

**REQUEST FOR REDESIGNATION OF
COLUMBIA FALLS
PM₁₀ NONATTAINMENT AREA
&
ATTAINMENT AREA LIMITED MAINTENANCE
PLAN**



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Developed By:
Montana Department of Environmental Quality
Air Quality Bureau

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ACRONYMS

ARM	Administrative Rules of Montana
AIRS	Aerometric Information Retrieval System
BER	Board of Environmental Review
CAA	Federal Clean Air Act
CFAC	Columbia Falls Aluminum Company
CMB	Chemical Mass Balance
DEQ	Montana Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
FCHD	Flathead County Health Department
FR	Federal Register
LAER	Lowest Achievable Emission Rate
LMP	Limited Maintenance Plan
MAQP	Montana Air Quality Permit
MDF	Medium Density Fiberboard
NAA	Nonattainment area
NAAQS	National Ambient Air Quality Standard(s)
NEI	National Emission Inventory
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
OP	Operating Permit
PM ₁₀	Particulate Matter of 10 Microns or Less
PSD	Prevention of Significant Deterioration
RACM	Reasonable Available Control Method
RACT	Reasonably Available Control Technology
RFP	Reasonable Further Progress
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
tpy	tons per year
USC	United States Code Annotated
µg/m ³	micrograms per cubic meter

REQUEST FOR REDESIGNATION OF THE COLUMBIA FALLS PM₁₀ NONATTAINMENT AREA AND APPROVAL OF A LIMITED MAINTENANCE PLAN

1.0 INTRODUCTION

The purpose of this document is to formally request redesignation of the Columbia Falls nonattainment area (NAA) from ‘nonattainment’ status to ‘attainment’ with a limited maintenance plan (LMP). This document supports the request by demonstrating each of the requirements set out in Sections 107, 110 and Part D of the Clean Air Act (CAA), including:

- A determination that the area has attained the particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) National Ambient Air Quality Standards (NAAQS);
- An approved State Implementation Plan (SIP) for the area under Section 110(k) of the CAA;
- A determination that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and other federal requirements;
- A fully-approved maintenance plan under Section 175A of the CAA; and
- A determination that all Section 110 and Part D requirements of the CAA have been met.

This section provides detail on the history of the NAA designation, major source contributors, and control plan details. Subsequent sections provide support for each of the redesignation requirements outlined above including monitoring data, SIP provisions, emission inventory, and maintenance plan specifics.

1.1 NAA History

The United States Environmental Protection Agency (EPA) promulgated new PM₁₀ NAAQS on July 1, 1987 (52 Federal Register (FR) 24634). The primary (health-based) standards were set at 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), averaged over a 24-hour period, not to be exceeded more than once per year on average over a 3-year period, and 50 $\mu\text{g}/\text{m}^3$ annual arithmetic mean, averaged over 3 years. The secondary (public welfare-based) standards were set the same as the primary standard.

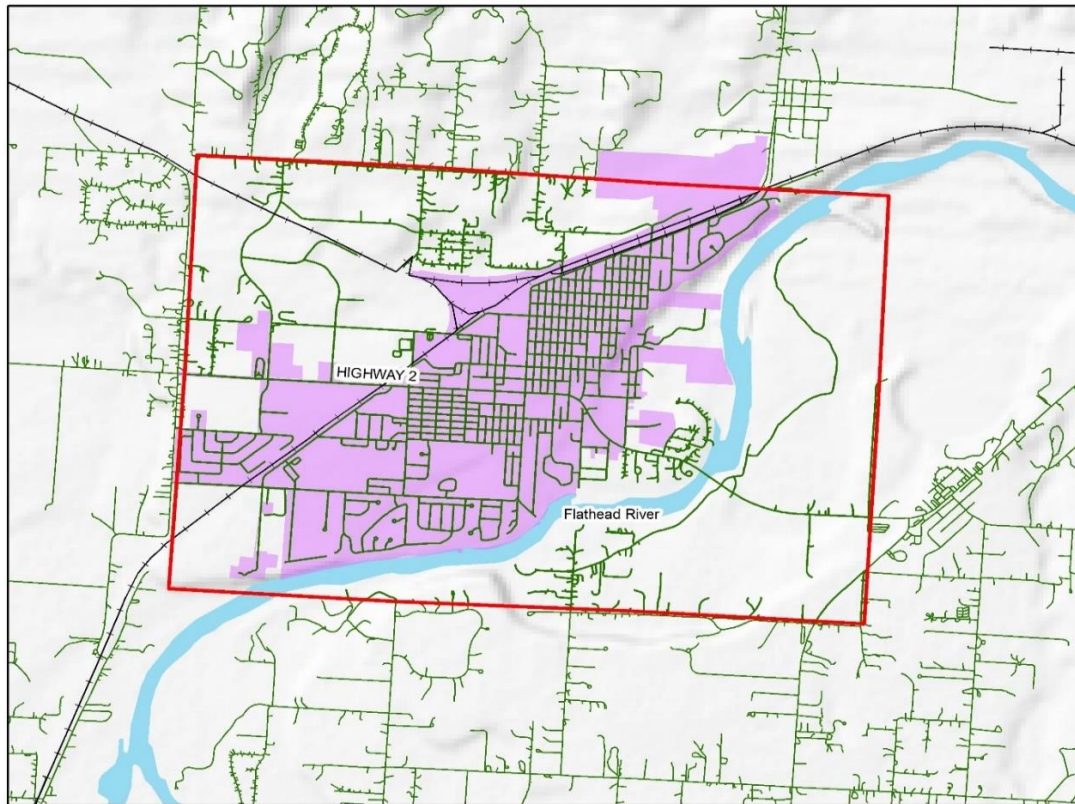
On August 7, 1987, the Columbia Falls area of Flathead County was designated by the EPA as a Group I area. This group determination was based on multiple exceedances of the 24-hour PM₁₀ NAAQS, from 1986 through 1988, at the Columbia Falls Junior High monitor (30-029-0003) near downtown Columbia Falls. Pursuant to the CAA and the amendments of 1990, all Group I areas, including Columbia Falls and vicinity, were designated to be in nonattainment for the PM₁₀ NAAQS, per 42 US Code (USC) 7407(d)(4)(B), as amended.

On November 6, 1991 (56 FR 56694), the EPA codified the designation and classification of Columbia Falls as a ‘moderate’ NAA for the PM₁₀ 24-hour NAAQS, effective November 15, 1991. The Columbia Falls area has always achieved the annual PM₁₀ NAAQS, so this document only pertains to the 24-hour PM₁₀ NAAQS. Further the EPA determined on January 31, 2011, that the area has attained the standard (76 FR 5280).

The Columbia Falls PM₁₀ NAA is rectangularly shaped and composed of Township T30N, R20W, Sections 7, 8, 9, 16, 17, and 18. Figure 1.1 shows the NAA boundary encompassing the downtown of Columbia Falls. The city limits have expanded since the late 1980's, and are no longer completely within the NAA. Montana Highway 2 bisects the NAA from east to west. Much of the commercial development is along Highway 2 and Nucleus Avenue which is perpendicular to Highway 2. Residential development is generally located immediately adjacent to these commercial districts within the NAA and industrial sources are generally along the urban-rural interface.

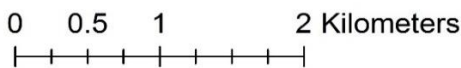
Figure 1.1 – Columbia Falls PM₁₀ NAA Boundary

Columbia Falls Nonattainment Area

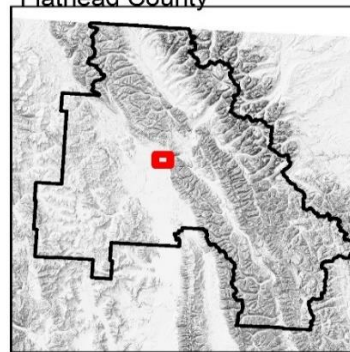


Legend

- Columbia Falls NAA
- Railroads
- Incorporated City of Columbia Falls
- Roads



Flathead County



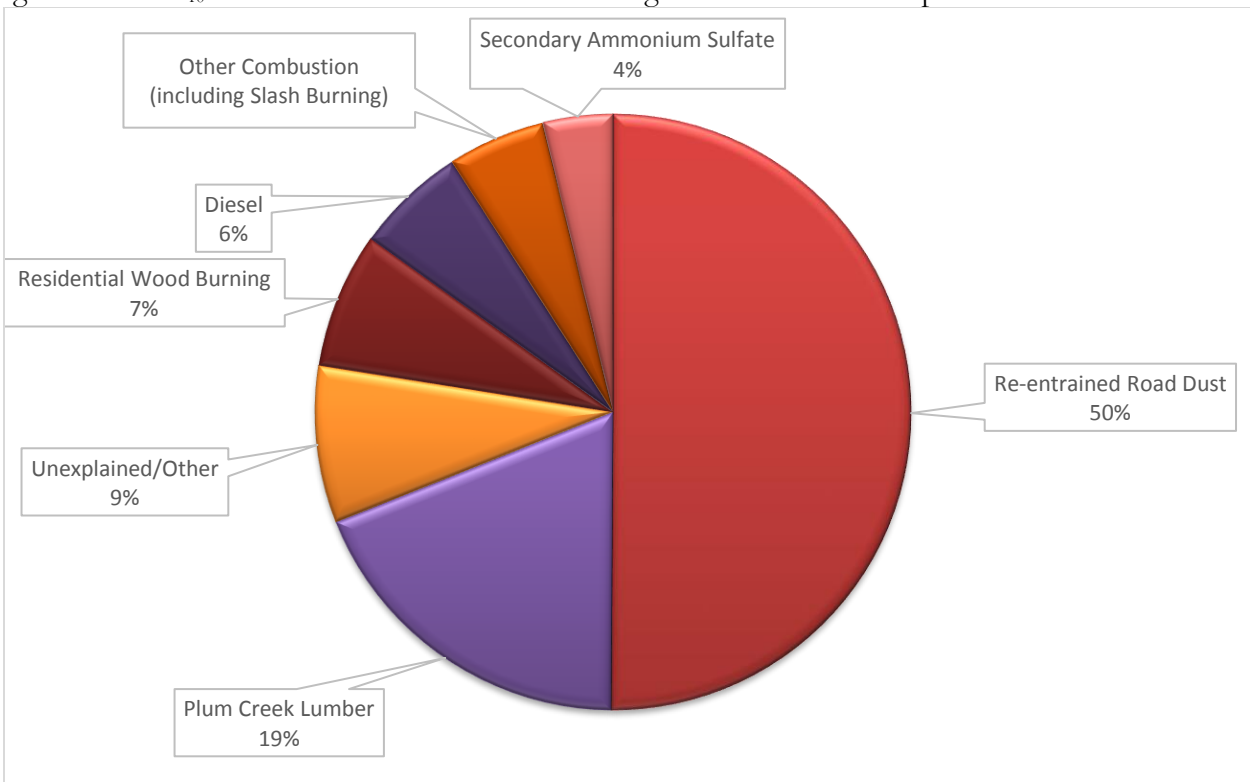
Extent of larger map shown in red

1.2 Historical Sources of PM₁₀

To develop strategies to reduce PM₁₀ emissions within the new NAA, the Montana Department of Environmental Quality (DEQ) investigated what the major emission sources were in the area. A chemical mass balance (CMB) study with rollback was used to identify the major emission sources contributing to noncompliance from fugitive area sources in and near Columbia Falls. The CMB study was a 6 ½ month study during the winter because monitoring only showed Columbia Falls exceeding the 24-hour PM₁₀ NAAQS during the winter months. No dispersion modeling was submitted for the control plan due to no appropriate available meteorological data. An optical microscopy study was conducted for comparison purposes with the CMB study and showed acceptable agreement.

The majority of emissions are from area sources. Industrial sources only represented 19 percent of the emissions. Re-entrained road dust from paved and unpaved roads had the largest contribution. A breakdown of sources is shown in Figure 1.2.

Figure 1.2 – PM₁₀ Emissions in Columbia Falls During Control Plan Development



1.3 Control Plan Details

The Columbia Falls PM₁₀ control plan was based on:

- Local regulations to control emissions of fugitive dust (from roads, parking lots, construction and demolition sites, street sweeping and flushing, and land clearing),
- Wood combustion (from open burning),
- A voluntary curtailment program for residential wood burning, and
- Revised permit conditions for the Plum Creek Lumber facility, as stipulated by DEQ.

DEQ submitted the first elements of the control plan to the SIP on May 6, 1992, and followed up with additional SIP elements on August 26, 1994, and July 18, 1995. The EPA approved the Columbia Falls Control Plan on March 19, 1996 (61 FR 11153).

Local Regulations to Control Emissions of Fugitive Dust

The control plan for fugitive dust is based on rules adopted by the Flathead County Health Department (FCHD) and the City of Columbia Falls. These rules are part of the Flathead County Air Pollution Control Program. Rules applicable to Columbia Falls can be found at <http://flatheadhealth.org/wp-content/uploads/2015/05/AIRQUAL.pdf>.

