

Delaware Particulate Matter (PM) Advance Program

Year 1 Summary & Year 2 Plan



**Delaware Department of Natural Resources
and Environmental Control**

Division of Air Quality

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Section 1 - Introduction

On July 30, 2013 the State of Delaware Department of Natural Resources and Environmental Control (DNREC), Division of Air Quality (DAQ), sent a letter to EPA requesting acceptance of Delaware in the PM Advance program. EPA responded with a letter to Delaware on August 13, 2013 accepting Kent and Sussex Counties into the Advance program, but not New Castle County, because at that time New Castle County was designated as nonattainment under the 1997 and 2006 PM_{2.5} National Ambient Air Quality Standards (NAAQS).

On August 5, 2014, EPA finalized rulemaking that re-designated New Castle County as attaining the 1997 and 2006 PM_{2.5} NAAQS, with an effective date of September 4, 2014.¹ Consequently, the DAQ received a letter from EPA on September 5, 2014 that included New Castle County, and thus *all* of Delaware, into the PM Advance program. Furthermore, EPA designated all of Delaware as attainment for the 2012 annual PM2.5 NAAQS on December 18, 2014.

On September 2, 2015, DAQ submitted the Path Forward Plan to EPA Region 3, which provided the following:

- The motivations for Delaware's participation in the PM Advance program,
- The status of ambient air quality in Delaware relative to the current daily and annual fine particulate NAAQS,
- The sources and magnitude of emissions of fine particulate matter and its precursors,
- Existing and on-going efforts that contribute to the reduction of PM emissions, and
- Projects planned for Year 1 of the program.

Delaware's participation in the PM Advance program is expected for five years, with the option to renew or discontinue participation after five years. This report summarizes the projects and activities from the first year of the program and identifies projects and activities planned for the second year.

Section 2 Year 1 Projects, Control Measures, and Activities

The following sections provide information on projects and measures initiated or completed in the first year of the PM Advance program. In addition, there were several projects initiated or completed in Year 1 that were not identified in the Path Forward Plan. The projects implemented in the first year are contributing to the reduction of primary PM_{2.5} and its precursors, as well as reducing ozone precursors (New Castle County is nonattainment for the 2015 8-hr ozone standard).

¹ 79 Federal Register 45350

2.1 Develop and Launch PM Advance and Wood Burning Webpages

DAQ developed webpages for the PM Advance program and for residential wood burning. DAQ is now working to roll out a new web pages platform to provide a consistent look and feel across the Department before activating the new pages.

2.2 Diesel Emission Reduction Programs

In the first year of the PM Advance Program, the Path Forward Plan identified two DERA project(s). As detailed below, both of these projects (i.e., Wilmington Tug Gensets and Norfolk-Southern Idle Reduction) were replaced with alternate projects (i.e., Diesel School Bus Replacement and Amtrak Turntable engine)..

2.2.1 Wilmington Tug Gensets

The proposed project was for the replacement of an existing diesel propulsion engine with an auxiliary diesel powered electric generator (genset) on the vessel “Tug Sally”. Unfortunately, Wilmington Tug, the project recipient, could not fund the match to the grant at this time.

2.2.2 Norfolk-Southern Locomotive Idle Reduction

The proposed project was to install a system to maintain the brake system air pressure while a freight train is waiting to deliver railcars containing crude oil to the refinery. Unfortunately, Norfolk-Southern, the project recipient, chose not to participate in the project at this time.

2.2.3 Diesel School Bus Replacement

The first alternate DERA project scheduled during the first year of the PM Advance program is to replace two older diesel school buses. The Delaware Department of Education, the project recipient, is committed to providing schools with reliable, innovative and efficient green transportation solutions. Schools in Delaware are seeking cleaner-burning alternatives to diesel. Although diesel engines burn much more cleanly than those of just a decade ago, schools are motivated by saving fuel costs and reducing school children’s exposure to diesel particulate pollution through the replacement of old school buses with new lower emission school buses.

Air pollution from diesel vehicles has health implications for everyone, but children are more susceptible because they breathe more air per pound of body weight than do adults. Diesel exhaust from school buses contains significant levels of fine particulate matter. Children riding older school buses may be exposed to higher levels of these harmful diesel pollutants. Two existing model year 2000 school buses were replaced in August 2016 with new, cleaner diesel buses.

