

March 21, 2018

Ozone and PM Advance
c/o Laura Bunte, Mail Code C304-01
109 TW Alexander Drive
Research Triangle Park, NC 27711

RE: 2017 Minnesota Ozone Advance and Particulate Matter Advance Programs Updates

Dear Laura Bunte:

The purpose of this letter is to provide the annual update on Minnesota's participation in the U.S. Environmental Protection Agency's (EPA) voluntary Ozone Advance and Particulate Matter (PM) Advance Programs.

The Minnesota Pollution Control Agency (MPCA) submitted the Final Report: *A Collaborative Plan to Reduce Emissions* (Report) from Minnesota's Clean Air Dialogue as our path forward in May 2013. The 24 recommendations in the Report have served to direct many of the non-point air pollution emissions reduction efforts of the MPCA and our partners as part of our participation in the Ozone and PM Advance Programs. The MPCA has many projects and programs to achieve voluntary emissions reductions from non-permitted sources. The focus of this annual Advance report is on those projects that have been part of the Clean Air Minnesota collaborative effort.

Highlights from this year's work on Ozone Advance and PM Advance projects include:

- Awarded 35 small businesses with grant funding to reduce volatile organic compound emissions. The grants provided by MPCA used information to consider if businesses were in communities of concern for environmental justice.
- Trained 80 mechanic students on the growing problem of vehicle tampering to eliminate emission control devices.
- Parts washer partnership – 26 service providers switched solvent-based equipment for aqueous parts washers.
- Wood-stove change out program – 76 wood stoves were replaced with approved cleaning technology wood stoves.
- High-emitting vehicles repair program – continues to provide free emission-control vehicle repairs for low-income Minnesotans.

In all areas of our work, the MPCA is striving to advance environmental justice in Minnesota. We are working with our Clean Air Minnesota partners to incorporate equity considerations into our initiatives and to focus on emission reductions in lower-income communities and communities of color. This effort will continue to be a focus for the MPCA and our partners in 2018 as we look to improve how we address environmental justice as part of Clean Air Minnesota's work.

Laura Bunte
Page 2
March 21, 2018

Nonpoint air pollution reductions and the work we do with our Clean Air Minnesota partners are key priorities for the MPCA. In order to use plain language with the public the MPCA has been using the term "neighborhood sources" for nonpoint. We continue to find the Ozone Advance and PM Advance structure a useful tool as we move forward in our efforts to find new and innovative ways to achieve voluntary emissions reductions across the state. We look forward to continuing work with our partners and making further progress on our emission reduction initiatives and education efforts. If you have any questions, please contact Rebecca Place of my staff at 651-757-2807 or rebecca.place@state.mn.us.

Sincerely,

A handwritten signature in blue ink, appearing to read "JDT", followed by a long horizontal line extending to the right.

J. David Thornton
Assistant Commissioner

JDT/RP:ds

Enclosures

2017 Minnesota Ozone and Particulate Matter Advance Programs Update

Introduction

The Minnesota Pollution Control Agency (MPCA) works with its partners to ensure clean, clear air in Minnesota to support healthy communities and a strong economy. The MPCA joined the U.S. Environmental Protection Agency's (EPA) Ozone Advance and Particulate Matter (PM) Advance Programs in 2013, to continue to improve the air and protect the health of all Minnesotans. This report provides an update on the work that the MPCA and its partners are doing to progress on the goals of the Advance Program.

National Ambient Air Quality Standards

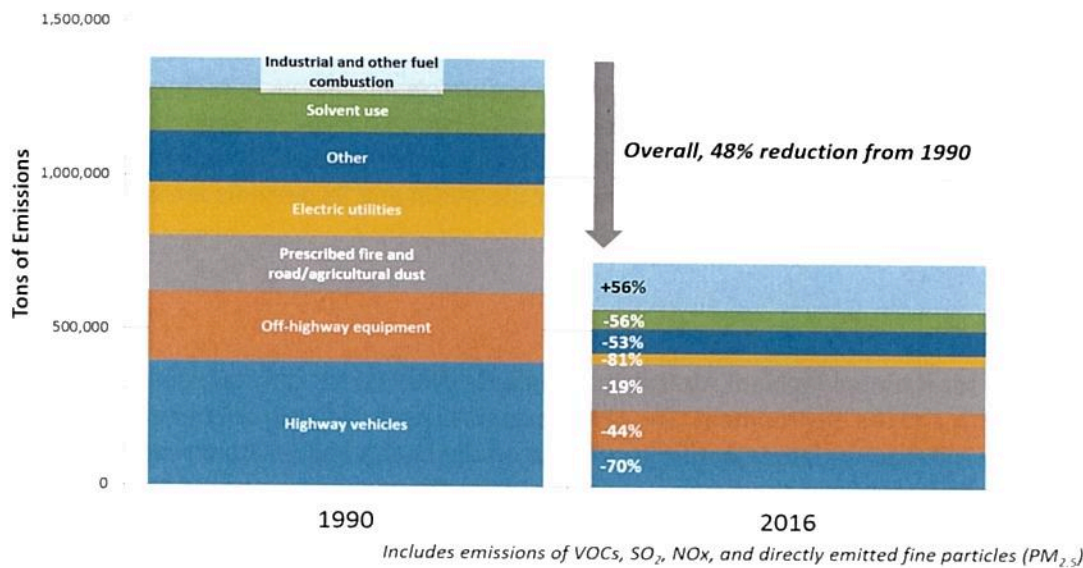
The Clean Air Act requires the EPA to set National Ambient Air Quality Standards (NAAQS) for common pollutants that are considered harmful to public health and the environment. The EPA reexamines each of the NAAQS every five years to ensure they continue to reflect the most up-to-date scientific knowledge on the health and environmental impacts of the pollutants. The latest standard to be revised was the ozone standard in 2015. The reduced limit reflects the latest scientific research that air pollutants can cause health impacts at lower and lower levels.

Each time the NAAQS are revised, the air quality across the country is reviewed to determine where the air is in compliance (attainment) with the standard and where it is not in compliance (nonattainment) with the standard. Two of these pollutants of most concern in Minnesota are ozone and PM. Minnesota is in attainment for both the ozone and PM NAAQS, but strives to continue to improve air quality in the state in order to protect the health of our most vulnerable people and to avoid the possibility of future nonattainment of the increasingly stringent NAAQS. Scientific research has found no evidence of safe thresholds (such as the NAAQS) below which health impacts should be assumed to be zero. Therefore, improvements in air quality from any level can provide significant public health benefits.

Air pollution in Minnesota

Over the last 20 years, as a result of controls put in place under the Clean Air Act, annual air pollution emissions in Minnesota have decreased by nearly 50%. Among all sources, the greatest reductions have been achieved by power plants, with emissions falling by nearly 70% between 1990 and 2016 (see Figure 1 on next page).

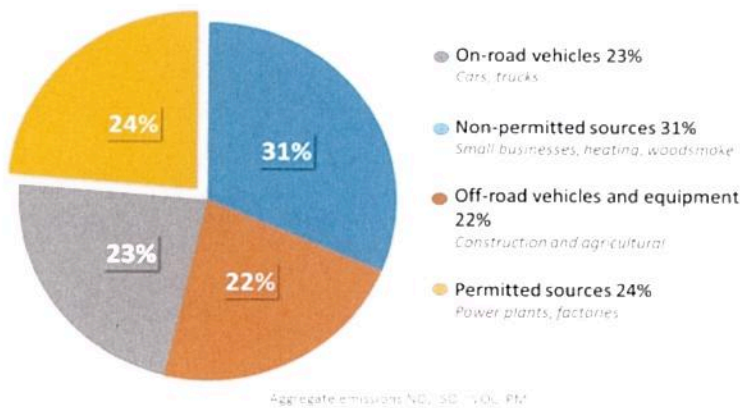
Figure 1: Trends in air pollution emissions by source category, 1990-2016¹



Source: EPA Air Pollutant Emissions Trend Data, 2017

Typically, when people think of sources of air pollution, they think about buildings with big smoke stacks like power plants and factories. Yet these sources make up a relatively small proportion of air pollution emissions in Minnesota (see Figure 2). Today, most of the air pollution in Minnesota comes from smaller, more widespread sources called “neighborhood” a.k.a. “nonpoint” sources. Minnesota’s emissions inventory shows traditionally permitted sources of air pollution contribute less than a quarter of overall emissions of several of the regulated air pollutants of major concern in the state.

