Revisions to the State Implementation Plan (SIP) for the Control of Ozone Air Pollution
Limited Maintenance Plan for the Portland Maine Ozone Maintenance Area

1. Background

Under the 1990 Clean Air Act Amendments (CAA) nine Maine counties were designated as nonattainment for the 1979 1-hour National Ambient Air Quality Standard (NAAQS) for ozone: York, Cumberland and Sagadahoc counties (Planning Area 1); Androscoggin and Kennebec counties (Planning Area 2); and Knox and Lincoln counties (Planning Area 3) were designated as "moderate" nonattainment, while Waldo and Hancock counties (Planning Area 4) were designated as "marginal" nonattainment for ozone.

On July 16, 1997, the U.S. Environmental Protection Agency (EPA) issued updated final air quality 8-hour standards for ozone. After an extensive scientific review, EPA concluded that the 1-hour ozone standard did not provide sufficient health protection against extended periods of moderately elevated ozone. The 1997 8-hour ozone NAAQS (set at a level of 0.084 parts per million (ppm)) was based on an 8-hour average of ozone concentrations and more directly related to ozone concentrations associated with health effects.

Maine had two nonattainment areas under the 1997 ozone standard. The Portland Ozone Maintenance Area consists of 57 cities and towns in York, Cumberland and Sagadahoc Counties along with Durham, Maine in Androscoggin County, and was designated as "marginal" nonattainment for the 1997 8-hour ozone standard (see Figure 1)[1]. Based on 2003-2005 monitoring data, this area was meeting the 1997 ozone NAAQS. In 2006, the Maine Department of Environmental Protection (Department) submitted a request to redesignate this area to attainment, and approved a 10-year maintenance plan pursuant to section 175A of the CAA demonstrating that the area will maintain compliance with the NAAQS for at least 10 years after EPA approval of the redesignation request. The Department's redesignation request was approved on December 11, 2006.[2]

Section 175A(b) of the Clean Air Act also requires that areas designated non-attainment submit a second 10-year maintenance plan demonstrating continued compliance with the NAAQS during the 10-year period following the expiration of the first maintenance plan. The second 10-year maintenance plan for the Portland Ozone Maintenance Area is required to address the period from 2016 through 2026.

Maine did not previously address the requirement for a second 10-year maintenance plan due to EPA's 2015 promulgation of a final rule[3] implementing the 2008 ozone NAAQS. Under EPA's 2015 implementation rule, states were no longer responsible for developing and submitting maintenance plans for former nonattainment areas under the 1997 ozone NAAQS (subject to conditions).

Environmental groups subsequently challenged parts of this rule and filed a petition for judicial review of several aspects of EPA's implementation rule. Included in the challenge was EPA's excusal of former 1997 ozone nonattainment areas (i.e., redesignated areas) that were designated as attainment for the 2008 ozone standard, from requirements to submit a second maintenance plan for the 1997 ozone standard[4].

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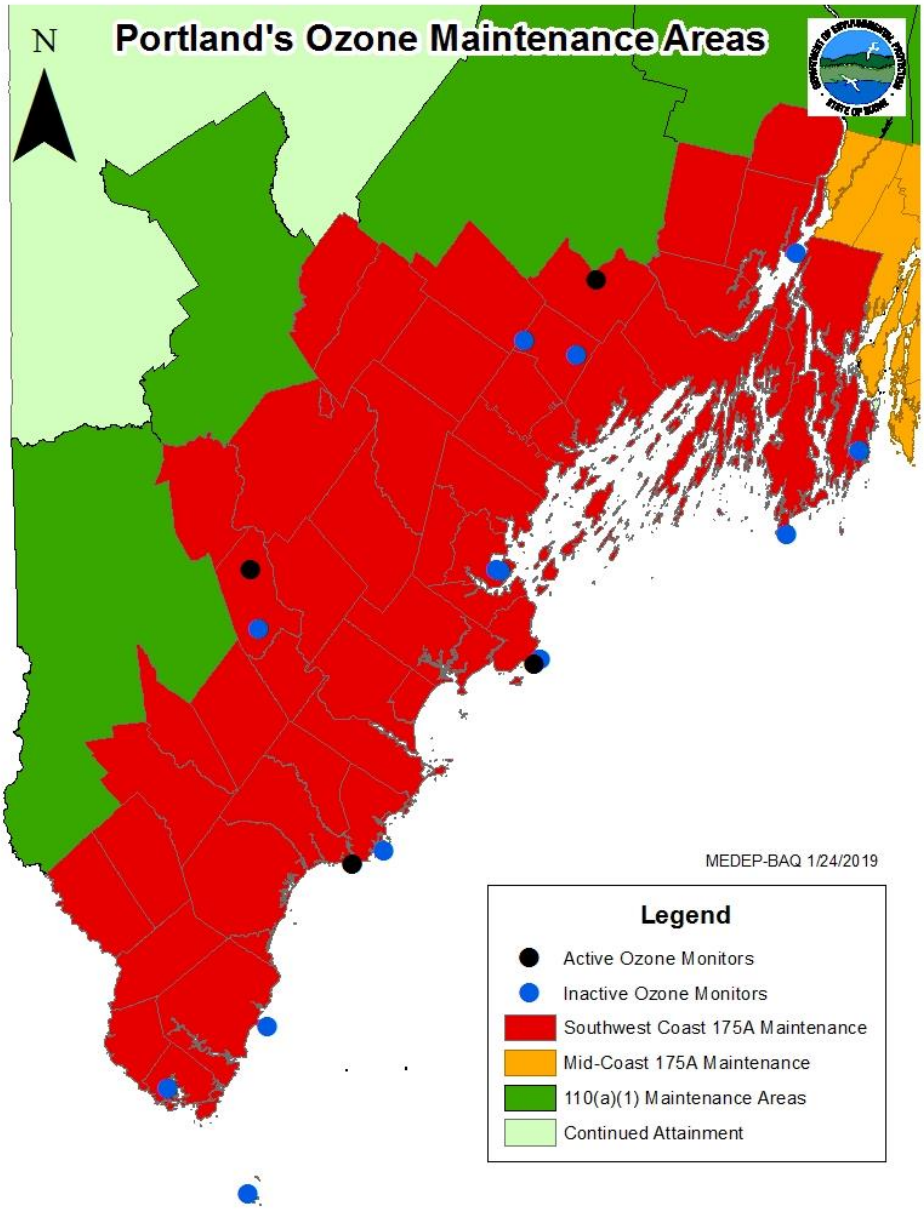
[1] The other 8-hour ozone nonattainment area is the Hancock, Knox, Lincoln and Waldo Counties "Subpart 1, Basic" nonattainment area consisting of coastal towns and islands in these counties.
[2] 71 FR 71489
[3] "Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements 80 FR 12264
[4] The 2008 ozone NAAQS was established at 75 ppb for an 8-hour average.

