STATE OF MAINE
OFFICE OF THE GOVERNOR
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AUGUSTA, MAINE
04333-0001

Paul R. LePage
GOVERNOR

August 27, 2018

Mr. Andrew Wheeler, Acting Administrator
U.S. Environmental Protection Agency
William Jefferson Clinton Building
1200 Pennsylvania Avenue, N.W.
Mail Code: 1101A
Washington, DC 20460
Wheeler.Andrew@epa.gov

RE: *Petition to remove portions of the State of Maine from the Ozone Transport Region under the authority of CAA § 176A(a)(2)*

Dear Acting Administrator Wheeler,

The State of Maine hereby submits for United States Environmental Protection Agency approval this Clean Air Act (CAA) § 176A(a)(2) Ozone Transport Region Petition, Maine's Ozone Success Story.

The Clean Air Act Amendments of 1990 created the Ozone Transport Region (OTR) to address regional ground-level ozone challenges. Since 1990, the states in the OTR have been successful in lowering ozone levels in the region. In fact, since 2007, Maine has been designated in attainment of the ozone National Ambient Air Quality Standard even as the standard has been reduced repeatedly since 1990. The CAA was written to accommodate successes of regional control strategies in meeting the standard and provides a mechanism for states to be removed from the OTR through CAA § 176A(a)(2). This mechanism can be initiated upon request of a state's Governor if the emissions from the state do not significantly impact the ability of any other state to attain the ozone standard. Based on extensive analysis of data collected over many years, the Maine Department of Environmental Protection has provided the demonstration required by the CAA that Maine does not adversely impact any other state in attaining the ozone standard, justifying the removal of the majority of Maine from the OTR.

It is my extreme pleasure to submit this Clean Air Act § 176A(a)(2) Petition, Maine's Ozone Success Story, for EPA approval. The draft petition was posted for public comment for the six-week period from June 28 to August 10, 2018, and a public hearing on the petition was held in Augusta, Maine on July 29, 2018. The draft petition was revised as a result of the public comment process. A list of commenters, their comments, and the State of Maine's responses to comments is included in this submittal.

If you have any questions, please contact Commissioner Paul Mercer of the Maine Department of Environmental Protection.

Sincerely,

Paul R. LePage
Governor, State of Maine

Enclosures

State of Maine Clean Air Act § 176A(a)(2) Petition, Maine's Ozone Success Story
List of Commenters
List of Comments
Responses to Comments

CC

Bill Wehrum, Assistant Administrator, Office of Air and Radiation, U.S. EPA
Clint Woods, Deputy Assistant Administrator, Office of Air and Radiation, U.S. EPA
Alexandra Dunn, Regional Administrator, U.S. EPA Region 1
David Conroy, Air Program Manager, U.S. EPA Region 1 (electronic)
Paul Mercer, Commissioner, Maine DEP

State of Maine
Clean Air Act § 176A(a)(2) Petition

Maine's Ozone Success Story

August 27, 2018

Table of Contents

LIST OF TABLES

Executive Summary

The State of Maine is petitioning the U.S. EPA to reassign parts of the State to more appropriate air quality regulatory requirements. The Clean Air Act is written such that when regions of the country have had success in meeting Clean Air Act standards, those regions may present scientific findings and data to justify change of the regulatory structure of a region to more appropriately manage air quality. As a result of Maine's air quality success under the Clean Air Act, Maine now requests to modify how it manages future air quality impacts as the Clean Air Act envisioned.

The State of Maine is submitting for United States Environmental Protection Agency (EPA) approval this Clean Air Act (CAA) § 176A(a)(2) Ozone Transport Region Petition, Maine's Ozone Success Story. This document presents the technical analysis justifying the removal of certain areas of the State of Maine from the Ozone Transport Region (OTR). Maine has been and continues to be in attainment with ozone National Ambient Air Quality Standards (NAAQS) in those areas petitioned for removal, and emissions from Maine sources have negligible impact on the ozone attainment status of any part of the OTR. The granting of this petition will not degrade the air quality in Maine or in any other state. Information presented in this petition justifies the exclusion of a portion of the State of Maine from the OTR.

Nitrogen oxides (NO_x) and volatile organic compounds (VOC) are ozone precursor pollutants which contribute to the formation of ground-level ozone. In accordance with CAA § 182(f), the EPA has previously granted the State of Maine NO_x Waivers under the 1-hour and 8-hour ozone NAAQS. NO_x Waivers provide regulatory relief from otherwise applicable NO_x emissions requirements because further reduction of NO_x will not benefit ozone levels in Maine or the OTR. After receiving NO_x Waivers, Maine has continued to observe lower ozone levels and be designated in attainment with the ozone NAAQS. The demonstrations presented in this petition show that further controls in the State of Maine of both NO_x and VOC emissions have no significant impact on ozone levels in the OTR outside of Maine.

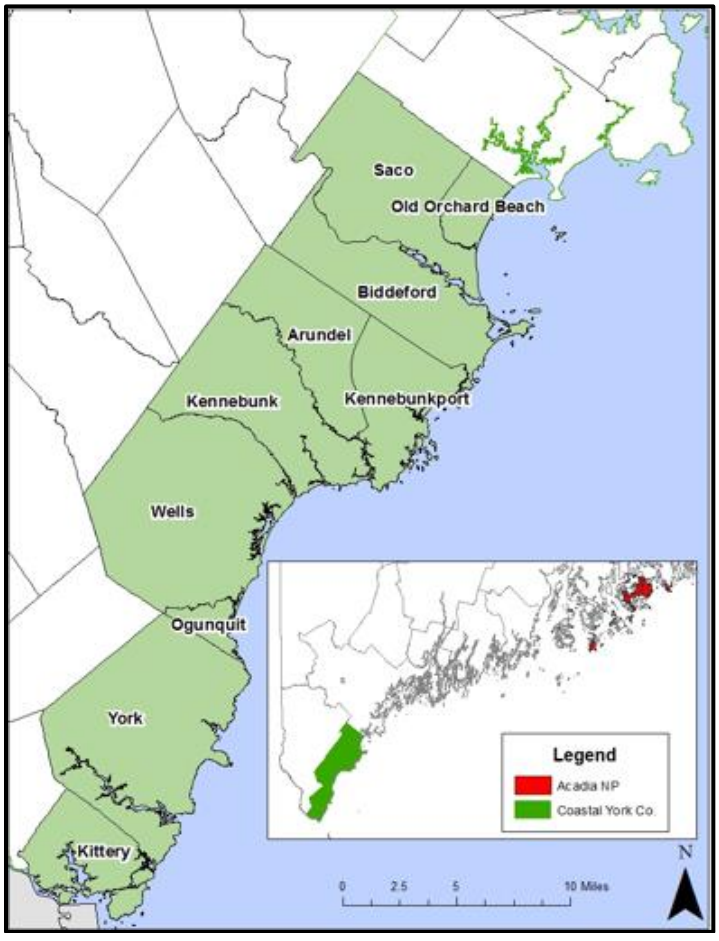
Maine's attainment status for the ozone NAAQS is a success story of the emissions reduction strategies implemented across the nation. Additionally, each state under the multi-state Ozone Transport Commission (OTC), created under the CAA, has been required to further reduce emissions of pollutants which contribute to the formation of ozone. This has successfully resulted in lower ozone levels. Maine emissions are a small percentage of emissions from the OTR and contribute insignificantly to monitored exceedances of the standard in the OTR. EPA modeling analyses show Maine's maximum contribution to ozone levels at every monitoring site in other OTR states is less than 1% of the ozone standard.

The Maine Department of Environmental Protection's (Maine DEP) Bureau of Air Quality has documented analyses which demonstrate that Maine emissions are clearly insignificant contributors to non-attainment of ozone for the 8-hour ozone NAAQS in other states. Thus, reductions of NO_x or VOC emissions in Maine will have insignificant impact on the ozone attainment status of those areas. The analyses consist of back trajectories for 2013-2017 ozone exceedance days recorded at certain monitoring locations in southern New England, back trajectories for 2014-2016 ozone exceedance days at certain monitoring locations in the OTR, EPA ozone apportionment modeling results, and emissions inventory data for the OTR.

Maine is therefore requesting that the State of Maine be removed from the OTR per CAA § 176A(a)(2), except for Acadia National Park and the municipalities listed in the table below. Maine is requesting OTR inclusion similar to the State of Virginia, where only a portion of the state is part of the OTR. This action does not remove any regulatory air pollution control existing in Maine today.

Maine Municipalities to Remain in the OTR
Arundel
Biddeford
Kennebunk
Kennebunkport
Kittery
Ogunquit
Old Orchard Beach
Saco
Wells
York
Other Areas in Maine Remaining in the OTR
Acadia National Park

Maine Municipalities and
Acadia National Park to Remain in the OTR



I. Introduction and Background

The EPA has established National Ambient Air Quality Standards (NAAQS) for several pollutants, including ozone. These standards are the basis for designation of all geographic areas of the United States as either attainment areas (meeting the standard), or non-attainment areas (exceeding the standard) for each pollutant for which a NAAQS is specified. Ozone at downwind locations is often attributable to long-range transport of pollutants from distant sources and is the focus of federal, regional, and state control strategies.

Because ozone is not directly emitted from air pollution emitting sources, emissions of ozone precursor pollutants are controlled to reduce ambient concentrations of ozone to attainment levels in non-attainment areas. The two ground-level ozone precursor pollutants targeted to reduce ambient concentrations of ozone are nitrogen oxides (NO_x) and volatile organic compounds (VOC). In the atmosphere, NO_x may react with VOC in the presence of sunlight to form ozone. Once controls take effect and ambient levels of ozone drop and remain consistently at or lower than the standard, the EPA can change the designation of the area to attainment and modify required control strategies accordingly.

Air pollutants crossing state boundaries can result in violations of standards in one state due to emissions originating in one or more other states. To further protect ambient air ozone levels, pursuant to the CAA § 184(a), the Ozone Transport Commission (OTC) was created to develop regional control strategies for emissions of ozone precursor pollutants and thereby address regional ozone transport across state boundaries. OTC control strategies are effectively equivalent to those required for designated ozone non-attainment areas, even though portions of the OTC are, in fact, designated ozone attainment areas. The region encompassed by the OTC, often referred to as the Ozone Transport Region (OTR), is comprised of the six New England states (Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island), along with New York, New Jersey, Pennsylvania, Maryland, Delaware, and the Consolidated Metropolitan Statistical Area that includes the District of Columbia and part of northern Virginia.

The OTR was created over a quarter century ago through national political process. This proposal is the culmination of decades worth of atmospheric, monitoring, and other scientific data which clearly shows Maine does not contribute or cause exceedances of the ozone standard in Maine or elsewhere. When the OTR was first formed, parts of southern Maine were in non-attainment for ozone although northern Maine has always been in attainment. Since then, as VOC and NO_x emission control measures and strategies have been implemented throughout the country and including more aggressive efforts within the OTR, corresponding ozone levels have decreased, and Maine no longer experiences the high ozone levels of the past.

Monitoring data collected in the State of Maine has shown the State to be in attainment with the ozone NAAQS since 2004 for all areas of the State proposed to be removed from the OTR. Maine has been formally designated in attainment with the ozone NAAQS since 2007, yet the State remains a part of the OTR and still subject to additional requirements. Maine now petitions the EPA to remove portions of the State from the OTR in accordance with

CAA § 176A(a)(2), to allow Maine citizens a more appropriate regulatory structure while making possible a more holistic approach to environmental stewardship. The cited regulation (below, with emphasis added) provides the EPA Administrator authority to remove portions of the State of Maine from the OTR as requested in this petition.

Legal Authority for This Petition and Its Approval

§ 176A. Interstate transport commissions

(a) Authority to establish interstate transport regions

Whenever, on the Administrator's own motion or by petition from the Governor of any State, the Administrator has reason to believe that the interstate transport of air pollutants from one or more States contributes significantly to a violation of a national ambient air quality standard in one or more other States, the Administrator may establish, by rule, a transport region for such pollutant that includes such States. ***The Administrator, on the Administrator's own motion or upon petition from the Governor of any State, or upon the recommendation of a transport commission established under subsection (b) of this section, may—***

(1) add any State or portion of a State to any region established under this subsection whenever the Administrator has reason to believe that the interstate transport of air pollutants from such State significantly contributes to a violation of the standard in the transport region, or

(2) ***remove any State or portion of a State from the region whenever the Administrator has reason to believe that the control of emissions in that State or portion of the State pursuant to this section will not significantly contribute to the attainment of the standard in any area in the region.***

The Administrator shall approve or disapprove any such petition or recommendation within 18 months of its receipt. The Administrator shall establish appropriate proceedings for public participation regarding such petitions and motions, including notice and comment.

This petition shows that emissions from those portions of Maine proposed to be removed from the OTR will not significantly contribute to non-attainment of the standard in any area in the region.

Maine's Historical and Present Ozone Attainment Status and NO_x Waivers

Ozone has been a pollutant of concern in Maine for many years. Prior to the Clean Air Act Amendments of 1990, southern areas of the State of Maine were designated as non-attainment for the one hour 120 parts per billion ozone national standard. In 1997, federal law was changed such that 84 parts per billion on an 8-hour average became the standard. By 2004, Maine's monitoring network was demonstrating that this standard was being met. In 2008, the national standard was again lowered to an 8-hour average of 75 parts per billion, and Maine was designated in attainment of this standard. In 2015, the standard was lowered to an 8-hour average of 70 parts per billion, and again the State was designated in attainment for this standard. The following maps illustrate the progress that has been made in lowering the ozone levels in Maine.

Figure 1: Maine's 1979 1-Hour Ozone Designations: Non-attainment & Maintenance Areas

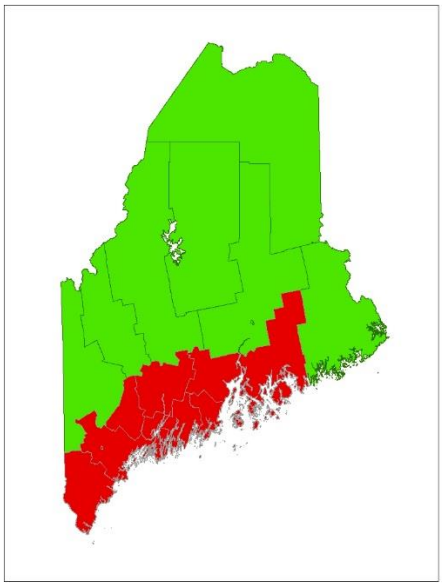


Figure 2: Maine's 1997 8-Hour Ozone Designations
2003: Designated Non-attainment
2004: Monitored Attainment
2007: Designated Attainment

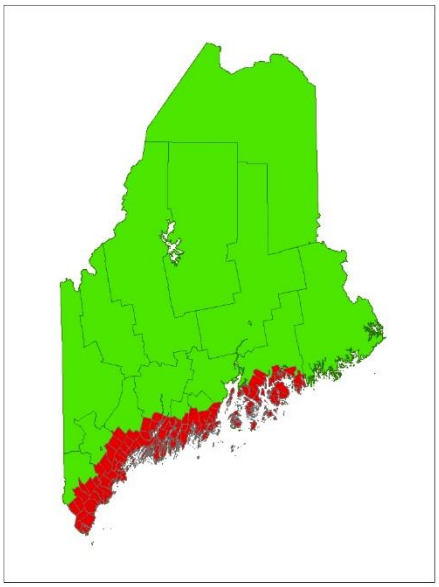
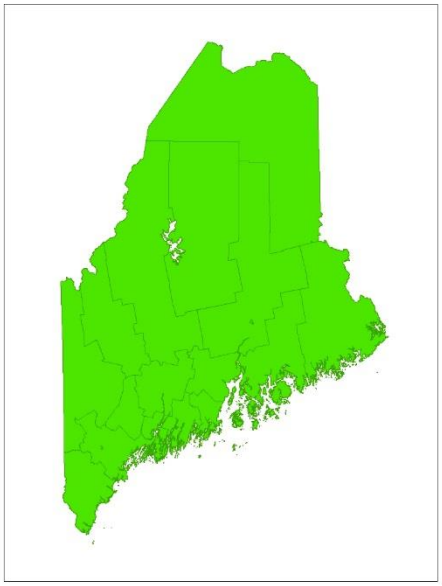
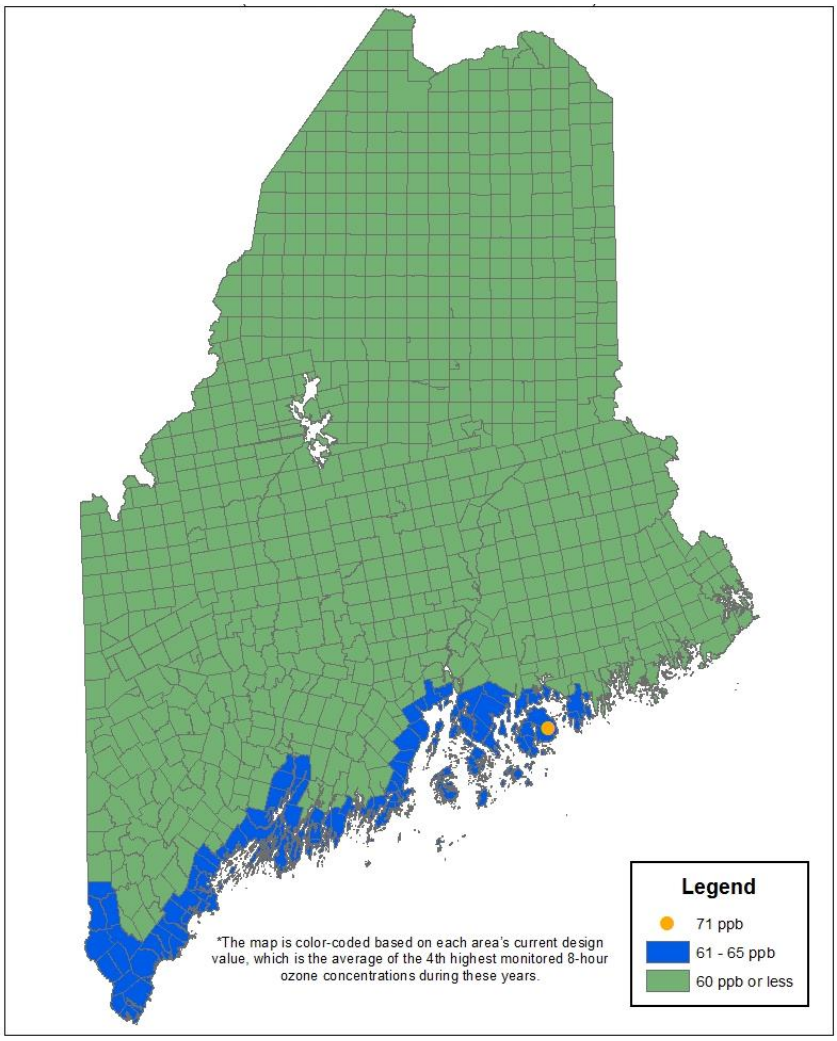


Figure 3: 2008 8-Hour Ozone Standard Designation: Attainment
2015 8-Hour Ozone Standard Designation: Attainment/Unclassifiable Statewide
(based on the 2016 Design Value)



In fact, the currently monitored ozone levels depicted in the following diagram show the State well below the national standard, with the only exception being the summit of Cadillac Mountain in Acadia National Park, which is clearly caused by pollution transport from outside Maine and not from within the State.

Figure 4: Maine's Monitored Ozone Levels
(based on data from 2015, 2016, and 2017)



The CAA also provides avenues for regulatory flexibility through Section 182(f), which provides waivers of nitrogen oxides controls in areas within the OTR that will not benefit from such additional controls. EPA has approved a NO_x Waiver for Maine three separate times: 1995, 2006, and 2014. As shown above, the actions neither impacted nor impeded the continued progress in achieving lower ozone levels in Maine. (See Appendix A for a chronological summary of Maine's historical ozone attainment status and NO_x waivers.) This petition, based on years of technical data, validates Maine's request to remove parts of the State from the OTR and recognizes there will be no detrimental impact to Maine's ozone attainment status or the status of any other state.

Maine's Ozone Monitoring Network

Maine operates a robust ozone monitoring network that exceeds federal monitoring requirements. See Appendix B for analyses of ozone monitoring data in the OTR and Maine. A comment submitted to EPA on Maine's most recent request for the § 182(f) NO_x Waiver questioned the adequacy of ozone monitoring in Maine. The State disagrees, and as provided in *Approval and Promulgation of Air Quality Implementation Plans; Maine; Nitrogen Oxides Exemption Request*, Fed. Reg.79, 43948 (U.S. EPA, 2014), EPA responded to this comment as follows:

> For a variety of reasons, MEDEP runs more ozone monitors than minimally required under EPA regulations at 40 CFR Part 58, Appendix D. This is especially true in southern Maine and along the entire coastline, where Maine records its highest levels of ozone.

Therefore, Maine is confident that data provided in Table B-1 of Appendix B is fully sufficient to demonstrate that Maine is attaining the 2015 8-hour ozone NAAQS in the portion of the State requested by this petition to be removed from the OTR.

Legal Obligations for Every State: The Good Neighbor Provision

Each state in the U.S., whether in the OTR or not, is required by the CAA to evaluate and minimize the impacts of emissions from that state on other states. Under CAA sections 110(a)(1) and 110(a)(2), each state is required to submit a state implementation plan (SIP) that provides for the implementation, maintenance, and enforcement of each primary and secondary NAAQS. This new SIP submission is commonly referred to as an "infrastructure SIP." Specifically, CAA section 110(A)(2)(D)(i)(1) requires the submittal to

> … contain adequate provisions … prohibiting, consistent with provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will … contribute significantly to non-attainment in, or interfere with the maintenance by, any other state with respect to any such national primary or secondary ambient air quality standard.

This is commonly known as the Good Neighbor SIP. This is required of all states whether part of the OTR or not when implementing a promulgated ozone standard.

The EPA provides guidance to assist states in developing Good Neighbor SIPs to address their interstate transport obligations for the 2015 ozone NAAQS. This guidance includes data and contribution modeling analyses based on future controls scenarios, which account for states' impacts on other states. This information summarizes controls in the OTR and other states which includes the requirements of the Cross-State Air Pollution Rule (CSAPR). CSAPR is a regional electrical generating unit nitrogen oxides cap and trade program implemented across the eastern United States to help bring the eastern part of the country into compliance with the national ozone standard.

OTR-Specific Requirements

In requiring regional control strategies for ozone precursor emissions to address the problem of regional transport across state boundaries within the context of the State Implementation Planning (SIP) process, all areas within the OTR – whether in attainment or not – became subject to several additional requirements, equivalent to those requirements applicable to moderate non-attainment areas.

Because of atmospheric transport patterns, Maine is often referred to as 'the tailpipe' of the U.S., being a downwind destination of pollutants carried by both short- and long-distance transporting air movement. As such, the State of Maine supports this regional approach to controlling emissions of pollutants which are precursors to ground-level ozone formation, particularly the regional control of NO_x in those states and regions that have been shown to contribute significantly to downwind non-attainment and/or interfere with maintenance of the ozone standard. However, Maine is faced with a basic equity problem: Its sources are subject to the same emission restrictions and requirements as those in upwind non-attainment areas, as well as more restrictive requirements than sources in certain upwind states that do contribute significantly to downwind non-attainment areas. Maine is subject to these requirements even though it has been classified as in attainment by EPA and has repeatedly demonstrated that emissions from Maine sources do not cause or contribute to non-attainment in any other state.

Maine has implemented OTR requirements for major sources of VOC or NO_x emissions which include the following:

- Existing sources must reduce VOC and NO_x emissions through Reasonably Available Control Technology (RACT), a more stringent regulatory control mechanism under the CAA. [See § 184(b)(1)(B) plan provisions for states in the OTR and § 182(b)(C), VOC RACT.]
- New major stationary sources and major modifications of NO_x or VOC in the OTR must comply with Lowest Achievable Emission Rates requirements and are subject to a 1.15-to-1 emission offset requirements. [See CAA § 182 (b) (5), § 184 (b) (2), § 182 (f), and Maine's 06-096 C.M.R. ch. 113 (2) (C).]

Additionally, being in the OTR mandates all sources, both major and minor, be subject to applicable requirements identified in VOC Control Techniques Guidelines (CTG). See Appendix C for a listing of the more than 30 CTGs applicable in the State of Maine which contain, for example, non-attainment level controls and requirements for surface coating of several different materials; storage, distribution, and transport of gasoline and other petroleum products; wood furniture manufacturing; boat manufacturing; portable fuel containers; and other specific activities.

The major new source review, OTR-related requirements for Maine sources hinder economic investment and development in the State. In recent years, Maine has lost several major industrial sources, and the thousands of jobs associated with them, for a variety of reasons. The regulatory hurdles involved to be able to invest in new, more efficient, and cleaner operations is one of those reasons. Investment in existing enterprises, which results in environmentally superior and more globally competitive facilities, must not continue to be

impeded by the burdens of additional OTR requirements without the intended environmental benefits. There are many projects that have been considered in the State of Maine but have been withdrawn or put on hold indefinitely due to the lack of availability of and economic burden to acquire emission offsets, simply because Maine is part of the OTR. Additionally, many VOC control options result in increased NO_x emissions which are not beneficial to ozone level reductions. Maine's emissions do not significantly impact any non-attainment areas and, therefore, should not be subject to OTR constraints designed to address regional ozone transport.

Understanding of the science and impacts of this broad regulation has increased tremendously since its promulgation. Today's application of OTR-related constraints to facilities in Maine does not achieve the results originally intended for the OTR. Withdrawal of portions of the State from the OTR will bring greater regulatory certainty to facilities, which will allow them to make decisions, allocate resources, and undertake improvements to realize greater economic and environmental benefits.

II. Statement of Petition

Maine bases this petition on a demonstration that NO_x and VOC emissions from Maine clearly are insignificant contributors to ozone in other states, and the fact that the State is in attainment for all NAAQS. These conclusions are derived from the supporting analyses included in this document.

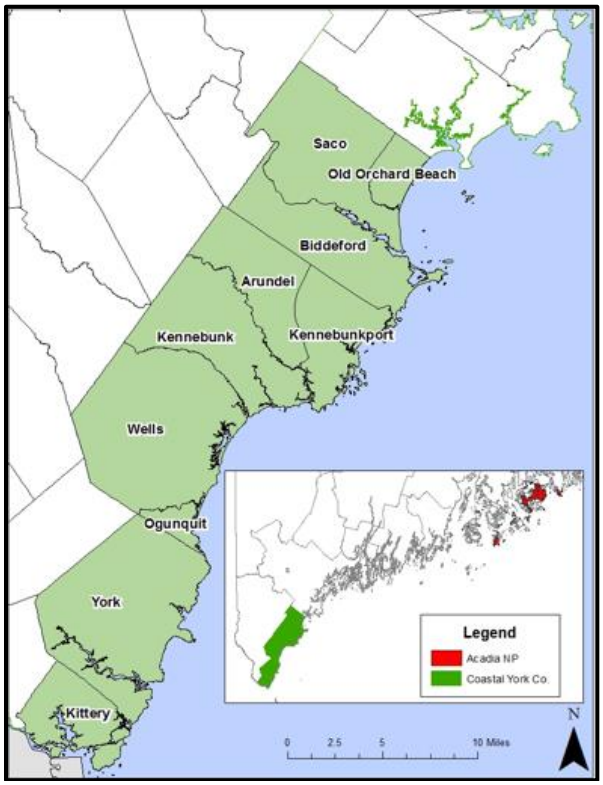
Maine DEP and EPA trajectory analyses demonstrate that Maine emissions were not transported toward the OTR on days when ozone exceedances were recorded. Additionally, EPA's apportionment modeling for the 2008 and 2015 ozone NAAQS further demonstrates that Maine's contribution to every monitoring site in other states within the OTR is less than one percent of both the 2008 and the 2015 8-hour ozone NAAQS.

Maine hereby requests that the State of Maine be removed from the OTR per the CAA § 176A(a)(2), except for Acadia National Park and the municipalities in York County as listed in Table 1, below, and displayed in Figure 1, below. Maine is requesting the State's OTR inclusion be similar to that of Virginia, where only a portion of that state is in the OTR. Ozone data collected within this portion of coastal York County and at the summit of Cadillac Mountain in Acadia National Park have historically been the highest in the State. Therefore, this portion of the State of Maine has more potential than the rest of the State to be impacted by ozone transport and to monitor violations of the 2015 ozone NAAQS. Maine considers it prudent to maintain that portion of the State as part of the OTR. Furthermore, Maine values the cooperative work among states that has been accomplished within the framework of the OTC, has benefitted from these efforts, and intends to be involved in future collaborative endeavors.

Table 1: Areas to Remain in the Ozone Transport Region

Maine Municipalities to Remain in the OTR
Arundel
Biddeford
Kennebunk
Kennebunkport
Kittery
Ogunquit
Old Orchard Beach
Saco
Wells
York
Other Areas in Maine to Remain in the OTR
Acadia National Park

Figure 5: Maine Municipalities and Acadia National Park to Remain in the OTR

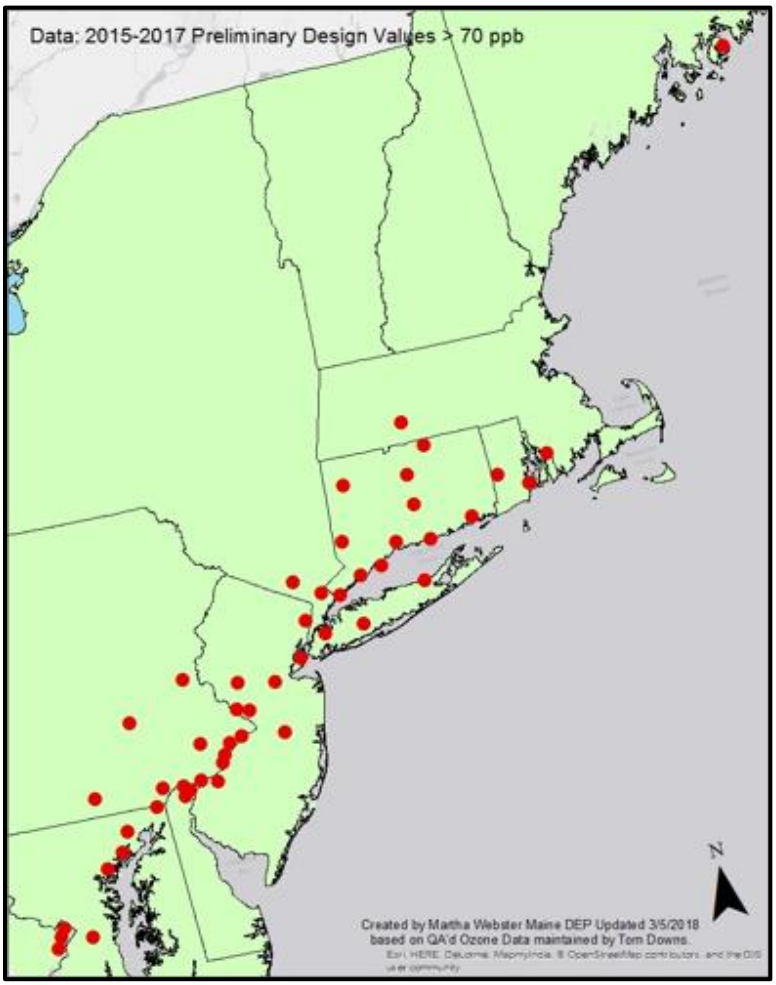


III. Technical Justifications

Technical analyses included in this petition include 2013-2017 analyses of ozone exceedance day back trajectories for certain monitors in New England, 2014-2016 back trajectory analyses for other monitors in southern OTR states, EPA's ozone apportionment modeling, and assessment of Maine's emissions inventory, all of which support the conclusion that NO_x and VOC emissions from Maine clearly are insignificant contributors to ozone non-attainment in any other state.

Figure 2 below displays certain ozone monitors recording exceedances in the OTR. (See Figures B-1 to B-3 in Appendix B for maps of design values for all monitoring sites within the northeast U.S. for each of the past three design value periods. The design value for a monitoring location is the average of each year's 4th highest daily 8-hour maximum monitored concentration.) As shown by Figure 2, certain monitors recording exceedances closest to the State of Maine are in Massachusetts, Rhode Island, and Connecticut. The monitor recording high ozone values at the summit of Cadillac Mountain in Acadia National Park is an area Maine DEP is proposing to remain in the OTR.

Figure 6: Certain Ozone Monitors Recording Exceedances in the OTR



A. Ozone Back Trajectory Analyses

A trajectory is a three-dimensional representation of the path an air parcel follows based on meteorological data. Forward trajectories are helpful for ascertaining if pollution was being transported from a single source to an area of interest, and back trajectories are helpful for ascertaining where transported pollution was being transported from multiple sources to a site of interest. The EPA's *Technical Guidance for Removing Areas from the Northeast Ozone Transport Region (OTR)* (U.S. EPA, 1995b) encourages the use of forward trajectories, starting two days prior to an exceedance from the center of the area under consideration for removal from the OTR. Maine DEP, under EPA's guidance, is using two day back trajectories to exceedance monitor locations in the OTR. The primary reasons are to focus on whether or not Maine's emissions contribute to ozone levels at exceedance monitor locations in the OTR during exceedance days and to show the primary transport routes to those locations. Historically, EPA has accepted back trajectory analyses for the Maine NO_x Waiver requests, and EPA used back trajectories instead of forward trajectories for their modeling apportionment and 2015 ozone NAAQS proposed non-attainment area analyses. Science continues to support the use of back trajectory analyses for this petition. The two day (48-hour) back trajectories for monitoring sites on exceedance days as included in this petition show conclusively that Maine's emissions do not significantly contribute to those monitored exceedances.