2.2.4 Amtrak Transfer Table Engine Replacement

The second alternate DERA project scheduled during the first year of the PM Advance program is to replace an existing transfer table engine at the Amtrak yard in Wilmington. The purpose of a transfer table is to transport passenger railcars from multiple track and bay locations. A Caterpillar engine built in 1971 will be replaced with a Tier 4 Cummins engine. The existing engine operates 25 hours a week and uses 50 gallons of diesel fuel weekly on average.

The operation of the transfer table engine in the City of Wilmington occurs near residential units resulting in health concerns. Of particular concern are particulate matter (PM) and nitrogen oxides (NOx) emissions. NOx emissions are a key precursor to ozone and secondary PM formation. As previously mentioned, New Castle County is designated as non-attainment for the 2015 8-hour ozone standard. This project will reduce diesel engine emissions and conserve diesel fuel.

2.3 Adopt/Amend Air Regulations

Delaware remains in non-attainment of federal ground-level ozone requirements and volatile organic compounds (VOC) emissions contribute of the formation of ozone. Since VOC is also a precursor of PM_{2.5}, VOC reductions obtained from ozone control measures will assist in meeting the goals of the PM Advance Plan. In the first year of the PM Advance Program, the Path Forward Plan identified three VOC regulations slated for revisions.

2.3.1 Consumer Products

In 2015 DAQ proposed to revise Section 2.0 of DE Admin Code 1141- Consumer Products. DAQ estimated this rule revision would yield 0.7 tons per day of VOC reductions in Delaware. A hearing was held in early August 2015 and the final rule became effective in February 2016.

2.3.2 Solvent Degreasing

This regulation was based originally upon the 2001 Ozone Transport Commission (OTC) Model Rule for Solvent Cleaning. In 2010, OTC revised the 2001 model rule which was approved in 2013. The OTC Model Rule determined that a VOC emission reduction of 89 tons per day would result in the Ozone Transport Region (OTR) in 2014. Based on population, a VOC emission reduction of about one ton per day will result in Delaware upon adopting the OTC rule. This regulation revision was tabled in favor of proceeding with the AIM coatings revision. Now that the AIM coatings revision has been finalized (see below), work on the solvent degreasing regulation will resume with anticipated completion near the end of Year 2 of the PM Advance program.

2.3.3 AIM Coatings

In 2016 DAQ proposed to revise Section 1.0 of DE Admin Code 1141- Architectural and Industrial Maintenance (AIM) Coatings. DAQ estimated this rule revision would yield one ton

per day of VOC reductions in Delaware. A hearing was held in late July 2016 and the final rule became effective in December 2016. This revision to the AIM regulation conforms to the most recent OTC model rule.

2.3.4 Low Sulfur Distillate Fuel

DE Admin Code 1108- Sulfur Dioxide Emissions from Fuel Burning Equipment went into effect on July 1, 2016. The regulation limited the sulfur content of distillate fuel to 15 ppm by weight, effective July 1, 2016. This regulation should significantly reduce SO₂ emissions; thus resulting in reduced sulfate PM emissions.

2.4 Mobile Sources and Measures

2.4.1 California ZEV requirements

During the first year of the PM Advance program DAQ performed preliminary analyses to determine if Delaware should adopt the California Air Resources Board (CARB) Zero Emission Vehicle program. The DAQ continues to evaluate the feasibility of adopting the ZEV program.

2.4.2 Delaware's Electrified Truck Stops

The goal in Year 1 was to evaluate the low utilization of the two electrified truck stops in Delaware and develop a proposal to increase usage. Early in 2016, CabAir, the contractor that installed and maintained the systems, went bankrupt. Currently, the electrification stations at the trucks stops are not operable. The DAQ continues to address this issue.

2.4.3 Evaluate I/M for Diesel Trucks

DAQ has held discussions with the Division of Motor Vehicles to consider inclusion of medium duty diesel vehicle to the I/M program. The DAQ continues to evaluate the feasibility of a medium duty diesel I/M program.

2.4.4 Anti-Idling

Evaluate the need for and benefits of adopting a regulation to reduce idling emissions from nonroad vehicles, based on an approved OTC rule. The DAQ plans to evaluate nonroad idling in the context of a broader initiative to reduce unnecessary idling in Delaware during year 2.

