west virginia department of environmental protection

Maintenance Plan Revision for the 1987 PM_{10} NAAQS Weirton, West Virginia Area Comprising Brooke and Hancock Counties

Proposed
September 12, 2025

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

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Acronym	Definition
ADV	Average Design Value
AQS	Air Quality System
CAA	Clean Air Act
CDV	Critical Design Value
CERR	Consolidated Emissions Reporting Rule
CES	Certified Emission Statement
CFR	Code of Federal Regulations
CSR	Code of State Rules
DAQ	West Virginia Division of Air Quality
DV	Design Value
EIS	Emissions Inventory System
EPA	United States Environmental Protection Agency
FIP	Federal Implementation Plan
FR	Federal Register
LMP	Limited Maintenance Plan
MOVES	Motor Vehicle Emission Simulator
MPO	Metropolitan Planning Organization
MVEBs	Motor Vehicle Emissions Budgets
NAAQS	National Ambient Air Quality Standards
NEI	National Emissions Inventory
NH_3	Ammonia
NO_x	Nitrogen Oxides
PM	Particulate Matter
PM_{10} / $PM_{2.5}$	Particulate Matter with an aerodynamic diameter ≤10 / 2.5 micrometers
PSD	Prevention of Significant Deterioration
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TPY	Tons per Year
µg/m^3	Micrograms per Cubic Meter
WVDAQ	West Virginia Division of Air Quality
VMT	Vehicle Miles Traveled
VOC(s)	Volatile Organic Compound(s)

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I. Request

The State of West Virginia is requesting the United States Environmental Protection Agency (EPA) approve a *Maintenance Plan Revision for the 1987 PM_{10} NAAQS for the Weirton, West Virginia Area Comprising Brooke and Hancock Counties*, as a revision to the State Implementation Plan (SIP) meeting the requirements of Clean Air Act (CAA) Section 175(A)(b).

II. Background

The Federal Clean Air Act, 42 U.S.C.A. 7401 et seq. as amended by the Clean Air Act Amendments of 1990, P.L. 101-549, November 15, 1990 (CAA or the Act), requires all areas of the nation to attain and maintain compliance with the federal ambient air quality standards. These federal standards are designed to protect the public health and welfare from airborne pollutants and are referred to as the National Ambient Air Quality Standards (NAAQS). Pursuant to CAA Section 107(d)(1)(A), pollutant standards are established by the EPA and areas are designated as nonattainment (not meeting the standard), attainment (meeting the standard), or unclassifiable (cannot be classified based on available information). States are required to comply with these NAAQS. When a nonattainment area attains the standard, states must demonstrate and seek the EPA's approval to redesignate the area from nonattainment to attainment.

Pursuant to CAA Section 107(d)(3)(E), as amended, the EPA Administrator may not promulgate a redesignation of a nonattainment area (or portion thereof) to attainment unless a state meets five requirements. With regard to the redesignation or designation of West Virginia's PM_{10} areas to attainment, and as discussed in the following narratives, West Virginia met all five of the following requirements:

1. the Administrator determined the area has attained the applicable NAAQS;
2. the Administrator has fully approved the applicable implementation plan for the area under CAA Section 110(k);
3. the Administrator determined the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollution control regulations and other permanent and enforceable reductions;

4. the Administrator has fully approved a maintenance plan for the area as meeting the requirements of Section 175A; and
5. the state containing such an area has met all requirements applicable to the areas under Section 110, Part D.

On July 1, 1987, the United States Environmental Protection Agency promulgated National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of less than or equal to 10 microns (PM_{10}). The EPA categorized areas of the nation into three groups based on the likelihood of violating NAAQS in the Federal Register on August 7, 1987 (52 FR 29383). Areas with a strong likelihood of violating the PM_{10} NAAQS and requiring substantial SIP revisions were placed in Group I; areas where attainment of the PM_{10} NAAQS was uncertain and the SIP may have required only slight adjustment were placed in Group II; and areas with a strong likelihood of attaining the PM_{10} NAAQS, and therefore probably having an adequate control strategy, were placed in Group III. This listing included portions of Hancock County, West Virginia, as being a Group II area.

On August 14, 1989, the Oak Street monitoring site, located in the city of Weirton, recorded the fourth exceedance of the 24-hour NAAQS in a three-year period. On December 21, 1993, the EPA promulgated the redesignation of the City of Weirton including Clay and Butler Magisterial Districts in Hancock County, as nonattainment for PM_{10} in the Federal Register (58 FR 67334). The Weirton nonattainment area was classified as moderate nonattainment for PM_{10}. Boundaries of the nonattainment area are the city of Weirton as stated in the Federal Register.

The Determination of Attainment of the NAAQS for PM_{10} in the Weirton, West Virginia Nonattainment Area was published in the Federal Register dated May 16, 2001 (66 FR 27034[1]). West Virginia formally submitted a request to redesignate the Weirton Area from nonattainment to attainment with the PM_{10} NAAQS on May 24, 2004. The EPA approved this redesignation request and Maintenance Plan on July 14, 2006, designating the area attainment with an effective date of August 14, 2006 (71 FR 40023[2]).

[1] https://www.govinfo.gov/content/pkg/FR-2001-05-16/pdf/01-12349.pdf
[2] https://www.govinfo.gov/content/pkg/FR-2006-07-14/pdf/E6-11107.pdf

III. Limited Maintenance Plan

Section 107(d)(3)(e) of the CAA stipulates for an area to be redesignated to attainment, the EPA must approve a maintenance plan meeting the requirements of Section 175A of the CAA, which defines the general framework of a maintenance plan. The maintenance plan must constitute a SIP revision and provide for maintenance of the relevant NAAQS in the affected area. Section 175A further states that the plan must include the following:

1. A SIP revision providing for the maintenance of the NAAQS in the area.
2. The initial maintenance plan must provide for maintenance of the NAAQS in the area for 10 years after redesignation and must also include a commitment to submit a subsequent maintenance plan revision 8 years after the initial plan.
3. Additional measures as necessary to ensure maintenance of the NAAQS in the area during this period.
4. A contingency plan assuring that the state will continue to implement all pollutant control measures for the area that were contained in the SIP prior to the redesignation of the area to attainment and that it will promptly correct any violation of the standard which occurs after the redesignation.

The EPA has published multiple documents describing "Limited Maintenance Plans" (LMP's). In these documents the EPA has interpreted Section 175A to indicate an area can provide for maintenance of the NAAQS with an LMP if certain air quality-related criteria are met. Specifically, the two key criteria outlined in these documents are that the current air quality levels for ambient monitoring sites in the area should be substantially below the NAAQS and that air quality levels have not been highly variable during preceding years.

The two EPA documents most relevant to maintenance of the PM_{10} NAAQS via an LMP are:

- *Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas. August 9, 2001*[3].

[3] https://www.epa.gov/sites/default/files/2016-06/documents/2001lmp-pm10.pdf

- *Guidance on the Limited Maintenance Plan Option for Moderate $PM_{2.5}$ Nonattainment Areas and $PM_{2.5}$ Maintenance Areas. October 2022*[4].

West Virginia meets the specified qualifications outlined in these documents and has elected to use elements of this guidance as a basis for the development of its LMP for the second 10-year PM_{10} Maintenance Plan for the Weirton area. A copy of the older, August 9, 2001, PM_{10} LMP guidance document is contained in ***Appendix A***. A copy of the more recent, October 2022 $PM_{2.5}$ LMP guidance document is contained in ***Appendix B***.

Each limited maintenance plan submission will be evaluated by the EPA on a case-by-case basis, taking into consideration the weight of evidence of the information presented in the SIP submission. Qualification for this LMP is discussed in the following section.

1. LMP Requirements

Based on EPA's guidance documents mentioned above and to demonstrate that air quality levels are substantially below the PM_{10} NAAQS and have not been highly variable, and to therefore qualify for a PM_{10} LMP, an area should meet the following applicability criteria:

- The area must be attaining the PM_{10} NAAQS and the PM_{10} Average Design Value (ADV) for each monitoring site in the area, based on the most recent five consecutive design values, must not exceed the associated PM_{10} Critical Design Value (CDV) for each monitoring site.
- For a second maintenance plan, the area's PM_{10} ADV should be lower than the area's PM_{10} CDV and air quality data should demonstrate that the area has been maintaining the PM_{10} NAAQS for at least eight years.
- The area must meet the motor vehicle regional emissions analysis test as described in Attachment B of the August 9, 2001 PM_{10} LMP guidance document.

To demonstrate attainment and maintenance of the PM_{10} NAAQS for eight years for the Weirton area, West Virginia is presenting for each monitor in the area the number of observed exceedances of the 24-hr PM_{10} NAAQS during each year from 2016 to 2023 and the average exceedances during each three-year period from 2016 to 2023. This time period

[4] https://www.epa.gov/system/files/documents/2023-03/PM%202.5%20Limited%20Maintenance%20Plan%20Guidance.pdf

was selected because 2023 was the most recent year with certified data when this analysis commenced. Additionally, West Virginia is stating that no exceedances or violations of the annual PM_{10} standard, which was revoked in 2006, were ever recorded at any of the sites in the Weirton area.

To demonstrate that the PM_{10} ADV for each monitoring site in the area, based on the five most recent and consecutive design values, does not exceed the associated PM_{10} CDV, West Virginia presents for each monitoring site the five most recent and consecutive 3-year design values, the ADV calculated from those values, and the CDV calculated from those values.

To demonstrate that the area's PM_{10} ADV does not exceed the area's PM_{10} CDV, West Virginia presents the area's five most recent and consecutive 3-year design values, the ADV calculated from those values, and the CDV calculated from those values.

Finally, West Virginia does not expect that the area will experience enough motor vehicle growth for a PM_{10} NAAQS violation to occur. To justify this expectation West Virginia presents documentation of recent on-road mobile source emissions of PM_{10} and its precursors versus total area-wide emissions of the same, showing that emissions from on-road mobile sources are minor compared to other sources; and past, present, and projected future on-road VMT in the Weirton area, showing that VMT are not expected to substantially increase in the future.

2. LMP Qualification

Based on the LMP requirements established by the EPA in their August 9, 2001, and October 2022 guidance documents, West Virginia concluded the Weirton Area qualifies for an LMP based on analysis of monitored ambient air quality data. Support for this position is provided in the following discussion where several deciding factors were evaluated.

NAAQS Compliance. The 1987 24-hour PM_{10} NAAQS is 150 micrograms per cubic meter (µg/m3), and an area meets this standard if it does not exceed this level more than once per year on average over a three-year period (a total of three exceedances during any three-

year period)[5]. For each monitor in the Weirton area, the number of observed exceedances of the 24-hr PM_{10} NAAQS during each year from 2016 through 2023 is presented Table 1. For each monitor, the annual average exceedances during each three-year period from 2016 to 2023 is presented in Table 2. The information presented was obtained from PM_{10} Design Value Reports retrieved from the Air Quality Design Values webpage at the EPA's website[6].

Table 1: Weirton Area Monitors - Observed 24-Hour PM_{10} NAAQS Exceedances by Year

Year / Monitor	2016	2017	2018	2019	2020	2021	2022	2023
Follansbee – Mahan Lane (540090005)[7]	0	0	NA*	NA	NA	NA	NA	NA
Marland Heights Elementary (540090011)	0	0	0	0	0	0	0	2
Summit Circle (540290009)[8]	0	0	0	0**	0***	0	0	1

*NA – not applicable. Monitor ceased operation after 2017.
**Only 3 quarters of complete data,
***Only 2 quarters of complete data

Table 2: Weirton Area Monitors - Annual Average Exceedances of the 24-Hour PM_{10} NAAQS by Three-Year Period

Years / Monitor	2016-18	2017-19	2018-20	2019-21	2020-22	2021-23
Follansbee – Mahan Lane (540090005)[8]	NA	NA	NA	NA	NA	NA
Marland Heights Elementary (540090011)	0.0	0.0	0.0	0.0	0.0	0.7
Summit Circle (540290009)[9]	0.0	NA	NA	NA	NA	0.4

[5] https://www.epa.gov/criteria-air-pollutants/naaqs-table
[6] https://www.epa.gov/air-trends/air-quality-design-values
[7] The Follansbee – Mahan Lane monitor ceased operation at the end of 2017.
[8] The Summit Circle monitor was out of service from 09/16/2019 through 06/08/2020.

As can be seen in Tables 1 and 2, there have not been many observed exceedances of the 24-hour PM_{10} NAAQS level of 150 micrograms per cubic meter (µg/m3) at the Weirton area monitors and not more than once per year on average over any of the three-year periods. From 2016 through 2023 there were two exceedances at the Marland Heights monitor and one exceedance at the Summit Circle monitor, all occurring during the summer of 2023 and ascribed to the 2023 Canadian wildfires. Exceptional Events demonstrations were not submitted because the exceedances were not considered regulatorily significant under the Exceptional Events Rule. There were no exceedances at the Follansbee – Mahan Lane monitor, though it ceased operation at the end of 2017. The highest number of annual average exceedances during any three-year period at any monitor in the area was 0.7 (Marland Heights) and the lowest non-zero value was 0.4 (Summit Circle). This demonstrates attainment and maintenance of the PM_{10} NAAQS for the Weirton area for the past eight years.

Emission Monitor DV's and CDV's. The "table look-up" method, as described in the document "PM_{10} SIP Development Guideline" (EPA-450/2-86-001, June 1987)[9], which was referenced in footnote 4 of the August 9, 2001, PM_{10} LMP guidance document[10], was used to determine the PM_{10} Design Value (DV) for each monitoring site. For the 24-hour PM_{10} standard, the "table look-up" method involves selecting the DV for a site from among the highest 24-hour concentrations recorded at the site during whichever three-year period is in question. Which of the highest 24-hour concentrations, ranked by magnitude, is chosen depends on the total number of 24-hour concentrations recorded at the monitoring site over the three-year period and is specified by Table 6-1 in the document "PM_{10} SIP Development Guideline" (EPA-450/2-86-001, June 1987). According to that table, for PM_{10} monitoring data covering a full three-year period, the 4th highest value is used as the DV if there are between 1,043 and 1,390 24-hour readings and the 3rd highest value is used as the DV if there are between 696 and 1,042 24-hour readings. For the Marland Heights Elementary monitor, the 4th highest value was the appropriate value for each three-year period from 2017 – 2023. For the Summit Circle monitor, the 3rd highest value was the appropriate value for the first four three-year periods and the 4th highest value was appropriate for the final three-year period. The Follansbee – Mahan Lane monitor ceased operation at the end of 2017. The ranked concentration values and other data for the

[9] https://www.regulations.gov/document/EPA-R03-OAR-2023-0219-0010

[10] See the document Limited Maintenance Plan Option for Moderate PM_{10} in App. B.

monitors were taken from WVDAQ's air monitoring data presented in Appendix C. The PM_{10} Design Values for each three-year period from 2017 to 2023 for the two Weirton Area emission monitors are presented in Table 3.

Table 3: Weirton Area Monitors' Design Values in Micrograms per Cubic Meter for the 24-Hour PM_{10} NAAQS by Three-Year Period

Years / Monitor	2017-19	2018-20	2019-21	2020-22	2021-23
Marland Heights Elementary (540090011)	40	40	49	50	60
Summit Circle (540290009)	34	32	38	39	61

The method for determining the ADV and the CDV for each emissions monitor is described in the October 2022 $PM_{2.5}$ LMP guidance document[11]. To determine the ADV for a given emissions monitor, the mean average of the three-year Design Values for 2017 – 2023 is calculated. Determining the CDV for an emissions monitor is more complicated and done according to the formulas:

$$\mathbf{CDV = NAAQS / (1+(t_c \times CV))}$$

Where: **NAAQS** = The 24-hour PM_{10} NAAQS = 150 micrograms per cubic meter (µg/m3);
t_c = one-tail Student's t-distribution at a significance level of 0.10 = 1.533 for five, consecutive three-year design values; and
CV = sample standard deviation / ADV = s / ADV.

The ADV and CDV for each monitor, Marland Heights Elementary and Summit Circle, were calculated and the results for both monitors are presented in Table 4.

[11] See the document Guidance on the Limited Maintenance Plan Option for Moderate $_{PM2.5}$ in App. B.

Table 4: Weirton Area Monitors ADV's and CDV's in Micrograms per Cubic Meter for the 24-Hour PM_{10} NAAQS for 2017 – 2023

Monitor	ADV (2017 – 2023)	CDV (2017 – 2023)
Marland Heights Elementary (540090011)	48	118
Summit Circle (540290009)	41	104

As can be seen in Tables 3 and 4, the three-year DV's for both monitors are well below the NAAQS compliance level of 150 micrograms per cubic meter and each monitor's ADV is well below its CDV. This demonstrates PM_{10} values at the sites will likely remain below the level of the standard in the future.

Area DV's and CDV. For the purposes of this LMP, the method for determining a DV for PM_{10} for an area is described in the document "PM_{10} SIP Development Guideline" (EPA-450/2-86-001, June 1987), referenced in footnote 4 of the August 9, 2001, PM_{10} LMP guidance[10]. The Area DV during a given period is equal to the highest DV at any of the sites in the area during that period. The PM_{10} Area DV's for each three-year period from 2017 to 2023 for the Weirton Area are presented in Table 5.

Table 5: Weirton Area Design Values in Micrograms per Cubic Meter for the 24-Hour PM_{10} NAAQS by Three-Year Period

Years / Area	2017-19	2018-20	2019-21	2020-22	2021-23
Weirton Area	40	40	49	50	61

Once the Area DV's are determined for the various three-year periods, the ADV and CDV for the area are determined using the same method as the individual monitors. The ADV and CDV for the Weirton Area were calculated and the results are presented in Table 6.

Table 6: Weirton Area ADV and CDV in Micrograms per Cubic Meter for the 24-Hour PM_{10} NAAQS for 2017 – 2023

Area	Area ADV (2017 – 2023)	Area CDV (2017 – 2023)
Weirton Area	48	117

As can be seen in Tables 5 and 6, the three-year DV's for the Weirton area are well below the NAAQS level of 150 micrograms per cubic meter and its ADV is well below its CDV. This demonstrates that PM_{10} values in the area will likely remain below the level of the standard in the future.

Motor Vehicle Growth Expectations. An LMP must demonstrate that it is unreasonable to expect that the qualifying area will experience so much growth in motor vehicle emissions that a violation of the relevant NAAQS, PM_{10} in this case, will occur. To show this, West Virginia looked at air quality and vehicle miles travelled (VMT) trends for the Weirton area and is presenting documentation of recent on-road mobile source emissions of PM_{10} and its precursors versus total area-wide emissions of the same and of recent on-road VMT in the Weirton area and VMT projections for future years. The data used for the emissions came from the EPA VMT Calculations_Emissions spreadsheet[12], a supporting and related material to docket EPA-R03-OAR-2023-0380[13], the triennial NEI's[14], and the emissions inventory developed for the 2022 Emissions Modeling Platform (EMP)[15]. The VMT data and projections were also taken from the EPA VMT Calculations_Emissions spreadsheet.

