Redesignation Request for the Washington DC-MD-VA 2015 Ozone NAAQS Moderate Nonattainment Area

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Metropolitan Washington Council of Governments

for the

District Department of the Environment
Maryland Department of the Environment
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on behalf of the
Metropolitan Washington Air Quality Committee

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1. Introduction

The District of Columbia, the State of Maryland, and the Commonwealth of Virginia request that the United States Environmental Protection Agency (USEPA) redesignate the Washington DC-MD-VA 2015 ozone National Ambient Air Quality Standard (NAAQS) moderate nonattainment area to attainment pursuant to the provisions under § 107 of the federal Clean Air Act (CAA). USEPA designated this area as a marginal nonattainment area on August 3, 2018 (83 FR 25776) and then reclassified this area as a moderate nonattainment area on November 7, 2022 (90 FR 14730). Since that reclassification, the area's ozone air quality has improved due to permanent and enforceable emission reductions and is meeting or better than the 2015 ozone NAAQS. The District of Columbia, the State of Maryland, and the Commonwealth of Virginia also request that USEPA concurrently approve, as a revision to the state implementation plan (SIP) for each jurisdiction, the related § 175A maintenance plan. This plan demonstrates that the area will continue to attain the ozone NAAQS through 2038.

2. Background

2.1 Health Effects

Ozone is a highly reactive gas that affects living tissues as well as many synthetic substances. Ozone is absorbed in the respiratory tract, where it can injure airways and contribute to adverse health effects. Ozone exposure can result in both long-term and short-term health effects in people who work or exercise outdoors regularly, anyone with respiratory difficulties, and especially in children, asthmatics, and the elderly.

Ozone's long-term effects include reduced lung function, scarring of lung tissue, and premature death.[1] Research suggests that repeated exposure to ozone causes damage to lung tissue, thereby reducing lung function.

Children are at greater risk for ozone-related respiratory problems because their lungs are still developing, they breathe more rapidly, and they play outside during the afternoons when ozone is at its highest levels. Children also inhale more air than adults relative to their size; hence, they receive more pollution per pound of body weight than adults do.

Short-term effects of ozone exposure among healthy populations include impaired lung function and reduced ability to perform physical exercise. For example, healthy young people developed a significant reduction of lung function, additional coughing and breathing pains, and enhanced airway reactivity to irritants when exposed to ozone at concentrations of 80-120 parts per billion (ppb) for 6.6 to 7.0 hours while exercising moderately.[2] Among people who are especially sensitive to ozone pollution, short-term effects include increased hospital admissions and emergency room visits for respiratory diseases such as asthma.

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[1] Bell ML, Dominici F, and Samet JM. *A Meta-Analysis of Time-Series Studies of Ozone and Mortality with Comparison to the National Morbidity, Mortality, and Air Pollution Study*. Epidemiology 2005; 16:436 445.
[2] Horstman D, Folinsbee L, Ives P, Abdul-Salaam, Said, and McDonnel W, *Ozone Concentration and Pulmonary Response Relationships for 6.6-Hour Exposures with Five Hours of Moderate Exercise to 0.08, 0.10 and 0.12 ppm,* American Review of Respiratory Disease, February 1990.

In summary, health effects from exposure to ozone can include the following:

- Increased susceptibility to respiratory infection;
- Impaired lung function and reduced ability to perform physical exercise;
- Severe lung swelling and death, due to short-term exposures greater than 300 ppb; and
- Increased hospital admissions and emergency room visits for respiratory diseases.

2.2 Causes of Poor Ozone Air Quality

Ground level ozone pollution results from the reaction of nitrogen oxides (NO_X) and volatile organic compounds (VOC) in the presence of sunlight and warm temperatures. Longer days and warmer temperatures make ozone air quality a problem predominantly during the summer months. A variety of anthropogenic sources emit NO_X and VOC and therefore contribute to ozone formation.

Historically, ozone control strategies under the CAA emphasized VOC emission reductions. However, studies in recent years show that ozone concentrations respond to NO_X emission reductions more strongly over most of the United States and in the Mid-Atlantic region.[3] This situation is due at least partially to the substantial decreases in NO_X emissions since the inception of the CAA and particularly over the last two decades. Another factor is that peak summertime ozone formation is more sensitive to changes in NO_X with increasing temperature because emissions of highly reactive, biogenic isoprene increase with temperature and increase the total VOC emissions available for reaction. Recent studies also show that additional NO_X reductions beyond those already achieved will decrease net ozone production at a greater rate than previously estimated.[4] While early implementation focused more on VOC, these studies indicate that NO_X reductions are at least as important for attaining and maintaining healthy air quality.

While anthropogenic emissions originating within the area impact ozone pollution, transported NO_X, VOC, and ozone from upwind sources also degrade local air quality. Section 110(a)(2)(D)(i)(I) of the CAA, the Good Neighbor Provision, requires USEPA and states to prohibit emissions that significantly contribute to nonattainment in, or interfere with maintenance by, any other state. USEPA signed the Good Neighbor Plan on March 15, 2023, published at 88 FR 36654 (June 5, 2023), to reduce emissions of NO_X from upwind electric generating units (EGUs) in support of the 2015 ozone NAAQS. Following the Supreme Court's 2024 stay of the plan in *Ohio v. EPA*, EPA is currently reconsidering portions of the plan's scope.