Figure 2: Overall air pollution sources by type, draft 2014



Most of the air pollution in Minnesota comes from activities at our homes and local businesses. These smaller, more widespread sources include a large variety of activities, businesses, and equipment. Individually, sources like auto body shops, gas stations, and home heating and air conditioning systems may not produce much pollution, but combined, they make up 31% of all air pollution emitted in Minnesota.

¹ See EPA National Emissions Inventory (2016): <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>

Vehicles and the equipment we use for recreation, agriculture, construction, and other work and pleasure activities are also widespread. Like the small but common sources at our homes and businesses, vehicles and other equipment often emit pollution close to where we live, work, and recreate, meaning we may be exposed to high levels of pollution from these sources. Vehicles and other equipment make up one third of the emissions in Minnesota.

The large number of these sources and the small size of their individual emissions makes it difficult to regulate them through traditional permitting. Because of these challenges, the MPCA works with a variety of partners including industry, communities, and non-governmental organizations to achieve voluntary emissions reductions from these small, widespread sources, both vehicles and equipment, and homes and businesses. For these reasons, neighborhood sources of air pollution are the focus of Minnesota's Advance Program efforts.

Advance Program

The Advance Program is a voluntary program that encourages state and local governments to reduce ozone and PM pollution in areas that are attaining the NAAQS for those pollutants. The program provides technical support for state and local governments that wish to proactively address air pollution in their area.

Advance in Minnesota

Minnesota joined the Ozone and PM Advance Programs in 2013 to receive support from EPA in its efforts to reduce concentrations of ozone and PM in the state. In 2012 and 2013 the Minnesota Pollution Control Agency (MPCA) participated in a series of conversations with leaders from the business, government, and nonprofit sectors to explore opportunities for proactive, voluntary emissions reductions in the state. This collaboration, called the Clean Air Dialogue, produced the *Final Report: A Collaborative Plan to Reduce Emissions* (Report), which the MPCA submitted as our path forward in May 2013.

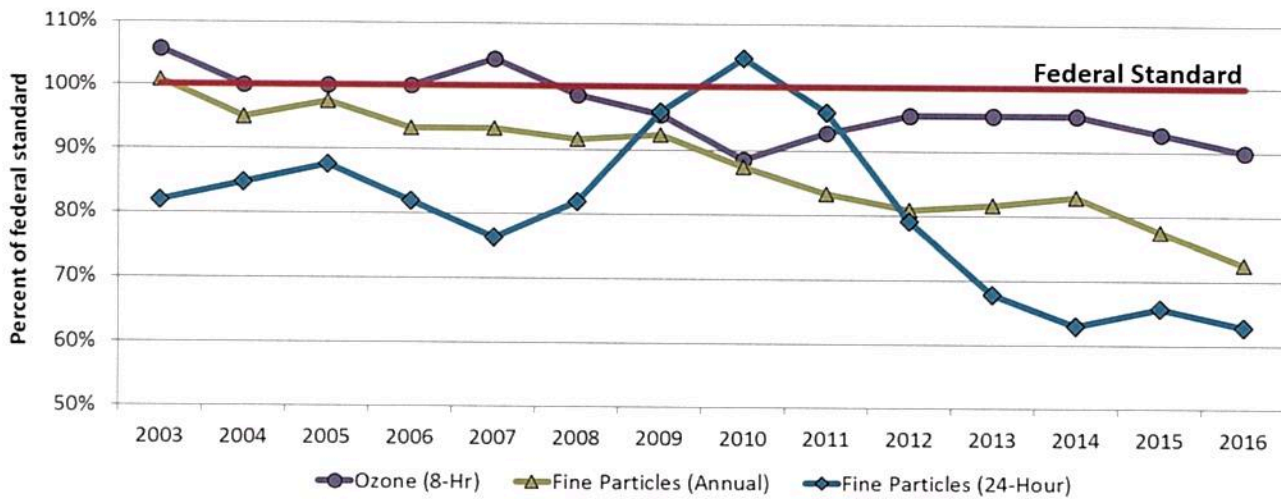
The 24 recommendations in the Report have served to direct many of the non-point air pollution emissions reduction efforts of the MPCA and our partners as part of our participation in the Ozone and PM Advance Programs. Clean Air Minnesota is a collaboration among businesses, nonprofits, and governments and serves as the stakeholder group for our Ozone and PM Advance efforts. The collaboration is convened by Environmental Initiative (a 501c3 nonprofit organization) and includes approximately 25 partner organizations. Information on the members of Clean Air Minnesota can be found in Attachment 1. Detailed information on Clean Air Minnesota; its members and projects; and agendas, notes, and materials from its meetings can be found in Attachment 2 and 3, and also on the Clean Air Minnesota website: <https://environmental-initiative.org/work/clean-air-minnesota/>.

The MPCA and our partners in the private, public, and governmental sectors have many voluntary emissions reduction programs across the state focused on these neighborhood emissions sources. The MPCA has chosen to limit the scope of projects tracked for the Advance Program to projects executed through Clean Air Minnesota. Projects developed and implemented through Clean Air Minnesota from June of 2016 through June of 2017, are the focus of this report.

Minnesota's air quality trends

Ozone and fine particle pollution levels in Minnesota have been steadily improving since 2003 (see Figure 3 on next page). However, progress in reducing both pollutants has been affected by year-to-year variability in the weather. Between 2009 and 2011, daily fine particle levels increased due to more frequent stagnant weather conditions caused by a southerly shift of the jet stream. In recent years, with a more northerly jet stream, daily fine particle levels have fallen dramatically. Since 2011, there has been little improvement in ozone pollution. Hot temperatures and sunshine are key ingredients in the formation of ozone. The summers between 2011 and 2014 had more days with temperatures greater than 90°F. In comparison, the past two summers had fewer high heat days resulting in lower ozone levels.

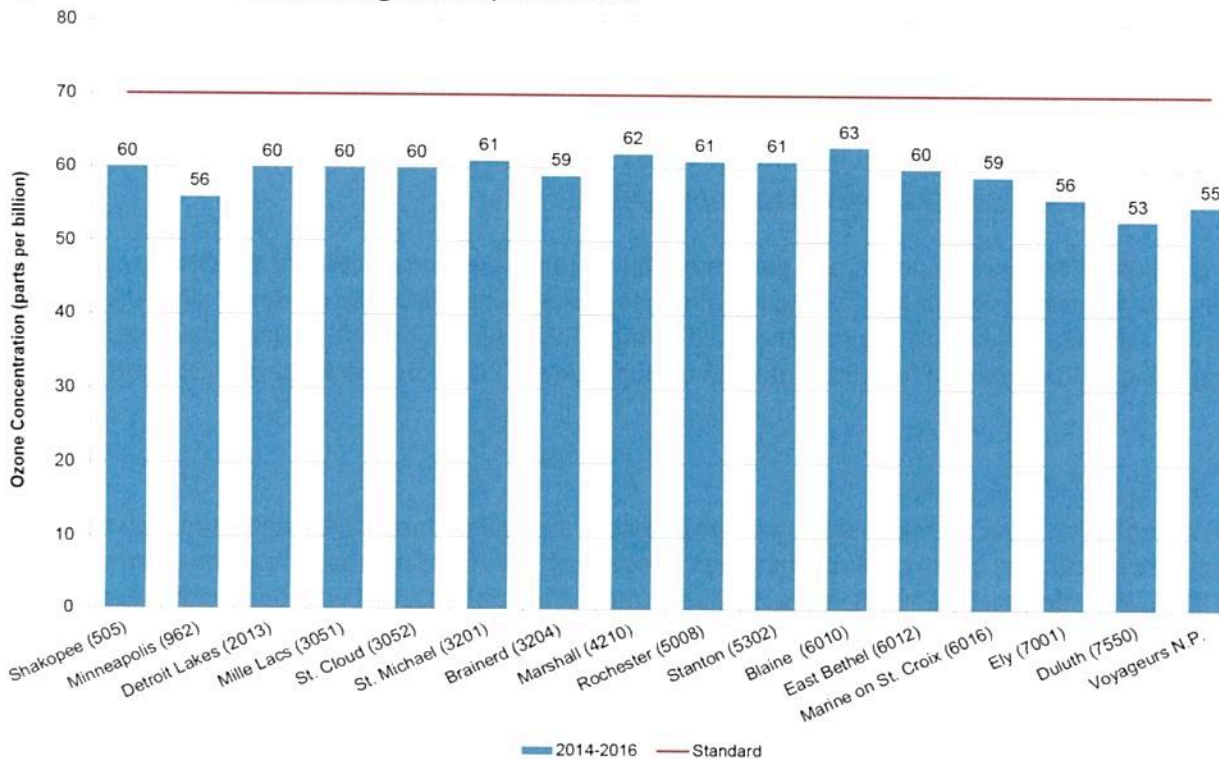
Figure 3: Trends in ozone and fine particle pollution levels (2003-2016)