The National Oceanic and Atmospheric Administration (NOAA) Air Resources Laboratory's Hybrid Single Particle Lagrangian Integrated Trajectory (HYSPLIT) Model (Draxler, 1997) is a computer model used to create and map trajectories. The model uses gridded meteorological data, which is selected with the online model's graphical user interface. Using the HYSPLIT online version, Maine DEP staff meteorologists created the trajectories included in this analysis. EPA also used the HYSPLIT model to conduct back trajectory analyses that are also included in this document. See Appendix D for a more detailed explanation of the process.

2013-2017 Back Trajectory Analyses for Certain Southern New England Sites Monitoring Ozone Exceedances

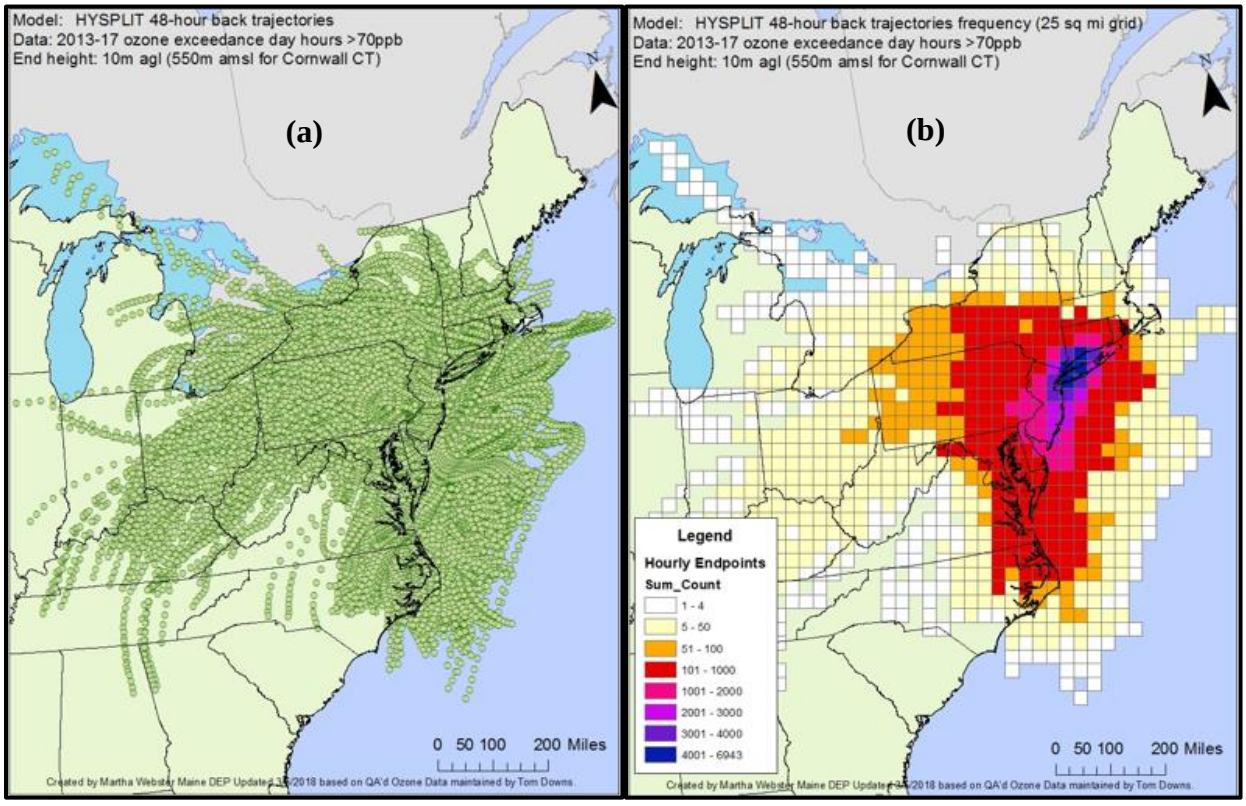
Maine DEP conducted back trajectory analyses for a total of 125 ozone exceedance days at certain monitoring locations in Massachusetts, Rhode Island, and Connecticut for the 2013 through 2017 ozone seasons. This five-year period was chosen to cover the years in the last three design value periods. A 48-hour back trajectory using an ending height of 10 meters above ground level at a monitoring location was created for each hour that ozone levels were greater than 70 ppb for every day that an 8-hour ozone exceedance was recorded at certain monitoring sites in Massachusetts, Rhode Island, and Connecticut. For the Cornwall, CT high terrain site, the elevation of the monitor (505 meters) above mean sea level was used for the ending height of the trajectories.

Figure 3(a) displays the hourly endpoints (total of 163,170) from all modeled back trajectories calculated for all days during the 2013-2017 ozone seasons when certain monitors in Massachusetts, Rhode Island, and Connecticut exceeded the 2015 ozone

NAAQS. This method demonstrates that Maine emissions are clearly insignificant contributors to ozone exceedances at these certain monitors in the OTR closest to Maine. Figure 3(b) presents the back trajectory analysis in a different way by color coding the total number of hourly end points in each of the 25x25 mile grid cells. Figure 3(b) not only illustrates that Maine emissions are clearly insignificant contributors to ozone exceedances at these certain monitors in the OTR, but it also highlights common transport paths from the south and the west, as illustrated by the darker colors. The area containing the greatest number of hours of atmospheric transport leading to ozone exceedances at those certain monitors is concentrated to the southwest, with almost no trajectory paths from Maine.

Appendix D contains additional ozone back trajectories and trajectory frequencies for these certain monitors by year. Considering that atmospheric transport patterns haven't changed over the years, this further supports the conclusion that Maine emissions are clearly insignificant contributors to ozone levels at the certain monitors within the OTR outside of Maine.

Figures 7(a) and (b): HYSPLIT 2013-2017 48-hr Back Trajectories and Trajectory Frequencies for Certain Monitors Recording Exceedances in Rhode Island, Massachusetts, and Connecticut



2014-2016 Certain OTC Sites Monitoring Ozone Exceedance Back Trajectory Analyses

Due to the combination of geography and ozone-event meteorology, the provided trajectory analyses for certain monitors recording exceedances in southern New England clearly demonstrate emissions from Maine sources are insignificantly contributing to ozone exceedances in the OTR outside of Maine. To further solidify this conclusion, trajectory analyses in technical support documents of EPA responses (U.S. EPA 2017b) to states' 2015 ozone NAAQS designation recommendations are included in this document.

EPA used the HYSPLIT model to map 2014-2016 24-hour back trajectories at 100, 500, and 1000 meters above ground level (AGL) for certain monitors recording ozone exceedances (see Appendix E for more details). Results of EPA's trajectory analyses for the monitors in the Greater Connecticut (see Figure 4) and New York-Northern New Jersey-Long Island, NY-NJ-CT (see Figure 5) proposed non-attainment areas show a similar pattern as shown in Figures 3(a) and 3(b), with no transport from Maine, but rather transport from the southwest near the surface and from the west at higher levels in the atmosphere.

Figure 8: HYSPLIT Back Trajectories for Monitors in the Greater Connecticut Non-Attainment Area

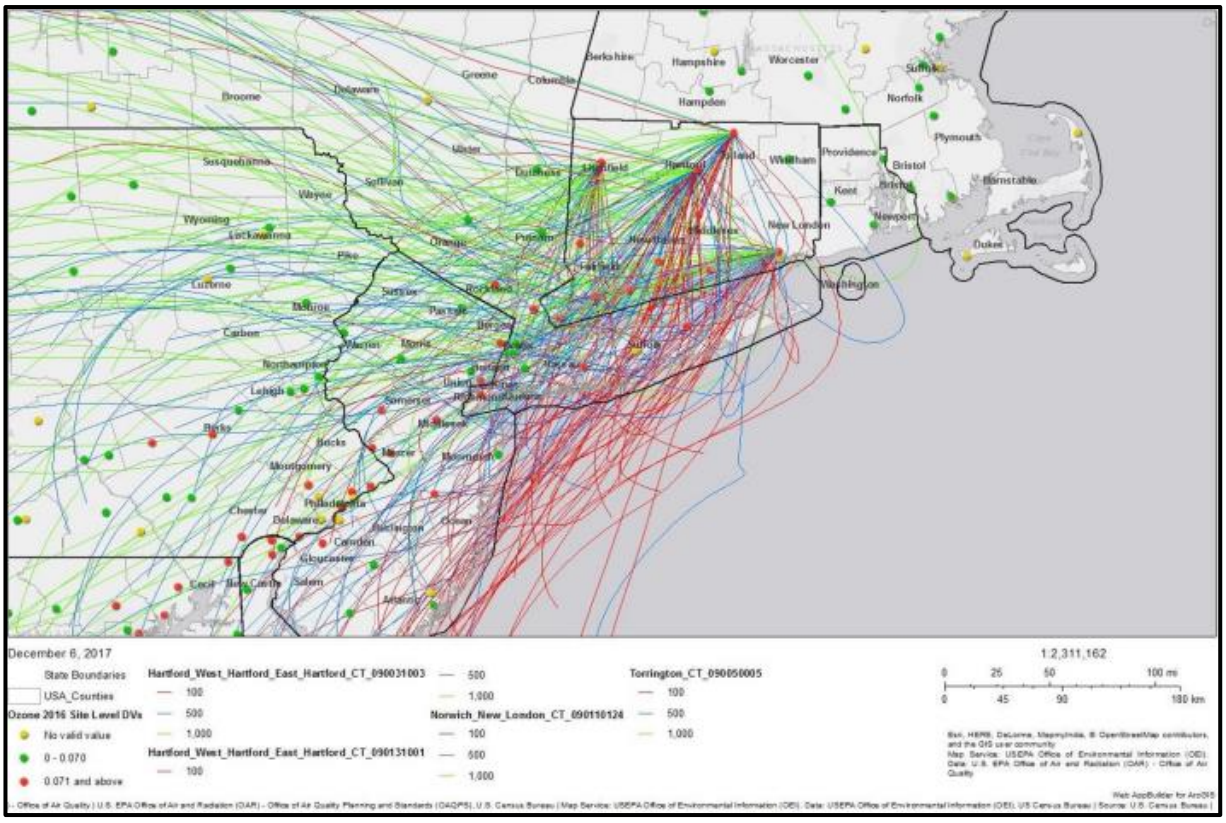
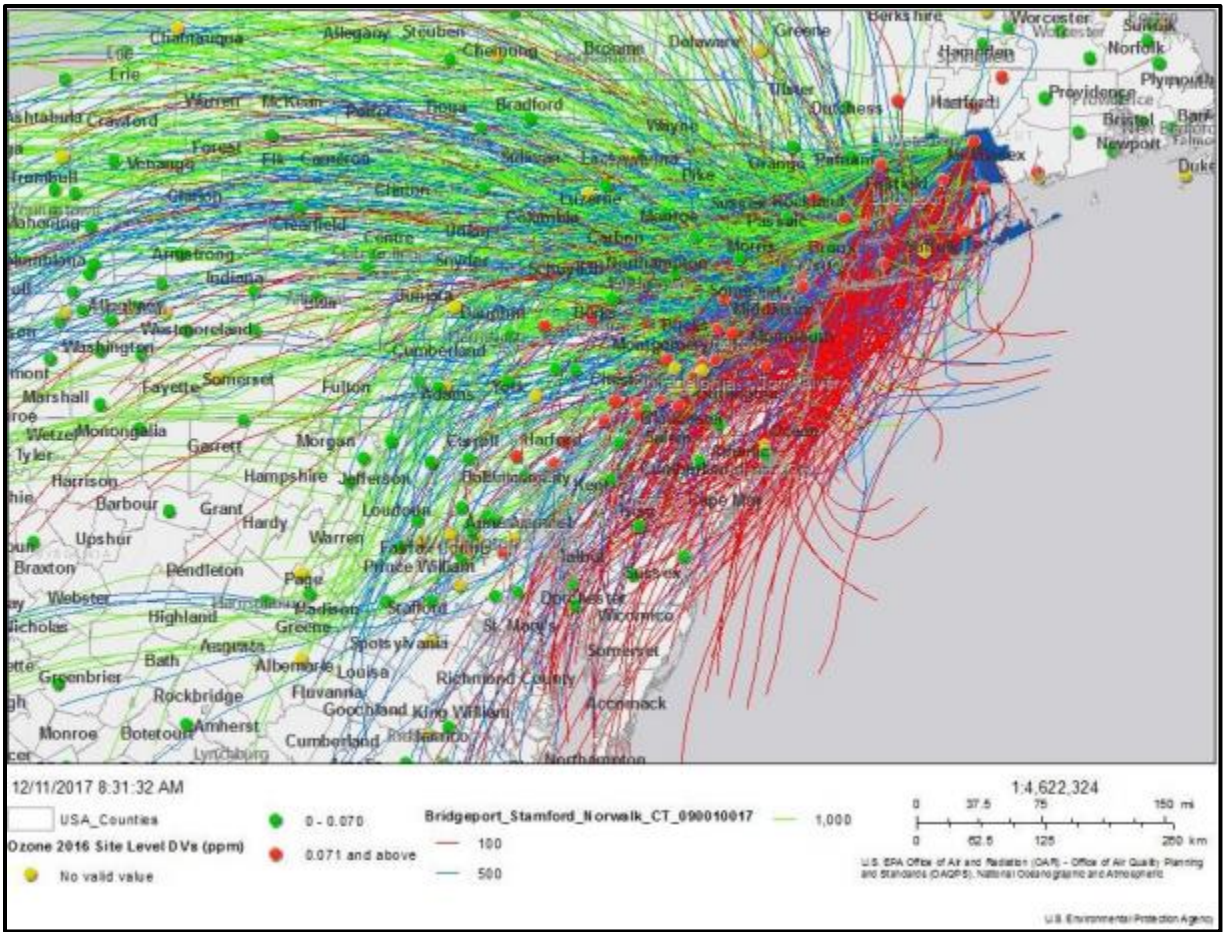


Figure 9: HYSPLIT Back Trajectories for Monitors in the New York-Northern New Jersey-Long Island, NY-NJ-CT Non-Attainment Area



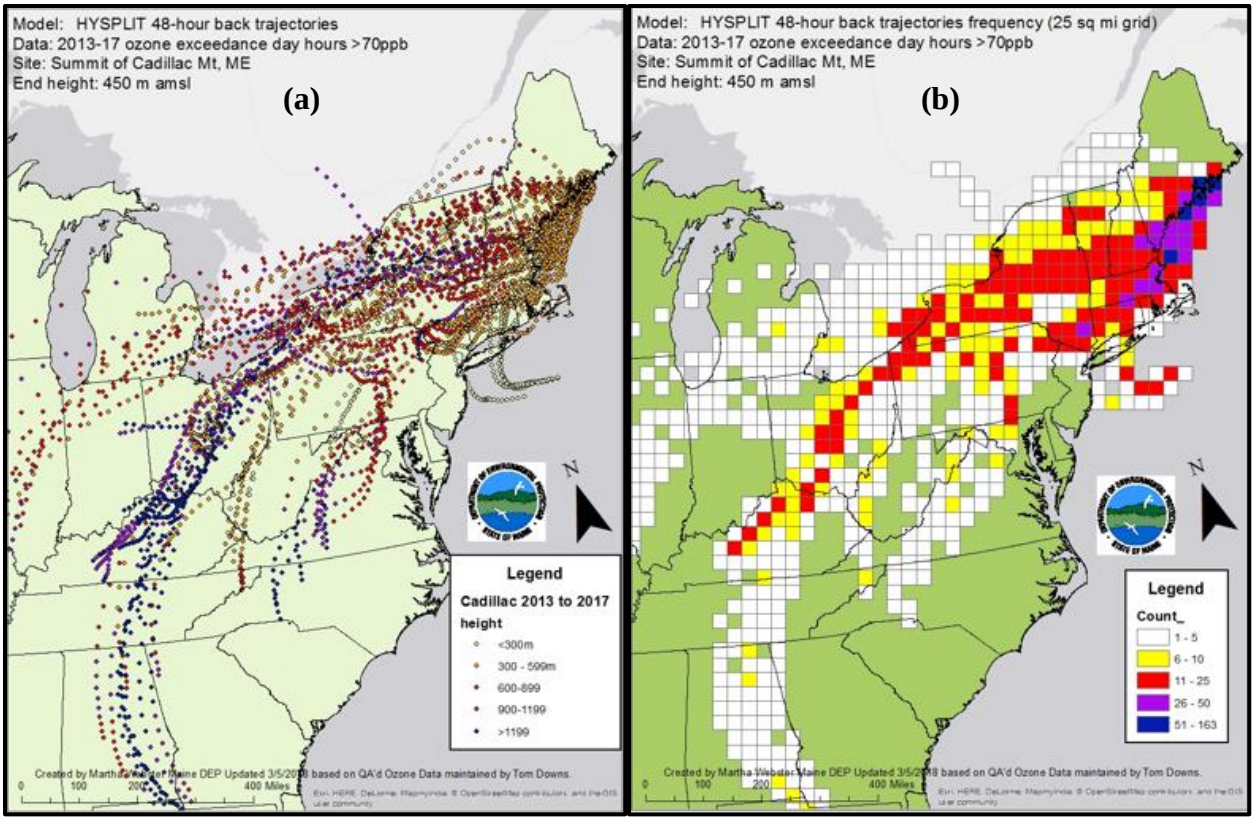
EPA's trajectory analyses for monitors recording exceedances further to the south (see Figures E-3 – E-23 of Appendix E) are more complicated, as major source regions (New York City and Philadelphia metropolitan areas) are located between Maine and the these monitors. Most trajectories again show transport primarily from the west and southwest, but there are some trajectories showing transport from New York City and Philadelphia metropolitan areas to the these monitors. Triangulation of these back-trajectory analyses shows that large metropolitan areas in the core of the OTR (such as New York City and Philadelphia metropolitan areas) are some of the primary source regions of transported ozone impacts from the north and northeast being recorded by monitors recording exceedances in southern areas of the OTR, rather than Maine or other northern New England states.

Summit of Cadillac Mountain, Maine 2013-2017 Back Trajectory Analyses

Maine DEP conducted 48-hour back trajectory analyses of all 2013-2017 ozone exceedance days for the monitoring site at the summit of Cadillac Mountain in Acadia National Park. Since this is an elevated site, back trajectories ended at the height of 450 meters above mean sea level, which is near the elevation of the summit (466 meters).

For these back trajectories, the height of each of the hourly endpoints is shown in Figure 6(a), with trajectory endpoint frequencies shown in Figure 6(b). There are many evident transport flows to this site, with the most frequent flow at low heights from southern New England out into the Gulf of Maine, and along the coast of Maine to the monitoring site. The second most frequent transport flow shows an elevated plume from the Ohio Valley being transported to Central New England, sinking down to lower heights over coastal Maine and the Gulf of Maine, and then progressing to the monitoring site. Another, less frequent transport route is from the Great Lakes (Chicago, Detroit, Toronto, etc.) region flowing through Northern New England to the monitoring site.

Figures 10(a) and (b): HYSPLIT 2013-2017 48-hr Back Trajectories and Trajectory Frequencies for the Monitor at the Summit of Cadillac Mountain, Maine

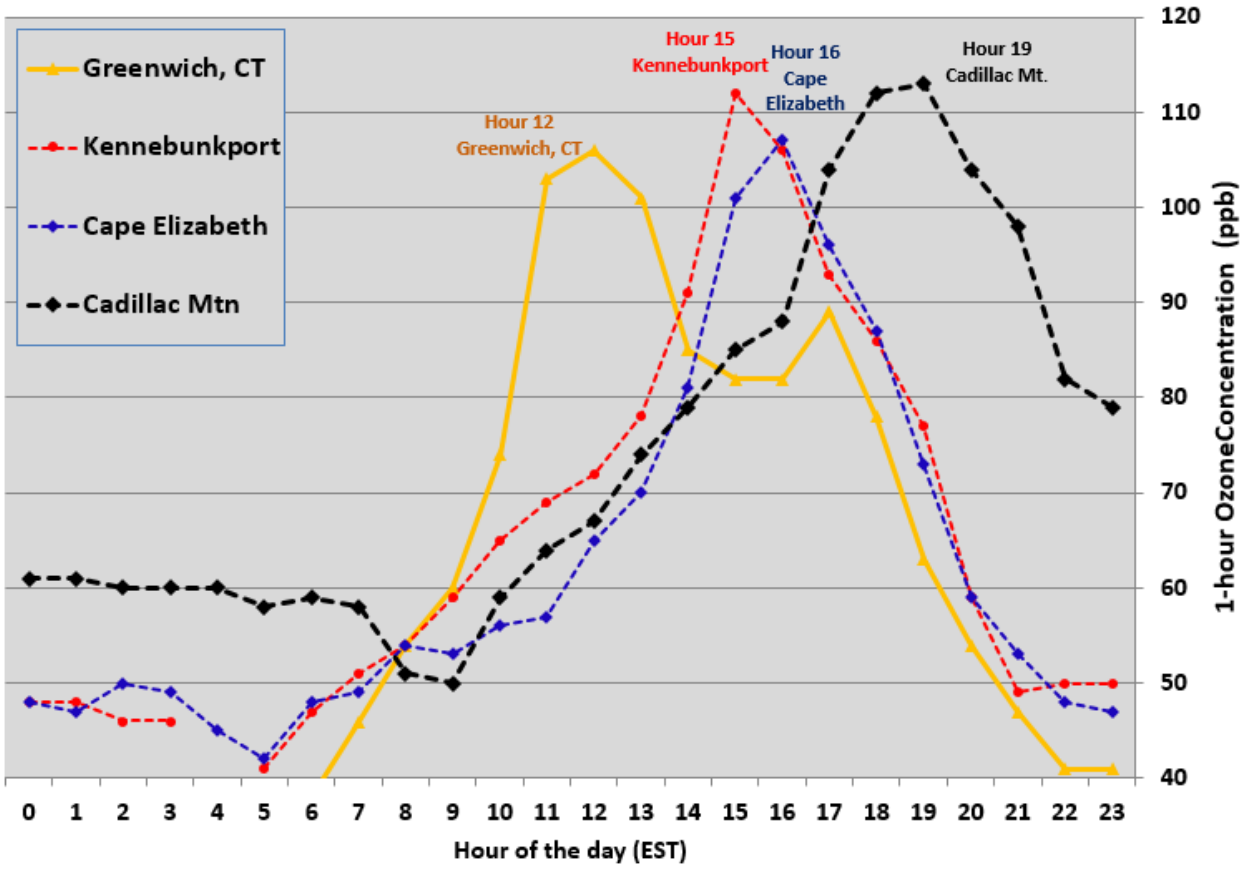


Ozone Transport to Sites Along the Maine Coast

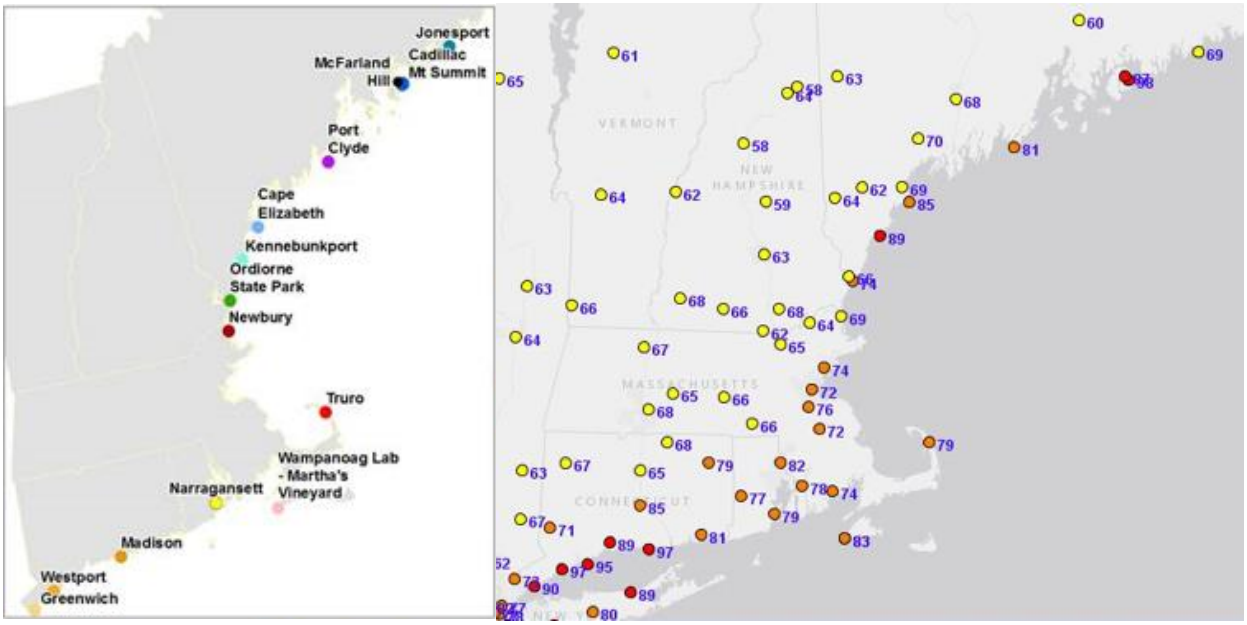
The primary ozone transport route to high elevations of Acadia National Park is over the Gulf of Maine and along the Maine coastline. Historically, during ozone events in Maine, peak ozone levels are monitored first along the southern Maine coast, then they are monitored later in the day at downwind locations as the air mass moves along the coastline to the Northeast. As an example, Figure 7 shows the coastal track of a high-ozone air mass which occurred during the June 12, 2017, event, with peak ozone levels monitored at the summit of Cadillac Mountain four (4) hours after the peak ozone level was recorded at the Kennebunkport monitoring site and seven (7) hours after the peak ozone level was recorded at a Connecticut monitoring site just outside of New York City. Figure 8(a) shows the

locations of those sites, and Figure 8(b) shows maximum 8-hour ozone concentrations in New England where exceedances occurred from southern New England to along the coast of Maine. Figure 9(a), from NARSTO 2000 (formerly North American Research Strategy for Tropospheric Ozone), citing Blumenthal *et al*, 1997, shows typical transport patterns when ozone events occur in the Northeast (Blumenthal and NARSTO). Long-range (synoptic scale) transport aloft occurs from the Midwestern states. Regional scale transport occurs in nocturnal low level jets over the northeast urban corridor, and sea breezes can transport ozone to coastal Maine. Trajectory analyses for ozone events at the summit of Cadillac Mountain in Figures 6(a) and 6(b) show a similar transport pattern aloft from the Midwestern states for the June 12, 2017, event. Figure 9(b) shows surface wind streams during the afternoon of June 12, 2017, where the sea breeze transport pattern matches the historical transport pattern for ozone events along the Maine coast.

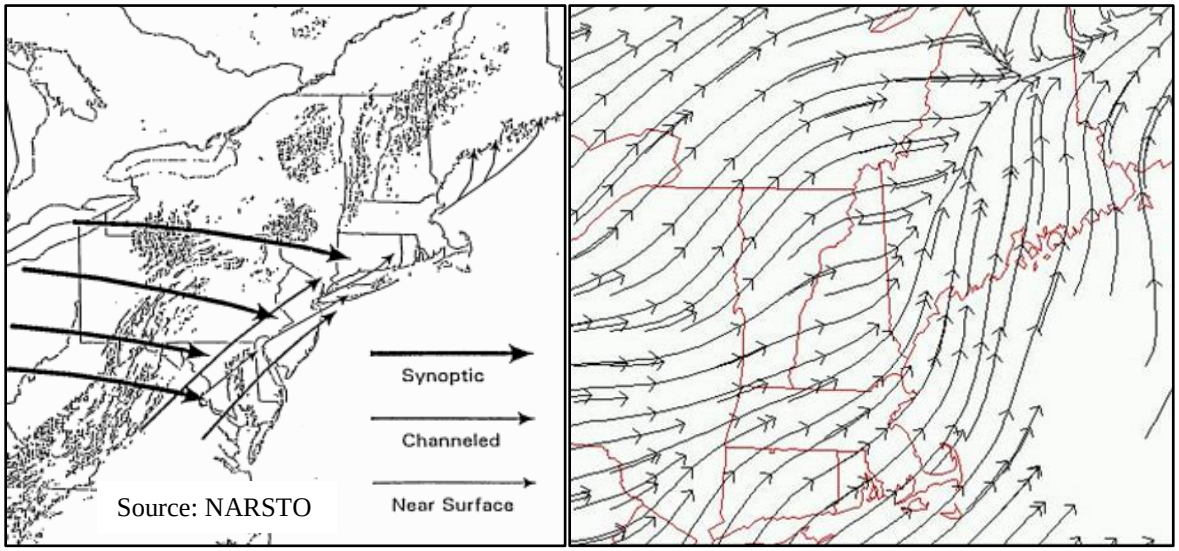
Figure 11: June 12, 2017 Hourly Ozone Concentrations (ppb) at a Site Near New York City and at Sites Along the Coast of Maine



Figures 12(a) and (b): Coastal Ozone Monitoring Sites in New England and Maximum 8-Hour Ozone Levels (ppb) During June 12, 2017



Figures 13(a) and (b): Historical Ozone Transport Routes in the Northeast and June 12, 2017 1 PM (18Z) Surface Wind Streamlines



Back Trajectory Analyses Synthesis

This petition's results of ozone back trajectories for certain monitors recording exceedances in the OTR outside of Maine support the conclusion that NO_x and VOC emissions from Maine emissions are clearly insignificant contributors to ozone NAAQS exceedances at those monitoring locations. Even if emissions of ozone precursors were to increase in Maine, this State would continue to be in attainment with the 2015 ozone NAAQS and would not negatively affect ozone levels in other states. The results of

trajectory-and-time series analyses for the summit of Cadillac Mountain shows that transport over water, transport along the land-water interface (Maine's coastline), and transport of the aloft ozone reservoir from other areas both in and outside of the OTR supports the conclusion that emission controls in areas outside of Maine are needed to reduce ozone levels in the coastal areas of Maine.

B. EPA Ozone Apportionment Modeling Results

EPA ozone apportionment modeling (U.S. EPA, 2018) can be used to help states determine ozone transport contributions from their state and to other states' non-attainment and maintenance areas. Results from the Cross-State Air Pollution Rule (CSAPR) Update modeling for the 2008 ozone NAAQS and results from the recently released (May 2018 update) interstate transport modeling for the 2015 ozone NAAQS will be evaluated in this document to determine Maine's contributions to non-attainment and maintenance monitors in the OTR. These results are useful to illustrate that emissions from Maine are clearly insignificantly contributing to ozone formation at certain monitors recording ozone exceedances in the OTR outside of Maine.

On September 7, 2016, EPA released results of ozone apportionment modeling and supporting documentation for the 2008 75 ppb 8-hour ozone NAAQS as part of the Cross-State Air Pollution Rule (CSAPR) Update (U.S. EPA, 2016a). The CSAPR Update modeling estimated 2017 emissions by growing out the 2011 base year emissions using 'on-the-books' regulations. The 2017 modeling case used the 'ek' version of the emission inventory. On March 27, 2018, EPA released a memo and supplemental information regarding Interstate Transport SIPs for the 2015 70 ppb 8-hour ozone NAAQS. In May 2018, EPA revised the contribution metric spreadsheet to include the most recent design values and information regarding state contributions. The 2015 interstate transport modeling estimated 2023 emissions by growing out a revised 2011 base year emissions using additional federal rules. The 2023 modeling case used the 'en' version of the emission inventory. Details of the 2011 Version 6.3 Platform 2011, 2017, and 2023 emission inventories used in the modeling analyses are located on the following EPA website: https://www.epa.gov/air-emissions-modeling/2011-version-63-platform. Among the key differences between 2011 emissions data used in CSAPR Update modeling and 2015 ozone NAAQS transport contribution modeling are updates to mobile source emissions, updated EGU emissions, inclusion of forest fire emissions from border countries Canada and Mexico, and additional federal rules.

Table 2 displays modeling results from both models. EPA's CSAPR Update modeling determined ozone design values in 2017 and each state's contribution to that value for the 2008 8-hr ozone NAAQS of 75 ppb. The same was done in the 2015 ozone NAAQS of 70 ppb interstate transport assessment for the year 2023. Information in Table 2 is the maximum contribution from Maine to any site in each OTR state that was included in either modeling, listed in descending order of Maine's ozone contribution based on CSAPR Update modeling data.