2.3 Washington DC-MD-VA Nonattainment Designations

The CAA requires each state with areas failing to meet the 2015 ozone NAAQS to develop SIPs to expeditiously attain and maintain the standard. Effective December 28, 2015, USEPA revised the ozone NAAQS (80 FR 65292), replacing the prior standard of 0.075 parts per million (ppm)

[3] Boylan J, Odman T, et al, "SEMAP 2018 Ozone Projections and Sensitivity to NO_X & VOC Emissions," LADCO Air Quality Workshop, April 2014.
[4] Goldman D, Dickerson R, et al, "Modeling Ozone in the Eastern US: Using Observations to Guide CMAX and CMAQ," EPRI ENV-Vision workshop, May 2016.

with a more stringent, health-based standard of 0.070 ppm. The form of the standard—defined as the annual fourth-highest daily maximum 8-hour concentration, averaged over three years—remained unchanged and continues to serve as the basis for calculating the area's design value.

USEPA published designations for the 2015 ozone NAAQS on June 4, 2018 (83 FR 25776) and designated the Washington DC-MD-VA area as a nonattainment area effective August 3, 2018 based on air quality data from 2014 to 2016. Subpart 2 of the CAA defined five ozone nonattainment classifications for areas that exceed the NAAQS based on the severity of the ozone levels: marginal, moderate, serious, severe, and extreme. Based on the 2014 to 2016 design value of 0.072 ppm, USEPA classified the Washington DC-MD-VA area as a marginal nonattainment area. As a marginal nonattainment area, the only state implementation plan submission required under §182(a)(1) was the base year emissions inventory. The District of Columbia, the State of Maryland, and the Commonwealth of Virginia submitted the base year emissions inventory, which USEPA approved on April 13, 2022 (87 FR 21752) effective May 13, 2022. The marginal attainment deadline was August 3, 2021. The area did not attain by that deadline, so USEPA reclassified it as a moderate nonattainment area on October 7, 2022 (87 FR 60897) effective November 7, 2022 and established the moderate attainment date of August 3, 2024 (90 FR 14730). Based on the 2021-2023 design value of 0.070 ppm, USEPA subsequently determined that the area attained the 2015 ozone standard by the August 3, 2024 attainment deadline and issued a Clean Data Determination on April 4, 2025 (90 FR 14730) effective May 5, 2025.

Table 2-1 lists the jurisdictions within the Washington DC-MD-VA 2015 ozone NAAQS nonattainment area.

Table 2-1: Washington DC-MD-VA Nonattainment Area with FIPS Codes

Washington DC-MD-VA Ozone Nonattainment Jurisdictions	FIPS[1]
District of Columbia	11-001
Calvert County	24-009
Charles County	24-017
Frederick County	24-021
Montgomery County	24-031
Prince George's County	24-033
Alexandria City	51-510
Arlington County	51-013
Fairfax County	51-059
Fairfax City	51-600
Falls Church City	51-610
Loudoun County	51-107
Prince William County	51-153
Manassas City	51-683
Manassas Park City	51-685

[1]Federal Information Processing Standards code

3. USEPA Requirements for Redesignation

The CAA provides a process whereby a state may petition USEPA to redesignate a nonattainment area as attainment. The CAA lists five obligations that USEPA must meet during the redesignation process. Section 107(d)(3)(E) states:

> The Administrator may not promulgate a redesignation of a nonattainment area (or portion thereof) to attainment unless –
>
> (i) the Administrator determines that the area has attained the national ambient air quality standard;
> (ii) the Administrator has fully approved the applicable implementation plan for the area under section 110(k);
> (iii) the Administrator determines that 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 pollutant control regulations and other permanent and enforceable reductions;
> (iv) the Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175A; and
> (v) the State containing such area has met all requirements applicable to the area under section 110 and part D.

This document addresses each of these requirements and provides additional information to support continued compliance with the 2015 ozone NAAQS. USEPA has published detailed guidance in a memorandum from John Calcagni, Director, Air Quality Management Division, entitled *Procedures for Processing Requests to Redesignate Areas to Attainment* (redesignation guidance), issued September 4, 1992, to Regional Air Directors.[5] 40 CFR Part 51, Subpart CC, *Provisions for Implementation of the 2015 Ozone National Ambient Air Quality Standards* (implementation rule) provides additional information. The District of Columbia, the State of Maryland, and the Commonwealth of Virginia have based this redesignation request and its associated maintenance plan on the redesignation guidance and the implementation rule, supplemented with additional guidance received from staff of USEPA Region III.

3.1 Attainment of the Standard

States requesting redesignation must show that the area is attaining the applicable NAAQS. USEPA, in turn, must determine that states have demonstrated attainment of the 8-hour ozone NAAQS.

The compliance date for 2015 ozone NAAQS moderate nonattainment areas was August 3, 2024. The Washington DC-MD-VA area federal reference monitors have demonstrated compliance with the 0.070 ppm 8-hour standard since 2021 when its design value was 0.070 ppm. The data shows continued compliance with the standard since then. This section presents information that demonstrates the Washington DC-MD-VA nonattainment area attained the 2015 ozone NAAQS based on three years (2021-2023) of quality assured monitoring as specified in 40

[5] See http://www.epa.gov/ttn/oarpg/t5/memoranda/redesignmem090492.pdf, accessed April 27, 2012.