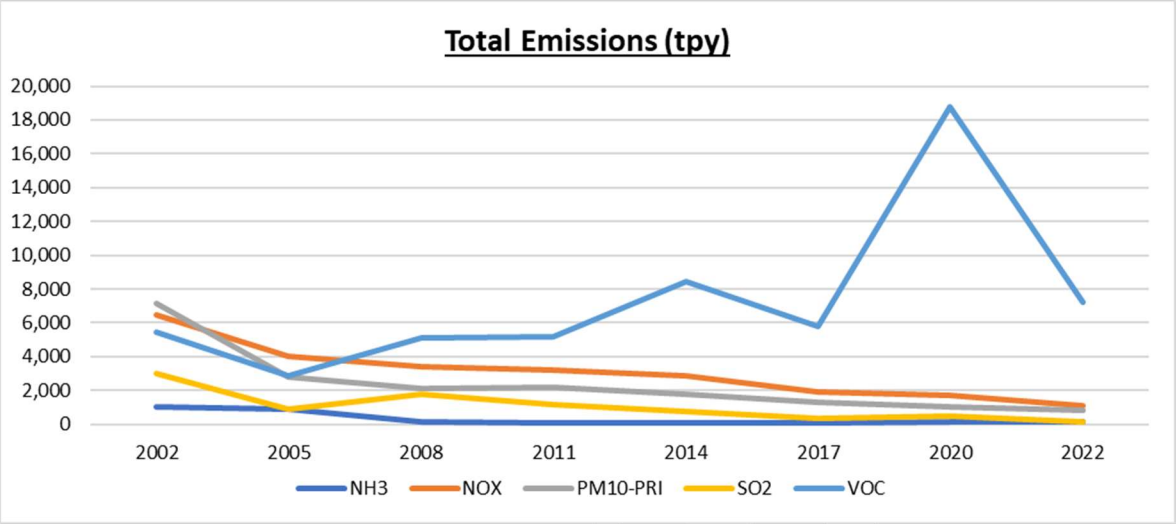
Total emissions of Ammonia (NH_3), Nitrogen Oxides (NO_x), PM_{10}-PRI[16], Sulphur Dioxide (SO_2), and Volatile Organic Compounds (VOC) for Brooke and Hancock counties are presented in Table 7 and Chart 1.

Table 7: Weirton Area Total Emissions in Tons per Year of PM_{10} and Precursors

Years / Pollutant	2002	2005	2008	2011	2014	2017	2020	2022
NH_3	1014	866	147	78	74	100	165	143
NO_X	6437	4027	3383	3206	2861	1894	1673	1076
PM_{10}-PRI	7174	2801	2126	2169	1771	1271	1051	811
SO_2	2986	895	1782	1175	726	370	481	113
VOC	5467	2886	5077	5143	8434	5789	18759	7188

[12] https://www.regulations.gov/document/EPA-R03-OAR-2023-0380-0012
[13] Air Quality State Implementation Plans; Approvals and Promulgations: West Virginia; 2006 24-Hour Fine Particulate Matter Limited Maintenance Plans for the Charleston Area and the West Virginia Portion of the Steubenville-Weirton Area
[14] https://www.epa.gov/air-emissions-inventories/get-air-emissions-data-0
[15] https://www.epa.gov/air-emissions-inventories/get-air-emissions-data-0
[16] PM_{10}-PRI refers to the total emissions of particulate matter with a diameter of 10 micrometers or less, including both filterable and condensable particles.

Chart 1: Weirton Area Total Emissions in Tons per Year of PM_{10} and Precursors

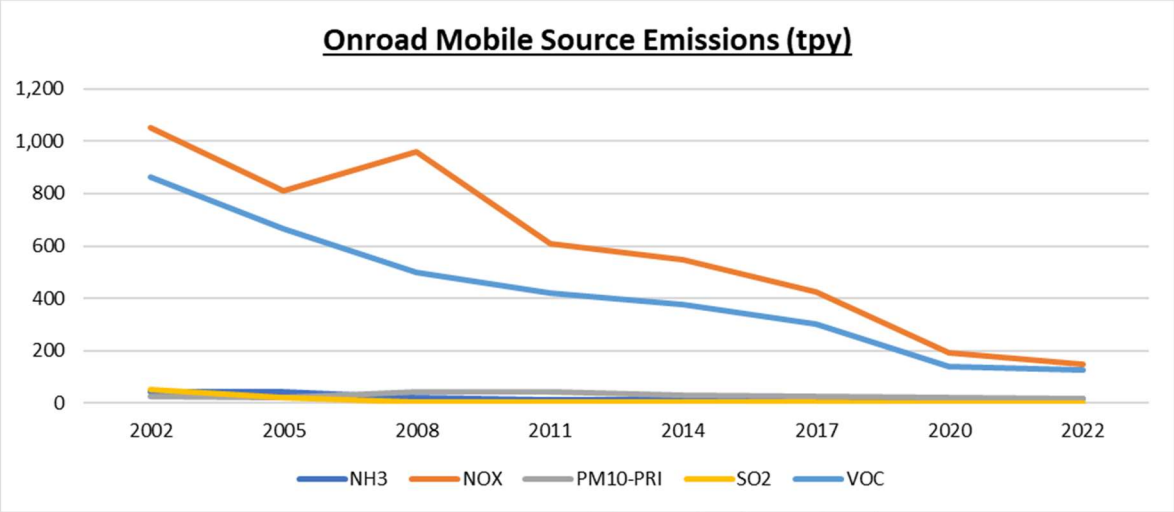


Emissions of Ammonia (NH_3), Nitrogen Oxides (NO_x), PM_{10}-PRI[15], Sulphur Dioxide (SO_2), and Volatile Organic Compounds (VOC) for only on-road, mobile sources in Brooke and Hancock counties are presented in Table 8 and Chart 2.

Table 8: Weirton Area On-road, Mobile Source Emissions in Tons per Year of PM_{10} and Precursors

Years / Pollutant	2002	2005	2008	2011	2014	2017	2020	2022
NH_3	42	43	19	14	12	11	8	15
NO_X	1053	810	960	609	546	423	191	148
PM_{10}-PRI	26	21	44	44	30	27	21	18
SO_2	53	19	5	4	3	2	1	1
VOC	862	667	498	421	377	304	139	126

Chart 2: Weirton Area On-road, Mobile Source Emissions in Tons per Year of PM_{10} and Precursors



As can be seen in Tables 7 and 8 and Charts 1 and 2, motor vehicle emissions of NH_3, NO_x, PM_{10}, SO_2, and VOCs are a small part of the total emissions and have steadily decreased in the West Virginia portion of the Weirton Area between 2002 and 2022. There is a jump in total, area-wide VOC emissions, primarily from one Brooke County source category - oil and gas exploration: storage tank condensate, a subcategory of the nonpoint category, which is not related to motor vehicle emissions.

2020 Vehicle Miles Traveled (VMT) for Brooke and Hancock counties and VMT future year projections are presented in Table 9.

Table 9: Weirton Area 2020 VMT and Projections

Area Years	Brooke County VMT	Hancock County VMT	Combined VMT	Combined VMT as a % of 2020 Combined VMT
2020	606,618	490,233	1,096,851	100
2023			1,083,385*	98.8
2025	589,137	485,270	1,074,407	98.0
2026			1,072,062*	97.7
2030	550,416	512,267	1,062,683	96.9
2040	593,334	475,958	1,069,292	97.5

*Determined by linear interpolation of 2020, 2025, and 2030 data as appropriate.

As can be seen in Table 9, VMT is projected to decrease by approximately 2.5 percent between 2020 and 2040 in Brooke and Hancock Counties in the Weirton Area.

Increases in emissions from on-road mobile sources must be taken into account over the term of this LMP to help ensure that PM_{10} concentrations will remain below the NAAQS. The EPA's 2001 PM_{10} LMP guidance document recommends the use of the following equation to assess the impact of future emission increases from motor vehicle travel:

DV + (VMTpi x DVmv) ≤ MOS

Where: **DV** = the area's design value based on the most recent 5 years of quality assured data in $\mu g/m^3$ = 48 $\mu g/m^3$, as previously shown.

VMTpi = the projected % increase in vehicle miles traveled (VMT) between 2023 (the last year the above DV applies) and 2026 (the last year of the 2nd PM_{10} LMP period) = -0.0105 (-1.05%). VMT data were taken from the previously mentioned EPA VMT Calculations_Emissions spreadsheet and VMTpi was calculated from it by interpolating VMT values for 2023 and 2026 (see Table 9) and calculating the % change between them.

DVmv = motor vehicle design value based on the on-road mobile portion of the attainment year (2022) inventory in $\mu g/m^3$, including primary and secondary PM_{10} emissions, and including re-entrained road dust =

$$\frac{\text{DV x (on-road mobile source emissions of } PM_{10}\text{-PRI and precursors + re-entrained road dust)}}{\text{total emissions of } PM_{10}\text{-PRI and precursors}} =$$

48 $\mu g/m^3$ x (15 + 148 + 18 + 1 + 126 + 46[17] TPY) / (143 + 1,076 + 811 + 113 + 7,188) = [18]

[17]According to the EPA's online 2022v1 EMP Data Retrieval Tool, there were, together, in 2022, 46 total tons of PM_{10}-PRI re-entrained road dust (SCC Code: 2294000000, nonpoint emissions category) for WV's Brook and Hancock counties.
[18] Except for re-entrained road dust, values for PM_{10}-PRI and precursor emissions can be found in Tables 7 and 8.

$48\ \mu g/m^3 \times 0.0379 =$

$1.8\ \mu g/m^3$

MOS = margin of safety for the given area: 40 $\mu g/m^3$ for the annual standard or 98 $\mu g/m^3$ for the 24-hour standard.

Substituting the above values into the equation DV + (VMTpi x DVmv) = X < MOS gives:

$48\ \mu g/m^3 + (-0.0105 \times 1.8\ \mu g/m^3) = 48\ \mu g/m^3 < 98\ \mu g/m^3$, which is a true statement.

The calculation shows that when the Weirton Area's PM_{10} DV (based on the most recent 5 years of quality assured data) is adjusted for anticipated changes in on-road mobile source emissions that could occur by the end of the term of this LMP, the value is still less than the EPA's margin of safety number (MOS) specified in its 2001 PM_{10} LMP guidance document. This demonstrates that the Weirton area meets the motor vehicle regional emissions analysis test. It also demonstrates the insignificance of mobile sources on public roadways to the attainment status of the area, showing they account for only 4% of total emissions of PM_{10} and its precursors and that their usage is anticipated to diminish going forward, as VMTpi has a negative value.

Because of the air quality, relatively low on-road mobile source emissions, and VMT trends, the Weirton Area meets the motor vehicle growth qualification criteria set forth in the EPA's LMP Guidance and it is unreasonable to expect the area will experience motor vehicle emissions growth sufficient to cause a violation of the PM_{10} NAAQS over the remainder of the second maintenance period.

LMP Qualification Conclusion, Etc. To qualify for an LMP for PM_{10} for the Weirton area, West Virginia needed to demonstrate the area is meeting the NAAQS for PM_{10}, the area and monitor DV's are less than the CDV's, and the area is not expected to experience enough motor vehicle growth for a PM_{10} NAAQS violation to occur. The data presented in the tables, charts, and calculations of the previous paragraphs demonstrate the LMP qualification requirements have been met. There were not any PM_{10} NAAQS violations in the area during any of the three-year periods over the eight years from 2016 through 2023. The area's ADV

was significantly less than its CDV for the past five three-year periods and the same was true for its individual monitors. Finally, motor vehicle emissions in the area are trending down over time and are a small portion of overall emissions, while projected VMT are shown as decreasing, and, importantly, the area passed the motor vehicle regional emissions analysis test as described in Attachment B of the August 9, 2001, PM_{10} LMP guidance. Therefore, the Weirton area qualifies for a Limited Maintenance Plan for its second maintenance period.

Historically there have been no West Virginia SIP requirements for motor vehicle control measures and the preceding paragraphs, tables, charts, and calculations demonstrate the insignificance of mobile sources on public roadways to the current attainment status of the area (no recent PM_{10} NAAQS violations and Area ADV of 48 $\mu g/m^3$). Mobile sources account for only 4% of total emissions of PM_{10} and its precursors, and mobile source usage (VMT) is anticipated to diminish going forward, resulting in a negative value for VMTpi. Therefore, the DEP is herein making a finding that regional highway emissions of PM_{10} and its precursors (NH_3, NO_x, SO_2, and VOC) are insignificant contributors when considering the Weirton Area's PM_{10} attainment status. The finding will become final upon EPA concurrence and approval of this SIP.

IV. Attainment Year Emissions Inventory

As demonstrated in Section III above, West Virginia has met the qualification for a PM_{10} LMP for the second 10-year plan period for the Weirton Area. An area meeting the LMP qualification criteria is at little risk of violating the standard because emissions are not expected to grow sufficiently to threaten the maintenance of the standard. As stated in Section V.b. of the PM_{10} LMP guidance, "if the tests described in Section IV are met, we will treat that as a demonstration that the area will maintain the NAAQS. Consequently, there is no need to project emissions over the maintenance period." Therefore, though 2022 was selected as the attainment year for this LMP and its associated emissions inventory is presented, no emissions inventory projections or modeling were done based on that inventory.

The 2022 emissions inventory developed for the 2022 Emissions Modeling Platform (EMP) was selected because 2022 is within the timeframe covering the five three-year periods (2017 – 2023) previously discussed and is the most recent and comprehensive emissions inventory year with data quality assured by the EPA. The 2022 Emissions Modeling Platform is based on the

2020 National Emissions Inventory (NEI) released in the spring of 2023 with updates to better represent the year 2022. Additionally, it is more recent than the 2020 NEI and is therefore less affected by 2020 COVID-19 considerations. The following emissions inventory data was taken from the EPA's NEI website[19]. It was retrieved using the 2022v1 Emissions Data Retrieval Tool. Supporting documentation and data for the 2022 emission inventory are located at the following website: https://www.epa.gov/air-emissions-modeling/2022v1-emissions-modeling-platform.

Tables 10 through 14 provide the 2022 anthropogenic emissions inventory in tons for Brooke and Hancock Counties located within the Weirton, WV maintenance area. Each county's emissions are provided by emission sectors, which include point, nonpoint, on-road, nonroad, and event-fires, though event-fires emissions are also included in the nonpoint sector emissions. These tables provide emission data for not only PM_{10}, but also the secondary PM_{10} precursor pollutants SO_2, NO_x, volatile organic compounds (VOC), and ammonia (NH_3). The PM_{10} emissions provided are PM_{10}-PRI (primary), which includes both the filterable and condensable portions.

The point source sector includes large industrial operations which are relatively few in number but have significant emissions, such as steel mills, coal-fired power plants, coke batteries, etc. Emission sources in the nonpoint emissions sector include emissions from equipment, operations, and activities that are numerous and in aggregate have significant emissions. Examples include emissions from commercial and consumer products, residential heating, asphalt paving, repair and refinishing operations, and dry cleaners, as well as many others. The on-road emissions sector includes emissions from engines used primarily to propel equipment on highways and other roads, including passenger vehicles, motorcycles, and heavy-duty diesel trucks. Engines not primarily used to propel transportation equipment, such as construction equipment, electric generators, forklifts, lawn and garden equipment, and marine pleasure craft make up the nonroad sector. Emissions from agricultural burning, prescribed fires, wildfires, and other types of fires are examples of the event-fire sector.

[19] https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

Table 10: 2022 Attainment Year PM_{10}-PRI Emissions Inventory - Weirton, WV PM_{10} Maintenance Area (Tons)

County	Point	Nonpoint	Onroad	Nonroad	Event-Fire	Totals
Brooke	15.77	425.15	9.13	3.64	67.16*	**453.69***
Hancock	38.75	307.12	9.26	2.20	14.72*	**357.34***
Totals:	**54.52**	**732.27**	**18.39**	**5.85**	**81.88***	**811.03***

* Event-Fire emissions are included in Nonpoint emissions. Total emissions have been adjusted to avoid double counting Event-Fire emissions.

Table 11: 2022 Attainment Year SO_2 Emissions Inventory - Weirton, WV PM_{10} Maintenance Area (Tons)

County	Point	Nonpoint	Onroad	Nonroad	Event-Fire	Totals
Brooke	1.10	79.67	0.35	0.08	3.18*	**81.20***
Hancock	25.89	5.50	0.31	0.05	0.39*	**31.75***
Totals:	**26.99**	**85.17**	**0.66**	**0.12**	**3.57***	**112.95***

* Event-Fire emissions are included in Nonpoint emissions. Total emissions have been adjusted to avoid double counting Event-Fire emissions.

Table 12: 2022 Attainment Year NO_x Emissions Inventory - Weirton, WV PM_{10} Maintenance Area (Tons)

County	Point	Nonpoint	Onroad	Nonroad	Event-Fire	Totals
Brooke	158.44	289.72	75.32	52.54	6.33*	**576.02***
Hancock	196.04	195.16	72.42	35.95	0.89*	**499.57***
Totals:	**354.48**	**484.87**	**147.74**	**88.49**	**7.22***	**1,075.59***

* Event-Fire emissions are included in Nonpoint emissions. Total emissions have been adjusted to avoid double counting Event-Fire emissions.

Table 13: 2022 Attainment Year VOC Emissions Inventory, Weirton - WV PM_{10} Maintenance Area (Tons)

County	Point	Nonpoint	Onroad	Nonroad	Event-Fire	Totals
Brooke	235.92	4,035.74	54.96	37.55	75.15*	**4,364.16***
Hancock	102.40	2,605.71	70.81	44.97	15.80*	**2,823.90***
Totals:	**338.32**	**6,641.45**	**125.77**	**82.53**	**90.96***	**7,188.06***

* Event-Fire emissions are included in Nonpoint emissions. Total emissions have been adjusted to avoid double counting Event-Fire emissions.

Table 14: 2022 Attainment Year NH_3 Emissions Inventory - Weirton, WV PM_{10} Maintenance Area (Tons)

County	Point	Nonpoint	Onroad	Nonroad	Event-Fire	Totals
Brooke	0.17	65.96	8.33	0.12	2.49*	**74.58***
Hancock	4.59	56.71	6.92	0.08	0.60*	**68.30***
Totals:	**4.76**	**122.67**	**15.25**	**0.21**	**3.10***	**142.88***

* Event-Fire emissions are included in Nonpoint emissions. Total emissions have been adjusted to avoid double counting Event-Fire emissions.

Comparing Weirton, West Virginia PM_{10} Area emissions during the 1st LMP inventory year of 2001 to those during the 2nd LMP inventory year of 2022 makes it clear that there are significantly lower emissions of PM_{10}-PRI during the 2nd LMP inventory year, with 2001 emissions of 7,973 tons versus 2022 emissions of 811 tons. Except for VOC's, emissions of the PM_{10} precursors are similarly lower from 2001 to 2022. Although Table 7 and Chart 1 do not show emissions for 2001, referring to those should be helpful in visualizing how emissions during the 1st LMP inventory year compare to those during the 2nd LMP inventory year, as the overall trend is the same as for 2002 to 2022.