Ozone

Minnesota has 16 regulatory monitors around the state for ozone. As of 2016, all monitors in the state were demonstrating compliance with the most recent and most stringent ozone NAAQS of 70 parts per billion (ppb). Figure 4 shows the most recent monitoring data from all of the ozone monitors across the state.

Figure 4: Monitored ozone design values, 2014-2016



Emissions of ozone precursor pollutants – nitrogen oxides (NO_x) and volatile organic compounds (VOCs) – have been decreasing in recent years, indicating that Minnesota will continue to attain the 2015 ozone standard. Figures 5 and 6 show the most recent emissions data for NO_x and VOCs in Minnesota.

Figure 5: NO_x annual anthropogenic emissions in Minnesota from 2002 to 2014

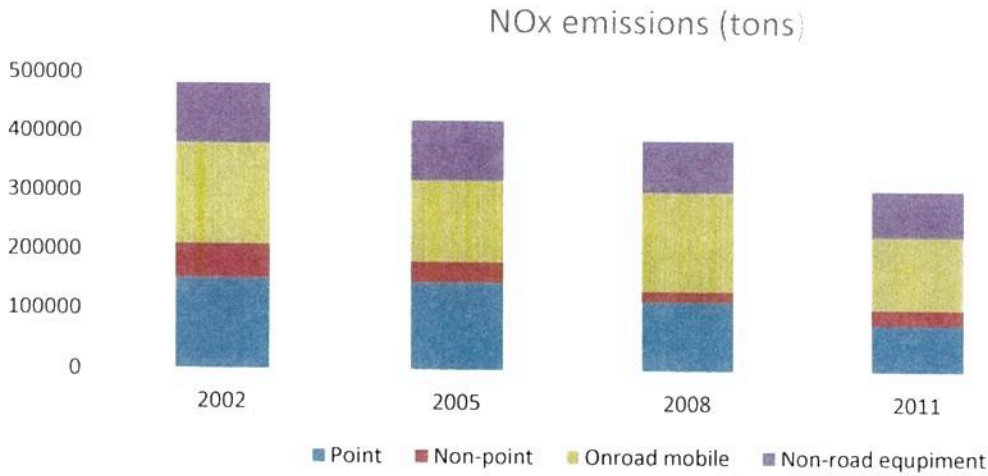
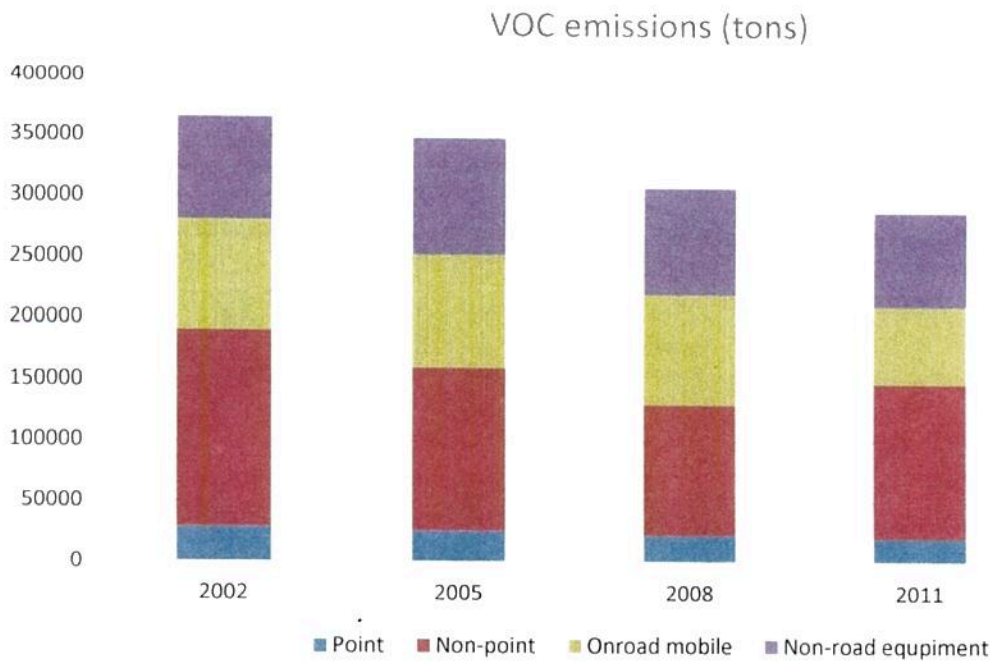


Figure 6: VOC annual anthropogenic emissions in Minnesota from 2002 to 2014



Particulate matter

Minnesota has 18 regulatory monitors around the state monitoring PM_{2.5}. Figures 7 and 8 show the most recent monitoring data from all of the PM_{2.5} monitors across the state for both the annual (Figure 7) and the daily (Figure 8) standards.

