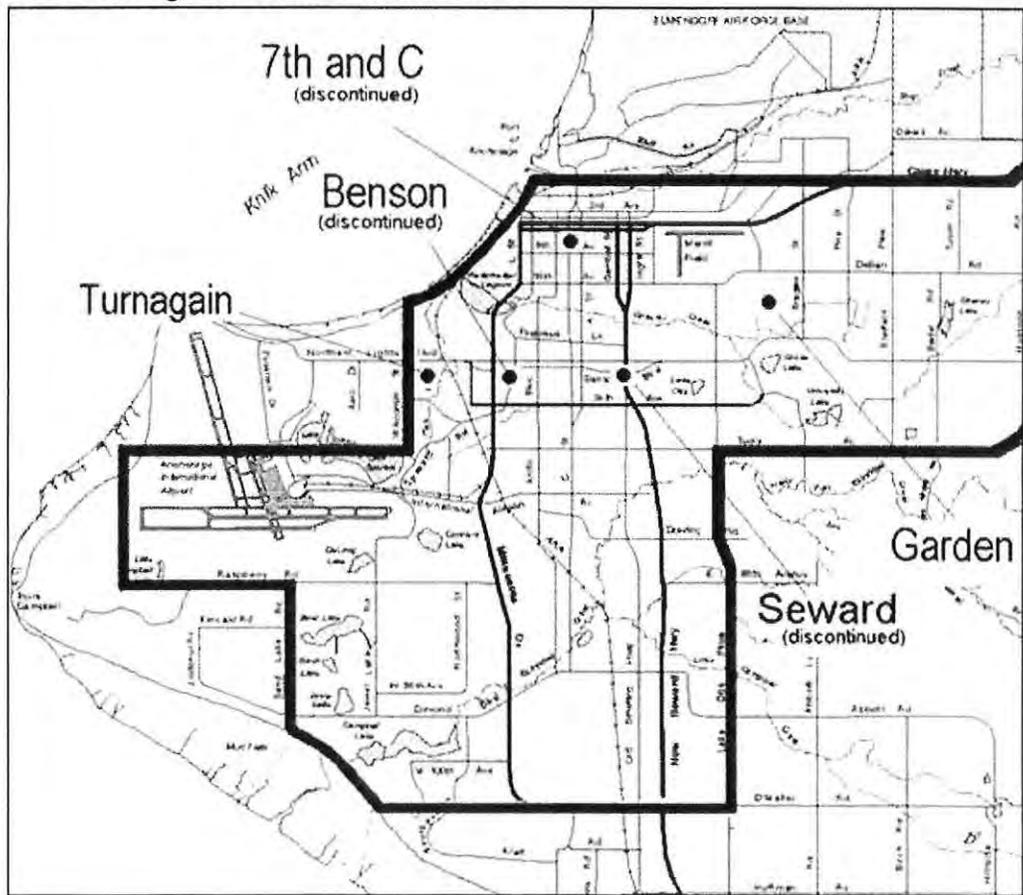
<sup>2</sup> The Anchorage CO Maintenance Plan is included as part of the Alaska Air Quality Control Plan or SIP. Thus, an amendment of the CO Maintenance Plan also entails an amendment of the larger SIP document. All SIP amendments are subject to approval by the EPA.

Table 1-1 Anchorage CO Design Values by Year

	Spenard & Benson 20200017	Garden 20200018	Seward Hwy 20200037	Turnagain 20200048	DHHS 20200052	CO Design Value
2002	5.7	5.7	5.2	7.7		7.7
2003		5.7	5.4	6.7		6.7
2004		6.4	5.5	7.9		7.9
2005		6.4	5.5	7.9		7.9
2006		4.8		6.1		6.1
2007		4.3		6.1	2.9	6.1
2008		3.8		5.5	3.1	5.5
2009		4.4		5.8	3.6	5.8
2010		4.4		6.1	3.6	6.1
2011		3.8		6.1	2.8	6.1
2012		4.3		5.5	2.8	5.5
2013		4.3		5.5	2.8	5.5

Analysis of the Anchorage CO monitor data from all sites within the Anchorage CO Limited Maintenance Area demonstrates that Anchorage is in compliance with the eligibility criteria for its CO limited maintenance plan.

Figure 1.2 Anchorage CO Monitor Site Locations



### 1.3 Conformity Requirements for CO LMP

The specific conformity criteria used in this review include the following sections contained in 40 CFR Part 93 of the Federal Register:

<u>Section</u>	<u>Criteria</u>
93.110	The conformity determination must be based on the latest planning assumptions.
93.112	Conformity must be determined according to the consultation procedures in this subpart and in the applicable implementation plan, and according to the public involvement procedures established in compliance with 23 CFR part 450.
93.113(b)	The transportation plan must provide for the timely implementation of TCMs from the applicable SIP.

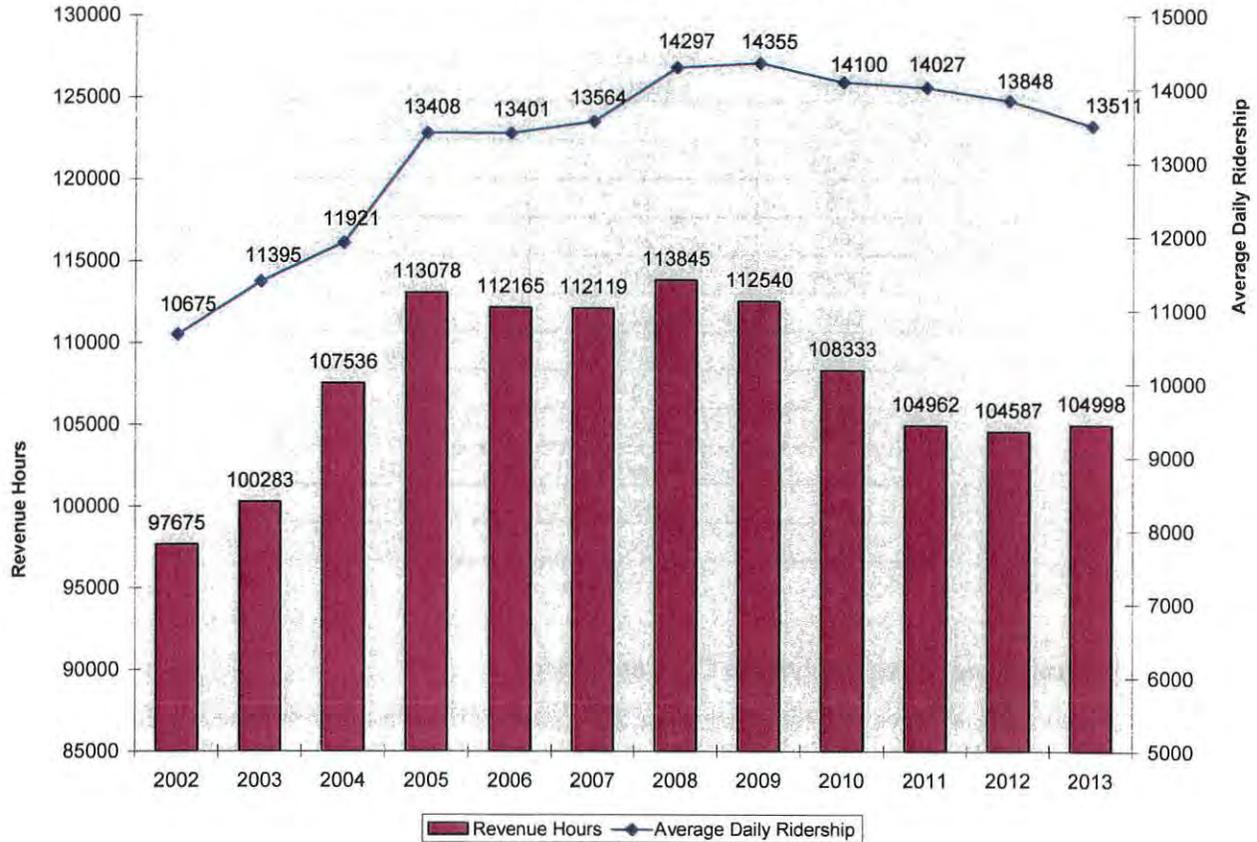
#### 1.3.1 Transit Service

Section 93.110 of the air quality conformity regulations state that the conformity determination for TIPs must discuss how transit operating policies (including fares and service levels), and assumed transit ridership have changed since the previous transportation plan conformity determination was approved.

On January 1, 2014 Anchorage cash bus fares increased from \$1.75 to \$2.00 and 30-day passes increased from \$55 to \$60; however, at the same time fares for youth, senior and disabled riders dropped to half of the full fare price. A prior increase in cash fares from \$1.50 to \$1.75 occurred in October 2005. In January 1, 2012, the cost of a monthly pass increased from \$50 to \$55; a day pass increased from \$4 to \$5; a monthly pass for senior/disabled increased from \$15 to \$19.25; and a senior/disabled daily pass increased from \$1.25 to \$1.50.

Figure 1.3 shows how transit service levels, as indicated by weekday revenue hours, have varied between 2002 and 2013. Weekday transit service provided within the Municipality reached a peak in 2008 when 113,845 hours of weekday service were provided. Ridership peaked a year later at 14,355 trips per day. Weekday transit service was cut by 8% between 2008 and 2013. Ridership has dropped by about 7% during the same period.