Table 2: Maine's Maximum Modeled Ozone Contribution

OTR State	2008 Ozone NAAQS CSAPR Update for 2017 (ppb)	2015 Ozone NAAQS Transport Assessment for 2023 **'en'** (ppb)
New Hampshire	0.47	n/a
Massachusetts	0.18	0.13
New Jersey	0.11	0.06
Connecticut	0.03	0.02
Pennsylvania	0.02	0.03
Rhode Island	0.02	0.02
New York	0.01	0.09
Virginia	0.01	0.00
Maryland	0.00	0.01
Delaware	0.00	0.00
District of Columbia	0.00	0.00

EPA uses a one percent threshold to link a state as a significant contributor to ozone levels in another area. For the 2008 ozone NAAQS and 2015 ozone NAAQS, one percent equals 0.75 ppb and 0.70 ppb, respectively. In the CSAPR Update modeling, Maine's largest contribution to any other state is to New Hampshire (which is in attainment) at 0.47 ppb, which is less than one percent of the 2008 ozone NAAQS. In the 2015 Ozone Transport Assessment modeling, Maine's largest contribution to any other state is to Massachusetts at 0.13 ppb, which is less than one percent of the 2015 ozone NAAQS. Maine concludes that both modeling results for the 2008 8-hour ozone NAAQS and the preliminary modeling results for the 2015 8-hour ozone NAAQS demonstrate that Maine emissions are clearly insignificant contributors to ozone non-attainment issues in other states.

EPA's CSAPR Update modeling also determined 'non-attainment' and 'maintenance' monitor designations. In Table 3, sites determined to be either non-attainment or maintenance monitors within the OTR are listed in descending order of Maine's contribution. Modeling results in this table show Maine's highest contribution at these sites is 0.01 ppb, with all other sites displaying a zero contribution from Maine.

Table 3: CSAPR Update Model Determined Non-attainment and Maintenance Sites in the OTR

Monitor ID	State	County	2009-2013 Base Period Average Design Value (ppb)	2009-2013 Base Period Maximum Design Value (ppb)	2017 Modeled Average Design Value (ppb)	2017 Modeled Maximum Design Value (ppb)	Maine's Contri-bution (ppb)
90010017	Connecticut	Fairfield	80.3	83	74.1	76.6	0.01
90013007	Connecticut	Fairfield	84.3	89	75.5	79.7	0.00
90019003	Connecticut	Fairfield	83.7	87	76.5	79.5	0.00
90099002	Connecticut	New Haven	85.7	89	76.2	79.2	0.00
240251001	Maryland	Harford	90.0	93	78.8	81.4	0.00
360850067	New York	Richmond	81.3	83	75.8	77.4	0.00
361030002	New York	Suffolk	83.3	85	76.8	78.4	0.00
421010024	Pennsylvania	Philadelphia	83.3	87	73.6	76.9	0.00

EPA's 2015 Ozone NAAQS Interstate Ozone Transport Modeling also determined 'non-attainment' and 'maintenance' monitors, none of which are located within the State of Maine. In Table 4, the sites determined to be either non-attainment or maintenance monitors within the OTR are listed in descending order of Maine's contribution. The modeling results in this table show Maine's highest contribution at these sites is 0.01 ppb, with all other sites displaying a zero contribution from Maine. Although no sites in Maine were determined to be non-attainment or maintenance sites, modeling results are available for the Kennebunkport monitoring site on the coast in York County. The maximum modeled 2023 design value for the Kennebunkport site is 60.7 ppb, Maine's contribution to which was modeled to be 1.08 ppb. The total anthropogenic ozone contribution from upwind states was 96.9%. For both ozone standards, Maine emissions are clearly insignificant contributors to non-attainment and maintenance within the OTR.

Table 4: Interstate Ozone Transport Model Determined Non-Attainment and Maintenance Sites in the OTR

Monitor ID	State	County	2009-2013 Base Period Maximum Design Value (ppb)	2023 Modeled Average Design Value (ppb)	2023 Modeled Maximum Design Value (ppb)	2014-2016 Design Value (ppb)	Maine's Contri-bution (ppb)
09-001-0017	Connecticut	Fairfield	83	68.9	71.2	80	0.01
09-001-3007	Connecticut	Fairfield	89	71.0	75.0	81	0.01
09-001-9003	Connecticut	Fairfield	87	73.0	75.9	85	0.00
09-009-9002	Connecticut	New Haven	89	69.9	72.6	76	0.01
24-025-1001	Maryland	Harford	93	70.9	73.3	73	0.00
36-081-0124	New York	Queens	80	70.2	72.0	69	0.00
36-103-0002	New York	Suffolk	85	74.0	75.5	72	0.01

A recent weather event in the Northeast U.S. (June 27, 2018 – July 4, 2018) demonstrated clearly that Maine emissions do not cause exceedances of the standard in Maine. During that several-day period, stagnant wind conditions minimized the amount Maine was impacted by other states and kept Maine's own emissions primarily within the state. Maine did not exceed the standard, whereas the metropolitan areas to our south did monitor many areas exceeding the standard for multiple days.

Due to a combination of geography, ozone-event meteorology, and EPA modeling results, Maine DEP has concluded that analyses for certain monitors recording ozone exceedances closest to Maine in southern New England show that Maine's emissions are clearly insignificant contributors to non-attainment areas in any other state. To further solidify this conclusion, EPA's Air Quality Modeling Technical Support Document (U.S. EPA, 2016b) for the CSAPR Update includes a trajectory analysis for the 2008 ozone NAAQS which is in Appendix E of this petition. EPA's own trajectory analysis further demonstrates that Maine does not significantly contribute to non-attainment within any other state. Trajectory analyses in the 2015 modeling technical support documents, Maine DEP's trajectory analyses, and EPA 2015 ozone designation trajectory analyses show no

major transport pattern changes since 2012, the last year used in the CSAPR Update trajectory analysis.

C. Emissions Data

Using 2014 Version 2 National Emissions Inventory (NEI) emissions data (U.S. EPA, 2017b), NO_x and VOC emissions data for all states in the OTR were tallied by state into anthropogenic and biogenic source categories. Total annual anthropogenic NO_x emissions for the entire State of Maine are less than 3% of the OTR total, as displayed in Table 5. Total annual anthropogenic VOC emissions for the entire State of Maine are about 3% of the OTR total, as displayed in Table 5.

Table 5: OTR 2014 NEI NO_x and VOC Emissions Inventory by State

OTR State	Annual NO_x Emissions (TPY)		Annual VOC Emissions (TPY)	
	Anthropogenic	Biogenic	Anthropogenic	Biogenic
Connecticut	63,019.90	576.08	82,522.18	60,645.85
Delaware	27,721.35	719.97	20,565.97	21,962.85
District of Columbia	8,566.19	12.26	8,938.94	1,350.28
Maine	52,408.39	2,413.13	58,856.94	436,878.38
Maryland	138,794.29	2,992.36	124,580.94	142,009.23
Massachusetts	127,360.88	868.61	85,986.39	97,680.93
New Hampshire	38,104.78	657.61	40,914.50	104,256.71
New Jersey	156,590.33	1,255.00	175,443.25	102,877.18
New York	330,989.12	8,620.89	413,841.85	381,551.21
Pennsylvania	493,292.79	9,343.22	486,451.82	439,423.86
Rhode Island	24,719.70	159.57	23,540.81	16,899.26
Vermont	15,717.13	1,205.02	27,669.60	79,524.71
Virginia	276,721.13	8,806.88	279,167.81	801,123.60
OTR Total	1,754,005.97	37,630.61	1,828,480.99	2,686,184.05
Maine's Portion	2.99%	6.41%	3.22%	16.26%

Maine's most recent NO_x Waiver generated a comment that other states in the OTR also have low emissions. Maine's emissions occur over a relatively large geographical area, and not only are emission levels from Maine sources comparatively small, but emissions are clearly not transported toward areas in the OTR when and where ozone exceedances are occurring, as demonstrated by both Maine DEP's and EPA's trajectory analyses.

In addition to NEI total emissions data presented in Table 5, it is appropriate to consider emissions from within Maine that would be targeted for further reductions if all of Maine was to remain in the OTR. To provide perspective to Maine's emissions, Maine's point source emissions from the Maine Air Emissions Inventory Reporting system (MAIRIS) for NO_x and VOC have been trending downward over the last 25 years, as presented in Table 6 and Figure 10. Maine's annual VOC point source emissions for 2014 were 3,042 tons (Table 6), while Maine's 2014 biogenic VOC emissions were 436,878 tons (Table 5). Consequently, Maine's point source VOC emissions are approximately 0.7% of Maine's natural VOC emissions. Therefore, any emissions reductions from within the State that could possibly be realized because of being in the OTR are rendered inconsequential in comparison to the naturally occurring VOC emissions from Maine's forests.

Table 6: Maine Point Source MAIRIS Emissions

Year	Annual VOC Emissions (Tons)	Annual NO_x Emissions (Tons)		Year	Annual VOC Emissions (Tons)	Annual NO_x Emissions (Tons)
1990	9,183	30,712		2007	5,022	17,743
1995	5,857	24,273		2008	4,253	16,557
2000	6,540	23,523		2009	3,267	13,359
2001	5,969	21,622		2010	3,767	13,814
2002	5,232	20,232		2011	3,429	13,101
2003	4,937	19,414		2012	3,397	13,469
2004	5,045	17,918		2013	3,629	12,569
2005	4,789	19,980		2014	3,042	11,962
2006	4,783	18,020		2015	2,839	10,850
				2016	2,623	9,829

Figure 14: Maine Point Source Emissions Trends

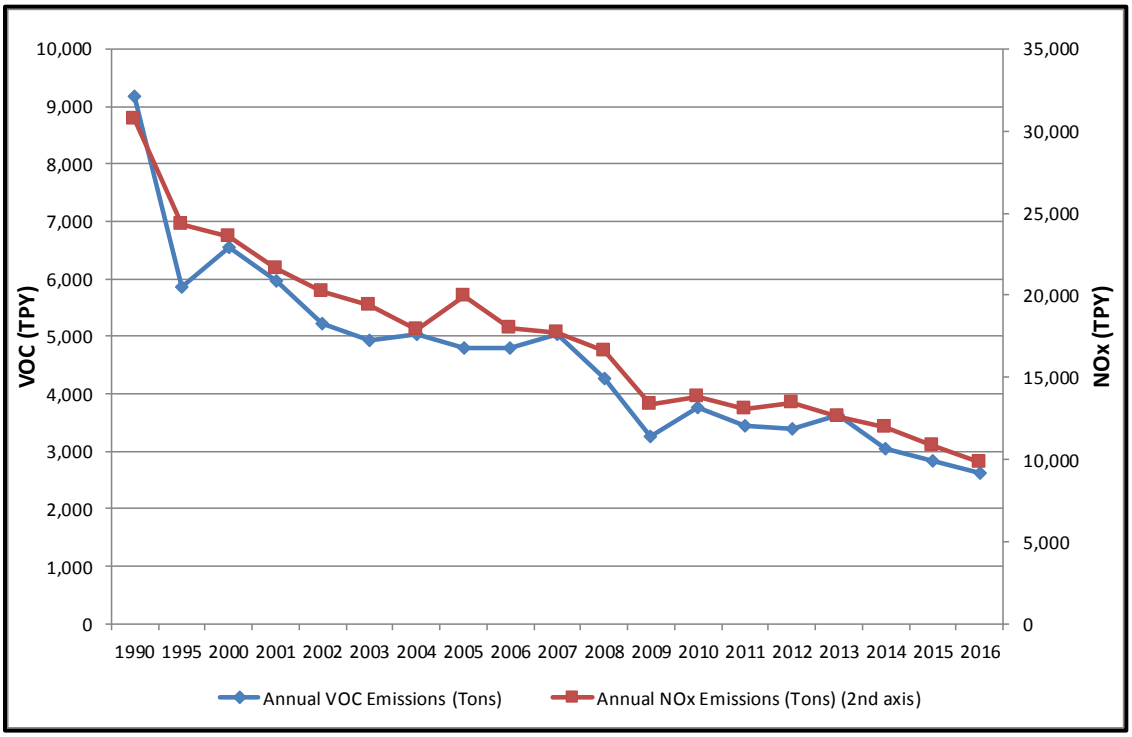


Table 7 shows the latest 2011 and 2023 modeling emission inventories for Maine's anthropogenic emissions using data for the sectors and from sources as identified in the table. Results show that emissions will remain significantly below 2011 levels in 2023, especially in the mobile source category that currently is the highest contributor.

Table 7: OTC 2011 Base Year Emissions / 2023 Gamma Emissions (tons per year)

Type	Anthropogenic Emissions Sector	2023 Gamma Inventory	2011 NO_x	2011 VOC	2023 NO_x	2023 VOC
Point	ERTAC Electric Generating Units (EGU)	ERTAC v2.7	575	44	240	19
Point	Non-EGU	MARAMA Gamma	12,942	3,458	11,766	3,280
Point	Oil & Gas	EPA v6.3 en	64	51	56	51
Subtotal			**13,581**	**3,552**	**12,062**	**3,351**
Mobile	Locomotive Marine (C1C2)	EPA v6.3 en	5,210	140	2,328	60
Mobile	Locomotive Rail	EPA v6.3 el			1,365	53
Mobile	Commercial Marine Vessels (C3)	EPA v6.3 en	1,215	41	1.079	71
Mobile	Non-road	EPA v6.3 en	6,734	26,464	4,552	15,427
Mobile	On-road	EPA v6.3 el	27,770	13,503	7,687	4,523
Subtotal			**40,928**	**40,148**	**17,011**	**20,134**
Area	Agricultural Burning (Agfire)	EPA v6.3 ek	1	2	1	1
Area	Non-point	EPA v6.3 ek	4,367	13,216	2,723	12,242
Area	Prescribed Burning	2011 MARAMA Beta	43	971	43	971
Area	Residential Wood Combustion	EPA v6.3 el	485	7,048	458	6,342
Subtotal			**4,896**	**21,236**	**3,224**	**19,556**
TOTAL			**59,405**	**64,937**	**32,298**	**43,040**

Based on data in the EPA March 27, 2018, memorandum, "Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standard under Clean Air Act Section 110(a)(2)(D)(i)(I)," in 2023, stationary sources will account for less than 38% of Maine's anthropogenic NO_x emissions and less than 8% of Maine's anthropogenic VOC emissions. Thus, if a NO_x waiver would again be granted as it has in the past, this action addresses only 8% of Maine's 1%-3% contribution to ozone levels in the State on higher ozone days, a truly de minimis amount. Therefore, the continued imposition of OTR restrictions on stationary sources in Maine is misplaced and would be ineffective in bringing about the desired changes.

D. Mobile Source Considerations

EPA's technical guidance for removing regions from the OTR (U.S. EPA 1995b) encourages States to demonstrate that emissions from vehicles sold in the State will not impact air quality if driven in other OTR states. Since the 1995 guidance became available, EPA has updated Tier 3 vehicle standardized emissions program requirements for the entire country, making that provision of the guidance document obsolete. Under the updated national requirements, vehicles purchased in Maine and driven in other OTR states will not emit more than vehicles purchased in other OTR states.

E. Emissions Control Requirements

Required controls for existing facilities in Maine will not be reduced upon removal of portions of the State from the OTR, thus ensuring that air quality does not degrade. This will also eliminate any potential for backsliding, consistent with anti-backsliding provisions of the CAA. Maine's proposal does not remove or modify any existing control measures contained in the Maine SIP. Pursuant to section 110(l) of the CAA, the removal or modification of control measures in the SIP requires EPA approval and an affirmative demonstration that such a removal or modification will not interfere with attainment of the NAAQS, rate of progress, reasonable further progress, or any other applicable requirement of the CAA.

Regulatory requirements for new or expanding facilities in Maine will also not be relaxed from those currently required. In Maine, emissions from new sources or modified sources with emissions increases are subject to Best Available Control Technology (BACT), an emission limitation based on the maximum reduction achievable for each pollutant considering energy, environmental, and economic impacts and other costs. In the OTR, emissions of ozone precursors above certain levels from new or expanding facilities must meet the Lowest Achievable Emission Rate (LAER), the most stringent emission limitation achieved in practice by that class or category of source. For Maine facilities, LAER emissions controls are not substantially different from those required by BACT. Controls for emissions from new or modified Maine sources after removal from the OTR will not appreciably differ from those required now; the most notable difference will be removal of the requirement to obtain emissions offsets for emissions of ozone precursors.

Upon receiving approval of this petition, Maine will initiate rulemaking to revise certain State rules to include appropriate provisions for non-attainment areas consistent with the CAA but to remove language subjecting the entire State to such provisions by default because of inclusion in the OTR.

IV. EPA Denial of CAA § 176A Petition to Expand the OTR

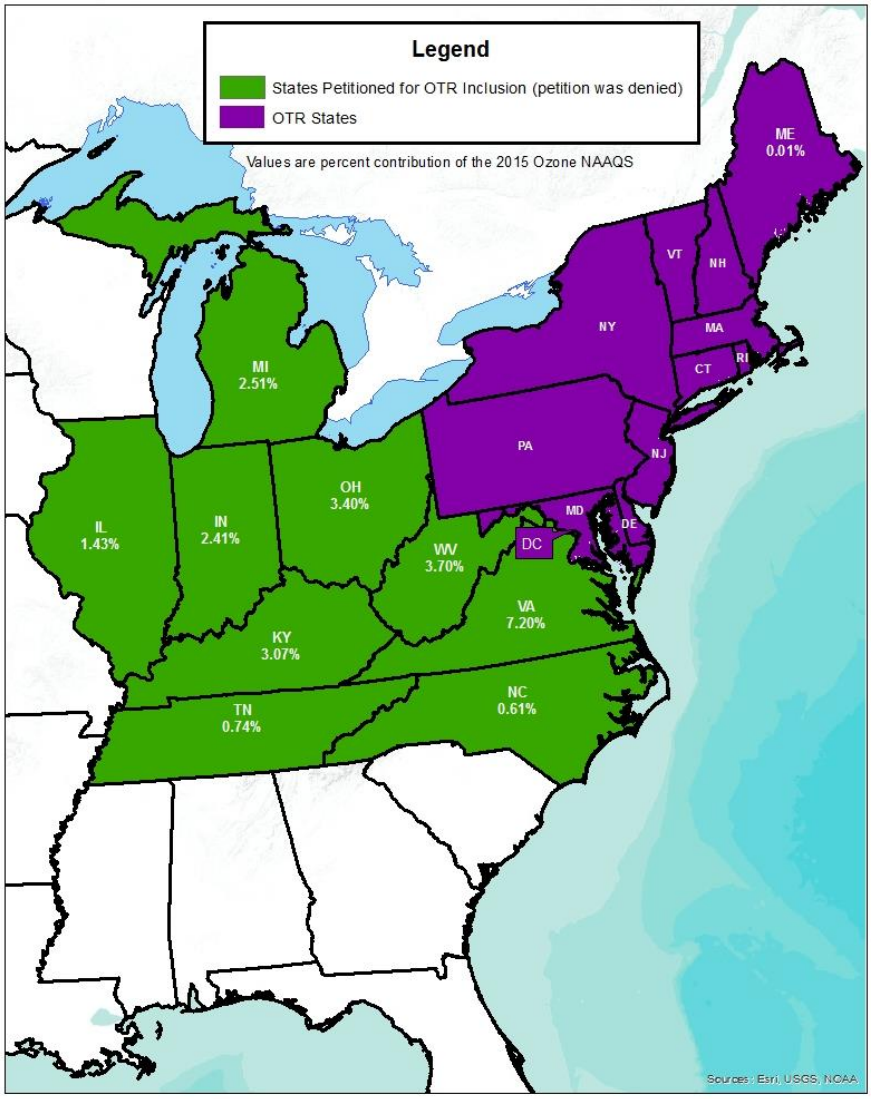
On October 27, 2017, EPA denied an OTR expansion petition from Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont to expand the OTR under section 176A(a) of the Clean Air Act (CAA). (U.S. EPA, 2017a). These states petitioned EPA to add Illinois, Indiana, Kentucky, Michigan, North

Carolina, Ohio, Tennessee, West Virginia, and a portion of Virginia to the OTR, alleging that these states significantly contribute to violations of the 2008 Ozone NAAQS in the OTR. In their decision, EPA stated, "…other CAA provisions (*e.g.* CAA sections 110 or 126) provide a better alternative pathway for states and the EPA to develop a target remedy to address interstate transport that focuses on the precursor pollutants and sources most effective at addressing the nature of the downwind air quality problems identified by the petitioning states." In one argument supporting their denial, EPA pointed to promulgated interstate transport rulemakings that address regional transport of ozone in accordance with CAA's good neighbor provision under § 110(a)(2)(D)(i)(l). The latest rulemaking was the CSAPR Update, and EPA notes that eight of the nine states (as shown in Table 8 and Figure 11) named in the CAA § 176A petition were linked to downwind non-attainment and maintenance sites (see Table 3) in eastern states in 2017 for the 2008 ozone NAAQS (see Table 8). For the 2015 ozone NAAQS, preliminary modeling shows that in 2023 (as shown in Figure 7), seven of the nine states are linked to downwind non-attainment and maintenance sites (see Table 4). Since Maine emissions are clearly insignificant to any downwind non-attainment and maintenance sites, Maine seeks similar CAA remedies to be instituted in Maine as they are in the states outside the OTR with greater impacts within the OTR than Maine.

Table 8: State Modeled Impacts at Non-Attainment and Maintenance Sites in the OTR

State	**2008 Ozone NAAQS CSAPR Update for 2017** ppb (% of NAAQS)	**2015 Ozone NAAQS Preliminary Transport Assessment for 2023** ppb (% of NAAQS)
Illinois	0.78 (1.04%)	1.00 (1.43%)
Indiana	2.13 (2.84%)	1.69 (2.41%)
Kentucky	2.36 (3.15%	2.15 (3.07%)
Michigan	1.27 (1.69%)	1.76 (2.51%)
North Carolina	0.53 (0.71%)	0.43 (0.61%)
Ohio	3.70 (4.93%)	2.38 (3.40%)
Tennessee	1.04 (1.39%)	0.52 (0.74%)
Virginia	5.21 (6.95%)	5.04 (7.20%)
West Virginia	3.31 (4.41%)	2.59 (3.70%)
Maine	0.01 (0.01%)	0.01 (0.01%)

Figure 15: Ozone Transport Region and Petitioned States



V. Summary of Results and Conclusions

CAA § 176A(a)(2) states that EPA's Administrator may remove any State or portion of a State from the OTR whenever control of emissions in that state or portion of the state will "not significantly contribute to the attainment of the standard in any area in the region" (i.e., emissions without OTR-mandated controls will not contribute to non-attainment in any area in the OTR). Maine herein has provided conclusive proof that Maine emissions are clearly insignificant contributors to non-attainment in any portion of the OTR, as demonstrated through the following:

- The examination of back trajectories conducted by Maine DEP and EPA clearly illustrate Maine's emissions are insignificant contributors to ozone transport in any non-attainment areas within the OTR. Thus, reductions of either NO_x or VOC emissions in Maine are irrelevant to bringing other areas in the OTR into attainment.

- EPA's source apportionment modeling results for both the 2008 and 2015 ozone standards demonstrate that Maine's contribution to other states in the OTR is less than one percent.

- Maine's emissions are clearly insignificant contributors to ozone levels in the OTR and are less than contributing impacts from states cited in the CAA § 176A OTR expansion petition which EPA denied.

- The results of back trajectory and time series analyses for the monitor at the summit of Cadillac Mountain in Acadia National Park show that transport over water, transport along the land-water interface (Maine's coastline), and transport of the aloft ozone reservoir from other areas in and outside of the OTR supports the conclusion the site is in a rural transport area where emission controls from outside of Maine are needed to reduce ozone levels in that area.

- Any emissions reductions from within the State which could possibly be realized under OTR constraints are rendered inconsequential in comparison to the naturally occurring VOC emissions from Maine's forests, in comparison with quantities of VOC emissions from states downwind to Maine, and in light of the demonstrated fact that Maine's emissions have no significant impact on any other state.

Removal of portions of Maine from the OTR will not interfere with attainment and maintenance of the ozone NAAQS or any other applicable requirement of the CAA.

Maine businesses are subject to many investment barriers compared to other parts of the country such as higher energy costs, higher transportation costs, and more stringent environmental standards. However, regulatory structures that create additional barriers without appreciable value should be routinely analyzed and modified, as appropriate. Once this Petition for removal of portions of the State of Maine from the OTR is granted, several benefits will be realized.

Maine's working forests will benefit by giving forest products industries regulatory certainty when considering investment in Maine with respect to the following air emission requirements:

- Forest products facilities will not have to repeatedly reevaluate the appropriate non-attainment level NO_x emission controls for their combustion equipment or VOC non-attainment level emission controls for drying kilns every time the ozone standard is changed. Because of being in the OTR, every time the ozone standard is changed, a state needs to reevaluate nitrogen oxide and VOC control strategies to meet non-attainment level Reasonably Available Control Technology requirements.

- Under current requirements, wood processing facilities such as lumber or pellet mills must apply Lowest Achievable Emission Rate (LAER) technology, such as thermal oxidizers, to wood drying operations and would need to obtain VOC offsets for a new facility or for an existing facility expansion. Use of thermal oxidizers on such equipment would increase emissions of other regulated pollutants including PM, PM_{10}, $PM_{2.5}$, NO_x, CO, and CO_2, which would ultimately prove to be detrimental to air quality. Removal from the OTR will allow Maine DEP to consider more holistic environmental approaches in evaluating emission control options.

- Wood processing facilities such as lumber or pellet mills will not have to take production restrictions to avoid LAER requirements or offsets and could run at more efficient levels.

- Pulp and paper facilities will not need to obtain offsets or consider LAER for NO_x or VOC just because the facility wants to operate an idled paper machine or change the product produced on an existing paper machine.

- For facilities to remain competitive in the world market, existing equipment must be invested in to increase utilization and efficiency. Currently, existing facilities must consider LAER and offsets to increase production. This change will encourage investment in Maine facilities. Technology investments in Maine facilities will ultimately result in production being more efficient which results in lower environmental impacts.

The following are real examples of some of the above considerations:

- Expera Old Town, LLC (an integrated pulp and paper facility) was considering converting their facility to process softwood instead of hardwood. Among other factors, acquiring offsets for this project contributed to management's decision to close the facility.

- F.E. Wood – Natural Energy LLC licensed the construction and operation of a wood pellet manufacturing facility. Due to current OTR requirements, the license included the requirement to install and operate a regenerative thermal oxidizer for control of VOC from the wood drying process, although use of this control would provide questionable overall environmental benefit. This facility was never constructed.

- Maine companies compete with facilities located in places such as Ohio and Oklahoma, both of which currently have integrated greenfield tissue mills in various stages of construction and which are neither part of the OTR nor subject to the same requirements. The granting of this petition will enhance both national and international competitive ability for Maine businesses.

- A proposed facility that will use non-toxic VOC containing coatings would be required to install thermal oxidizer controls as LAER. These controls create NO_x in an area dominated by biogenic VOCs. The net effect would be to increase ozone levels rather than decrease them.

The removal of portions of Maine from the OTR would allow Maine DEP and Maine companies to focus resources on tangible environmental solutions to real problems the State is faced with as opposed to implementing unnecessary requirements which provide no benefit to Maine or other states. Approval of the petition would effectively enable Maine to build on this Ozone Success Story and develop and implement other air quality success stories in the State of Maine.

Maine DEP is petitioning for the York County municipalities of Arundel, Biddeford, Kennebunk, Kennebunkport, Kittery, Ogunquit, Old Orchard Beach, Saco, Wells, and York (as shown in Figure 1) and Acadia National Park to remain within the Ozone Transport Region, and the remaining portion of the State of Maine to be removed from the Ozone Transport Region.

VI. References

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Appendix A: Maine's Historical Ozone Attainment Status and NO_x Waivers

Table A-1 Historic Ozone Actions and Status for Maine	
Date	Action
1979	EPA promulgated a 1-hour Ozone NAAQS of 0.12 ppm.
1991	After promulgation of the Clean Air Act Amendments of 1990, EPA classified nine counties in Maine as non-attainment for the 1979 1-hour Ozone NAAQS: · Portland ME Non-Attainment Area (York, Cumberland and Sagadahoc Counties), moderate non-attainment; · Lewiston-Auburn ME Non-Attainment Area (Androscoggin and Kennebec Counties), moderate non-attainment; · Knox & Lincoln Counties, moderate non-attainment; and · Hancock & Waldo Counties, marginal non-attainment.
December 26, 1995	*EPA granted a § 182(f) NO_x Waiver for Maine for the 1979 1-hour Ozone NAAQS.*
April 28, 1997	EPA re-designated the Hancock & Waldo Counties area to attainment.
1997	EPA promulgated an 8-hour Ozone NAAQS of 0.08 ppm.
2004	EPA designated and classified 8-hour Ozone NAAQS non-attainment areas in Maine based on the 1997 Ozone NAAQS of an 8-hour average of 0.08 parts per million, as follows: · Portland, ME – Subpart 2 marginal non-attainment (includes Sagadahoc County and parts of Cumberland, York, and Androscoggin Counties); and · Hancock, Knox, Lincoln, and Waldo Counties, ME – Subpart 1 non-attainment (includes parts of each of the counties listed in the name).
June 15, 2005	EPA revoked the 1979 1-hour Ozone NAAQS.
2006	*EPA granted a § 182(f) NO_x Waiver to Maine based on the 1997 8-hour Ozone NAAQS.*
January 10, 2007	Effective this date, Portland, ME and Hancock, Knox, Lincoln, and Waldo Counties, ME 8-hour ozone non-attainment areas were re-designated as attainment, becoming 175A maintenance areas.
2008	The 8-hour Ozone NAAQS was promulgated at 0.075 parts per million, which is equivalent to 75 parts per billion (ppb).
July 20, 2012	Maine was designated as attainment/unclassifiable for the 2008 NAAQS.
2014	*EPA granted a third § 182(f) NO_x Waiver to Maine based on the 2008 8-hour Ozone NAAQS.*
April 6, 2015	EPA revoked the 1997 8-hour Ozone NAAQS.
October 2015	The 8-hour Ozone NAAQS was promulgated at 0.070 parts per million, which is equivalent to 70 parts per billion (ppb).
January16, 2018	Maine was designated as attainment/unclassifiable for the 2015 NAAQS

Appendix B: 8-Hour Ozone Design Values in Maine and the Northeast U.S.

Figures B-1, B-2, and B-3 provide a geographic understanding of the region displaying the past three 2015 Ozone NAAQS design value periods. The core of the OTR (Washington, DC to southern New England) continue to experience the highest ozone levels in the northeast with monitors that record exceedances throughout that area. Figure B-3 represents the latest design value period of 2015-2017 and shows the nearest certain monitors recording exceedances to Maine are in Rhode Island, Connecticut, and Massachusetts. Note that sites in Massachusetts and Rhode Island as well as the site on the summit of Cadillac Mountain in Maine were not exceeding the NAAQS during the previous (2014-2016) design value period.