CFR Part 58. In addition, the area continues to attain the 2015 ozone NAAQS based on the 2022-2024 quality assured design value of 0.069 ppm and 2023-2025 design value of 0.069 ppm.

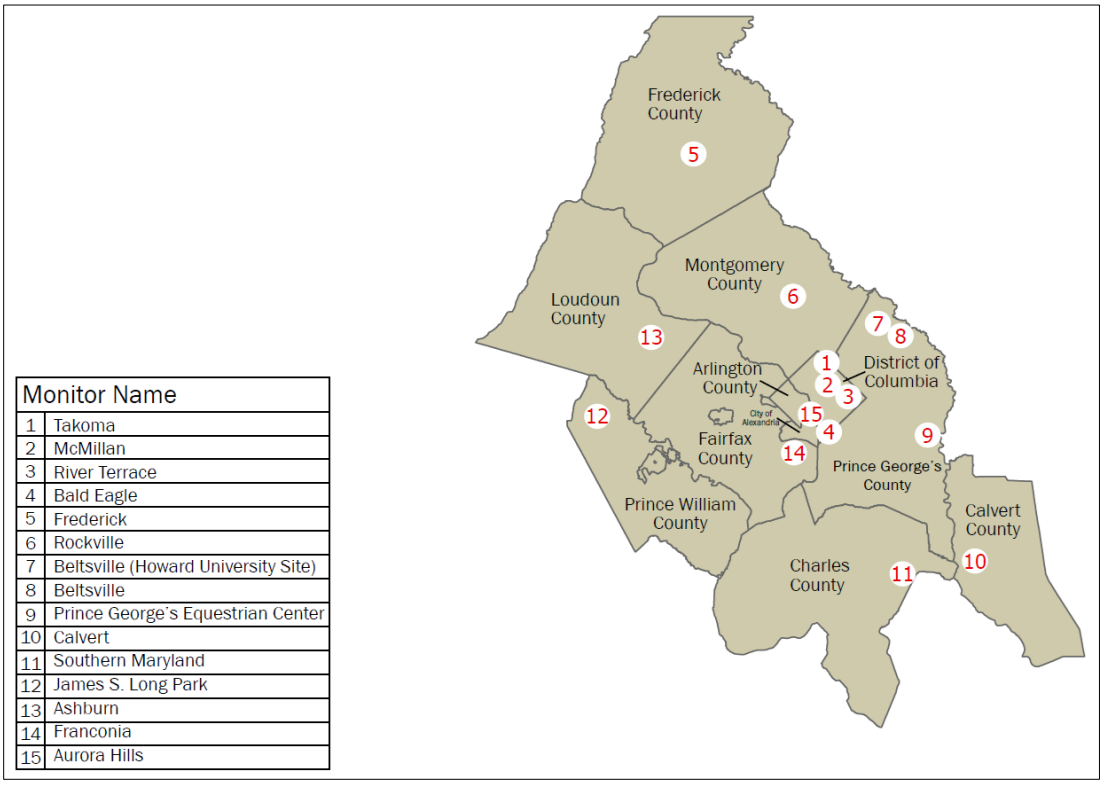
3.1.1 Ozone Monitoring Data Analysis Requirements

The following list contains the requirements regarding ambient air monitoring data and attainment as specified in the redesignation guidance

- Monitoring data must show that the nonattainment area is attaining the NAAQS.
- The data should be collected and quality assured in accordance with 40 CFR 58, recorded in the USEPA Air Quality System (AQS) database, and available to the public for review.

3.1.2 Washington DC-MD-VA Area Ozone Ambient Air Monitoring Network

As shown in Figure 3-1, the air monitoring network in Washington DC-MD-VA region contains 14 sites that monitor ozone. Federal regulations mandate four ozone sites for a metropolitan statistical area of greater than 10 million people containing an ozone nonattainment area (40 CFR 58 Appendix D Section 4.1). Therefore, the Washington DC-MD-VA region currently has an exceptionally robust network.



Monitor Name	
1	Takoma
2	McMillan
3	River Terrace
4	Bald Eagle
5	Frederick
6	Rockville
7	Beltsville (Howard University Site)
8	Beltsville
9	Prince George's Equestrian Center
10	Calvert
11	Southern Maryland
12	James S. Long Park
13	Ashburn
14	Franconia
15	Aurora Hills

Figure 3-1: Washington DC-MD-VA 2015 Ozone NAAQS Nonattainment Area Ozone Monitoring Network

3.1.3 Washington DC-MD-VA Area Ozone Concentration Data

To determine if a site is in compliance with the 2015 ozone NAAQS, states must calculate the annual fourth-highest daily maximum 8-hour concentration, averaged over three years, and compare these values at each of the monitoring sites to the standard of 0.070 ppm. For an area to be in compliance with the 2015 ozone NAAQS, all sites within that area must comply with the standard. Even if only one station is not in compliance, that one station prevents the entire area from being in compliance with the NAAQS.

The Washington DC-MD-VA region's federal reference monitors first demonstrated compliance with the 8-hour 0.070 ppm standard using data from 2019-2021. The most recent design value based on the 2023-2025 data is 0.069 ppm. All ozone ambient monitoring data through 2025 have been quality assured in accordance with 40 CFR 58.10, recorded in AQS, and made available for public review.