Figure 1.3  
Trend in Transit Service and Ridership (2002 -2013)



### 1.3.2 Transportation Control Measures (TCMs)

In maintenance areas such as the Municipality of Anchorage, priority must be given to the implementation of TCMs included in the SIP. Transportation control measures are defined as any measure that is specifically identified and committed to in the applicable implementation plan or any other measure for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions.

Ridesharing, van pooling and transit marketing are the only TCMs identified in CO Maintenance Plan. They are funded in the current Transportation Improvement Program. Although these measures are identified in the Plan, no CO reduction is claimed for these measures.

The van pooling program has increased in popularity over the past decade. The number of vanpoolers in the program has increased nearly four-fold, from 270 to about 1000 in recent years.

In contrast, the number of registered carpoolers has dropped during the same period. In 2002, there were 419 registered carpoolers among 209 carpools. By 2013, the number of carpoolers dropped to 266 among 127 carpools. It is likely that competition from vanpooling is reducing carpool numbers.

It is difficult to distinguish the effect that transit marketing has had on ridership because other factors, such as the price of gasoline, socio-economic influences, and changes in service also affect ridership.

**Table 1.2**  
**Vanpool Program Participation (2002-2013)**

<b>Year</b>	<b>Number of Vanpools</b>	<b>Number of Vanpoolers</b>
2002	21	270
2003	23	323
2004	24	363
2005	24	375
2006	41	569
2007	42	589
2008	52	810
2009	52	917
2010	54	923
2011	66	1152
2012	65	992
2013	65	972

#### **1.4 Conclusion regarding Anchorage CO Conformity**

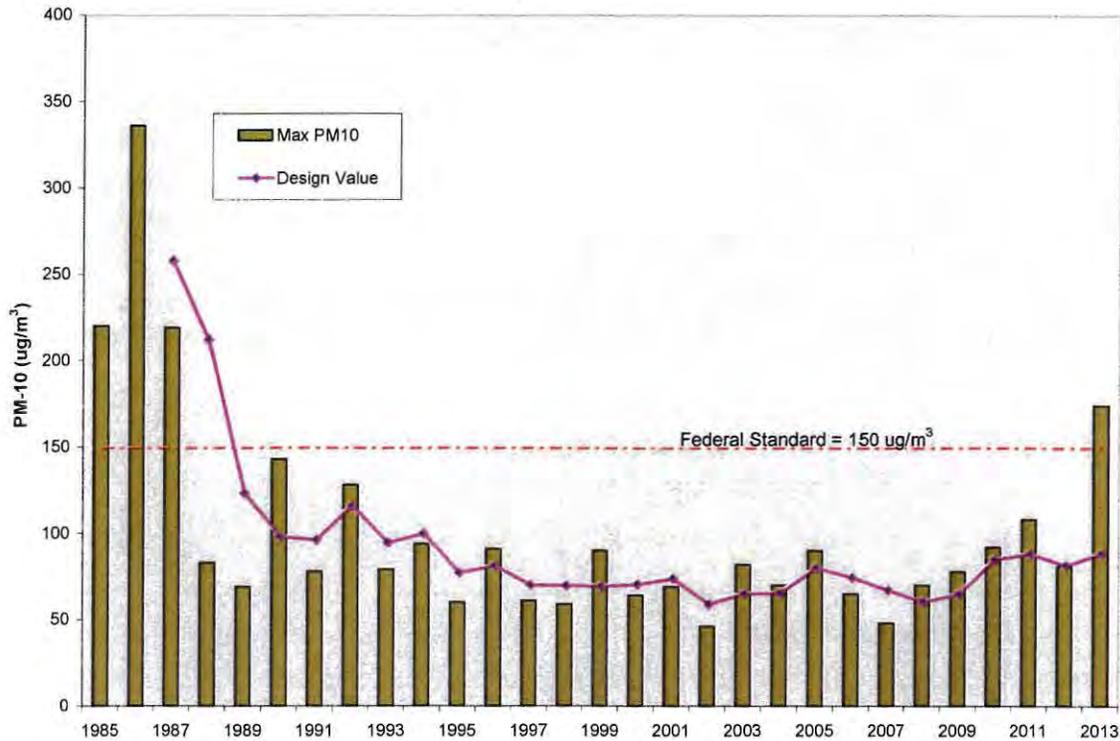
This analysis demonstrates that the Anchorage 2015-2018 TIP is in conformance with the Alaska State Implementation Plan for air quality and meets conformity requirements outlined in 40 CFR 93 for CO. Furthermore, it has been determined that the TIP will not undermine the ability of the Municipality of Anchorage to maintain compliance with the NAAQS for CO.



The road paving and recycled asphalt surfacing program has dramatically reduced PM-10 concentrations in Eagle River. The last violations of the PM-10 NAAQS occurred in 1987.<sup>3</sup>

Figure 2.2 shows the trend in the maximum 24-hour PM-10 concentration and the design value concentration (DV) for the period 1985 through 2013 in Eagle River. The DV is used to assess compliance with the NAAQS.<sup>4</sup> The DV in recent years has been about half the NAAQS.

**Figure 2.2**  
Trend in Eagle River PM-10 Concentrations



In October 2010, the EPA made a determination that Eagle River had attained the NAAQS (75 FR 64162). However, before Eagle River can be officially redesignated as an attainment area, a maintenance plan must be submitted to EPA that demonstrates that the air quality control measures in place in Eagle River are sufficient to ensure continued maintenance of NAAQS.

The EPA offers a less rigorous and more streamlined process of gaining redesignation to attainment to areas that can demonstrate they have a low risk of violating the PM-10 NAAQS. This is known as the Limited Maintenance Plan (LMP) option. Nonattainment areas that wish to qualify for this streamlined process must show that: (1) their design values are below 98  $\mu\text{g}/\text{m}^3$  and therefore have a low probability of violating the NAAQS, and; (2) that PM-10 emissions anticipated from growth in motor vehicle

<sup>3</sup> PM-10 concentrations have exceeded the 150  $\mu\text{g}/\text{m}^3$  NAAQS (as a 24-hour average) on a number of occasions since 1987, but all of these “exceedances” have been attributed to natural events. These include glacial river dust transported by high winds from the Matanuska River and volcanic ash resulting from the eruption of the Mt. Spurr volcano in August 1992. EPA excludes these events when considering whether an area has met the NAAQS.

<sup>4</sup> The DV is used to determine an area’s status with regard to the NAAQS. To meet the PM-10 NAAQS, no more than one exceedance of the 150  $\mu\text{g}/\text{m}^3$  standard is allowed per year, averaged over a three-year period. This assumes that sampling is conducted on a daily basis. For areas like Eagle River, where sampling prior to was not conducted on a daily basis prior to 2009, EPA has established statistical procedures for computing the DV.

travel in the area are unlikely to cause a future violation.<sup>5</sup> Eagle River met both of these criteria. In September 2010, on behalf of the Municipality of Anchorage, the State submitted the *Eagle River PM<sub>10</sub> Limited Maintenance Plan* to EPA as a proposed amendment to the SIP.

EPA approved the Eagle River PM<sub>10</sub> LMP effective on March 8, 2013 (78 FR 900). Areas that have been designated as “limited maintenance areas” or have had their LMPs approved for conformity purposes have a simplified conformity procedure. This simplified LMP procedure is used in this analysis.

## 2.2 PM-10 LMP Conformity Criteria

Areas with approved LMPs or area that have had them approved for conformity determinations are not required to perform an emission budget test as long as the area continues to meet the LMP criteria. Areas with an LMP are required to annually re-compute their DV to determine whether it is below 98 µg/m<sup>3</sup> and therefore still meets this LMP criterion.<sup>6</sup> Table 2.1 shows that the DV in Eagle River still meets this requirement. The six most recent DVs in the table were computed from data that became available after the submission of the LMP to EPA. The method used to compute these DVs is explained in detail in the Appendix of this document.

**Table 2.1**  
**Eagle River PM-10 Design Values**

Three-year Period Used to Compute DV	DV (µg/m <sup>3</sup> )
1998-2000	84.5
1999-2001	95.5
2000-2002	89.7
2001-2003	108.0
2002-2004	94.1
2003-2005	102.7
2004-2006	88.2
2005-2007	86.0
2006-2008	80.8
2007-2009	77.8
2008-2010	75.1
2009-2011	88.7
2010-2012	82.0
2011-2013	88.8

Computed since LMP submission

The following conformity requirements apply to LMPs or areas that have had their LMPs approved for conformity purposes:

### Criteria

93.110 The conformity determination must be based on the latest planning assumptions.

<sup>5</sup> PM-10 LMP guidance is outlined in a memorandum from Lydia Wegman, Director, Air Quality Standards and Strategies Division, EPA, August 9, 2001.

<sup>6</sup> This requirement is found in the Wegman PM-10 LMP guidance. It is not a requirement of the transportation conformity rule. AMATS agreed to include the Eagle River PM-10 Limited Maintenance Area design value analysis in this conformity determination as an outcome of interagency consultation.