V. Maintenance Demonstration

On May 24, 2004, West Virginia submitted the initial Limited Maintenance Plan for the Weirton, West Virginia PM_{10} Area, comprising Brooke and Hancock Counties, and on July 14, 2006, the

EPA approved it with an effective date of August 14, 2006[20]. The Plan has been successfully employed since, resulting in zero violations and a few exceedances of the NAAQS PM_{10} limit being recorded at the area's monitors from 2016 – 2023 (due to the 2023 Canadian wildfires) and an Area Design Value well below the Area Critical Design Value from 2017 – 2023, thus demonstrating past and present compliance with the NAAQS and the unlikelihood of future violations. Additionally, motor vehicle emissions in the area are shown to be trending down over time and to be a small part of the overall emissions while projected VMT for the future are decreasing. Therefore, West Virginia has met the qualification for a PM_{10} LMP for the second plan period for the Weirton Area and, consequently, there is no need to project emissions over the maintenance period. This Limited Maintenance Plan will serve as the 2nd maintenance plan for the remainder of the maintenance period (20 years after the effective date or until August 14, 2026) and will ensure continued compliance with the PM_{10} NAAQS.

In accordance with the CAA, areas seeking to be redesignated to attainment under the LMP policy must have an attainment plan that has been approved by the EPA, pursuant to Section 107(d)(3)(E). The plan must include all control measures that were relied on by the state to demonstrate attainment of the NAAQS. The state must also ensure that the CAA requirements for PM_{10} pursuant to Section 110, Part D of the Act have been satisfied. To comply with the statute, the LMP should clearly indicate that all controls which were relied on to demonstrate attainment will remain in place. If a state wishes to roll back or eliminate controls, the area can no longer qualify for the LMP, and the area will become subject to full maintenance plan requirements within 18 months of the determination that the LMP is no longer in effect.

In this LMP submittal, West Virginia is not seeking to remove any control measures relied upon to demonstrate attainment in its May 24, 2004, Redesignation Request and Maintenance Plan.

West Virginia has adopted permanent and federally enforceable control measures to regulate emission growth. These area control measures have been approved by the EPA and include the permitting rules 45CSR13, "Permits for Construction, Modification, Relocation, and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commence Construction, and Procedures for Evaluation"[21], and 45CSR14, "Permits for Construction and Major Modification of Major

[20] https://www.epa.gov/sites/default/files/2016-06/documents/2001lmp-pm10.pdf

[21] State Effective Date: 06/01/2017, Final Federal Register Date: 10/5/2018, Federal Register Citation #: 83 FR 50266

Stationary Sources for the Prevention of Significant Deterioration of Air Quality"[22]. These permitting rules and requirements will remain in effect through the maintenance plan period. Future issued air permits will incorporate applicable 45CSR13, 45CSR14, and 45CSR16, "Standards of Performance for New Stationary Sources", requirements. In appropriate cases, Consent Orders with specific requirements may be used as a temporary control measure.

Major emission sources proposing to construct new facilities or make a major modification to existing facilities within the area are required to obtain a New Source Review PSD permit through West Virginia state rule 45CSR14. An engineering evaluation and analysis of information pertaining to the source is performed prior to issuance of any permit. The PSD program also requires a modeling demonstration to be performed to ensure ongoing NAAQS compliance and applicable PSD increments are not exceeded.

Permanent and enforceable control measures implemented through air permits and Consent Orders are designed to maintain ambient air quality PM_{10} levels.

VI. Monitoring Network Verification of NAAQS and LMP

Pursuant to Section 103 of the CAA, West Virginia currently operates and maintains a network of ambient PM_{10} air quality monitoring sites in the State. These sites serve to assess ambient air quality levels based on population exposure, industry emissions, determine compliance with the NAAQS, background levels, and other special purposes. Two of these are PM_{10} monitoring sites, which are operated due to an ongoing State Implementation Plan (SIP) Maintenance Plan commitment. Provision for the continued operation of the air monitoring network is provided through federal grant funding.

West Virginia will continue to conduct ambient PM_{10} air quality monitoring in the Weirton Area throughout the term of this Maintenance Plan to verify continued attainment with the PM_{10} NAAQS and to protect any applicable Prevention of Significant Deterioration (PSD) increments. Air quality measurements will be performed in accordance with appropriate regulations and guidance documents along with EPA quality assurance requirements. Monitoring procedures will be determined in accordance with 40 CFR Part 58. As highlighted in the executive summary

[22] State Effective Date: 06/01/2017, Final Federal Register Date: 09/27/2018, Federal Register Citation #: 83 FR 48716

of the 2025 Ambient Air Monitoring Annual Network Plan and SO_2 Data Requirement Rule Annual Report, the DAQ continues to anticipate consolidation of the remaining two air monitoring sites in Brooke County, WV – Follansbee (54-009-0005) and Marland Heights (54-009-0011) which are within four (4) air-miles of one another. Consultation with EPA Region 3 indicates this plan is acceptable, pending final advance approval from EPA Region 3 of the consolidated location, once it has been identified. A continuous PM_{10} monitor will remain in the geographic area through the end of the second 10-year maintenance period and quality-assured PM_{10} data will be submitted to the EPA through the AQS and annually certified by West Virginia throughout the term of this maintenance plan.

VII. Maintenance Tracking Measures

West Virginia proposes to fully update its point, nonpoint, and mobile source emission inventories at 3-year intervals as required by the Air Emissions Reporting Rule (AERR)[23]. These inventories ensure projected area emission growth is sufficiently accurate, and ongoing attainment with the NAAQS is maintained. The WVDEP will review annual point source emissions per the major source permitting rule 45CSR30, "Requirements for Operating Permits" (the Title V operating program), and by annually updating West Virginia's point source emission inventories and submitting this emission data to the EPA's Emissions Inventory System (EIS) in accordance with the AERR. The nonpoint source inventory will be updated at least triennially using the same or similar techniques, methodologies, and tools as developed by the EPA. West Virginia may substitute the EPA nonpoint source categories default input values with West Virginia specific data. The mobile source inventory will be updated no less often than triennially using the current approved Motor Vehicle Emission Simulator (MOVES) model. Like the nonpoint inventory, West Virginia may substitute actual West Virginia mobile data for the EPA's default data. Mobile emissions data may be obtained in consultation with the Weirton Area's Metropolitan Planning Organization (MPO) and using appropriate data and methodology used for Transportation Conformity purposes.

[23] 40 CFR 51, Subpart A

VIII. Contingency Measures

Section 175A of the CAA states that a maintenance plan must include contingency provisions, as necessary, to promptly correct any violation of the NAAQS which may occur after redesignation of the area to attainment. A contingency plan is considered an enforceable part of the SIP. States must ensure that the contingency measures are adopted as soon as possible once they are triggered by a specific event. The contingency plan identifies the measures to be adopted and provides a schedule and procedures for adoption and implementation of the measures if they are required. Normally, the implementation of contingency measures is triggered by a violation of the NAAQS, but the state may establish other triggers to prevent a violation of the NAAQS.

West Virginia is retaining the initial Weirton Area PM_{10} Maintenance Plan Contingency Plan approved by the EPA[24].

1. Warning Level Response.

A warning level response is prompted whenever an exceedance of the PM_{10} standard is recorded at an air monitor in the maintenance area. If the warning level is triggered, the State will review the monitored ambient PM_{10} data, review local monitored meteorological data, and assess compliance of local targeted facilities. If all sources are found to be in compliance with applicable SIP and permit emission limits, the State will perform the necessary analysis to determine the cause(s) of the exceedance and determine what additional control measures are necessary to impose on the area's stationary sources to continue to maintain attainment of the NAAQS.

The only warning level responses triggered for PM_{10} in the Weirton area from 2016 – 2023 occurred in 2023 and the corresponding AQS data was i-flagged "IF". It was determined the exceedances were the result of the widely documented 2023 Canadian wildfires, which were ongoing at the time, and no further action was taken. Exceptional Events demonstrations were not submitted because the exceedances were not considered regulatorily significant under the Exceptional Events Rule.

[24] 71 Fed. Reg. 40023 (July 14, 2006)

2. Action Level Response.

An action level response is prompted whenever three exceedances of the daily PM_{10} standard have been recorded within a 3-year period at an air monitor in the maintenance area. If the action level is triggered, the State will notify subject companies that the potential exists for a NAAQS violation. The subject companies must then prepare a detailed plan of action containing control measures for implementation in the event of a violation. This plan of action shall include an implementation timeline and shall be submitted to the State within 6 months of notification that the potential exists for a violation as discussed above. The final milestone of this action plan and timeline should state that the contingency measures will be implemented no later than 18 months after the State informs the subject companies that a violation of the standard has occurred. Any additional control measures will be submitted to USEPA for approval and incorporation into the SIP.

Three exceedances of the daily PM_{10} standard were not recorded within a 3-year period from 2016 – 2023; therefore, action level response was not triggered for PM_{10} in the Weirton area from 2016 – 2023.

IX. Conformity

The Transportation Conformity regulations (40 CFR, Parts 51 and 93) and the General Conformity regulation (58 FR 63214[25]; November 30, 1993) apply to areas operating under maintenance plans. Under either conformity regulation, one means of demonstrating conformity of Federal actions is to indicate expected emissions from planned actions are consistent with the emissions budget for the area. Per EPA policy, emissions budgets in an LMP area may be treated as essentially not constraining for the length of the maintenance period on the grounds that growth during that time is not expected to trigger a violation of the NAAQS. While this policy does not exempt an area from the need to affirm conformity, it does allow the area to demonstrate conformity without undertaking certain requirements of these regulations. For transportation conformity purposes, the EPA would conclude that emission caps or motor vehicle emission budgets (MVEB) for highway vehicles in these areas are not constraining for the length of the maintenance period of the LMP because one can reasonably expect emissions

[25] https://archives.federalregister.gov/issue_slice/1993/11/30/63202-63259.pdf#page=13

growth in the area will not result in a violation of the NAAQS; therefore for an area under an LMP, a regional emissions analysis would not be required under 40 CFR §93.109 per 40 CFR §93.109(e). Similarly, federal actions subject to the general conformity rule could be considered to satisfy the "budget test" specified in section 93.158 (a)(5)(i)(A) of the rule, for the same reason - that the budgets are essentially considered to be unlimited. Please see this document's Section III, Subsection 2 (LMP Qualification), under Motor Vehicle Growth Expectations for a more detailed analysis of motor vehicle emissions and mileage trends and their insignificance for the air quality in the Weirton Area.

In the first Weirton area PM_{10} Maintenance Plan included in the redesignation request, West Virginia demonstrated to the EPA that impacts from mobile sources in the area are minor compared to the industry-related sources and that conformity would not apply to the area. The EPA approval of the Weirton Area's Maintenance Plan on July 14, 2006 (71 FR 40023[26]) approved West Virginia's transportation conformity insignificant demonstration for PM_{10} and its precursor emissions.

In 40 CFR §93.109(f) of the Transportation Conformity regulations, the regulation specifically addresses areas with insignificant motor vehicle emissions. If the EPA approves an insignificant demonstration for an area through the SIP process, the area is not required to satisfy a regional emissions analysis for §93.118 and/or §93.119 for a given pollutant/precursor and the NAAQS. Although a regional emission analysis is not required, MPO's are still required to comply with other provisions of the Transportation Conformity regulation such as consultation, public review, and hot spot analysis.

West Virginia complies with the Transportation Conformity regulation and a Transportation Conformity regional emission analysis, beyond the one presented herein, is not required under the Weirton Area's second PM_{10} Maintenance Plan, which is an LMP. As previously mentioned, motor vehicle growth was addressed in Section III, Subsection 2, under Motor Vehicle Growth Expectations and are shown to be insignificant.

[26] https://www.govinfo.gov/content/pkg/FR-2006-07-14/pdf/E6-11107.pdf

X. EPA and Public Review

The *Maintenance Plan Revision for the 1987 PM_{10} NAAQS for the Weirton, West Virginia Area Comprising Brooke and Hancock Counties* was submitted to the EPA for formal review on September 11, 2025. The West Virginia Division of Air Quality commenced the public review period for the Weirton Area 2nd PM_{10} LMP on September 12, 2025. The public notice announcing the public comment and notification of public hearing appeared in the September 12, 2025, edition of The Weirton Daily Times and in the September 12, 2025, Volume XLII, Issue 37 of the West Virginia State Register. A public hearing was held virtually on October 14, 2025, at 6:00PM after providing at least 30 days notice. The public review period to accept oral and written comments regarding the proposed 2nd maintenance plan ended upon conclusion of the hearing on October 14, 2025. The public hearing required by 40 CFR § 51.102(a) was held in accordance with the applicable state law and the requirements of 40 CFR § 51.102(d).

Public review documents are provided in ***Appendix D***.

XI. Conclusion

As discussed, the criteria to qualify for a 2nd LMP for the 1987 PM_{10} NAAQS for the Weirton, West Virginia Area were demonstrated. West Virginia needed to show: the area is meeting the NAAQS for PM_{10}, the ADV's for the area and its monitors are less than the CDV's, and there is an expectation the area will not experience enough motor vehicle growth for a PM_{10} NAAQS violation to occur. The data presented in this Plan demonstrates these requirements have been satisfied. There were no PM_{10} NAAQS violations in the area during any three-year period over the eight years of 2016 through 2023. The area's ADV was significantly less than its CDV for the past five three-year periods and the same was true for its individual monitors. Finally, motor vehicle emissions in the area are shown to be trending down over time and to be a small part of the area's overall emissions while projected VMT are shown to be decreasing.

Under consideration of the information presented, West Virginia requests the EPA approve this second limited maintenance plan for the Weirton Area as meeting the requirements of CAA Section 175(A) with respect to the 1987 PM_{10} 24-hour NAAQS. This approved plan will be effective until August 14, 2026, which concludes the 20 year maintenance time frame following redesignation to attainment.

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Appendix A:
Limited Maintenance Plan Option for Moderate PM10 Nonattainment Areas

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

AUG 09 2001

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas

FROM: for John S. Seitz
Lydia Wegman, Director
AQSSD (MD-15)

TO: Director, Office of Ecosystem Protection, Region I
Director, Division of Environmental Planning & Protection, Region II
Director, Air Protection Division, Region III
Director, Air, Pesticides & Toxics Management Division, Region IV
Director, Air and Radiation Division, Region V
Director, Air Pesticides & Toxics, Region VI
Director, Air and Toxics Division, Regions VII, IX
Director, Air Program, Region VIII
Director, Office of Air Quality, Region X

I. What is a Limited Maintenance Plan?

This memorandum sets forth new guidance[1] on maintenance plan submissions for certain moderate particulate matter (PM_{10}) nonattainment areas seeking redesignation to attainment (see section IV for further details on qualifying for the policy). If the area meets the criteria listed in this policy the State may submit a maintenance plan at the time it is requesting redesignation that is more streamlined than would ordinarily be permitted. This new option is being termed a limited maintenance plan (LMP)[2].

II. Why is there a need for a limited maintenance plan policy?

Before the U.S. Court of Appeals for the District of Columbia handed down its decision vacating the 1997 PM_{10} national ambient air quality standards (NAAQS)(see American Trucking Associations, et al. v. Environmental Protection Agency (EPA), 175 F.3d 1027 (D.C. Cir. 1999),

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[1] This memorandum is intended to provide EPA's preliminary views on how certain moderate PM10 nonattainment areas may qualify to submit a maintenance plan that meets certain limited requirements. Since it represents only the Agency's preliminary thinking that is subject to modification, this guidance is not binding on States, Tribes, the public, or EPA. Issues concerning the applicability of the limited maintenance plan policy will be addressed in actions to redesignate moderate PM10 nonattainment areas under § 107 of the CAA. It is only when EPA promulgates redesignations applying this policy that those determinations will become binding on States, Tribes, the public, and EPA as a matter of law.

[2] Moderate PM_{10} areas that do not meet the applicability criteria of this policy, and all serious PM_{10} nonattainment areas. should submit maintenance plans that meet our guidance for submission of a full maintenance plan as described in the September 4, 1992 memorandum. "Procedures for Processing Requests to Redesignate Areas to Attainment," from John Calcagni. former Director of the Office of Air Quality Planning and Standards (OAQPS) Air Quality management Division to the Regional Air Division Directors (hereafter known as the Calcagni Memo).

we were prepared to make case-by-case determinations that would make the 1987 PM_{10} NAAQS no longer applicable in any area meeting the standards. In taking actions to remove the applicability of the 1987 NAAQS, we would have removed, as well, the nonattainment designation and Clean Air Act (CAA) part D requirements from qualifying areas. As a result of the D.C. Circuit's decision, for areas subject to the 1987 NAAQS, the only route to recognized attainment of the NAAQS and removal of nonattainment status and requirements is formal redesignation to attainment, including submittal of a maintenance plan. Since many areas have been meeting the PM_{10} NAAQS for 5 years or more and have a low risk of future exceedances, we believe a policy that would allow both the States and EPA to redesignate speedily areas that are at little risk of PM_{10} violations would be useful.

III. How did EPA develop the approach used in the LMP option?

The EPA has studied PM_{10} air quality data information for the entire country over the past eleven years (1989-1999) and has determined that some moderate PM_{10} nonattainment areas have had a history of low PM10 design values with very little inter-annual variation. When we looked at all the monitoring sites reporting data for those years, the data indicate that most of the average design values fall below 2 levels, 98 :g/m^3 for the 24-hr PM_{10} NAAQS and 40 :g/m^3 for the annual PM_{10} NAAQS. For most monitoring sites these levels are also below their individual site-specific critical design values (CDV). The CDV is an indicator of the likelihood of future violations of the NAAQS given the current average design value and its variability. The CDV is the highest average design value an area could have before it may experience a future exceedance of the NAAQS with a certain probability. A detailed explanation of the CDV is found in Attachment A[3] to this policy which, because of its length, is a separate document accompanying this memorandum.

We believe that the very small amount of variation between the peaks and means in most of the data indicates a very stable relationship that can be reasonably expected to continue in the future absent any significant changes in emissions. The period we assessed provides a fairly long historical record and the data could therefore be expected to have been affected by a full range of meteorological conditions over the period. Therefore, the amount of emissions should be the only variable that could affect the stability in the air quality data. We believe we can reliably make estimates about the future variability of PM_{10} concentrations across the country based on our statistical analysis of this data record, especially in areas where the amount of emissions is not expected to change.

IV. How do I qualify for the LMP option ?

To qualify for the limited maintenance plan option, an area should meet the following applicability criteria. The area should be attaining the NAAQS and the average PM_{10} design

[3] Dr. Shao-Hang Chu's paper entitled "Critical Design Value and Its Applications" explains the CDV approach and is included in its entirety in Attachment A. This paper has been accepted for publication and presentation at the 94th Air and Waste Management Association (A&WMA) Annual Conference in June 2001 in Orlando, Florida.

value[4] for the area, based upon the most recent 5 years of air quality data at all monitors in the area, should be at or below 40 :g/m^3 for the annual and 98 :g/m^3 for the 24-hr PM_{10} NAAQS with no violations at any monitor in the nonattainment area[5]. If an area cannot meet this test it may still be able to qualify for the LMP option if the average design values of the site are less than their respective site-specific CDV.

We believe it is appropriate to offer this second method of qualifying for the LMP because, based on the air quality data we have studied, we believe there are some monitoring sites with average design values above 40 :g/m^3 or 98 :g/m^3, depending on the NAAQS in question, that have experienced little variability in the data over the years. When the CDV calculation was performed for these sites we discovered that their average design values are less than their CDVs, indicating that the areas have a very low probability (1 in 10) of exceeding the NAAQS in the future. We believe it is appropriate to provide these areas the opportunity to qualify for the LMP in this circumstance since the 40 :g/m^3 or 98 :g/m^3 criteria are based on a national analysis and don't take into account each local situation.