Specific to Columbia Falls, the Flathead County Air Pollution Control Program Rules 601 and 605 are designed to control PM₁₀ emissions from re-entrained dust due to winter sanding. These are the only two rules whose control actions received emission reduction credit in the EPA accepted SIP control strategy. Rule 601 (material to be used on roads and parking lots-standard) outlines specific guidelines for sanding material to be used. Rule 605 (street sweeping and flushing) requires a prioritized street sweeping and flushing program that commences on the first working day after any streets become either temporarily or permanently ice-free and temperatures are above 32 degrees Fahrenheit. The prioritized sweeping program is in effect during November, December, January, February, March, and April.

Rules 602, 603, 604, and 606 control dust from construction and demolition activity, paving of roads and parking lots and land clearing. The construction and demolition rules require a permit which describes the project and contains a dust control plan which constitutes reasonably available control technology (RACT).

The approved control plan identified RACT as the paving regulation which, requires a plan and schedule of implementation to improve unpaved roads and parking lots by paving, routine application of dust suppressants, or other effective measures that control fugitive dust. New streets or roads and parking lots meeting certain specifications must be paved. Further, the owner or operator of any land greater than 0.25 acres in size that has been cleared or excavated, shall use RACT to control dust emissions. In this instance, RACT means techniques to prevent the emission and/or airborne transport of dust and dirt from any disturbed or exposed land including: planting vegetative cover, provided synthetic cover, water and/or chemical stabilization, covering the coarse aggregate, installing wind breaks, or other equivalent method or technique approved by the FCHD. These re-entrained road dust rules are applicable within the Columbia Falls Air Pollution Control District. This district is defined in the Flathead County Air Pollution Control Plan as, “a special district within Flathead County defined by the area within the city limits of Columbia Falls.”

Rule 607 is a re-entrained road dust contingency plan that would be enacted if the EPA notifies DEQ that the SIP for Columbia Falls failed to timely attain the PM₁₀ NAAQS or make reasonable further progress towards attainment. Rule 607 provides that the following will occur if the contingency measure is triggered:

Within the Columbia Falls Air Pollution Control District, only liquid de-icer shall be placed on any road or parking lot with the exception of priority routes with extraordinary circumstances existing. During extraordinary events, priority routes must use sanding material which has a durability, as defined by the Montana Modified L.A. Abrasion test, or less than or equal to 7, and has a content of material less than 200 mesh, as determined by standard wet sieving methods, which is less than 3.0 percent oven dry weight.

The rule defines extraordinary circumstances to be a specific period of time when the thickness of ice on a road, the air temperature, and/or the slope of a road would preclude the effective use of liquid de-icer.

Wood Combustion

The control plan also includes open burning regulations, as found in Subchapter 2 of the Flathead County Air Pollution Control Plan, which are designed to complement the Montana Smoke Management Plan, but under some circumstances are more stringent. The regulations require that open burning sources be limited to the maximum degree achievable for the source. Minimization techniques and methods include the following:

- scheduling of burning during periods and seasons of good ventilation,
- applying dispersion forecasts,
- utilizing predictive modeling results performed by and available from the FCHD to minimize smoke impacts,
- limiting the amount of burning to be performed during any one period of time,
- using ignition and burning techniques, which minimize smoke production,
- selecting fuel preparation methods that will minimize dirt and moisture content,
- promoting fuel configurations which create an adequate air to fuel ratio,
- prioritizing burns as to air quality impact and assigning control techniques accordingly, and
- promoting alternative treatment and use of materials to be burned.

Voluntary Solid Fuel Burning Device Curtailment Program

There is also a voluntary solid fuel burning device curtailment program regulation in Subchapter 3 of the Flathead County Air Pollution Control Program. This program is intended to establish guidelines which may be utilized to control emissions of air contaminants from solid fuel burning devices (residential wood stoves). When the PM₁₀ levels exceed or are expected to exceed 100 µg/m³, the FCHD will call an air pollution alert. The public will be informed that an air pollution alert has been called and will be requested to curtail burning until the alert has passed.

Revised Permit Condition for Plum Creek Lumber

To address industrial source emission contributions, DEQ modified the Plum Creek Lumber facility Montana air quality permit (MAQP) #2667M, on January 24, 1992. Modifications to the permit established new allowable emissions limits for the plywood veneer dryer, wood waste cyclones, and baghouses; chemical dust suppressant requirements for the haul roads and log deck; and visible emission limits of 20 percent opacity. These emission restrictions were adopted into the SIP (59 FR 17700). Additional air quality improvement resulted from Plum Creek Lumber paving most of their unpaved parking lots and other support vehicle areas subsequent to the exceedances experienced in the late 1980's.

The industrial stipulations only addressed PM₁₀ because the EPA found that PM₁₀ precursors were insignificant to the PM₁₀ concentration because of the nature of the stationary sources in Columbia Falls. The Flathead County Air Pollution Control Program rules and the industrial source stipulations have proven to be effective control because Columbia Falls has not incurred a PM₁₀ NAAQS exceedance for several decades.

2.0 REQUEST FOR COLUMBIA FALLS NAA REDESIGNATION TO ATTAINMENT

Sections 107(d)(3)(E) of the CAA establishes five requirements that must be met before a NAA can be considered for redesignation to attainment. Guidance from the September 4, 1992 Calcagni Memo for *Procedures for Processing Requests to Redesignate Areas to Attainment* and applicable provisions of the CAA, provide the basis for redesignation and maintenance of the 1987 24-hour PM₁₀ NAAQS for the Columbia Falls NAA. This memo indicates it's a consolidation of the EPA's redesignation and maintenance plan guidance.

This section of the document addresses each of the five requirements and demonstrates that the area has attained and will maintain compliance with the 1987 PM₁₀ 24-hour NAAQS.

2.1 CAA §107(d)(3)(E)(i) - Determination that the Area Has Attained the PM₁₀ Standards

On January 31, 2011, the EPA published (76 FR 5280) that Columbia Falls, Montana had attained the PM₁₀ NAAQS as of December 31, 1994. So not only has the demonstration been made that Columbia Falls has attained the PM₁₀ NAAQS, the EPA had declared Columbia Falls is attaining the standard. The following supports that determination and illustrates that the area is still meeting the standard.

The Calcagni memo indicates that the determination that an area has attained a NAAQS standard is based on two components. First, the area may be considered attaining the NAAQS if the number of expected exceedances per year for PM₁₀ is equal to or less than 1.0. In making this PM₁₀ showing, data must rely on three complete, consecutive calendar years of quality-assured air quality monitoring data, collected in accordance with 40 CFR Part 50, Appendices H and K. The second component of this demonstration relies upon supplemental, EPA-approved air quality modeling. However, when dealing with a limited number of initial PM₁₀ NAAs that were designated as moderate NAAs, dispersion modeling is not required. The Columbia Falls initial NAA followed the federal adoption of the PM₁₀ standard, and received the designation of being a moderate NAA. Therefore, no air quality modeling is required for this demonstration of attainment.

The last exceedance of the PM₁₀ 24-hour NAAQS was in 1987 (see Figure 2.1). The Columbia Falls area has been attaining the PM₁₀ 24-hour standard since 1988 and has been less than 60 percent of the standard since 1989. These results demonstrate that Columbia Falls has attained the PM₁₀ NAAQS and meets the requirements of CAA §107(d)(3)(E)(i).

Since 1985, PM₁₀ monitoring data has been collected in Columbia Falls and has been quality-assured to meet the requirements of 40 CFR Part 58. This data has been recorded in the EPA's Air Quality System, the successor of the Aerometric Information Retrieval System, and is available for public review. Monitoring within the NAA occurred at:

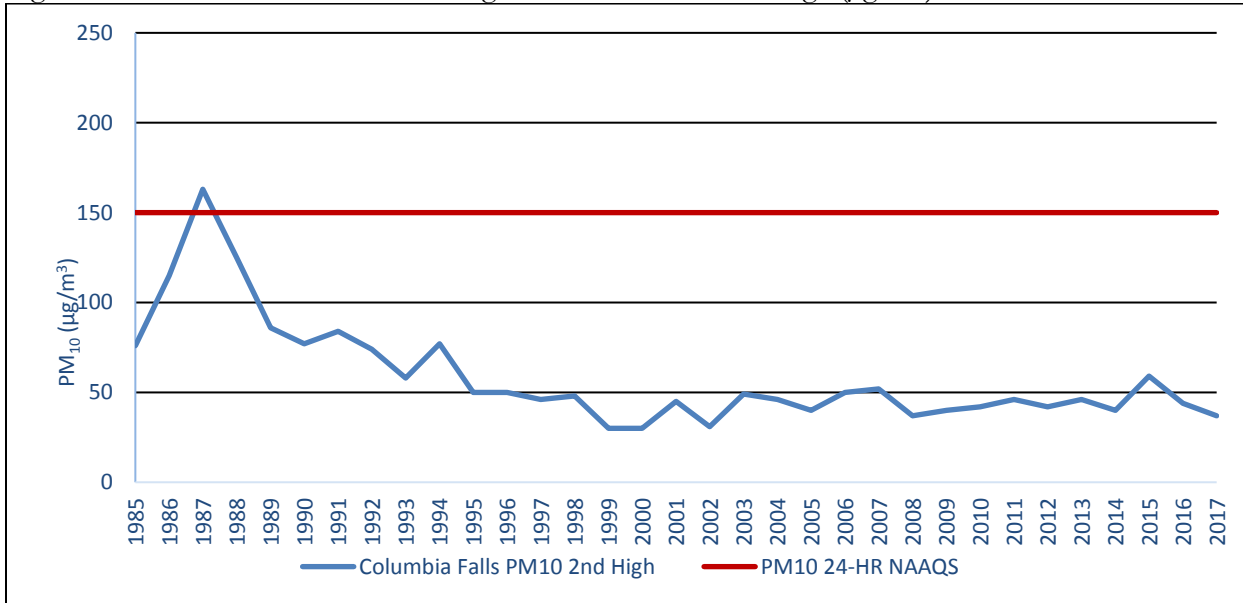
- Columbia Falls Junior High School at 500 4th Ave. North from May 1985 through December 2002.
- Corner of C Street and 4th Ave EN from August 2001 through August
- Columbia Falls High School at 610 13th Street W from August 2011 to present.

The PM₁₀ 24-hour standard of 150 µg/m³ is not to be exceeded more than once per year on average over 3 years. Table 2.1 shows the highest and 2nd highest PM₁₀ 24-hour daily averages for the most recent five years of monitoring, 2013 through 2017. The last exceedance of the PM₁₀ 24-hour NAAQS was in 1987, before Columbia Falls adopted the Flathead County Air Pollution Control Program and has been less than 40 percent of the standard since 1995 (see Figure 2.1). These results demonstrate that Columbia Falls has attained the PM₁₀ NAAQS and meets the requirements of CAA §107(d)(3)(E)(i).

Table 2.1 – Columbia Falls Recent 5-year Highest and Second Highest PM₁₀ 24-hour Average Monitoring Results (µg/m³)

	2013	2014	2015	2016	2017
Highest PM₁₀ 24-hour Average	46	43	97	45	42
2nd Highest PM₁₀ 24-hour Average	46	40	59	44	37

Figure 2.1 – Columbia Falls Second Highest PM₁₀ 24-hour Average (µg/m³)



The design values for the past five years have been determined using these monitoring results and are shown in Table 2.2. These values do not include exceptional events. Each design value spans three years and was determined using the “table lookup” method outlined in the 1987 PM₁₀ SIP Development Guidance (EPA-450/2-86-001). Columbia Falls meets the requirements for a limited maintenance plan, since the design values over the most recent five years are below the 98 µg/m³ threshold that would require a full maintenance plan.

Table 2.2 – Columbia Falls Recent 5-year PM₁₀ Design Values Monitoring Results (µg/m³)

	2013-2015	2014-2016	2015-2017	5-year Ave.
Number of Measurements	1060	1071	1074	--
Lookup Ranking	4	4	4	--
Table Lookup Design Value	60	60	66	62

Furthermore, on January 31, 2011, the EPA published (76 FR 5280) that Columbia Falls, Montana had attained the PM₁₀ NAAQS as of December 31, 1994. So not only has the demonstration been made that Columbia Falls has attained the PM₁₀ NAAQS, the EPA had declared Columbia Falls is attaining the standard.

2.2 CAA §107(d)(3)(E)(ii) - Approved Implementation Plan for the area under Section 110(k)

DEQ submitted the first elements of the control plan SIP on May 6, 1992, and followed up with additional SIP elements June 15, 1993, May 20, 1994, and July 18, 1995. The Columbia Falls NAA implementation plan was approved by the EPA on March 19, 1996 (61 FR 11153). The EPA approved earlier portions of the Columbia Falls PM₁₀ SIP on April 14, 1994 (59 FR 17700).