Figure B-1: 2013-2015 8-hr Ozone Design Values

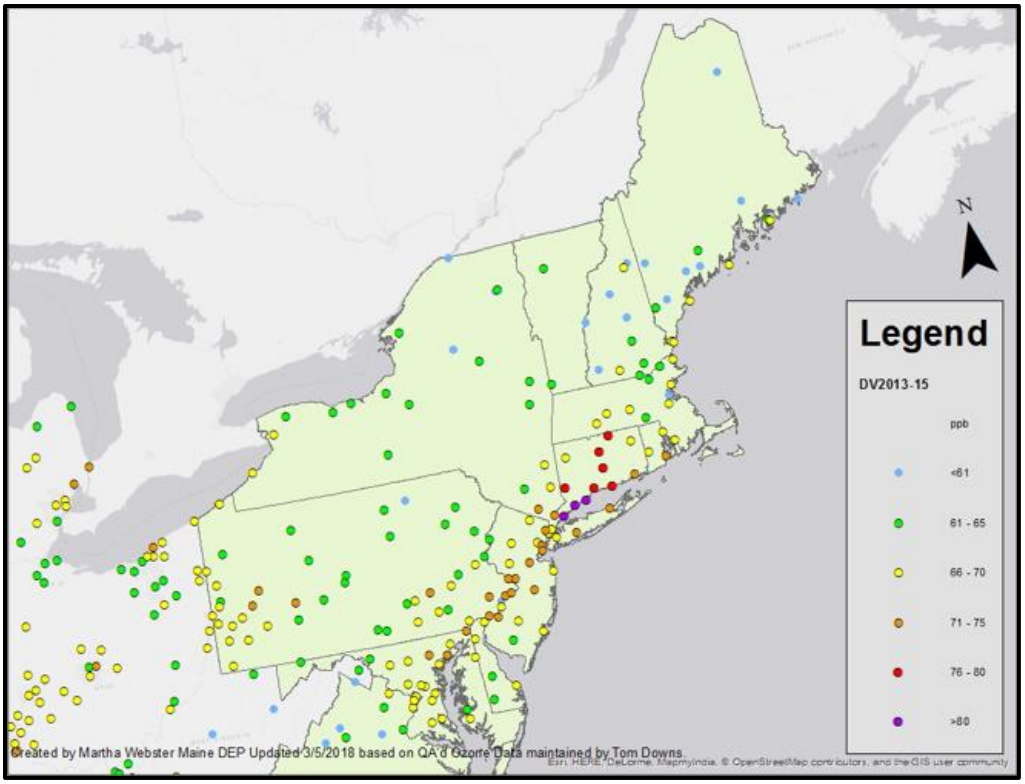


Figure B-2: 2014-2016 8-hr Ozone Design Values

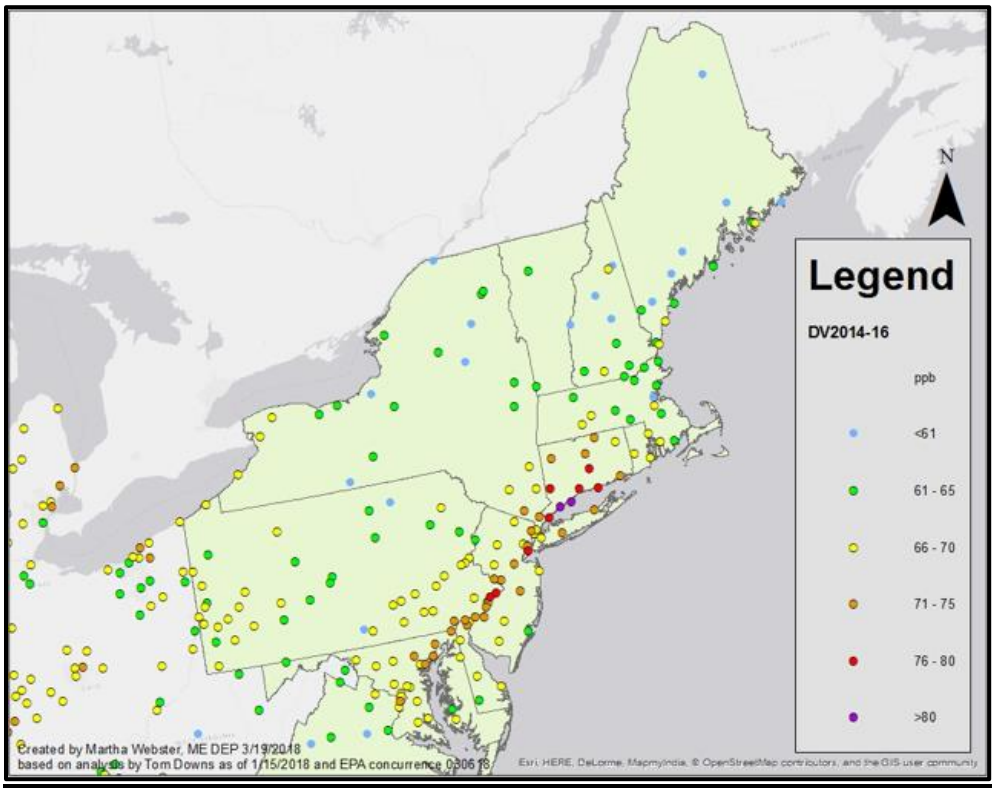
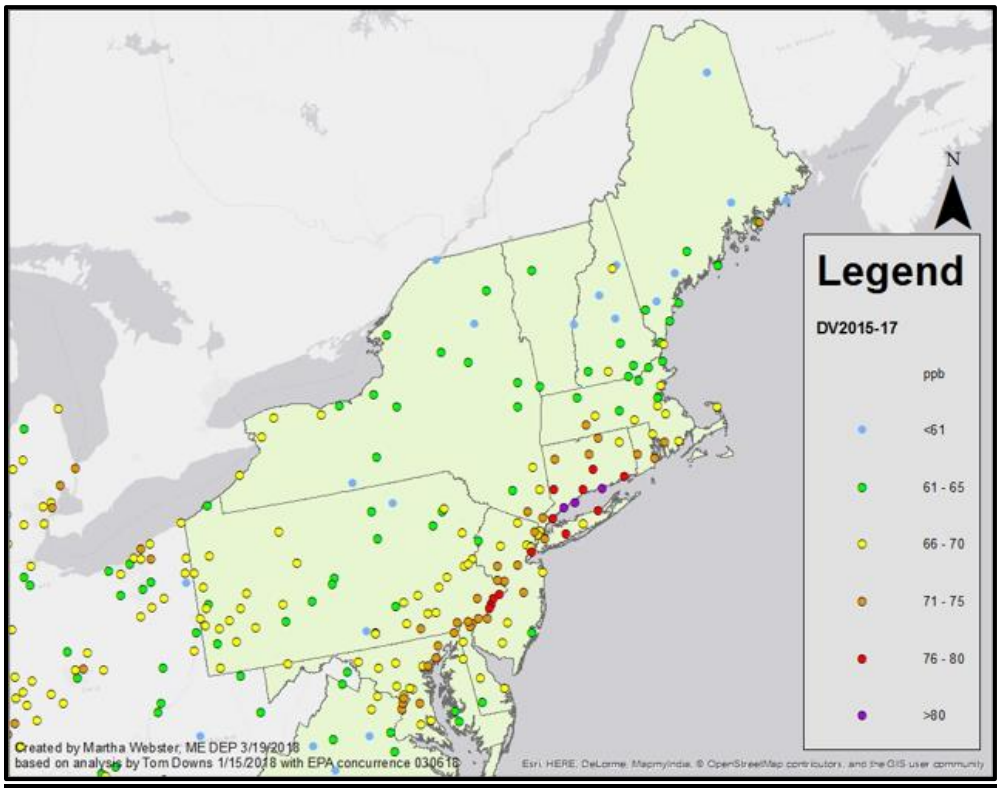


Figure B-3: 2015-2017 8-hr Ozone Design Values



Ozone values in Maine have been trending downward for years. Figure B-4 shows Maine's ozone design value trend. Table B-1 shows ozone data from the last five ozone seasons for all monitoring sites in Maine. Ozone design values for the entire State of Maine except for the summit of Cadillac Mountain are currently below the 2015 8-hr Ozone NAAQS, as presented in Table B-1. Before 2017, the last year an ozone season 4th highest daily maximum ozone concentration was greater than 70 ppb at the summit of Cadillac Mountain was in 2010. Since 2017 was an anomalous year for transport to high elevations of Acadia National Park, Maine DEP fully expects the summit of Cadillac Mountain to revert back to monitored levels below 70 ppb in the near future.

Figure B-4: Maine's Statewide Maximum 8-hour Ozone Design Value Trend

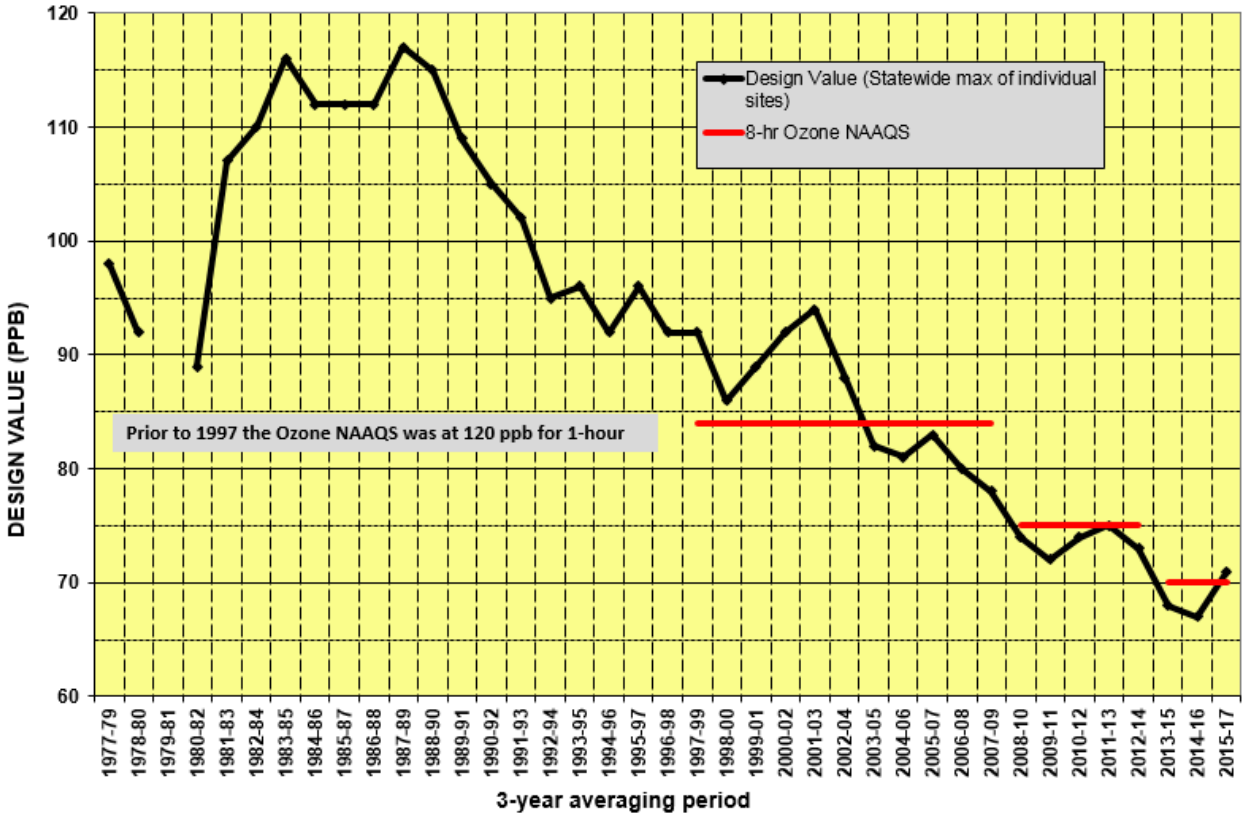


Table B-1: Maine's Ozone Data 2013-2017, Inclusive

Site Name	2013 4th Highest	2014 4th Highest	2015 4th Highest	2016 4th Highest	2017 4th Highest	2013-2015 Design Value	2014-2016 Design Value	2015-2017 Design Value
Cadillac Mt Summit	68	65	69	66	80	67	66	71
Kennebunkport	76	66	67	68	62	69*	67	65*
Cape Elizabeth	72	66	64	65	64	67	65	64
Port Clyde-Marshall Pt	76	61	67	63	62	68	63	64
McFarland Hill	69	62	65	60	67	65	62	64
Gardiner-Pray	65	57	63	59	67	61	59	63
Shapleigh-Ballpark	64	61	62	61	64	62	61	62
Holden-Riders Bluff	64	54	63	57	60	60	58	60
Jonesport	62	54	62	57	62	59	57	60
Durham	59	65	58	57	62	60	60	59
Hollis/West Buxton	63	59	58	58	63	60	58	59
Ashland	53	51	55	52	51	53	52	52

* Data recovery did not meet 3-year 90% requirements

Appendix C: Control Techniques Guidelines Applicable to Maine Sources

The following Control Techniques Guidelines (CTGs) currently apply to Maine:

- Design Criteria for Stage I Vapor Control Systems – Gasoline Service Stations
- Control of Volatile Organic Emissions from Existing Stationary Sources – Volume I: Control Methods for Surface Coating Operations
- Control of Volatile Organic Emissions from Existing Stationary Sources – Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks
- Control of Volatile Organic Emissions from Solvent Metal Cleaning
- Control of Volatile Organic Emissions from Existing Stationary Sources – Volume VI: Surface Coating of Miscellaneous Metal Parts and Products
- Control of Volatile Organic Emissions from Existing Stationary Sources – Volume VII: Factory Surface Coating of Flat Wood Paneling
- Control of Hydrocarbons from Tank Truck Gasoline Loading Terminals
- Control of Volatile Organic Emissions from Existing Stationary Sources – Volume III: Surface Coating of Metal Furniture
- Control of Volatile Organic Emissions from Existing Stationary Sources – Volume VIII: Graphic Arts-Rotogravure and Flexography
- Control of Volatile Organic Emissions from Bulk Gasoline Plants
- Control of Volatile Organic Emissions from Storage of Petroleum Liquids in Fixed-Roof Tanks
- Control of Volatile Organic Emissions from Use of Cutback Asphalt
- Control of Volatile Organic Emissions from Petroleum Liquid Storage in External Floating Roof Tanks
- Control of Volatile Organic Emissions from Perchloroethylene Dry Cleaning Systems
- Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems
- Control of Volatile Organic Compound Emissions from Wood Furniture Manufacturing Operations
- Control Techniques Guidelines for Shipbuilding and Ship Repair Operations (Surface Coating)
- Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing
- Control Techniques Guidelines for Flexible Package Printing
- Aerospace (CTG & MACT)
- Control Techniques Guidelines for Flat Wood Paneling Coatings
- Control Techniques Guidelines for Paper, Film, and Foil Coatings
- Control Techniques Guidelines for Large Appliance Coatings
- Control Techniques Guidelines for Metal Furniture Coatings
- Control Techniques Guidelines for Miscellaneous Metal and Plastic Parts Coatings
- Control Techniques Guidelines for Fiberglass Boat Manufacturing Materials
- Control Techniques Guidelines for Miscellaneous Industrial Adhesives
- Ozone Transport Commission Model Rule for Architectural and Industrial Maintenance (AIM) Coatings
- Ozone Transport Commission Model Rule for Consumer Products
- Ozone Transport Commission Model Rule for Mobile Equipment Repair and Refinishing
- Ozone Transport Commission Model Rule for Portable Fuel Containers

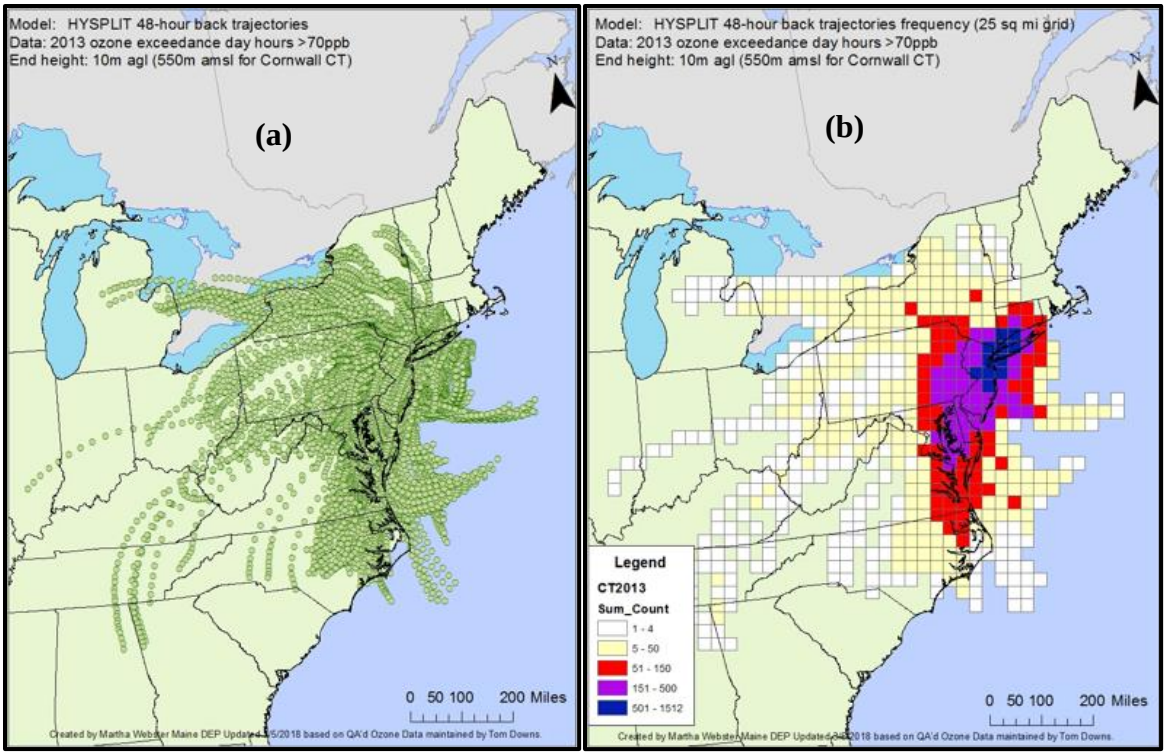
Appendix D: New England Ozone Back Trajectory Information

The National Oceanic and Atmospheric Administration (NOAA) Air Resources Laboratory's HYSPLIT is a computer model used to create and map trajectories. The model uses gridded meteorological data, which is selected with the online model's graphical user interface. Using the HYSPLIT online version, Maine DEP staff meteorologists created the trajectories included in this analysis.

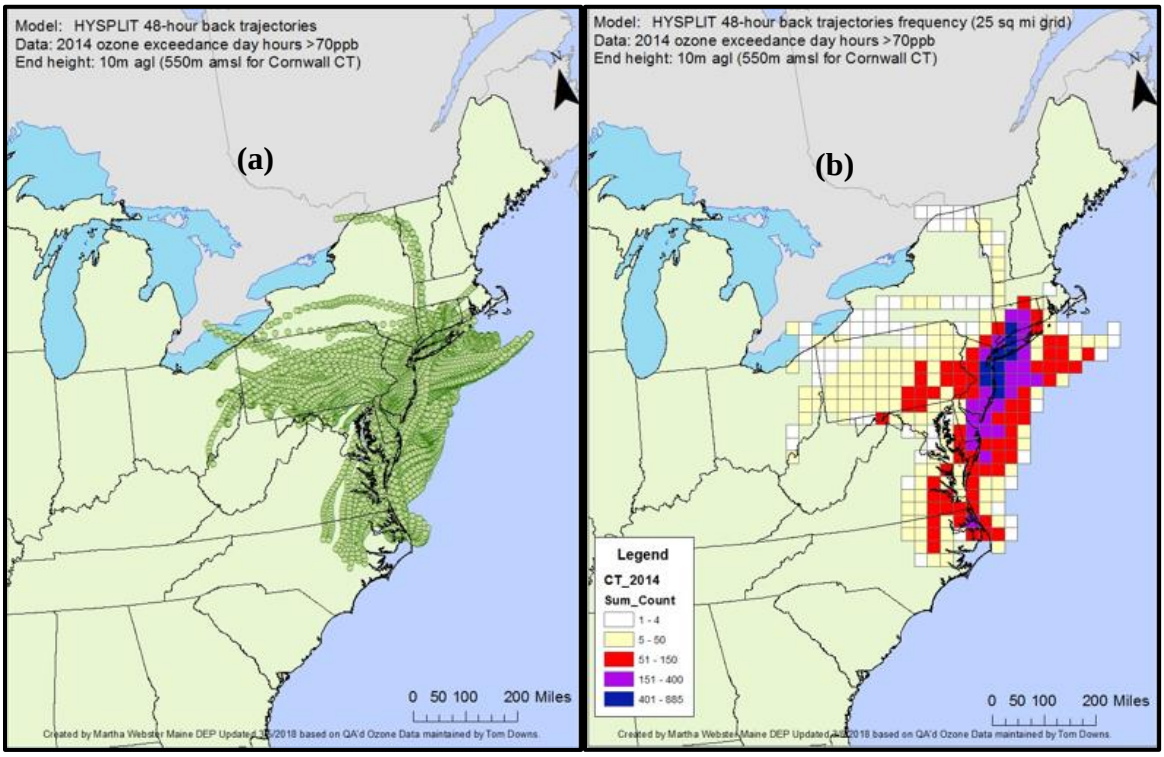
The 48-hour back trajectories created for this petition were only for hours when ozone levels exceeded 70 ppb for every day that an 8-hour ozone exceedance was recorded during 2013-2017 ozone seasons at certain monitoring sites (based on 2015-2017 ozone design values) in Massachusetts, Rhode Island, and Connecticut. To ensure the end hour of ozone matches with the end hour of meteorology, the time of the ozone value was converted from Eastern Standard Time (EST) to Universal Time Code (UTC) by adding 5 hours. Archived Eta Data Assimilation System (EDAS) meteorological data at 40 kilometers grid resolution was used. The model was set to include vertical velocity. For most sites, trajectories were initialized at 10-meters above ground level. For high elevation sites in Maine and Connecticut, trajectories were initialized at the elevation of the site above mean sea level. For example, the ending height at the Cornwall Site in Connecticut was 505 meters above mean sea level.

For each run, the HYSPLIT model generated both a graphical presentation of the trajectories and a text file. The text file contains information about the hourly endpoints along each trajectory path including location in time and space. Hundreds of endpoint text files were subsequently loaded into an Access database for the analysis, which was then mapped in ARCMAP, a geographic mapping tool used by the Maine DEP. Figures D-1 to D-11 show the resulting trajectories and trajectory frequency plots by state by year.

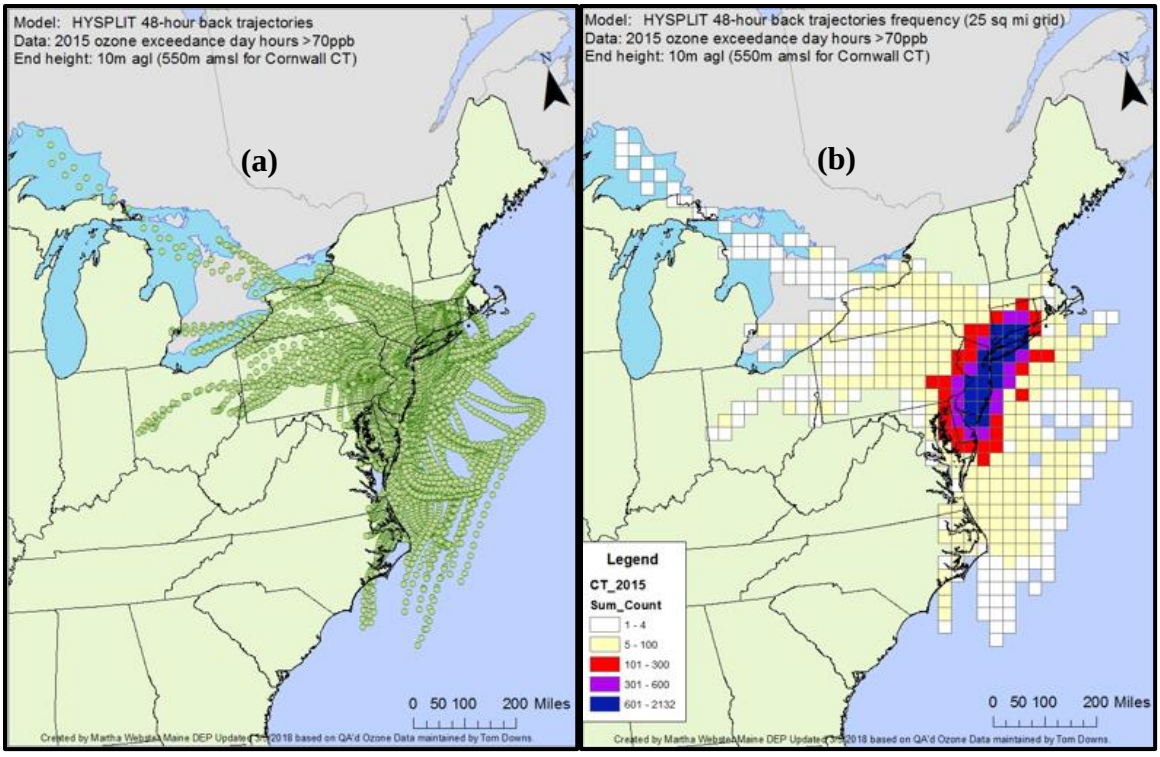
Figures D-1(a) and (b): HYSPLIT 2013 48-hour Back Trajectories and Trajectory Frequencies for Monitors in Connecticut



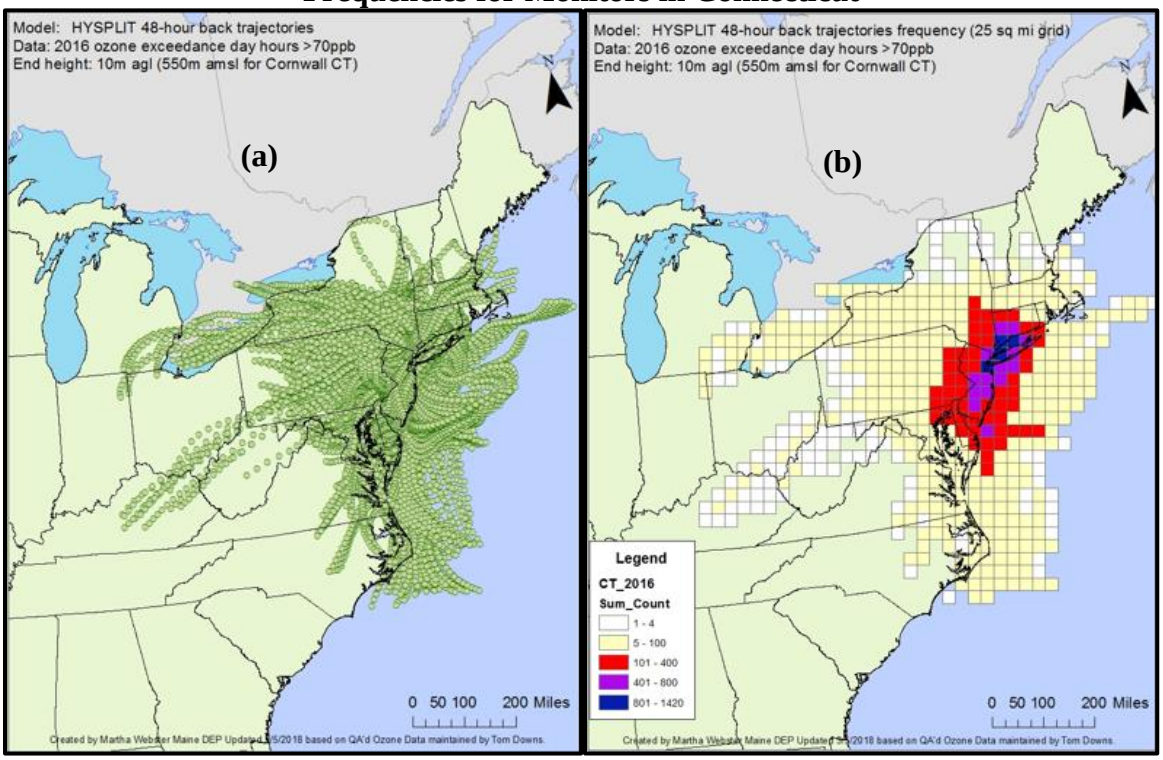
Figures D-2(a) and (b): HYSPLIT 2014 48-hour Back Trajectories and Trajectory Frequencies for Monitors in Connecticut



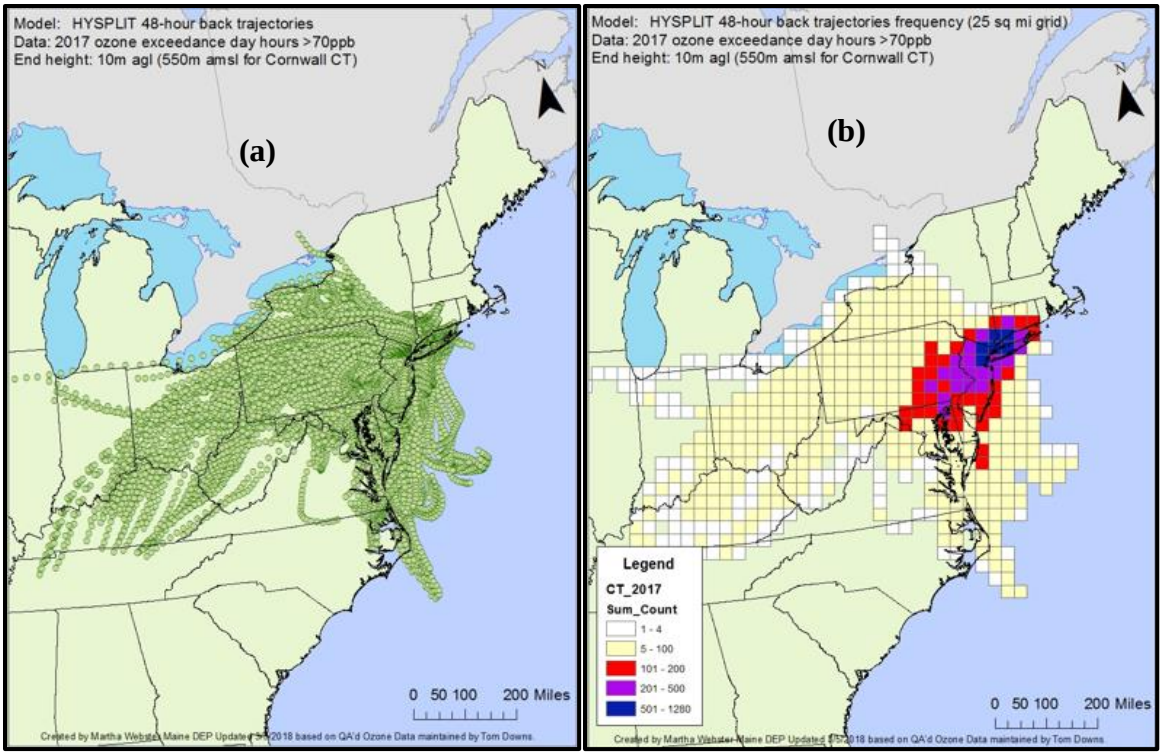
Figures D-3(a) and (b): HYSPLIT 2015 48-hour Back Trajectories and Trajectory Frequencies for Monitors in Connecticut



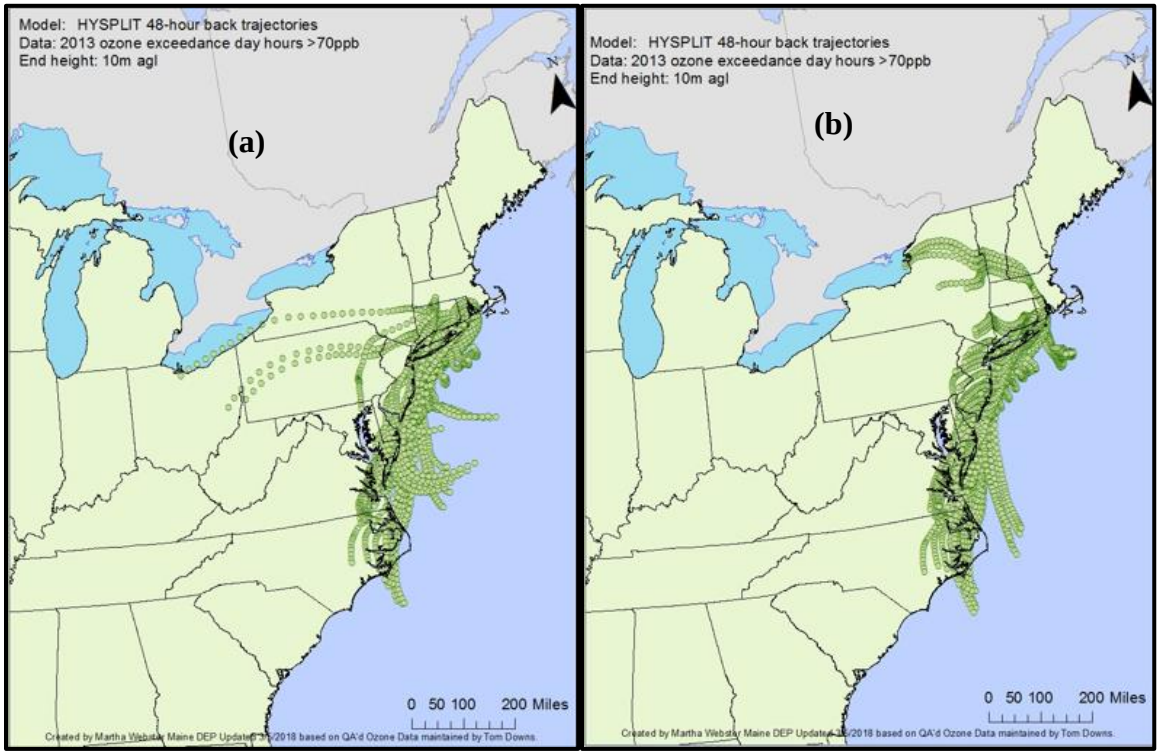
Figures D-4(a) and (b): HYSPLIT 2016 48-hour Back Trajectories and Trajectory Frequencies for Monitors in Connecticut



Figures D-5(a) and (b): HYSPLIT 2017 48-hour Back Trajectories and Trajectory Frequencies for Monitors in Connecticut