Table 3-1, presented below, shows the ozone design values for the monitoring sites in the Washington DC-MD-VA nonattainment area. The data in this table rely only on valid ozone concentrations for calculating design values, and the three jurisdictions have certified this data.

Table 3-1: Washington DC-MD-VA Area Ozone Design Values, ppm

AQS ID Site Name	Jurisdiction	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023	2022-2024	2023-2025
11-001-0041 River Terrace	District of Columbia	---	---	0.057	0.056	0.055	0.060	0.059	0.060	0.060	0.062
11-001-0043 McMillian Reservoir	District of Columbia	0.070	0.071	0.072	0.071	0.069	0.068	0.067	0.070	0.069	0.069
11-001-0050[1] Takoma	District of Columbia	0.070	0.070	0.070	0.069	0.067	0.066	---	---	---	0.060
11-001-0055[2] Bald Eagle	District of Columbia	---	---	---	---	---	---	---	---	---	---
24-009-0011 Calvert	Calvert, MD	0.069	0.067	0.067	0.063	0.059	0.058	0.058	0.062	0.063	0.064
24-017-0010 Southern Maryland	Charles, MD	0.070	0.069	0.069	0.065	0.060	0.059	0.059	0.065	0.064	0.064
24-021-0037 Frederick	Frederick, MD	0.067	0.069	0.068	0.066	0.065	0.065	0.063	0.067	0.067	0.068
24-031-3001 Rockville	Montgomery, MD	0.068	0.068	0.067	0.065	0.063	0.063	0.063	0.066	0.065	0.066
24-033-8003 P.G. Equestrian Center	Prince George's, MD	0.070	0.071	0.071	0.069	0.065	0.065	0.064	0.069	0.068	0.069
24-033-0030 Hu-Beltsville	Prince George's, MD	0.069	0.070	0.069	0.070	0.068	0.067	0.063	0.065	0.066	0.067
24-033-9991 Beltsville	Prince George's, MD	0.068	0.069	0.071	0.072	0.071	0.070	0.067	0.069	0.068	0.068
51-013-0020 Arlington	Arlington, VA	0.072	0.071	0.070	0.069	0.066	0.066	0.064	0.067	0.067	0.069
51-059-0030 Franconia	Fairfax, VA	0.070	0.071	0.069	0.068	0.064	0.065	0.062	0.067	0.066	0.067
51-107-1005 Ashburn	Loudoun, VA	0.067	0.068	0.066	0.063	0.061	0.062	0.062	0.064	0.064	0.065
51-153-0009 Long Park	Prince William, VA	0.065	0.066	0.065	0.063	0.060	0.059	0.059	0.063	0.064	0.065
Washington DC-MD-VA Nonattainment Area		**0.072**	**0.071**	**0.072**	**0.072**	**0.071**	**0.070**	**0.067**	**0.070**	**0.069**	**0.069**

[1] The Takoma Recreation Center monitor (AQS ID 11-001-0050) did not record sufficient data for design value calculations for years 2022, 2023, and 2024. However, the Takoma Recreation Center monitor is currently operating and expected to have sufficient data for valid design values in the future and, for this reason, included in Table 3-1.

[2] The Bald Eagle monitor (AQS ID 11-001-0055) started operating only in 2026.

Figure 3-2 shows a trend in the regional ozone design values in the area since it was first designated nonattainment for the 2015 ozone NAAQS. Over the period between 2016 to 2025, the ozone design value improved from 0.072 ppm in 2014-2016 to 0.069 ppm in 2023-2025, a decrease of about 4%.