On February 16, 2018. The D.C. Circuit Court issued a decision in *South Coast Air Quality Management District v. EPA* that granted this and other parts of the petitioner's challenge.[5] The Court held that

Figure 1
The Portland Ozone Maintenance Area and Monitoring Sites



"orphan maintenance areas", such as the Portland Ozone Maintenance Area are required to submit second maintenance plans under section 175A(b) of the CAA.

[5] 882 F.3d 1138

2. The Limited Maintenance Plan Option for Second 10-Year Plans

Section 175A of the CAA establishes the general framework for maintenance plans, including a requirement that the maintenance plan must provide for maintenance of the NAAQS for at least 10 years after redesignation[6], including any additional control measures necessary for continued maintenance. Maintenance plans must also contain contingency measures that can be promptly implemented if a violation of the NAAQS occurs after redesignation.

Beyond basic requirements however, Section 175A of the CAA does not define the contents of a maintenance plan. As a result, EPA possesses the authority to exercise reasonable discretion when determining these requirements, and in November 1994, issued guidance on a limited maintenance plan option for a subset of ozone nonattainment areas.[7] The EPA guidance memo states that to qualify for the limited maintenance plan option, an area's air quality design value must no more than 85% of the NAAQS, or 0.071 ppm for the 1997 ozone standard.[8]

EPA's Limited Maintenance Plan (LMP) guidance specifies that such plans should include the following components:

1) **Maintenance Demonstration.** For the LMP option, the maintenance demonstration requirement will be satisfied if the area meets the air quality criteria necessary to qualify. (There is no need to project emissions over the maintenance period).

2) **Emissions Inventory.** A current emissions inventory (attainment/maintenance inventory), which can be used to demonstrate attainment of the NAAQS;

3) **Monitoring Network Verification of Continued Attainment.** To verify the attainment status of an area over the maintenance period, the maintenance plan should contain provisions for the continued operation of an appropriate, EPA-approved air quality monitoring network in accordance with 40 CFR part 68.

4) **Contingency Plan.** Contingency provisions, to make prompt correction of any violation of the NAAQS that may occur after the redesignation of the area to attainment. The contingency plan is an enforceable part of the SIP, and the contingency measures will be adopted as soon as possible if such measures are triggered by a specific event.

Unlike full maintenance plans, limited maintenance plans are not required to include a projection of emissions over the maintenance period. In addition, emissions budgets for transportation and general conformity are not constraining where there is an approved limited maintenance plan in accordance with EPA's guidance. Approval of this limited maintenance plan will satisfy the "budget test" under both conformity rules during the maintenance period "*because it is unreasonable to expect that such an area will experience so much growth in that period that a violation of the ozone NAAQS would result*."

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[6] Section 175A also requires the submittal of an additional plan to provide for maintenance for a second follow-on 10-year period.

[7] Memorandum from Sally L. Shaver, Director, Air Quality Standards and Strategies Division, "*Limited Maintenance Plan for Non-Classifiable Ozone Nonattainment Areas.*" November 16, 1994.

