

## Portland Air Toxics Solutions Report and Recommendations

Wednesday, May 09, 2012

Together with the Portland Air Toxics Solutions Advisory Committee, DEQ developed a ground-breaking study of air toxics problems and potential solutions in the Portland region. This fact sheet summarizes the [Portland Air Toxics Solutions Report and Recommendations](#). For more information, to contribute your ideas and to sign up for Portland Air Toxics Solutions project updates go to:

<http://www.deq.state.or.us/aq/toxics/pats.htm>

### Is the air in Portland healthy to breathe?

There are many different pollutants in Portland's air and what people breathe depends in part on how close they are to pollution sources such as woodstoves, busy roadways and industrial facilities.



Overall, air pollution in the Portland area has decreased dramatically over the last 30 years. Important success stories include reducing lead, carbon dioxide and ozone (smog) to meet federal clean air standards.

Despite this progress, DEQ is concerned about levels of other pollutants called air toxics, which are known or suspected to cause serious health problems including cancer, nerve damage and respiratory irritation. Much of our scientific knowledge about air toxic is still emerging. However for many pollutants and sources, there is currently enough information to understand problems and prioritize emission reductions.

Air toxics include diesel soot, benzene, polycyclic aromatic hydrocarbons (tar-like by-products from auto exhaust and other sources commonly called PAHs), and metals including manganese, nickel, and lead. Air toxics come from a variety of sources including cars and trucks, all types of burning including burning wood in fireplaces and woodstoves, businesses and industries of all sizes, and consumer products such as solvents and pesticides. There are no federal standards for air toxics.

### How does the air in Portland compare with other locations?

Compared to other areas of the state, the Portland region has the highest risk to the population from air toxics. This is because the region has the most people and development. Air toxics in Portland are comparable to levels in other similarly sized cities across the country. Along with national estimates of air toxics emissions, Portland monitoring studies confirm the presence of air toxics at levels that can cause adverse health effects. The map below shows estimated total cancer risk from air pollutants from



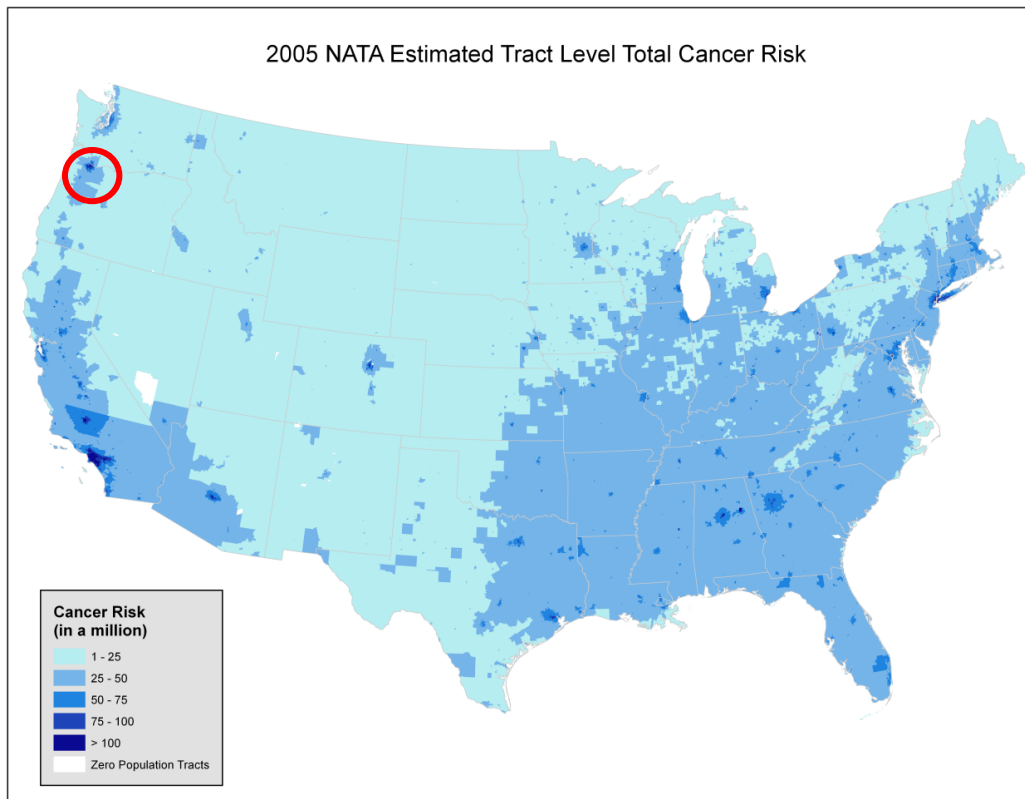
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*DEQ is a leader in  
restoring, maintaining and  
enhancing the quality of  
Oregon's air, land and  
water.*