2.3 CAA §107(d)(3)(E)(iii) - Determination that the Improvement in Air Quality is Due to Permanent and Enforceable Reductions in Emissions Resulting from Implementation of the SIP and Other Federal Requirements

This section demonstrates that emission reductions in the Columbia Falls NAA are both permanent and enforceable, and are a result of SIP and other federal requirements.

SIP Provisions

The control plan emission inventory, was approved by the Board of Environmental Review (BER) and subsequently adopted into the SIP on April 14, 1994, with revisions adopted into the SIP on March 19, 1996. The control plan identifies the fugitive area sources and industrial sources contributing to PM₁₀ concentrations in the NAA. Table 2.3 shows the emission from the 12-month period between July 1989 through June 1990 without the implementation of the control strategies on the various source categories. The table also shows the 1993 emissions achieved from implementing the control plan strategy and requirements. The most recent emission information available from the 2014 national emission inventory (NEI) and the most recent 2017 industrial emissions is also included in Table 2.3.

The approved attainment plan incorporated permanent and enforceable rules from the Flathead County Air Pollution Control Program which established rules as described in Section 1.3. Specific to Columbia Falls, rules 601 and 605 are the only rules whose control actions received emission reduction credit in the initial EPA accepted SIP control strategy. Rule 601 specifies the allowed material to be placed on roads and parking lots for sanding and chip sealing. Rule 605 specifies street sweeping and flushing requirements during both winter and summer months to reduce fugitive road dust. The benefit of these federally enforceable rules shows that fugitive dust emissions on paved roads were much less in 2014 even though the area has seen a population increase since 1993. Unpaved road emissions have fallen because many of the unpaved roads and parking lots in 1993 have been paved and all new roads and parking lots in the NAA are required to be paved. Residential wood burning emissions have also gone down since 1993 as a result of voluntary solid fuel burning device curtailment program in Subchapter 3 of the Flathead County Air Pollution Control Program which requires the FCHD to call Air Pollution Alerts when the PM₁₀ level exceeds or is expected to exceed 100 µg/m³.

Table 2.3 – Columbia Falls, MT PM₁₀ Emission Summary

Source Categories	July 1, 1989 – June 30, 1990 Unrestricted PM ₁₀ Emissions (tons)	1993 SIP Restricted Yearly PM ₁₀ Emissions (tons)	2014 PM ₁₀ Emissions (tons)
Area Sources			
Road Dust Paved	810.7 ¹	682.8 ²	13.5 ³
Road Dust Unpaved	116.9 ¹	116.9 ²	86.9 ³
Industrial Road Dust	324.1 ¹	288.2 ²	NA ⁴
Diesel	-	-	3.7 ³
Residential Wood Burning	105.3 ¹	105.3 ¹	10.1 ³
Other ⁵	14.1 ¹	14.1 ¹	25.5 ³
Industrial Source (2017)			
Industrial Process - Plum Creek (Weyerhaeuser – Columbia Falls)	1,097.2 ¹	879.2 ⁶	159.5 ⁷
Total	2,468.3	<2,086.5	299.2

¹July 1, 1989 through June 30, 1990 emissions are based on those found in Table 15.11.5B (of January 24, 1992) of the May 6, 1992 submitted SIP submittal as found in Columbia Falls PM-10 CP 91.pdf. The residential wood burning and other category assume the same emission rates in 1993.

²1993 emissions are based on the road dust controls as stated on Page 15.11.10.1(9) of the May 20, 1994 SIP submittal as found in Columbia Falls PM-10 CP 1992-1994.pdf.

³Area emissions are based on the most current NEI values from 2014.

⁴Industrial road dust emissions are included in the NEI road dust values, so the 2017 AIRS value (6.8 tons per year (tpy)) has not been included to prevent duplicate counting.

⁵Other represents natural gas combustion, locomotives, and automotive tailpipe emissions.

⁶Industrial Emissions are based on Plum Creek’s sawmill, plywood and MDF facilities in Columbia Falls. Restricted emissions from 1993 are based on those in MAQP 2667-M, January 24, 1992 Permit Analysis. The Permit Analysis showed 753 tpy of allowed PM₁₀ emissions and 126.22 tpy of PM₁₀ from fugitive sources. These fugitive sources are independent of the industrial road dust. The 2017 emissions are based on those in AIRS and represent the current operations by the new owner, Weyerhaeuser NR Company.

⁷Industrial emissions are based on the 2017 AIRS emissions values from Weyerhaeuser.

The 1993 and 2014 emissions represent the impact of the implemented fugitive dust control measures adopted in the Flathead County Air Pollution Control Program and adopted into the SIP. As described above, fugitive dust from roads are reduced using the specific sanding materials, de-icer, street sweeping, and flushing. Many of the unpaved roads and parking lots are now paved. The complete methodology to calculate the NEI area source emissions can be found in Appendix A and is based on the most recent set of data from 2014. The industrial emissions from 2017 are from Aerometric Information Retrieval System (AIRS) and includes fugitive emissions from haul roads within the plant site. The NEI inventory accounts for industrial road dust emissions, so the 2017 AIRS industrial road dust emissions of 6.8 tpy are not included in Table 2.3, to prevent duplicate counting.

At EPA Region 8's request, DEQ has included light and heavy-duty on-road and non-road diesel emissions from the NEI emission inventory in Table 2.3, although there are no comparative 1989 or 1993 values. Despite increasing the number of source categories from the original approved control plan, 2014 PM₁₀ area emissions are shown to be well below the total 1993 values for all categories except 'other', and the total emissions are less than 15 percent of the 1993 values.

Other Federal Requirements

According to the Calcagni memo, to demonstrate the improved air quality is from permanent and enforceable emission reductions, a state shall estimate the percent reduction achieved from federal measures such as the Federal Motor Vehicle Control Program and fuel volatility rules as well as control measures that have been adopted and implemented by the state. The Federal Motor Vehicle Control Program controls tailpipe emissions and evaporative emission standards for new vehicles. Tailpipe emissions and fuel vaporization were a small fraction of the Columbia Falls area emissions in 1989 and 1993. Federal vehicle fleet requirements have reduced tailpipe emissions since 1993. The quantity of tailpipe emissions is included among natural gas combustion and locomotives in the 'other' source category. The 'other' source category has grown from 1993 to 2014, but the category remains at less than 10 percent of the total 2014 emissions. Locomotives represent 21.7 tpy of the 'other' emissions. The effectiveness of the Federal Motor Vehicle Control Program is demonstrated because the area has continued to experience a population growth since 1993 which has resulted in an increased quantity of vehicle miles travelled in the NAA, and yet tailpipe emissions remain less than 4 tpy. These emission changes demonstrate that the control measures adopted by the SIP for fugitive area sources and industrial sources have effectively lowered the PM₁₀ levels in Columbia Falls.

Re-entrained road dust originally contributed 50.1 percent to the PM₁₀ air quality impact from 1989/1990. Only one industrial source, Plum Creek (Columbia Falls), was identified to have an impact, and by itself it had the second highest contribution to the air quality impact at 18.9 percent. Residential wood burning was the next largest contributor at 7.4 percent, followed by motor vehicle combustion and prescribed burning. Other smaller contributing sources or unexplained contributions were responsible for the remaining 12.5 percent of the PM₁₀ air quality impact. The area source categories were controlled by the FCHD rules and the Board of Environmental Review (BER) signed emissions stipulation with Plum Creek (Columbia Falls).

The Board of Environmental Review (BER) signed emissions stipulations with the Plum Creek (Columbia Falls) facility, which were incorporated into MAQP #2667-M, in January 1992. The stipulation set limits at the Plum Creek facility on the following emission sources:

- wood-waste transfer cyclones,
- fugitive dust,
- baghouse,
- veneer dryer,
- fiber dryers, and
- boiler.

Plum Creek paved most of their unpaved parking lots and support vehicle areas shortly after the 1987 PM₁₀ exceedance.

Plum Creek Lumber was purchased by Weyerhaeuser in February 2016 and by August 2016 Weyerhaeuser closed the lumber mill and most of the plywood mill. The medium density fiberboard (MDF) facility remains in full operation. Actual PM₁₀ emissions are significantly less because of the partial facility closure. Table 2.3 shows a significant reduction of industrial emissions since 1993, emissions are restricted by federally enforceable permit conditions and permanent and federally enforceable SIP stipulations.

The Columbia Falls NAA remains protected from air quality impacts with federally enforceable permits, air quality rules, and the BER stipulations. DEQ has permitting rules in ARM 17.8.901 through 17.8.906 for major stationary sources or major modifications locating within nonattainment areas. The rules require all new sources or modifications to use the lowest achievable emission rates (LAER). The source must obtain emission reduction offsets in tons per year which provide a positive net air quality benefit in the NAA using a 1 to 1 offset and be from other emission sources within the same NAA. There must be demonstrated improvement to the PM₁₀ NAA with permanent, quantifiable and federally enforceable emission reductions. A reduction of actual emissions, not potential emissions, must occur before a new source can be permitted to operate.

Montana has a federally enforceable permitting program for minor sources that emit 25 tpy or more of PM₁₀ to ensure the NAA is not negatively affected. Montana also requires permitting of asphalt concrete plants, mineral crushers, and mineral screens that have the potential to emit of 15 tpy (although this is not federally enforceable). Current DEQ practice for these portable sources, is to require more stringent limits and conditions for their operation within a NAA or within 10 kilometers of a NAA to ensure that the portable operations do not result in additional degradation of air quality in the affected NAA. These restrictions may come as seasonal restrictions for certain locations depending on the NAA situation.

The emission summary in Table 2.3 demonstrates that these enforceable emission control strategies to improve air quality in the Columbia Falls NAA have been effective. The improvement in air quality in the Columbia Falls NAA is due to the closure of some facilities and permanent and federally enforceable reductions in PM₁₀ emissions which complies with CAA §107(d)(3)(E)(iii).

2.4 CAA §107(d)(3)(E)(iv) - Fully Approved Maintenance Plan Under CAA Section 175A

This request for redesignation is being submitted concurrently with a limited maintenance plan (Section 3.0). As described in 175A(c), until a maintenance plan is approved, all SIP requirements for the NAA will remain applicable. Section 3.0 of this document addresses the necessary maintenance plan elements. With the EPA's concurrence, the area will have a fully approved limited maintenance plan providing for continued attainment of the PM₁₀ NAAQS for 10 years meeting the requirement of §107(d)(3)(E)(iv).

2.5 CAA §107(d)(3)(E)(v) - Determination that the Department Has Met all Requirements Applicable to the Area Under Section 110 and Part D of the CAA

Prior to redesignation, a State containing a NAA must demonstrate compliance with all requirements applicable to the area under Section 110 and Part D of the Act. This means the state must meet all requirements that applied to the area prior to, and at the time of, the submission of a complete request for redesignation to attainment.

CAA Section 110

Section 110(a) of the CAA contains the general requirements for a SIP. Only Section 110 requirements that are linked with an area's designation are the relevant measures to consider in evaluating a redesignation request. Further, DEQ believes that the other Section 110 elements that are not connected with nonattainment plan submissions and not linked with an area's attainment status are also not applicable requirements for purposes of redesignation, as a state remains subject to these requirements after an area is redesignated to attainment. The requirements of CAA Section 110(a)(2) that are statewide requirements and that are not linked to the PM₁₀ nonattainment status of the Columbia Falls NAA are therefore not applicable requirements for purposes of review of DEQ's redesignation request.

The EPA has previously approved provisions of Montana's SIP that address Section 110 requirements, including provisions addressing PM₁₀. The EPA approved the control plan and proposed revisions for the Columbia Falls SIP on March 19, 1996 (61 FR 11153). The 1996 SIP addressed the 24-hour primary and secondary PM₁₀ NAAQS and demonstrated compliance with the requirements "applicable to the area" under CAA Section 110. CAA Section 110(a)(2) contains the general requirements or infrastructure elements necessary for EPA approval of the SIP. These requirements include, but are not limited to, submittal of a SIP that has been adopted by the state after reasonable notice and public hearing. The approved SIP described above met these requirements.

Part D, Plan Requirements for Nonattainment Areas (CAA section 171, et seq.)

CAA Part D contains requirements applicable to all areas designated nonattainment. PM₁₀ NAAs must meet the general provisions of Subpart 1 and the specific PM₁₀ provisions in Subpart 4. The limited maintenance plan (see Section 3.0) associated with this request for redesignation of the Columbia Falls NAA is a SIP revision for an area designated as a NAA and the plan shall meet the applicable requirements of Part D of the CAA.

CAA Section 172

These provisions contain the general requirements to be included in SIP revisions for NAAs. These include attainment demonstrations, reasonably available control measures (RACM), reasonable further progress (RFP), inventory data, and permitting requirements.

Submittal of a comprehensive PM₁₀ emissions inventory is required by 40 CFR 51.1008 to meet the requirements of Section 172(c)(3) of the CAA. The Columbia Falls NAA PM₁₀ emissions inventory, which also serves as the attainment year inventory, is being submitted as part of the limited maintenance plan (Section 3.0), and therefore, is submitted concurrently with this request for redesignation.