[8] While the 1994 guidance addressed the 1990 1-hour ozone standard, extending its 85% applicability threshold to the 1997 8-hour ozone standard yields provides a new design value threshold of 0.071 ppm.

3. Maintenance Demonstration

EPA's 1994 guidance states that meeting the criteria for a limited maintenance plan (a design value no greater than 85% of the NAAQS), also satisfies the requirement for a maintenance demonstration. The guidance states:

> *The EPA believes if the area begins the maintenance period at or below 85 percent of the exceedance levels, the air quality along with the continued applicability of PSD requirements, any control measures already in the SIP, and Federal measures, should provide adequate assurance of maintenance over the initial 10-year maintenance period.*

A summary of the 2018 ozone data for the Portland Ozone Maintenance Area is shown in Table 1. Maine operated 10 ozone monitoring sites in the area during this year. All sites achieved the required 75% or greater data capture for the year and are significantly below both the 0.084 ppm 1997 ozone NAAQS and the 2003-2005 redesignation design values.

Table 1
Summary of Design Values (ppm) for the Portland Ozone Maintenance Area

Site Name	AQS Code	POC	**2003-05 Design Value**	**2016-18 Design Value**
Durham	230010014	2	-	0.059
Cape Elizabeth	230052003	1	0.071	0.065
Georgetown-Reid SP	230230004	1	0.070	-
Hollis/West Buxton	230310038	1	0.073	0.059
Kennebunkport	230312002	1	0.074	0.066
Kittery	230313002	1	0.077	-
MAXIMUM Portland Ozone Maintenance Area			0.077	0.066

Ozone values in Maine have been trending downward for years. Figure 2 shows the ozone design values for monitors in the Portland Ozone Maintenance Area. Since the early 2000s, design values in this area have declined from nearly 90 ppb to less than 70 ppb due to local, regional and national controls on emissions of volatile organic compounds and nitrogen oxides.

Figure 2

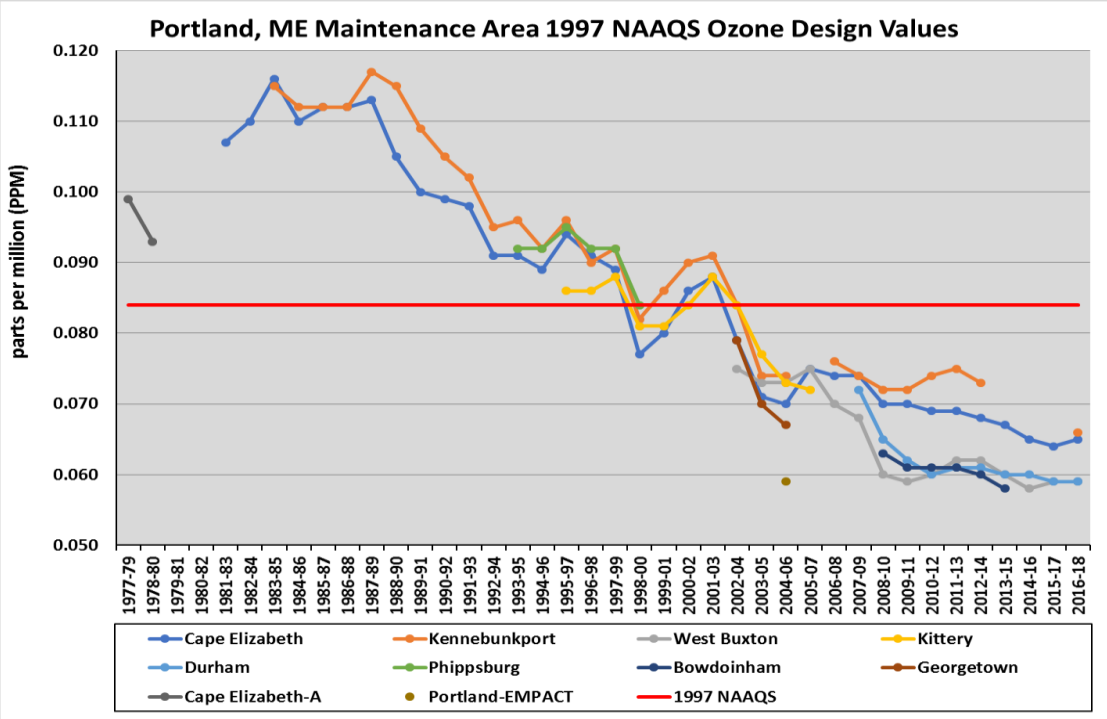


Table 2 presents the ozone design values for the Portland Ozone Maintenance Area since 2009 in tabular form. Again, ozone concentrations continue to decrease throughout this region and are well below the 85% threshold (71 ppb) established in EPA's 1994 Limited Maintenance Plan guidance.[9]