Figure 7: Monitored PM_{2.5} design values (annual), 2014-2016

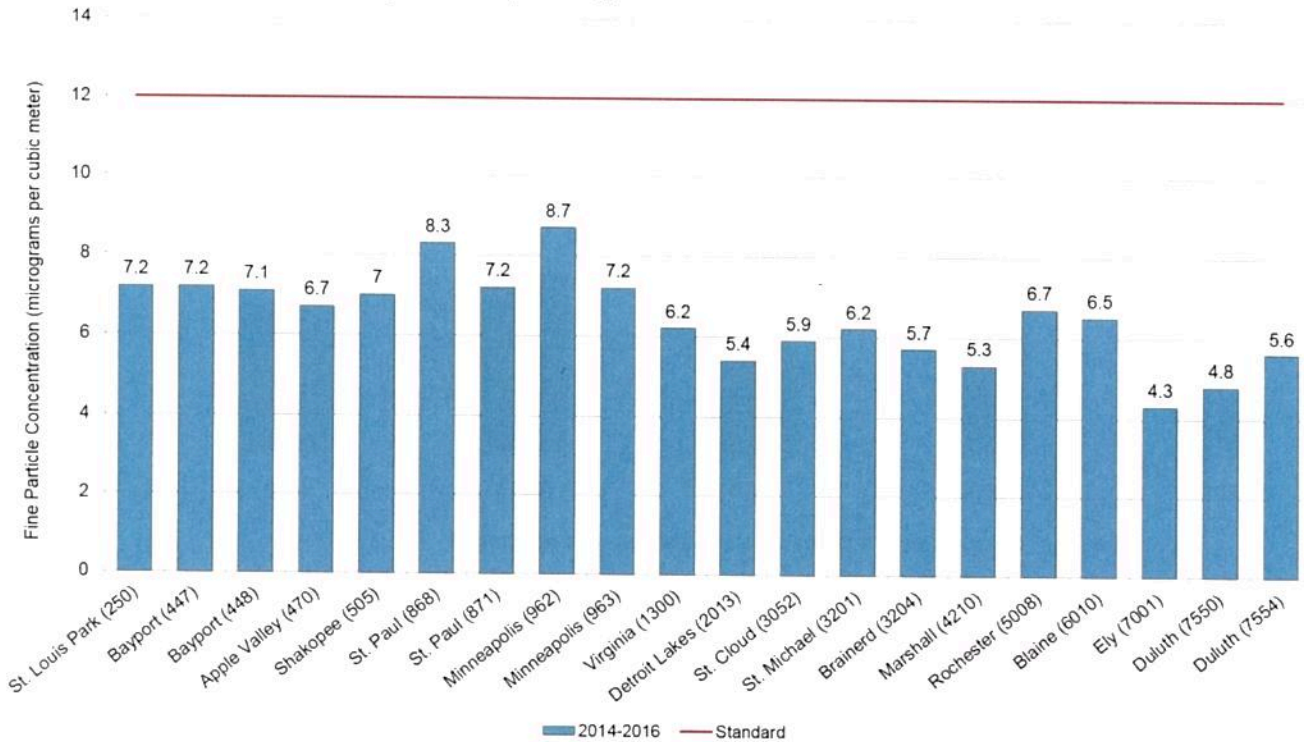
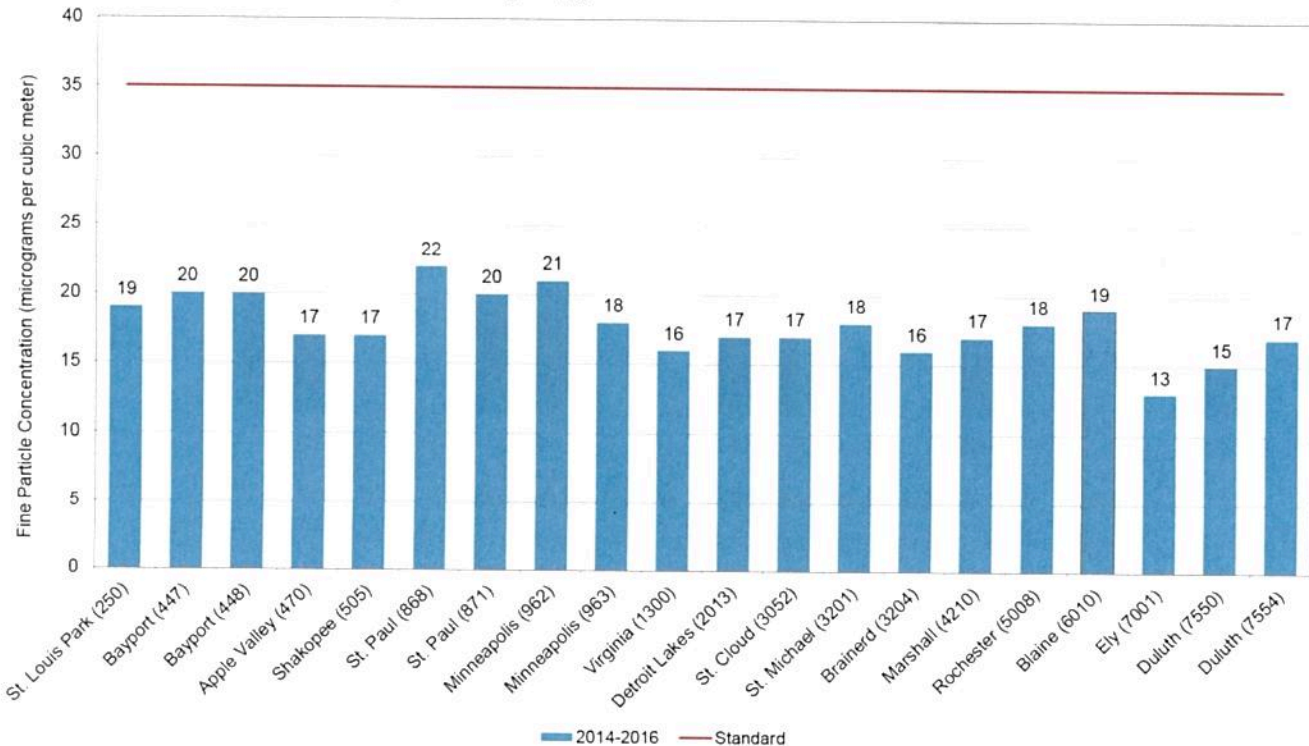


Figure 8: Monitored PM_{2.5} design values (daily), 2014-2016



In the final implementation rule for the 2012 PM_{2.5} NAAQS, EPA identifies sulfur dioxide (SO₂), NO_x, VOCs, and ammonia as PM_{2.5} precursors. Graphs in Figures 5 and 6 on page 5 show the downward trend in Minnesota of emissions of VOCs and NO_x. The following graphs show a downward trend in emissions for SO₂ and directly-emitted PM_{2.5}. The figures show emissions from years when the National Emissions Inventory is conducted. 2015 data only includes point source emissions.