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By: Sarah Armitage  
DEQ 12-AQ-034

a study released by the U.S. Environmental Protection Agency. The majority of toxic air pollutants are associated with cancer risk. The darker blue areas have higher estimated cancer risk, and a red circle marks the location of Portland.



*US EPA National Air Toxics Assessment estimated risk from air toxics*

## How does DEQ evaluate air toxics levels?

### Monitoring and modeling

DEQ collects information about air toxics by sampling and analyzing air quality and also by estimating levels through computer modeling studies. These levels are compared to ambient benchmark concentrations, which serve as DEQ's clean air health goals for air toxics. A summary of [air toxics monitoring](http://www.deq.state.or.us/aq/forms/annrpt.htm) is available at:

<http://www.deq.state.or.us/aq/forms/annrpt.htm> .

### Ambient benchmark concentrations

Oregon has adopted ambient benchmark concentrations that serve as clean air goals for 52 air toxics known to be present in the state. Each air toxic of concern has a benchmark set based on its non-cancer or cancer causing effects, whichever level would be more protective. An ambient benchmark concentration is the annual average concentration of a toxic chemical in air that individuals, including more sensitive groups such as children or the elderly, could breathe continuously for a lifetime without experiencing any non-cancer health effects or without increasing



*Air pollution monitor*

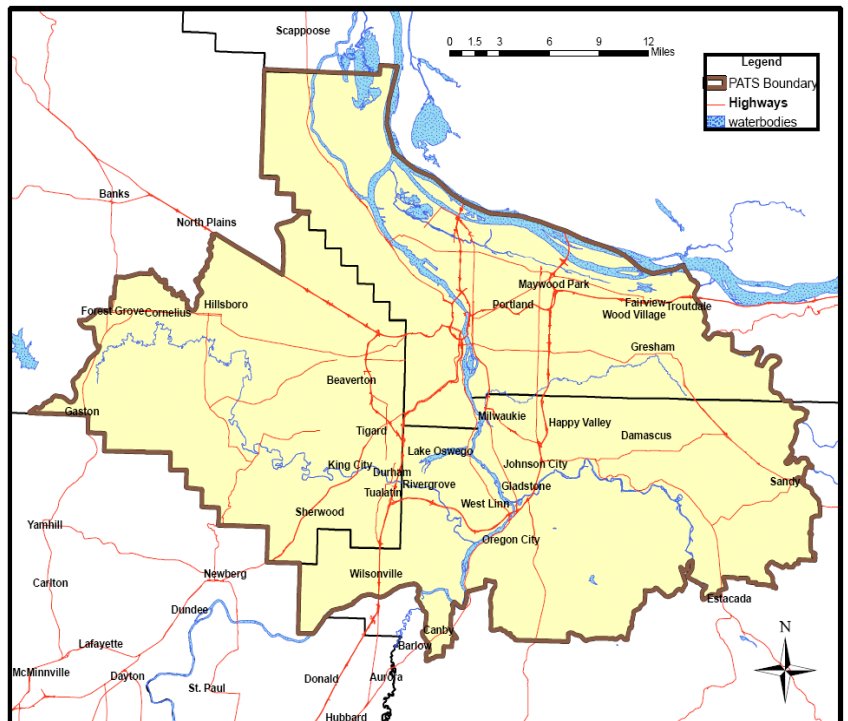
their risk above the background cancer rate by greater than one chance in a million. Oregon's benchmarks are available at: <http://www.deq.state.or.us/aq/toxics/benchmark.htm>.