Table 2
Portland Ozone Maintenance Area Ozone Design Values (ppm) Since 2009

AQS Code	Site Name	2007-09	2008-10	2009-11	2010-12	2011-13	2012-14	2013-15	2014-16	2015-17	2016-18
230052003	Cape Elizabeth	0.074	0.070	0.070	0.069	0.069	0.068	0.067	0.065	0.064	0.065
230312002	Kennebunkport	0.074	0.072	0.072	0.074	0.075	0.073				0.066
230310038	West Buxton	0.068	0.060	0.059	0.060	0.062	0.062	0.060	0.058	0.059	0.059
230010014	Durham	0.072	0.065	0.062	0.060	0.061	0.061	0.060	0.060	0.059	0.059
230230006	Bowdoinham		0.063	0.061	0.061	0.061	0.060	0.058			
	1997 NAAQS	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**
	MAXIMUM DV	**0.074**	**0.072**	**0.072**	**0.074**	**0.075**	**0.073**	**0.067**	**0.065**	**0.064**	**0.066**

[9] Appendix A presents the 8-hour ozone 4th high values and design values from monitored ozone data and calculations for all sites in the Portland Maintenance Area since 1977.

4. Attainment and Maintenance Emissions Inventories

EPA's redesignation guidance provides that maintenance plans must include an attainment emissions inventory that identifies a level of emissions in the area that is sufficient to attain and maintain the NAAQS. That is, redesignation and maintenance plans should affirmatively demonstrate that nonattainment area emissions of NOx and VOC are projected to remain at or below a level that is consistent with demonstrated attainment throughout the 10-year maintenance plan period. Although EPA's 1994 "*Limited Maintenance Plan Option for Nonclassifiable Ozone Nonattainment Areas*" guidance indicated that areas eligible for a limited maintenance plan need not demonstrate maintenance using emission inventory projections, the Department has included this information in support of its limited maintenance plan request.

Source Categories

The inventories for the Portland Ozone Maintenance Area are composed of point, area, and mobile sources of NOx and VOC emissions, expressed as tons per summer weekday. Emissions data are based on a number of factors including level of industrial activity, population, and vehicle miles traveled for a typical summer weekday, and have been prepared according to EPA guidance and requirements. The ozone attainment and maintenance emission inventories consist of the following source categories:

1. Point Sources. Point sources include industrial, electric generation, commercial/institutional and large residential facilities. Facilities licensed to emit above certain threshold values submit annual activity and emissions data to the Department's point source database, which is then verified by the Department for each facility, using continuous emissions monitoring systems (CEMS) data, stack test data, or AP-42 or other appropriate emission factors.

2. Area Sources. The area source emission inventory consists of gasoline distribution sources, stationary fuel use, stationary solvent use, bioprocess sources, catastrophic/accidental releases, solid waste incineration, and other stationary area sources. Emissions are calculated using EPA emission factors applied to activity level data obtained through a variety of means.

3. Mobile Sources. The mobile source emission inventory contains two sub-categories: onroad and nonroad. Onroad mobile sources include cars, trucks and buses. Nonroad mobile sources include aircraft, rail locomotives, boats, residential lawn/garden equipment and industrial/commercial construction off-road engines. Mobile source emissions were estimated with EPA's MOBILE6 model for the Department's 2006 redesignation request and the MOVES2014 for 2014 and projected 2028 emission inventories.

Comparison of the 2005, 2014 and 2028 Inventories

Table 3 provides a comparison of the 2005 (redesignation), 2014, and 2028 (projected) NOx and VOC inventories for the Portland Ozone Maintenance Area and demonstrates that emissions in this area have and will continue to decline for the duration of the second 10-year maintenance period.[10]

[10] 2005 emission were obtained from the Department's 2006 redesignation request as approved on December 11, 2006 (71 FR 71489). The 2014 emissions inventory information is from the EPA 2014 version 7.0 modeling platform. The inventory documentation for this platform can be found at: https://www.epa.gov/air-emissions-modeling/2014-version-70-platform. The 2028 emissions inventory is projected from the EPA 2011 version 6.3 modeling platform. The inventory documentation for this platform can be found at: https://www.epa.gov/air-emissions-modeling/2011-version-63-platform.

Table 3

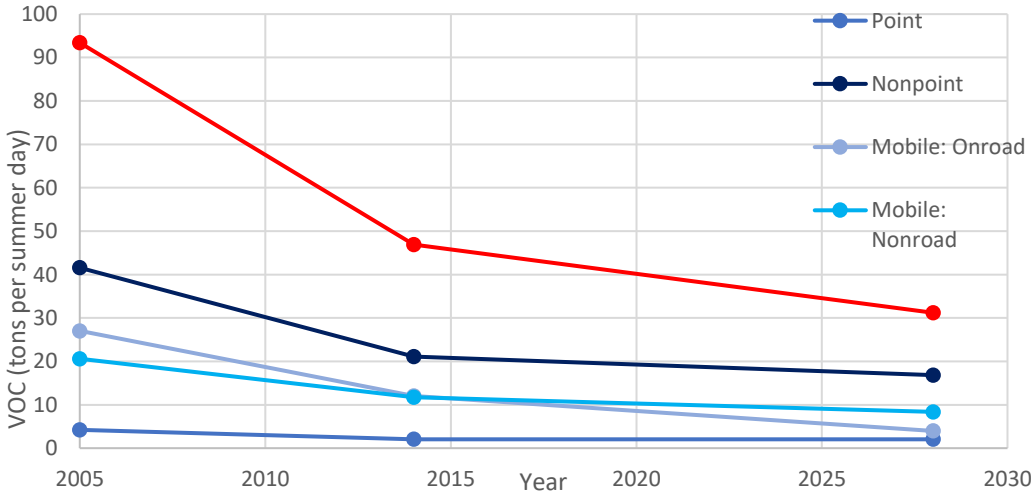
VOC and NOx Emissions in Tons per Summer Day for the Portland Ozone Maintenance Area (York, Cumberland, Sagadahoc, and Androscoggin Counties)[11]