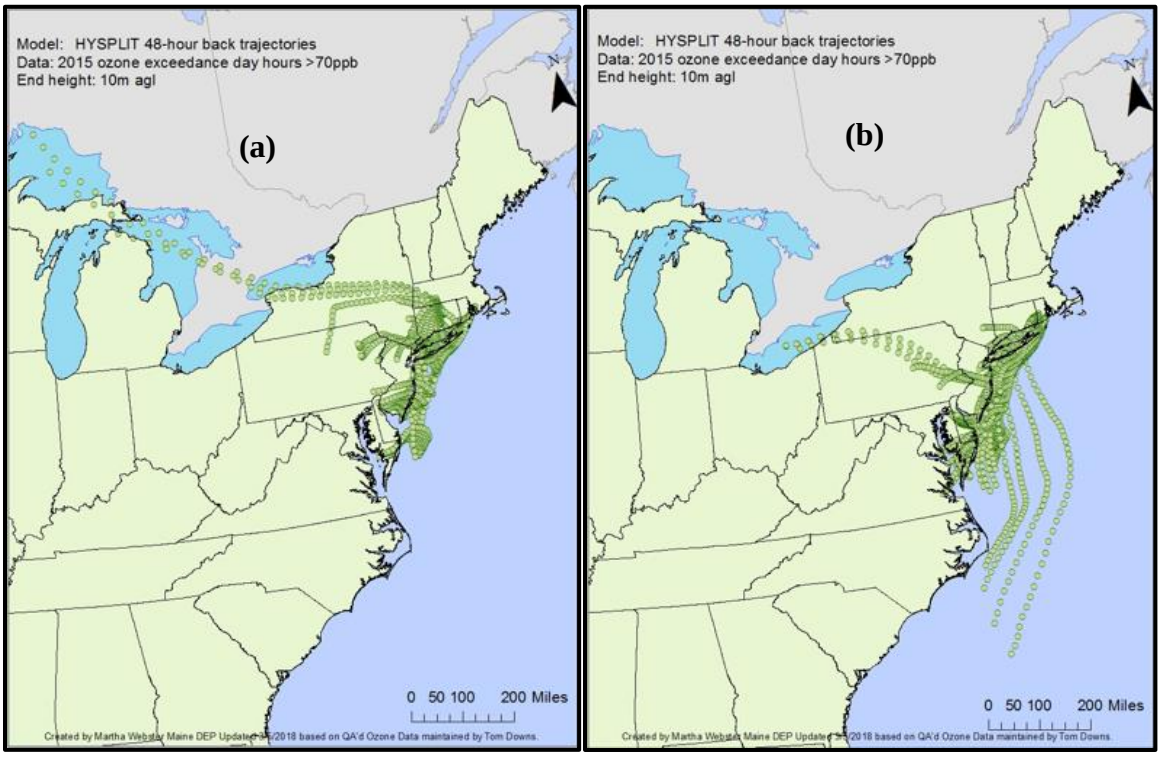


Figures D-6(a) and (b): HYSPLIT 2013 48-hour Back Trajectories for Certain Monitors Recording Exceedances in Massachusetts and Rhode Island

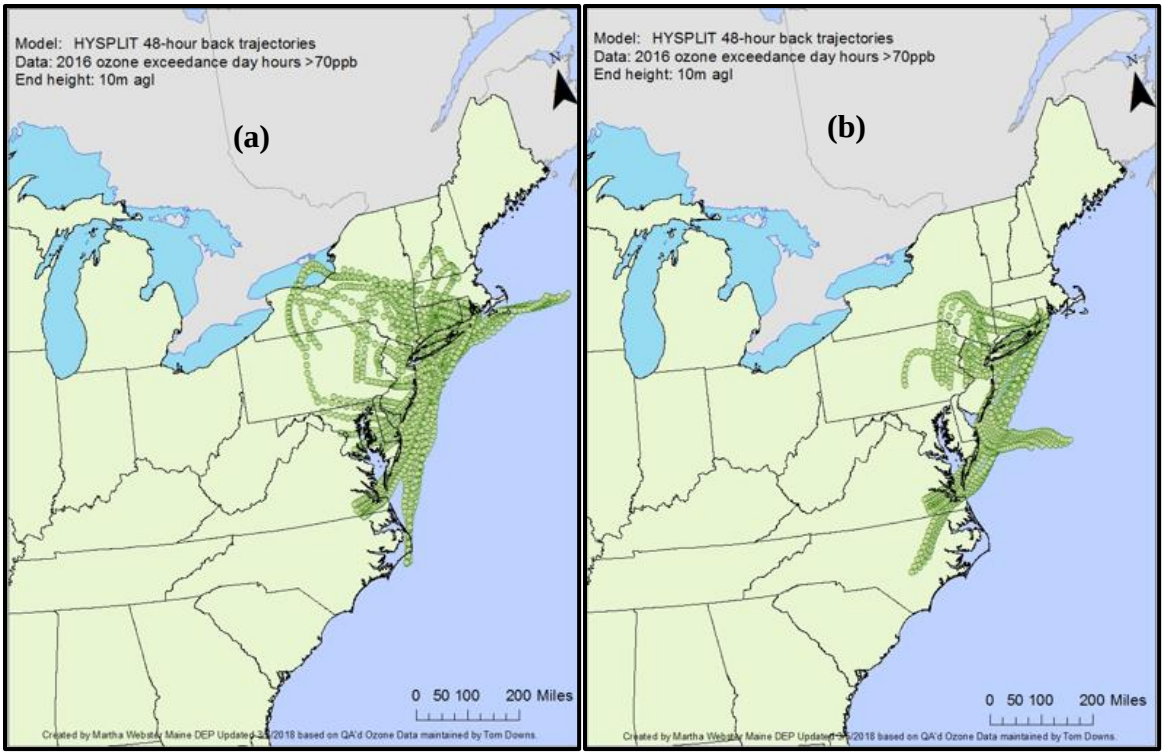


Figures D-7: HYSPLIT 2014 48-hour Back Trajectories for a Certain Monitor in Rhode Island (no Exceedances in Massachusetts)

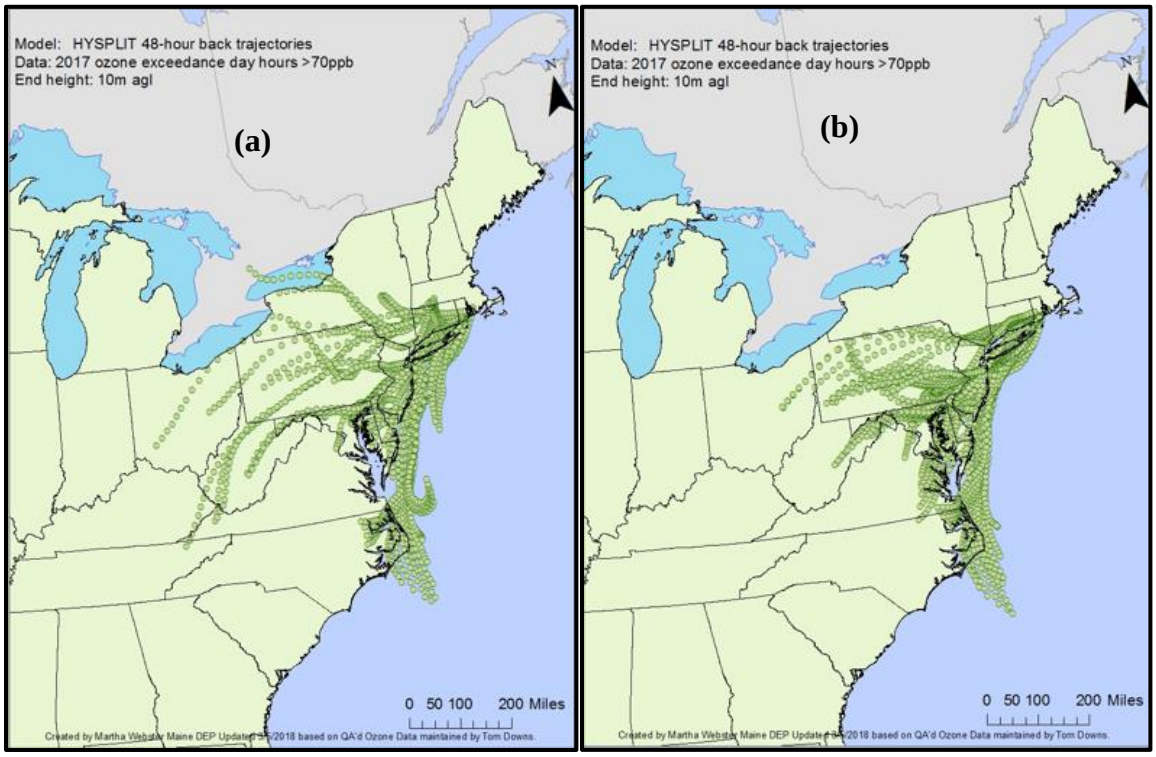
Figures D-8(a) and (b): HYSPLIT 2015 48-hour Back Trajectories for Certain Monitors Recording Exceedances in Massachusetts and Rhode Island



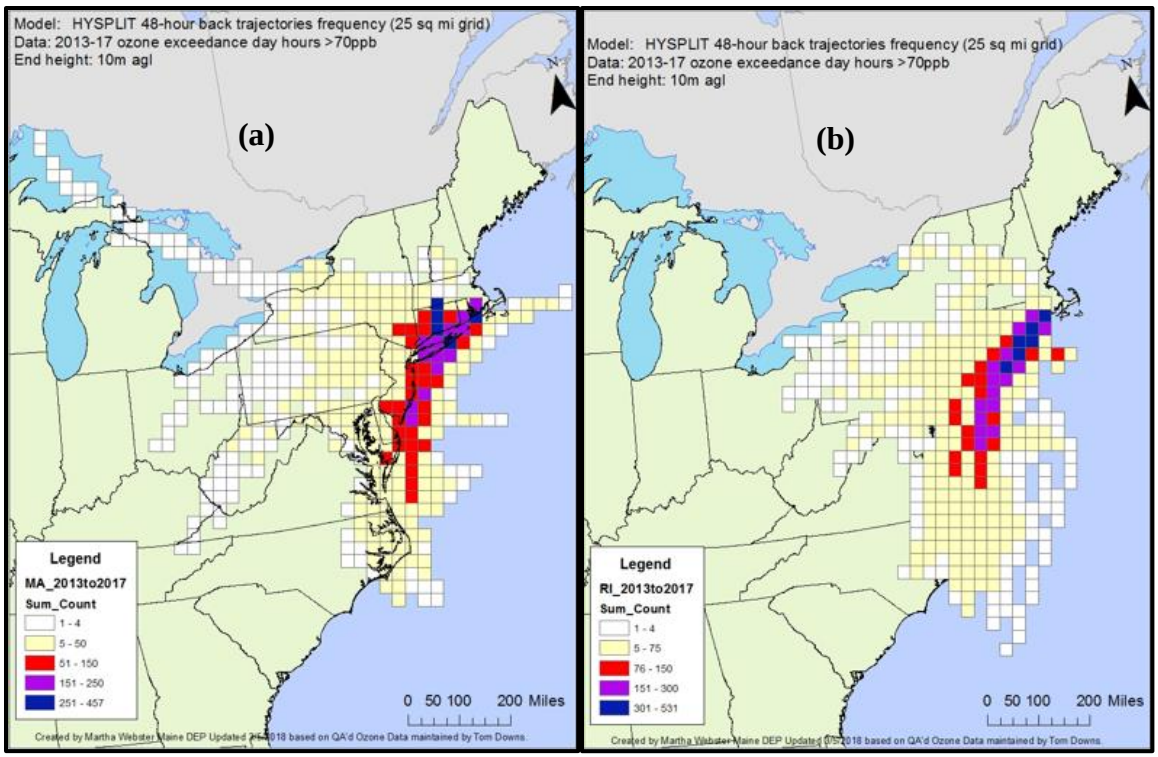
Figures D-9(a) and (b): HYSPLIT 2016 48-hour Back Trajectories for Certain Monitors Recording Exceedances in Massachusetts and Rhode Island



Figures D-10(a) and (b): HYSPLIT 2017 48-hour Back Trajectories for Certain Monitors Recording Exceedances in Massachusetts and Rhode Island



Figures D-11(a) and (b): HYSPLIT 2013-2017 48-hour Back Trajectories Frequencies for Certain Monitors in Massachusetts and Rhode Island



Appendix E: Trajectory Analyses as Found in EPA's December 22, 2017, Responses to States' 2015 Ozone NAAQS Designation Recommendations (EPA 2017b)

There are HYSPLIT back trajectory analyses available in each of EPA's technical support documents of responses (U.S. EPA 2017b) to states' 2015 Ozone NAAQS designation recommendations. Here is EPA's description of those analyses:

> *...Evaluation of meteorological data helps to assess the fate and transport of emissions contributing to ozone concentrations and to identify areas potentially contributing to the monitored violations. Results of meteorological data analysis may inform the determination of non-attainment area boundaries. In order to determine how meteorological conditions, including, but not limited to, weather, transport patterns, and stagnation conditions, could affect the fate and transport of ozone and precursor emissions from sources in the area., EPA evaluated 2014-2016 HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) trajectories at 100, 500, and 1000 meters (m) above ground level (AGL) that illustrate the three-dimensional paths traveled by air parcels to a violating monitor…*

The following is a list of OTR monitoring sites with their corresponding design values.

Table E-1: 2015 Ozone NAAQS Site Design Values

County, State	AQS Site ID	2014-2016 Design Value (ppb)	2015-2017 Design Value (ppb)
Greater Connecticut Area			
Hartford, CT	09-003-1003	74	72
Litchfield, CT	09-005-0005	72	72
New London, CT	09-011-0124	72	76
Tolland, CT	09-013-1001	73	71
New York-Northern New Jersey-Long Island, NY-NJ-CT Area			
Fairfield, CT	09-001-0017	80	79
	09-001-1123	78	77
	09-001-3007	81	83
	09-001-9003	83	83
Middlesex, CT	09-007-0007	79	79
New Haven, CT	09-009-0027	76	77
	09-009-9002	76	82
Queens, NY	36-081-0124	69	74
Richmond, NY	36-085-0067	76	76
Rockland, NY	36-087-0005	72	72
Suffolk, NY	36-103-0002	72	76
	36-103-0004	72	76
Westchester, NY	36-119-2004	74	73
Bergen, NJ	34-003-0006	74	74
Hudson, NJ	34-017-0006	72	70
Middlesex, NJ	34-023-0011	74	75
Hunterdon, NJ	34-019-0001	70	72

County, State	AQS Site ID	2014-2016 Design Value (ppb)	2015-2017 Design Value (ppb)
Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE			
Camden, NJ	34-007-0002	74	77
Gloucester, NJ	34-015-0002	73	74
Mercer, NJ	34-021-0005	71	71
	34-021-9991	73	73
Ocean, NJ	34-029-0006	72	73
New Castle, DE	10-003-1010	74	74
	10-003-1013	70	71
	10-003-2004	71	72
Cecil, MD	24-015-0003	74	74
Bucks, PA	42-017-0012	77	80
Chester, PA	42-029-0100	73	73
Delaware, PA	42-045-0002	72	71
Montgomery, PA	42-091-0013	70	72
Philadelphia, PA	42-101-0024	77	78
	42-101-0048	74	76
Baltimore, MD Area			
Baltimore, MD	24-005-1007	72	No data for 2017
	24-005-3001	72	73
Harford, MD	24-025-1001	72	75
	24-025-9001	73	73
Washington, DC-MD-VA Area			
Prince George's, MD	24-033-8003	70	71
District of Columbia	11-001-0043	70	71
Arlington, VA	51-013-0020	72	71
Fairfax, VA	51-059-0030	70	71

Figure's E-1 to E-23 in the following pages contain EPA's trajectory analysis results for the proposed non-attainment areas. In each figure's title, the non-attainment area sites are specified.

Figure E-1: HYSPLIT Back Trajectories for Monitors in the Greater Connecticut Non-Attainment Area

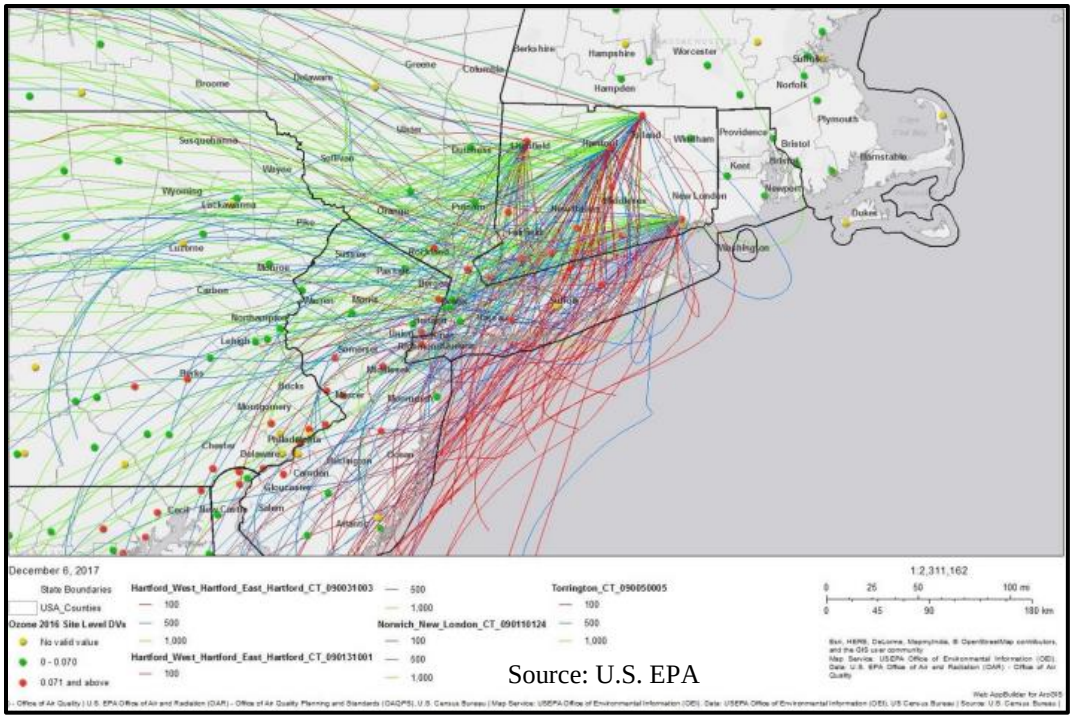


Figure E-2: HYSPLIT Back Trajectories for Monitors in the New York-Northern New Jersey-Long Island, NY-NJ-CT Non-Attainment Area

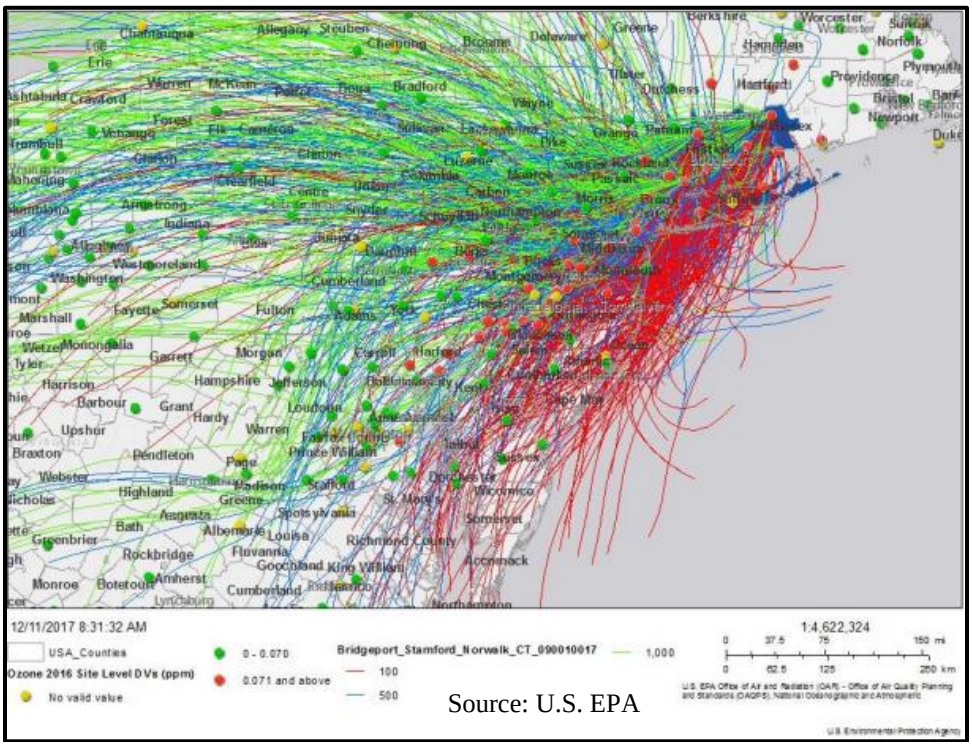
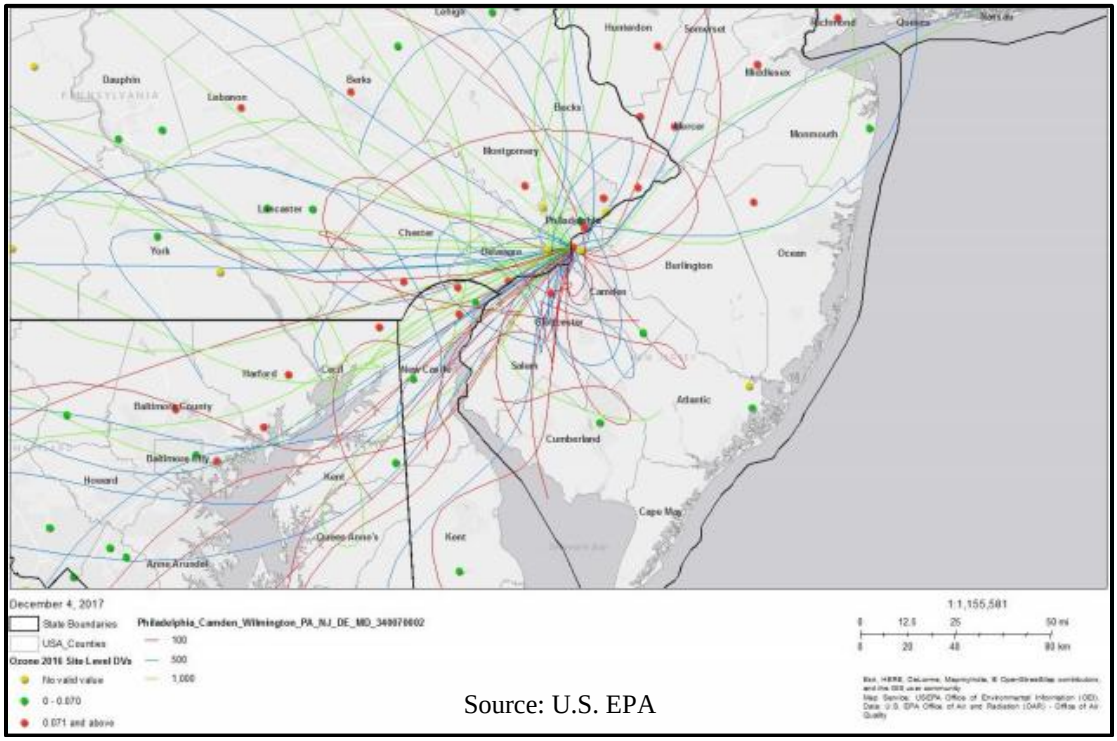
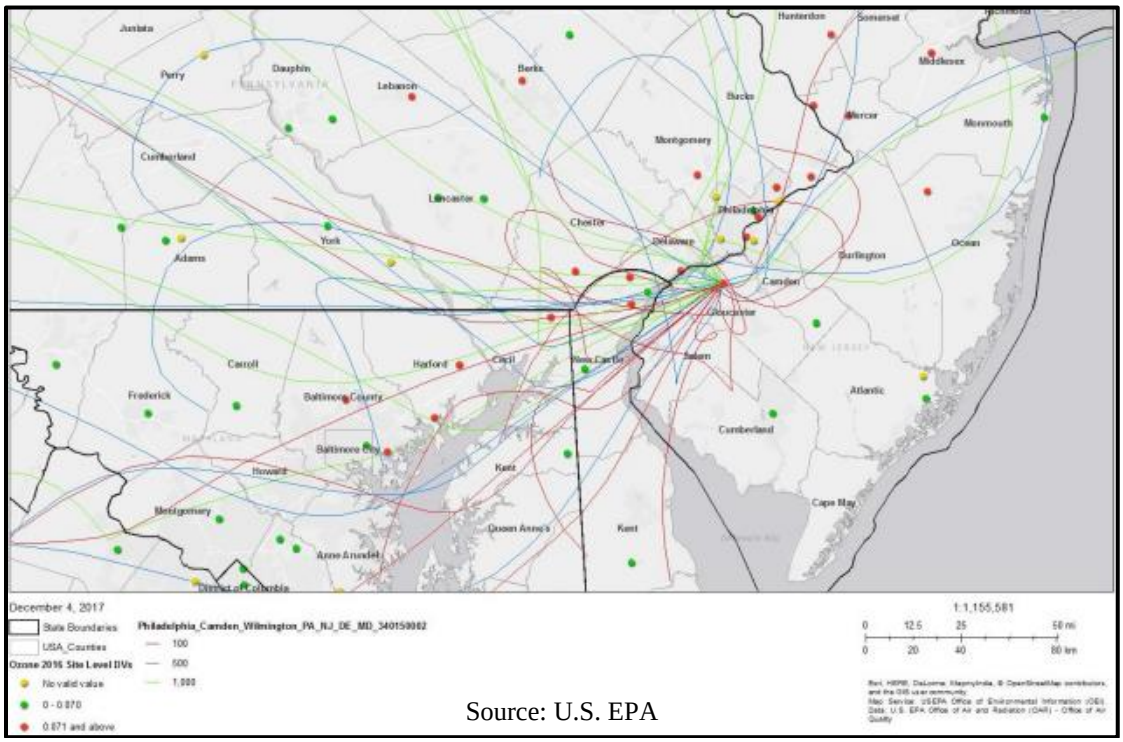


Figure E-3: HYSPLIT Back Trajectories for Monitor 34-007-0002 Camden County, NJ
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



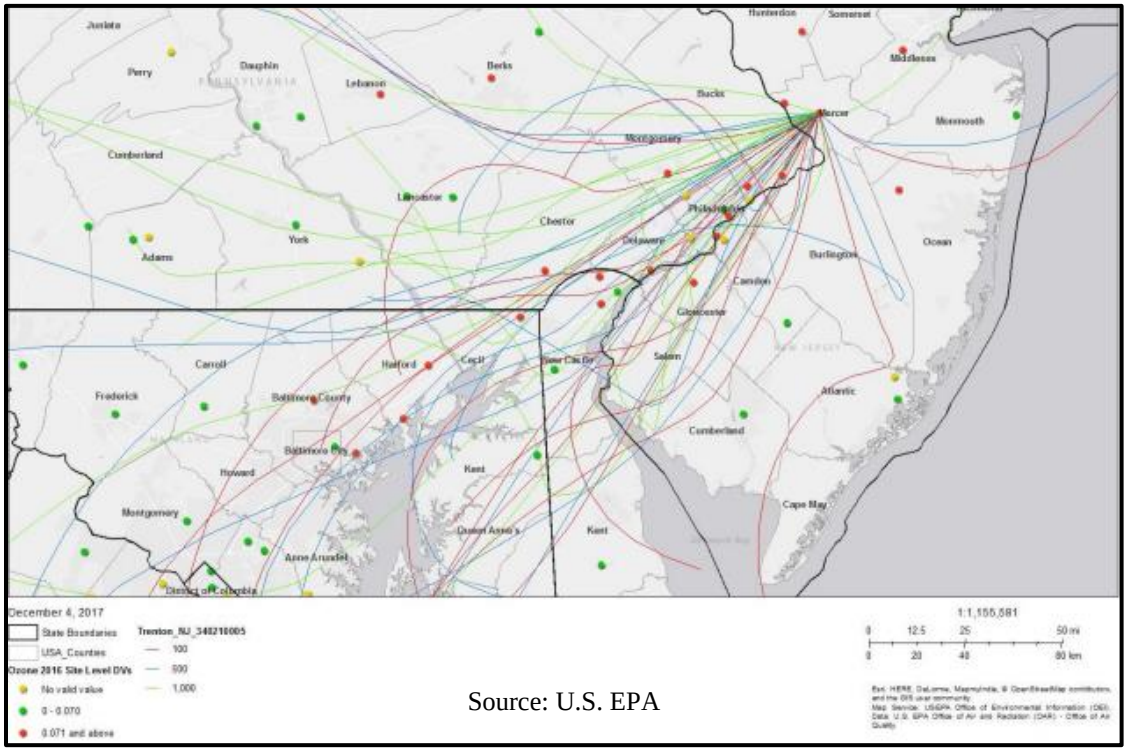
Source: U.S. EPA

Figure E-4: HYSPLIT Back Trajectories for Monitor 34-015-0002 Gloucester County, NJ
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



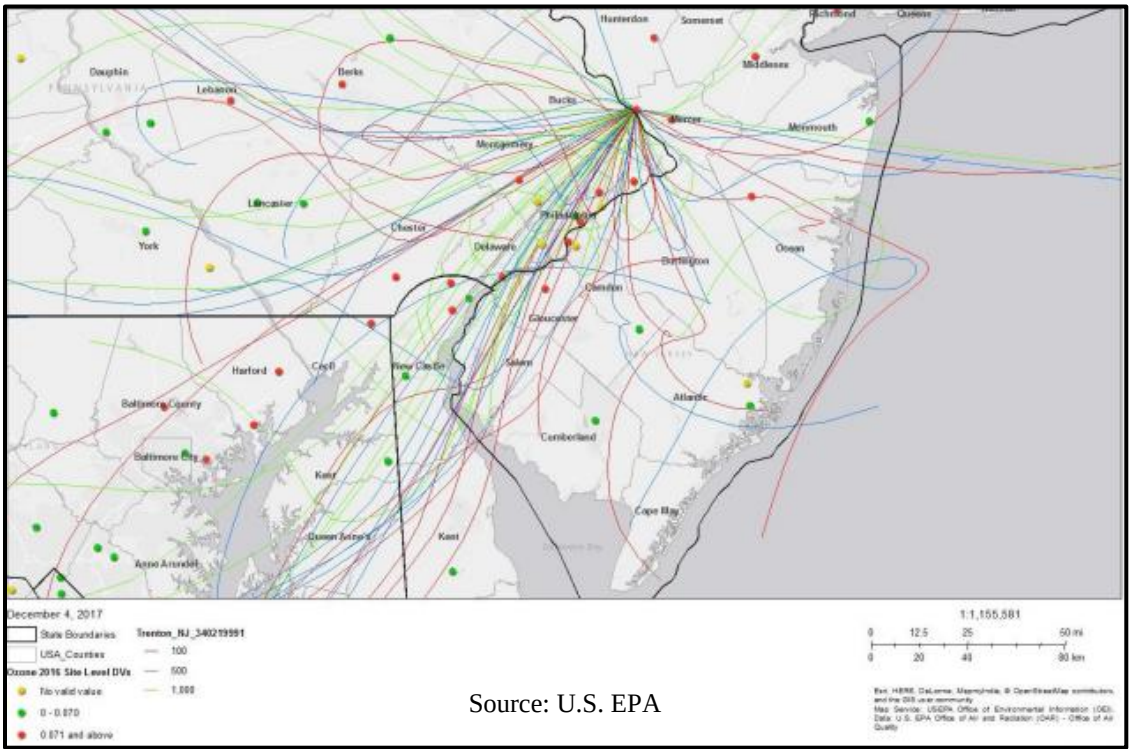
Source: U.S. EPA

Figure E-5: HYSPLIT Back Trajectories for Monitor 34-021-0005 Mercer County, NJ
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



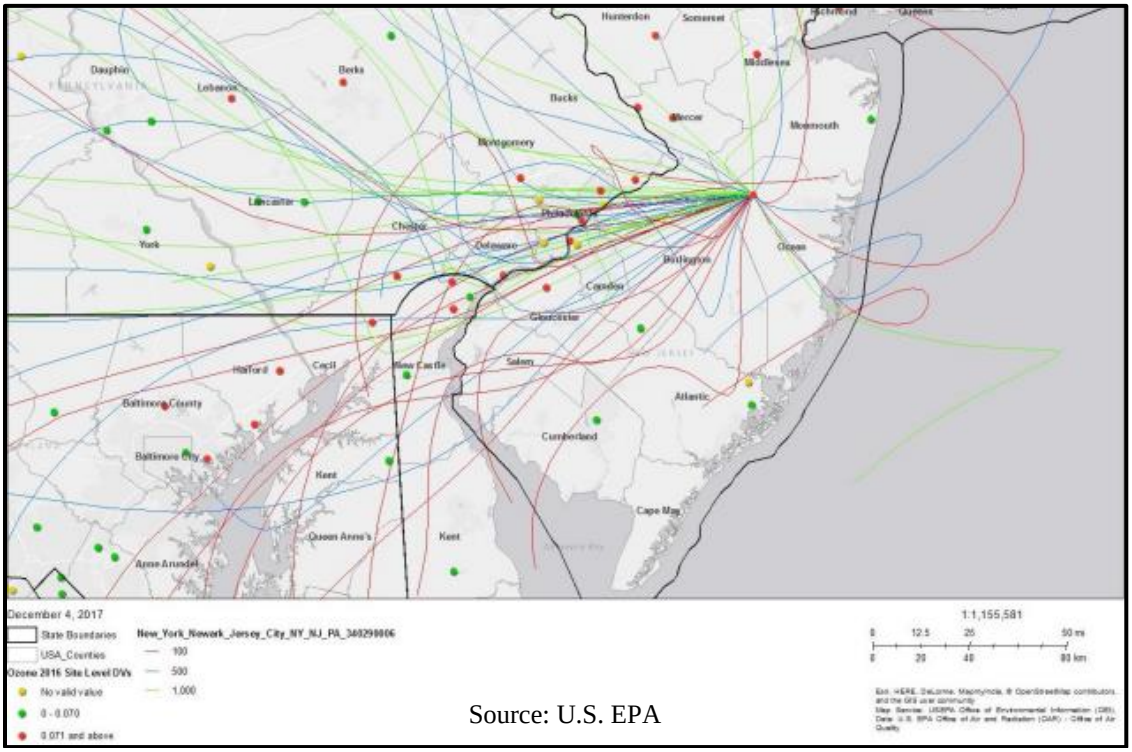
Source: U.S. EPA

Figure E-6: HYSPLIT Back Trajectories for Monitor 34-021-9991 Mercer County, NJ
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