CAA Section 173

These provisions outline the requirements related to permitting of air pollution sources in NAAs. Stationary sources of air pollution are subject to the applicable regulations of the ARM, Title 17, Chapter 8. These regulations include:

- Standards of Performance for New Stationary Sources (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPs) promulgated by the EPA (Administrative Rules of Montana (ARM) 17.8.102);
- Permit, Construction, and Operation of Air Contaminant Sources (ARM, Title 17, Chapter 8, Sub-chapter 7);

- Prevention of Significant Deterioration of Air Quality (ARM, Title 17, Chapter 8, Sub-chapter 8);
- Permit Requirements for Major Stationary Sources or Major Modifications Locating Within Nonattainment Areas (ARM, Title 17, Chapter 8, Sub-chapter 9);
- Preconstruction Permit Requirements for Major Stationary Sources or Major Modifications Locating Within Attainment or Unclassified Areas (ARM, Title 17, Chapter 8, Sub-chapter 10); and
- Annual Emission Statements and required emissions reporting (ARM 17.8.505).

These requirements were adopted to implement the federally mandated requirements in Sections 110, 172, 173 and 182(a) of the CAA. The EPA has approved these regulations as SIP revisions, as indicated in Table 2.4, below.

Table 2.4 - State of Montana Federally Approved Air Quality Rules

State Rule(s)	Federal Action	Action Reference
ARM 17.8.101 et seq.	approved	60 FR 36715
ARM 17.8.701 et seq.	approved	60 FR 36715
ARM 17.8.801 et seq.	approved	60 FR 36715
ARM 17.8.901 et seq.	approved	60 FR 36715
ARM 17.8.1001 et seq.	approved	60 FR 36715

CAA Section 176(c)

These provisions prohibit federal financing of projects or activities that do not conform to an approved SIP. DEQ adopted and incorporated EPA’s general conformity rule (40 CFR Part 93), on June 13, 2004, at ARM 17.8.1302. The general conformity regulation describes procedures to determine if federally-financed, non-transportation projects are in conformity with air quality plans.

The EPA and the U.S. Department of Transportation have issued regulations regarding criteria and procedures for demonstrating and assuring conformity of transportation improvement programs, long range plans, and individual transportation projects with the requirements of the CAA and the SIP for the specific NAA. The EPA determined that PM₁₀ precursors were insignificant to the PM₁₀ concentration because of the nature of the stationary sources in Columbia Falls, and therefore ensures conformity of transportation programs, plans and projects.

Subpart 4, Additional Provisions for Particulate Matter Nonattainment Areas:

Columbia Falls has an approved control plan as required by CAA section 191(a) for the 24-hour primary PM₁₀ NAAQS. This control plan controlled PM₁₀ emissions from area sources and an industrial source which were the sources identified as having the most significant PM₁₀ impact in the Columbia Falls NAA. The EPA determined that PM₁₀ precursors were insignificant to the PM₁₀ concentration because of the nature of the station sources in Columbia Falls. Therefore, DEQ has met the requirements of Subpart 4 of the CAA. Further, as required under section 191(b) of the CAA, DEQ has a fully-approved NSR, Prevention of Significant Deterioration (PSD), and Part D permitting programs (60 FR 36715).

2.6 Redesignation Request

DEQ requests redesignation of the Columbia Falls 24-hour PM₁₀ NAA to attainment. The criteria applicable to redesignation are addressed in Section 2.0 of this document above. Concurrent with the request for redesignation, DEQ is providing for maintenance of the PM₁₀ NAAQS according to the applicable provisions of section 175A of the CAA (Section 3.0).

3.0 COLUMBIA FALLS NAA PM₁₀ LIMITED MAINTENANCE PLAN

On November 6, 1991 (56 FR 56694), the EPA codified the designation and classification of Columbia Falls as a ‘moderate’ NAA for the PM₁₀ 24-hour NAAQS, effective November 15, 1991. The Columbia Falls area has always achieved the annual PM₁₀ NAAQS, so this LMP only pertains to the 24-hour PM₁₀ NAAQS. Based on quality assured monitoring data collected from PM₁₀ monitoring in the area from 2013 through 2017, the Columbia Falls NAA was shown to have attained compliance with the 1987 24-hour primary PM₁₀ NAAQS. Further the EPA determined on January 31, 2011, that the area had attained the standard (76 FR 5280).

Section 2.0 of this document includes DEQ’s formal request for redesignation according to the requirements of Section 107(d)(3)(E) of the CAA. For the Columbia Falls NAA to be formally redesignated to attainment, DEQ must submit, and the EPA must approve, a SIP revision providing for maintenance of the PM₁₀ NAAQS within the affected area for at least 10 years after redesignation. This maintenance plan has been developed in support of DEQ’s request for redesignation according to the EPA’s September 4, 1992 Calcagni Memo for *Procedures for Processing Requests to Redesignate Areas to Attainment* and applicable provisions of the CAA, additional guidance received from EPA’s Region 8 Air Quality Planning Unit, and the requirements of Section 175A of the CAA.

This maintenance plan addresses the following elements:

- Attainment inventory,
- Maintenance demonstration,
- Control plan,
- Monitoring network,
- Verification of continued attainment, and
- Contingency plan.

3.1 Attainment Inventory

According to the requirements of Section 107(d)(1)(A)(i) and 107(d)(1)(B)(i) and (ii) of the CAA, in establishing the final NAA boundary the EPA determined that the fugitive area sources and the industrial source listed in Table 2.3 of the previous section are the major contributing emission sources relevant to the Columbia Falls NAA. Table 3.1 below shows the approved emission categories from the attainment plan and at EPA Region 8’s request DEQ has included light and heavy-duty diesel emissions in the emission inventory. The methodology for calculating the 2014 NEI emissions from within the Columbia Falls NAA from all the 2014 NEI emissions of Flathead County can be found in Appendix A. Despite increasing the level of emission detail over the original approved attainment plan, PM₁₀ emissions are still well below the approved 1996 maintenance plan values. Furthermore, as detailed in section 2.1, on January 31, 2011 (76 FR 5280), the EPA determined that the Columbia Falls area attained the standard.

Table 3.1 – Columbia Falls NAA 2014 NEI PM₁₀ Emissions

Source Category	2014 NEI Emissions (tons/year)
Paved Roads	13.5
Unpaved Roads	86.9
Diesel	3.7
Residential Wood Burning	10.1
Locomotives	21.7
Tailpipe Exhaust	3.7
Natural Gas	0.1
Total	139.7

3.2 Maintenance Demonstration

For this redesignation request to be complete and approvable, the CAA requires that the maintenance plan provide for maintenance of the PM₁₀ NAAQS for at least 10 years following EPA’s approval of the plan. As stated earlier in this document, attainment of the PM₁₀ NAAQS has been demonstrated in the Columbia Falls area, and this maintenance demonstration will demonstrate continued attainment, or “maintenance” of the PM₁₀ NAAQS through the year 2029.

The Maintenance Plan will continue to implement the controls of the attainment plan. The following are the criteria that must be met to demonstrate maintenance and meet LMP requirements.

3.2.1 Design Value

The Columbia Falls PM₁₀ 24-hour design value for 2013-2017 is calculated in Section 2.1. The 2013-2017 PM₁₀ design value is 62 µg/m³. See Section 2.1 for more information

3.2.2 Critical Design Value

The critical design value is used to determine if an area qualifies for an LMP. The critical design value used in this demonstration represents 75% of the NAAQS, or 98 µg/m³, as specific in the U.S. EPA guidance titled “Limited Maintenance Plan Option for Moderate PM₁₀ Nonattainment Areas.”

3.2.3 Regional Motor Vehicle Analysis

In order to qualify for the LMP option, an area must expect only limited growth in on-road motor vehicle PM₁₀ emissions (including fugitive dust). When adjusted for future on-road mobile emissions, Columbia Falls passes a motor vehicle regional emissions analysis test with a design value of 68.7 µg/m³. This is less than the 98 µg/m³ used as the margin of safety in the LMP guidance. The equation used to determine eligibility of Columbia Falls for the LMP is based on the U.S. EPA guidance titled “Limited Maintenance Plan Option for Moderate PM₁₀ Nonattainment Areas.”

The following equation was used in the analysis of motor vehicle emissions for Columbia Falls.

$$DV + (VMT_{pi} * DV_{mv}) \leq MOS$$

Where:

DV	=	5 year 24-hour PM10 design value (2013-2017)
VMT _{pi}	=	Projected increase in vehicle miles traveled (VMT) over the next 10 years (2019-2029)
DV _{mv}	=	Product of the design value and the fraction of the inventory represented by onroad mobile sources in the attainment year; and
MOS	=	Margin of safety for PM10 or critical design value, which is 98 µg/m ³ for the 24-hour standard.

DEQ has assumed the attainment year to be 2017 the year for which the most recent Columbia Falls nonattainment area emissions inventory was prepared. The Montana Department of Transportation projected VMT for the next 10 years (2019-2029) and provided that data to DEQ. The 24-hour PM₁₀ design values were derived from the PM₁₀ data collected at the Columbia Falls High School site for the most recent 5 years of data (2013-2017). PM₁₀ values that were greater than 98 µg/m³ due to exceptional events (e.g. wildfires) with regional concurrence were excluded from the design value analysis based on EPA guidance. Based on the criteria given above, Columbia Falls qualifies for the LMP option for the 24-hour standard for all considered cases. Details of the calculations are shown below.

The parameter values used for the calculations are as follows:

DV	=	56 µg/m ³
VMT _{pi} (2019-2029)	=	31.04%
Percentage of the total 2017 EI from on-road mobile sources in 2017	=	34.79%
DV _{mv}	=	21.6µg/m ³
Calculated [DV + (VMT_{pi} * DV_{mv})]	=	68.7 µg/m³

As shown, the calculated values are much less than the critical design value and the area passes the regional analysis criteria. Based on the analysis of the LMP criteria the Columbia Falls nonattainment area qualifies for the LMP option.

3.3 Control Plan

The Columbia Falls area has a robust control plan adopted into local ordinances (Chapter VIII) of the Flathead County Air Pollution Control Program. The plan contains the following subchapters, all designed to control PM₁₀ in Flathead County with specific rules for Columbia Falls in Subchapter 6 (complete text of these subchapters can be found at <http://flatheadhealth.org/wp-content/uploads/2015/05/AIRQUAL.pdf>);

- Subchapter 1 – Definitions
- Subchapter 2 – Open Burning
- Subchapter 3 – Voluntary Solid Fuel Burning Device Curtailment Program

- Subchapter 4 – Prohibited Materials for Wood or Coal Residential (Solid Fuel Burning Device) Stoves
- Subchapter 6 – Columbia Falls Air Pollution Control District
 - o 601 – Material to be used on Roads and Parking Lots – Standards
 - o 602 - Construction and Demolition Activity
 - o 603 - Pavement of Roads Required
 - o 604 - Pavement of Parking Lots Required
 - o 605 - Street Sweeping and Flushing
 - o 606 - Clearing of Land Greater than 1/4 Acre in Size
 - o 607 - Contingency Plan

A more detailed discussion of these rules is included above in Section 1.3.

DEQ has long-standing, SIP-approved major NSR and minor source permitting programs (ARM Title 17, Chapter 8, Subchapters 7, 8, 9, and 10). These administrative rules include provisions for PSD, approved in 60 FR 36715. In conjunction with all SIP-approved requirements of DEQ’s PSD permitting program, the Source Impact Analysis (ARM 17.8.820), requires that “(1) The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions), *would not cause or contribute to air pollution in violation of any national ambient air quality standard in any air quality control region or any applicable maximum allowable increase over the baseline concentration in any area.*” (Emphasis added.)

Further, in conjunction with all SIP-approved requirements of DEQ’s minor source permitting program, ARM 17.8.749, Conditions For Issuance or Denial of Permit, requires that “(3) A Montana air quality permit may not be issued for a new or modified facility or emitting unit unless the applicant demonstrates that the facility or emitting unit can be expected to operate in compliance with the Clean Air Act of Montana and rules adopted under that Act, the Federal Clean Air Act and rules promulgated under that Act (as incorporated by reference in ARM 17.8.767), and any applicable requirement contained in the Montana State Implementation Plan (as incorporated by reference in ARM 17.8.767), *and that it will not cause or contribute to a violation of any Montana or national ambient air quality standard.*” (Emphasis added.)

DEQ will continue to implement its SIP-approved major and minor source permitting programs in the Columbia Falls maintenance area to ensure that any new or modified (or reopened) industrial source of PM₁₀ emissions will not cause or contribute to a subsequent PM₁₀ NAAQS violation in the area. Further, any appropriate changes to the ARM will be submitted to the EPA for approval as a SIP revision.

3.4 Monitoring Network

DEQ has historically operated a monitor within the Columbia Falls NAA (Flathead Valley Monitor 30-029-0049).