Figure 9: SO₂ anthropogenic emissions in Minnesota from 2002 to 2014

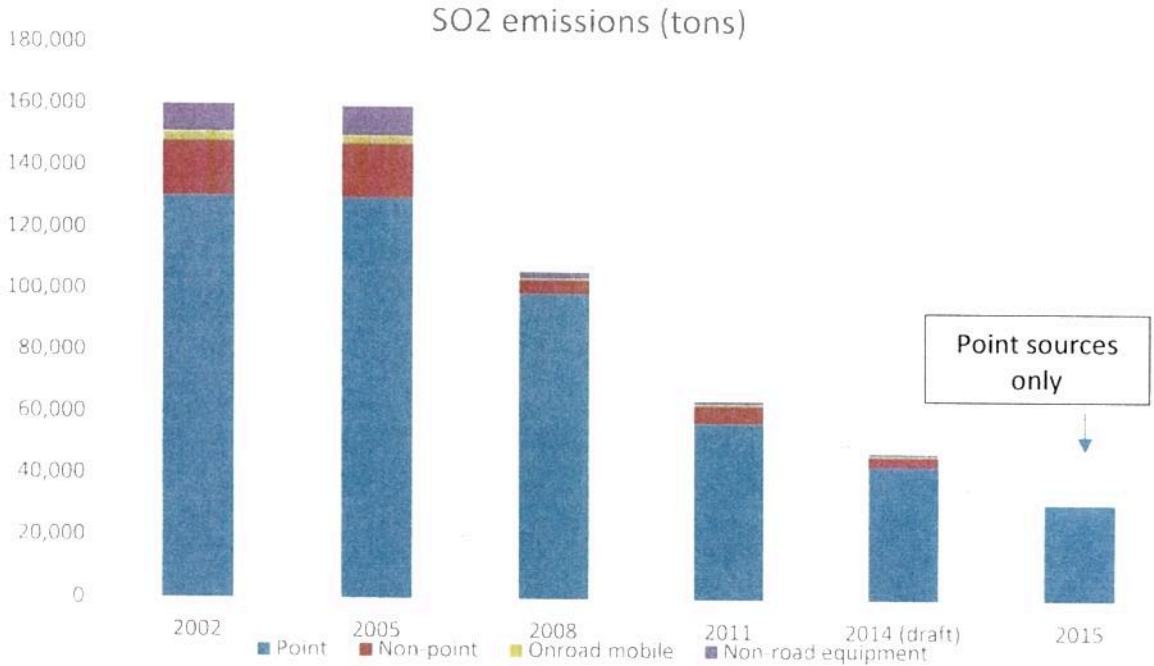


Figure 10: PM_{2.5} anthropogenic emissions in Minnesota 2002 to 2014

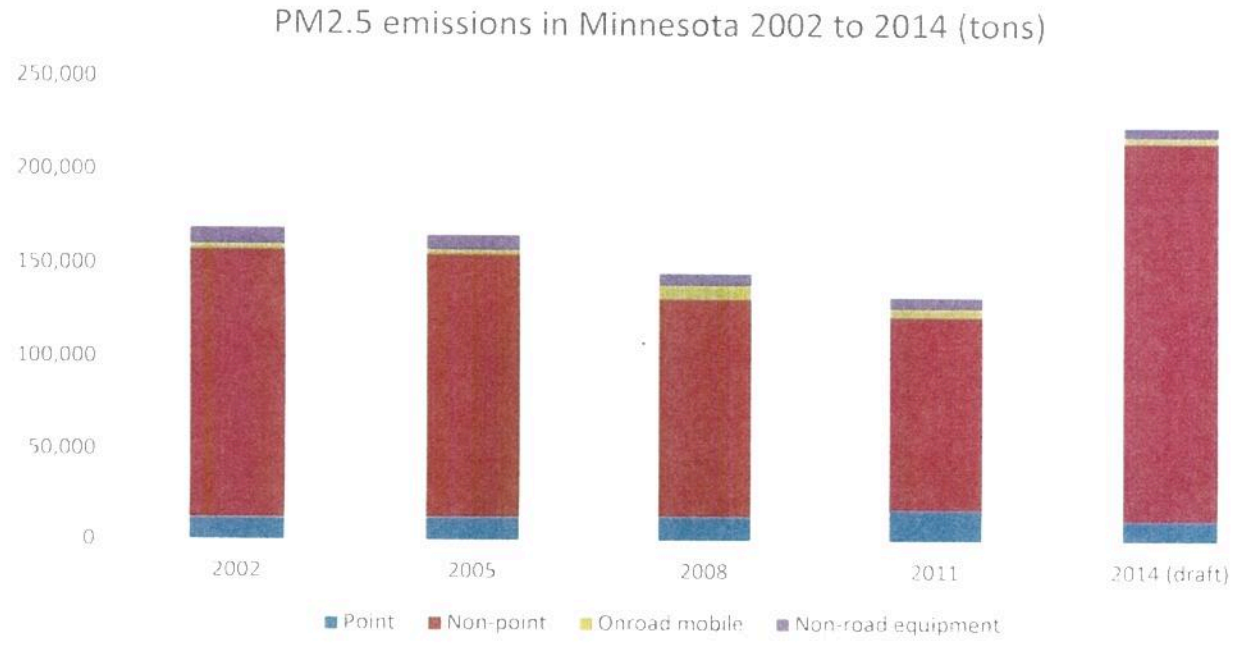


Figure 11 breaks out the direct PM_{2.5} emissions from point sources into more specific categories to make it more legible, since point sources are a small contributor to overall direct PM_{2.5} emissions.

Figure 11: PM2.5 point-source anthropogenic emissions in Minnesota 2011 to 2015

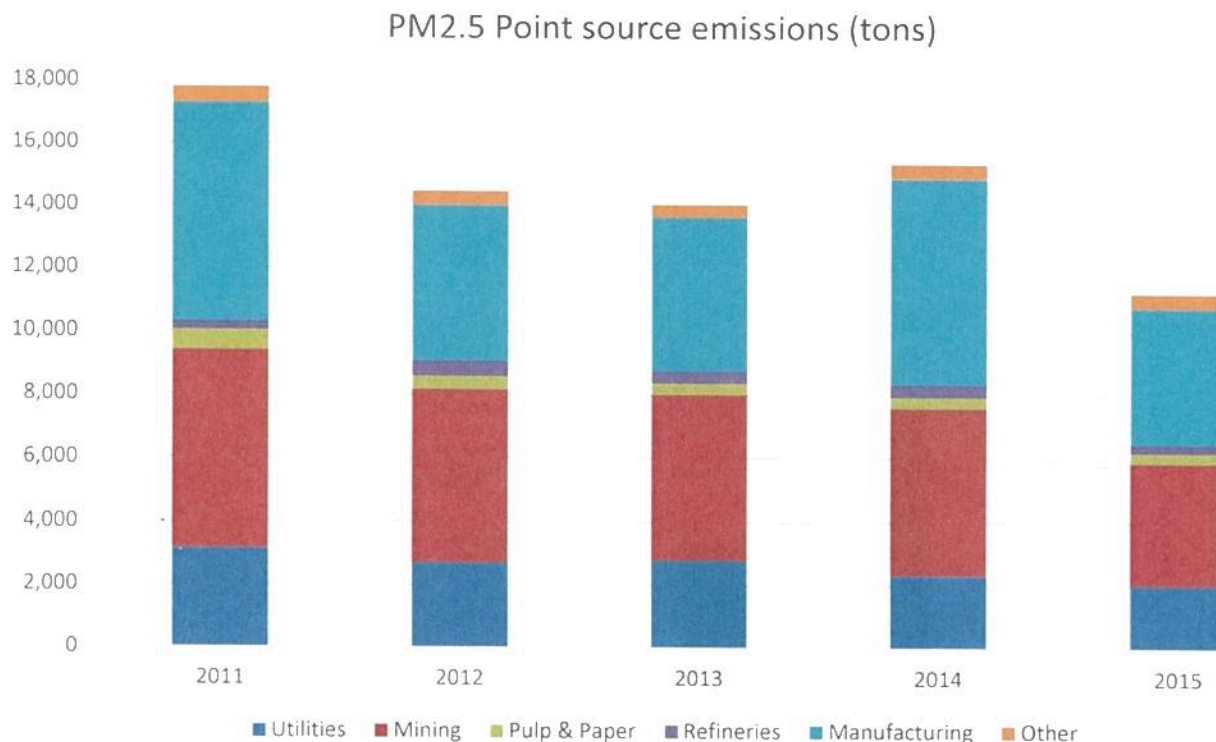
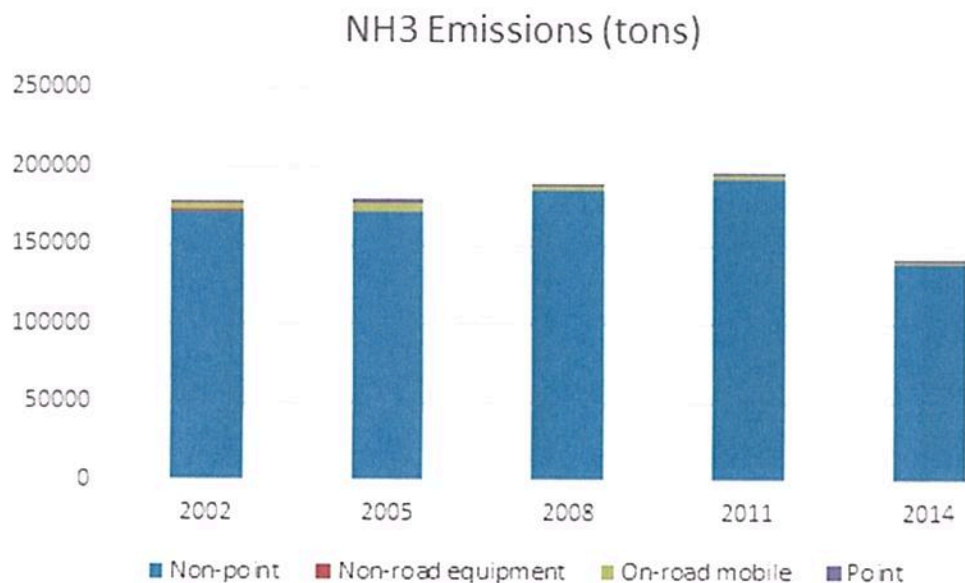