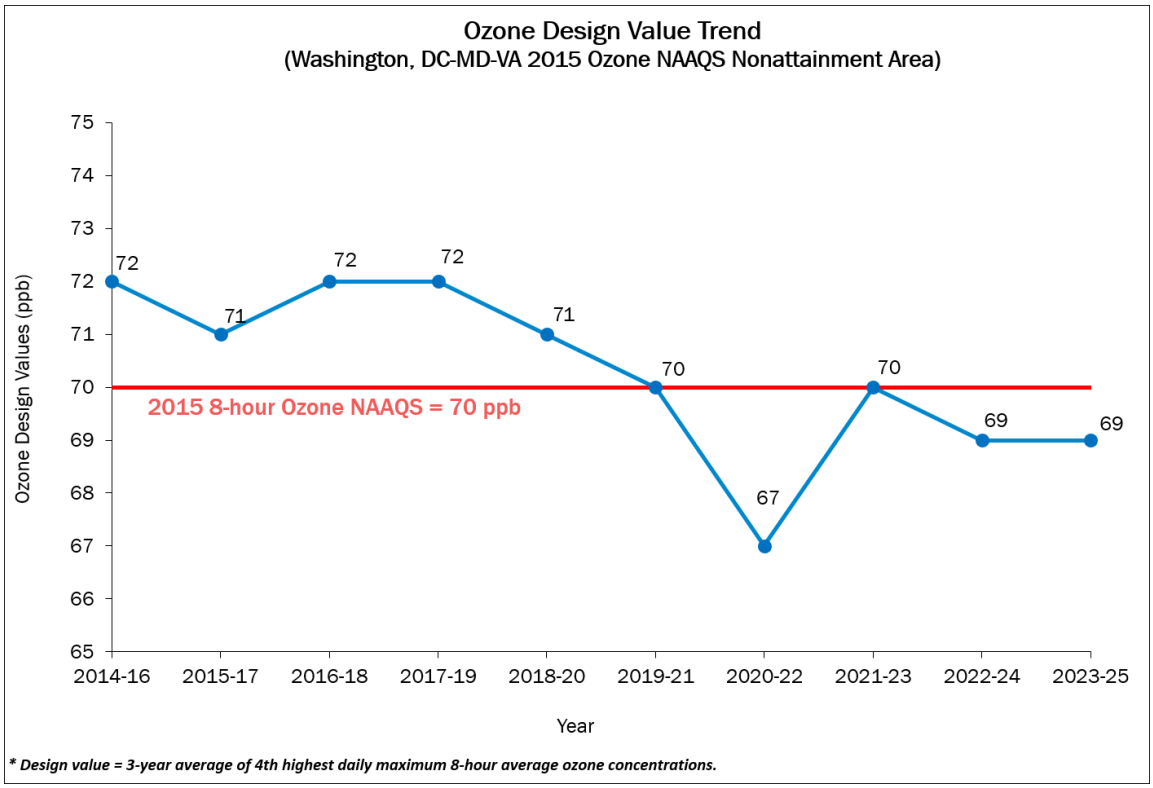


Figure 3-2: Washington DC-MD-VA 2015 Ozone NAAQS Nonattainment Area Ozone Design Value Trend

3.1.4 Quality Assurance

The ambient air monitoring data used in the above analysis has been quality assured in accordance with 40 CFR Part 58 and the Quality Assurance Project Plans (QAPP) for the three jurisdictions. Each QAPP describes the procedures a state uses to ensure that ambient air monitoring measurements are collected with sufficient quality, accuracy, and completeness to meet federal requirements. In addition, states must provide the public with the opportunity to review the ambient air monitoring network annually through the Annual Ambient Air Monitoring Network Plans, prepared in accordance with 40 CFR § 58.10. The most recent Maryland draft annual network plan was available for public review and comment from May 15, 2026 until June 15, 2026. The most recent Virginia draft annual network plan was available for public review and comment from May 28, 2026, to June 29, 2026. The most recent District of Columbia draft annual network plan was available for public review and comment from May 15,

2026 until June 15, 2026. A site can be discontinued or relocated based on the annual review and with approval from the USEPA Regional Administrator. Many of the sites in the Washington DC-MD-VA area are long term sites with a significant body of historical data showing air quality improvements across decades. The District of Columbia, State of Maryland, and the Commonwealth of Virginia submit the quality-assured data into AQS where the data are available to the public.

3.1.5 Continued Monitoring Commitment

The District of Columbia, State of Maryland, and the Commonwealth of Virginia commit to continue monitoring ozone concentrations in the Washington DC-MD-VA region in accordance with 40 CFR Part 58 and USEPA-approved annual monitoring plans. The three jurisdictions will continue to quality-assure the ambient air monitoring data in accordance with 40 CFR 58 and to submit the data into the AQS in a timely fashion.

3.1.6 Clean Data Determination

On April 4, 2025, USEPA published a final rule stating that the Washington DC-MD-VA ozone nonattainment area attained the 2015 ozone NAAQS based on three years (2021-2023) of quality-assured ambient air quality data (90 FR 14730). In addition, the area continues to attain the 2015 ozone NAAQS based on the 2022-2024 quality-assured ambient air quality data and on the 2023-2025 data.

3.2 Permanent and Enforceable Emission Reductions

As noted in § 107(d)(3)(E)(iii) and in the redesignation guidance, a state must be able to reasonably attribute its air quality improvements to ozone precursor emission reductions that are both permanent and enforceable. Attainment resulting from temporary reductions in emission rates (such as reduced production or shutdown due to temporary adverse economic conditions) or unusually favorable meteorological conditions does not qualify.

In demonstrating this, the state should estimate the reductions achieved from federal and state measures between the base year for attainment planning and the area's attainment year. Estimates should consider factors such as emission rates and production capacities in order to show that the improvements are the result of implemented controls.

3.2.1 Base Year and Attainment Year

For this demonstration, the base year for the Washington DC-MD-VA area is 2017. The implementation rule for the 2015 ozone NAAQS in 40 CFR Part 51.1115 describes the requirement for each nonattainment area to submit a base year inventory. Under 40 CFR Part 51.1110, which discusses reasonable further progress requirements, the federal requirements note that the baseline emissions inventory should be based upon the most recently completed triennial inventory. In this case, that inventory was for year 2017. USEPA approved the 2017 base year information supplied by the states in accordance with §182(a)(1) and 40 CFR Part 51.1115 on May 13, 2022 (87 FR 21752) for VOC and NOx emissions.

The year 2022 is the attainment year for the purposes of this demonstration. The year 2022 lies in the middle of the three-year period (2021-2023), whose design value USEPA used to issue a clean data determination and the determination of attainment by the attainment deadline. The year 2022 is also being used by USEPA as the basis for its latest emissions modeling platform. Therefore, quality-assured inventory data (2022 v1) is available from that effort. These reasons make 2022 an appropriate choice for the attainment year.