The final criterion is related to mobile source emissions. The area should expect only limited growth in on-road motor vehicle PM_{10} emissions (including fugitive dust) and should have passed a motor vehicle regional emissions analysis test. It is important to consider the impact of future transportation growth in the LMP, since the level of PM-10 emissions (especially from fugitive dust) is related to the level of growth in vehicle miles traveled (VMT). Attachment B (below) should be used for making the motor vehicle regional emissions analysis demonstration.

If the State determines that the area in question meets the above criteria, it may select the LMP option for the first 10 year maintenance period. Any area that does not meet these criteria should plan to submit a full maintenance plan that is consistent with our guidance in the Calcagni Memo in order to be redesignated to attainment. If the LMP option is selected, the State should continue to meet the qualifying criteria until EPA has redesignated the area to attainment. If an area no longer qualifies for the LMP option because a change in air quality affects the average design values before the redesignation takes effect, the area will be expected to submit a full maintenance plan.

Once an area selects the LMP option and it is in effect, the State will be expected to recalculate the average design value for the area annually and determine if the criteria used to qualify for the LMP will still be met. If, after performing the annual recalculation of the area's average design value in a given year, the State determines that the area no longer qualifies for the LMP, the State should take action to attempt to reduce PM_{10} concentrations enough to requalify for the LMP. One possible approach the State could take is to implement a contingency measure

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[4]The methods for calculating design values for PM_{10} are presented in a document entitled the "PM_{10} SIP Development Guideline", EPA-450/2-86-001, June 1987. The State should determine the most appropriate method to use from this Guideline in consultation with the appropriate EPA Regional office staff.

[5]If the EPA determines that the meteorology was not representative during the most recent five-year period, we may reject the State's request to use the LMP option and request, instead, submission of a full maintenance demonstration.

or measures found in its SIP. If, in the next annual recalculation the State is able to re-qualify for the LMP, then the LMP will go back into effect. If the attempt to reduce PM_{10} concentrations fails, or if it succeeds but in future years it becomes necessary again to address increasing PM_{10} concentrations in the area, that area no longer qualifies for the LMP. We believe that repeated increases in PM_{10} concentrations indicate that the initial conditions that govern air quality and that were relied on to determine the area's qualification for the LMP have changed, and that maintenance of the NAAQS can no longer be assumed. Therefore, the LMP cannot be reinstated by further recalculations of the design values at this point. Once the LMP is determined to no longer be in effect, a full maintenance plan should be developed and submitted within 18 months of the determination.

Treatment of data used to calculate the design values.

Flagged Particulate Matter Data:

Three policies allow PM-10 data to be flagged for special consideration:

- Exceptional Events Policy (1986) for data affected by infrequent events such as industrial accidents or structural fires near a monitoring site;
- Natural Events Policy (1996) for data affected by wildfires, high winds, and volcanic and seismic activities, and;
- Interim Air Quality Policy on Wildland and Prescribed Fires for data affected by wildland fires that are managed to achieve resource benefits.

We will treat data affected by these events consistently with these previously-issued policies. We expect States to consider all data (unflagged and flagged) when determining the design value. The EPA Regional offices will work with the State to determine the validity of flagged data. Flagged data may be excluded on a case-by-case basis depending on State documentation of the circumstances justifying flags. Data flagged as affected by exceptional or natural events will generally not be used when determining the design value. However, in order for data affected by a natural event to be excluded, an adequate Natural Events Action Plan is required as described in the Natural Events policy.

Data flagged as affected by wildland and prescribed fires will be used in determining the design value. If the State is addressing wildland and prescribed fire use with the application of smoke management programs, the State may submit an LMP if the design value is too high only as a result of the fire-affected data.

We are in the process of developing a policy to address agricultural burning. When it is finalized we will amend the LMP option to account

for the new policy.

V. What should an LMP consist of?

Under the LMP, we will continue to satisfy the requirements of Section 107(d)(3)(E) of the Act which provides that a nonattainment area can be redesignated to attainment only if the following criteria are met:

1. The EPA has determined that the NAAQS for the applicable pollutant has been attained.
2. The EPA has fully approved the applicable implementation plan under section 110(k).
3. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.
4. The State has met all applicable requirements for the area under section 110 and part D.
5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area under section 175A.

However, there are some differences between what our previous guidance (the Calcagni memo) recommends that States include in a maintenance plan submission and what we are recommending under this policy for areas that qualify for the LMP. The most important difference is that under the LMP the demonstration of maintenance is presumed to be satisfied. The following is a list of core provisions which should be included in an LMP submission. Note that any final EPA determination regarding the adequacy of an LMP will be made following review of the plan submitted in light of the particular circumstances facing the area proposed for redesignation and based upon all available information.

a. Attainment Plan

The State's approved attainment plan should include an emissions inventory (attainment inventory) which can be used to demonstrate attainment of the NAAQS. The inventory should represent emissions during the same five-year period associated with the air quality data used to determine whether the area meets the applicability requirements of this policy (i.e., the most recent five years of air quality data). If the attainment inventory year is not one of the most recent five years, but the State can show that the attainment inventory did not change significantly during that five-year period, it may still be used to satisfy the policy. If the attainment inventory is determined to not be representative of the most recent 5 years, a new inventory must be developed. The State should review its inventory every three years to ensure emissions growth is incorporated in the attainment inventory if necessary.

b. Maintenance Demonstration

The maintenance demonstration requirement of the Act will be considered to be satisfied for the moderate PM_{10} nonattainment areas meeting the air quality criteria discussed above. If

the tests described in Section IV are met, we will treat that as a demonstration that the area will maintain the NAAQS. Consequently, there is no need to project emissions over the maintenance period.

c. Important elements that should be contained within the redesignation request

1. Monitoring Network Verification of Continued Attainment

To verify the attainment status of the area over the maintenance period, the maintenance plan should contain a provision to assure continued operation of an appropriate, EPA-approved air quality monitoring network, in accordance with 40 CFR part 58. This is particularly important for areas using an LMP because there will be no cap on emissions.

2. Contingency Plan

Section 175A of the Act states that a maintenance plan must include contingency provisions, as necessary, to promptly correct any violation of the NAAQS which may occur after redesignation of the area to attainment. These contingency measures do not have to be fully adopted at the time of redesignation. However, the contingency plan is considered to be an enforceable part of the SIP and the State should ensure that the contingency measures are adopted as soon as possible once they are triggered by a specific event. The contingency plan should identify the measures to be adopted, and provide a schedule and procedure for adoption and implementation of the measures if they are required. Normally, the implementation of contingency measures is triggered by a violation of the NAAQS but the State may wish to establish other triggers to prevent a violation of the NAAQS, such as an exceedance of the NAAQS.

3. Approved attainment plan and section 110 and part D CAA requirements:

In accordance with the CAA, areas seeking to be redesignated to attainment under the LMP policy must have an attainment plan that has been approved by EPA, pursuant to section 107(d)(3)(E). The plan must include all control measures that were relied on by the State to demonstrate attainment of the NAAQS. The State must also ensure that the CAA requirements for PM_{10} pursuant to section 110 and part D of the Act have been satisfied. To comply with the statute, the LMP should clearly indicate that all controls that were relied on to demonstrate attainment will remain in place. If a State wishes to roll back or eliminate controls, the area can no longer qualify for the LMP and the area will become subject to full maintenance plan requirements within 18 months of the determination that the LMP is no longer in effect.

V. How is Conformity treated under the LMP option?

The transportation conformity rule (40 CFR parts 51 and 93) and the general conformity rule (58 FR 63214; November 30, 1993) apply to nonattainment areas and maintenance areas operating under maintenance plans. Under either conformity rule one means of demonstrating conformity of Federal actions is to indicate that expected emissions from planned actions are consistent with the emissions budget for the area. Emissions budgets in LMP areas may be treated as essentially not constraining for the length of the maintenance period because it is unreasonable to expect that an area satisfying the LMP criteria will experience so much growth during that period of time such that a violation of the PM_{10} NAAQS would result. While this policy does not exempt an area from the need to affirm conformity, it does allow the area to demonstrate conformity without undertaking certain requirements of these rules. For transportation conformity purposes, EPA would be concluding that emissions in these areas need not be capped for the maintenance period, and, therefore, a regional emissions analysis would not be required. Similarly, Federal actions subject to the general conformity rule could be considered to satisfy the "budget test" specified in section 93.158 (a)(5)(i)(A) of the rule, for the same reasons that the budgets are essentially considered to be unlimited.

EPA approval of an LMP will provide that if the LMP criteria are no longer satisfied and a full maintenance plan must be developed to meet CAA requirements (see Calcagni Memo referenced in footnote #2 for full maintenance plan guidance), the approval of the LMP would remain applicable for conformity purposes only until the full maintenance plan is submitted and EPA has found its motor vehicle emissions budgets adequate for conformity purposes under 40 CFR parts 51 and 93. EPA will condition its approval of all LMPs in this fashion because in the case where the LMP criteria are not met and a full maintenance plan is required EPA believes that LMPs would no longer be an appropriate mechanism for assuring maintenance of the standards.

For further information concerning the LMP option for moderate PM_{10} areas please

contact Gary Blais at (919) 541-3223, or for questions about the CDV approach contact Dr. Shao-Hang Chu at (919) 541-5382. For information concerning transportation conformity requirements, please contact Meg Patulski of the Office of Transportation and Air Quality at (734) 214-4842.

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ATTACHMENT B:
MOTOR VEHICLE REGIONAL ANALYSIS METHODOLOGY

The following methodology is used to determine whether increased emissions from on-road mobile sources could, in the next 10 years, increase concentrations in the area and threaten the assumption of maintenance that underlies the LMP policy. This analysis must be submitted and approved in order to be eligible for the LMP option.

The following equation should be used:

$DV + (VMT_{pi} \times DV_{mv}) \# MOS$

Where:

DV	=	the area's design value based on the most recent 5 years of quality assured data in $\mu g/m^3$
VMT_{pi}	=	the projected % increase in vehicle miles traveled (VMT) over the next 10 years
DV_{mv}	=	motor vehicle design value based on on-road mobile portion of the attainment year inventory in $\mu g/m^3$
MOS	=	margin of safety for the relevant PM-10 standard for a given area: 40 $\mu g/m^3$ for the annual standard or 98 $\mu g/m^3$ for the 24-hour standard

Please note that DV_{mv} is derived by multiplying DV by the percentage of the attainment year inventory represented by on-road mobile sources. This variable should be based on both primary and secondary PM_{10} emissions of the on-road mobile portion of the attainment year inventory, including re-entrained road dust.

States should consult with EPA regarding the three inputs used in the above calculation, and all EPA comments and concerns regarding inputs and results should be addressed prior to submitting a limited maintenance plan and redesignation request.

The VMT growth rate (VMT_{pi}) should be calculated through the following methods:

1) an extrapolation of the most recent 10 years of Highway Performance Monitoring System (HPMS) data over the 10-year period to be addressed by the limited maintenance plan; and

2) a projection of VMT over the 10-year period that would be covered by the limited maintenance plan, using whatever method is in practice in the area (if different than #1).

Areas where method #1 is the current practice for calculating VMT do not also have to do calculation #2, although this is encouraged. All other areas should use methods #1 and #2, and VMT_{pi} is whichever growth rate produced by methods #1 and #2 is highest. Areas will be expected to use transportation models for method #2, if transportation models are available.

Areas without transportation models should use reasonable professional practice.

Examples

1. DV = 80 : g/m^3
   VMT_{pi} = 36%
   DV_{mv} = 30 : g/m^3
   MOS = 98 : g/m^3 for 24-hour PM-10 standard

   80 + (.36 * 30) = 91

   Less than 98 – Area passes regional analysis criterion.

2. DV = 35 : g/m^3
   VMT_{pi} = 25%
   DV_{mv} = 6 : g/m^3
   MOS = 40 : g/m^3 for annual PM-10 standard

   35 + (.25 * 6) = 37

   Less than 40 – Area passes regional analysis criterion.

3. DV = 115 : g/m^3
   VMT_{pi} = 25%
   DV_{mv} = 60 : g/m^3
   MOS = 98 : g/m^3 for 24-hour PM-10 standard

   115 + (.25 * 60) = 130

   More than 98 – Area does not pass criterion. Full section 175A maintenance plan required.

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Appendix B:
Guidance on the Limited Maintenance Plan Option for Moderate PM2.5 Nonattainment Areas and PM2.5 Maintenance Areas

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

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Guidance on the Limited Maintenance Plan Option for Moderate $PM_{2.5}$ Nonattainment Areas and $PM_{2.5}$ Maintenance Areas

United States Environmental Protection Agency

Guidance on the Limited Maintenance Plan Option for Moderate $PM_{2.5}$ Nonattainment Areas and $PM_{2.5}$ Maintenance Areas

Air Quality Policy Division
Air Quality Assessment Division
Office of Air Quality Planning and Standards

Transportation and Climate Division
Office of Transportation and Air Quality

Office of Air and Radiation
U.S. Environmental Protection Agency

EPA United States Environmental Protection Agency

EPA-420-B-22-044
October 2022

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Section 1: Purpose and Applicability

This document clarifies the EPA's Limited Maintenance Plan (LMP) guidance for $PM_{2.5}$ maintenance plan submissions by state, local, and tribal air agencies.[1] Unless otherwise stated, this guidance applies for any existing $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) and for any future $PM_{2.5}$ NAAQS.

This $PM_{2.5}$ LMP Guidance applies the attached 2001 *Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas* guidance[2] (PM_{10} LMP Guidance) for $PM_{2.5}$ LMP submissions, except for the specific topics addressed below, where the 2001 guidance is superseded. This document therefore focuses on distinctions specific for $PM_{2.5}$ LMPs. For a broader discussion on LMPs generally, see the PM_{10} LMP Guidance.

Moderate $PM_{2.5}$ nonattainment areas or existing $PM_{2.5}$ maintenance areas meeting the criteria in this guidance may demonstrate maintenance for purposes of Clean Air Act (CAA) section 175A using the method described below. To show that an area is expected to continue to attain the standard for the 10-year maintenance period, this method relies primarily on air quality analyses indicating that there would be a low probability of violating the standard in the future, rather than using air quality modeling or a projection of an area's emissions inventory for a future year. As discussed in the PM_{10} LMP Guidance, an air agency submitting an LMP is not required to submit a future year emissions inventory, but it is still required to submit the other elements of a maintenance plan—an attainment year emissions inventory, provisions for continued operation of the monitoring network, verification of continued attainment, and a contingency plan.[3] Any LMP for a $PM_{2.5}$ area must also meet the applicable requirements of the exceptional events/data modifications, transportation conformity, and general conformity programs, as set forth in relevant implementing regulations for each program. Many of the requirements associated with these programs are described further below.

As noted, the LMP is a tool that allows certain nonattainment and maintenance areas to provide for maintenance under CAA section 175A based on an analysis of current and historical air quality data, rather than modeling or emissions projections. As such, using an LMP to provide for maintenance is not appropriate where an area expects to experience significant emissions growth, or even anticipates that such growth may be possible, during the relevant 10-year maintenance time period. In those situations, in order to meet the statutory requirement to provide for maintenance, the air agency should use the long-standing methods included in a "full maintenance plan" to demonstrate that the area will maintain the NAAQS even considering those projected emissions increases. There are a number of additional considerations that also may be

[1] The remainder of this document will refer to "state, local, and tribal air agencies" as either "air agency" or "air agencies."

[2] The *Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas* guidance (including attachments) was issued on August 9, 2001 and can also be found at: www.epa.gov/state-and-local-transportation/2001-limited-maintenance-plan-moderate-pm10-and-attachment.

[3] PM_{10} LMP Guidance at 6-7. *See also Procedures for Processing Requests to Redesignate Areas to Attainment*, September 4, 1992 (Calcagni Memorandum), available at: www.epa.gov/sites/default/files/2016-03/documents/calcagni_memo_-_procedures_for_processing_requests_to_redesignate_areas_to_attainment_090492.pdf.

relevant to whether an LMP is appropriate for a $PM_{2.5}$ area. For example, because of the health risks presented by exposure to $PM_{2.5}$ and possibility of emissions growth,[4] an LMP would likely not be appropriate for the first maintenance plan for a Moderate $PM_{2.5}$ area[5] that includes a major metropolitan area.[6] However, an LMP may be appropriate for an area's first $PM_{2.5}$ maintenance plan in an isolated rural area, or in a smaller metropolitan area where the $PM_{2.5}$ air quality problem is due to a specific source or sources unrelated to on-road transportation emissions and where emissions growth is not anticipated. Areas that have already been redesignated to attainment and are submitting a second maintenance plan under CAA section 175A(b) may be candidates particularly well-suited for an LMP, especially if air quality concentrations in the area have been relatively stable during the first 10-year maintenance period, indicating that emissions growth is unlikely. At a minimum, EPA intends to evaluate information provided by an air agency against the criteria in this guidance and associated regulations to determine whether a $PM_{2.5}$ LMP is appropriate for a given area.

This document is intended solely as guidance. The statutory provisions and EPA regulations discussed in this document contain legally binding requirements. However, this document is not a regulation itself, nor does it change or substitute for statutory provisions and regulations. Thus, it does not impose legally binding requirements on state, local, or tribal agencies or EPA. EPA retains the discretion to consider and adopt approaches on a case-by-case basis that may differ from this guidance, but still comply with the statute and regulations.

Questions about the application of this guidance for specific areas should be addressed to an EPA Regional Office SIP program contact. See this site for a list of Regional Office contacts: https://www.epa.gov/air-quality-implementation-plans/find-regional-contact-air-quality-sipsfipstips.

A copy of this policy guidance can be found at the following websites:

- https://www.epa.gov/pm-pollution/implementation-national-ambient-air-quality-standards-naaqs-fine-particulate-matter
- https://www.epa.gov/state-and-local-transportation/policy-and-technical-guidance-state-and-local-transportation#state

[4] For more information on the health and environmental effects of PM, see www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm.

[5] Consistent with the PM_{10} LMP Guidance, air agencies in Serious $PM_{2.5}$ nonattainment areas should submit maintenance plans that meet EPA's guidance for submission of a full maintenance plan for their first maintenance plan.

[6] A major metropolitan area, for example, could be an area that has an urbanized area population greater than 200,000. (This population threshold is used in other transportation conformity provisions.)

Section 2: Critical Design Value for $PM_{2.5}$

2.1 Overview

It is important to note that this LMP guidance for $PM_{2.5}$ areas does not include the concept of broadly applicable LMP air quality concentration criteria for the annual and 24-hour $PM_{2.5}$ NAAQS, as was included for the PM_{10} guidance.[7] Rather, this $PM_{2.5}$ LMP Guidance relies on the critical design value (CDV) concept (explained in Appendix A of the PM_{10} guidance), which is used to reflect the unique variability of air quality concentrations for each monitoring site. To be eligible for a $PM_{2.5}$ LMP, the air agency should calculate the site-specific CDV for the monitoring site with the highest design value and all other active monitoring sites with complete data in the relevant nonattainment or maintenance area. The air agency should demonstrate that the average design value (ADV) for each site in the area, based on the most recent 5 consecutive $PM_{2.5}$ design values,[8] does not exceed the associated CDV for each site. If each site in the nonattainment area has an ADV that is less than the CDV, it would demonstrate that the area has $PM_{2.5}$ concentrations that will likely remain below the level of the standard in the future.