2.4.5 Become a SmartWay® Affiliate

The [SmartWay](#) Program is a public-private initiative between EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both greenhouse gas emissions and air pollution) of the goods

movement supply chains. SmartWay aims to accelerate the availability, adoption and market penetration of advanced fuel-efficient technologies and operational practices in the freight supply chain, while helping companies save fuel, lower costs and reduce adverse environmental impacts. EPA helps SmartWay Partners move more goods, more miles with lower emissions and less energy.

In May 2016, the Delaware Division of Air Quality became a SMARTWAY Affiliate. That same month DAQ set up a booth at the Fueling the Future event at Dover Downs, distributing DERA and EPA SmartWay brochures/printouts, and anti-idling information.

2.4.6 Petition to EPA to Adopt Ultra-low NOx Emission Rates

Delaware signed the petition for rulemaking to adopt ultra-low NOx exhaust emissions standards for on-road heavy-duty trucks and engines submitted to EPA on June 3, 2016. The South Coast Air Quality Management District of California prepared the petition and ten state and local environmental and public health agencies joined in signing the petition.

2.5 Assessing 2011 NATA Data for Diesel PM

In 2016, the final 2011 National Air Toxics Assessment (NATA) data for Delaware became available. DAQ evaluated the non-cancer hazard quotients (HQ) for diesel PM at the census tract level to determine those census tracts with the highest values. While all HQs were well below the EPA action level of 1.0, the highest HQs in Delaware fell within the urban core of the City of Wilmington. Identification of areas with elevated diesel PM emissions will be used to assist in prioritizing local emission reduction effort in Year 2 and beyond.

2.6 DAQ's Mobile Monitoring Platform (MMP)

The MMP monitors ambient pollutant concentrations in areas of concern where a fixed monitoring station is not located, and where communities are likely to experience disparate air pollution impacts, such as communities located near major highways, heavy industry, or located in densely populated areas. The MMP monitored ambient air concentrations at two locations during the first year of the PM Advance program.

The first location was along the Delaware River in Delaware City at a location adjacent to the Delaware City Refinery loading/unloading docks. The purpose for monitoring this location was to capture engine emissions from the running of auxiliary engines by the ships at dock. No local particulate matter issues were identified. In September of 2016, the MMP was relocated to East Wilmington to assess cumulative impacts from highway traffic, industry sources, and the Port of Wilmington. The East Wilmington monitoring will continue into, and be assessed during year 2.

2.7 Transportation and Development Planning

The Planning Branch of DAQ was very active in participating in work groups and committees associated with transportation and development planning. DAQ participation provides input and

recommendations on air quality and environmental health concerns that currently exist in a community or that may result from a proposed project. Some of DAQ's contributions to development planning efforts are highlighted here.

2.7.1 Preliminary Land Use Service Reviews

The Division of Air Quality provided comments and recommendations for minimizing air quality impacts of proposed development projects in Delaware. DAQ provided these comments through the Preliminary Land Use Service (PLUS) process. The PLUS process involves reviews by all applicable state agencies at the start of the land development process, adding value and knowledge to the process without taking over the authority of local governments to make land use decisions. DAQ staff reviewed over 50 projects in the first year of the PM Advance program.

2.7.2 Review of Comprehensive Plans

The Division of Air Quality provided recommendations for the proposed comprehensive plan update for the town of Little Creek to incorporate green streetscape and other green infrastructure to mitigate the effects of mobile emissions, including diesel fine particulate and road dust, within the town. Also recommended were multi-modal projects to encourage safe and convenient walk and bike paths. The recommendations were accepted and included in the final plan.

DAQ also participated in a Conservation Focus Group organized to provide input on an update to the Sussex County Comprehensive Plan. This effort will continue into Year 2 of the PM Advance Program.

2.7.3 Review of Transportation Corridor Master Plans

The Division of Air Quality provided extensive comments to the Wilmington Area Planning Council (WILMAPCO), the largest metropolitan planning organization in Delaware, regarding their proposed Route 9 Corridor Master Plan. Route 9 passes through communities directly south of downtown Wilmington. These communities are in close proximity to the Port of Wilmington and other heavy industry. Truck traffic serving these industries travel along Route 9 and through the communities contributing to diesel fine particulate matter and road dust emissions.