Between 2017 and 2022, permanent and enforceable emissions reductions within the Washington DC-MD-VA area helped improve air quality to the point where the area achieved compliance with the 2015 ozone NAAQS.

3.2.2 Emission Reduction Requirements

A variety of federal and state control programs have contributed to reductions in onroad, point source, and nonroad emissions of NO_X and VOCs in the Washington DC-MD-VA nonattainment area. Many of these rules require reduced emissions from new products such as vehicles, trucks, and off-road engines. These types of control strategies provide benefits in the future as consumers replace old equipment with newer, better-controlled models. These programs include:

- Tier 3 Motor Vehicle Emission Regulations: On April 28, 2014 (79 FR 23414), USEPA finalized the Tier 3 rule, which further reduced pollution from new passenger cars and trucks beyond the requirements in the Tier 1 and Tier 2 rules. Beginning in 2017, Tier 3 set new vehicle emission standards and lowered the sulfur content of gasoline. The non-methane organic gases and NO_X ($NMOG+NO_X$) tailpipe standards for light duty vehicles represented approximately an 80% reduction from fleet averages. The heavy-duty gasoline vehicle tailpipe standards represent a 60% reduction in $NMOG+NO_X$ from previous averages. The sulfur content of gasoline was capped at 10 ppm beginning in 2017, which helps existing vehicle's catalytic converters work better. EPA estimated that Tier 3 will reduce NO_X emissions by 328,509 tons and VOC emissions by 167,591 tons in 2030.[6] EPA codified this program in 40 CFR Part 86.

- Healthy Air Act: The Maryland Healthy Air Act (Annotated Code of Maryland Environment Title 2 Ambient Air Quality Control Subtitle 10 Healthy Air Act Sections 2-1001–2-1005, implementing regulations at *COMAR 26. 11.27*) became effective on July 16, 2007, and approved by USEPA on September 4, 2008 (73 FR 51599). These regulations were developed for the purpose of bringing Maryland into attainment with the NAAQS for ozone and fine particulate matter by controlling point sources. This regulation controls emissions from point sources and is one of the most stringent power plant rules on the east coast. The emission reductions from the Healthy Air Act come in two phases. The first phase required reductions in the 2009/2010 timeframe and compared to a 2002 emissions baseline, reduce NOx emissions by almost 70%. The second phase of emission controls occurred in the 2012/2013 timeframe. At full implementation, the HAA reduced NOx emissions by approximately 75% from 2002 levels.

[6] USEPA Office of Transportation and Air Quality, *Regulatory Announcement: EPA Sets Tier 3 Motor Vehicle Emission and Fuel Standards,* EPA-420-F-14-009, March 2014.

- Nonroad Small Gasoline Engines: This measure was published on October 8, 2008 (73 FR 59259) and became effective on December 8, 2008. The rule requires small gasoline-powered engine equipment, such as lawn and garden equipment, manufactured after August 1, 1996 to meet federal emissions standards. Small gasoline-powered engine equipment includes, for example, lawn mowers, trimmers, generators, and compressors. These measures apply to equipment with engines of less than 25 horsepower. Emissions of VOC result from the combustion and evaporation of gasoline used to power this equipment.

- Nonroad Diesel Engines Tier 1 and Tier 2: The Tier 1 and Tier 2 nonroad diesel engine measures were published on June 17, 1994, (59 FR 31306: effective July 18, 1994) and on October 23, 1998, (63 FR 56968: effective December 22, 1998) respectively. The rules implement NOx emissions standards for nonroad, compression-ignition (*i.e.*, diesel-powered) utility engines. The measure affects diesel-powered (or other compression-ignition) heavy-duty farm, construction equipment, industrial equipment, etc., rated at or above 37 kilowatts (kW) or 50 horsepower. Heavy-duty farm and construction equipment includes asphalt pavers, rollers, scrapers, rubber-tired dozers, agricultural tractors, combines, balers, and harvesters. This measure applies to all compression-ignition engines except engines used in aircraft, marine vessels, locomotives and underground mining activity. NOx emissions result from the combustion of diesel fuel used to power this equipment.

- Marine Engine Standards: Of the nonroad sources studied by USEPA, gasoline marine engines were found to be one of the largest contributors of hydrocarbon (HC) emissions, 30% of the nationwide nonroad total. This measure (73 FR 59194: effective December 8, 2008) controls exhaust emissions from new spark-ignition gasoline marine engines, including outboard engines, personal watercraft engines, and jet boat engines.

- Emissions Standards for Large Spark Ignition Engines: On October 8, 2008 (67 FR 68242: effective January 7, 2003), USEPA published regulations implementing more stringent VOC and NOx emission standards from several groups of previously unregulated nonroad engines, including large industrial spark-ignition engines, recreational vehicles, and diesel marine engines. The emission standards apply to all new engines sold in the United States and any imported engines manufactured after these standards took effect. Controls on the category of large industrial spark-ignition engines were first required in 2004. Large industrial spark-ignition engines are those rated over 19 kW used in a variety of commercial applications; most use liquefied petroleum gas, with others operating on gasoline or natural gas. Controls on other engine categories were required beginning in years after 2005.