CDVs are described in the PM_{10} LMP Guidance as "an indicator of the likelihood of future violations of the NAAQS given the current average design value and its variability." Consistent with the approach described in the PM_{10} LMP Guidance, the CDV calculation for a particular $PM_{2.5}$ monitoring site involves parameters including: 1) the level of the relevant NAAQS; 2) the co-efficient of variation of recent design values; and 3) a statistical parameter corresponding to a 10% probability of exceedance. CDVs are inversely related to the site's design value variability, with higher variability resulting in a lower (or more stringent) CDV. The site's average design value (ADV), calculated from the most recent 5 consecutive design values, is then compared to the CDV. If the ADV is lower than the CDV, then the probability of a future exceedance is less than 10%.

Although the PM_{10} LMP Guidance only included calculations for the PM_{10} CDV, the same procedure has been applied to $PM_{2.5}$ design values by Chu and Paisie in their 2006 evaluation of current $PM_{2.5}$ conditions across the United States.[9] In addition to the conservative "10% probability of exceedance" statistical parameter used in the CDV calculation, decreasing

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[7] The broadly applicable LMP air quality concentration criteria included in the 2001 PM_{10} Guidance were 98 $\mu g/m^3$ for the 24-hour PM_{10} standard and 40 $\mu g/m^3$ for the annual PM_{10} standard. In general, a PM_{10} LMP submission would be approvable if the area average design value (ADV) did not exceed these levels. In Attachment B of the 2001 PM_{10} LMP guidance, these levels are referred to as "margin of safety" values. This $PM_{2.5}$ guidance does not include such national default air quality threshold qualification levels, but instead relies on area-specific critical design values.

[8] Attachment A of the 2001 PM_{10} guidance refers to using "a minimum of five years of data" for calculating the ADV and CDV. EPA recommends that the ADV be calculated using at least five years of design values, each representing a three-year period, because this approach would rely on a more robust dataset. However, we acknowledge that an alternative interpretation may be acceptable, where these variables could be calculated using three years of design values, collectively representing five years of air quality data.

[9] Chu, Shao-Hang and Joseph Paisie, 2006. An evaluation of current $PM_{2.5}$ conditions in the U.S. Atmospheric Environment, Volume 40, Supp. 2, Pages 206-211. www.sciencedirect.com/science/article/abs/pii/S1352231006005723.

concentrations in recent years across much of the United States further reduces the probability of future exceedances.[10,11]

Additionally, to the extent that the air agency is submitting a second 10-year maintenance plan for $PM_{2.5}$, a record showing that the area design value is lower than the CDV, coupled with air quality data demonstrating the area has already been maintaining the NAAQS for at least 8 years, provides EPA with further confidence that the area will continue to maintain the relevant $PM_{2.5}$ standard.

Example Site Calculation: Comparing Average Design Value to the Critical Design Value

The following is an example calculation of the ADV for a single monitoring site in a hypothetical 24-hour $PM_{2.5}$ nonattainment area, and comparison to the site's CDV. In calculating the ADV for a site, EPA recommends using the most recent 5 consecutive 3-year design values to better account for variability of air quality data in a particular location. The air agency should perform this calculation for the site in the area that commonly has the highest design value, and for all other active monitoring sites. Notwithstanding consideration of other factors, the EPA believes it would be appropriate to approve an LMP only when the ADV is less than the associated CDV for each site in the area.

EQUATIONS

Critical Design Value: $CDV = NAAQS / (1+(t_c \times CV))$

Coefficient of Variation: CV = (standard deviation for sample / average design value) = σ/ADV

VARIABLES

NAAQS ($\mu g/m^3$): Level of relevant annual or 24-hour $PM_{2.5}$ NAAQS

t_c (Critical t-value): 1.533[12]

YEARS	DESIGN VALUES FOR SITE (in $\mu g/m^3$)
2015-2017	17
2016-2018	14
2017-2019	13
2018-2020	15
2019-2021	18

Avg Design Value (ADV) = 15.4

[10] See https://www.epa.gov/air-trends.

[11] Elizabeth A.W. Chan, Brett Gantt, Stephen McDow, 2018. The reduction of summer sulfate and switch from summertime to wintertime $PM_{2.5}$ concentration maxima in the United States, Atmospheric Environment, Volume 175, 2018, Pages 25-32. www.sciencedirect.com/science/article/pii/S1352231017308166.

[12] The critical t-value of 1.533 is based on an ADV calculation using five consecutive 3-year design values and the one-tail Student's t-distribution at a significance level of 0.10. If only three 3-year design values are used to calculate the ADV, the critical t-value would be 1.886.

CDV CALCULATION

24-hr NAAQS (µg/m^3)	35
ADV (µg/m^3)	**15.4**
σ (std. deviation for sample)	2.07

CV = σ/ADV = (2.07 / 15.4) = 0.13
CDV (µg/m^3) = 35 / (1+(1.533*0.13)) = **29.0**
ADV < CDV? **YES**

2.2 EVENT-INFLUENCED AIR QUALITY DATA

The EPA's Exceptional Events Rule[13] implements CAA section 319(b)(2), which requires the Administrator to promulgate regulations "governing the review and handling of air quality monitoring data influenced by an exceptional event." Pursuant to CAA section 319(b)(3)(B)(iv), the Exceptional Events Rule provides "criteria and procedures for the Governor of a state to petition the Administrator to exclude air quality monitoring data that is directly influenced by exceptional events from use in determinations by the Administrator with respect to exceedances or violations of the national ambient air quality standards [(NAAQS)]." The Rule specifies the types of actions that qualify as "determinations by the Administrator" and therefore must follow the process and requirements in the Exceptional Events Rule, but the Rule also identifies that it may be appropriate to exclude atypical or unrepresentative data for other types of actions that do not qualify as "determinations by the Administrator."

In April of 2019, EPA expanded on this concept by releasing the *Additional Methods, Determinations, and Analyses to Modify Air Quality Data Beyond Exceptional Events (Additional Methods)* guidance, which clarifies the types of regulatory determinations, actions and analyses, including LMPs, for which EPA may consider certain modified air quality monitoring data.[14] The Additional Methods guidance supersedes any related prior approach for data exclusion identified in the 2001 PM_{10} LMP Guidance, and is the appropriate data exclusion guidance to apply in the context of this $PM_{2.5}$ LMP Guidance. Specifically, the *Additional Methods* guidance indicates that atypical or unrepresentative monitoring data could qualify for exclusion for use in calculating air quality design values in support of an LMP submission and any subsequent yearly design value calculations for areas with approved LMPs. The *Additional Methods* guidance identifies that air quality monitoring data above the NAAQS-specific LMP threshold will be treated in a manner analogous to the treatment of exceedance data under the Exceptional Events Rule provided the impacted data otherwise satisfy the general definition and criteria for exceptional events. Because the $PM_{2.5}$ LMP Guidance does not provide a NAAQS-specific LMP threshold, air agencies are strongly encouraged to consult with their EPA Regional office counterparts where exceptional/atypical events-related questions arise in the context of an LMP prior to investing significant resources in developing exceptional events-like analyses.

[13] The Exceptional Events Rule was last revised by EPA in 2016. See 81 FR 68216 (Oct. 3, 2016).
[14] *See Additional Methods, Determinations, and Analyses to Modify Air Quality Data Beyond Exceptional Events* (Apr. 4, 2019), available at www.epa.gov/sites/default/files/2019-04/documents/clarification_memo_on_data_modification_methods.pdf.

2.3 AIR QUALITY REVIEW

As is the case for any maintenance plan, the LMP is expected to identify how the air agency intends to track the progress of the maintenance plan. Consistent with the PM_{10} LMP Guidance, an air agency may do its periodic progress tracking by regularly recalculating the ADV (average of 5 consecutive 3-year design values) for all the sites with complete data in the area, and determining if the ADV is still less than the CDV for each site. Under this approach, if the air agency determines that the ADV is not less than the CDV for all sites, the air agency should take appropriate, early action to identify approaches to address the air quality trend and prevent a violation of the NAAQS. Should a violation of the NAAQS occur, EPA may also use its authority under the CAA to take actions necessary to ensure the area comes back into attainment.

Section 3: Transportation Conformity

Transportation conformity is required under CAA section 176(c) (42 U.S.C. 7506(c)) to ensure that federally funded or approved highway and transit activities are consistent with ("conform to") the purpose of the SIP. Conformity to the purpose of the SIP means that transportation activities will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS or any interim milestones.

The transportation conformity regulations (40 CFR Part 93, subpart A) establish criteria and procedures for determining whether metropolitan transportation plans, transportation improvement programs (TIPs), and federally supported highway and transit projects conform to the SIP. These regulations provide for some flexibility when EPA has established an LMP policy for a given NAAQS and pollutant, as explained in a previous EPA transportation conformity rulemaking[15] and the current transportation conformity regulations at 40 CFR 93.109(e). This guidance establishes EPA's LMP policy for the $PM_{2.5}$ NAAQS. The transportation conformity-related portions of the attached PM_{10} LMP Guidance do not apply for $PM_{2.5}$ transportation conformity unless otherwise indicated.

The transportation conformity regulations require that:

> *A limited maintenance plan would have to demonstrate that it would be unreasonable to expect that such an area would experience enough motor vehicle emissions growth for a NAAQS violation to occur.*[16]

As described above, a $PM_{2.5}$ LMP may be submitted for a first and/or second 10-year maintenance plan with documentation that supports the LMP demonstration described under the transportation conformity regulations. The following are examples of how such an LMP demonstration could be developed to address section 93.109(e) of the transportation conformity regulations for a given area:

- As discussed above, an LMP for the first maintenance plan may be appropriate in isolated rural areas or in smaller metropolitan areas where the $PM_{2.5}$ air quality problem is due to a specific source or sources unrelated to on-road transportation emissions (see footnote 6). Therefore, an LMP submission for an area's first maintenance plan should address, in addition to air quality data trends, factors affecting the area's on-road mobile source challenges, including its size, whether it includes a metropolitan planning organization, its main sources of $PM_{2.5}$ emissions, and its historical and projected vehicle miles travelled (VMT).
- As noted in Section 1, an LMP may be particularly appropriate for a second maintenance plan, as the area will have demonstrated attainment of the $PM_{2.5}$ NAAQS for at least 8 years. To meet the requirement in the transportation conformity regulation, i.e., demonstrate that it would be unreasonable to expect that the area would experience enough motor vehicle growth for a NAAQS violation to occur, an LMP submission for

[15] See 69 FR 40063, July 1, 2004.
[16] See 40 CFR 93.109(e).

an area's second maintenance plan should again address the area's $PM_{2.5}$ air quality trends and its historical and projected VMT.

Finally, if emissions of re-entrained road dust have been found to be significant for $PM_{2.5}$ transportation conformity purposes under 40 CFR 93.102(b)(3), e.g., those emissions have been included in regional emissions analyses as part of transportation conformity determinations, then the LMP submission from the air agency should also include an on-road $PM_{2.5}$ emission analysis consistent with the methodology in Attachment B of the PM_{10} LMP Guidance. EPA acknowledges that this on-road emission analysis will not be needed for first or second LMP submissions for most $PM_{2.5}$ areas based on EPA's implementation of the $PM_{2.5}$ NAAQS to date.

If the on-road emissions analysis is necessary, the LMP submission should only include on-road emissions of direct $PM_{2.5}$ (tailpipe, brake wear, tire wear and re-entrained road dust). As discussed in Section 2.1 of this document, the concept of broadly applicable LMP air quality concentration criteria for the annual and 24-hour $PM_{2.5}$ NAAQS ("margins of safety") is not included in this guidance. Therefore, when performing such an onroad emissions analysis, the air agency should use the CDV for the area rather than the "margin of safety." If the onroad $PM_{2.5}$ emissions analysis is required, the air agency must show that for each monitoring site in the area, the ADV plus the on-road emissions growth estimate does not exceed the CDV.

The transportation conformity interagency consultation process must also be used to discuss the development of any LMP submission.[17] EPA Regional SIP and transportation conformity staff will work together and provide technical assistance as needed for this component of the $PM_{2.5}$ LMP.

Where an area has an adequate[18] or approved $PM_{2.5}$ LMP developed under this guidance, a transportation plan or TIP conformity determination would not include a regional emissions analysis for that $PM_{2.5}$ NAAQS.[19] However, transportation plan and TIP conformity determinations that meet applicable requirements continue to be required in these areas (see Table 1 in 40 CFR 93.109). The existing requirement for a regional emissions analysis also continues to apply for any other pollutants or standards for which transportation conformity applies in the area but which are not the subject of an LMP (40 CFR 93.109). In addition, project-level conformity determinations must continue to be completed according to all applicable requirements for federally supported highway and transit projects, including the hot-spot requirements for projects in CO, PM_{10} and $PM_{2.5}$ nonattainment and maintenance areas.[20]

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[17] *See* 40 CFR 93.105(b).

[18] EPA's adequacy process is described in 40 CFR 93.118(e) and (f) with EPA's adequacy website at: www.epa.gov/state-and-local-transportation/adequacy-review-state-implementation-plan-sip-submissions-conformity.

[19] Per 40 CFR 93.109(e): "Notwithstanding the other paragraphs of this section, an area is not required to satisfy the regional emissions analysis for § 93.118 and/or 93.119 for a given pollutant and NAAQS, if the area has an adequate or approved limited maintenance plan for such pollutant and NAAQS."

[20] See 40 CFR 93.109(e) (providing that, in areas with limited maintenance plans, a "conformity determination that meets other applicable criteria in Table 1 of [40 CFR 93.109(b)] is still required, including the hot-spot requirements for projects in CO, PM_{10}, and $PM_{2.5}$ areas"). See also EPA's guidance for transportation conformity hot-spot analyses available on EPA's website at: https://www.epa.gov/state-and-local-transportation/project-level-conformity-and-hot-spot-analyses.

Section 4: General Conformity

EPA's general conformity regulations do not distinguish between maintenance areas with an approved "full maintenance plan" and those with an approved LMP. Thus, maintenance areas with an approved LMP are subject to the same general conformity requirements under 40 CFR part 93, subpart B, as those covered by a "full maintenance plan." No statements included elsewhere in this guidance or in the PM_{10} LMP Guidance should be construed to require anything less than full compliance with the general conformity program requirements.

Appendix: PM_{10} LMP Guidance (2001)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

AUG 09 2001

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas

FROM: Lydia Wegman, Director
AQSSD (MD-15)

TO: Director, Office of Ecosystem Protection, Region I
Director, Division of Environmental Planning & Protection, Region II
Director, Air Protection Division, Region III
Director, Air, Pesticides & Toxics Management Division, Region IV
Director, Air and Radiation Division, Region V
Director, Air Pesticides & Toxics, Region VI
Director, Air and Toxics Division, Regions VII, IX
Director, Air Program, Region VIII
Director, Office of Air Quality, Region X

I. What is a Limited Maintenance Plan?

This memorandum sets forth new guidance[1] on maintenance plan submissions for certain moderate particulate matter (PM_{10}) nonattainment areas seeking redesignation to attainment (see section IV for further details on qualifying for the policy). If the area meets the criteria listed in this policy the State may submit a maintenance plan at the time it is requesting redesignation that is more streamlined than would ordinarily be permitted. This new option is being termed a limited maintenance plan (LMP)[2].

II. Why is there a need for a limited maintenance plan policy?

Before the U.S. Court of Appeals for the District of Columbia handed down its decision vacating the 1997 PM_{10} national ambient air quality standards (NAAQS)(see American Trucking Associations, et al. v. Environmental Protection Agency (EPA), 175 F.3d 1027 (D.C. Cir. 1999),

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[1]This memorandum is intended to provide EPA's preliminary views on how certain moderate PM10 nonattainment areas may qualify to submit a maintenance plan that meets certain limited requirements. Since it represents only the Agency's preliminary thinking that is subject to modification, this guidance is not binding on States, Tribes, the public, or EPA. Issues concerning the applicability of the limited maintenance plan policy will be addressed in actions to redesignate moderate PM10 nonattainment areas under § 107 of the CAA. It is only when EPA promulgates redesignations applying this policy that those determinations will become binding on States, Tribes, the public, and EPA as a matter of law.

[2]Moderate PM_{10} areas that do not meet the applicability criteria of this policy, and all serious PM_{10} nonattainment areas, should submit maintenance plans that meet our guidance for submission of a full maintenance plan as described in the September 4, 1992 memorandum, "Procedures for Processing Requests to Redesignate Areas to Attainment," from John Calcagni, former Director of the Office of Air Quality Planning and Standards (OAQPS) Air Quality management Division to the Regional Air Division Directors (hereafter known as the Calcagni Memo).

we were prepared to make case-by-case determinations that would make the 1987 PM_{10} NAAQS no longer applicable in any area meeting the standards. In taking actions to remove the applicability of the 1987 NAAQS, we would have removed, as well, the nonattainment designation and Clean Air Act (CAA) part D requirements from qualifying areas. As a result of the D.C. Circuit's decision, for areas subject to the 1987 NAAQS, the only route to recognized attainment of the NAAQS and removal of nonattainment status and requirements is formal redesignation to attainment, including submittal of a maintenance plan. Since many areas have been meeting the PM_{10} NAAQS for 5 years or more and have a low risk of future exceedances, we believe a policy that would allow both the States and EPA to redesignate speedily areas that are at little risk of PM_{10} violations would be useful.

III. How did EPA develop the approach used in the LMP option?

The EPA has studied PM_{10} air quality data information for the entire country over the past eleven years (1989-1999) and has determined that some moderate PM_{10} nonattainment areas have had a history of low PM10 design values with very little inter-annual variation. When we looked at all the monitoring sites reporting data for those years, the data indicate that most of the average design values fall below 2 levels, 98 $\mu g/m^3$ for the 24-hr PM_{10} NAAQS and 40 $\mu g/m^3$ for the annual PM_{10} NAAQS. For most monitoring sites these levels are also below their individual site-specific critical design values (CDV). The CDV is an indicator of the likelihood of future violations of the NAAQS given the current average design value and its variability. The CDV is the highest average design value an area could have before it may experience a future exceedance of the NAAQS with a certain probability. A detailed explanation of the CDV is found in Attachment A [3] to this policy which, because of its length, is a separate document accompanying this memorandum.

We believe that the very small amount of variation between the peaks and means in most of the data indicates a very stable relationship that can be reasonably expected to continue in the future absent any significant changes in emissions. The period we assessed provides a fairly long historical record and the data could therefore be expected to have been affected by a full range of meteorological conditions over the period. Therefore, the amount of emissions should be the only variable that could affect the stability in the air quality data. We believe we can reliably make estimates about the future variability of PM_{10} concentrations across the country based on our statistical analysis of this data record, especially in areas where the amount of emissions is not expected to change.

IV. How do I qualify for the LMP option ?

To qualify for the limited maintenance plan option, an area should meet the following applicability criteria. The area should be attaining the NAAQS and the average PM_{10} design

[3] Dr. Shao-Hang Chu's paper entitled "Critical Design Value and Its Applications" explains the CDV approach and is included in its entirety in Attachment A. This paper has been accepted for publication and presentation at the 94th Air and Waste Management Association (A&WMA) Annual Conference in June 2001 in Orlando, Florida.

value [4] for the area, based upon the most recent 5 years of air quality data at all monitors in the area, should be at or below 40 μg/m^3 for the annual and 98 μg/m^3 for the 24-hr PM_{10} NAAQS with no violations at any monitor in the nonattainment area [5]. If an area cannot meet this test it may still be able to qualify for the LMP option if the average design values of the site are less than their respective site-specific CDV.