- 93.112 Conformity must be determined according to the consultation procedures in this subpart and in the applicable implementation plan, and according to the public involvement procedures established in compliance with 23 CFR Part 450.
- 93.113(b) The transportation plan must provide for the timely implementation of TCMs from the applicable SIP.

As per 40 CFR 93.113(b), the TIP must: (1) provide for timely implementation of the TCMs in the applicable SIP; and (2) nothing in the TIP should interfere with a TCM in the SIP. Both these conditions have been met. When the *Eagle River PM-10 Control Plan* was submitted to EPA in 1991, 6.6 miles of the 22 miles of unpaved road in the problem zone had already been paved or surfaced with recycled asphalt product (RAP). The plan assumed that an additional 8.6 miles of paving or recycled asphalt surfacing would be completed by 1993. This was accomplished; by 1993 over 15 miles of the 22 miles of unpaved roads in the problem zone had been paved or RAP-treated. By 2007, there were no unpaved roads in the problem zone.

The *Eagle River PM-10 Control Plan* also called for changes in winter traction sanding practices to reduce PM-10 emissions during the spring break-up period. These included reductions in the amount applied and new specifications that limited the silt content in the sand to 2% or less. These measures were implemented in 1989 and continue to be implemented today. The fact that Eagle River has been in compliance with the NAAQS since 1989 attests to the effectiveness of the implemented control strategies. There is nothing in the AMATS 2015-2018 TIP that would interfere with the continued implementation of these TCMs.

### **2.3 Conclusion regarding Eagle River PM-10 Conformity**

This analysis demonstrates that the Anchorage 2015-2018 TIP is in conformance with the Alaska State Implementation Plan for air quality and meets conformity requirements outlined in 40 CFR 93 for PM-10. Furthermore, it has been determined that the TIP will not undermine the ability for Eagle River to maintain compliance with the PM-10 NAAQS.

## **APPENDIX**

### **Computation of PM-10 Design Value Concentrations for Eagle River**

## Computation of PM-10 Design Value Concentrations for Eagle River

Computational methods for determining the 24-hour design value (DV) are outlined in the *PM<sub>10</sub> SIP Development Guideline (EPA-450/2-86-001, June 1987)*. The empirical frequency distribution approach (see Section 6.3.3. of the guideline) was used to determine the site-specific PM-10 concentration that would be expected to be exceeded at a frequency of once every 365 days.

The *Eagle River PM-10 Limited Maintenance Plan* describes how the DVs were computed by three-year block during the 1998 – 2013 period. (Data through 2007 were considered in the Plan.) An identical method was used to compute the DV concentrations from data collected since the submission of the Plan.

We will describe how the empirical frequency distribution method was used to compute the DV for the three-year period 2011-13. During this period, the number of unflagged 24-hour average PM-10 measurements (*n*) was 1035<sup>††</sup>. These concentrations were assigned rank where the highest concentration was rank = 1, and lowest was rank = 1035. An abbreviated version of this table is shown below. During this 2011-13 period, the lowest PM-10 concentration measured was 1 µg/m<sup>3</sup> (rank = 1035); the highest was 174 µg/m<sup>3</sup> (rank = 1).

Date	PM-10 (µg/m <sup>3</sup> )	<i>i</i> rank	$P = i/n$ Proportion of observations with equal or higher concentration
10/4/12	1	1035	1.000
12/30/12	1	1034	0.999
1/3/11	1	1033	0.998
10/4/12	1	1032	0.997
2/10/13	2	1031	0.996
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9/30/13	17	333	0.322
10/21/13	17	332	0.321
1/8/11	18	331	0.320
3/26/11	18	330	0.319
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4/25/13	78	4	0.004
4/12/12	81	3	0.003
4/15/11	108	2	0.002
1/15/13	174	1	0.001

The empirical frequency distribution for each 3-year block was then determined by plotting *P* vs. its corresponding PM-10 concentration (see Figure 1). By definition, the DV is the concentration that corresponds to  $P = 1/365$ , the highest expected concentration during a one-year or 365-day period.

<sup>††</sup> Two measurements were excluded from this analysis because they were attributed to naturally-occurring wind blown dust from the Matanuska River drainage on Dec 2, 2007 and Sept 24, 2010. An exceptional event waiver was prepared for both events. The 2007 waiver request was approved by EPA, and the 2010 waiver request is pending review.

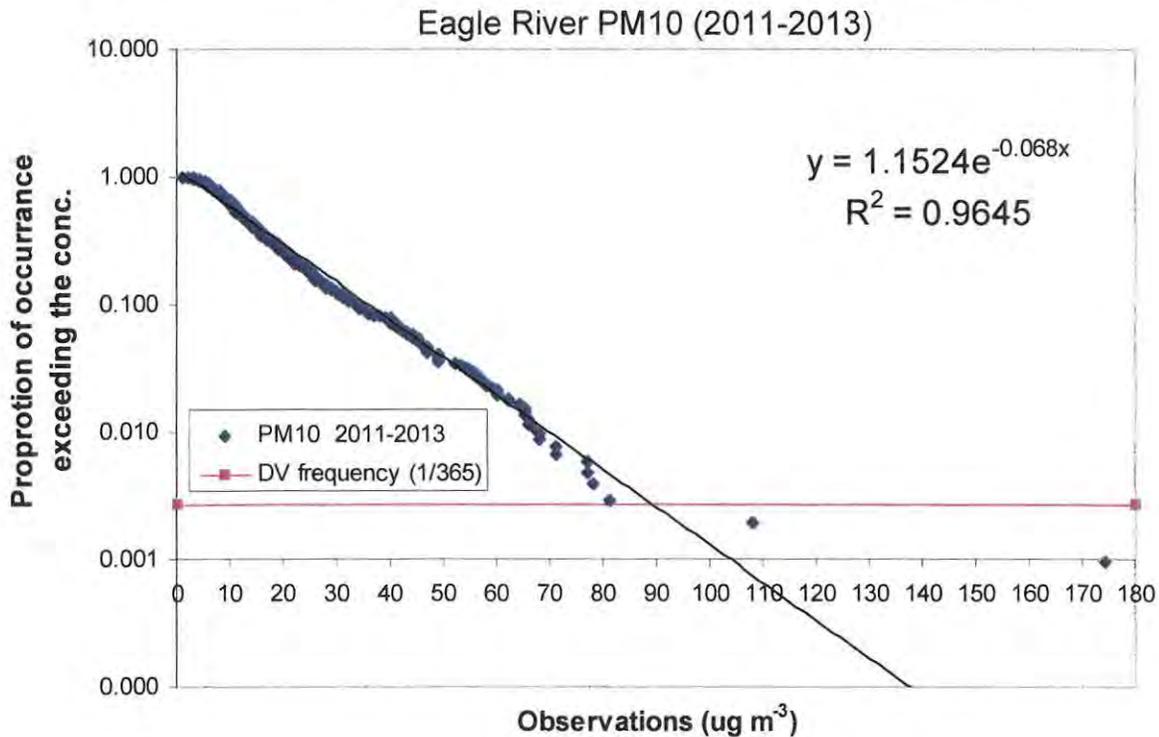
The design value concentration can be approximated graphically or computed directly from the equation of the best-fit line.

$$\text{In this case: } y = 1/365 = 0.00274 = 1.1524 e^{-0.0680x}$$

$$x = 88.8 \mu\text{g}/\text{m}^3$$

**Figure 1**

**Computation of 2011-2013 DV by Empirical Frequency Distribution Method**



The DVs for the other three-year periods were computed similarly.

**Table x**  
**Computation of DVs for Parkgate Site in Eagle River**

3-yr Period	n	Equation of Line Describing Empirical Frequency Distribution <sup>++</sup>	R <sup>2</sup>	DV (μg/m <sup>3</sup> )
2006-2008	179	$y = 1.4101e^{-0.0772x}$	0.99	80.8
2007-2009	175	$y = 1.4573e^{-0.0735x}$	0.99	77.8
2008-2010	175	$y = 1.3073e^{-0.0821x}$	0.99	75.1
2009-2011	1033	$y = 1.2650e^{-0.0692x}$	0.96	88.7
2010-2012	1025	$y = 1.3071e^{-0.0752x}$	0.99	82.0
2011-2013	1035	$y = 1.1524e^{-0.0680x}$	0.96	88.8