3.5 Verification of Continued Attainment

DEQ intends to continue operating the Flathead Valley monitor (30-02-0049) or an approved alternatively located monitor until such a time that an approved alternative monitoring method is agreed upon. DEQ will request approval of an alternative monitoring methodology in a separate request.

3.6 Contingency Plan

As required by Section 175A(b) of the CAA, DEQ will submit to the EPA, eight years after redesignation, a revision of this maintenance plan. This revision will contain DEQ's plan for maintaining the 1987 24-hour PM₁₀ NAAQS for 10 years beyond the first 10-year maintenance period following redesignation.

As discussed in Section 3.2 of this document, any new source planning to locate within the maintenance area or existing source proposing a significant increase in PM₁₀ emissions would be subject to Montana's SIP-approved major NSR and minor source permitting programs promulgated under ARM Title 17, Chapter 8, Subchapters 7, 8, 9, and 10. These permitting programs require a demonstration of NAAQS compliance prior to construction and operation of the source.

Section 175(A)(d) of the CAA requires that the maintenance plan contains contingency provisions to assure that the State will promptly correct any violation of the PM₁₀ NAAQS that may occur after the redesignation of the area to attainment. The EPA's redesignation guidance notes that the State is not required to have fully adopted contingency measures that will take effect without further action by the State. As such, the contingency plan should ensure that the State has the capacity to adopt the contingency measures expediently if the need were triggered. Therefore, the primary elements of this contingency plan involve the tracking and triggering mechanisms to determine when contingency measures would be necessary and a process for implementing appropriate control measures.

3.6.1 Tracking

The tracking plan for the Columbia Falls maintenance area will consist of monitoring and analyzing PM₁₀ concentrations. In accordance with 40 CFR Part 58, DEQ will continue to operate the local monitor (30-02-0047) or an approved alternatively located monitor until such a time that an approved alternative monitoring method is agreed upon.

3.6.2 Trigger and Response

Triggering of the contingency plan does not automatically require a revision of the SIP, nor is the area necessarily redesignated once again to nonattainment if a PM₁₀ exceedance occurs. Instead, DEQ will normally have an appropriate timeframe to correct the violation with implementation of one or more adopted contingency measures. If violations continue to occur, additional contingency measures will be adopted until the violations are corrected.

Upon notification of a PM₁₀ exceedance, DEQ and local government in the Columbia Falls area will develop appropriate contingency measure(s) intended to prevent or correct a violation of the PM₁₀ standard. Information about historical exceedances of the standard, the meteorological conditions related to the recent exceedance(s), and the most recent estimates of growth and emissions will be reviewed. The possibility that an exceptional event occurred will also be evaluated. Under the 2016 revisions to the Treatment of Data Influenced by Exceptional Events Rule (81 FR 68216), DEQ would confer with EPA Region 8 regarding whether the flagged event would meet the criteria of a regulatory decision, and if so, a determination would be made on whether to move forward with producing a demonstration.

This process will be completed within twelve months of the exceedance notification. If a violation of the PM₁₀ NAAQS has occurred, DEQ and local government will review the current control plan. If it is determined that the implementation of current local measures will prevent further exceedances or violations, no changes to the control plan will be made. If, however, DEQ and local government finds locally adopted control measures to be inadequate, DEQ and local government will adopt State-enforceable measures as deemed necessary by DEQ to prevent additional exceedances or violations. Measures to be considered could include, implementation of Columbia Falls Rule 607 including the use of deicers, additional street cleaning, etc.

3.7 Conformity for LMP Areas

The Federal transportation conformity rule (40 CFR Parts 51 and 93, subpart A) and general conformity rule (40 CFR Part 93, subpart B) apply to nonattainment and maintenance areas. Typically, under either rule, an acceptable method of demonstrating that a federal action conforms to the applicable SIP is to demonstrate that expected emissions from the planned action are consistent with the emissions budget for the area. The EPA's LMP policy does not exempt an area from the need to demonstrate conformity; however, it allows the area to do so without submitting a transportation conformity Motor Vehicle Emissions Budget (MVEB) that would then need to be analyzed under 40 CFR 93.118. This is because data demonstrates no violation of the NAAQS will occur when accounting for reasonable growth projections for mobile sources. For transportation purposes, the emissions in a qualifying LMP area need not be capped for the maintenance period and thus no regional emissions analysis by the applicable Metropolitan Planning Organization is required.

Regional transportation conformity is presumed due to the limited potential for emission growth in the area during the LMP period. A regional emissions analysis and associated regional conformity requirements (40 CFR 93.118) are no longer necessary. Similarly, Federal actions subject to the general conformity rule would automatically satisfy the "budget test" specified in 40 CFR 93.158(a)(5)(i)(A) for the same reasons. However, since Columbia Falls will still be a maintenance area after redesignation, transportation conformity determinations are still required for transportation plans, programs and projects. The conformity determination for transportation plans and programs should state that a regional emission analysis is not required because the area has an approved LMP. Transportation plans and the programs should still be made available for public review. The portions of the conformity rule that still apply are found in 40 CFR 93.112 and 93.113. In addition, transportation projects would still need to meet the criteria for PM₁₀ hot spots (40 CFR 93.116 and 93.123) and for PM₁₀ control measures (40 CFR 93.117). DEQ will continue to work with the affected jurisdictions and interested parties to develop an evaluation criteria and process to meet these transportation conformity requirements.

4.0 PUBLIC PARTICIPATION

According to the applicable requirements of 40 CFR 51.102, Public Hearings, DEQ must provide the affected public with notice, opportunity for comment, and the opportunity to request a hearing regarding DEQ's request for redesignation and associated maintenance plan for the Columbia Falls PM₁₀ NAA.

On DATE, 2018, DEQ issued 30-day public notice meeting all the above referenced public participation criteria. Also, a public hearing was held on DATE, during the public notice period, which concluded on DATE. No public comments were received during the public comment period or at the hearing. A transcript of the DATE public hearing is included in Appendix B for reference.

Or

On DATE, 2018, DEQ issued 30-day public notice meeting all the above referenced public participation criteria. Also, a public hearing was held on DATE, during the public notice period, which concluded on DATE. Public comments were received during the public notice period. These comments and DEQ's responses as well as a transcript of the DATE public hearing are included in Appendix B for reference.

5.0 CONCLUSION

The Columbia Falls NAA has attained the 1987 24-hour primary and secondary PM₁₀ NAAQS for 30 years. The attainment is demonstrated by the monitoring data from 1988 through 2017 which shows compliance with the standards. Further the EPA determined on January 31, 2011, that the area has attained the standard (76 FR 5280). Current NAA PM₁₀ emissions are less than 16 percent of the control plan emissions estimated from 1993. These current emissions are expected to increase at a rate no greater than the population growth rate because of improved vehicle fleet emissions and the Flathead County Air Pollution Control Program rules restricting fugitive emissions which has ensured compliance with the PM₁₀ NAAQS.

Further, DEQ has demonstrated compliance with all applicable provisions of the CAA for the redesignation and maintenance of the 1987 24-hour PM₁₀ NAAQS in the Columbia Falls NAA. Documentation to that effect is contained herein.

Therefore, DEQ requests formal redesignation of the Columbia Falls PM₁₀ NAA to attainment (Section 2.0) concurrent with EPA approval of the associated limited maintenance plan (Section 3.0) ensuring ongoing PM₁₀ NAAQS compliance in the area.

6.0 REFERENCES

EPA, 1987, *PM₁₀ SIP Development Guideline*, June 1987 (EPA-450/2-86-001)

EPA, 1992, *Memorandum: Procedures for Processing Requests to Redesignate Areas to Attainment*, by John Calcagni, September 4, 1992.

Weyerhaeuser, February 19, 2016, *Weyerhaeuser completes merger with Plum Creek*, <http://investor.weyerhaeuser.com/2016-02-19-Weyerhaeuser-completes-merger-with-Plum-Creek>, April 2, 2018.

Weyerhaeuser, June 22, 2016, *Weyerhaeuser to close Columbia Falls lumber mill and plywood mill*, <http://investor.weyerhaeuser.com/2016-06-22-Weyerhaeuser-to-close-Columbia-Falls-lumber-mill-and-plywood-mill>, April 2, 2018.

APPENDIX A

COLUMBIA FALLS EMISSION INVENTORY

Emission Inventory Calculations

DEQ has developed an emission inventory for each nonattainment area within Flathead County, including Kalispell, Whitefish, and Columbia Falls. The source of the emission inventory is the 2014 National Emission Inventory (NEI). The NEI catalogs emissions from 60 various sources for Criteria pollutants and HAPs. However, the NEI only reports to county level resolution. The emissions listed in the table below are combined for all of Flathead County, not just each of the NAAs. This list is limited to only those sectors used in the attainment plans for each area as well as diesel emissions from mobile sources.

Table 1. 2014 NEI Data for Flathead County by Sector

Flathead County 2014 NEI		
PM₁₀ Emissions		
Sector	Tons/year	Percent
Dust - Unpaved Road Dust	13,529.50	94.84%
Dust - Paved Road Dust	389.66	2.73%
Mobile - On-Road Gasoline Light Duty Vehicles	80.64	0.57%
Mobile – Diesel Emissions¹	79.31	0.56%
Mobile - Locomotives	46.62	0.33%
Fuel Comb - Comm/Institutional - Natural Gas	0.37	0.00%
Fuel Comb - Residential - Natural Gas	0.42	0.00%
Fuel Comb - Residential - Wood	139.37	0.98%
Total	14,265.89	100.00%

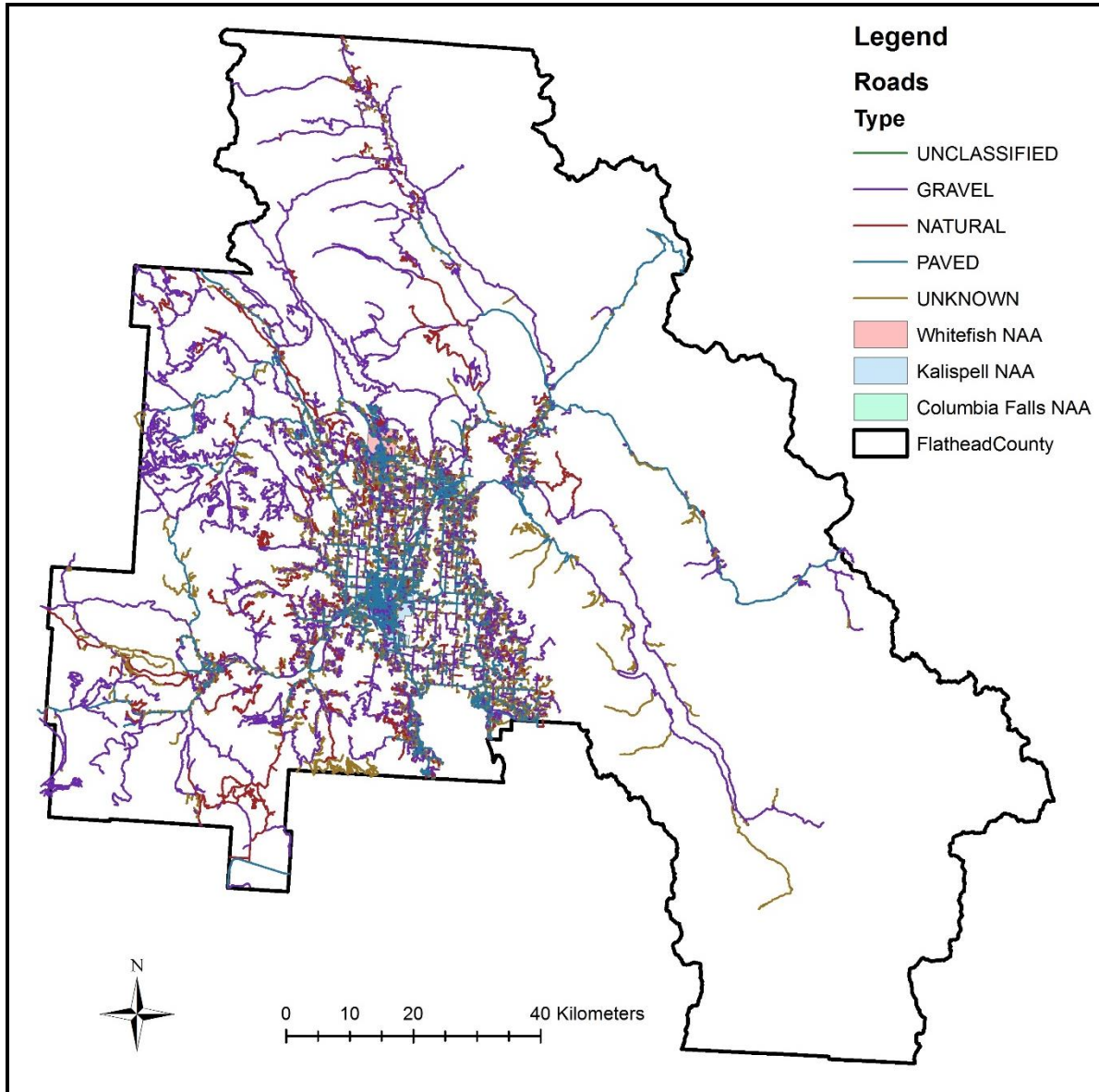
¹ Diesel emissions from “Mobile On-Road Diesel Heavy Duty Vehicles” (44.52 tpy),” Mobile On-Road Diesel Light Duty Vehicles” (12.23 tpy), and “Mobile – Nonroad Equipment Diesel” (22.56 tpy)

This document will outline the methodology for scaling the county level emissions to each nonattainment area. These methods vary by sector.