We believe it is appropriate to offer this second method of qualifying for the LMP because, based on the air quality data we have studied, we believe there are some monitoring sites with average design values above 40 μg/m^3 or 98 μg/m^3, depending on the NAAQS in question, that have experienced little variability in the data over the years. When the CDV calculation was performed for these sites we discovered that their average design values are less than their CDVs, indicating that the areas have a very low probability (1 in 10) of exceeding the NAAQS in the future. We believe it is appropriate to provide these areas the opportunity to qualify for the LMP in this circumstance since the 40 μg/m^3 or 98 μg/m^3 criteria are based on a national analysis and don't take into account each local situation.

The final criterion is related to mobile source emissions. The area should expect only limited growth in on-road motor vehicle PM_{10} emissions (including fugitive dust) and should have passed a motor vehicle regional emissions analysis test. It is important to consider the impact of future transportation growth in the LMP, since the level of PM-10 emissions (especially from fugitive dust) is related to the level of growth in vehicle miles traveled (VMT). Attachment B (below) should be used for making the motor vehicle regional emissions analysis demonstration.

If the State determines that the area in question meets the above criteria, it may select the LMP option for the first 10 year maintenance period. Any area that does not meet these criteria should plan to submit a full maintenance plan that is consistent with our guidance in the Calcagni Memo in order to be redesignated to attainment. If the LMP option is selected, the State should continue to meet the qualifying criteria until EPA has redesignated the area to attainment. If an area no longer qualifies for the LMP option because a change in air quality affects the average design values before the redesignation takes effect, the area will be expected to submit a full maintenance plan.

Once an area selects the LMP option and it is in effect, the State will be expected to recalculate the average design value for the area annually and determine if the criteria used to qualify for the LMP will still be met. If, after performing the annual recalculation of the area's average design value in a given year, the State determines that the area no longer qualifies for the LMP, the State should take action to attempt to reduce PM_{10} concentrations enough to requalify for the LMP. One possible approach the State could take is to implement a contingency measure

[4] The methods for calculating design values for PM_{10} are presented in a document entitled the "PM_{10} SIP Development Guideline", EPA-450/2-86-001, June 1987. The State should determine the most appropriate method to use from this Guideline in consultation with the appropriate EPA Regional office staff.

[5] If the EPA determines that the meteorology was not representative during the most recent five-year period, we may reject the State's request to use the LMP option and request, instead, submission of a full maintenance demonstration.

or measures found in its SIP. If, in the next annual recalculation the State is able to re-qualify for the LMP, then the LMP will go back into effect. If the attempt to reduce PM_{10} concentrations fails, or if it succeeds but in future years it becomes necessary again to address increasing PM_{10} concentrations in the area, that area no longer qualifies for the LMP. We believe that repeated increases in PM_{10} concentrations indicate that the initial conditions that govern air quality and that were relied on to determine the area's qualification for the LMP have changed, and that maintenance of the NAAQS can no longer be assumed. Therefore, the LMP cannot be reinstated by further recalculations of the design values at this point. Once the LMP is determined to no longer be in effect, a full maintenance plan should be developed and submitted within 18 months of the determination.

Treatment of data used to calculate the design values.

Flagged Particulate Matter Data:

Three policies allow PM-10 data to be flagged for special consideration:

- Exceptional Events Policy (1986) for data affected by infrequent events such as industrial accidents or structural fires near a monitoring site;
- Natural Events Policy (1996) for data affected by wildfires, high winds, and volcanic and seismic activities, and;
- Interim Air Quality Policy on Wildland and Prescribed Fires for data affected by wildland fires that are managed to achieve resource benefits.

We will treat data affected by these events consistently with these previously-issued policies. We expect States to consider all data (unflagged and flagged) when determining the design value. The EPA Regional offices will work with the State to determine the validity of flagged data. Flagged data may be excluded on a case-by-case basis depending on State documentation of the circumstances justifying flags. Data flagged as affected by exceptional or natural events will generally not be used when determining the design value. However, in order for data affected by a natural event to be excluded, an adequate Natural Events Action Plan is required as described in the Natural Events policy.

Data flagged as affected by wildland and prescribed fires will be used in determining the design value. If the State is addressing wildland and prescribed fire use with the application of smoke management programs, the State may submit an LMP if the design value is too high only as a result of the fire-affected data.

We are in the process of developing a policy to address agricultural burning. When it is finalized we will amend the LMP option to account for the new policy.

V. What should an LMP consist of?

Under the LMP, we will continue to satisfy the requirements of Section 107(d)(3)(E) of the Act which provides that a nonattainment area can be redesignated to attainment only if the following criteria are met:

1. The EPA has determined that the NAAQS for the applicable pollutant has been attained.
2. The EPA has fully approved the applicable implementation plan under section 110(k).
3. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.
4. The State has met all applicable requirements for the area under section 110 and part D.
5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area under section 175A.

However, there are some differences between what our previous guidance (the Calcagni memo) recommends that States include in a maintenance plan submission and what we are recommending under this policy for areas that qualify for the LMP. The most important difference is that under the LMP the demonstration of maintenance is presumed to be satisfied. The following is a list of core provisions which should be included in an LMP submission. Note that any final EPA determination regarding the adequacy of an LMP will be made following review of the plan submitted in light of the particular circumstances facing the area proposed for redesignation and based upon all available information.

a. Attainment Plan

The State's approved attainment plan should include an emissions inventory (attainment inventory) which can be used to demonstrate attainment of the NAAQS. The inventory should represent emissions during the same five-year period associated with the air quality data used to determine whether the area meets the applicability requirements of this policy (i.e., the most recent five years of air quality data). If the attainment inventory year is not one of the most recent five years, but the State can show that the attainment inventory did not change significantly during that five-year period, it may still be used to satisfy the policy. If the attainment inventory is determined to not be representative of the most recent 5 years, a new inventory must be developed. The State should review its inventory every three years to ensure emissions growth is incorporated in the attainment inventory if necessary.

b. Maintenance Demonstration

The maintenance demonstration requirement of the Act will be considered to be satisfied for the moderate PM_{10} nonattainment areas meeting the air quality criteria discussed above. If the tests described in Section IV are met, we will treat that as a demonstration that the area will maintain the NAAQS. Consequently, there is no need to project emissions over the maintenance period.

c. Important elements that should be contained within the redesignation request

1. Monitoring Network Verification of Continued Attainment

To verify the attainment status of the area over the maintenance period, the maintenance plan should contain a provision to assure continued operation of an appropriate, EPA-approved air quality monitoring network, in accordance with 40 CFR part 58. This is particularly important for areas using an LMP because there will be no cap on emissions.

2. Contingency Plan

Section 175A of the Act states that a maintenance plan must include contingency provisions, as necessary, to promptly correct any violation of the NAAQS which may occur after redesignation of the area to attainment. These contingency measures do not have to be fully adopted at the time of redesignation. However, the contingency plan is considered to be an enforceable part of the SIP and the State should ensure that the contingency measures are adopted as soon as possible once they are triggered by a specific event. The contingency plan should identify the measures to be adopted, and provide a schedule and procedure for adoption and implementation of the measures if they are required. Normally, the implementation of contingency measures is triggered by a violation of the NAAQS but the State may wish to establish other triggers to prevent a violation of the NAAQS, such as an exceedance of the NAAQS.

3. Approved attainment plan and section 110 and part D CAA requirements:

In accordance with the CAA, areas seeking to be redesignated to attainment under the LMP policy must have an attainment plan that has been approved by EPA, pursuant to section 107(d)(3)(E). The plan must include all control measures that were relied on by the State to demonstrate attainment of the NAAQS. The State must also ensure that the CAA requirements for PM_{10} pursuant to section 110 and part D of the Act have been satisfied. To comply with the statute, the LMP should clearly indicate that all controls that were relied on to demonstrate attainment will remain in place. If a State wishes to roll back or eliminate controls, the area can no longer qualify for the LMP and the area will become subject to full maintenance plan requirements within 18 months of the determination that the LMP is no longer in effect.

VI. How is Conformity treated under the LMP option?

The transportation conformity rule (40 CFR parts 51 and 93) and the general conformity rule (58 FR 63214; November 30, 1993) apply to nonattainment areas and maintenance areas operating under maintenance plans. Under either conformity rule one means of demonstrating conformity of Federal actions is to indicate that expected emissions from planned actions are consistent with the emissions budget for the area. Emissions budgets in LMP areas may be treated as essentially not constraining for the length of the maintenance period because it is unreasonable to expect that an area satisfying the LMP criteria will experience so much growth during that period of time such that a violation of the PM_{10} NAAQS would result. While this policy does not exempt an area from the need to affirm conformity, it does allow the area to demonstrate conformity without undertaking certain requirements of these rules. For transportation conformity purposes, EPA would be concluding that emissions in these areas need not be capped for the maintenance period, and, therefore, a regional emissions analysis would not be required. Similarly, Federal actions subject to the general conformity rule could be considered to satisfy the "budget test" specified in section 93.158 (a)(5)(i)(A) of the rule, for the same reasons that the budgets are essentially considered to be unlimited.

EPA approval of an LMP will provide that if the LMP criteria are no longer satisfied and a full maintenance plan must be developed to meet CAA requirements (see Calcagni Memo referenced in footnote #2 for full maintenance plan guidance), the approval of the LMP would remain applicable for conformity purposes only until the full maintenance plan is submitted and EPA has found its motor vehicle emissions budgets adequate for conformity purposes under 40 CFR parts 51 and 93. EPA will condition its approval of all LMPs in this fashion because in the case where the LMP criteria are not met and a full maintenance plan is required EPA believes that LMPs would no longer be an appropriate mechanism for assuring maintenance of the standards.

ATTACHMENT A
Critical Design Value Estimation and Its Applications

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ABSTRACT

The air quality design value is the mathematically determined pollutant concentration at a particular site that must be reduced to, or maintained at or below the National Ambient Air Quality Standards (NAAQS) in order to assure attainment. The design value may be calculated based on ambient measurements observed at a local monitor in a 3-year period or on model estimates. The design value, however, varies from year to year due to both the pollutant emissions and natural variability such as meteorological conditions, wildfires, dust storms, volcanic activities etc. In order to investigate certain policy options related to pollution controls it would be desirable to estimate a critical design value above which the NAAQS is likely to be violated with a certain probability.

In this paper, a statistical technique has been developed to estimate a critical design value that is based on the average design value and its variability in the past. The critical design value could be used as a planning tool for regulatory agencies because it is an indicator of the likelihood of future violations of the NAAQS given the current average design value and its variability. The approach is general and could be applied to estimate the critical design value for any pollutant.

As an example, eleven years (1989-1999) of PM10 data nationwide were extracted from the US EPA AIRS database to estimate the PM10 critical design values. The analyses indicate that PM10 design values in the West have much larger inter-annual variability than those in the East as reflected in their much lower critical design values. This, in turn, suggests that the interannual variability in meteorology, wildfires, and dust storms may have played a more significant role in the West, and also this larger variability could be partly explained by the once every six days sampling schedule at most PM10 monitoring sites.

INTRODUCTION

The air quality design value is the mathematically determined pollutant concentration at a particular site that must be reduced to, or maintained at or below the National Ambient Air Quality Standards (NAAQS) in order to assure attainment[1]. The design value may be calculated based on ambient measurements observed at a local monitor in a 3-year period or on model estimates. The detailed calculation of the design values for various criteria pollutants is described in the Appendices of the Code of Federal Regulations[2]. In certain cases, the design value has been used for regulatory purposes to determine whether the local pollutant concentration has violated the National Ambient Air Quality Standard (NAAQS). Most often, however, the design

value is used to determine the level of control needed to reduce the pollutant concentration to the NAAQS[3,4,5].

The design value, however, varies from year to year due to both the pollutant emissions and natural variability such as meteorological conditions, wildfires, dust storms, volcanic activities etc. In order to investigate certain policy options related to pollution controls it would be desirable to define a critical design value above which future violations of the air quality standard are likely to occur with a certain probability.

In this paper, an effort has been made to statistically estimate a critical design value based on the average of these yearly design values and their variability in the past. This critical design value is defined in such a way as it is the highest average design value any monitoring site could have before it runs a risk of violating the NAAQS in the future at a certain probability. The technical basis of this estimation approach and its applications will be discussed in the following paragraphs.

CRITICAL DESIGN VALUE ESTIMATION

Our intention is to find a critical design value (CDV) that is the highest possible average design value (ADV) any site could have before it risks a future violation of the standard at a certain probability. First, we try to formulate a relationship among a set of variables involved: such as the CDV, NAAQS, the ADV, the standard deviation of the design values in the past, and a desirable risk factor. We find that if we assume that the design values are normally distributed and the coefficient of variation (CV), which is the ratio of the standard deviation versus the mean of the design values, does not change in the near future, then we can write the relationship as:

$$CDV = NAAQS/(1+t_c*CV) \quad (1)$$

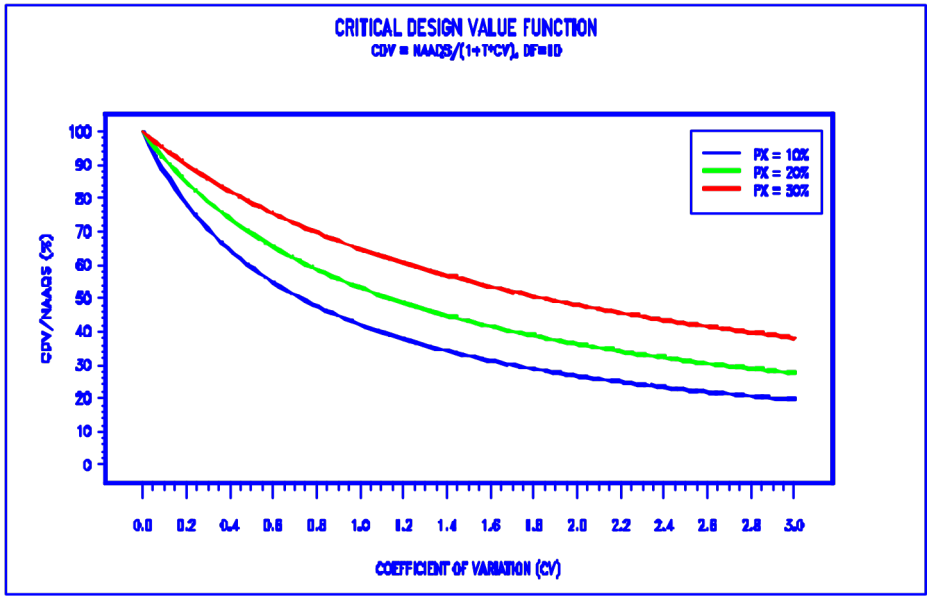
Where CDV is the critical design value, CV is the coefficient of variation of the annual design values (the ratio of standard deviation divided by the mean design value in the past), and t_c is the critical t-value corresponding to a probability, c %, of exceeding the NAAQS in the future and the degree of freedom in the estimate to the CV. Equation (1) says that based on the variability of the design values in the past, the probability of any monitoring site with an ADV less than or equal to the CDV to exceed the NAAQS in the future would be no more than c % given the same CV. In other words, the CDV is the highest ADV any monitoring site could have before it may record a future violation of the NAAQS with a certain probability. The percent probability, c, is the chosen risk factor. One can choose either a more, or less, conservative c value depending on how much risk one is willing to take.

The inter-annual variability of the air quality design values at a monitoring site can be estimated from historical data at that station. Using the air quality data in the past, one can calculate the design values for each year. With these design values one can calculate the ADV and its

variability in terms of the coefficient of variation (CV). Thus, one can calculate the CDV for any site with a minimum of five years of data.

CHARACTERISTICS OF THE CRITICAL DESIGN VALUE

From equation (1) we see that the CDV is a nonlinear function of the NAAQS of the pollutant, the critical t-value, t_c, and the coefficient of variation, CV, of the design values. The normalized



relationship of the CDV to the product of t_c and CV is shown in figure 1.

Figure 1.

The dependency of CDV on the other two variables can be summarized as:

1. The larger the variability (CV) of the design values in the past, the smaller the CDV will be;
2. The lower the probability of risk for future violations (PX), the lower the CDV will be;
3. If CV=0, i.e., no variability in the design values in the past, then from Figure 1 and Equation (1) we find the highest CDV equal to the NAAQS;
4. As CV increases, the CDV approaches zero;
5. If CV is not zero but $t_c = 0$, then we will also have a CDV equal to the NAAQS, but it will have a 50% chance of violating the standard in the future because $t_c = 0$ corresponds to a probability of 50%.

In Figure 2 we have chosen a risk factor of 10% probability of future violation and plotted two examples using generated data with significantly different variability in the annual PM10 design values. It is intended to illustrate the relationship among design values, ADV, CDV, and the PM10 annual NAAQS of 50 ug/m3. In this example we see that the CDV depends strongly on the inter-annual variability of the design values rather than on their means. Also, from the upper

panel of Figure 2 we see that once the ADV is higher than the CDV, the probability of violating the standard will be higher than the risk we have chosen (in this case, it is one out of ten).

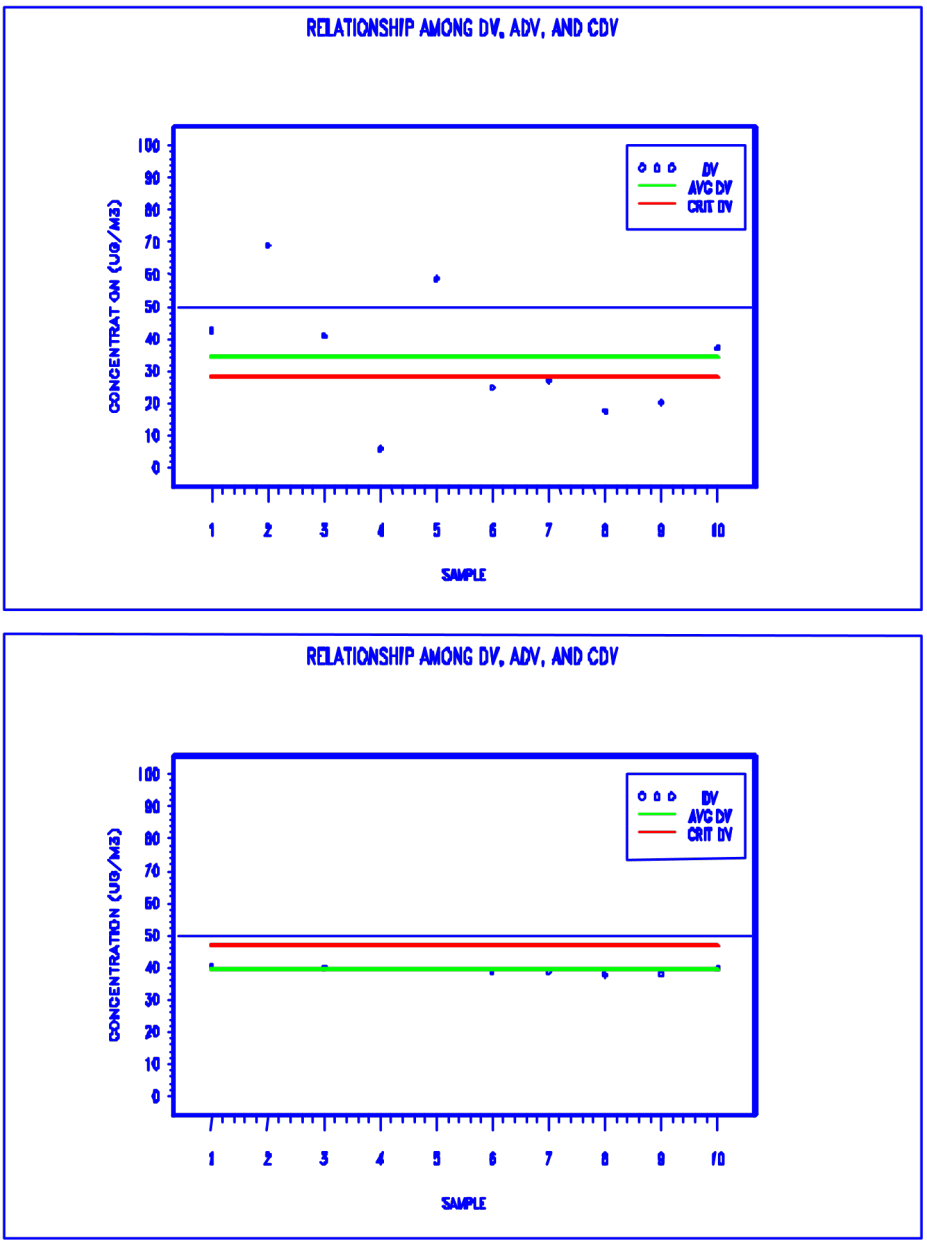


Figure 2.