**Table 1. Total Four-Year Program Summary  
AMATS FFY 2015-2018 TIP**

TRANSPORTATION IMPROVEMENTS	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)				4-year total	% of 4-year Non-NHS \$
	2015	2016	2017	2018		
<b>Non-National Highway System (Table 3)</b>						
Roadway Improvements without Pavement Replacement projects	\$16,900	\$15,755	\$17,585	\$7,990	\$58,230	61.3%
Pavement Replacement projects (Table 10)	\$1,074	\$1,449	\$1,919	\$10,714	\$15,156	16.0%
Total Roadway Improvements (Table 3)	\$17,974	\$17,204	\$19,504	\$18,704	\$73,386	77.3%
<b>Non-motorized (Table 4)</b>	\$3,300	\$3,700	\$2,400	\$2,400	\$11,800	12.4%
<b>Congestion Mitigation &amp; Air Quality (Table 5)</b>	\$2,460	\$2,830	\$1,830	\$2,630	\$9,750	10.3%
<b>Non-National Highway System Subtotal for Non-NHS roads, non-motorized &amp; CMAQ projects</b>	<b>\$23,734</b>	<b>\$23,734</b>	<b>\$23,734</b>	<b>\$23,734</b>	<b>\$94,936</b>	<b>100.0%</b>
STIP Non-National Highway System Allocation from ADOT&PF's CTP programs [as of 3/14]	\$23,734	\$23,734	\$23,734	\$23,734	\$94,936	
AMATS CMAQ program set aside [as of 3/14]	\$1,200	\$1,200	\$1,200	\$1,200	\$4,800	
Previously Programmed Projects Utilizing Funding / Deobligations	\$0	\$0	\$0	\$0	\$0	0%
<b>STIP Non-NHS Allocation for all projects (includes CTP and CMAQ allocation)</b>	<b>\$24,934</b>	<b>\$24,934</b>	<b>\$24,934</b>	<b>\$24,934</b>	<b>\$99,736</b>	
Amount over or ( -under ) funding allocation level for all Non-National Highway System projects for roads, non-motorized, CMAQ projects.	\$0	\$0	\$0	\$0	\$0	
<b>Other Funded Projects within the Municipality of Anchorage</b>						
<b>Highway Safety Improvement Program (Table 2)</b>	\$15,231	\$21,516	\$0	\$0	\$36,747	
<b>National Highway System (Table 6)</b>	\$37,566	\$9,150	\$9,150	\$9,200	\$65,066	
<b>Transit Capital FTA Section 5307 to MOA (Table 7)</b>	\$6,806	\$6,806	\$6,806	\$6,806	\$27,224	
<b>Transit Capital FTA Section 5307 to ARRC (Table 7)</b>	\$1,065	\$1,065	\$1,760	\$1,760	\$5,650	
<b>Transit Capital FTA Section 5337 {State of Good Repair} to ARRC (Table 7)</b>	\$815	\$815	\$1,500	\$815	\$3,945	
<b>TOTAL PROGRAM ALLOCATIONS = (Non-NHS + NHS+ HSIP Set Aside + AMATS Pave./Bridge Refurbish.+ all FTA 5307, 5337 and 5309)</b>	<b>\$85,217</b>	<b>\$63,086</b>	<b>\$42,950</b>	<b>\$42,315</b>	<b>\$196,821</b>	
<b>Other Federal Funded Projects within AMATS (Table 8)</b>	<b>\$676,428</b>	<b>\$41,045</b>	<b>\$99,545</b>	<b>\$39,765</b>	<b>\$856,783</b>	
<b>National Highway System Improvements Outside AMATS boundaries, but within the MOA (Table 9)</b>	<b>\$46,100</b>	<b>\$42,550</b>	<b>\$2,610</b>	<b>\$2,600</b>	<b>\$93,860</b>	
<b>TOTAL FEDERAL FUNDING for Transportation Improvements within AMATS &amp; the MOA</b>	<b>\$807,745</b>	<b>\$146,681</b>	<b>\$145,105</b>	<b>\$84,680</b>	<b>\$1,147,464</b>	

**Table 1. Total Four-Year Program Summary  
AMATS FFY 2015-2018 TIP**

Notice to MOA Project Managers / Project Sponsors! If your project includes ITS elements and uses funds from the federal highway trust fund, prior to acquisition, construction, or implementation, you must demonstrate compliance with federal Systems Engineering Analysis requirements. Complete the ADOT&PF Systems Engineering Analysis Checklist, link below, and submit to FHWA through ADOT&PF Central Region Planning.

**Table 2. Highway Safety Improvement Program (HSIP)  
AMATS FFY 2015-2018 TIP**

PROJECT LOCATION	PROJECT PHASING PLAN	FEDERAL FISCAL PROGRAMMING YEAR						Estimated funding needs after 2020	Est total project cost	
		10/10-9/11	10/-9/12	10/12-9/13	10/13 - 9/14	10/14 - 9/15	10/15 - 9/16			
		2015	2016	2017	2018	2019	2020			
1	Glenn Highway Moose-Vehicle Crash Mitigation	2016 - C	\$0	\$5,815	\$0	\$0	\$0	\$0	\$0	\$5,815
2	Regional High Friction Surface Treatment Project (50% located outside the AMATS boundary)	2015 - C	\$8,958	\$0	\$0	\$0	\$0	\$0	\$0	\$8,958
3	Jewel Lake Road: 88th St to Strawberry TWLTL (Two way left turn lane)	2016 - U/C	\$0	\$3,950	\$0	\$0	\$0	\$0	\$0	\$3,950
4	Central Region Sign Assembly Compliance Improvement	2015 - C	\$3,625	\$0	\$0	\$0	\$0	\$0	\$0	\$3,625
5	Lake Otis Parkway @ 68th Channelization Improvements	2015 - U/C	\$2,385	\$0	\$0	\$0	\$0	\$0	\$0	\$2,385
6	Seward Hwy MP 99-100 Passing Lanes	2016 - U/C	\$0	\$4,366	\$0	\$0	\$0	\$0	\$0	\$4,366
7	C Street RR Crossing - Pathway Traffic Control Devices ARRC	2015 - U/C	\$263	\$0	\$0	\$0	\$0	\$0	\$0	\$263
8	CR Traffic Safety Corridor Left Turn Lanes	2016 - R/U/C	\$0	\$3,850	\$0	\$0	\$0	\$0	\$0	\$3,850
9	Muldoon Road Channelization Improvements: 11th Court to Boundary Avenue	2016 - U/C	\$0	\$3,535	\$0	\$0	\$0	\$0	\$0	\$3,535
<b>Annual Totals</b>			<b>\$15,231</b>	<b>\$21,516</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$36,747</b>

**Table 3. Roadway Improvements  
AMATS FFY 2015-2018 TIP**

	STIP Need ID's	Project AKSAS #	PROJECT LOCATION	PROJECT PHASING PLAN	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)				10/14 - 9/15	10/15 - 9/16	Est funding needs after 2020	Estimated total project cost 2015-2020
					10/10-9/11	10/11-9/12	10/12-9/13	10/13 - 9/14				
					2015	2016	2017	2018				
<b>Constructing</b>	8499	50898 51030	<b>Dowling Road Extension West /Reconstruction</b> [Minnesota Drive to Old Seward Highway] - Connect Minnesota to 'C' Street and continue to Dowling Road. Location and size of improvements to be determined. Project will be built in phases. Phase I consisting of section from C Street to Old Seward Highway. Phase II also includes \$6.8M in earmark funding shown in Table 8 and \$6.9M identified in the STIP.	2014 - U/C	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>G</b>	2159	53935 53804	<b>O'Malley Road Reconstruction</b> [Seward Highway to Hillside Drive] - Reconstruct the roadway to improve safety and capacity at intersections and improve pedestrian facilities and 3 lane section east of Lake Otis Pkwy, and 5 lane section between Seward Hwy and Lake Otis Pkwy. Landscaping @ 5% of Construction \$ = to be determined. \$4.3M in ROW funding for Phase I in 2014. \$23.5M in U/C funding for Phase I in 2016 is A/C into 2015. Phase II is funded with FFY 2013 GO Bond = \$15M, supplemented by TIP funds.	2015 - U/C	\$14,300	\$11,000	\$0	\$3,000	\$7,000	\$0	\$0	\$35,300
<b>G</b>	2174	53942	<b>Abbott Road Rehabilitation</b> [Lake Otis Parkway to Birch Road] - project will increase from 2 to 4 lanes and improve intersections and pedestrian facilities. Project recommended to be developed as a 3R per ADOT's Pre-Construction Manual. \$1.5M in ROW funding is A/C from 2015 into 2014. \$7.7M in U/C funding is A/C from 2017 into 2016.	2016- U/C	\$0	\$3,000	\$14,700	\$0	\$0	\$0	\$0	\$17,700
	19497		<b>Pavement Replacement Program</b> - This program will provide a single funding source for several pavement overlay and/or replacement projects. Improvements are also expected to include ADA and some existing curb and sidewalk repair. May include those projects listed in Table 10 or other priorities.	2015 - 18 Programming	\$1,074	\$1,449	\$1,919	\$10,714	\$2,500	\$2,500	\$2,500	\$22,636
<b>1</b>	16582	55138 53986	<b>Spenard Road Rehabilitation</b> [Minnesota Dr to Benson Blvd]- project will rehabilitate to improve traffic flow. Includes Spenard Rd/ 36th Ave couplet. \$1M in A/C funding from 2018 to 2017 is for D.	2017 - PE 2018 - D 2019+ - ROW/U/C	\$0	\$0	\$0	\$2,500	\$2,000	\$0	\$0	\$4,500
<b>2</b>	29249		<b>Spenard Road Rehabilitation</b> [Hillcrest to Benson] - project will rehabilitate facility to improve traffic flow to improve circulation and access. New pedestrian facilities are recommended.	2015 - PE 2017 - D 2019+ - ROW	\$1,500	\$0	\$1,000	\$0	\$2,000	\$0	\$0	\$4,500
<b>3</b>	29250		<b>Minnesota Drive Mobility and Safety Study [Westchester Lagoon to Seward Highway]</b> - project will identify opportunities to reduce congestion and improve safety for corridor users. Study will also evaluate interchange and signal alternatives on Minnesota Drive at New and Old Seward Highways.	2016 - Study	\$0	\$150	\$0	\$0	\$0	\$0	\$0	\$150
<b>4</b>	29251		<b>Spenard Road Corridor Strategic Plan</b> - project will present transportation and land use policies and design solutions that accommodate existing and future traffic volumes, enhance vehicle access, promote pedestrian connectivity and safety, present parking solutions, and integrate land use with transportation options. The plan will direct implementation actions that focus on capital improvements throughout the corridor.	2015 - Study	\$250	\$0	\$0	\$0	\$0	\$0	\$0	\$250
<b>5</b>	29252		<b>Glenn Highway Integrated Corridor Management Study [ICM]</b> - project will produce a final Concept of Operations for a comprehensive ICM approach to the Glenn Highway operations, to address traffic congestion, including congestion caused by crashes.	2017 - Study	\$0	\$0	\$200	\$0	\$0	\$0	\$0	\$200
<b>6</b>	29253		<b>Ingra Gambell Couplet Extension reconnaissance study</b> - project will look at extension of Ingra and Gambell Streets to Ship Creek Avenue and Whitney Road. Project will study project area emphasizing implementation actions related to access, circulation and freight mobility.	2017 - Study	\$0	\$0	\$200	\$0	\$0	\$0	\$0	\$200
<b>7</b>	29254		<b>C Street Ocean Dock Road Access Ramp Reconnaissance Study</b> - will look at reconstruction and redesign of C Street bridge/ Port Exit (Ocean Dock Road) Access ramp in both directions and offer recommendations related to safety, maintenance and freight mobility improvements,.	2015 - Study	\$250	\$0	\$0	\$0	\$0	\$0	\$0	\$250
<b>8</b>	29255		<b>Rabbit Creek Reconstruction (Seward Highway to Goldenview Drive)</b> - project would construct center lane, sidewalk, and pathway to increase capacity.	2015 - PE 2017 - D	\$0	\$1,000	\$0	\$1,000	\$0	\$0	\$15,000	\$17,000
<b>9</b>	29256		<b>Birch Road Rehabilitation (Huffman Road to Abbott Road)</b> - project will rehabilitate pavement, including adjoining multi use pathway and fix subsurface issues	2017/18 - PE	\$0	\$0	\$1,000	\$1,000	\$0	\$0	\$0	\$2,000
	19518		<b>Safety Improvement Program (Traffic Count support)</b> - Collect traffic data within the AMATS area completed by the ADOT&PF's Central Region Highway Data Section and MOA Traffic Department Data Section.	2015 - 18 Programming	\$600	\$605	\$485	\$490	\$495	\$500	\$505	\$3,680