	2005		2014		2028	
Category	VOC	NOx	VOC	NOx	VOC	NOx
Point	4.22	10.48	2.04	4.52	2.04	4.33
Nonpoint	41.56	6.30	21.09	11.01	16.83	7.25
Mobile: Onroad	27.03	55.33	12.04	28.92	3.96	7.52
Mobile: Nonroad	20.60	12.02	11.70	6.86	8.36	4.11
Total	93.41	84.13	51.87	51.31	31.22	23.21

Figures 4 and 5 and illustrate the decline in VOC and NOx emissions in graphical form. By 2028, total VOC emissions for York, Cumberland, Sagadahoc, and Androscoggin Counties are forecast to decline by more than 65 percent. NOx emissions are forecast to decline even further, with the four-county area seeing a more than 72 percent decrease between 2005 and 2028.

Figure 4

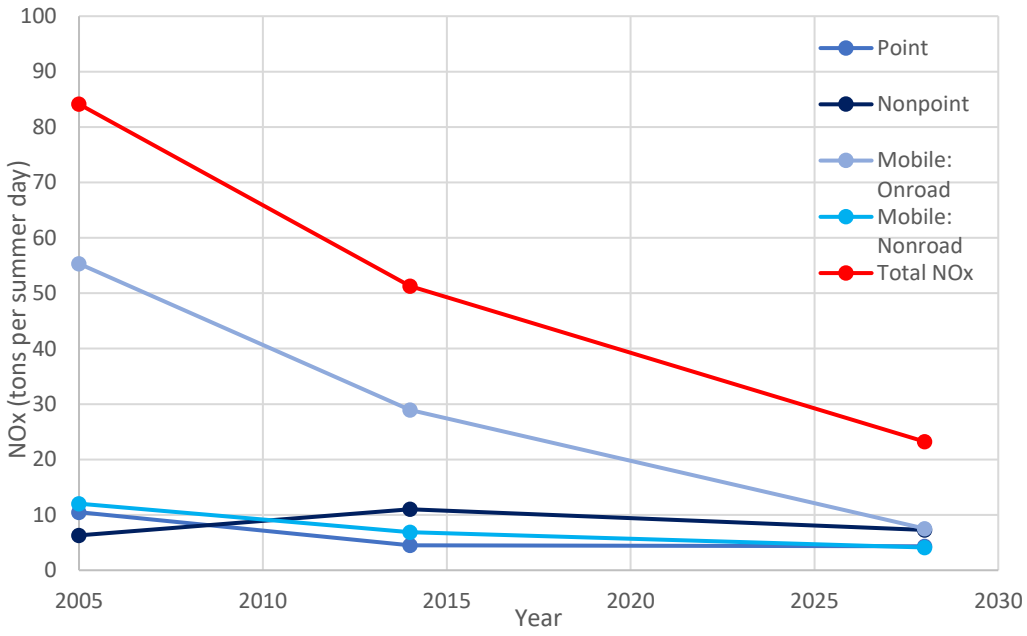
Portland Ozone Maintenance Area
VOC (tons per summer day)



[11] The 2005 (attainment), 2014 and 2028 inventories are based on county-wide emissions.

Figure 5

Portland Ozone Maintenance Area
NOx (tons per summer day)



5. Modeling

Although EPA's guidance does not require modeling for ozone nonattainment areas seeking redesignation, under the limited maintenance plan option, extensive modeling has been performed to determine the effect of national and regional emission control strategies on ozone air quality in Maine and throughout the eastern United States. In June 2018, EPA released updated air quality modeling for the 2008 and 2015 ozone NAAQS utilizing the Comprehensive Air Quality Model with extensions (CAMx). CAMx is a three-dimensional grid-based Eulerian air quality model designed to simulate the formation and fate of oxidant precursors, primary and secondary particulate matter concentrations, and deposition over regional and urban scales.[12] Using a 2011 base year, EPA forecast ozone concentrations for 2023 under alternative scenarios that included a modified version of the "3x3" grid approach for those monitors located in coastal areas. In the modified approach, forecasted ozone levels are adjusted to exclude those grid cells dominated by water (i.e. more than 50 percent of the area within the grid cell is water) and that do not contain a monitoring site. The modeling analyses demonstrate that 2023 predicted ozone concentrations at all sites in Maine, including the Portland Maintenance Area, are well below the 84 ppb 1997 ozone NAAQS under all modeling scenarios. Table 4 provides a summary of EPA's projected ozone design values in Maine.