Contrasting the two panels of Figure 2, we see that whether a site will have a higher or lower risk of violating the NAAQS in the future depends on how much higher or lower the ADV is to the CDV. Thus, unless some drastic change in emissions occurred in the past or should occur in the future, the CDV can be used to assess the likelihood of violating the NAAQS in the future in that area based on normal probability predictions. For this reason, this technique and the estimated

CDV could be used as a planning tool for regulatory agencies to decide whether more or fewer pollutant controls are needed in a specific area.

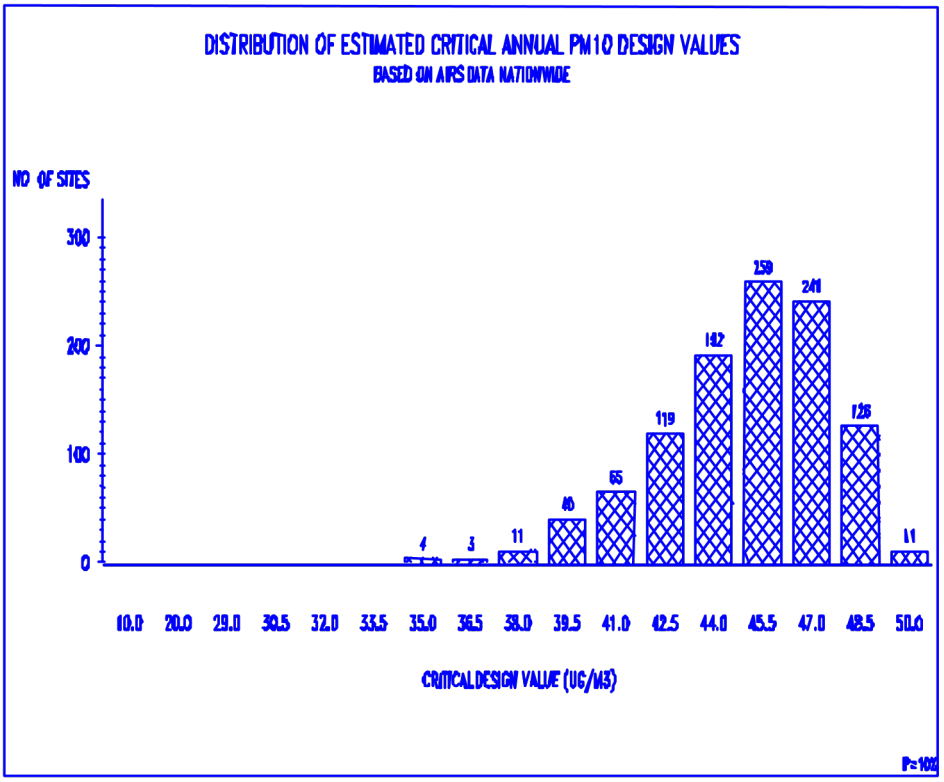
PM10 CRITICAL DESIGN VALUES AND DISCUSSIONS

To demonstrate this approach, eleven years (1989-1999) of PM10 data nationwide were extracted from the United States Environmental Protection Agency AIRS database. The annual and 24-hr PM10 design values were calculated following the US EPA Guidance[1]. Then the methodology described in the previous section was applied using a tolerable risk factor of 10% probability of future violation of the NAAQS to calculate the CDVs for all monitor sites with more than five years of valid data. The analyses are discussed and presented in the following figures.

Figure 3 is a frequency distribution of these calculated annual and 24-hr CDVs. We see that the distributions of both the annual and the 24-hr CDVs are skewed to the left with a median annual CDV of 45.3 ug/m3 and a median 24-hr CDV of 123.2 ug/m3. The long tails to the left (low values) suggest that there are places where the inter-annual variability of the design values are quite large. It also suggests that these areas are likely to have a higher probability of violating the standards if they are already in a major PM10 source region with relatively high PM10 concentrations.

In Figure 4 a longitudinal scatter plot of both the ADVs and the CDVs at all sites spanning from Maine to California, was produced to see whether there is a difference from the East to the West. Comparing the differences between these overlaid ADVs and CDVs we see clearly that most of the higher risk areas (i.e., the areas where the ADVs are greater than the CDVs) are in the West and Midwest. The geographical distribution of the CDVs and the actual ADVs are shown in Figures 5 and 6 respectively. For comparison purposes, the ADVs in Figure 6 are color coded to show their probability of future violation of the NAAQS. The probability of future violation of the NAAQS at each site is calculated by inverting the t-values using equation (1).

The East-West difference in CDVs can be explained largely by the fact that the West, in general, has a much larger inter-annual variability of the design values than the East. However, since the anthropogenic emissions in a region usually do not change very much from year to year, the large variability in the inter-annual PM10 design values in the West may be largely attributable to the inter-annual variation in natural conditions such as meteorology, wildfires, dust storms, and volcanic emissions, etc. The higher occurrences of wildfires and dust storms in the West are known to be associated with its much drier climate, meteorological conditions, and topography. Another influencing factor on the inter-annual variability could be related to the sampling frequency of the PM10 data, which for many sites is only once every six days. However, this is more likely in the East because fewer sites are in non-attainment status and thus not required to sample more frequently than once in six days.


DISTRIBUTION OF ESTIMATED CRITICAL ANNUAL PM10 DESIGN VALUES
BASED ON AIRS DATA NATIONWIDE
NO OF SITES
300
200
100
0
4
3
11
46
65
119
142
259
241
126
11
10.0 20.0 29.0 30.5 32.0 33.5 35.0 36.5 38.0 39.5 41.0 42.5 44.0 45.5 47.0 48.5 50.0
CRITICAL DESIGN VALUE (UG/M3)

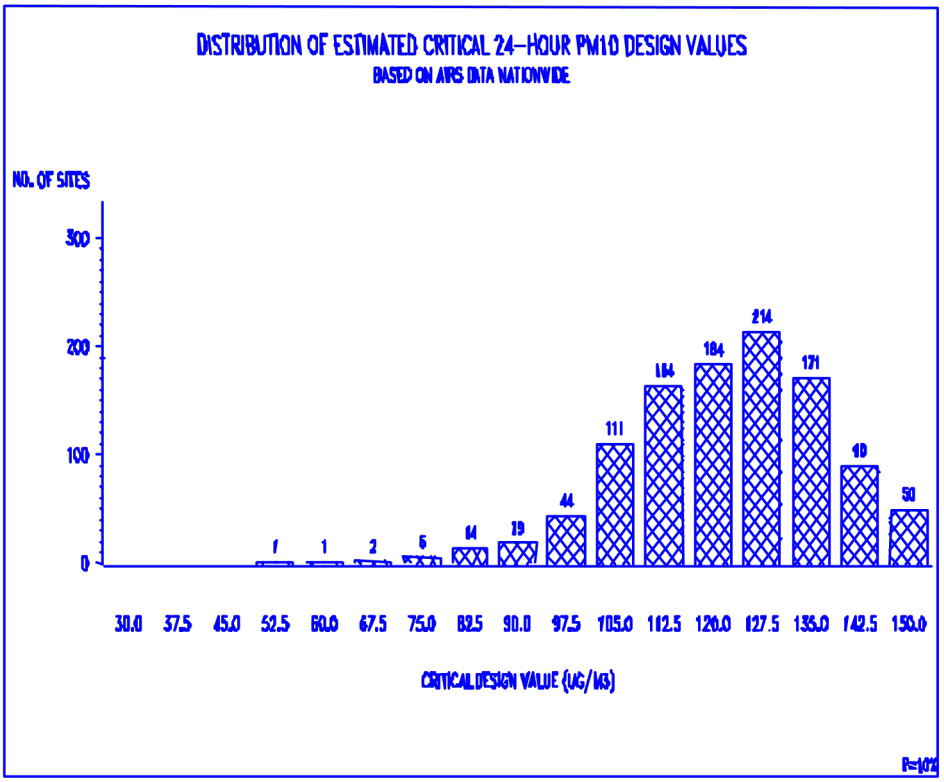
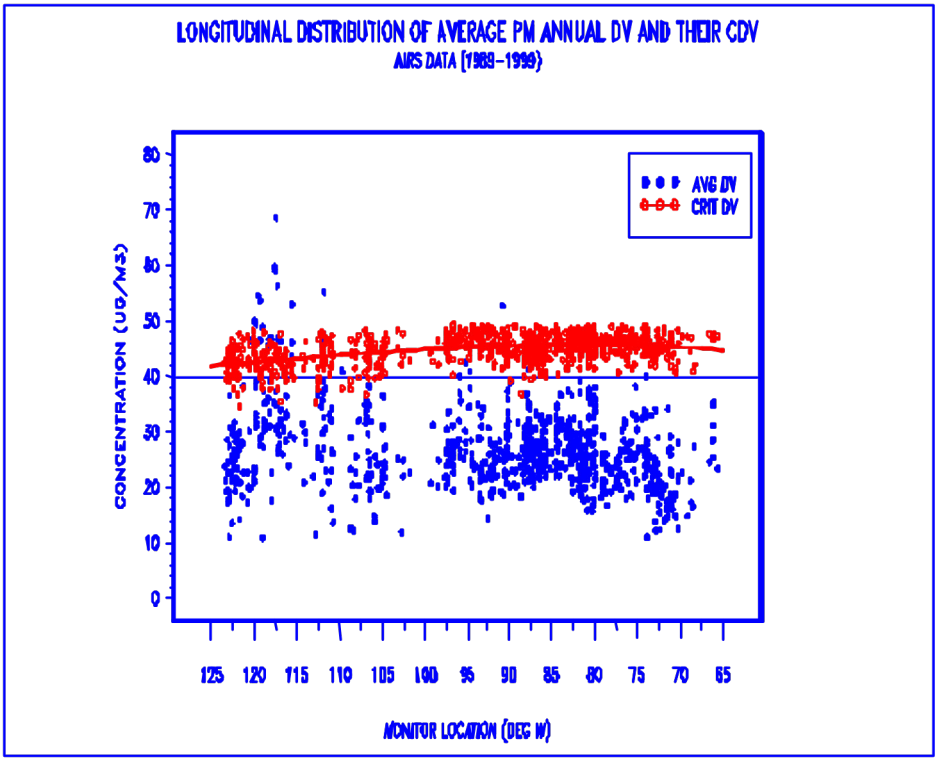

DISTRIBUTION OF ESTIMATED CRITICAL 24-HOUR PM10 DESIGN VALUES
BASED ON AIRS DATA NATIONWIDE
NO. OF SITES
300
200
100
0
1
1
2
6
14
19
44
111
164
184
214
171
89
50
30.0 37.5 45.0 52.5 60.0 67.5 75.0 82.5 90.0 97.5 105.0 112.5 120.0 127.5 135.0 142.5 150.0
CRITICAL DESIGN VALUE (UG/M3)

Figure 3.


LONGITUDINAL DISTRIBUTION OF AVERAGE PM ANNUAL DV AND THEIR CDV
AIRS DATA (1989-1999)
AVG DV
CRIT DV
CONCENTRATION (UG/M3)
0
10
20
30
40
50
60
70
80
125 120 115 110 105 100 95 90 85 80 75 70 65
MONITOR LOCATION (DEG W)

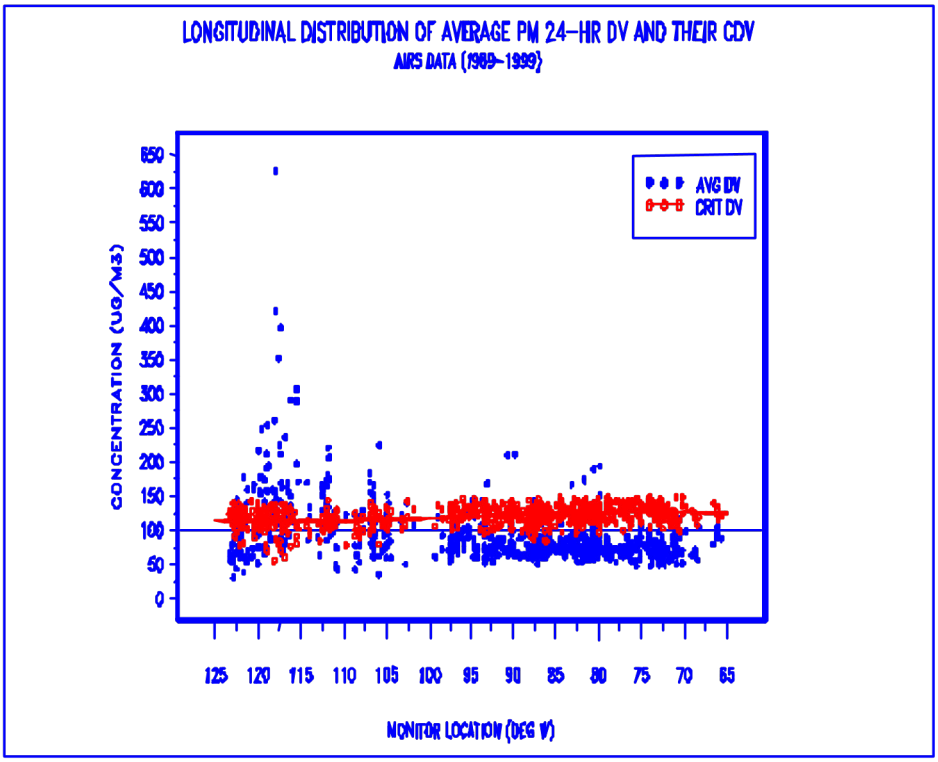

LONGITUDINAL DISTRIBUTION OF AVERAGE PM 24-HR DV AND THEIR CDV
AIRS DATA (1989-1999)
AVG DV
CRIT DV
CONCENTRATION (UG/M3)
0
50
100
150
200
250
300
350
400
450
500
550
600
650
125 120 115 110 105 100 95 90 85 80 75 70 65
MONITOR LOCATION (DEG W)

Figure 4.

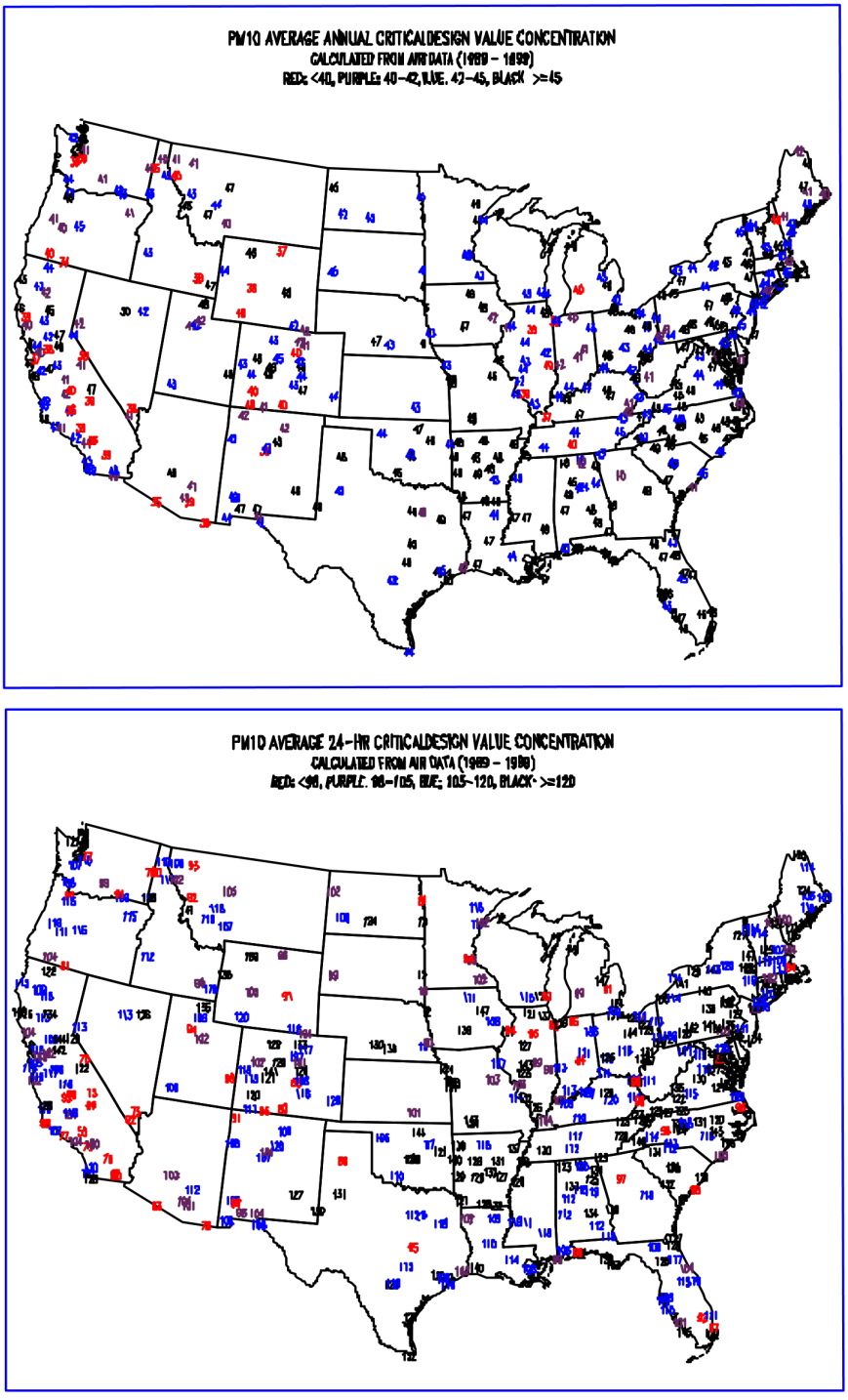
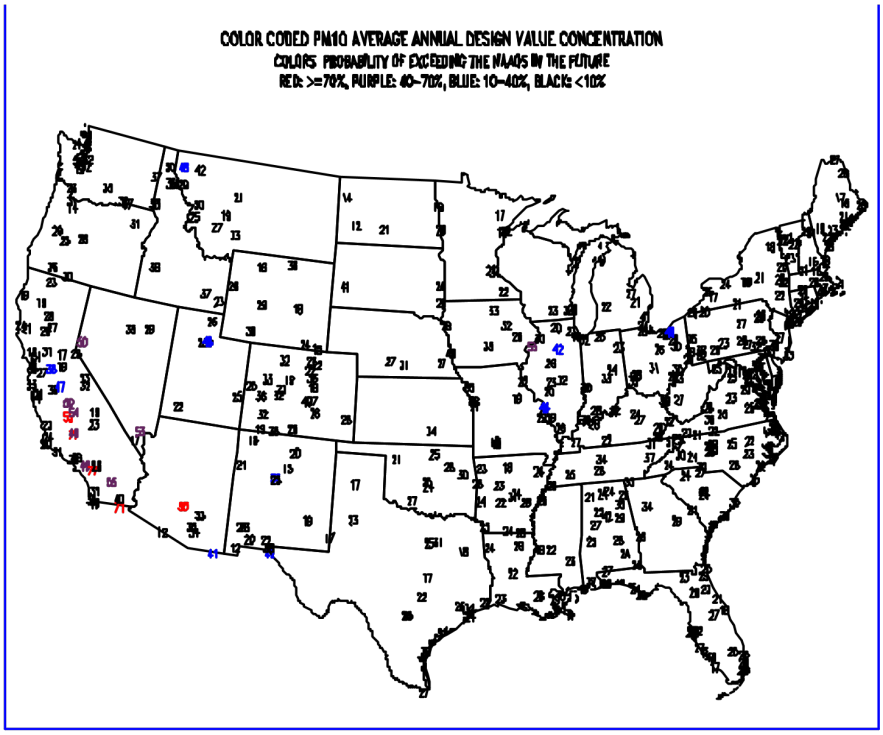

PM10 AVERAGE ANNUAL CRITICALDESIGN VALUE CONCENTRATION
CALCULATED FROM AIR DATA (1989 – 1990)
RED: <40, PURPLE: 40–42, BLUE: 42–45, BLACK: >=45
PM10 AVERAGE 24-HR CRITICALDESIGN VALUE CONCENTRATION
CALCULATED FROM AIR DATA (1989 – 1990)
RED: <90, PURPLE: 90–105, BLUE: 105–120, BLACK: >=120

Figure 5.