**Table 3. Roadway Improvements  
AMATS FFY 2015-2018 TIP**

STIP Need ID's	Project AKSAS #	PROJECT LOCATION	PROJECT PHASING PLAN	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)						Est funding	Estimated
				10/10-9/11	10/11-9/12	10/12-9/13	10/13- 9/14	10/14- 9/15	10/15- 9/16	needs after	total project
				2015	2016	2017	2018	2019	2020	2020	cost 2015-2020
		<b>The contingency list of projects for each year will consist of the following year's projects.</b>	ANNUAL TOTALS	\$17,974	\$17,204	\$19,504	\$18,704	\$13,995	\$3,000	\$18,005	\$108,386
		STIP ALLOCATIONS FOR ALL TYPES OF NON-NHS PROJECTS [as of March 2014] = CTP.		\$23,734	\$23,734	\$23,734	\$23,734	\$24,955	\$24,955	\$18,005	\$144,846
		Approximate percentage (%) for roadways		71%	66%	74%	34%			4-year Average=	61.3%
		Approximate percentage (%) for pavement replacement projects		5%	6%	8%	45%			4-year Average=	16%

**Table 4. Non-Motorized  
AMATS FFY 2015-2018 TIP**

STIP Need ID's	Project #	PROJECT LOCATION	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)						Est. funding needs after 2020	Estimated total project cost 2015 - 20		
			PROJECT PHASING PLAN	10/10-9/11	10/11-9/12	10/12-9/13	10/13 - 9/14	10/14 - 9/15			10/15 - 9/16	
				2015	2016	2017	2018	2019			2020	
G	26628	53619	<b>Bicycle Plan Project Implementation</b> - Project would sign, stripe and mark bike lanes or shoulders on existing roadways within the AMATS boundary area to create a safe, connected network of bicycle facilities as identified in the Anchorage Bicycle Plan. Project consists of nominated projects Core Bicycle Network Phase I-III.	2015 - 18 Implementation	\$650	\$1,000	\$500	\$200	\$0	\$0	\$0	\$2,350
G	26629		<b>Pedestrian Plan Project Implementation</b> - Project would improve pedestrian safety and construct missing links as identified in the 2007 Anchorage Pedestrian Plan.	2016 - 18 Implementation	\$650	\$1,000	\$500	\$200	\$0	\$0	\$0	\$2,350
1	29257		<b>Dimond Center Pedestrian and Transit Improvements</b> - multiphase effort focusing on pedestrian, bicycle, transit and travel way improvements. Primary improvements include sidewalk connectivity, bicycle infrastructure, pedestrian and bicycle signals/ signage, traffic calming techniques, lighting and other safety related infrastructure to ensure compliance with ADA.	2015 - C	\$2,000	\$0	\$0	\$0	\$0	\$0	\$0	\$2,000
2	29258		<b>Anchorage Areawide Trails Rehabilitation</b> - Project will analyze existing pathways for rehabilitation needs community-wide and promote specific projects to rehabilitate those existing pathways. The scope is primarily expected to include pavement replacement with a focus on trails that form the Anchorage Bicycle Plan Core Bicycle Network.	2015 - 18 - D/U/C	\$0	\$1,500	\$0	\$0	\$500	\$500	\$0	\$2,500
3	29259		<b>Implement Bike Plan - Multi use path on Benson between Lois Drive and Minnesota Boulevard</b> - project would construct multi-use path between Lois Drive and Minnesota Boulevard.	2017 - D/C	\$0	\$200	\$1,000	\$0	\$0	\$0	\$0	\$1,200
4	29260		<b>Implement Bike Plan - Multi use path on O'Malley Road</b> - project constructs multi-use path on O'Malley Road between Old Seward Highway and C Street.	2018 - D/C	\$0	\$0	\$200	\$1,000	\$0	\$0	\$0	\$1,200
5	29261		<b>Implement Bike Plan</b> - sign existing bike network	2018 - Implementation	\$0	\$0	\$200	\$1,000	\$0	\$0	\$0	\$1,200
			<b>The contingency list of projects for each year will consist of the following year's projects.</b>		<b>\$3,300</b>	<b>\$3,700</b>	<b>\$2,400</b>	<b>\$2,400</b>	<b>\$500</b>	<b>\$500</b>	<b>\$0</b>	<b>\$8,100</b>
			STIP ALLOCATIONS FOR ALL TYPES OF NON-NHS PROJECTS [as of March 2014] = CTP.		\$23,734	\$23,734	\$23,734	\$23,734	\$94,936	\$1		\$189,873
			Approximate percentage (%) for all Non-motorized projects		<b>14%</b>	<b>16%</b>	<b>10%</b>	<b>10%</b>			4-year Average=	<b>12.4%</b>