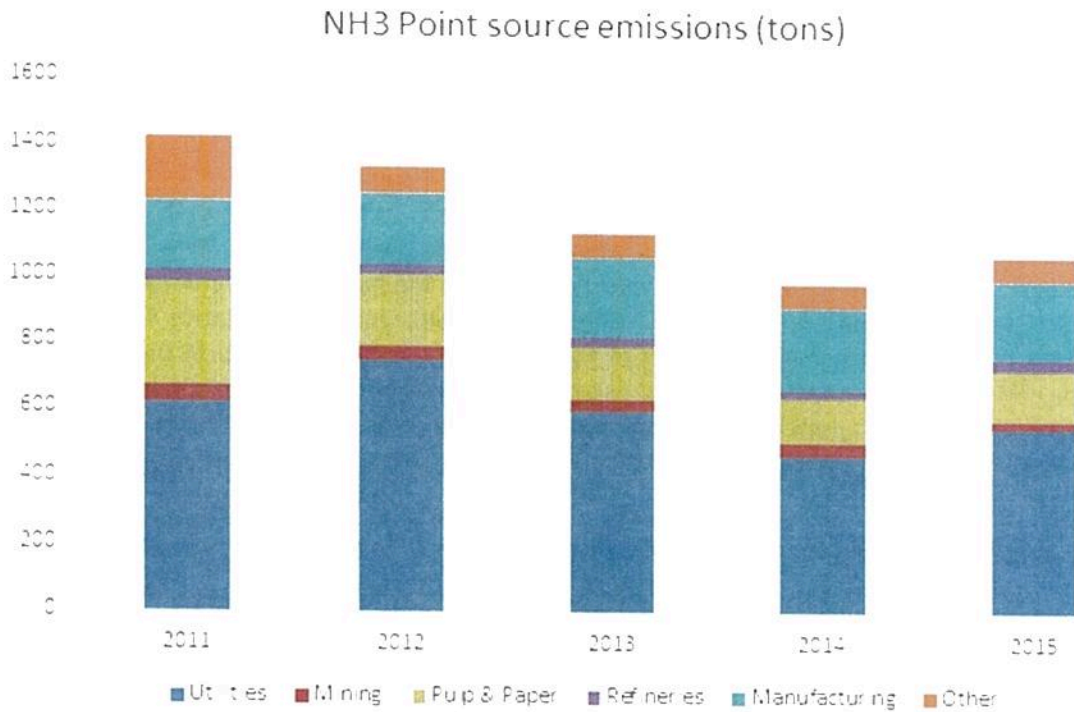
Figure 12 shows ammonia emissions from manmade sources emissions in Minnesota. Data collection methodologies for this pollutant have been changed several times in recent years, so the MPCA does not feel that it can draw any trend conclusions from this data.

Figure 12: Ammonia anthropogenic emissions in Minnesota from 2002 to 2014



While agricultural processes are by far the biggest emitter of ammonia in Minnesota, in 2011, the MPCA began collecting annual data on point source emissions of ammonia, shown in Figure 13. The emissions slightly increase for year 2015 due to the inclusion of additional emission factors for combustion sources.

Figure 13: Ammonia point source anthropogenic emissions in Minnesota 2011 to 2015



Advance emission reduction projects

The MPCA and Clean Air Minnesota regularly revisit the original 24 Clean Air Dialogue recommendations to prioritize projects. Priority projects are those that are estimated to achieve significant, measurable emissions reductions, are cost effective, increase public awareness of air pollution and its impacts on human health, and those that will have particular benefit in communities of environmental justice concern. Since 2015, to help focus efforts from the larger list of recommendations, the MPCA and Clean Air Minnesota have concentrated in the following areas for voluntary air emissions reductions: mobile sources, area sources, and wood smoke. Attachment 3 provides a detailed description of Clean Air Minnesota emission reduction projects and their implementation status.

Working towards environmental justice

In all areas of our work, the MPCA is working to advance environmental justice in Minnesota. Environmental justice concerns are multiple and complex. Not only do some communities experience higher levels of pollution, but these same communities may not have the same amenities, resources, and conditions to support healthy living.

To address disparities in exposures to air pollution and related health effects, the MPCA is working with a variety of stakeholders and state, local, and national government partners to move toward addressing inequitable policies, systems, and investments. As part of our Clean Air Minnesota initiative, the MPCA and our partners look for ways in which the projects we advance can reduce emissions and improve quality of life in areas where environmental justice is a concern. For instance, the MPCA and our partners have taken steps to target outreach to potential grantees in areas of concern for environmental justice. We still have work to do to improve how we address equity concerns both at the MPCA generally and as part of Clean Air Minnesota specifically. These efforts will continue to be a focus of our work in 2018 and beyond.

Highlights from Advance 2017

Mobile Source Team: Vehicle emissions tampering

Properly functioning emission-control devices can reduce vehicle emission by 90%. Yet one illegally modified diesel can pollute as much as 50 diesels with properly maintained controls. In 2017 the MPCA in coordination with the mobile source team, provided training on vehicle emission tampering to approximately 80 mechanic students. Additional educational outreach materials in the form of factsheets and letters to dealers and mechanics are under development. The MPCA will continue to look for opportunities for raising awareness of this issue in the upcoming year.

Area Source Team: VOC reduction initiatives

The area source team pulled resources together to encourage small businesses to implement cost effective VOC reductions by switching parts washer solvents with aqueous parts washers. Through the parts washer change-out pilot project 26 businesses changed equipment. In addition, the MPCA Small Business Environmental Assistance Program awarded grants to 9 businesses for VOC reduction projects; the City of Minneapolis, awarded grants to 25 businesses for projects that reduced VOCs, NOx and SOx; the Minnesota Technical Assistance Program provided targeted outreach, education, and discounts to auto body shops in Duluth to switch to lower-VOC degreasing chemicals; and Environmental Initiative initiated a Clean Air Assistance Project to promote financial assistance for emissions reduction projects.

Wood Smoke Team; Project Stove Swap

To encourage use of cleaner-burning equipment, Clean Air Minnesota partners, Environmental Initiative and Minnesota Power are coordinating with the MPCA on Project Stove Swap. The project is a wood heater change-out initiative that provides financial incentives for residents and businesses with older, dirtier wood-burning equipment to purchase new, cleaner wood-burning equipment that meets the new EPA standards, or gas equipment that is Energy Star certified. Swapping out just one old, outdated wood stove used to heat a home all winter for a new, more efficient model reduces particulate emissions by the same amount as removing over 700 cars from the road. By June of 2017, 76 woodstoves had been changed. Project Stove Swap remains a focus of Clean Air Minnesota. For more information, visit <https://environmental-initiative.org/work/project-stove-swap/>

Communications

Clean Air Minnesota established a Communications team to focus on effective communication both internally with partners and externally with the public. Through private funding and with guidance from Clean Air Minnesota partners, a new Clean Air Minnesota brand was created.

Conclusions

The MPCA and our Clean Air Minnesota partners are committed to continued efforts to reduce emissions around the state. We strive to ensure that the air is healthy for everyone to breathe, including our most vulnerable people. In the coming year we look forward to continued collaboration with our Clean Air Minnesota partners and efforts to find new and innovative ways to reduce pollution around the state. We strive to tackle the challenges of environmental justice to better address the disparities in air quality, access to decision-makers, and related health outcomes experienced across Minnesota. The MPCA looks forward to working with EPA to achieve these mutual goals through the Advance Programs.