- Reformulated Gasoline Use in Nonroad Motor Vehicles and Equipment: This federally mandated measure (59 FR 7716: effective March 18, 1994) requires the use of lower polluting "reformulated" gasoline in the Washington DC-MD-VA area. Reformulated gasoline (RFG) is gasoline blended to burn more cleanly than conventional gasoline. The measure reduces emissions from nonroad mobile sources. This measure affects the various nonroad mobile sources that burn gasoline, such as

small gasoline-powered engine equipment including lawn mowers, trimmers, generators, and compressors. VOC emissions result from the combustion and evaporation of gasoline used to power this equipment.

- Railroad Engine Standards: This measure published on April 16, 1998 (63 FR 18978: effective June 15, 1998) establishes emission standards oxides of nitrogen, hydrocarbons, carbon monoxide, particulate matter, and smoke for newly manufactured and remanufactured diesel- powered locomotives and locomotive engines, which were previously unregulated. This regulation took effect in 2000 and affects railroad manufacturers and locomotive re-manufacturers. It involves adopting three separate sets of emission standards with the applicability dependent on the date a locomotive is first manufactured.

- Dominion – Possum Point Power Station: This electricity generating facility operated a residual oil-fired boiler rated at 882 megawatts (MW). The facility retired this unit in lieu of installing selective non catalytic reduction NO_X control technology on May 20, 2019. The facility also operated two natural gas-fired boilers (ES-3 and ES-4) rated at 114 megawatts (MW) and 239 MW respectively. These units retired on October 2, 2019. These units operated as peaker units, such that their emissions were produced on high electricity demand days. In summer, such days often have meteorology conducive to the formation of ozone. In 2017, these units emitted 223 tons of NOx and 6 tons of VOC. For the 2017 ozone season, these units emitted 1.28 tons of NOx per day.

- ReWorld Alexandria/Arlington and ReWorld Fairfax: These two facilities are large municipal solid waste combustors. As required by reasonably available control technology (RACT) determinations in support of the 2008 ozone NAAQS, the units at these facilities were required to install a proprietary low NO_X combustion system called LN™. The NO_X emission rates resulting from the application of this control technology are 110 parts per million volume dry (ppmvd) NO_X at 7% oxygen on a 24-hour average and 90 ppmvd NO_X at 7% oxygen on an annual average, significantly lower than previous NO_X emission limitations. The RACT determinations, issued in 2019, required that the technology be installed on each MSW combustor by the end of 2021.

The ozone season coincides with the summer season. Under 40 CFR 51 Subpart CC *Provisions for Implementation of the 2015 Ozone National Ambient Air Quality Standard*, summer day (ozone season day) emissions are defined in 40 CFR 51.1300(q):

> … an average day's emissions for a typical summer work weekday. The state shall select, subject to EPA approval, the particular month(s) in the ozone season and the day(s) in the work week to be represented, considering the conditions assumed in the development of reasonable further progress (RFP) plans and/or emissions budgets for transportation conformity.

This regulation also requires that states must report ozone NAAQS inventories as summer day emissions of NOx and VOC (40 CFR 51.1315(c)). For this effort, average daily metrics for the weekdays in July were included as inputs to calculate onroad and nonroad daily emissions. For EGU emissions, nonEGU point emissions, quasi-point source emissions, nonpoint sector emissions, and MAR emissions, daily emissions were estimated based on available data for each sector and standard inventory practices. These are described in the appendices of the redesignation request and maintenance plan.

The reductions in emissions from the point, quasi-point, nonpoint, nonroad, and onroad sectors between 2017 and 2022 are presented in Table 3-2 in units of tons per day (tpd). These emissions estimates are derived using the most recent motor vehicle, nonpoint, nonroad, and travel demand models as well as the most recent planning assumptions as updated in the Metropolitan Washington Council of Government's Cooperative Forecast 10.0. Calculating incremental benefits from the implementation of many of the individual control measures listed above is difficult. Therefore, the information presented summarizes the combined benefits of these rules. More information on the development of these emissions estimates may be found in respective appendices.

Table 3-2: All Sectors' Emissions Reduction for the Washington DC-MD-VA Area, 2017-2022

2017	2022	Δ2017-2022	% Reduction from 2017
VOC Emissions, tpd			
219.84	215.83	4.01	1.82%
NOx Emissions, tpd			
264.39	172.90	91.49	34.60%

Note: 2017 emissions data is taken from the *2017 base year emissions inventory for the Washington DC-MD-VA 2008 ozone NAAQS nonattainment area* approved by EPA on May 13, 2022 (87 FR 21752) for VOC and NOx emissions.

3.3 Maintenance Plan

Section 107(d)(3)(E) of the CAA stipulates that for an area to be redesignated, USEPA must fully approve a maintenance plan that meets the requirements of § 175(A). States may submit both the redesignation request and the maintenance plan at the same time, and rulemaking on both may proceed on a parallel track. All applicable nonattainment area requirements remain in place. The maintenance plan will constitute a SIP revision and must provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation. Section 175(A) further states that the plan shall contain such additional measures, if any, as may be necessary to ensure such maintenance. States must also submit a SIP revision eight years after the original redesignation request is approved to provide for maintenance of the NAAQS for an additional 10 years following the first 10-year period.