COLOR CODED PM10 AVERAGE ANNUAL DESIGN VALUE CONCENTRATION
COLORS: PROBABILITY OF EXCEEDING THE NAAQS IN THE FUTURE
RED: >=70%, PURPLE: 40-70%, BLUE: 10-40%, BLACK: <10%

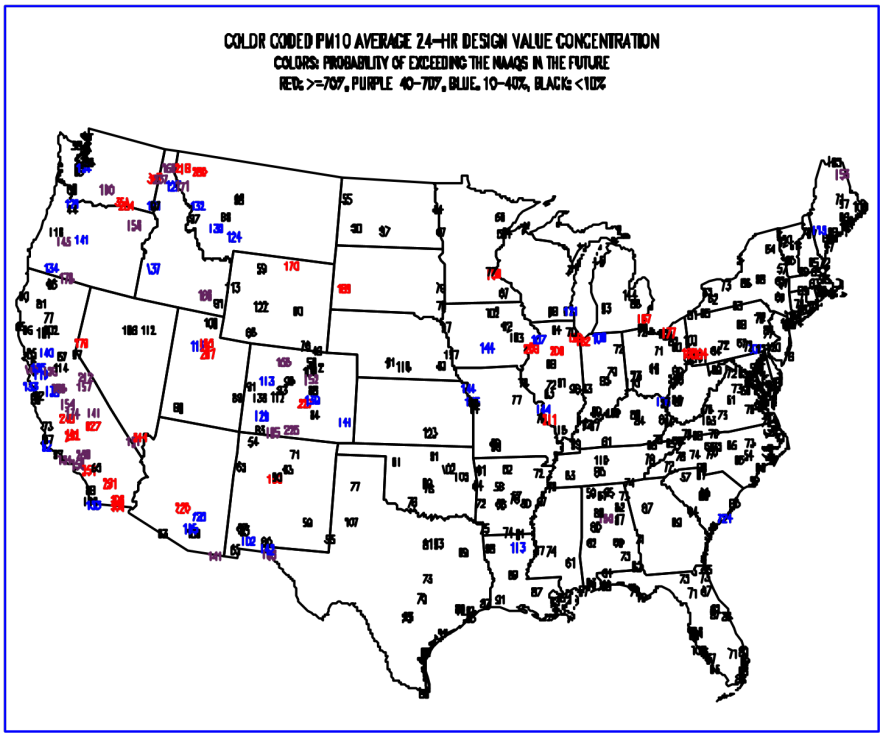

COLOR CODED PM10 AVERAGE 24-HR DESIGN VALUE CONCENTRATION
COLORS: PROBABILITY OF EXCEEDING THE NAAQS IN THE FUTURE
RED: >=70%, PURPLE: 40-70%, BLUE: 10-40%, BLACK: <10%

Figure 6.

CONCLUSIONS

In this paper a statistical technique has been developed to determine the CDV which is the highest possible average design value any monitoring site could have before it may record a future violation of the NAAQS with a certain probability. The critical design value is calculated based on the average design value and its variability in the past, and it also involves a risk factor of our choice in the estimation. The difference between the ADV and CDV is a good indicator of whether the site is running a higher or lower risk of violating the NAAQS in the future than one is willing to take. Using this approach, one can even predict the probability of violating the NAAQS in the near future at any given site with adequate data length. Thus, this technique could be used as a planning tool for regulatory agencies to assess the risk of future violation of the NAAQS at any monitoring site and to make decisions about emissions controls. Further, since this technique is very general, it can be applied to any pollutant with a minimum of five years of valid data.

As an example, 11 years (1989-1999) of PM10 data were analyzed using this technique. The results suggest that the inter-annual variability of the design values in the West is, on the average, much larger than that in the East, which is reflected in the calculated CDVs. Since anthropogenic emissions in a region usually do not change very much from year to year, the large variability in the inter-annual PM10 design values in the West may be largely attributable to the inter-annual variation in natural conditions such as meteorology, wildfires, dust storms, and volcanic activities, etc. The higher occurrences of wildfires and dust storms in the West are known to be associated with its much drier climate, meteorological conditions, and topography. The once every six days sampling practice of PM10 monitoring may also have some influence on the inter-annual variability of PM10 design values.

FUTURE WORK

Some further studies have been planned which include applying the same technique to other pollutants, and searching for a better estimate of CV in case when significant trend exists in the yearly design values. Since the variance estimate could be affected by an underlying trend and that a better estimate could be made of the CV if the trend and/or serial correlation could be removed from the estimate.

ACKNOWLEDGMENTS

The author would like to give thanks to Dr. Terence Fitz-Simons and Mr. Bill Cox for reading the draft manuscript and their helpful discussions.

REFERENCES

1. US EPA, *PM10 SIP Development Guideline*. EPA-450/2-86-001, US Environmental Protection Agency, Research Triangle Park, NC 27711, 1986.
2. Code of Federal Regulations, *Protection of Environment*, 40 CFR part 50, 1998.
3. US EPA, *Guideline on Air Quality Models (Revised)*. EPA-450/2-78-27 R. U.S. Environmental Protection Agency, Research Triangle Park, NC 27711, 1986.
4. US EPA, *Guideline for the Interpretation of Ozone Air Quality Standards*. EPA450/4-79-003, US Environmental Protection Agency, Research Triangle Park, NC 27711, 1979.
5. Curran, T.C. and W.M. Cox, *Data Analysis Procedures for the Ozone NAAQS Statistical Format*. J. Air Pollution Control Association, 1980.

KEYWORDS
Critical design value, design value, inter-annual variability, PM10, probability

ATTACHMENT B:
MOTOR VEHICLE REGIONAL ANALYSIS METHODOLOGY

The following methodology is used to determine whether increased emissions from on-road mobile sources could, in the next 10 years, increase concentrations in the area and threaten the assumption of maintenance that underlies the LMP policy. This analysis must be submitted and approved in order to be eligible for the LMP option.

The following equation should be used:

$DV + (VMT_{pi} \times DV_{mv}) < MOS$

Where:

DV	=	the area's design value based on the most recent 5 years of quality assured data in $\mu g/m^3$
VMT_{pi}	=	the projected % increase in vehicle miles traveled (VMT) over the next 10 years motor vehicle design value based on on-road mobile portion of the attainment year inventory in $\mu g/m^3$ margin of safety for the relevant PM-10 standard for a given area: 40 $\mu g/m^3$ for the annual standard or 98 $\mu g/m^3$ for the 24-hour standard
DV_{mv}	=	
MOS	=	

Please note that DV_{mv} is derived by multiplying DV by the percentage of the attainment year inventory represented by on-road mobile sources. This variable should be based on both primary and secondary PM_{10} emissions of the on-road mobile portion of the attainment year inventory, including re-entrained road dust.

States should consult with EPA regarding the three inputs used in the above calculation, and all EPA comments and concerns regarding inputs and results should be addressed prior to submitting a limited maintenance plan and redesignation request.

The VMT growth rate (VMT_{pi}) should be calculated through the following methods:

1) an extrapolation of the most recent 10 years of Highway Performance Monitoring System (HPMS) data over the 10-year period to be addressed by the limited maintenance plan; and

2) a projection of VMT over the 10-year period that would be covered by the limited maintenance plan, using whatever method is in practice in the area (if different than #1).

Areas where method #1 is the current practice for calculating VMT do not also have to do calculation #2, although this is encouraged. All other areas should use methods #1 and #2, and VMT_{pi} is whichever growth rate produced by methods #1 and #2 is highest. Areas will be expected to use transportation models for method #2, if transportation models are available.

Areas without transportation models should use reasonable professional practice.

Examples

1. DV = 80 $\mu g/m^3$

   VMT_{pi} = 36%

   DV_{mv} = 30 $\mu g/m^3$

   MOS = 98 $\mu g/m^3$ for 24-hour PM-10 standard

   80 + (.36 * 30) = 91

   Less than 98 – Area passes regional analysis criterion.

2. DV = 35 $\mu g/m^3$

   $VMT^{DV_{mv}}_{pi}$ = =25406 $\mu g/m$% $\mu g/m3^3$ for annual PM-10 standard

   MOS

   35 + (.25 * 6) = 37

   Less than 40 – Area passes regional analysis criterion.

3. DV = 115 g/m^3

   $VMT^{DV_{mv}}_{pi}$ = =256098% $\mu g\mu g$/m/m_3^3 for 24-hour PM-10 standard

   MOS

   115 + (.25 * 60) = 130

   More than 98 – Area does not pass criterion. Full section 175A maintenance plan required.

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Appendix C:
Ranked PM_{10} Concentration Values and Other WVDAQ Data for Weirton Area Monitors

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

Promoting a healthy environment

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Criteria Pollutant Summary Report - 2017

Pollutant: Particulate Matter PM_{10}
Monitoring Season: January 1 - December 31
Data Interval: 24-Hour
Units: Micro-grams per cubic meter (ug/m^3)

National Ambient Air Quality Standards (NAAQS)

Primary NAAQS: 24-Hour Average 150 ug/m^3
not to be exceeded more than once per year on average over 3 years.

Secondary NAAQS: Same as Primary Standard

County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
					Obs > 150	1st Max	2nd Max	3rd Max	4th Max
Brooke	Follansbee	54-009-0005	60	15.8	0	32	30	30	28
Brooke	Follansbee Co-Located	54-009-0005-03	30	14.8	0	26	26	25	24
Brooke	Weirton/Marland Hts	54-009-0011	8720	15.3	0	40	39	38	35
Hancock	Weirton/Summit Circle	54-029-0009	8734	10.5	0	37	32	27	25

Criteria Pollutant Summary Report - 2018

Pollutant: Particulate Matter PM_{10}
Monitoring Season: January 1 - December 31
Data Interval: 24-Hour
Units: Micro-grams per cubic meter (ug/m^3)

National Ambient Air Quality Standards (NAAQS)

Primary NAAQS: 24-Hour Average 150 ug/m^3
not to be exceeded more than once per year on average over 3 years.

Secondary NAAQS: Same as Primary Standard

County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
					Obs > 150	1st Max	2nd Max	3rd Max	4th Max
Brooke	Weirton/Marland Hts	54-009-0011	8668	15.3	0	38	37	37	37
Hancock	Weirton/Summit Circle	54-029-0009	8636	11.4	0	35	32	31	30

Criteria Pollutant Summary Report - 2019

Pollutant: Particulate Matter PM_{10}
Monitoring Season: January 1 - December 31
Data Interval: 24-Hour
Units: Micro-grams per cubic meter (ug/m^3)

National Ambient Air Quality Standards (NAAQS)

Primary NAAQS: 24-Hour Average 150 ug/m^3
not to be exceeded more than once per year on average over 3 years.

Secondary NAAQS: Same as Primary Standard

County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
					Obs > 150	1st Max	2nd Max	3rd Max	4th Max
Brooke	Weirton/Marland Hts	54-009-0011	8615	16.1	0	52	49	44	40
Hancock	Weirton/Summit Circle	54-029-0009	6131	12.4	0	34	32	31	31

Criteria Pollutant Summary Report - 2020

Pollutant: Particulate Matter PM_{10}
Monitoring Season: January 1 - December 31
Data Interval: 24-Hour
Units: Micro-grams per cubic meter (ug/m^3)

National Ambient Air Quality Standards (NAAQS)

Primary NAAQS: 24-Hour Average 150 ug/m^3
not to be exceeded more than once per year on average over 3 years.

Secondary NAAQS: Same as Primary Standard

County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
					Obs > 150	1st Max	2nd Max	3rd Max	4th Max
Brooke	Weirton/Marland Hts	54-009-0011	8770	14.6	0	37	37	36	36
Hancock	Weirton/Summit Circle	54-029-0009	4929	11.4	0	27	27	26	26

Criteria Pollutant Summary Report - 2021

Pollutant: Particulate Matter PM_{10}
Monitoring Season: January 1 - December 31
Data Interval: 24-Hour
Units: Micro-grams per cubic meter (ug/m^3)

National Ambient Air Quality Standards (NAAQS)

Primary NAAQS: 24-Hour Average 150 ug/m^3
not to be exceeded more than once per year on average over 3 years.

Secondary NAAQS: Same as Primary Standard

County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
					Obs > 150	1st Max	2nd Max	3rd Max	4th Max
Brooke	Weirton/Marland Hts	54-009-0011	8702	17.5	0	55	50	47	46
Hancock	Weirton/Summit Circle	54-029-0009	8340	13.5	0	39	39	38	37

Criteria Pollutant Summary Report - 2022

Pollutant: Particulate Matter PM_{10}
Monitoring Season: January 1 - December 31
Data Interval: 24-Hour
Units: Micro-grams per cubic meter (ug/m^3)

National Ambient Air Quality Standards (NAAQS)

Primary NAAQS: 24-Hour Average 150 ug/m^3
not to be exceeded more than once per year on average over 3 years.

Secondary NAAQS: Same as Primary Standard

County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
					Obs > 150	1st Max	2nd Max	3rd Max	4th Max
Brooke	Weirton/Marland Hts	54-009-0011	8714	15.7	0	60	54	39	33
Hancock	Weirton/Summit Circle	54-029-0009	8735	15.4	0	57	52	34	34

Criteria Pollutant Summary Report - 2023

Pollutant: Particulate Matter PM_{10}
Monitoring Season: January 1 - December 31
Data Interval: 24-Hour
Units: Micro-grams per cubic meter (ug/m^3)

National Ambient Air Quality Standards (NAAQS)

Primary NAAQS: 24-Hour Average 150 ug/m^3
not to be exceeded more than once per year on average over 3 years.

Secondary NAAQS: Same as Primary Standard

County	Site	EPA-ID	# Obs	Annual Mean	24-Hr Average				
					Obs > 150	1st Max	2nd Max	3rd Max	4th Max
Brooke	Weirton/Marland Hts	54-009-0011	8673	18.7	2	225	197	66	60
Hancock	Weirton/Summit Circle	54-029-0009	8139	17.8	1	201	74	64	61

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Appendix D:
Public Participation

West Virginia Division of Air Quality
601 57th Street, SE
Charleston, WV 25304

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Public Notice

West Virginia Department of Environmental Protection
Division of Air Quality

Comment Period Opens: Friday, September 12, 2025
Comment Period Closes: Tuesday, October 14, 2025

Publication: Weirton Daily Times and the West Virginia State Register
Publication Date: Friday, September 12, 2025

Type of Notice: Public Comment Period and Public Hearing

Location: Statewide

Proposed Activity: Weirton Area Maintenance Plan Revision for the 1987 PM_{10} NAAQS

Project Description: The West Virginia Department of Environmental Protection (DEP), Division of Air Quality (DAQ), is soliciting comment and holding a public hearing on the proposed Weirton Area Maintenance Plan Revision for the 1987 PM_{10} NAAQS. The second PM_{10} Maintenance Plan for the Weirton Area is a Limited Maintenance Plan (LMP), which provides for maintenance of the PM_{10} NAAQS through the end of the 20 year period following the area's redesignation to attainment on August 14, 2006.

The proposed second PM_{10} LMP for the Weirton Area is available at:
- the DAQ website at https://dep.wv.gov/daq/publicnoticeandcomment/Pages/default.aspx
- If you do not have internet capability, please contact the DAQ for alternatives.

Point of Contact: Richard "Eric" Ray (richard.eric.ray@wv.gov or 304-414-1901)

Written comments may be submitted at any time during the public comment period as instructed below. Comments must be received by the conclusion of the public comment period on Tuesday, October 14, 2025. The DEP is holding the public hearing virtually. Instructions for participating and providing oral comments virtually are provided below. Both oral and written comments will

be made part of the official record. Comments received after the conclusion of the public comment period will not be accepted.

Written Comments:

- E-mail written comments to richard.eric.ray@wv.gov with "Weirton 2nd PM10 LMP" in the subject line, or
- Mail hard copy comments to the attention of Richard Eric Ray at the WV Department of Environmental Protection, Division of Air Quality, 601 57th Street SE, Charleston, WV 25304.

Public Hearing: Tuesday, October 14, 2025, at 6:00 p.m.
The purpose of the public hearing is to receive comments concerning the proposed second PM_{10} Limited Maintenance Plan for the Weirton Area.

To participate online or by telephone, registration is required by 4:00 p.m. on Tuesday, October 14, 2025. To register, please complete the registration form at https://forms.gle/ZzYsCqQhErX4VZhu8. To register to speak, please indicate "yes" that you want to provide oral comments on the record when you register with the previously provided link. A confirmation email will be sent with information on how to join the public hearing shortly after registration closes at 4:00 p.m. on Tuesday, October 14, 2025. If you do not have internet access and want to register, please contact Sandie Adkins or Nicole Ernest at (304) 926-0475. Registration for the online hearing is required to fulfill the state's obligation under federal air quality regulations to include a list of participants.

If you wish to speak at the public hearing, verbal testimony is limited to 5 minutes for each witness. Video demonstrations and screen sharing by witnesses is not permitted.