Appendices

Attachment 1: Clean Air Minnesota members

Attachment 2: Clean Air Minnesota meeting information

Attachment 3: Clean Air Minnesota project spreadsheet

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Attachment 1 – CAM Group Rosters

Work Group Members

(Alternates listed in italics)

Chris Nelson, 3M

Jon Hunter, American Lung Association

Mike Hansel, Barr Engineering

Shalini Gupta, Center for Earth, Energy and Democracy

Halston Sleets, City of Minneapolis

Patrick Hanlon, City of Minneapolis

Anne Hunt, City of Saint Paul

Paul Aasen, Environmental Initiative Board

Scott Strand, Environmental Law and Policy Center

Heather Rein, Flint Hills Resources

Jake Reint, Flint Hills Resources

Dana Slade, HealthPartners

Carl Michaud, Hennepin County

Rosemary Lavin, Hennepin County

Jeff Travis, Local Public Health Association, Washington County

Mark Filipi, Metropolitan Council

Jason Willett, Metropolitan Council

Charlie Lippert, Mille Lacs Band of Ojibwe

Kevin Reuther, Minnesota Center for Environmental Advocacy

Tony Kwilas, Minnesota Chamber of Commerce

Lloyd Grooms, Minnesota Chamber of Commerce

Jessica Burdette, Minnesota Department of Commerce

Jim Kelly, Minnesota Department of Health

Dale Dorschner, Minnesota Department of Health

Lynn Clarkowski, Minnesota Department of Transportation

David Thornton, Minnesota Pollution Control Agency

Mike Cashin, Minnesota Power

Randi Nyholm, Minnesota Power

Laura Babcock, Minnesota Technical Assistance Program

Karl Dewahl, Minnesota Technical Assistance Program

Zack Hansen, Ramsey County

Peter Raynor, University of Minnesota School of Public Health

Karen Clark, Women's Environmental Institute

Rick Rosvold, Xcel Energy

Patti Leaf, Xcel Energy

Core Team Members

Chris Nelson, 3M
Mike Hansel, Barr Engineering
Anne Hunt, City of Saint Paul
Patrick Hanlon, City of Minneapolis
Halston Sleets, City of Minneapolis
Bill Droessler, Environmental Initiative
Paul Aasen, Environmental Initiative Board
Heather Rein, Flint Hills Resources
Dana Slade, HealthPartners
Jason Willett, Metropolitan Council
Kevin Reuther, Minnesota Center for Environmental Advocacy
Tony Kwilas, Minnesota Chamber of Commerce
David Thornton, Minnesota Pollution Control Agency

Mobile Source Team Members

Jon Hunter, American Lung Association
Shalini Gupta, Center for Earth, Energy, and Democracy
Bjorn Olson, Environmental Initiative
Kelly Marczak, MEG Corp.
Jim Erkel, Minnesota Center for Environmental Advocacy
Peter Wasko, Minnesota Department of Transportation
Rocky Sisk, Minnesota Pollution Control Agency
Mark Sulzbach, Minnesota Pollution Control Agency
Dorian Kvale, Minnesota Pollution Control Agency
Mike Cashin, Minnesota Power
Phil Watkins, Nuss Trucking
Nick Martin, Xcel Energy

Area Source Team Members

Chris Nelson, 3M
Patrick Hanlon, City of Minneapolis
Bjorn Olson, Environmental Initiative
Bruce Forness, Hennepin County
Jeff Travis, Local Public Health Association, Washington County
Jessica Burdette, Minnesota Department of Commerce
Jim Kelly, Minnesota Department of Health
Kristie Ellickson, Minnesota Pollution Control Agency
Eric David, Minnesota Pollution Control Agency
Laura Babcock, Minnesota Technical Assistance Program
Karl DeWahl, Minnesota Technical Assistance Program
Zack Hansen, Ramsey County
Karen Reilly, Ramsey County

Wood Smoke Team Members

Jon Hunter, American Lung Association
Chris Tureson, Central Boiler
Mikey Weitekamp, Environmental Initiative
Charlie Lippert, Mille Lacs Band of Ojibwe
Jim Erkel, Minnesota Center for Environmental Advocacy
Kathy Norlien, Minnesota Department of Health
Kristen Bergstrand, Minnesota Department of Natural Resources
Lisa Herschberger, Minnesota Pollution Control Agency
Randi Nyholm, Minnesota Power
Tim Dalsin, North Central Hearth, Patio, and Barbecue Association
Joe Holland, North Central Hearth, Patio, and Barbecue Association
Pete Raynor, University of Minnesota School of Public Health

Project Funding Team Members

Chris Nelson, 3M
Mike Hansel, Barr Engineering
Anne Hunt, City of Saint Paul
Patrick Hanlon, City of Minneapolis
Stephanie Zawistowski, City of Minneapolis (Former)
Bill Droessler, Environmental Initiative
Paul Aasen, Environmental Initiative Board
Heather Rein, Flint Hills Resources
Dana Slade, HealthPartners
Mark Filipi, Metropolitan Council
Leigh Currie, Minnesota Center for Environmental Advocacy
Tony Kwilas, Minnesota Chamber of Commerce
David Thornton, Minnesota Pollution Control Agency

Communications Team Members

Damian Goebel, Environmental Initiative
Rachel Dupree, Environmental Initiative
Kate Lohnes, Lilja Communications
Jeff Travis, Local Public Health Association, Washington County
Doug Schultz, Minnesota Department of Health
Kaia Johnson, Minnesota Department of Health
Risikat Alesaogun, Minnesota Pollution Control Agency
Rebecca Place, Minnesota Pollution Control Agency



Attachment 2 – CAM Core Team, Work Group, and Project Team Meetings

Core Team Meetings		Work Group Meetings
11/16/15; 11 am-12:30 pm	11/14/16; 2 pm-3:30 pm	12/11/15; 10 am-12 pm
2/8/16; 10 am-11:30 am	1/9/17; 10 am-11:30 am	3/11/16; 1 pm-3 pm
3/28/16; 10 am-11:30 am	1/24/17; 3 pm-4 pm	6/10/16; 9 am-11:30 am
5/13/16; 10 am-11:30 am	3/10/17; 10 am-11:30 am	9/9/16; 9 am-11:30 am
7/15/16; 10 am-11:30 am	4/28/17; 1 pm-2:30 pm	12/9/16; 9 am-11:30 am
8/30/16; 9 am-10:30 am	6/28/17; 2 pm-3:30 pm	2/10/17; 9 am-11:30 am
9/23/16; 10 am-11:30 am		6/9/17; 9 am-11:30 am

Mobile Source Team Meetings	Area Source Team Meetings	Wood Smoke Team Meetings
1/21/16; 9 am-10:30 am	1/25/16; 2 pm-3:30 pm	1/22/16; 10 am-11:30 am
3/22/16; 9 am-10:30 am	3/28/16; 2 pm-3:30 pm	3/25/16; 10 am-11:30 am
5/12/16; 9 am-10:30 am	5/23/16; 2 pm-3:30 pm	5/25/16; 10 am-11:30 am
7/12/16; 9 am-10:30 am	7/25/16; 2 pm-3:30 pm	7/29/16; 10 am-11:30 am
9/13/16; 9 am-10:30 am	10/3/16; 2 pm-3:30 pm	9/30/16; 10 am-11:30 am
11/8/16; 9 am-10:30 am	11/28/16; 2 pm-3:30 pm	11/18/16; 10 am-11:30 am
1/10/17; 9 am-10:30 am	1/23/17; 2 pm-3:30 pm	1/27/17; 10 am-11:30 am
3/14/17; 9 am-10:30 am	3/27/17; 2 pm-3:30 pm	3/24/17; 10 am-11:30 am
5/9/17; 9 am-10:30 am	5/23/16; 2 pm-3:30 pm	5/19/17; 10 am-11:30 am

Project Funding Team Meetings	Communications Team Meetings
4/22/16; 9 am-10:30 am	3/24/16; 8:30 am-9:30 am
5/13/16; 9 am-10 am	6/29/16; 9 am-10:30 am
7/1/16; 9 am-10:30 am	10/14/16; 9 am-10:30 am
7/15/16; 9 am-10 am	11/10/16; 1 pm-2:30 pm
8/1/16; 2 pm-3:30 pm	12/15/16; 9 am-10:30 am
	3/30/17; 9 am-10:30 am