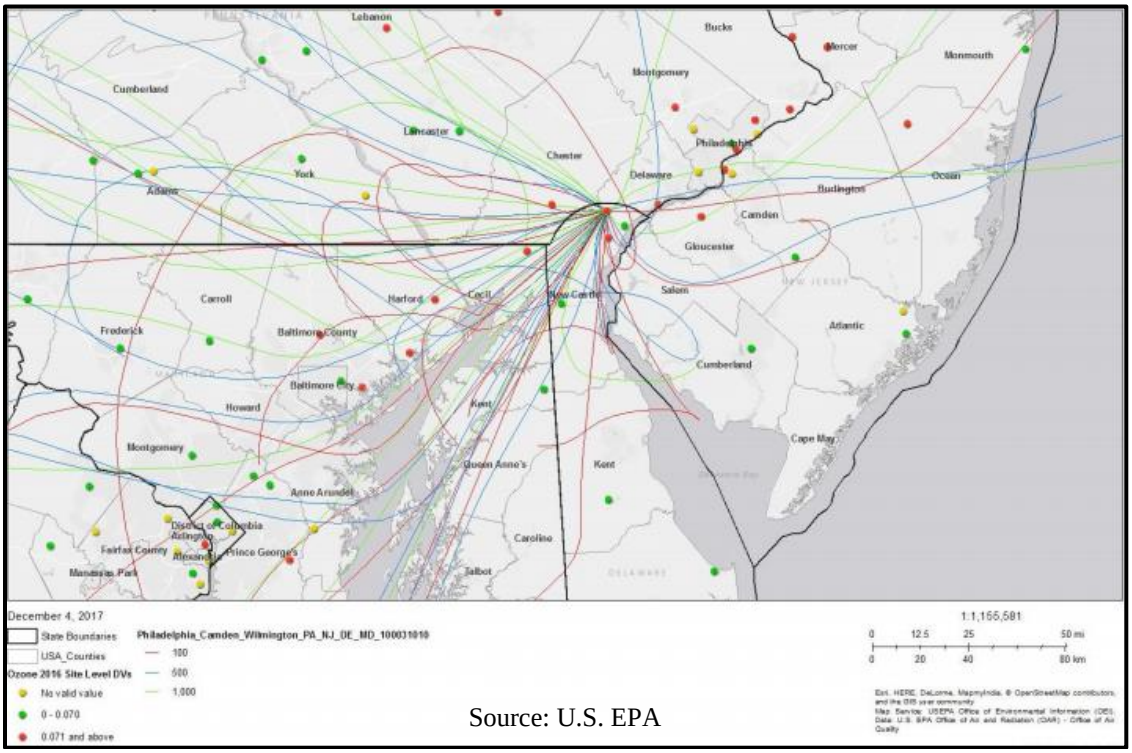
Source: U.S. EPA

Figure E-7: HYSPLIT Back Trajectories for Monitor 34-029-0006 Ocean County, NJ
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



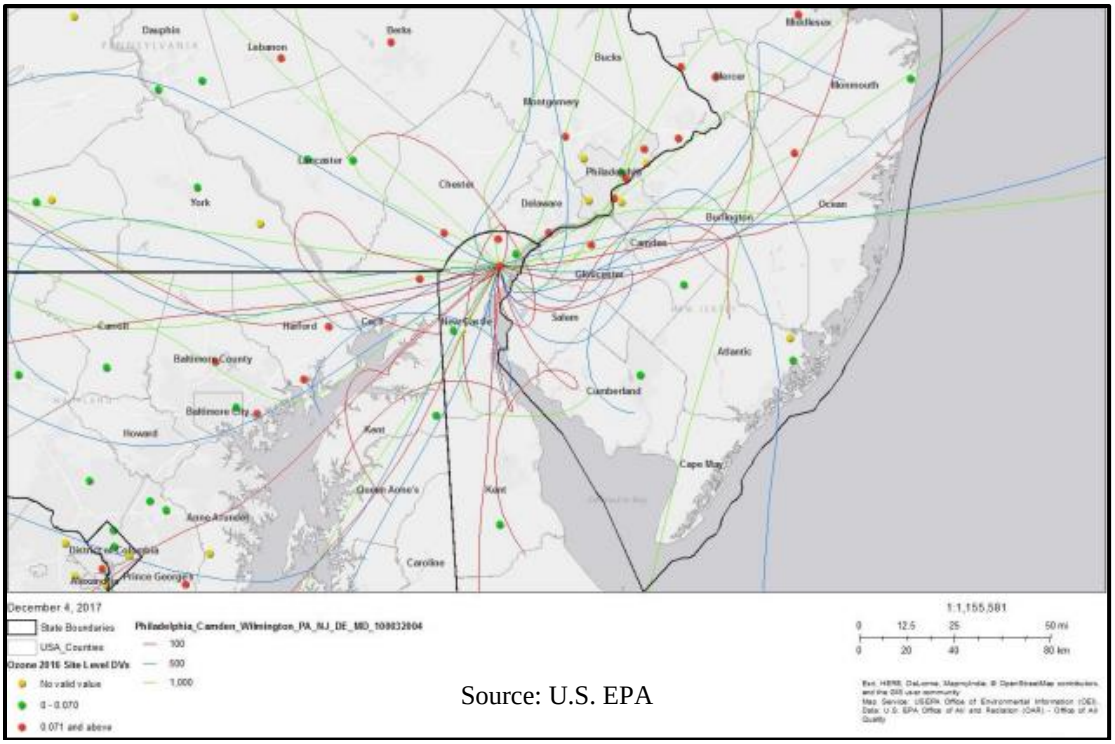
Source: U.S. EPA

Figure E-8: HYSPLIT Back Trajectories for Monitor 10-003-1010 New Castle County, DE
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



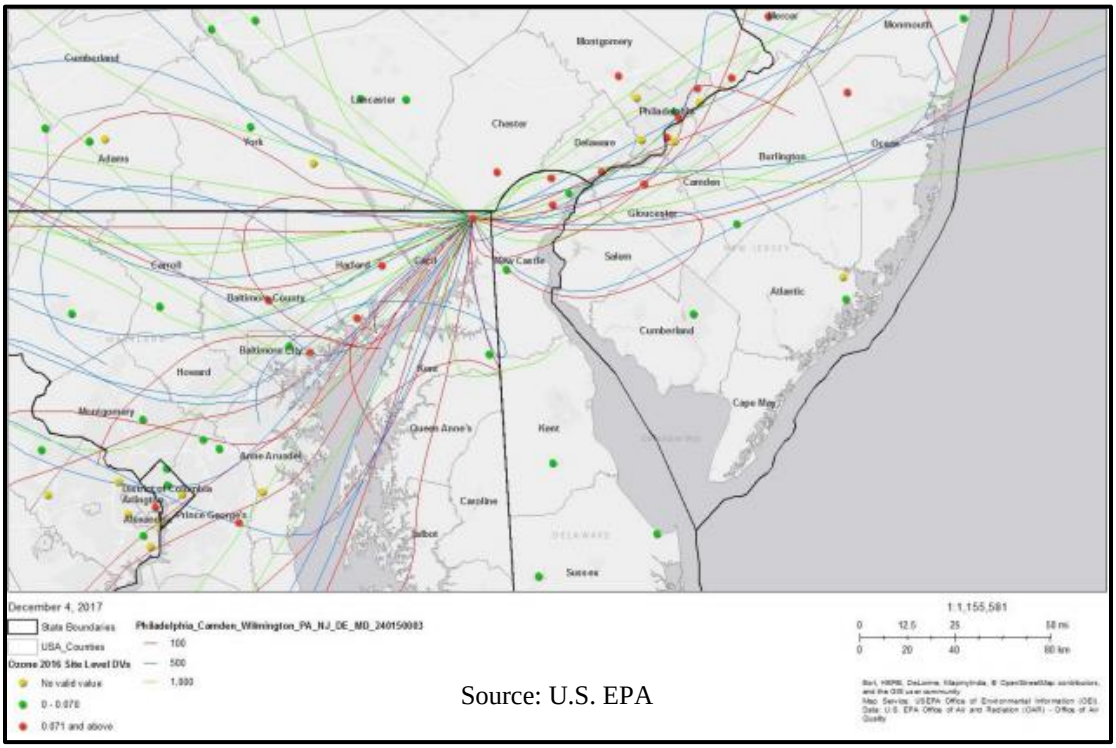
Source: U.S. EPA

Figure E-9: HYSPLIT Back Trajectories for Monitor 10-003-2004 New Castle County, DE
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



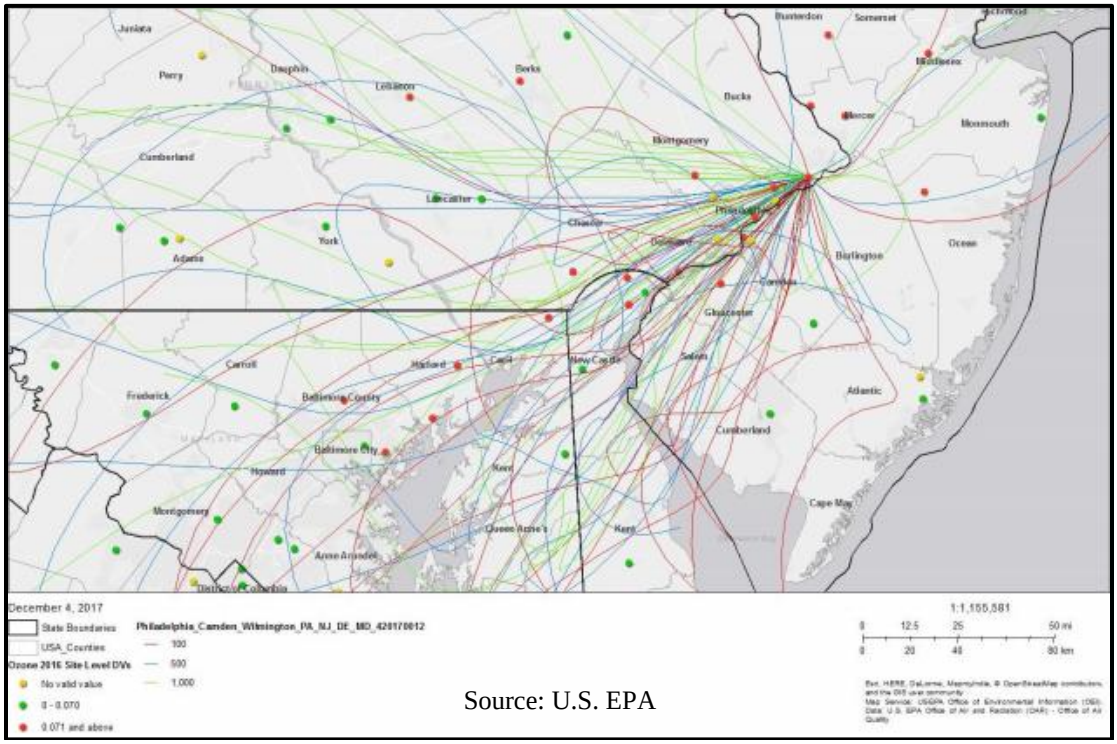
Source: U.S. EPA

Figure E-10: HYSPLIT Back Trajectories for Monitor 24-015-0003 Cecil County, MD
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



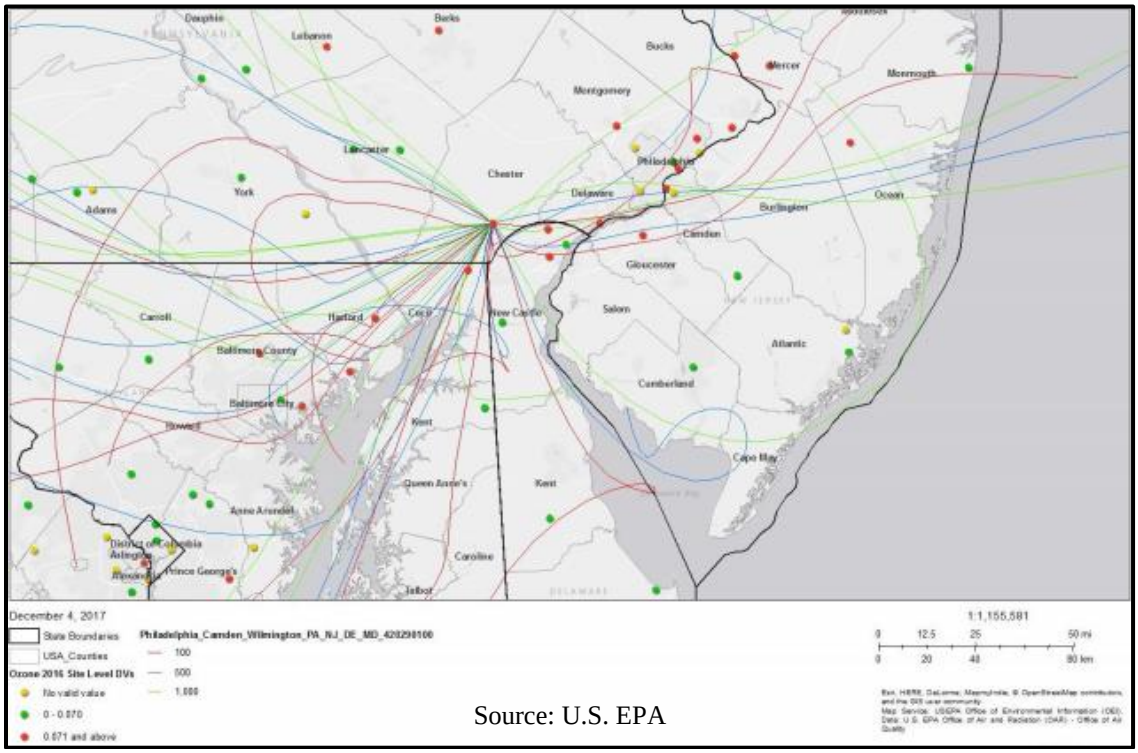
Source: U.S. EPA

Figure E-11: HYSPLIT Back Trajectories for Monitor 42-017-0012 Bucks County, PA
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



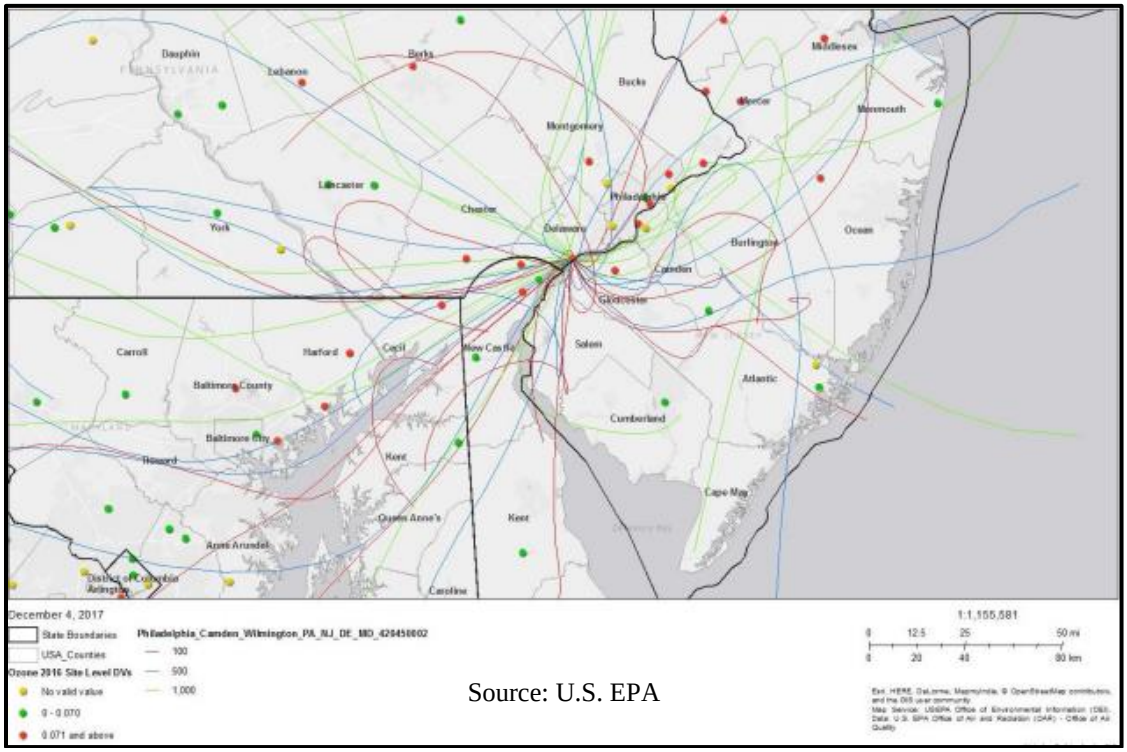
Source: U.S. EPA

Figure E-12: HYSPLIT Back Trajectories for Monitor 42-029-0100 Chester County, PA
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



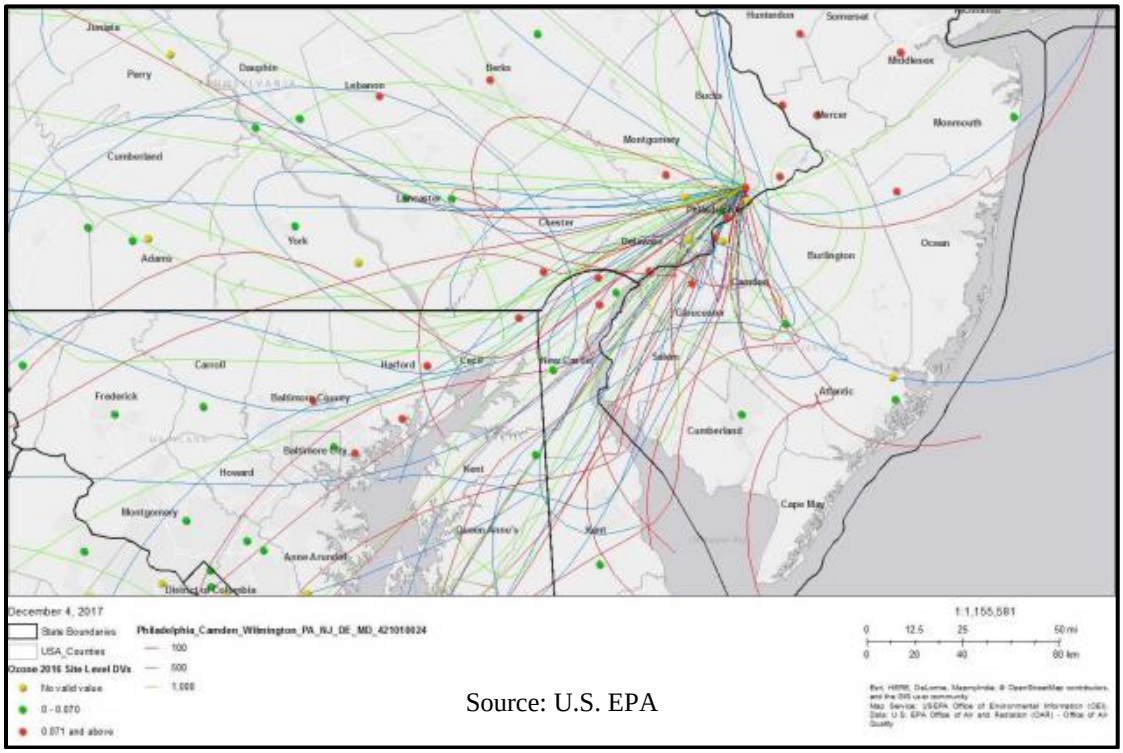
Source: U.S. EPA

Figure E-13: HYSPLIT Back Trajectories for Monitor 42-045-0002 Delaware County, PA
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



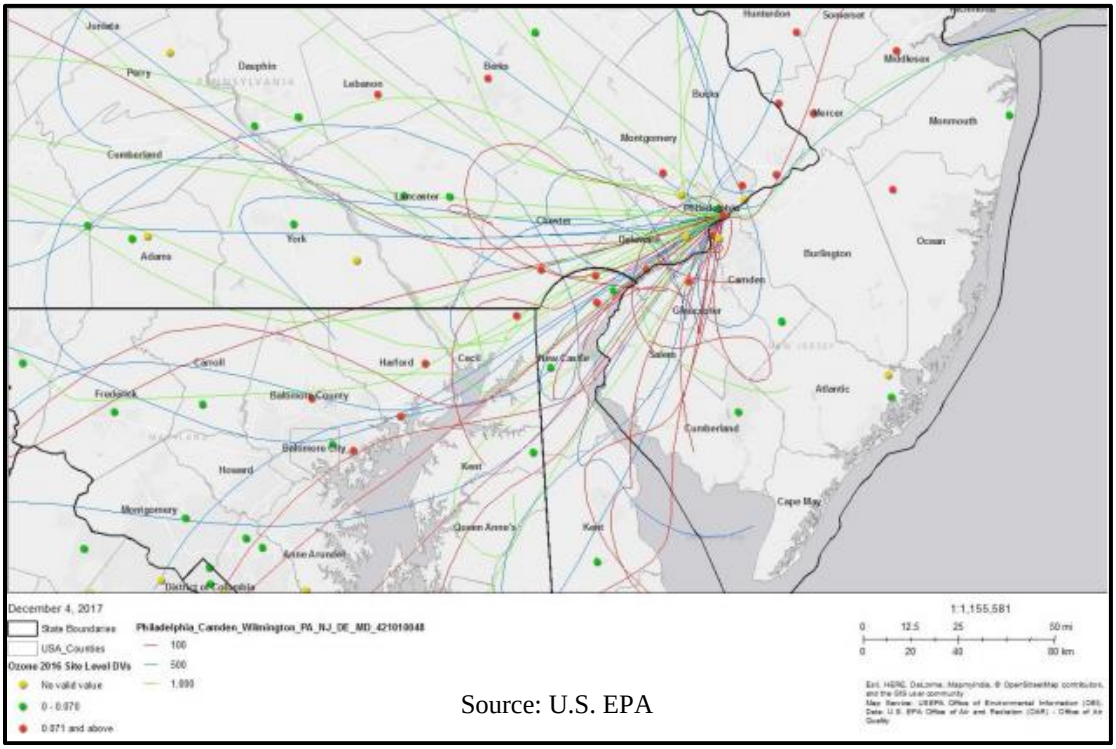
Source: U.S. EPA

Figure E-14: HYSPLIT Back Trajectories for Monitor 42-101-0024 Philadelphia County, PA
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



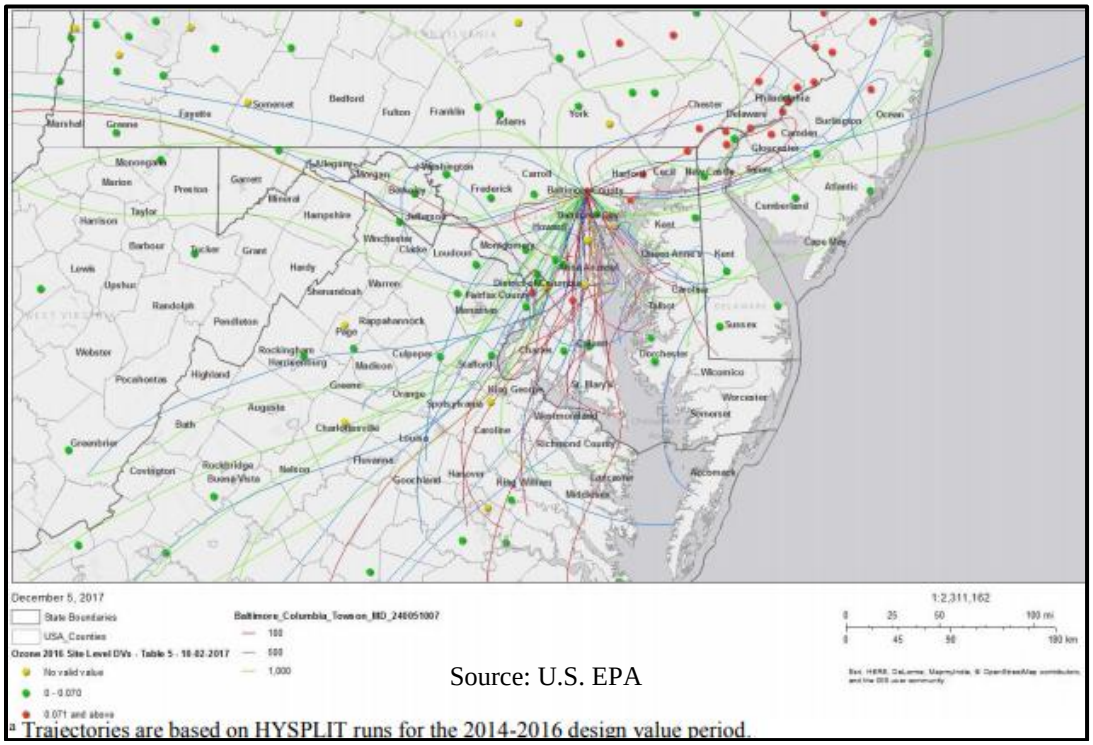
Source: U.S. EPA

Figure E-15: HYSPLIT Back Trajectories for Monitor 42-101-0048 Philadelphia County, PA
(in the Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE Non-Attainment Area)



Source: U.S. EPA

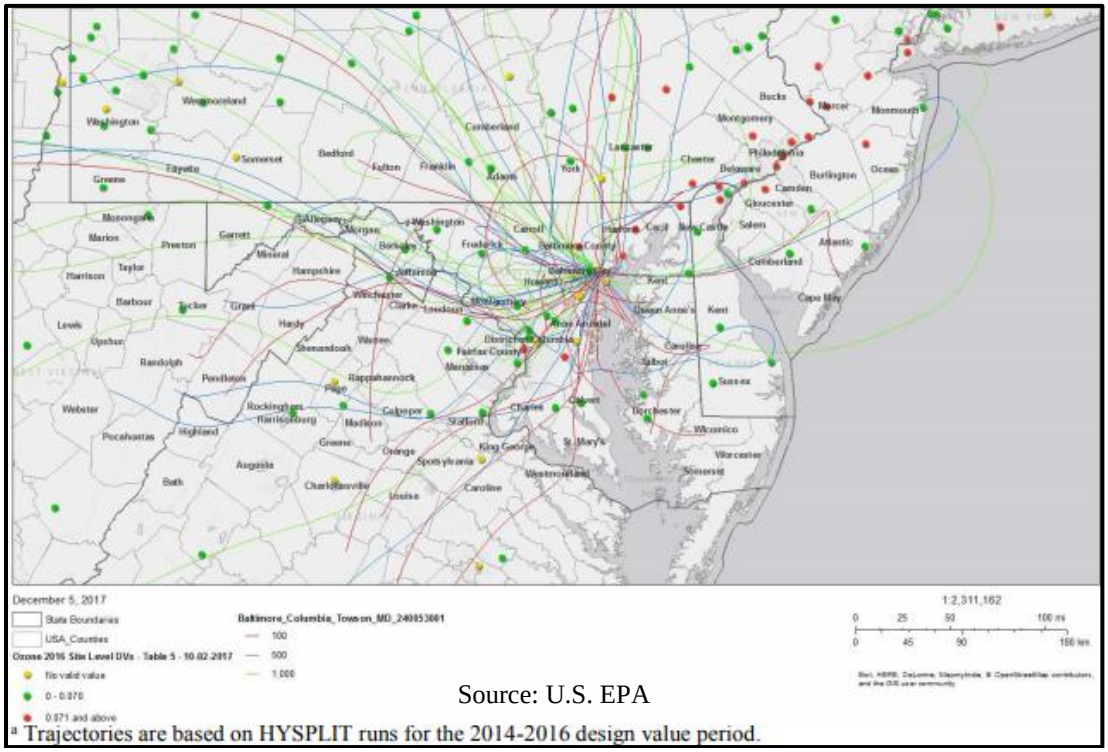
Figure E-16: HYSPLIT Back Trajectories for Monitor 24-005-1007 Baltimore County, MD
(in the Baltimore, MD Non-Attainment Area)



Source: U.S. EPA

[a] Trajectories are based on HYSPLIT runs for the 2014-2016 design value period.

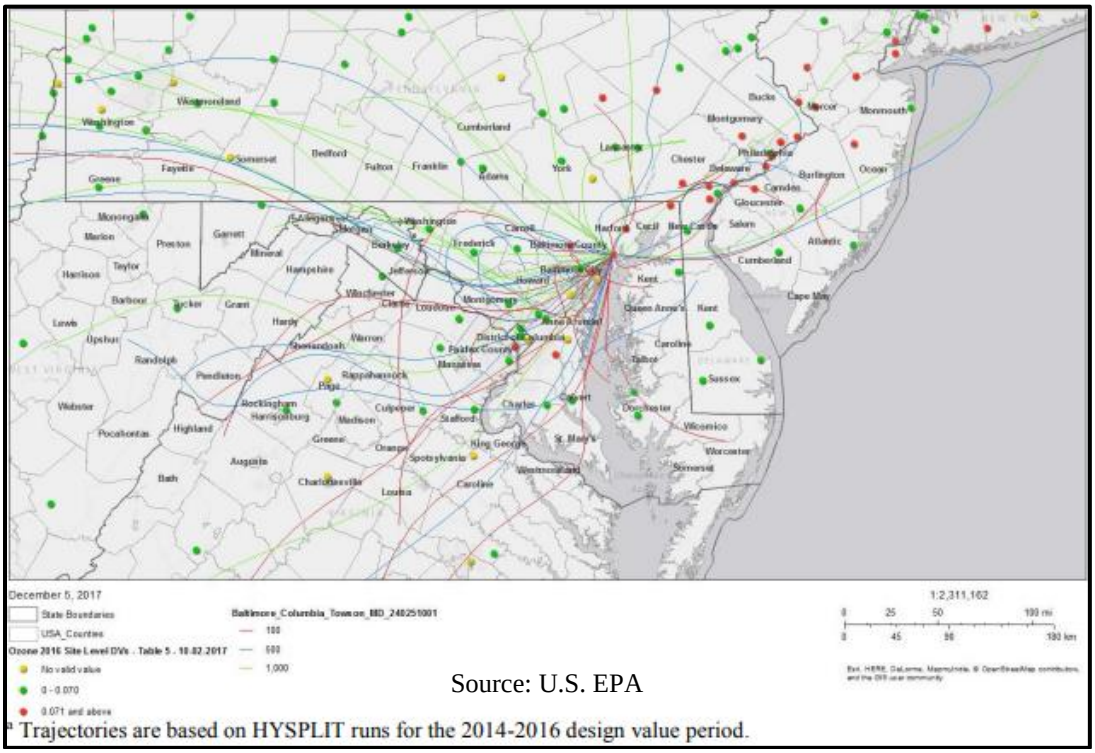
Figure E-17: HYSPLIT Back Trajectories for Monitor 24-005-3001 Baltimore County, MD
(in the Baltimore, MD Non-Attainment Area)



Source: U.S. EPA

[a] Trajectories are based on HYSPLIT runs for the 2014-2016 design value period.

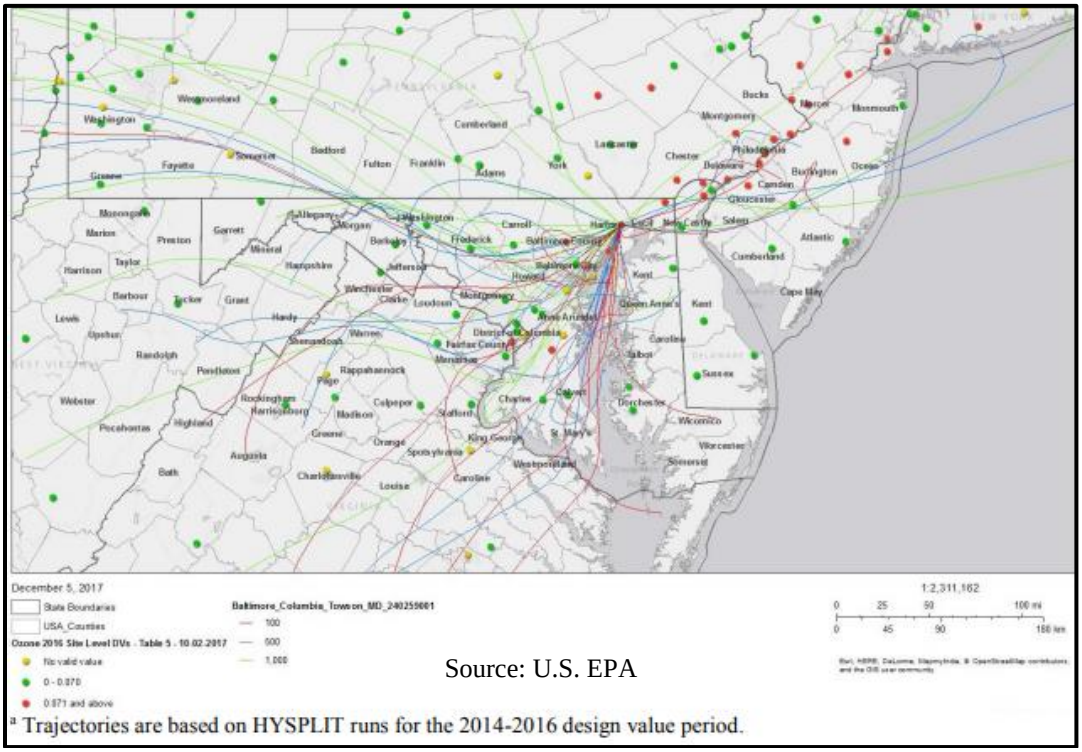
Figure E-18: HYSPLIT Back Trajectories for Monitor 24-025-1001 Harford County, MD
(in the Baltimore, MD Non-Attainment Area)



Source: U.S. EPA

[a] Trajectories are based on HYSPLIT runs for the 2014-2016 design value period.