**Table 5. Congestion Mitigation Air Quality (CMAQ)  
AMATS FFY 2015-2018 TIP**

STIP Need	ID's	PROJECT LOCATION	PROJECT PHASING PLAN	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)						Est. funding needs after 2016	Estimated total project cost 2015 - 20
				10/10-9/11	10/11-9/12	10/12-9/13	10/13 - 9/14	10/14 - 9/15	10/15 - 9/16		
				2015	2016	2017	2018	2019	2020		
<b>SIP-Mandated Projects and Programs</b>											
1	2273	<b>Anchorage Ridesharing/ Transit Marketing</b> - This project funds the operation of the Municipal Share-A-Ride program which promotes, coordinates, and operates an area-wide commuter matching service and a van pool program, and a comprehensive public transportation marketing effort.	2015-18 Programming	\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$6,300
2	8385	<b>Air Quality Public &amp; Business Awareness Education Campaign</b> - The goal of this program is to further inform the public about air quality issues and what steps people may take to reduce pollution.	2015-18 Programming	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$2,100
<b>Section Totals</b>				\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$8,400
<b>STIP Non-National Highway System Allocation from ADOT&amp;PF's CMAQ program [as of 3/14]</b>				\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$1,200	\$8,400
<b>Studies and Plans</b>											
1	24818	<b>Consolidated Municipality of Anchorage MTP</b> - Funding for the consolidated Municipality of Anchorage Metropolitan Transportation Plan.	2020 - Plan	\$0	\$0	\$1,000	\$0	\$0	\$1,000	\$0	\$2,000
2	29262	<b>Midtown Transit Facility</b> - Phase I will analyze location alternatives, site suitability and route restructuring for a midtown transit facility. Phase II is the construction of the Midtown Transit Facility based on the recommendations of the study in Phase I.	2015 - Study	\$300	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,300
<b>Section Totals</b>				\$300	\$0	\$1,000	\$0	\$8,000	\$1,000	\$0	\$10,300
<b>Programs</b>											
1	24819	<b>Arterial Roadway Dust Control</b> - Magnesium chloride (MgCl2) dust palliative will be applied to approx 70 miles of high volume State and municipal roadways prior to and immediately after spring sweeping.	2015-18 Implementation	\$200	\$200	\$200	\$200	\$0	\$0	\$0	\$800
2	18126	<b>Traffic Control Signalization</b> -Program would provide proactive efficiencies with better/more updated signal timing plans to address intersection congestion and improve air quality. Funding supports development of Traffic Management Center and emergency vehicle and low priority transit signal preemption.	2015-18 Programming	\$350	\$350	\$350	\$350	\$350	\$350	\$350	\$2,450
3	19457	<b>Bus Stop &amp; Facility Improvements</b> -This project funds the upgrade of bus stop sites to meet both the federally-mandated Americans with Disabilities Act [ADA] requirements and the operational needs. Typical improvements include bus shelters, benches, trash receptacles, landscaping, grading, paving, utility relocations, lighting, curb adjustments, drainage, constructing paths, and construction/reconstruction of turnouts. Table 5 CMAQ funds supplement FTA funds in project 4 on Table 7.	2015 - 2018 Implementation	\$210	\$210	\$210	\$210	\$210	\$210	\$210	\$1,470
4	29263	<b>Multimodal trip planner and smartphone application</b> - project will provide for operation of a multimodal trip planner and smartphone app to produce carpool, vanpool and bicycle commuter matching, transit and shuttle schedules, and multimodal directions.	2016-18 Implementation	\$0	\$70	\$70	\$70	\$0	\$0	\$0	\$210
<b>Section Totals</b>				\$760	\$830	\$830	\$830	\$560	\$560	\$560	\$4,720
<b>Projects</b>											
1	14519	<b>Transit Fleet Expansion/Replacement/Operations</b> - This project provides funding for replacement, expansion and potential operational funds of the public transportation fleet. The fleet consists of 40' buses, vanpool vehicles, and AnchorRIDES paratransit vehicles. Vanpool and AnchorRIDES vehicles have a useful life of 4-years, People Mover buses have a 12-year useful life cycle. Based on the People Mover Blueprint and the 2035 MTP, fleet expansion, service and operations are needed to grow the system annually.	2015 - 2018 Purchase	\$1,400	\$2,000	\$0	\$1,800	\$10,000	\$1,000	\$1,000	\$17,200

**Table 5. Congestion Mitigation Air Quality (CMAQ)  
AMATS FFY 2015-2018 TIP**

STIP Need	ID's	PROJECT LOCATION	PROJECT PHASING PLAN	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)						Est. funding needs after 2016	Estimated total project cost 2015 - 20
				10/10-9/11	10/11-9/12	10/12-9/13	10/13 - 9/14	10/14 - 9/15	10/15 - 9/16		
				2015	2016	2017	2018	2019	2020		
		<b>The contingency list of projects for each year will consist of the following year's projects.</b>	<b>Section Totals</b>	\$1,400	\$2,000	\$0	\$1,800	\$10,000	\$2,187	\$1,000	\$18,387
			<b>ANNUAL TOTALS</b>	<b>\$2,460</b>	<b>\$2,830</b>	<b>\$1,830</b>	<b>\$2,630</b>	<b>\$18,560</b>	<b>\$3,747</b>	<b>\$1,560</b>	<b>\$33,407</b>
		STIP ALLOCATIONS FOR ALL TYPES OF NON-NHS PROJECTS [as of March 2014] = CTP.		\$23,734	\$23,734	\$23,734	\$23,734	\$24,955	\$24,955	6 year total=	<b>\$221,596</b>
		Approximate percentage (%) for all for Congestion Mitigation/Air Quality (CMAQ) projects		10%	12%	8%	11%	74%	15%	4-year Average=	10.3%

Notice to MOA Project Managers / Project Sponsors! If your project includes ITS elements and uses funds from the federal highway trust fund, prior to acquisition, construction, or implementation, you must demonstrate compliance with federal Systems Engineering Analysis requirements. Complete the ADOT&PF Systems Engineering Analysis Checklist, link below, and submit to FHWA through ADOT&PF Central Region Planning.

**Table 6. National Highway System (NHS)  
AMATS FFY 2015-2018 TIP**

	STIP	Project	PROJECT LOCATION	PROJECT PHASING PLAN	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)				Est funding needs after 2018	Estimated total project cost 2015 - 18
	Need	#			10/10-9/11	10/11-9/12	10/12-9/13	10/13-9/14		
	ID's				2015	2016	2017	2018		
1	2201 2202	52503 50816 53626	<b>Seward Highway</b> [Rabbit Creek to 36th Avenue] - Analyze and identify needed transportation improvements in the Seward Highway Corridor, between Rabbit Creek and 36th Avenue. Improvements to be considered may include but are not limited to: widening from four to six lanes; modify existing interchanges; grade separation at 36th Ave.; extend western frontage road between Dimond Blvd. and O'Malley Road; overcrossings at International Airport Road, 68th, 76th, and 92nd Avenues; and pedestrian and bike facilities. The initial phase will construct an additional travel lane on the Seward Highway in both the North and Southbound directions between Dimond Blvd. and Tudor Road interchanges. This work will include adjusting on and off ramp geometry and drainage modifications.	2015+ - U/C	\$12,750	\$0	\$0	\$0	\$77,000	\$89,750
2	26793		<b>Seward Highway: Midtown Congestion Relief including 36th and Seward Intersection</b> - Connect Anchorage Initiative: Project will design, acquire right-of-way and construct improvements to the Seward Highway through midtown Anchorage, from Tudor Road to 20th Avenue. Project includes the grade separation at 36th Avenue. FFY 2013 GO Bond funding = \$26M, GF funding = \$10M	2015 - 2018+ - All Phases	\$0	\$0	\$0	\$0	\$351,000	\$351,000
3	27470		<b>Glenn Hwy/Muldoon Road Interchange Reconstruction</b> - Reconstruct interchange at Muldoon and Glenn Highway. FFY 2013 GO Bond Funding = \$15M, GF funding = \$450K.	2015 - 2018+ - D/U/C	\$0	\$0	\$0	\$0	\$0	\$0
4	27249		<b>5th and 6th Avenue Repaving</b> - Resurface 5th & 6th Avenue from L Street to Ingra Street and improve curb ramps to meet ADA standards. The scope does not include landscaping or other elements inconsistent with a pavement preservation focus.	2015 - U/C	\$4,050	\$0	\$0	\$50	\$4,050	\$8,150
5	27250 28290		<b>Ingra Street and Gambell Street Repaving</b> - Resurface Ingra Street and Gambell Street from 5th avenue to 36th avenue and improve curb ramps to meet ADA standards. The scope does not include landscaping or other elements inconsistent with a pavement preservation focus.	2015 - C	\$0	\$0	\$0	\$0	\$0	\$0
6	27472		<b>Glenn Highway, Hiland Road to Artillery Road Reconstruction</b> - Add a 3rd lane to both northbound and southbound Glenn Highway. Improvements at Hiland Road and Artillery Road Interchanges on the Glenn Highway. Replace Eagle River bridges with capacity for pathway & future HOV lanes. First construction phase will be northbound improvements. FFY2013 GO Bond funding = \$35M.	2015-2018+ - D/U/C	\$0	\$0	\$0	\$0	\$0	\$0
7	28290	TBD	<b>Anchorage Area Principal Arterial Pavement Resurfacing and ADA Compliance</b> - This Preventive Maintenance project will extend the service life of Principal Arterials and improve curb ramps to meet ADA standards. The scope does not include landscaping or other elements inconsistent with a pavement preservation focus. Initial phase includes auditing State roads as part of resurfacing efforts to determine ADA compliance and identify those issues that can be quickly resolved. Prioritization and construction of needed ADA improvements will be identified per audit.	2015 - D/Planning 2016 - All Phases 2018+ - All Phases	\$20,766	\$9,150	\$9,150	\$9,150	\$0	\$48,216
<b>The contingency list of projected for each year will consist of the following year's projects. (Note: Table is not shown in priority order. These projects have not been ranked by AMATS).</b>					<b>\$37,566</b>	<b>\$9,150</b>	<b>\$9,150</b>	<b>\$9,200</b>	<b>\$432,050</b>	<b>\$497,116</b>