Road Dust Calculations

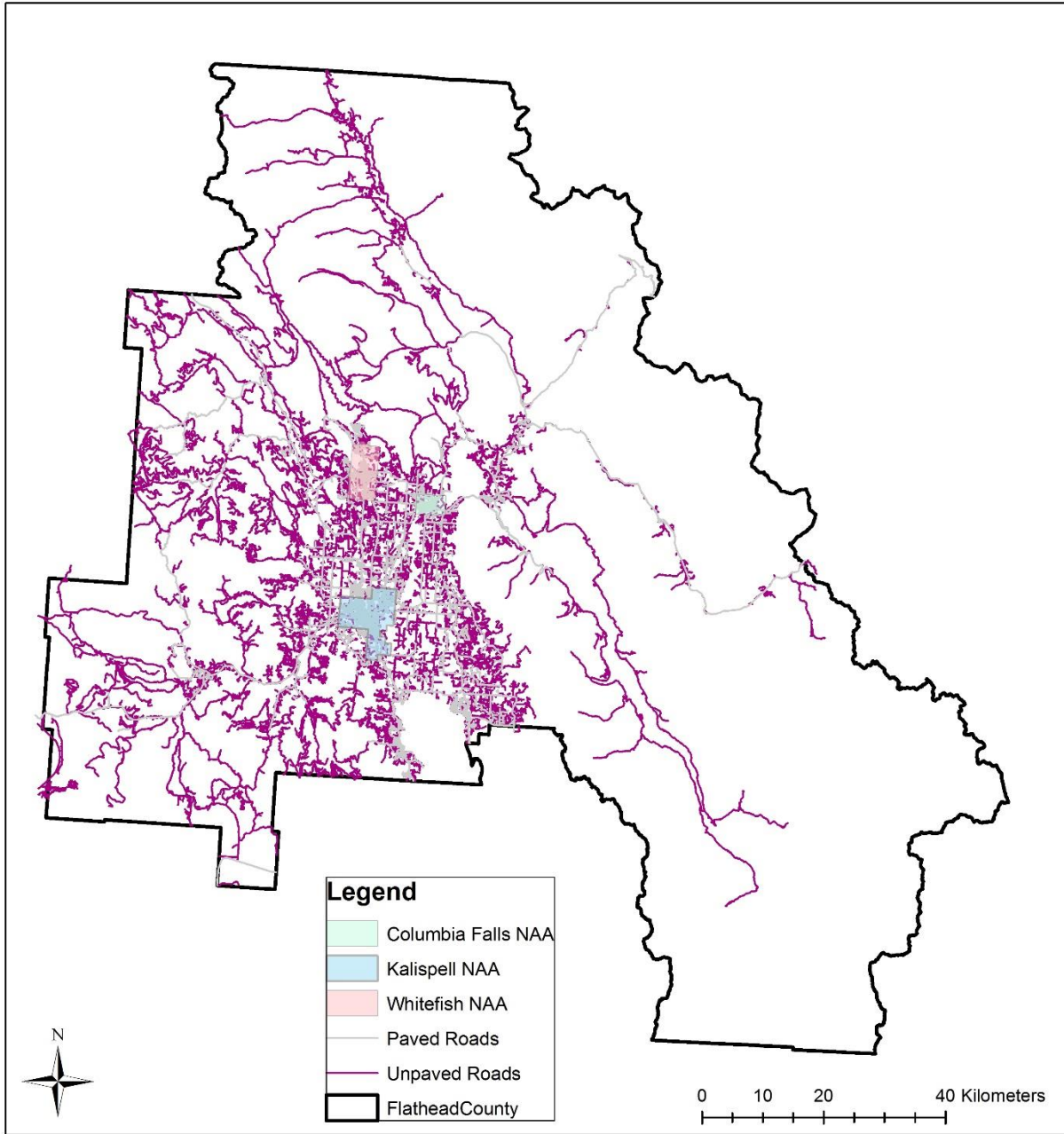
For paved and unpaved road dust, the ratio of vehicle miles traveled within the county and nonattainment area would allow for a reasonable scaling estimate of county level NEI emissions. Unfortunately, VMT data within the nonattainment are not available. The method outlined below demonstrates the best available estimate to scale county-level road dust emissions to the nonattainment areas within Flathead County.

Flathead County roads are available through the Montana State Library¹. This data has all county roads classified as 'paved', 'gravel', 'natural', or 'unknown'. The full data set is shown below.

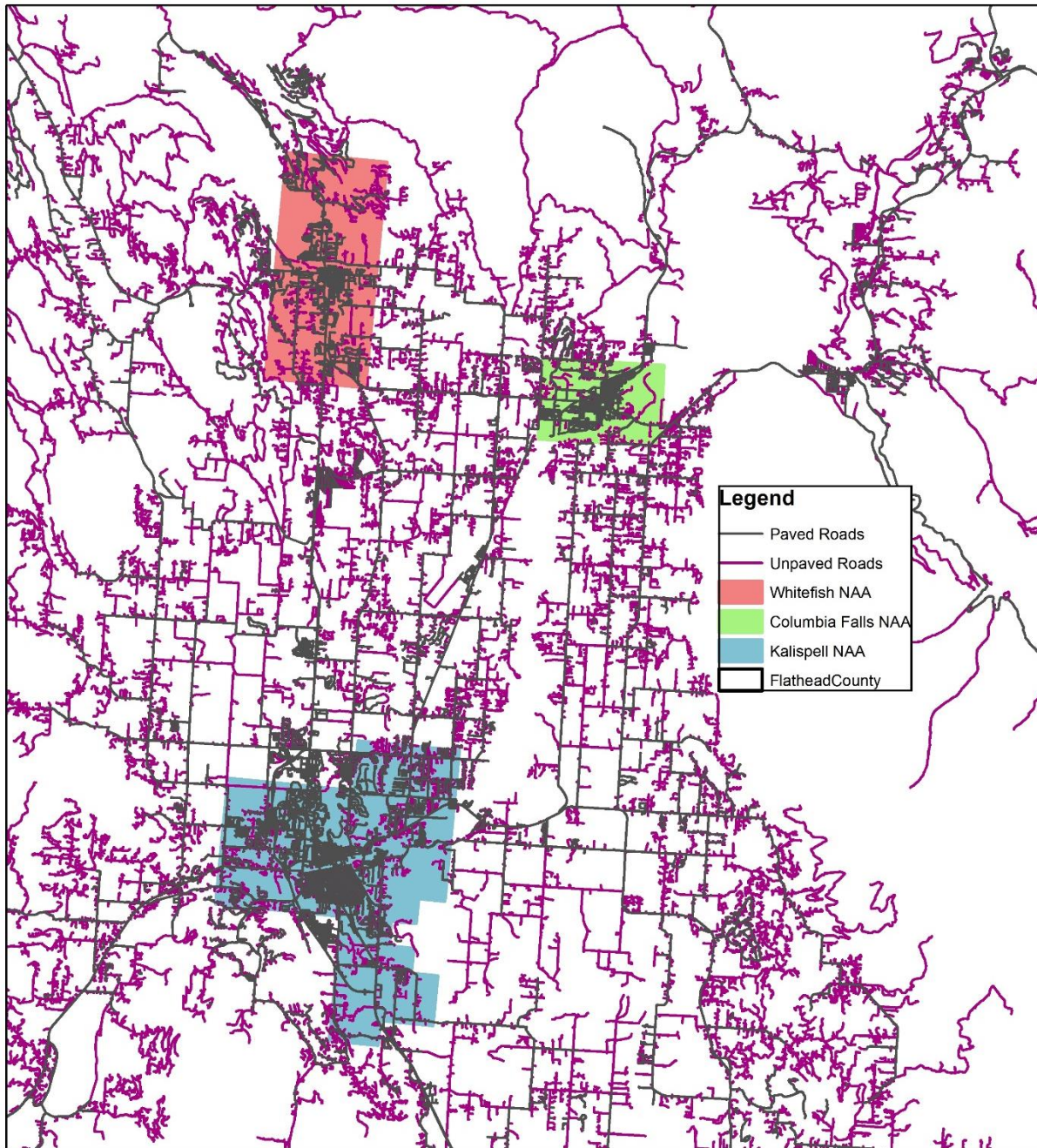


For purposes of this analysis, all 'gravel', 'natural', 'unknown', and 'unclassified' roads were assigned to the 'unpaved' category. All paved roads were assigned to the 'paved' category. The image below shows the county roads broken into these two classifications.

¹ https://mslservices.mt.gov/Geographic_Information/Data/DataList/datalist_Details.aspx?did={be76caba-c7a3-430b-be11-6a43326b310f}



The image below shows this graphic zoomed in to the three nonattainment areas. This shows that most of the paved roads are within the nonattainment areas, with the majority of the unpaved roads occurring outside of them.



The total length of unpaved roads in the county vs. each nonattainment area was used to scale the county emissions of unpaved road dust. The table below shows the length of each road type and the scaled emission estimate.

Table 2. Unpaved Road Dust Emission Estimate.

	Length of Unpaved Roads (km)	% of County	Unpaved Road Dust Emissions (tons)
Flathead County	7,140.69	n/a	13,529.50
Columbia Falls	45.86	0.6%	86.88
Kalispell	202.00	2.8%	382.74
Whitefish	81.72	1.1%	154.84

The same approach was used for paved roads, shown below.

Table 3. Paved Road Dust Emission Estimate.

	Length of Paved Roads (km)	% of County	Paved Road Dust Emission (tons)
Flathead County	2,296.94	n/a	389.66
Columbia Falls	79.79	3.5%	13.54
Kalispell	373.71	16.3%	63.40
Whitefish	145.60	6.3%	24.70

Fuel Combustion Emission Calculations

Fuel combustion source emissions, including commercial and industrial natural gas, residential natural gas, and residential wood, are available at the county level. There are no direct emission calculations within the nonattainment areas. Since these three sectors are linked to population, the 2010 census tract data was used to estimate an appropriate scaling factor.

The nonattainment areas represent the more populated parts of the county. Below shows the census track data for the county, with a higher population in the nonattainment areas and surrounding areas, compared to the more rural parts of the county.

Figure 1. Population within Flathead County

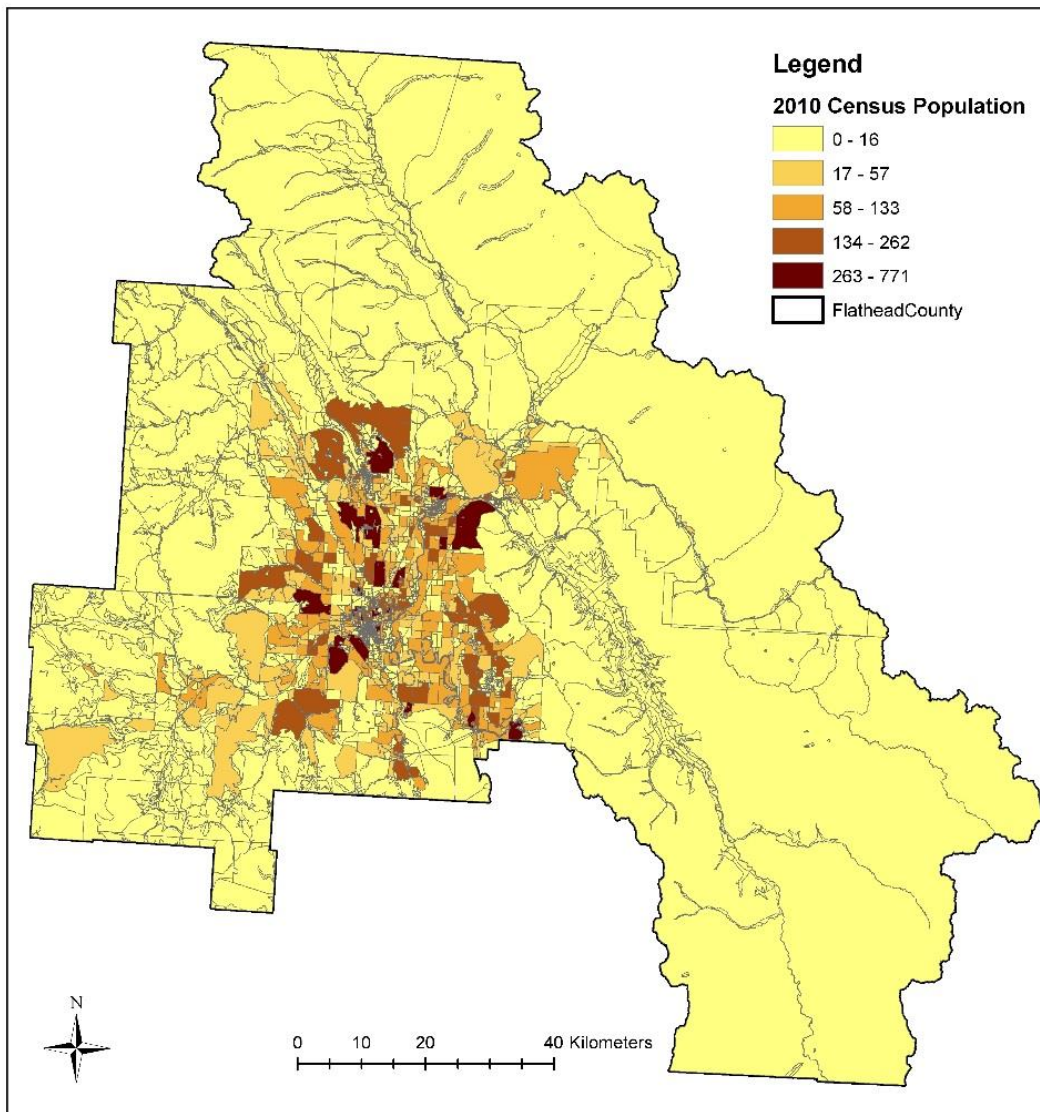


Figure 2. Population within Columbia Falls NAA.