DAQ is currently seeking funding opportunities and alternatives with WILMAPCO and Delaware Department of Transportation (DelDOT) on alleviating contributing factors from the port, and evaluating alternative route configurations that would enable trucks to travel efficiently to and from the area industries without traveling through the nearby communities.

2.7.4 Participation in Other Multi-modal Transportation Initiatives

In the past year, the Division of Air Quality has participated in the following workgroups and committees:

- Assisting development of a regional bike plan for Kent County,

- Reviewing initiatives of the DelDOT Pedestrian Council,
- Attending WILMAPCO Congestion Management Subcommittee meetings,
- Reviewing the DelDOT FY18 – FY23 Capital Transportation Plan (the 6 year plan is updated every 4 years),
- Assisting in development of an application for Alternative Fuel Corridor designations for I-95 and Routes 1, 13, and 113; in partnership with Division of Energy & Climate (DEC) and DelDOT (the application for I-95 was approved),
- Assisting in the implementation of more alternative fueling stations, Electric Vehicle Supply Equipment, and electric/alternatively-fueled Fleet vehicles; in partnership with DEC, the Office of Management and Budget, and DelDOT.

Section 3 Year 2 Planned Projects, Control Measures, and Activities

The following subsections provide information on new and ongoing measures that will provide additional emission reduction benefits to Delaware in 2017. These control measures will not only reduce primary PM_{2.5} and its precursors, but many of these measures will also reduce ozone precursors, and help Delaware in reducing greenhouse gases.

3.1 Develop and Launch PM Advance and Wood Burning Webpages

DAQ plans to launch webpages for the PM Advance program and for residential wood burning that were developed during year 1, using DNRECs new web pages platform.

3.2 Diesel Emission Reduction Programs

In the second year of the PM Advance Program, DAQ has identified the following DERA projects with the Delaware Department of Education (DDOE) and two private bus contracting companies:

- DDOE – The proposed project is to replace one existing model year 2002 diesel school bus with a new, cleaner diesel bus.
- School Mule – The proposed project is to replace four existing model years 2001-2003 diesel school busses with new, cleaner propane busses.
- Sutton Bus - The proposed project is to replace four existing model years 2002-2003 diesel school busses with new, cleaner propane busses.

3.3 Adopt/Amend Air Regulations

Solvent Degreasing - This regulation revision was tabled during year 1 in favor of proceeding with the AIM coatings revision (see section 2.3.2). The AIM coatings revision was finalized in December 2016; therefore, work on the solvent degreasing regulation will resume with anticipated completion near the end of Year 2 of the PM Advance program.

3.4 Mobile Sources and Measures

DAQ plans to develop and launch a webpage for the SmartWay® program.

3.5 Eden Park Community Workgroup

The MMP has been collecting pollutant data in East Wilmington since September 2016 (see section 2.6). The MMP is located near Eden Park, a community that is likely to experience disparate air pollution impacts, as it is located near major highways, heavy industry, and densely populated areas. DAQ is using the MMP to assess both TSP and PM_{2.5} concentrations to determine the health and welfare effects of PM on the Eden Park Community.

DAQ is analyzing pollutant directionality data in an attempt to determine the sources of particulate emissions in the area. DAQ also plans to install a reference method TSP monitor (high-volume filter based monitor) which would allow for laboratory analysis for elemental composition and possible source identification. Potential sources of emissions are highway traffic, industry operations (especially those handling bulk materials), road dust, and clogged storm water drains.

DAQ plans to conduct outreach in the area to communicate PM health impacts. DAQ will also work with the community to find solutions to PM issues.

DAQ plans to maintain the MMP in East Wilmington during 2017.

3.6 Transportation and Development Planning

The Planning Branch of DAQ plans to continue to be very active in participating in work groups and committees associated with transportation and development planning. Some of DAQ's planned activities for Year 2 are listed below:

3.6.1 Preliminary Land Use Service Reviews

The Division of Air Quality will continue to provide comments and recommendations for minimizing air quality impacts of proposed development projects in Delaware.