**Table 7. Transit  
AMATS FFY 2015-2018 TIP**

STIP Need ID's	PROJECT LOCATION	PROJECT PHASING PLAN	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)						Est funding needs after 2020	Estimated total project costs	
			Carryover	10/10-9/11	10/11-9/12	10/12-9/13	10/13-9/14	10/14-9/15			10/15-9/16
				2015	2016	2017	2018	2019			2020
	<b>Municipality of Anchorage - FTA Section 5307 &amp; 5340 Funds</b>										
1	19458 <b>Preventive Maintenance / Capital Maintenance</b> - FTA [Federal Transit Administration] allows grantees to use capital funds for overhauls and preventative maintenance. FTA assistance for these items is based on a percentage of annual vehicle maintenance costs.	2015 - 2018 - Implementation	\$0	\$4,450	\$4,550	\$4,650	\$4,750	\$4,900	\$5,050	\$5,050	\$33,400
2	19462 <b>Fleet Replacement/ Expansion</b> - This project funds the fleet expansion and replacement for the AnchorRIDES paratransit service, as well as the fixed route fleet.	2015 - 2018 - Purchase	\$0	\$320	\$80	\$225	\$230	\$200	\$200	\$12,000	\$13,255
3	19464 <b>ADA Complementary Paratransit Services</b> - Costs associated with ADA paratransit programs are eligible for this funding. The project funds the ADA paratransit eligibility process with a transportation skills assessment and a travel training program for people who could benefit from individualized instruction regarding how to independently ride People Mover buses. May also be used to purchase AnchorRIDES trips.	2015 - 2018 - Implementation	\$0	\$500	\$500	\$355	\$500	\$500	\$500	\$500	\$3,355
4	19457 <b>Bus Stop Improvements</b> -This project funds the upgrade of bus stop sites to meet both the federally-mandated Americans with Disabilities Act [ADA] requirements and the operational needs. Typical improvements include bus shelters, benches, trash receptacles, landscaping, grading, paving, utility relocations, lighting, curb adjustments, drainage, constructing paths, and construction/reconstruction of turnouts. Table 7 FTA CMAQ funds supplement CMAQ funds in program 4 in Table 5.	2015 - 2018 - Implementation	\$0	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$1,400
5	19463 <b>ITS/Automated Operating System/Management Information Systems</b> - This project funds information systems necessary for efficient management of the public transportation system. Typical projects include: Geographic Information Systems [GIS] capabilities, upgrades to the automated maintenance system, refueling, and inventory system; a new computerized dispatch system; and upgrades to the scheduling/run-cutting process, customer information and telephone communications system, and desktop computers. This project also funds staff and capital resources to provide project oversight and capital for ITS for all modes of public transportation services. Provide day to day operational support to all ITS projects.	2015 - 2018 - Implementation	\$0	\$170	\$170	\$170	\$170	\$170	\$170	\$170	\$1,190
6	19459 <b>Fleet Improvement/Support Equipment/Support Vehicles</b> - This project funds improvements to existing transit and paratransit fleets. Typical projects include a ticket reader and issue attachment, which issues passenger passes on the bus; security systems; transit/signal improvements for headway enhancements; mechanical equipment and other improvements for facilities; mobile display terminals; and vehicle communications, radios and locations systems. This project also funds the purchase of replacement vehicles and equipment to support operation of the transit system. Typical purchases include pickup trucks, maintenance trucks with special equipment, supervisor vehicles, shift change vehicles, fork lifts, sweepers, and bus access snow removal equipment.	2015 - 2018 - Purchase	\$0	\$270	\$410	\$310	\$60	\$50	\$50	\$50	\$1,200
7	19456 <b>Transit Planning Program</b> - To include on-board and attitudinal surveys for FTA required reporting (Triennial Review, Title VI, Fare Equity, Environmental Justice, Affirmative Action) and other transit planning activities and documents.	2015 - 2018 - Implementation	\$0	\$25	\$50	\$50	\$50	\$50	\$50	\$50	\$325
8	29264 <b>Transit Centers/Support Facilities</b> - This project supports an on-going effort to provide major transit facilities including, but not limited to town centers and major destinations. The Anchorage 2020 and the 2035 MTP identified a network of Town Centers intended to function as focal points for community activities with a mix of retail, residential, and public services and facilities, and with pedestrian connections to surrounding neighborhoods and transit. Existing and future facility improvements in Midtown, Downtown, and U-Med, Dimond Center and Muldoon areas are vital to the implementation of these community planning documents.	2016 - 2018 - Implementation	\$0	\$25	\$0	\$0	\$0	\$0	\$0	\$0	\$25
	<i>subtotal FTA Section 5307 &amp; 5340</i>		\$0	\$5,960	\$5,960	\$5,960	\$5,960	\$6,070	\$6,220	\$18,020	\$54,150
	<b>MAP-21 Section 5310 Enhanced Mobility of Seniors &amp; Individuals w/ Disabilities [Federal Share Only]</b>		\$0	\$166	\$166	\$166	\$166	\$166	\$166	\$166	\$1,162
	<b>MAP-21 Section 5339 Bus and Bus Facilities Program [Federal Share Only] Replace, rehabilitate and purchase buses and related equipment and conduct bus-related facilities.</b>		\$0	\$680	\$680	\$680	\$680	\$680	\$680	\$680	\$4,760
	<i>subtotal FTA Section 5307, 5310, 5316, 5317 &amp; 5340 Transit funding to the MOA</i>		\$0	\$6,806	\$6,806	\$6,806	\$6,806	\$6,916	\$7,066	\$18,866	\$60,072

**Table 7. Transit  
AMATS FFY 2015-2018 TIP**

STIP Need ID's	PROJECT LOCATION	PROJECT PHASING PLAN	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)						Est funding needs after 2020	Estimated total project costs	
			Carryover	10/10-9/11	10/11-9/12	10/12-9/13	10/13-9/14	10/14-9/15			10/15-9/16
				2015	2016	2017	2018	2019			2020
	<b>Alaska Railroad - FTA Section 5307 (Rail Tier) Funds</b>										
10	<b>1% Transit Security on the Alaska Railroad Corporation projects</b>	2015 - 2018 - Implementation	\$120	\$125	\$125	\$130	\$130	\$135	\$135	\$140	\$920
11	<b>Preventive Maintenance</b> - This project partially funds statewide maintenance costs of passenger vehicle railcars and locomotives. Preventive maintenance is defined as all activities, supplies, materials, labor, services and associated costs required to preserve or extend the functionality and serviceability of the asset.	2015 - 2018 - Implementation	\$2,420	\$415	\$415	\$1,100	\$1,100	\$1,100	\$1,200	\$1,200	\$6,530
12	<b>1% Transit Enhancements</b> - can include benches, landscaping, and other transit related amenities.	2015 - 2018 - Implementation	\$120	\$125	\$125	\$130	\$130	\$135	\$135	\$140	\$1,040
13	<b>Track Rehab</b> - Rail and tie rehabilitation within AMATS boundaries.	2015 - 2018 - Implementation	\$358	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$3,158
	<i>subtotal FTA Section 5307 (Rail Tier) Transit funding to Railroad</i>		\$3,018	\$1,065	\$1,065	\$1,760	\$1,760	\$1,770	\$1,870	\$1,880	\$11,648
	<b>Alaska Railroad - FTA Section 5337 (State of Good Repair) Funds</b>										
14	<b>Track Rehab</b> - Rail and tie rehabilitation within AMATS boundaries.	2015 - 2018 - Implementation	\$430	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$2,800
15	<b>Preventive Maintenance</b> - This project partially funds statewide maintenance costs of passenger vehicle railcars and locomotives. Preventive maintenance is defined as all activities, supplies, materials, labor, services and associated costs required to preserve or extend the functionality and serviceability of the asset.	2015 - 2018 - Implementation	\$415	\$415	\$415	\$1,100	\$415	\$420	\$425	\$430	\$3,620
	<i>subtotal FTA Section 5337 (SGR) funding to Railroad</i>		\$845	\$815	\$815	\$1,500	\$815	\$820	\$825	\$830	\$6,420
	<b>Alaska Railroad - FTA Section 5337 (SGR) Funds</b>		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<i>subtotal FTA Section 5337 funding to Railroad</i>		\$845	\$815	\$815	\$1,500	\$815	\$820	\$825	\$830	\$6,420
	<i>subtotal FTA Sections 5307 (Rail Tier) &amp; 5337 Transit funding to ARRC</i>		\$3,863	\$1,880	\$1,880	\$3,260	\$2,575	\$2,590	\$2,695	\$2,710	\$18,068
	<b>Total Transit Program (FTA {5307+5337})</b>		\$3,863	\$8,686	\$8,686	\$10,066	\$9,381	\$9,506	\$9,761	\$21,576	\$78,140
	<i>The Municipality of Anchorage's Transportation Improvement Program (TIP) process is used to satisfy the public participation process of the Program of Projects (POP) that is required in U.S.C. Section 5307. The POP as presented is the proposed Program of Projects and will also be the final Program of Projects unless amended.</i>										