USEPA requires the following provisions to ensure maintenance of the NAAQS:

- The state must develop an attainment emissions inventory to identify the level of emissions in the area that is sufficient to attain the NAAQS.
- A state may generally demonstrate maintenance by showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory over the 10-year period following redesignation.
- Once an area has been redesignated, the state must continue to operate an appropriate air quality monitoring network to verify the area's attainment status.
- The state must ensure that it has the legal authority to implement and enforce all measures necessary to attain and maintain the NAAQS. Continued attainment must be verified by the state by indicating how maintenance plan progress will be tracked.
- Contingency measures must be available to promptly correct any NAAQS violation. At a minimum, the contingency measures must include a requirement that the state will implement all measures contained in the nonattainment SIP prior to redesignation.

An appropriate maintenance plan for the area meeting all federal requirements is being submitted along with this redesignation request. This maintenance plan relies upon programs such as the Healthy Air Act, New Source Review (NSR) permitting, Tier Three vehicle emission standards, and other onroad and nonroad engine standards to demonstrate that air quality will be maintained at least 10 years into the future. The plan contains contingency measures to be implemented in case of worsening air quality and mobile vehicle emission budgets for transportation conformity purposes.

The Washington DC-MD-VA area's ozone maintenance plan is provided as a separate document, entitled *Washington DC-MD-VA Nonattainment Area 2015 Ozone NAAQS Maintenance Plan*.

3.4 Section 110 and Part D Requirements

States must provide assurances that the applicable implementation plan has been fully approved by USEPA under § 110(k) and must satisfy all requirements that apply to the area. Approval action on SIP elements and the redesignation request may occur simultaneously. An area cannot be redesignated if a required element of its plan is the subject of a disapproval; a finding of failure to submit or to implement the SIP; or partial, conditional, or limited approval.

For purposes of redesignation, states must meet all requirements of § 110 and Part D of the CAA that were applicable prior to the submittal of the complete redesignation request. Subpart 1 of Part D consists of general requirements applicable to all areas that are designated nonattainment based on a violation of the NAAQS.

3.4.1 Section 110 Demonstration of Compliance

Section 110(a) of the CAA contains the general requirements for a SIP. Section 110(a)(2) provides that the implementation plan submitted by a state must have been adopted by the state after reasonable public notice and hearing, and that, among other things, it must:

- Include enforceable emission limitations and other control measures, means or techniques necessary to meet the requirements of the CAA;
- Provide for establishment and operation of appropriate devices, methods, systems and procedures necessary to monitor ambient air quality;
- Provide for implementation of a source permit program to regulate the modification and construction of any stationary source within the areas covered by the plan;
- Include provisions for the implementation of Part C, prevention of significant deterioration (PSD) and Part D, NSR permit programs;
- Include criteria for stationary source emission control measures, monitoring, and reporting;
- Include provisions for air quality modeling; and
- Provide for public and local agency participation in planning and emission control rule development.

Section 110(a)(2)(D) also requires state plans to prohibit emissions from within the state that contribute significantly to nonattainment or maintenance areas in any other state, or which interfere with programs under Part C to prevent significant deterioration of air quality or to achieve reasonable progress toward the national visibility goal for federal Class I areas (national parks and wilderness areas).

3.4.2 Part D Demonstration of Compliance

Section 172(c) contains general requirements for nonattainment plans. The requirements for reasonable further progress, identification of certain emissions increases, and other measures needed for attainment do not apply for redesignations because they only have meaning for areas not attaining the standard. The three states satisfied the requirements for an emissions inventory with the SIP revision entitled, *2017 Base Year Emissions Inventory for the Washington, DC-MD-VA 2015 Ozone NAAQS Nonattainment Area*, which the states submitted to USEPA in 2020 and that USEPA approved effective May 13, 2022 (87 FR 21752).

USEPA approved Maryland's infrastructure SIP revision supporting the 2015 ozone NAAQS for all elements other than §110(a)(2)(D)(i) - I Prong 1 and 2 on October 18, 2019 (88 FR 49062). Maryland submitted a revised infrastructure SIP addressing §110(a)(2)(D)(i) - I Prong 1 and 2 on September 24, 2019. Maryland's SIP contains both general-conformity requirements and transportation-conformity requirements in COMAR 26.11.26 that are consistent with requirements in § 176(c)(4) and federal regulations concerning conformity.

USEPA approved Virginia's infrastructure SIP addressing all elements other than 110(a)(2)(D)(i) - I Prong 1 and 2 on March 17, 2020 (85 FR 15074). Virginia expects to operate under the federal implementation plan addressing §110(a)(2)(D)(i) for the 2015 ozone NAAQS. 9VAC5 Chapter 151 contains transportation conformity requirements and 9VAC5 Chapter 160 contains general conformity requirements that are consistent with requirements in § 176(c)(4) and federal regulations concerning conformity.

USEPA approved the District of Columbia's infrastructure SIP addressing all elements effective March 2, 2020 (85 FR 5570). Title 20 (Chapter 20-15) of the District of Columbia municipal regulations contains requirements for both general conformity and transportation conformity that are consistent with requirements in § 176(c)(4) and federal regulations concerning conformity.

4. Conclusion

Based on the compliant air quality discussed within this plan, which is the result of permanent and enforceable emission reductions of ozone precursors, and the information and commitments in the associated maintenance plan for the 2015 ozone NAAQS, the District of Columbia, the State of Maryland, and the Commonwealth of Virginia request that EPA redesignate the Washington DC-MD-VA 2015 ozone NAAQS nonattainment area to attainment for the 2015 ozone NAAQS.