3.6.2 Review of Comprehensive Plans

The Division of Air Quality will continue to provide recommendations for proposed comprehensive plans in Delaware. In 2016 DAQ participated in a Conservation Focus Group organized to provide input on an update to the Sussex County Comprehensive Plan. This effort will continue into Year 2 of the PM Advance Program.

3.6.3 Review of Transportation Corridor Master Plans

The Division of Air Quality provided extensive comments to WILMAPCO, the largest metropolitan planning organization in Delaware, regarding their proposed Route 9 Corridor Master Plan. A Draft of the Route 9 Corridor Master Plan is expected from WILMAPCO by the fall of 2017.

3.6.4 Heavy Duty Anti-Idling Task Force

DAQ is currently developing a Heavy Duty Anti-Idling Task Force. The purpose of the taskforce is to promote education and awareness concerning idling. In 2005 Delaware established Admin Code 1145 - Excessive Idling of Heavy Duty Vehicles.

3.6.5 Participation in Other Multi-modal Transportation Initiatives

In Year 2, the Division of Air Quality anticipates participating in the following workgroups and committees:

- Assist in development of a regional bike plan for Kent County,
- Review initiatives of the DelDOT Pedestrian Council,
- Attend WILMAPCO Congestion Management Subcommittee meetings,
- Review the DelDOT FY18 – FY23 Capital Transportation Plan,
- Assist in the implementation of more alternative fueling stations, Electric Vehicle Supply Equipment, and electric/alternatively-fueled fleet vehicles; in partnership with DEC, the Office of Management and Budget, and DelDOT.

3.6.6 Volkswagen Settlement

The recent Volkswagen settlement will require Volkswagen to fund a \$2.7 billion mitigation trust fund to pay for projects that reduce NOx. Delaware will participate as a beneficiary. DAQ will explore whether proposed projects have the added benefit of reducing PM emissions.

3.7 Grant Funding

DAQ plans to seek funding through PM Advance related grants to implement projects and studies that will reduce PM emissions. Specifically, DAQ plans to apply under the EPA's Community-Scale Air Toxics Ambient Monitoring RFP to continue our efforts using the MMP in an Environmental Justice community.

Section 4 Year 2 Planned Stakeholder Engagement

Stakeholder engagement and collaboration is an important aspect of accomplishing PM_{2.5} emission reductions through voluntary and regulatory measure under the PM Advance program. DAQ plans to complete the following activities in Year 2 of PM Advance.

- DAQ will develop, maintain and promote a PM Advance website to inform stakeholders and the public of the PM Advance program. The website will be maintained and updated, as new projects are developed and existing project progress. The website will also serve as a resource for the citizens of Delaware to understand the adverse health effects of fine particulate matter, and to know the sources of PM_{2.5} that impact Delaware air quality.
- Engage with DelDOT and the metropolitan planning organizations within Delaware to identify PM emission reducing projects in the context of transportation planning.
- Meet with health and environmental advocacy groups throughout the state to obtain concerns they have regarding emissions of and exposure to PM_{2.5} in Delaware. Solicit ideas on approaches that DAQ could implement to reduce emissions and exposure.
- Meet with the Delaware Chamber of Commerce to ensure businesses that are attracted to Delaware enhance air quality, so that Delaware remains in attainment of current and future particulate standards.
- As DAQ assesses disparate air quality impacts on certain communities within Delaware as part of its on-going strategic plan, DAQ will work with communities through the PM Advance Program to find solutions when the impacts are a result of fine particulates.
- Seek public input of Delaware's PM Advance Program through direct interaction with civic and environmental advocacy groups. DAQ will post the Delaware PM Advance – Year 1 Summary & Year 2 Plan on the new PM Advance website and seek public input on proposed PM Advance projects and activities.
- Develop outreach materials regarding PM Advance for local communities and stakeholder groups. Also, develop a mission statement for the Delaware PM Advance Program.
- Set up informational booths about PM Advance at local environmental outreach events such as the Delaware State Fair, Delaware Coast Day, etc.

Section 5 PM Advance Reporting Requirements

As part of the 5-year Plan, DAQ will report annually to EPA on the programs contained within this document, as well as new programs developed during each year and anticipated in the subsequent year. DAQ will be moving to a calendar year schedule for its PM Advance reports. Therefore, the next report to EPA will summarize activities through December 31, 2017 and identify projects and activities anticipated to take place in 2018.