**Table 8. Other Federal, State, and Local Funded Projects within AMATS Area  
AMATS FFY 2015-2018 TIP**

STIP Need ID's	PROJECT DESCRIPTION	Project Phasing Plan	Source	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)							Estimated total needs after 2020	Total project cost 2015-20	
				Carryover	2015	2016	2017	2018	2019	2020			
1	<b>Port of Anchorage Intermodal Facility Improvements</b>		State GF GO Bond	\$130,000	\$10,000	\$40,000	\$98,500	\$35,000	\$35,000	\$0	\$0	\$348,500	
2	12259 <b>Recreational Trails for Alaska</b> - This program provides funding for various small recreational trail projects statewide. The program is administered by ADNR.	2015-2018 Programming	RTP		\$45	\$45	\$45	\$1,465	\$45	\$45	\$0	\$1,690	
3	19469 <b>Rail Extensions, signalization and remotely controlled power switches.</b>	2015-2018 Programming	FRA		\$1,000	\$1,000	\$1,000	\$0	\$0	\$0	\$0	\$3,000	
4	20255 <b>Knik Arm Crossing Access Connections</b> - Design and construct approximately 2.5 miles of roadway behind the Port of Anchorage from the Northern terminus of the planned port expansion south through Government Hill and connecting to the A/C couplet to serve as an alternative access to the port and a primary access to the planned Knik Arm Crossing.	2015-2018 - D/ROW/U/C	ILLU		\$147,295	\$0	\$0	\$0	\$0	\$0	\$0	\$147,295	
5	20256 <b>Knik Arm Crossing Toll Financed Bridge Facilities</b> - Design and construct a bridge across Knik Arm between Anchorage and Mat-Su Borough and a connecting roadway between northern terminus of the planned Port of Anchorage expansion and the Bridge and a connecting roadway between the Point Mackenzie Road and the bridge. This is project 2 of 3 supporting the EIS known as the Knik Arm Crossing. See need ID 20254 (completed) and 20255	2015-2018 - D/ROW/U/C	ILLU		\$517,313	\$0	\$0	\$0	\$0	\$0	\$0	\$517,313	
6	19482 <b>AK094 &amp; AK105 - Construction &amp; Road Improvements @ APU. This project is not included in the Air Quality conformity analysis for the 10-13 TIP.</b>	2015-2018 Programming	Earmark	\$4,794	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,794	
7	19485 <b>AK149 &amp; AK158 - Dimond Center Intermodal Parking Facility</b> - upgrade existing transit center, including but not limited to design, engineering, permitting and construction.	FTA direct transfer to MOA	Earmark	\$3,292	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,292	
8	19202 <b>Seward Highway - Anchorage to Portage Glacier Road ITS Project</b> - ITS deployment such as dynamic message signs, real-time traffic counters, low power FM or highway advisory radio, automated anti-icing/de-icing system, environmental sensors, CCTV, and adjoining signal system and inter-connect upgrades to help improve traveler safety and efficiency along the Seward Highway Corridor, Glenn Highway to Portage Glacier Road, MP 78.8.	2015-18 - P/D/C/U	STP Federal Funds		\$675	\$0	\$0	\$0	\$0	\$0	\$0	\$675	
9	26849 <b>People Mover Maintenance Facility Roof Replacement</b> - FTA State of Good Repair grant to replace the aging, leaking, poorly insulated roof of the People Mover maintenance facility.	2012 - C	FTA Grant	\$2,400	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,400	
10	27429 <b>People Mover Veterans Transportation Community Living Initiative</b> - project will develop a travel options application for mobile devices.	2012 - programming		\$120	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$120	
11	<b>People Mover State of Good Repair Vehicle Replacement</b> - project will replace 3 buses and 10 paratransit vehicles. [Federal share only]		FTA Grant	\$1,304	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,304	
12	<b>People Mover Transportation, Community, and System Preservation Program Winter City Pedestrian Safety &amp; Bus Stop Improvements</b> - project will improve safety, accessibility, and maintenance of existing pedestrian facilities and bus stops during winter months. [Federal share only]		FHWA Grant	\$280	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$280	
13	<b>People Mover Human Resources Grant</b> - project will create an innovative public transportation workforce development program (Federal Share Only).	2018 - Programming	FTA 5323 Grant		\$0	\$0	\$0	\$300	\$0	\$0	\$0	\$300	
14	<b>People Mover Transit Oriented Development Pilot</b> - project will assist in the planning and development of mixed use transit oriented development within the Municipality of Anchorage (Federal Share Only).	2018 - Programming	FTA Grant		\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$3,000	
15	<b>Campbell Tract Facility Alternate Entrance Alignment</b>	2015 - PE	FLAP		\$100	\$0	\$0	\$0	\$0	\$250	\$0	\$350	
TOTALS - Other Federally or State funded Improvements within the AMATS Area - (Note: Table is not shown in priority order. These projects have not been ranked).					\$142,190	\$676,428	\$41,045	\$99,545	\$39,765	\$35,295	\$45	\$0	\$1,034,313

**Table 9. NHS Non NHS improvements outside AMATS within the MOA  
AMATS FFY 2015-2018 TIP**

	STIP	PROJECT LOCATION	PROJECT PHASING PLAN	FEDERAL FISCAL PROGRAMMING YEAR (\$,000)					Estimated total funding needs after 2018	Estimated total project cost	
	Need			Source	Carryover	10/10-9/11	10/11-9/12	10/12-9/13			10/13-9/14
	ID #					2015	2016	2017			2018
1	11439	<b>Whittier Tunnel: Maintenance and Operations</b> - Federal-aid eligible portion of Whittier tunnel and approaches, maintenance and operations.	2015-2018 - C	NHS / STP	\$0	\$2,600	\$2,600	\$2,600	\$2,600	\$2,600	\$13,000
2	11925	<b>Seward Highway</b> - MP 75-90 Ingram Creek to Girdwood Road and Bridge Rehabilitation. FFY 2013 GO Bond funding = \$10M, GF funding = \$10M	2015 - 2018+ - D/C/U	NHS	\$0	\$40,500	\$0	\$0	\$0	\$145,500	\$186,000
3	12640	<b>Seward Highway</b> - MP 99-104 Bird and Indian Improvements: Design and construct Seward Highway improvements. May include possible bypass of Bird and Indian. Project includes passing lanes and bike/ped trail.	2015-18 - D/ROW/U/C	IM	\$0	\$3,000	\$0	\$10		\$13,500	\$16,510
4	12641	<b>Seward Highway</b> - MP 104-115 Passing Lanes - Indian to Potter Marsh.	2016 - U/C	NHS / OSF	\$0	\$0	\$39,950	\$0	\$0	\$0	\$39,950
5	16057	<b>Portage Glacier Road Embankment Stabilization:</b> Project will stabilize the Portage Creek stream bank at three locations along Portage Glacier Road.	2014 - U/C	Forest Hwys	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6	19261	<b>Olympic Circle Road Paving:</b> Pave Olympic Circle Road in Girdwood. Project may include improvements to parking, drainage, lighting and pedestrian facilities. <u>Under Construction</u>	2014 - U/C	OSF / High Priority 1702	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7	26651	<b>Seward Hwy Right-of-Way Study:</b> Project will provide Right-of-Way survey and As-Built information as needed for portions of the Seward Highway from Girdwood to Potter Marsh. Project may include documentation of corridor agreements with various public landowners within the corridor.	2014 - P&R	NHS	\$1,500	\$0	\$0	\$0	\$0	\$0	\$1,500
8	26536	<b>Seward Highway Corridor Study-</b> Develop a clear departmental vision for the corridor to guide capital project selection and scoping, aid in management decisions, and help preserve the function of the Seward Highway as a critical NHS corridor.	2015 - Planning	NHS / TCSP	\$2,500	\$0	\$0	\$0	\$0	\$0	\$2,500
9	26791	<b>Seward Highway: Seward at Alyeska Highway Improvements</b> - Construct a divided intersection on the Seward Hwy at the Alyeska Hwy to allow queuing for left-turning vehicles.	2015- All Phases	OSF	\$0	\$0	\$0	\$0	\$0	\$7,400	\$7,400
The contingency list of projected for each year will consist of the following year's projects.			ANNUAL TOTALS		\$4,000	\$46,100	\$42,550	\$2,610	\$2,600	\$169,000	\$266,860

**Table 10. Pavement Replacement Programs  
AMATS FFY 2015-2018 TIP**

<b>2015 - 2018 TIP, Pavement Replacement Projects</b>	
	Project Location
1	Airport Hts Rd - Debarr Rd to Glenn Hwy
2	Boundary Ave - Boniface Pkwy to Oklahoma
3	Brayton Dr - Dearmoun Rd to Dimond Blvd
4	Dimond Blvd - Jewel Lake Rd to Sand Lake Rd
5	Elmore Rd - Huffman Rd to Omalley Rd
6	Fireweed Ln - Arctic Blvd to Seward Hwy
7	Hiland Rd - MP 0 to MP 3.2
8	Jodphur Rd - Dimond Blvd to Kincaid Rd
9	Kincaid Rd - Jodphur Rd to Sand Lake Rd
10	Post Rd - 3rd Ave to Reeve Blvd
11	Rabbit Creek Rd - Old Seward Hwy to Hillside Dr
12	Sand Lake Rd - Dimond Blvd to Raspberry Rd
13	Upper Huffman - Hillside Dr to Toilsome Hill Dr
	*Projects not in priority order Pavement Replacement Annual Totals shown in Table 3

<b>2015 - 2018 TIP, Anchorage Area Principal Arterial Pavement Resurfacing and ADA Compliance</b>	
	Project Location
1	Abbott Rd: New Seward Hwy - 88th Ave Pavement Preservation
2	Benson Blvd: Lois - Latouche Pavement Preservation
3	Ingra and Gambell Pavement Preservation and Curb Ramps: 5th St - 36th St
4	Intl Airport Rd: S. Aircraft - Homer Dr
5	L&I Couplet Pavement Preservation and Curb Ramps
6	N. Lights Blvd: Forest - Lake Otis Pavement Preservation
7	Old Seward Hwy: O'Malley to Dimond Pavement Preservation
8	Old Seward Hwy: Rabbit Creek - Brandon Pavement Preservation
9	Raspberry Rd: Jewel Lake - Minnesota Pavement Preservation
	*Projects not in priority order See Table 6 Project #28290