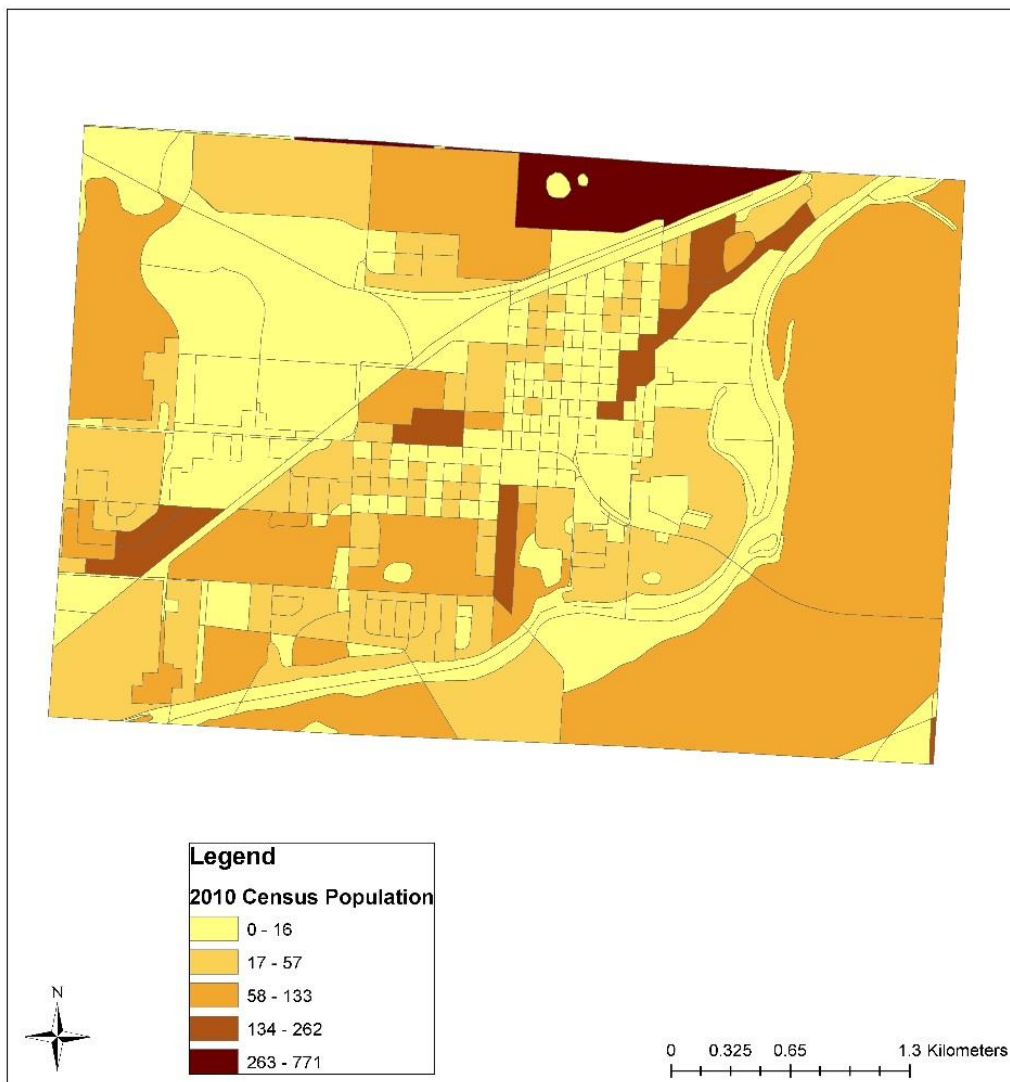


Figure 3. Population within Kalispell NAA.

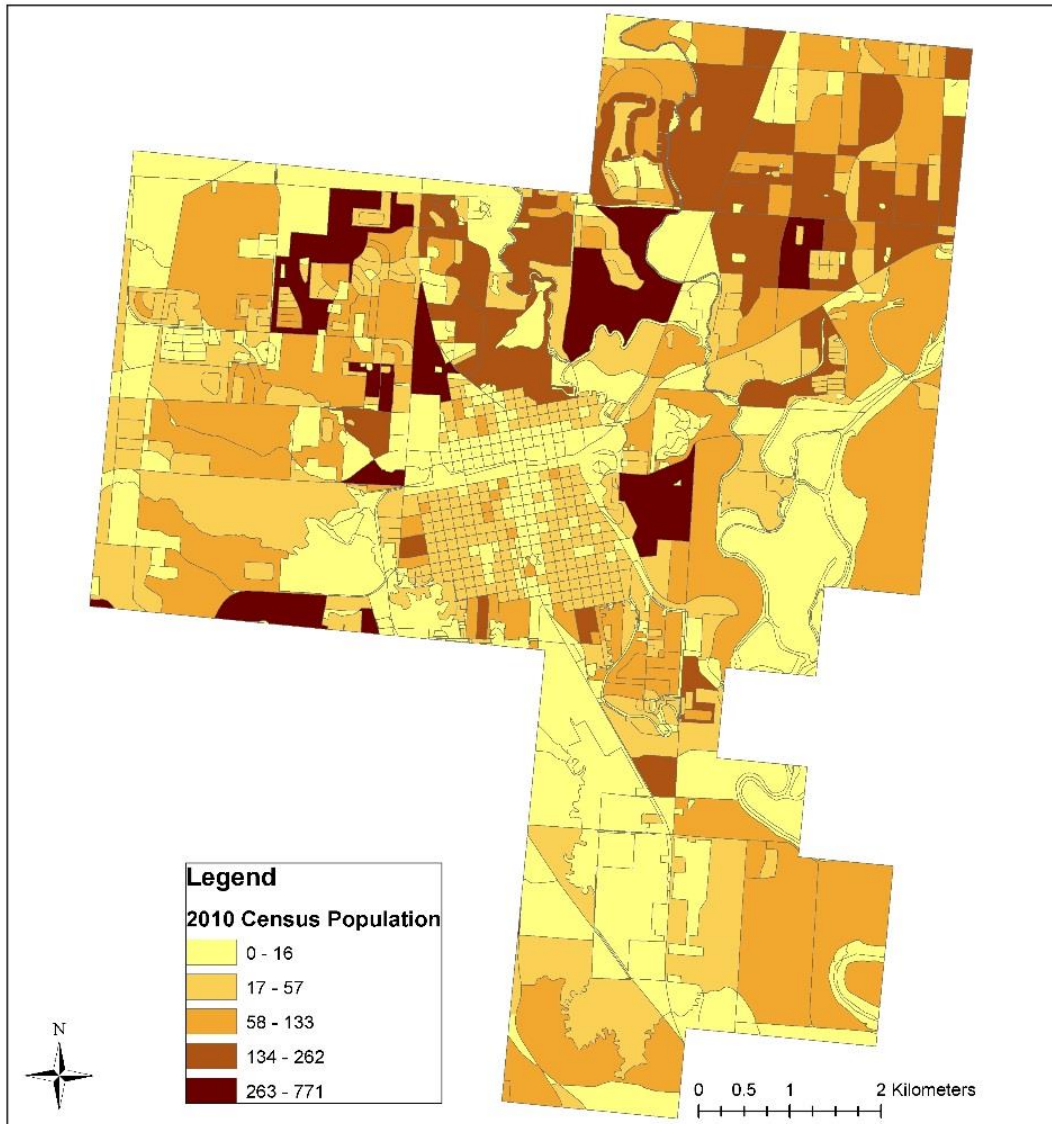
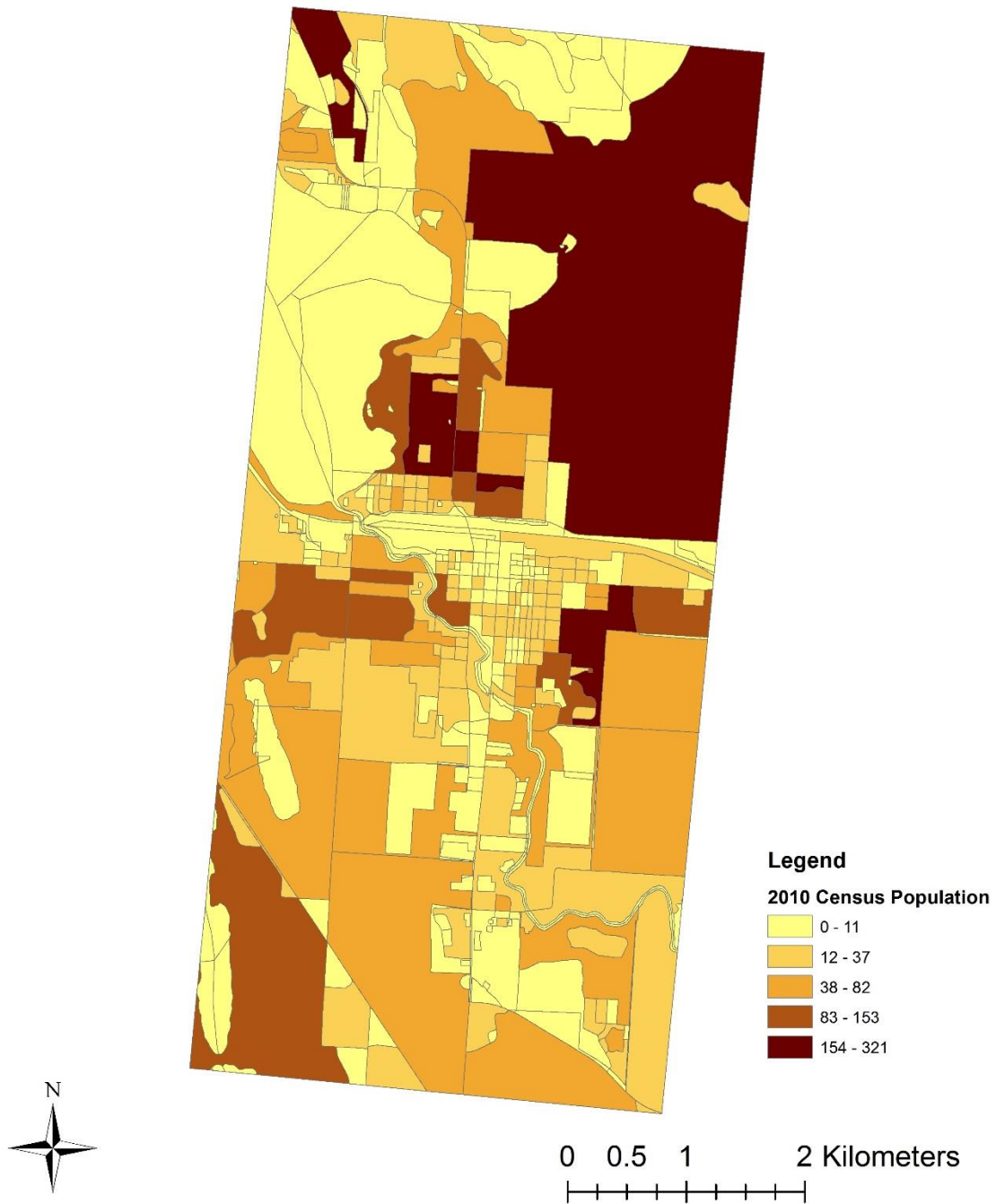


Figure 4. Population within Whitefish NAA



The table below shows the 2010 population totals of the county and the three nonattainment areas. This shows that Kalispell makes up 34.1% of the county population, while Columbia Falls makes up 7.3% of the county population.