[12] *Air Quality Modeling Technical Support Document for the Updated 2023 Projected Ozone Design Values*, Office of Air Quality Planning and Standards, USEPA, June 2018.

Table 4

Projected Ozone Design Values (ppb) at Individual Monitoring Sites in Maine Based on the EPA's Updated 2023 Transport Modeling

Site	County	2009-2013 Avg[1]	2009-2013 Max[1]	2023en "3x3" Avg[3]	2023en "3x3" Max[3]	2023en"No Water" Avg[3]	2023en"No Water" Max[3]	2016-2018[4]
230010014	Androscoggin	61.0	62	49.4	50.2	49.3	50.1	59
230052003	Cumberland	69.3	70	56.2	56.8	56.7	57.3	65
230090102	Hancock	71.7	74	61.3	63.2	59.9	61.8	70
230090103	Hancock	66.3	69	55.0	57.3	55.3	57.5	63
230112005	Kennebec	62.7	64	50.5	51.5	50.5	51.5	62
230130004	Knox	67.7	69	54.7	55.7	54.8	55.8	63
230173001	Oxford	54.3	55	43.7	44.3	43.7	44.3	N/A
230194008	Penobscot	57.7	59	46.6	47.6	46.6	47.6	57
230230006	Sagadahoc	61.0	61	48.7	48.7	48.7	48.7	N/A
230310038	York	60.3	62	48.2	49.6	48.2	49.6	59
230310040	York	64.3	65	51.5	52.0	51.5	52.0	61
230312002	York	73.7	75	60.1	61.2	59.6	60.7	66

1) Base period 2009-2013 average and maximum design values based on 2009-2013 measured data.
2) Projected 2023 average and maximum design values based on the "3x3" approach recommended in EPA's photochemical modeling guidance.
3) Projected 2023 average and maximum design values based on a modified "3x3' approach in which model predictions in grid cells without monitors that are primarily water are excluded from the projection calculations ("No Water").
4) 2018 ozone design values based on 2016-2018 measured data (N/A indicates that a 2018 design value is not available) **.**

6. Contingency Plan

The maintenance plan must include contingency provisions, as necessary, to promptly correct any NAAQS violation that occurs after redesignation of an area. It should include measures to be adopted, a schedule and procedures for adoption and implementation, and a specific time limit for action. Specific triggers that would put the plan into motion must also be identified. This plan is an enforceable part of the SIP and should ensure that the contingency measures are adopted explicitly once they are triggered.

Although it is highly unlikely that the Portland Ozone Maintenance Area will be unable to demonstrate continued compliance with the 1997 ozone NAAQS, Maine has listed possible contingency measures in the event of a future ozone air quality problem as required by section 175A of the CAA. At the conclusion of each ozone season, the Department will evaluate whether the design value for the Portland ozone Maintenance Area is above or below the 8-hour ozone standard. If the design value is above the standard, the Department will evaluate the potential causes of this design value increase. The Department will examine whether this increase is due to an increase in local in-state emissions or an increase in upwind out-of-state emissions. If an increase in in-state emissions is determined to be a contributing factor to the design value increase, Maine will evaluate the projected in-state emissions for the ozone season in the following year. If in-state emissions are not expected to satisfactorily decrease in the following ozone season in order to mitigate the violation, Maine will implement one or more of the contingency measures listed in this section, or substitute new VOC or NOx control measures to achieve additional in-state emissions reductions. The contingency measures(s) will be selected by the Governor or the Governor's designee

within six months of the end of the ozone season for which contingency measures have been determined necessary. Possible contingency measures include the following:

Asphalt Paving

Reduce the VOC content limit for cutback asphalt from 5% to 4%, and lower current VOC content limits for emulsified asphalt by 20%.

Motor Vehicle and Mobile Equipment Non- Assembly Line Coating Operations

Adopt and implement the Ozone Transport Commission 2011 Model Rule for Motor Vehicle and Mobile Equipment Non-Assembly Line Coating Operations.

Consumer Products

Adopt and implement the Ozone Transport Commission 2012 Model Rule for Consumer Products.

Architectural and Industrial Maintenance Coatings

Adopt and implement the 2014 OTC Model Rule for Architectural Coatings.

Rule Effectiveness Improvement

Increase enforcement of existing rules in order to increase rule effectiveness.