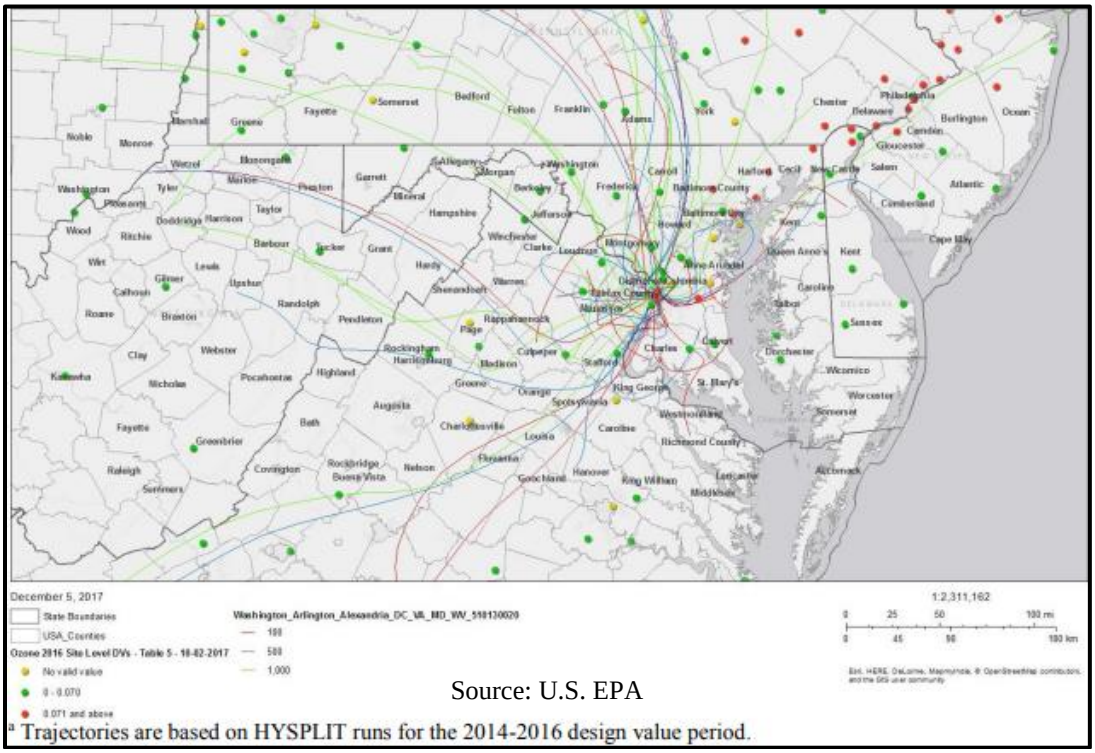
Figure E-19: HYSPLIT Back Trajectories for Monitor 24-025-9001 Harford County, MD
(in the Baltimore, MD Non-Attainment Area)



Source: U.S. EPA

[a] Trajectories are based on HYSPLIT runs for the 2014-2016 design value period.

Figure E-20: HYSPLIT Back Trajectories for Monitor 51-013-0020 Arlington County, VA
(in the Washington, DC Non-Attainment Area)



Source: U.S. EPA

[a] Trajectories are based on HYSPLIT runs for the 2014-2016 design value period.

Appendix F: Trajectory Analyses, 2008 Ozone NAAQS as found in EPA's Air Quality Modeling Technical Support Document for the CSAPR Update, August 2016

Appendix E of the *Air Quality Modeling Technical Support Document for the Cross-State Air Pollution Update Rule* states the following:

> *For the back trajectory, EPA used a technique involving independent meteorological inputs to examine the general plausibility of these linkages. Using the HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) model along with observation-based meteorological wind fields, EPA created air flow back trajectories for each of the 19 non-attainment or maintenance-only receptors on days with a measured exceedance in 2011 and on exceedance days in several other recent high ozone years (i.e., 2005, 2007, 2010, and 2012). One focus of this analysis was on trajectories for exceedance days occurring in 2011, since this was the year of meteorology that was used for air quality modeling to support this rule. The trajectories during the four additional years were compared to the transport patterns in 2011 to examine whether common transport patterns are present.*
>
> *Air-parcel trajectories were calculated based on meteorological fields obtained from the Eta Data Assimilation System (EDAS). EDAS is an intermittent data assimilation system that uses successive three-hour model forecasts to generate gridded meteorological fields that reflect observations. The three-hour analysis updates allow for the assimilation of high-frequency observations, such as wind profiler data, Next Generation Weather Radar (NEXRAD) data, and aircraft-measured meteorological data. In this manner, the forecast wind fields are aligned to measured wind data.*
>
> *For this analysis, site-specific backward air-parcel trajectories were calculated with the HYSPLIT model from heights at 250-m, 500-m, 750-m, 1000-m, and 1500 m above ground level on days with measured exceedances at the given receptor site. The trajectories were initialized at multiple elevations aloft in order to consider the effects of vertical variations in wind flows on transport patterns. Trajectories were tracked backward in time for 96 hours (i.e., 4 days) for each of several time periods (i.e., initialization times) on each day an exceedance was monitored. Back trajectories were initialized at 0800, 1200, and 1500 local Standard Time (LST). The morning initialization time roughly corresponds to the time when the morning boundary layer is rising and pollutants that were transported aloft overnight begin to mix down to the surface. The afternoon initialization times roughly span the time of the day with highest ozone concentrations.*
>
> *Once the trajectories were created, they were converted to geographic files that can be read by programs such as Google Earth or ArcGIS. These files enable the characterization of the geographic location of each trajectory for every hour that was run. The point locations along the trajectory paths were used to create line densities that correlate to the number of times a trajectory passed through a geographic area. These line densities provide a general sense of the frequency at which an air parcel passed over given areas*.

For further information regarding EPA's analysis, see Appendix E of the *Air Quality Modeling Technical Support Document for the Cross-State Air Pollution Update Rule*, August 2016, which has been listed in the references section of this document.

Figure F-1 to F-8 in the following pages contain EPA's trajectory analysis results for sites in the OTR that have been identified as 'non-attainment' or 'maintenance'. In each figure's title, the site is specified, along with the states identified as significantly contributing to the monitor. Maine was not identified as contributing significantly to any of these events.

Figure F-1: Upwind States Linked to Fairfield Co., CT Site 090019003: IN, MD, MI, NJ, NY, OH, PA, VA, and WV

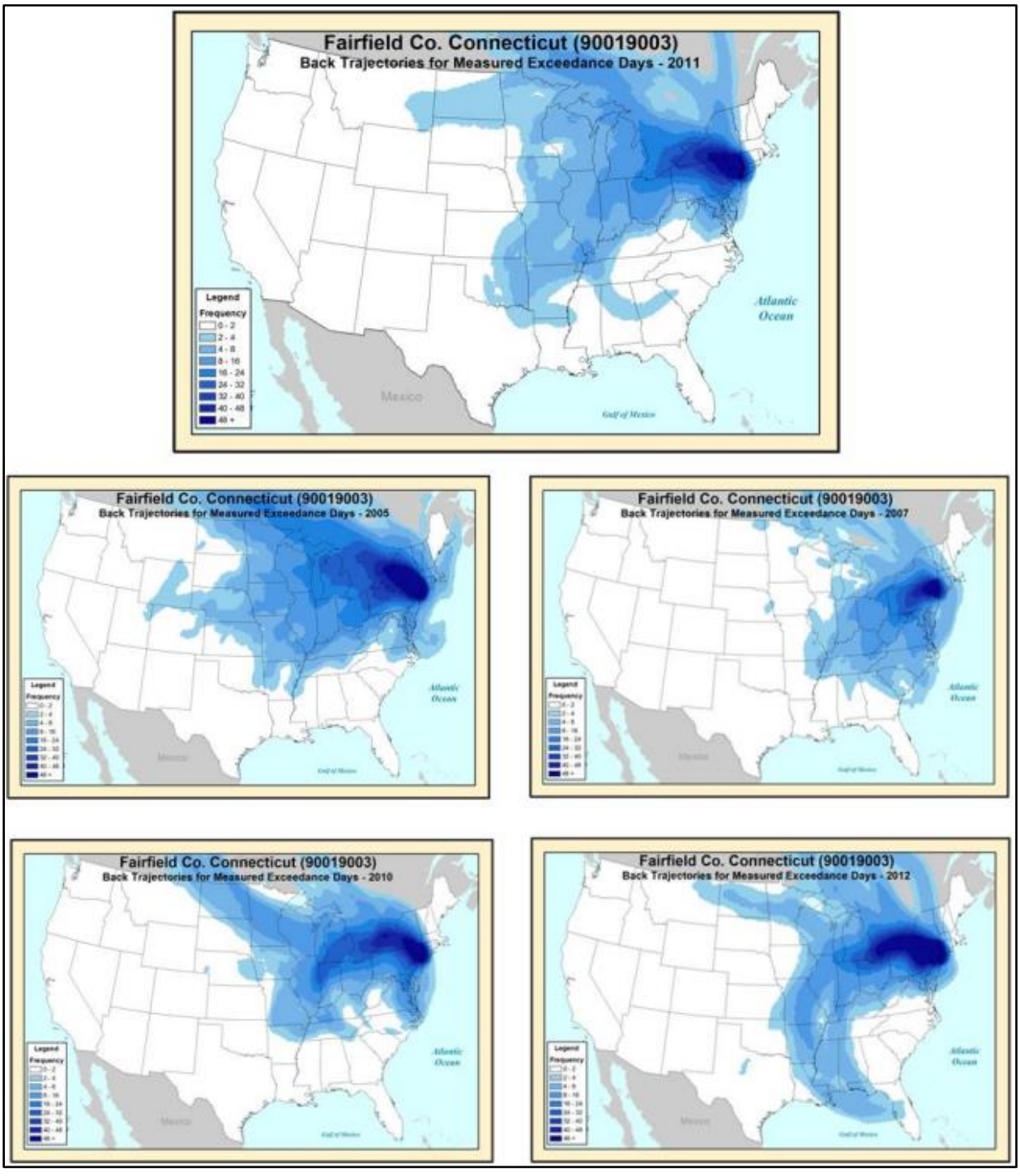


Figure F-2: Upwind States Linked to Fairfield Co., CT Site 090013007: IN, MD, MI, NJ, NY, OH, PA, VA, and WV

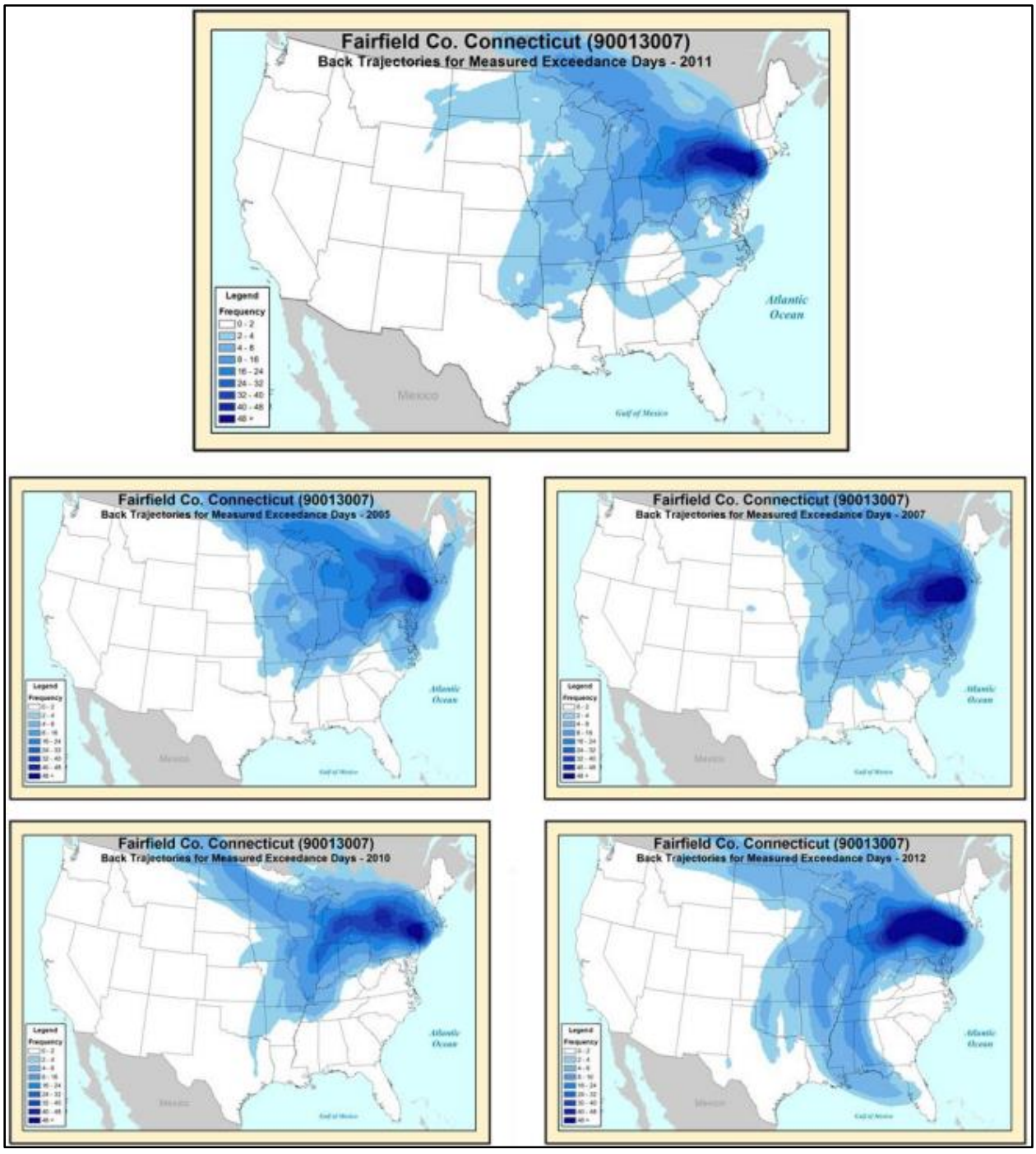


Figure F-3: Upwind States Linked to Fairfield Co., CT Site 090010017: MD, NJ, NY, OH, PA, VA, and WV

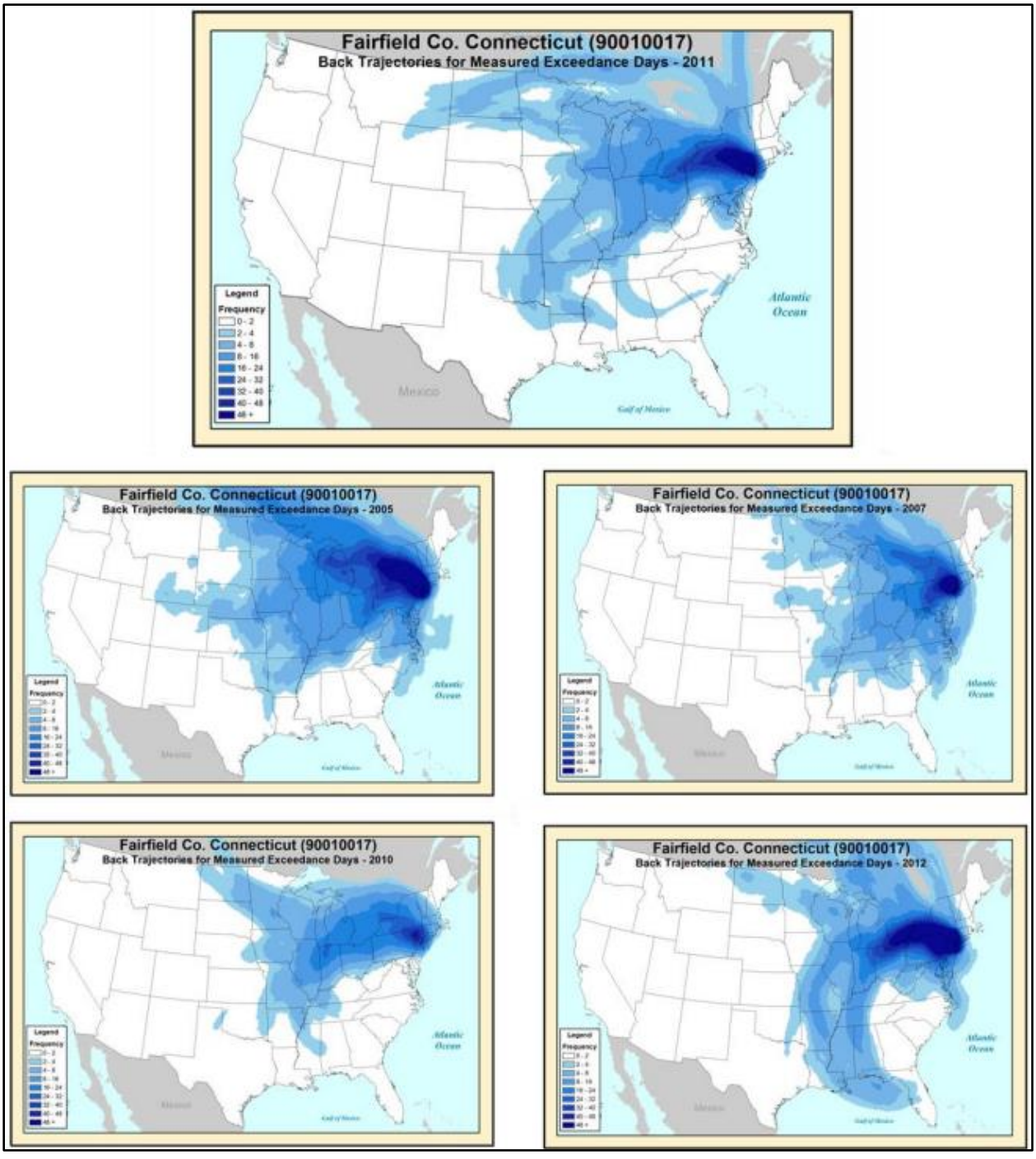


Figure F-4: Upwind States Linked to New Haven Co., CT Site 090099002: MD, NJ, NY, OH, PA, and VA

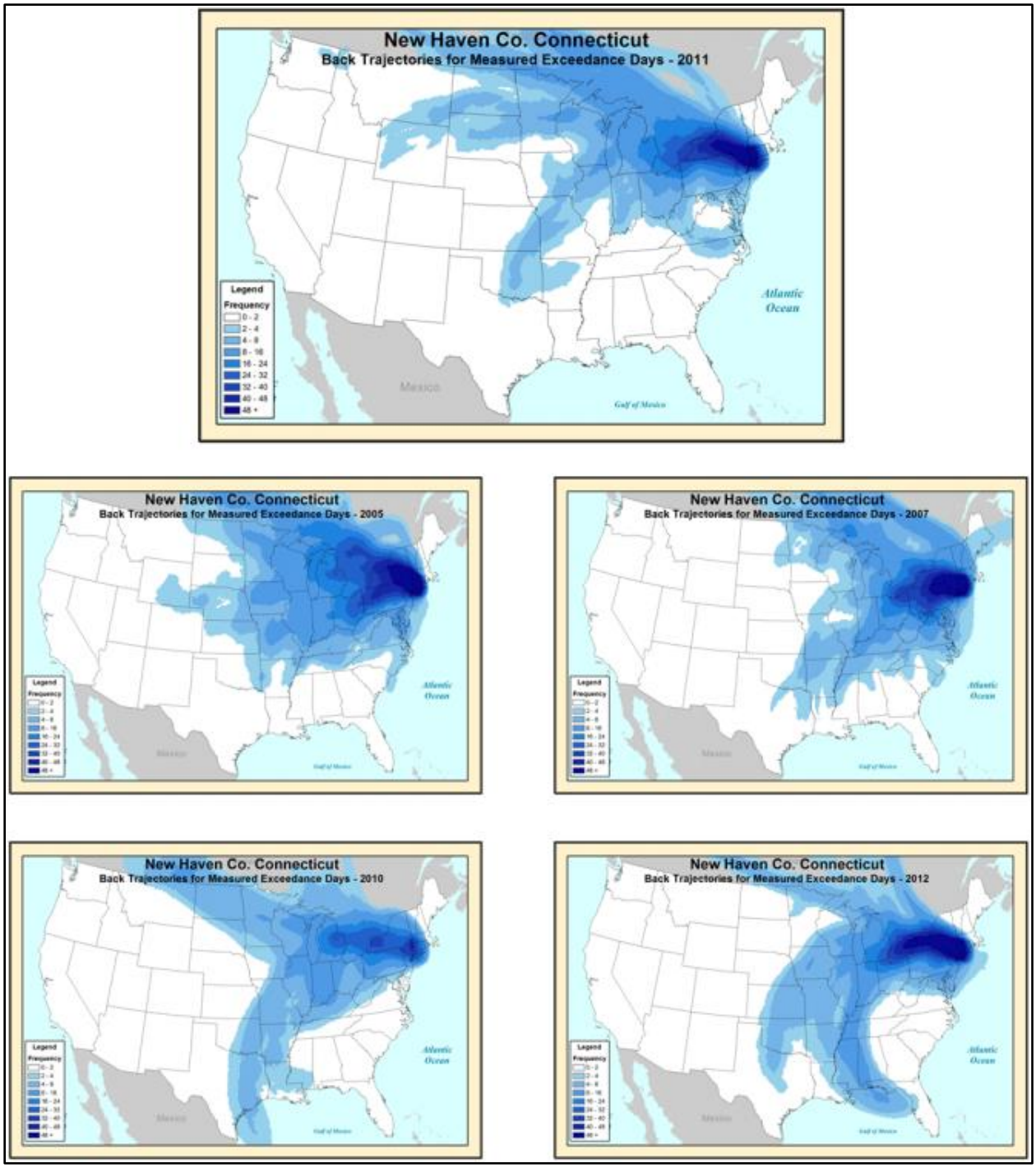


Figure F-5: Upwind States Linked to Richmond Co., NY Site 360850067: IN, KY, MD, NJ, OH, PA, VA, and W

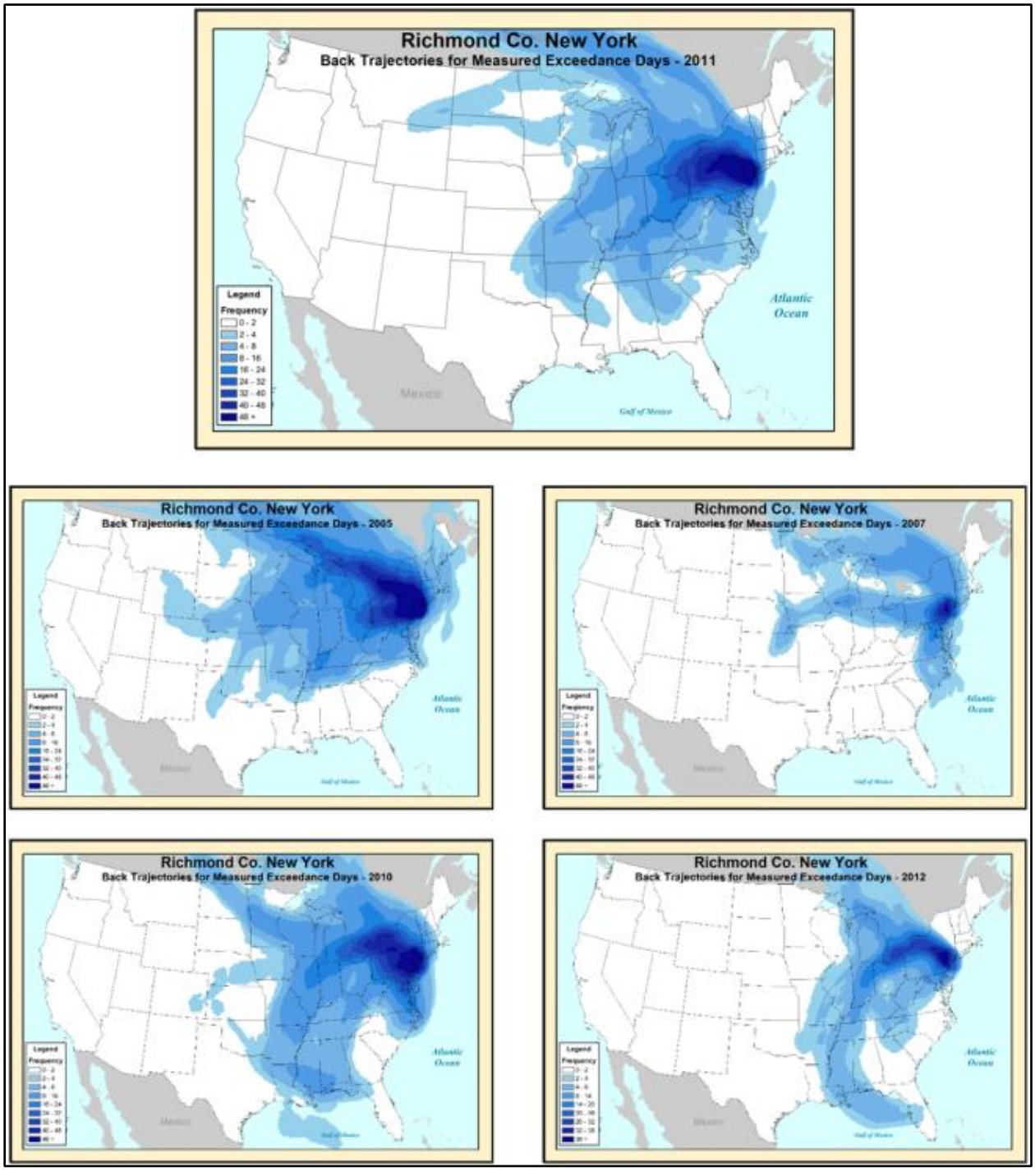


Figure F-6: Upwind States Linked to Suffolk Co., NY Site 36030002: IL, IN, MD, MI, NJ, OH, PA, VA, and WV

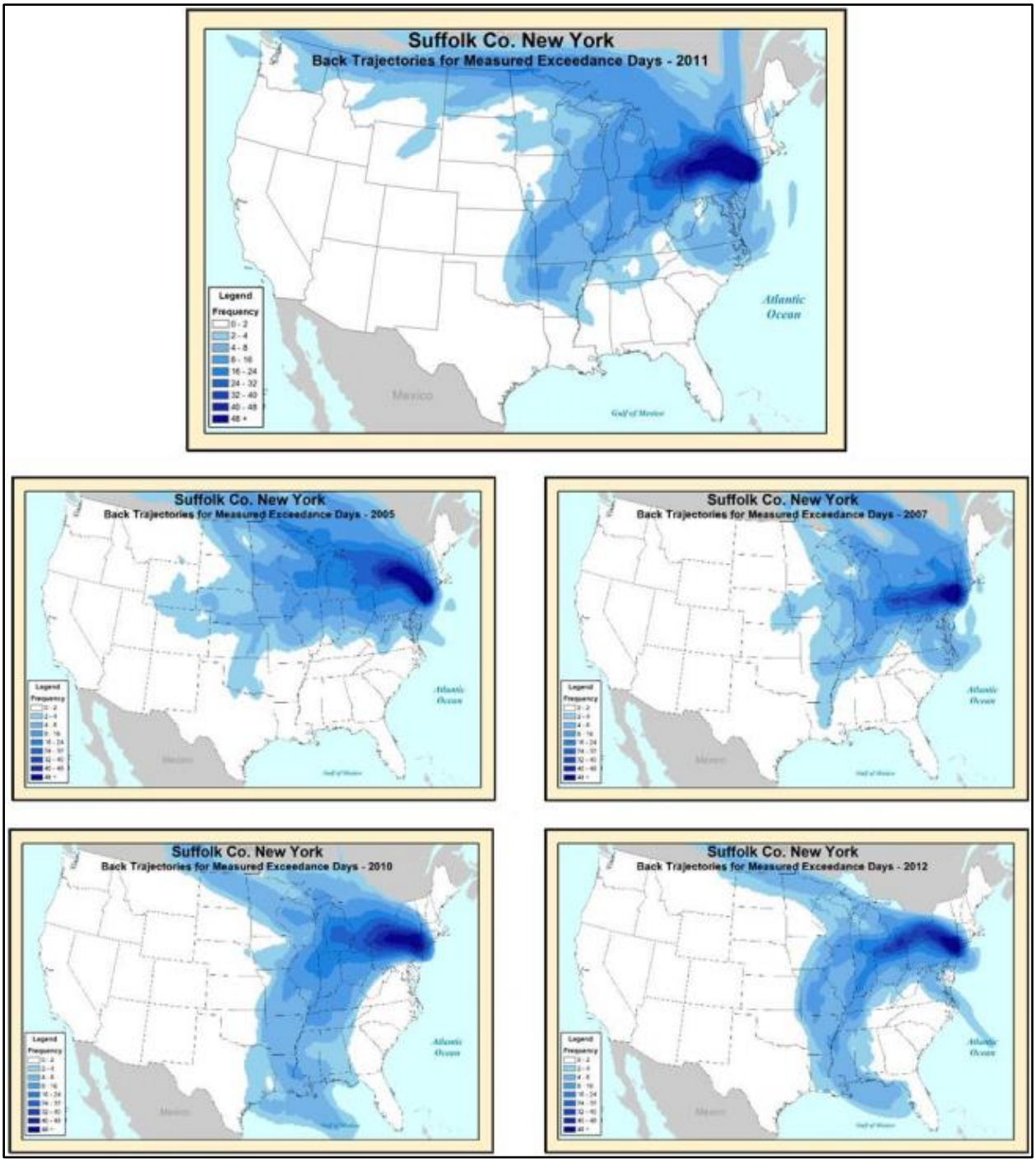


Figure F-7: Upwind States Linked to Philadelphia Co., PA Site 421010024: DE, IL, IN, KY, MD, NJ, OH, TN, TX, VA, and WV