Attachment 3 – Clean Air Minnesota Project Team Projects & Results Table

Emission reduction project	Clean Air Minnesota Project Team	Implementer (CAM partner)	Description	Equity considerations	Status	Implementation schedule	Emissions & Outcomes Data: 2015-2017 biennium	Emissions & Outcomes Data: Total since 2008
Small Business VOC Reduction Grants	Area Source Team	Minnesota Pollution Control Agency	A grant program to help purchase VOC-reducing equipment. Primary focus on retrofitting auto body paint booths to waterborne systems and industrial equipment change-outs	Prioritized outreach and engagement in Met Council's Areas of Concentrated Poverty where greater than 50% of residents are people of color (ACP50).	Ongoing	Continuing in 2017 by implementing awards from a recent grant round.	VOC's reduced: 12.86 tons 9 businesses participating	VOC's reduced: 17.59 tons 22 businesses participating
Parts Washer Pilot Project	Area Source Team	Minnesota Pollution Control Agency	25% discount on small businesses switching to aqueous parts washers:	Prioritized outreach and engagement in Met Council's Areas of Concentrated Poverty where greater than 50% of residents are people of color (ACP50).	Ongoing	Continuing throughout 2017 until grant funds are fully spent.	VOC's reduced: 4.70 tons 26 businesses participating	VOC's reduced: 4.70 tons 26 businesses participating
Duluth Degreasing Initiative	Area Source Team	Minnesota Technical Assistance Program	Targeted outreach, education and discounts to auto body shops to swap out safer, low-VOC degreasing chemicals for higher-VOC alternatives	Targeting outreach in area of environmental justice concern.	Concluded	Concluded in 2017	VOC's reduced: .85 tons Other Pollutants: .33 tons HAPS 10 businesses permanently implemented low-VOC products	VOC's reduced: .85 tons Other Pollutants: .33 tons HAPS 10 businesses permanently implemented low-VOC products

Phillips Community Air Emission Reduction	Area Source Team	Minnesota Technical Assistance Program	Substituting chemicals for degreasing at auto body shops and manufacturing facilities & 2 intern projects at industrial facilities	Targeting outreach in area of environmental justice concern.	Early stages	Starting summer 2017, ending 2018	N/A	N/A
<u>Clean Air Assistance Project</u>	Area Source Team	Environmental Initiative	Providing financial and administrative assistance for area source business emissions reductions	Prioritized outreach and engagement in Met Council's Areas of Concentrated Poverty where greater than 50% of residents are people of color (ACP50).	Ongoing	Applications and projects eligible year- round	VOC's reduced: 1.25 tons 2 businesses participating; Both in ACP50 areas	VOC's reduced: 1.25 tons 2 businesses participating; Both in ACP50 areas
<u>Green Business Cost Share Program</u>	Area Source Team	City of Minneapolis; outreach and leveraging funds provided by Environmental Initiative	Grants to businesses to invest in cleaner or more efficient technologies. Awards up to \$100,000 for each business. Sectors: dry cleaning, auto repair, printing, and manufacturing. 2015-2017 Focused heavily on energy efficiency and dry cleaning, leading to lower VOC numbers relative to previous years, but increases in NOx, SOx, and hazardous air pollutants (HAPS).	High priority for outreach and projects in areas of environmental justice and disproportionate community impacts.	Ongoing	Applications due in Spring, projects implemented before the end of the calendar year.	VOC's reduced: .09 tons Other Pollutants: NOx: 12.67 tons SOx: 13.19 tons HAPS : 1.50 tons 25 businesses participating	VOC's reduced: 9.7 tons PM 2.5 reduced: .259 tons Other Pollutants: NOx: 12.85 tons SOx: 13.4 tons HAPS : 1.50 tons 44 businesses participating

Area Source Team Sub-Total:							104 businesses participating VOC's reduced: 32.44 tons PM 2.5 reduced: .259 tons Other Pollutants: 13.68 tons SOX 13.17 tons NOX 3.00 tons HAPS
	72 businesses participating VOC's reduced: 18.48 tons Other Pollutants: 13.5 tons SOX 12.96 tons NOX 3.00 tons HAPS						

Emission reduction project	Clean Air Minnesota Project Team	Implementer (CAM partner)	Description	Equity considerations	Status	Implementation schedule	Emissions & Outcomes Data: 2015-2017 biennium	Emissions & Outcomes Data: Total since 2008
High Emitting Vehicle Protect	Mobile Source team	Environmental Initiative and Minnesota Pollution Control Agency	Pilot program to repair faulty emission control systems through organizations performing other repair services for low-income residents.	Project designed to complete repairs for low-income residents.	Ongoing	Continuing in 2017	VOC's reduced .92 tons Other Pollutants: NOx: .81 tons Completed repairs on 30 vehicles	VOC's reduced .92 tons Other Pollutants: NOx: .81 tons Completed repairs on 30 vehicles
Diesel Emission Reduction Act Grants	Mobile Source Team	Minnesota Pollution Control Agency	U.S. EPA allocates funds to states for the establishment of grant, rebate and loan programs promoting clean diesel. In Minnesota, the Pollution Control Agency has targeted grants on replacing large, older diesel engines.	Scoring criteria based on proximity to population centers (Metro).	Ongoing	Remaining projects to be completed by December, 2017; New round of project solicitation in fall, 2017 for implementation in 2018.	PM 2.5 reduced: .91 tons VOC's reduced: .82 tons Other Pollutants: NOx: 18.68 tons 23 Truck Replacements 6 Engine Repowers	PM 2.5 reduced 11.143 tons VOC's reduced 12.77 tons Other Pollutants: NOx: 140.095
Project Green Fleet	Mobile Source Team	Environmental Initiative	Program to incentivize early heavy-duty diesel engine retirement and/or upgrade/retrofit with emission reduction equipment.	Prioritized outreach and engagement in Met Council's Areas of Concentrated Poverty where greater than 50% of residents are people of color (ACP50).	Ongoing	Continued recruitment and execution of emission reduction projects into 2017/2018.	PM 2.5 reduced: 1.412 tons VOC's reduced: 1.10 tons Other Pollutants: NOx: 10.80 tons CO: 7.074 tons 2 Engine Upgrades 4 Engine Repowers	PM 2.5 reduced 29.81 tons VOC's reduced 82.59 Other Pollutants: NOx: 385.88 tons

American Lung Association Clean Air Choice/Biofuels Promotion	Mobile Source Team	American Lung Association	Program encouraging adoption of biofuels through targeted education, outreach, and infrastructure development. Emissions reduced are calculated based off of the impact of Minnesota's biodiesel mandate.	Ongoing	Continuing in 2017	1 Off-Road Replacement PM 2.5 Reduced: 230.00 tons* VOC's reduced: 309.90 tons	PM 2.5 reduced: 287.94 tons VOC's reduced: 385.53 tons
Mobile Source Team Sub-Total:						PM 2.5 reduced: 232.32 tons VOC's reduced: 312.74 tons Other Pollutants: 30.29 tons NO _x 7.07 tons CO Repairs/re-powers, & replacements on 66 vehicles	PM 2.5 reduced: 328.90 tons VOC's reduced: 481.80 tons Other Pollutants: 526.79 tons NO _x

*Because the biodiesel mandate is on the scale of the statewide implementation of a policy, emission reduction numbers are on a scale larger than targeted emission reduction projects.

Emission reduction project	Clean Air Minnesota Project Team	Implementer (CAM partner) & contact info	Description	Equity considerations	Status	Implementation schedule	Emissions & Outcomes Data: 2015-2017 biennium	Emissions & Outcomes Data: Total since 2008
Ongoing Air Communications & Outreach	Communication	Environmental Initiative & Minnesota Pollution Control Agency	Ongoing, multi-channel communications around air quality issues, projects and successes, including Environmental Initiative's owned channels, BeAirAware, and in-person impressions at the Eco Experience. Metrics include in-person impressions, online impressions and earned media. The nature of these metrics makes them difficult to track, so these numbers are a minimum estimation.	Wherever possible, communications activities tell stories and emphasize the importance of equity considerations.	Ongoing	Project and partner communications executed as opportunities arise throughout the year.	In-person impressions: 516,367 Online impressions: 21,327 Earned Media 14 stories state-wide	This is the first contract that this data has been quantified and tracked using these metrics.