7. **Transportation Conformity**

Transportation conformity is required by section 176(c) of the CAA. Conformity to a SIP means that transportation activities will not produce new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS (CAA 176(c)(1)(B)). EPA's conformity rule at 40 CFR part 93 requires that transportation plans, programs and projects conform to SIPs and establish the criteria and procedures for determining whether they conform. The conformity rule generally requires a demonstration that emissions from the Regional Transportation Plan (RTP) and the Transportation Improvement Program (TIP) are consistent with the motor vehicle emissions budget (MVEB) contained in the control strategy SIP revision or maintenance plan (40 CFR 93.101, 93.118, and 93.124). A MVEB is defined as "that portion of the total allowable emissions defined in the submitted or approved control strategy implementation plan revision or maintenance plan for a certain date for the purpose of meeting reasonable further progress milestones or demonstrating attainment or maintenance of the NAAQS, for any criteria pollutant or its precursors, allocated to highway and transit vehicle use and emissions (40 CFR 93.101).

Under the conformity rule, limited maintenance plan areas may demonstrate conformity without a regional emission analysis (40 CFR 93.109(e)). All actions that would require transportation conformity determinations for the Portland Ozone Maintenance Area under EPA's transportation conformity rule provisions are considered to have already satisfied the regional emissions analysis and "budget test" requirements in 40 CFR 93.

However, because limited maintenance plan areas are still maintenance areas, certain aspects of transportation conformity determinations still will be required for transportation plans, programs and projects. Specifically, for such determinations, RTPs, TIPs and transportation projects still will have to demonstrate that they are fiscally constrained (40 CFR 93.108), meet the criteria for consultation (40 CFR 93.105) and Transportation Control Measure (TCM) implementation in the conformity rule provisions (40

CFR 93.112 and 40 CFR 93.113, respectively). Additionally, conformity determinations for RTPs and TIPs must be determined no less frequently than every four years, and conformity of plan and TIP amendments and transportation projects is demonstrated in accordance with the timing requirements specified in 40 CFR 93.104. In addition, for projects to be approved they must come from a currently conforming RTP and TIP (40 CFR 93.114 and 93.115).

Appendix A

Monitored Data

This appendix presents the 8-hour ozone 4th high values and design values from monitored ozone data and calculations for all sites in the Portland Ozone Maintenance Area.

All data and calculations meet the criteria for data handling contained in 40 CFR Part 50. Design values are calculated by taking the average of 3 consecutive years' 4th high values (which meet the data handling conventions sited above). The year cited for the design value is the final year of the 3-year average.

Table A-1 contains the 4th high value for each year in the Portland Ozone Maintenance Area since 1977, while Table A-2 contains the design value for each 3-year average. The data clearly demonstrates that ozone concentration in this maintenance area have continued to decline since its 2006 redesignation.

Table A-1

4th High Values (ppm) for Each Site in the Portland Maintenance Area

Portland, ME AREA	4th	4th	4th	4th	4th	4th	4th	4th	4th	4th	4th	4th	4th	4th
Site Name	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
	1977	**1978**	**1979**	**1980**	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**	**1989**	**1990**
Cape Elizabeth					0.101	0.105	0.117	0.108	0.123	0.099	0.116	0.122	0.101	0.092
Kennebunkport							0.107	0.114	0.126	0.098	0.112	0.127	0.112	0.106
West Buxton														
Kittery														
Durham														
Phippsburg														
Bowdoinham														
Georgetown														
Cape Elizabeth-A	0.139	0.060	0.100	0.120										
Portland-EMPACT														
Hollis														
Portland-PEOPLE														
Pownal						0.082	0.088							
Appledore Island														
Nubble Point											0.088			
Goat Island Light						0.089								
1997 NAAQS	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**
MAXIMUM 4th High	**0.139**	**0.060**	**0.100**	**0.120**	**0.101**	**0.105**	**0.117**	**0.114**	**0.126**	**0.099**	**0.116**	**0.127**	**0.112**	**0.106**

Site Name	4th HIGH **1991**	4th HIGH **1992**	4th HIGH **1993**	4th HIGH **1994**	4th HIGH **1995**	4th HIGH **1996**	4th HIGH **1997**	4th HIGH **1998**	4th HIGH **1999**	4th HIGH **2000**	4th HIGH **2001**	4th HIGH **2002**	4th HIGH **2003**	4th HIGH **2004**
Cape Elizabeth	0.109	0.097	0.089	0.088	0.096	0.083	0.103	0.089	0.076	0.067	0.097	0.096	0.096	0.073
Kennebunkport	0.111	0.100	0.095	0.091	0.103	0.084	0.101	0.086	0.089	0.073	0.096	0.101	0.101	0.076
West Buxton									0.080	0.066		0.083	0.083	0.069
Kittery					0.088	0.079	0.092	0.089	0.085	0.070	0.090	0.094	0.094	0.080
Durham														
Phippsburg			0.089	0.090	0.099	0.089	0.098	0.091	0.087	0.075				
Bowdoinham														
Georgetown												0.096	0.096	0.074
Cape Elizabeth-A														
Portland-EMPACT														
Hollis							0.077	0.072						
Portland-PEOPLE					0.076									
Pownal														
Appledore Island	0.088	0.087												
Nubble Point														
Goat Island Light														
1997 NAAQS	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**
MAXIMUM 4th High	**0.111**	**0.100**	**0.095**	**0.091**	**0.103**	**0.089**	**0.103**	**0.091**	**0.089**	**0.075**	**0.097**	**0.101**	**0.101**	**0.080**