Table 4. 2010 Census Population by County and NAA.

	Pop. 2010	% of County
Total County	90,928	--
Columbia Falls	6,615	7.3%
Kalispell	30,995	34.1%
Whitefish	7,687	8.5%

This method uses the percent of county population within the nonattainment areas to scale the fuel combustion emissions. The table below shows the scaled emission estimated for each sector/NAA using this approach.

Table 5. Fuel Combustion Emission Estimate.

	% of County	Tons/year		
		Fuel Comb - Comm/Institutional - Natural Gas	Fuel Comb - Residential - Natural Gas	Fuel Comb - Residential - Wood
Total County	100.0%	0.37	0.42	139.37
Columbia Falls	7.3%	0.03	0.03	10.14
Kalispell	34.1%	0.13	0.14	47.51
Whitefish	8.5%	0.03	0.04	11.78

Vehicle Emission Calculations

For mobile on-road gasoline light duty vehicles and diesel emissions, including heavy duty, light duty, and nonroad vehicles, the ratio of vehicle miles traveled within the county and nonattainment area would allow for a reasonable scaling estimate of county level NEI emissions. Unfortunately, VMT data within the nonattainment are not available. The method outlined below demonstrates the best available estimate to scale county-level vehicle emissions to the nonattainment areas within Flathead County.

Daily VMT data is available through the Montana Department of Transportation at the county level, as well as the “urban area” level. Daily VMT data is provided for Columbia Falls, Kalispell, and Whitefish². The table below shows the total Daily VMT in the county compared to the urban areas in 2016.

Table 6. 2016 VMT Data by County and Urban Area.

	2016 Daily VMT	% of County
Flathead County³	2,623,576	n/a
Columbia Falls	120,381	4.6
Kalispell	621,547	23.7
Whitefish	108,413	4.1

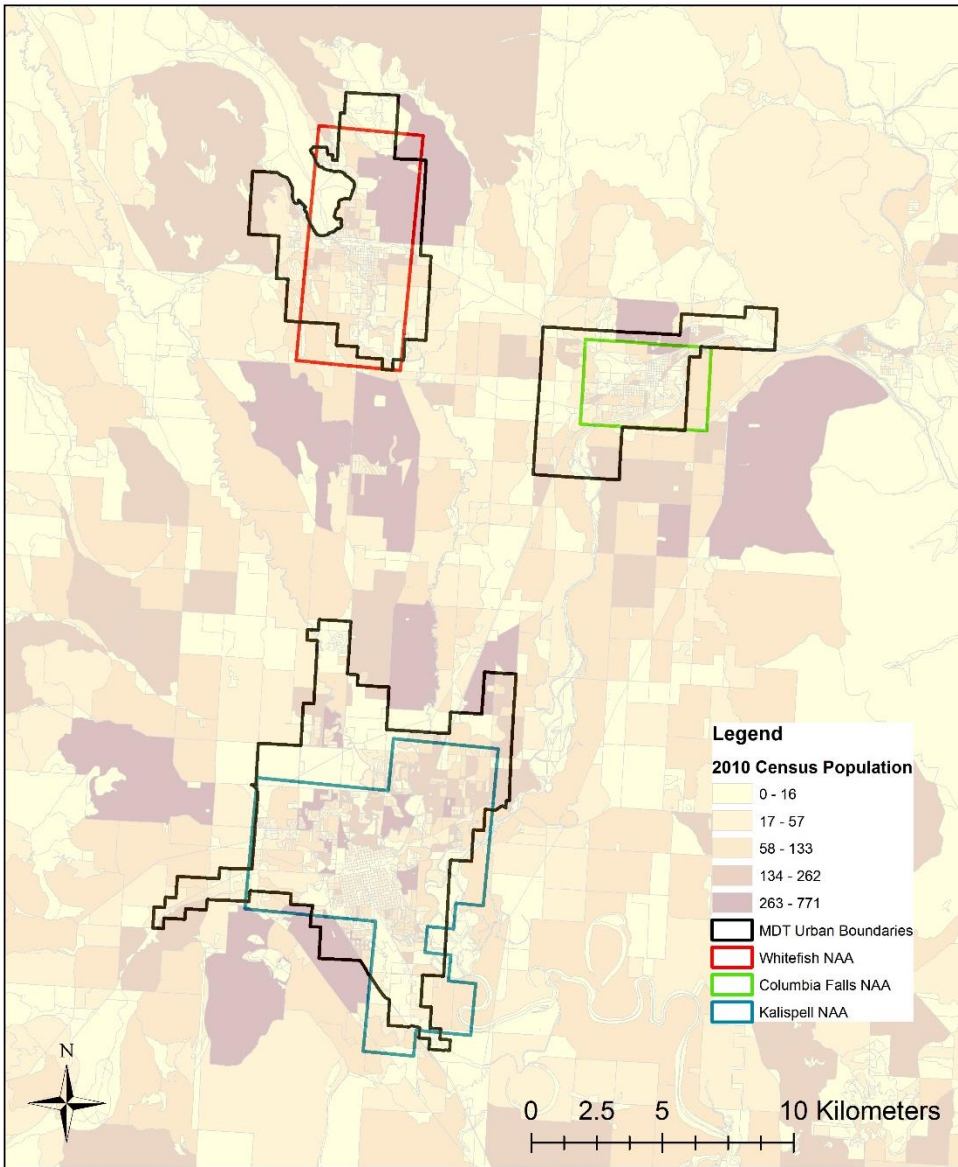
To determine if the “urban area” is an appropriate approximation to the nonattainment area, the locations of each area was reviewed. The shape of the MDT urban areas was acquired from the MDT GIS Data Portal⁴. The figure below shows how the two areas overlap in each community, with the 2010 census data in the background.

² http://mdt.mt.gov/other/webdata/external/Planning/traffic_reports/tburban.pdf

³ http://mdt.mt.gov/other/webdata/external/Planning/traffic_reports/tbcounties.pdf

⁴ http://gis-mdt.opendata.arcgis.com/datasets/ded82829e789400f9b7bcb8e35b880c6_1

Figure 2. Population within NAAs vs. MDT Urban Areas



The MDT urban boundaries are larger in area and population than the nonattainment area boundaries, although they both represent the core urban area of each community. The table below shows the total area and 2010 population for each area.

Table 7. Area of NAAs vs. MDT Urban Areas.

	Square Miles		Population 2010 Census	
	MDT Urban Areas	NAA	MDT Urban Areas	NAA
Columbia Falls	12.34	5.96	8,495	6,615
Kalispell	34.21	25.93	35,685	30,995
Whitefish	16.13	13.90	8,377	7,687

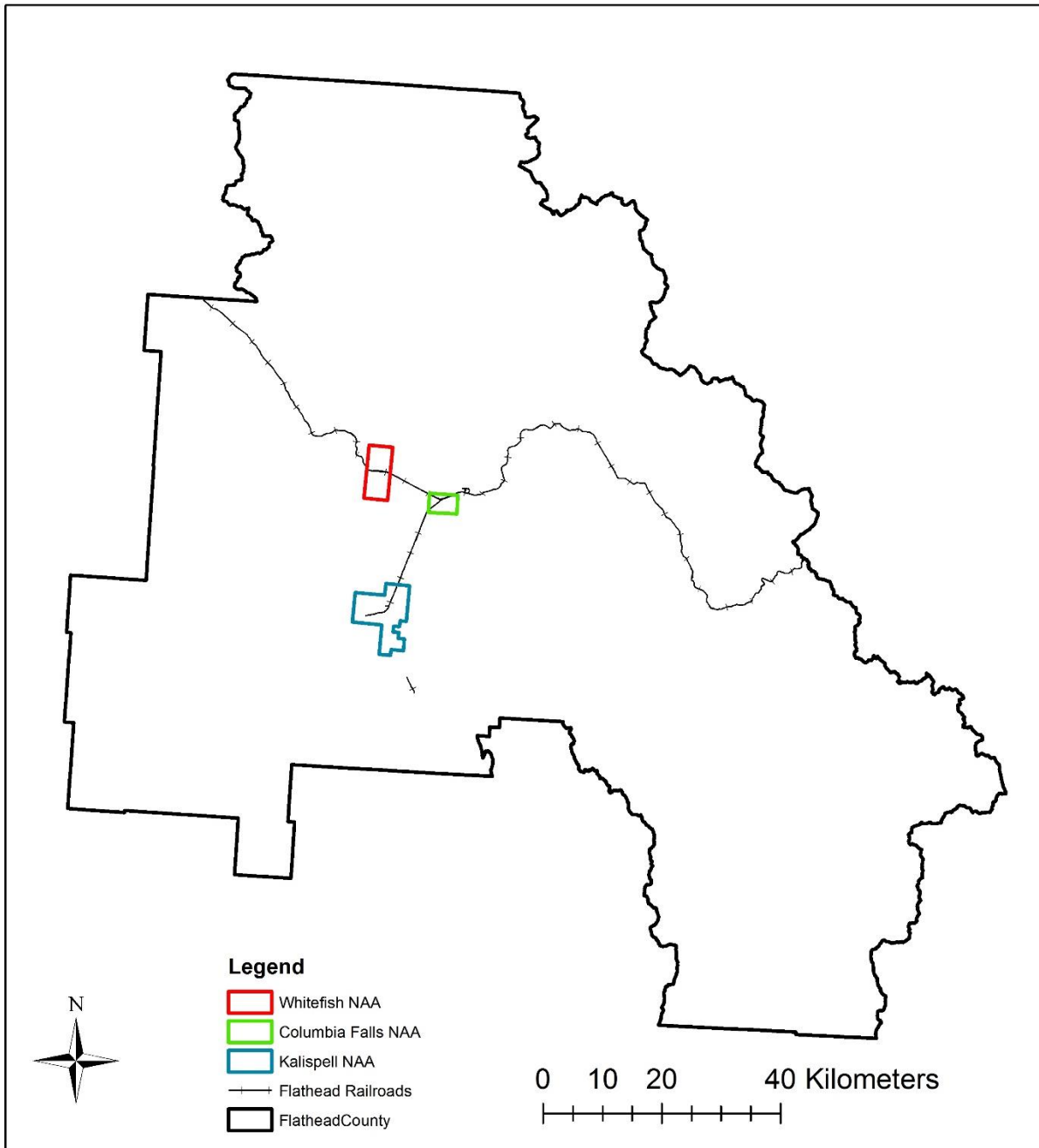
Since the urban areas are larger than the nonattainment areas, using the daily VMT counts within the MDT urban areas to scale county-level emissions will result in a slight over estimation of nonattainment area emissions. The table below shows the proposed nonattainment area emissions for on-road mobile emissions from gasoline light duty trucks.

Table 8. Roadway Emission Estimates Based on VMT Scaling.

	% of County	Mobile - On-Road Gasoline LDV (tons)	Mobile - On-Road Diesel Heavy Duty Vehicles	Mobile - On-Road Diesel Light Duty Vehicles	Mobile - Non-Road Equipment - Diesel	Mobile - Diesel Total
Flathead County (2014 NEI)	100	80.64	44.52	12.23	22.56	79.31
Columbia Falls	4.6	3.71	2.05	0.56	1.04	3.65
Kalispell	23.7	19.11	10.55	2.90	5.35	18.80
Whitefish	4.1	3.31	1.83	0.50	0.93	3.25

Locomotive Emission Calculation

A railroad runs through Flathead County, including all three nonattainment areas. The location of the railroad tracks is shown below.



The locomotive emissions are available at the county level. Emission data within the nonattainment areas are not available. Since all three nonattainment areas are within the same county, using the county-total for each NAA would be a significant over estimation of locomotive emissions. On the other hand, scaling emissions based on the length of track in the NAA vs. the county may underestimate the emissions. The NAA all include stations, where idling emissions may be higher than on the tracks connecting the stations. To balance these two options, DEQ allocated all the county-level emissions to the NAAs, then scaling by the length of track in each area. In other words,

the county-level emissions totally 52.79 t/y and were divided into Columbia Falls, Kalispell, and Whitefish based on the length of track in each area, compared to each other. DEQ believes this method adequately addresses idling concerns because Columbia Falls, which has the largest ‘hub’, where idling emissions are likely to occur, also receives the largest share of emissions. When looking closely at the Columbia Falls rail lines, numerous additional tracks are present in and around the train depot, increasing the share of emissions Columbia Falls ultimately receives. See the table below for the breakdown.

Flathead County 2014 NEI Mobile Emissions – Locomotives = 46.62 t/y

Table 9. Locomotive Emission Estimate.

	Track Length (km)	% compared to all NAA	Scaled Emissions (tons/year)
Flathead County	211.51	--	--
Columbia Falls	24.35	47%	21.71
Kalispell	17.37	33%	15.48
Whitefish	10.58	20%	9.43
Total within NAAs	57.70	100%	46.62

APPENDIX B

Transcript of Public Hearing, Comments, and DEQ's Response