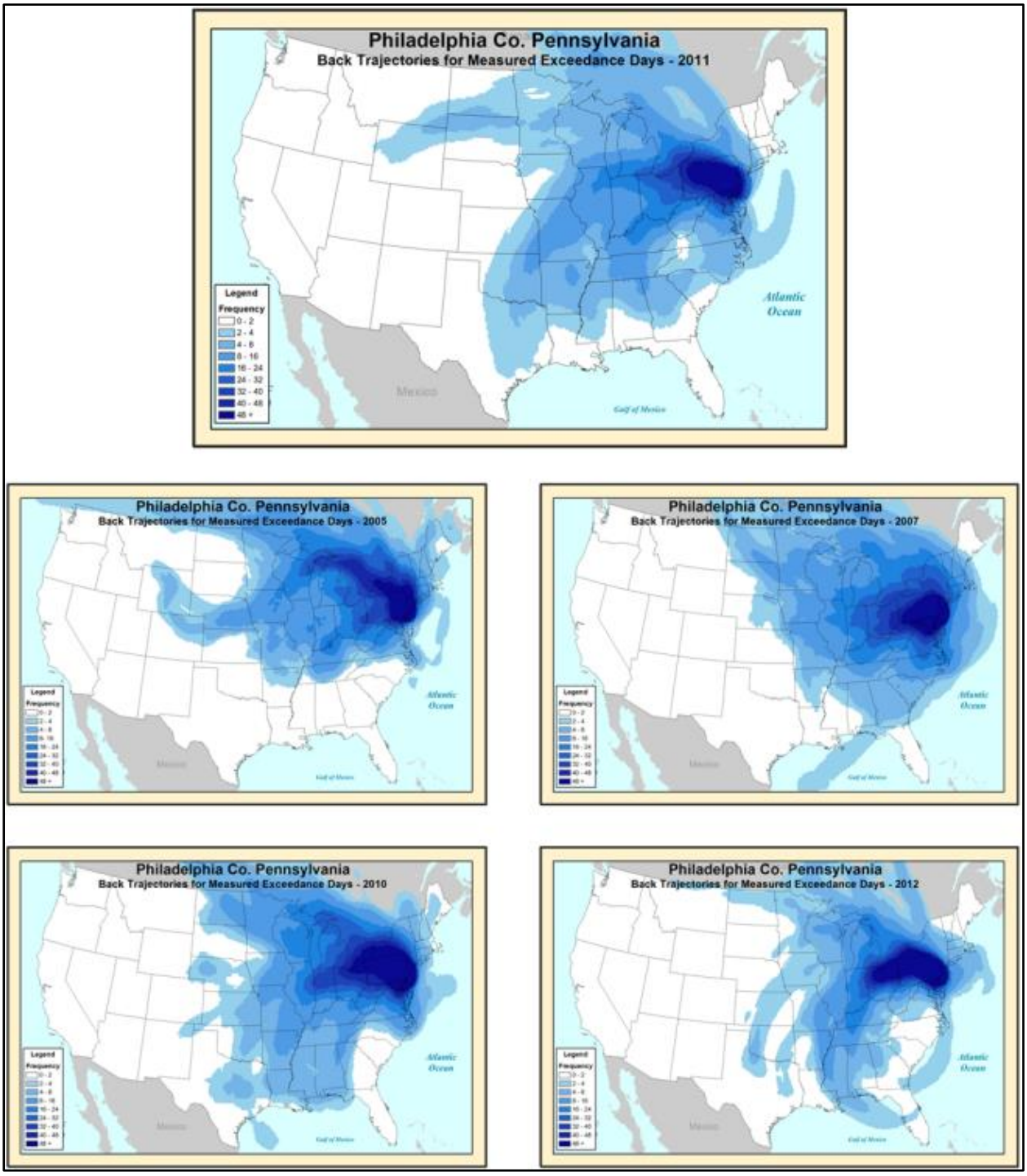
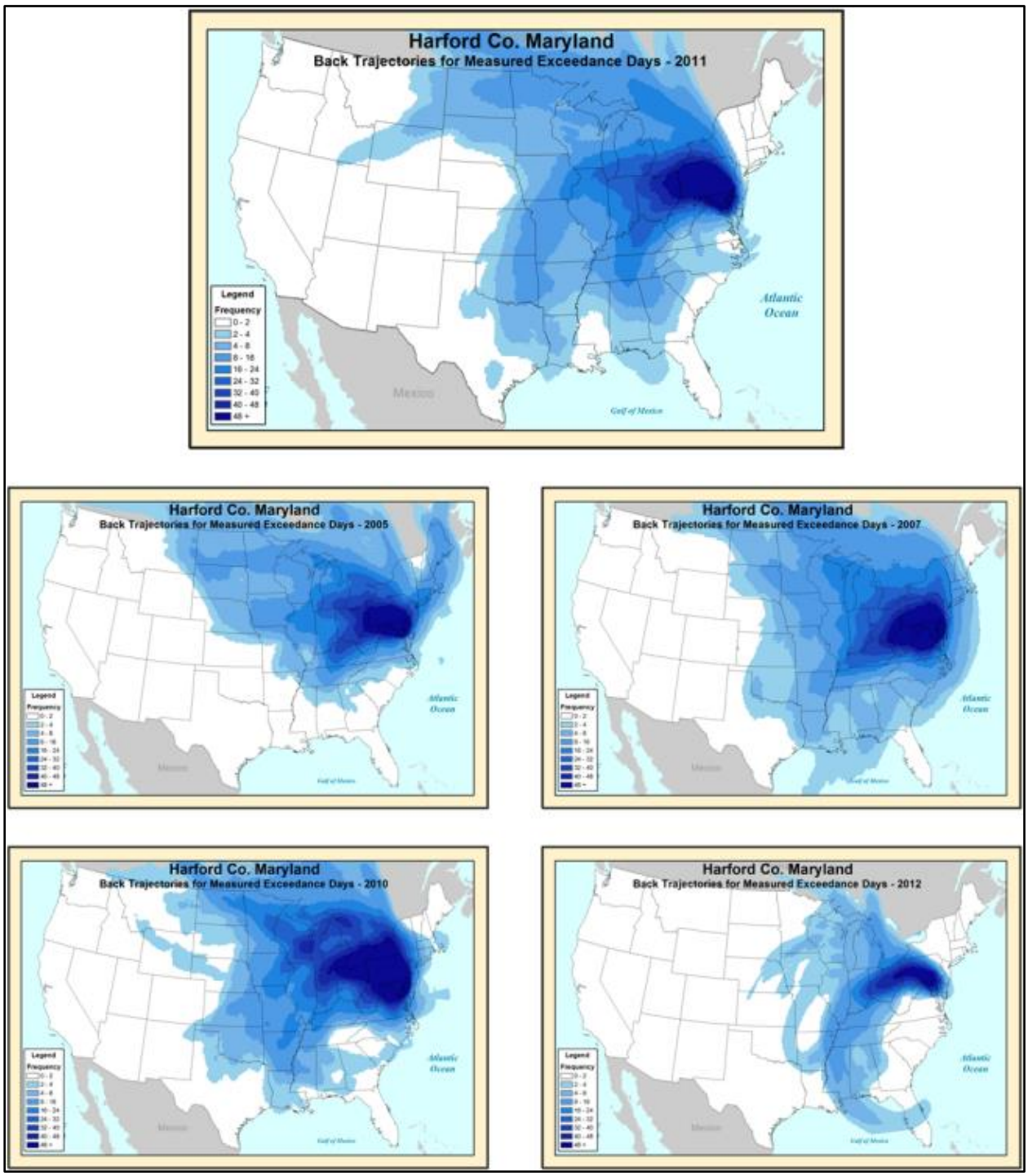


Figure F-8: Upwind States Linked to Harford Co., MD Site 240251001: IL, IN, KY, MI, OH, PA, TX, VA, and WV Washington, D.C. is also linked to this receptor.



Response to Comments
State of Maine
Department of Environmental Protection
Clean Air Act § 176A(a)(2) Petition

August 27, 2018

The State of Maine is petitioning the U.S. Environmental Protection Agency (EPA) pursuant to Clean Air Act (CAA) § 176A(a)(2) for the removal of certain areas of the State from the Ozone Transport Region (OTR). CAA § 176A(a)(2) provides that the EPA Administrator may, upon petition from the Governor of any State, "remove any State or portion of a State from the region whenever the Administrator has reason to believe that the control of emissions in that State or portion of the State pursuant to this section will not significantly contribute to the attainment of the standard in any area in the region."

The technical analyses included in this petition include ozone exceedance day back trajectories for certain monitors in New England, back trajectory analyses for other monitors in the southern OTR states, source apportionment modeling conducted by EPA for the 2008 and 2015 ozone standards, and an assessment of Maine's emissions inventory, all of which support the conclusion that NO_x and VOC emissions from Maine clearly are insignificant contributors to ozone non-attainment in any other state.

On July 30, 2018, the Department held a public hearing on this proposal[1]. The Department received comments on this proposal from 578 interested parties during the public comment period[2], and has summarized these comments and provided its responses below.

****

Summary of Comments in Support:

S-1. Comment: (General) A number of commenters expressed general support for the proposal.

S-2. Comment: The Clean Air Act (CAA) expressly provides for a mechanism of removal of a state from a transport region. The State of Maine has the legal authority to request removal of the State from the Ozone Transport Region (OTR) through a petition to the Environmental Protection Agency (EPA) Administrator.

Response: Maine agrees that Section 176A(a)(2) of the CAA gives Maine's Governor the authority to request from the EPA Administrator the removal of the state, or any portion thereof, from the OTR provided the requirements of that section can be met, and that these requirements have been documented in the proposal.

[1] Public notice of the hearing was published on the Department's Opportunity for Comments webpage and sent to all persons on the Department's mailing list on June 29, 2018.

[2] The Department received 17 comments after the August 10, 2018 close of the comment period; these comments have also been included in the Department's list of commenters and comments.

S-3. **Comment:** Burdensome requirements from being part of the OTR can be removed without negatively impacting air quality. EPA has previously granted Maine NO_x Waivers under the 1990 1-hour and the 1997 and 2008 8-hour ozone National Ambient Air Quality Standards (NAAQS,) and Maine has still seen lower ozone levels. Maine has been, and will continue to be, in attainment with ozone NAAQS in those areas petitioned for removal. The Maine Department of Environmental Protection (Maine DEP) has demonstrated that further reductions of both Nitrogen Oxides (NO_x) and Volatile Organic Compound (VOC) emissions in Maine will not change Maine's attainment status or have any significant impact on ozone levels in the OTR outside of Maine. Things change over time, and rules need to be updated to keep up with the changing reality.

Response: Maine agrees that portions of Maine can be removed from the OTR without negatively impacting air quality. Ozone and ozone precursor levels have consistently decreased since the OTR was created, and Maine's air quality will continue to improve.

S-4. **Comment:** The proposal does not change or eliminate any requirements or restrictions currently in place at existing facilities. Controls on existing sources and facilities will not be relaxed upon removal of portions of the state from the OTR. The proposal does not remove any requirements in Maine's State Implementation Plan (SIP). There is no potential for backsliding as it is prohibited under the CAA.

Response: Maine agrees with the comment. This action does not remove any regulatory air pollution controls or rules existing in Maine today. Specific rules may be evaluated for implementation throughout the entire State if the requirements would benefit the State's air quality.

The proposal does not remove or modify any existing control measures contained in the Maine SIP. Pursuant to section 110(l) of the CAA, the removal or modification of control measures in the SIP requires EPA approval and an affirmative demonstration that such a removal or modification will not interfere with attainment of the NAAQS, rate of progress, reasonable further progress, or any other applicable requirement of the CAA. Required controls for existing facilities in Maine will not be relaxed upon removal of portions of the State from the OTR, thus ensuring that air quality does not degrade. Continued use of existing controls will also eliminate any potential for backsliding, consistent with anti-backsliding provisions of the CAA which prohibit the reduction or removal of pollution controls where such action could allow an area to slip back into noncompliance with the CAA.

New or modified equipment at any licensed facility will be controlled by the Best Available Control Technology (BACT). Maine's BACT requirements apply to a greater number of sources than federal BACT requirements, because they apply to minor sources in addition to major sources, and this will not change because of this proposal.

Moving forward, those portions of the State remaining within the OTR would be required to implement all regional controls pursuant to CAA Section 184(b).

S-5. **Comment:** The science (most of which is based on EPA technical analysis techniques) strongly supports reassignment as requested in the proposal. Maine DEP has documented the technical analysis justifying the removal of certain areas of the state from the OTR.

Response: Maine agrees with the comment that policy should be based on the best available science.

S-6. **Comment:** The proposal has taken a conservative approach and is only requesting removal of those portions of Maine that are least likely to be impacted by other areas of the OTR. Leaving a portion of the state in the OTR will continue to give Maine a "seat at the table."

Response: Maine agrees with the comment. The proposal does not remove the entire state from the OTR. Since a portion of the state will remain, Maine will continue to be engaged in the OTR partnership and will continue to participate in regional ozone strategy discussion and decisions.

S-7. **Comment:** Opponents have argued that if the proposal were approved, other states to the south and west will follow. This argument assumes that those states can demonstrate that they do not have an impact on any areas in the OTR. This is highly unlikely since ozone is a transportation issue, and emissions from those states are being transported north and east, impacting Maine and other states within the OTR.

Response: Maine agrees with the comment.

S-8. **Comment:** Proper forestry management is necessary for healthy forests. Healthy forests provide multiple benefits to Maine, including acting as a greenhouse gas sink. A healthy forest also produces vast amounts of biogenic or naturally occurring VOCs. VOCs are a naturally occurring component of wood. Industrial drying of wood (e.g. lumber kilns, wood pellet production, paper making) releases them at a faster rate. However, the level of VOCs from the forest products industry is dwarfed by the amount of VOC emissions in Maine that come from forests naturally. It does not make sense to put environmental roadblocks on the industrial sector when so little of the VOC emitted within the state comes from these sources.

Response: Maine agrees with the comment. Sustainable utilization of Maine's forest resources can have a beneficial effect on greenhouse gas concentrations. Although Maine's forests are a significant biogenic source of VOC emissions, the CAA does not include consideration of biogenic VOC emissions in ozone reduction strategies.

S-9. **Comment:** Under the proposal, BACT would be applied during the permitting process in lieu of Lowest Achievable Emission Rate (LAER). Using BACT allows Maine DEP to weigh the pros and cons of control options. LAER imposes the most stringent requirement regardless of cost or the overall environmental benefit.

Response: Maine agrees with the comment. The use of BACT gives Maine DEP more flexibility to require the most appropriate control method for the proposed emission source.

Many control technologies for NO_x and VOC have energy use and environmental trade-offs. For example, the use of Selective Non-Catalytic Reduction (SNCR) or Selective Catalytic Reduction (SCR) may be considered LAER for NO_x reduction as these technologies are able to drive NO_x emissions extremely low. However, both systems have a side-effect of significantly increasing emissions of ammonia.

LAER may require VOC to be controlled by use of a Regenerative Thermal Oxidizer (RTO). RTOs achieve very high levels of reduction of VOC. However, use of thermal oxidation on a large, wet, low-concentration VOC emission stream, such as emissions from a lumber kiln, would require excessive amounts of fuel to be burned to accomplish the VOC destruction. This results in increased emissions of particulate matter, sulfur dioxide, carbon monoxide, carbon dioxide, and NO_x, thereby providing questionable reduction in emissions of ozone precursor pollutants or benefit to overall air quality.

LAER limits the ability of Maine DEP to require the best control technology for the application. BACT allows Maine DEP to take into account all of the benefits and liabilities of a given technology and require those that give the most holistically advantageous environmental solution.

S-10. Comment: Many Maine facilities are already subject to Maximum Achievable Control Technology (MACT) standards. MACT established VOC emission limits based on the average of the top 12% best performing similar plants in the country. MACT should be sufficient to put Maine facilities on a competitive level with counterparts in other states.

Response: Maine agrees that facilities subject to MACT standards are often subject to stringent limitations on VOC emissions.

S-11. Comment: This action will bring greater regulatory certainty to facilities. This will allow capital decisions and allocation of resources to be made with more clarity and certainty.

Response: Maine agrees with the comment. Approval of the proposal will give the regulated community outside of the OTR greater certainty when planning projects. Emissions offsets are often scarce and their price expensive. Although a facility may be able to reasonably forecast required control technologies several years out during the planning phases of their projects, information predicting the availability or cost of offsets is much less reliable. The proposal will bring greater regulatory certainty in regards to Reasonably Available Control Technology (RACT). Areas not in the OTR will no longer need to reevaluate RACT each time a new ozone standard is promulgated.

S-12. Comment: Maine's state-wide inclusion in the OTR puts Maine businesses at a disadvantage. Unsubstantiated and more stringent NO_x and VOC emission standards impose a significant

additional increase in production costs. Inclusion in the OTR imposes additional regulatory requirements that unnecessarily restrict businesses by increasing costs and eliminating operational flexibility without a commensurate environmental benefit. Companies are choosing not to increase production or invest in their Maine facilities due to current restrictions. Facilities are accepting production and license restrictions to avoid the uncertainty of obtaining offsets and the additional cost. Spending a few million dollars on offsets is not practicable for some facilities, and for others, means that investment will occur elsewhere, outside of the state. Currently, it is not a fair environment for Maine's facilities to compete in. A strong economy and good jobs are also vital to public health and environmental protection.

Response: Maine agrees the costs of obtaining offsets does not provide a commensurate environmental benefit to Maine's air quality.

S-13. Comment: The current regulations prevent resources from going to projects that provide an actual environmental benefit.

Response: Maine agrees that greater environmental benefit could be seen in Maine from allocating resources in ways other than those currently required by being in the OTR. Facilities have a finite amount of resources, and those resources need to be spent in the most environmentally effective manner.

Summary of Comments in Opposition:

O-1. Comment: (General) A number of commenters expressed general opposition to the proposal on grounds that the proposal takes Maine in the wrong direction and would not adequately protect public health. Specific concerns identified by these commenters include:

a. Weakening Maine's participation in the OTR is the wrong direction for Maine;
b. The proposal, in general, is a bad idea;
c. Maine needs more environmental regulation, not less;
d. The proposal is not appropriate in an era of climate change;
e. Maine needs strong air protections; and
f. Emissions of NO_x and/or VOC pose health risks besides ozone.

Response: Maine agrees with commenters that Maine should retain strong protections for air quality, and that ozone is not the only health risk from emissions. Maine will continue to implement stringent emission control requirements for new and modified facilities and for criteria and hazardous air pollutants. Other elements of general opposition comments focus on issues that are beyond the scope of this proposal.

O-2. Comment: The proposal would increase harmful air pollution in Maine. Many areas are just barely under the level that would trigger non-attainment status.

Response: As demonstrated in the proposal, Maine's stationary sources have minimal if any impact on formation of ground-level ozone that impacts citizens of this, or any other, state. The proposal leaves in the OTR the areas of the state exposed to the highest levels of transported ozone and ozone precursors. For all areas of the state, except the summit of Cadillac Mountain, monitored levels that would possibly trigger non-attainment in 2018 and 2019 have not been experienced since 2007.

See the following map labeled "Maine's Monitored Ozone Levels" for a visual summary of the current air quality status across Maine.

O-3. Comment: No demonstration has been made that Maine's sources do not contribute to impacts in Maine. Air pollution and ozone know no bounds. The specific areas requested for removal may be in attainment, but releasing them from the requirements of the OTR will have the net effect of creating more pollution and ozone in other parts of the state.

Response: The purpose of the OTR is to affect state-to-state contributions and not a state's contribution to itself. However, both Maine and EPA have evaluated how emissions from Maine facilities affect Maine's air quality. EPA modeled the Kennebunkport monitoring site which was identified as the area of greatest potential impact.[3] The 2023 maximum modeled design value was 60.7 part per billion (ppb), well below the current standard of 70 ppb. This evaluation found that Maine's contribution to the maximum modeled design value is approximately 1 ppb. See Section 3(B) of the proposal.

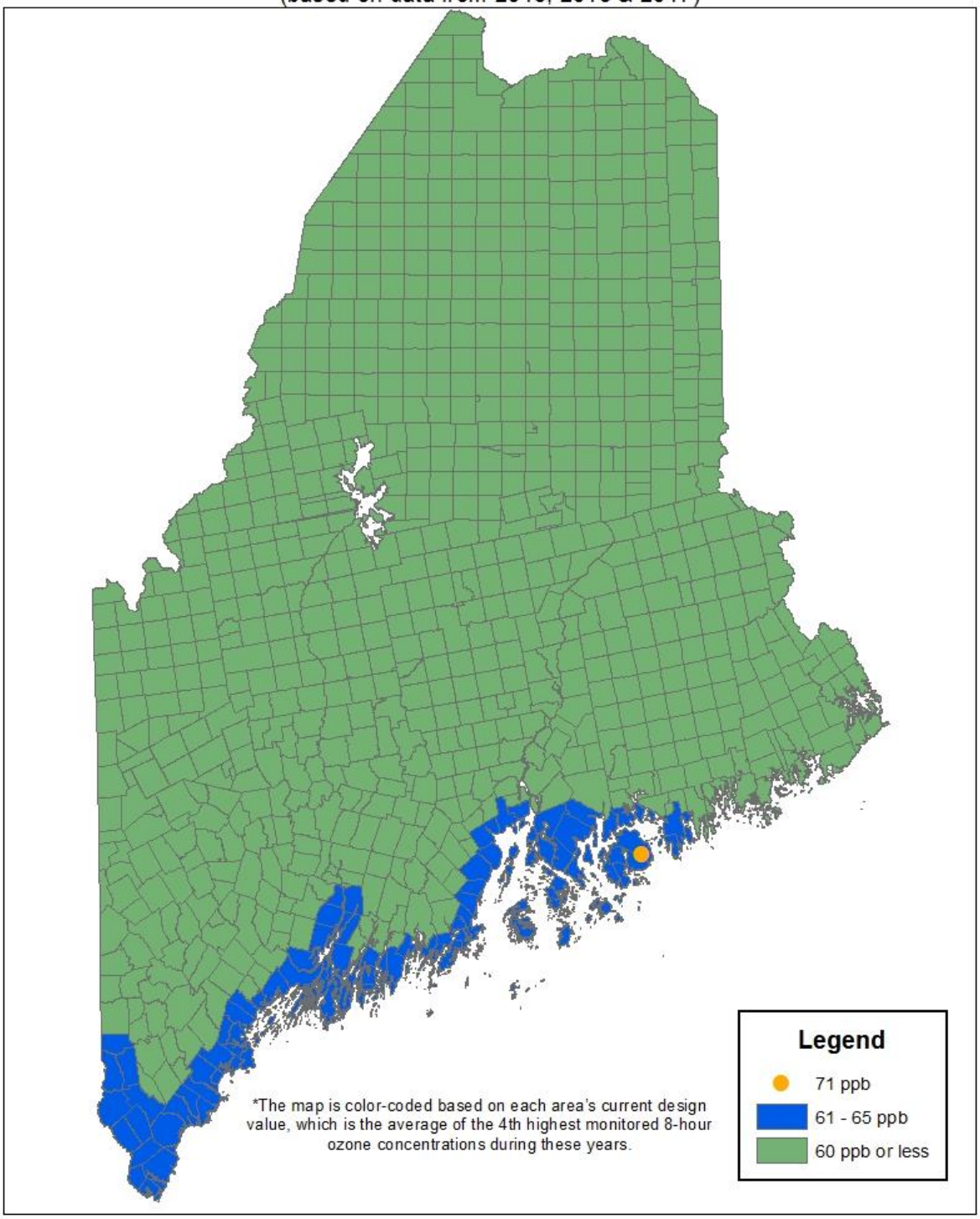
A recent weather event in the Northeast U.S. (June 27, 2018 – July 4, 2018) demonstrated clearly that Maine emissions do not cause exceedances of the standard in Maine. During that several-day period, stagnant wind conditions minimized the amount Maine was impacted by other states and kept Maine's own emissions primarily within the state. Maine did not exceed the standard, whereas the metropolitan areas to our south did monitor many areas exceeding the standard for multiple days.

The proposal presents extensive evaluation of modeled impacts from several states on non-attainment and maintenance sites in the OTR. Based on the data in Table 7 of the proposal and on data in the EPA March 27, 2018, memorandum, "Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standard under Clean Air Act Section 110(a)(2)(D)(i)(I)," in 2023, stationary sources will account for less than 38% of Maine's anthropogenic NO_x emissions and less than 8% of Maine's anthropogenic VOC emissions. Thus, if a NO_x waiver would again be granted as it has in the past, this action will impact only 8% of Maine's 1%-3% contribution to ozone levels in the State on higher ozone days, a truly de minimis amount. Therefore, the continued

[3] EPA Memo. Peter Tsirigotis, *Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I),* (March 27, 2018) https://www.epa.gov/sites/production/files/2018-03/documents/transport_memo_03_27_18_1.pdf

Maine's Monitored Ozone Levels*

(based on data from 2015, 2016 & 2017)



imposition of OTR restrictions on stationary sources in Maine is misplaced and would be ineffective in bringing about the desired changes.

The vast majority of Maine is well below the Ozone National Ambient Air Quality Standard. For a portion of a state to be removed from the OTR, the EPA Administrator must find that further control of emissions from the area "will not significantly contribute to the attainment of the standard in any area in the [Ozone Transport] region." Since the portion of Maine to be removed from the OTR is already in attainment with the standard, it is clear that further control of emissions from the State will not contribute to the attainment of the standard. These areas are in attainment and are projected to remain in attainment, so no "additional help" is needed to reach the standard already being met.

See the map on page 6 labeled "Maine's Monitored Ozone Levels" for a visual summary of the current air quality status across Maine.

O-4. Comment: The proposal would undermine regional cooperation. Maine should do its share to help reduce air pollution, just as we wish Midwest utilities to do theirs. The justification for withdrawal is a recipe for unravelling the OTR. It is important that the State and regional partnership continue. This proposal sends the wrong signal that we are not fully engaged.

Response: Maine's participation in the OTR will not be changed or curtailed by this proposal. Maine DEP will continue to implement CAA requirements and work to improve air quality in the state, which is considered to be some of the best in the country based on an analysis performed by the Indiana Department of Environmental Management Office of Air Quality in 2018.[4] Maine DEP will continue to engage with the OTR members, the Northeast States for Coordinated Air Use Management (NESCAUM), the Mid-Atlantic Northeast Visibility Union, the Regional Greenhouse Gas Initiative, the Environmental Council of States, and the Association of Air Pollution Control Agencies to research and implement clean air strategies.

Maine DEP staff will continue to commit staff resources to various Ozone Transport Commission (OTC) committees, including but not limited to, the Modeling, Stationary & Area Sources, and Mobile Sources committees.

As part of the OTC Modeling Committee, Maine DEP staff prepare and update several spreadsheets of regional ozone data with calculations of various ozone metrics weekly during the ozone season. These spreadsheets utilize EPA data handling conventions for proper calculations of the design value, threshold value for the next season, etc. This regional data is also mapped by Maine DEP staff. The spreadsheets and maps are provided to OTC Modeling Committee members regularly to show past and season-to-date ozone standings not just in the OTR but also for the eastern half of the U.S.

[4] Indiana Department of Environmental Management publication. Keith Baugues, *The State's View of the Air*, (April 2018) https://www.in.gov/idem/airquality/pages/states_view/files/report_2018.pdf

NESCAUM has coordinated a campaign to study ozone and its precursors in Long Island Sound called LISTOS. The LISTOS campaign participants include: EPA, National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), New York Department of Environmental Conservation (NY DEC), Connecticut Department of Energy and Environmental Protection (CT DEEP), Rhode Island Department of Environmental Management (RI DEM), Maine DEP, several universities, and others. Maine DEP staff have contributed forecasting knowledge as well as the provision and analysis of canisters used to measure various VOC parameters as encountered by a small research air craft flying over the study area. While the coordinating agency is NESCAUM, the campaign is taking place in the OTR and results will help to study what causes high levels of ozone along the Connecticut shoreline. This, in turn, will enhance regional knowledge of ozone behavior around other large bodies of water such as the Gulf of Maine and along the Maine coastline.

Each state in the U.S., whether in the OTR or not, is required by the CAA to evaluate and minimize the impacts of emissions from that state on other states. Under CAA sections 110(a)(1) and 110(a)(2), each state is required to submit a state implementation plan (SIP) that provides for the implementation, maintenance, and enforcement of each primary and secondary NAAQS. This new SIP submission is commonly referred to as an "infrastructure SIP." Specifically, CAA section 110(A)(2)(D)(i)(1) requires the submittal to

> … contain adequate provisions … prohibiting, consistent with provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will … contribute significantly to nonattainment in, or interfere with the maintenance by, any other state with respect to any such national primary or secondary ambient air quality standard.

This is commonly known as the Good Neighbor SIP. This is required of all states whether part of the OTR or not when implementing a promulgated ozone standard.

Furthermore, other states in the OTR understand Maine's unique position within the region in that emissions from Maine sources do not affect the attainment (or lack thereof) for any other area in the OTR. The member states of the OTR have not objected or negatively commented on this petition.

The proposal will not cause an unravelling of the OTR. It has no effect on the ability of other states to either enter or leave the OTR. In order for other states to be removed from the OTR, they are required to demonstrate that their emissions do not have an impact on any areas within the OTR. For the vast majority of OTR states, this may be a difficult task presently. Maine's geographic location puts it in a unique position of being only a recipient of, and not a significant contributor to, ozone in the OTR.

O-5. Comment: The proposal to leave a tiny portion of the state in the OTR is arbitrary and cynical.

Response: The portion of coastal York County and at the summit of Cadillac Mountain in Acadia National Park have monitored the highest ozone levels in the State for the past 18 years. Therefore, this portion of the State of Maine has more potential than the rest of the State to be impacted by transport of ozone and its precursors and to consequently monitor values near or above the 2015 ozone NAAQS. Maine considers it prudent to maintain that portion of the State as part of the OTR. Furthermore, Maine values the cooperative work among states that has been accomplished within the framework of the Ozone Transport Commission, has benefitted from these efforts, and intends to be involved in future collaborative endeavors. Therefore, the choice of areas to remain in the OTR was purposeful and justified and not arbitrarily assigned.

O-6. Comment: Weakening environmental protections to allow industry to pollute more is outdated. Now that we have cleaner air, we should not go backwards and abandon the standards that got us here. The proposal is based on the premise that we can relax standards because we've made improvements. While progress has been made since the OTR's inception, far too many issues still exist to abandon a program that has shown at least some success.

Response: The proposal does not remove any regulatory air pollution controls, licensed emission limits, or rules existing in Maine today. Moving forward, Maine will still be required to adopt additional OTR-driven rules, but those specific rules would apply to the parts of the State remaining in the OTR.

This proposal contains no "rolling back regulations," no "relaxing the standards" for air emissions in the state. Approval of the proposal will not harm air quality in Maine or in any other state. The proposal does not remove or modify any existing control measures contained in the Maine SIP. Pursuant to section 110(l) of the CAA, the removal or modification of control measures in the SIP requires EPA approval and an affirmative demonstration that such a removal or modification will not interfere with attainment of the NAAQS, rate of progress, reasonable further progress, or any other applicable requirement of the CAA. Required controls for existing facilities in Maine will not be relaxed upon removal of portions of the State from the OTR, thus ensuring that air quality does not degrade. Continued use of existing controls will also eliminate any potential for backsliding, consistent with anti-backsliding provisions of the CAA which prohibit the reduction or removal of pollution controls where such action could allow an area to slip back into noncompliance with the CAA.

Federal and state requirements under the New Source Review – Prevention of Significant Deterioration (NSR – PSD) rules will continue to apply to Maine facilities. New or modified equipment at any licensed facility will be controlled by the BACT. Maine's BACT requirements apply to a greater number of sources than federal BACT requirements, because they apply to minor sources in addition to major sources, and this will not change because of this proposal.

O-7. Comment: The proposal is irresponsible public health policy. There is no safe level of exposure to air pollution. We have some of the highest asthma rates in the country. Maine's air is not as healthy as it could and should be. As it is the EPA does not regulate or clean up our air

to the standard that the CAA requires, otherwise cases of childhood asthma would be decreasing, not increasing.

Response: There are many factors which may contribute to higher asthma rates including, but not limited to, personal habits, temperature, humidity, radon, pollen, ozone, and other environmental factors. Monitoring data shows the air quality in Maine is much better than it was 20 years ago, and ozone levels are substantially and consistently lower now than they have ever been. Emissions of air pollutants have been decreasing, and, not surprisingly, monitored levels of air pollutants have been decreasing. Since asthma rates in Maine have been climbing, the data strongly suggests that a cause or causes other than ozone are responsible. This is not to say that high levels of ozone do not affect sensitive groups or exacerbate symptoms. However, as demonstrated in the proposal, Maine's stationary sources have minimal if any impact on formation of ground-level ozone that impacts citizens of this, or any other, state. As such, it is inappropriate to impose additional requirements on facilities for no discernable environmental benefit.

O-8. **Comment:** Poor air quality will lead to lost tourism. Clean air is fundamental to the tourism in our region. Acadia's visitors value clean air.

Response: The State of Maine values clean air and protecting Maine citizens, and will continue to provide public notices of potentially high ozone level days. It is important to note that the Ozone National Ambient Air Quality Standard has changed over the years, being lowered each time, as follows:

Year	National Standard
1979	120 ppb (parts per billion)
1997	84 ppb
2008	75 ppb
2015	70 ppb

Thus, the value defining "high ozone" has been a moving target. The days identified in 2018 as potentially high ozone days would not have been flagged as such 25 years ago. Maine's air has continuously improved, even as the entire state has been subject to a NO_x waiver issued under Section 182(f) of the CAA. A NO_x waiver provides a temporary exemption from the requirements imposed by being included in the OTR for emissions of NO_x. Maine has been operating in this manner for years. This proposal simply makes this status permanent. The approval of this proposal will not cause ozone levels to increase in the State.

O-9. **Comment:** The proposal is based on Maine attaining the 2015 standard which it currently does not. Even though EPA declined to designate Maine as non-attainment, the values measured in 2017 were above the federal health standard. Therefore, Maine is not attaining the standard.

Response: The proposal is not based on Maine attaining the 2015 standard. It is based on the fact that Maine sources do not contribute to ozone non-attainment in any other state, and areas

of Maine exposed to the highest levels of transported ozone and ozone precursors are to remain in the OTR.

O-10. Comment: Abandonment of OTR requirements will broadly increase hazardous air pollutant (HAP) emissions and often in urban areas with many of the emissions at ground level where population exposure is the greatest.

Response: Emissions of hazardous air pollutants in Maine will continue to be stringently controlled in accordance with Maximum Achievable Control Technology standards and through use of Best Available Control Technology.

O-11. Comment: Maine DEP needs to place more monitors along the coast before there can be certainty the standard is not being violated and before any of the coastal area can be removed from the OTR. Limited monitoring likely means that other days with high ozone fail to be counted.

Response: Maine DEP has an EPA-approved monitoring plan and operates a monitoring network that exceeds EPA's standards.

O-12. Comment: Exempting Maine from the OTR will lead to an increase in particulate emissions and will, over time, degrade Maine's environmental advantage.

Response: The proposal does not address, and has no impact on, control requirements for emissions of particulate matter.