Site Name	4th HIGH **2005**	4th HIGH **2006**	4th HIGH **2007**	4th HIGH **2008**	4th HIGH **2009**	4th HIGH **2010**	4th HIGH **2011**	4th HIGH **2012**	4th HIGH **2013**	4th HIGH **2014**	4th HIGH **2015**	4th HIGH **2016**	4th HIGH **2017**	4th HIGH **2018**
Cape Elizabeth	0.073	0.070	0.083	0.069	0.070	0.072	0.070	0.066	0.072	0.066	0.064	0.065	0.064	0.067
Kennebunkport	0.071	0.077	0.078	0.073	0.072	0.072	0.073	0.077	0.076	0.066	0.067	0.068	0.062	0.068
West Buxton	0.076	0.069	0.081	0.061	0.062	0.058	0.059	0.065	0.063	0.059	0.058	0.058	0.063	0.056
Kittery	0.072	0.069	0.077											
Durham			0.081	0.070	0.067	0.058	0.063	0.061	0.059	0.065	0.058	0.057	0.062	0.059
Phippsburg														
Bowdoinham				0.065	0.063	0.061	0.061	0.062	0.061	0.058	0.057			
Georgetown	0.068	0.065												
Cape Elizabeth-A														
Portland-EMPACT	0.061	0.061												
Hollis														
Portland-PEOPLE														
Pownal														
Appledore Island														
Nubble Point														
Goat Island Light														
1997 NAAQS	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**
MAXIMUM 4th High	**0.076**	**0.077**	**0.083**	**0.073**	**0.072**	**0.072**	**0.073**	**0.077**	**0.076**	**0.066**	**0.067**	**0.068**	**0.064**	**0.068**

Table A-2

Design Values (ppm) for Each Site in the Portland Maintenance Area

Site	1977-79	1978-80	1979-81	1980-82	1981-83	1982-84	1983-85	1984-86	1985-87	1986-88	1987-89	1988-90	1989-91	1990-92
Cape Elizabeth					0.107	0.110	0.116	0.110	0.112	0.112	0.113	0.105	0.100	0.099
Kennebunkport							0.115	0.112	0.112	0.112	0.117	0.115	0.109	0.105
West Buxton														
Kittery														
Durham														
Phippsburg														
Bowdoinham														
Georgetown														
Cape Elizabeth-A	0.099	0.093												
Portland-EMPACT														
1997 NAAQS	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**
MAXIMUM DV	**0.099**	**0.093**			**0.107**	**0.110**	**0.116**	**0.112**	**0.112**	**0.112**	**0.117**	**0.115**	**0.109**	**0.105**

Site	1991-93	1992-94	1993-95	1994-96	1995-97	1996-98	1997-99	1998-00	1999-01	2000-02	2001-03	2002-04	2003-05	2004-06
Cape Elizabeth	0.098	0.091	0.091	0.089	0.094	0.091	0.089	0.077	0.080	0.086	0.088	0.079	0.071	0.070
Kennebunkport	0.102	0.095	0.096	0.092	0.096	0.090	0.092	0.082	0.086	0.090	0.091	0.084	0.074	0.074
West Buxton												0.075	0.073	0.073
Kittery					0.086	0.086	0.088	0.081	0.081	0.084	0.088	0.084	0.077	0.073
Durham														
Phippsburg			0.092	0.092	0.095	0.092	0.092	0.084						
Bowdoinham														
Georgetown												0.079	0.070	0.067
Cape Elizabeth-A														
Portland-EMPACT														0.059
1997 NAAQS	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**
MAXIMUM DV	**0.102**	**0.095**	**0.096**	**0.092**	**0.096**	**0.092**	**0.092**	**0.084**	**0.086**	**0.090**	**0.091**	**0.084**	**0.077**	**0.074**

Site	2005-07	2006-08	2007-09	2008-10	2009-11	2010-12	2011-13	2012-14	2013-15	2014-16	2015-17	2016-18
Cape Elizabeth	0.075	0.074	0.074	0.070	0.070	0.069	0.069	0.068	0.067	0.065	0.064	0.065
Kennebunkport		0.076	0.074	0.072	0.072	0.074	0.075	0.073				0.066
West Buxton	0.075	0.070	0.068	0.060	0.059	0.060	0.062	0.062	0.060	0.058	0.059	0.059
Kittery	0.072											
Durham			0.072	0.065	0.062	0.060	0.061	0.061	0.060	0.060	0.059	0.059
Phippsburg												
Bowdoinham				0.063	0.061	0.061	0.061	0.060	0.058			
Georgetown												
Cape Elizabeth-A												
Portland-EMPACT												
1997 NAAQS	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**	**0.084**
MAXIMUM DV	**0.075**	**0.076**	**0.074**	**0.072**	**0.072**	**0.074**	**0.075**	**0.073**	**0.067**	**0.065**	**0.064**	**0.066**