## What is DEQ doing to reduce air toxics in the Portland region?

### Portland Air Toxics Solutions Project

DEQ created the Portland Air Toxics Solutions project to work with the local community to develop air toxics reduction strategies for the Portland region, including portions of Multnomah, Washington and Clackamas Counties. Because many of the same sources produce air toxics, particulates, greenhouse gases and ozone, Portland Air Toxics Solutions links with other ongoing and future regional air pollution reduction efforts. The map below shows the Portland Air Toxics Solutions Study Area.

Between August 2009 and October 2011, DEQ collaborated with the Portland Air Toxics Solutions Advisory Committee, made up of diverse stakeholders, to consider a technical study and recommend a framework for an air toxics reduction plan. The technical study included an analysis of available monitoring information from the past several years and computer model estimates of Portland's expected pollutant levels in the year 2017. Together with the advisory committee, DEQ developed the Portland Air Toxics Solutions technical study, providing ground-breaking analysis and a new understanding of air toxics problems and potential solutions in the Portland region.



*Portland Air Toxics Solutions study area*

The Portland Air Toxics Solutions modeling study greatly advanced our knowledge about air toxics in Portland.

DEQ used this study to estimate air toxics concentrations for 19 pollutants projected for 2017. The model included the most current and detailed emissions information from hundreds of emission sources across the Metro area, including industrial sources, mobile sources like cars and trucks, and residential activities. The model also factored in economic conditions, population growth, topography, weather and new regulations to reduce pollution. The study allowed DEQ and the advisory committee to understand significant pollutants, their sources, how they are distributed across the Portland region, and how best to prioritize potential reduction strategies. Results of the [Portland Air Toxics Solutions modeling study](http://www.deq.state.or.us/aq/toxics/pats.htm) are available at: <http://www.deq.state.or.us/aq/toxics/pats.htm>.

## What pollutants are above clean air health goals?

The Portland Air Toxics Solutions modeling study assessed 19 pollutants and identified 14 of them that are above clean air health goals, or benchmarks. Eight of the 14 pollutants cause the most risk. These pollutants are:

1, 3 butadiene, benzene, diesel particulate, 15 PAH, naphthalene, cadmium, acrolein, and formaldehyde. The study shows that most air toxics are found throughout the entire study area. Higher concentrations are found in densely populated neighborhoods, near busy roads and highways and in areas with business and industrial activity.

The largest sources of air toxics are gasoline and diesel engines that produce 1,3 butadiene, benzene, diesel particulate, arsenic and chromium 6. Another large source of air toxics is residential wood burning that produces 15 PAH (polycyclic aromatic hydrocarbons which are tar-like by-products) and naphthalene. The model shows emissions of metals including manganese, nickel and cadmium are concentrated in or near some industrial areas.

### Where are the highest concentrations of air toxics?

The study shows that air toxics are found throughout the Portland region. Higher concentrations are found in densely populated neighborhoods, near busy roadways and in areas with higher levels of business and industrial activity. The chart below shows pollutants estimated above Oregon's air toxics benchmarks, the top source of each pollutant and the general locations of concentrations in the Portland region.

Pollutant	Top Source	Impact Area
<b>More than 10 times over benchmark</b>		
1,3 butadiene	Cars and trucks	Region wide/neighborhood
Benzene	Cars and trucks	Region wide/neighborhood
Diesel Particulate	Cars and trucks	Region wide/neighborhood
15 PAH	Residential wood burning	Region wide
Naphthalene	Residential wood burning	Region wide/neighborhood
Cadmium	Industry	Neighborhood
Formaldehyde	Chemical formation in atmosphere <sup>1</sup>	Region wide
Acrolein	Chemical formation in atmosphere <sup>2</sup>	Region wide/neighborhood
<b>Between 1 and 10 times over benchmark</b>		
Arsenic	Cars and trucks	Region wide/neighborhood
Manganese	Industry	Neighborhood
Nickel	Industry	Neighborhood
Chromium VI	Cars and trucks	Region wide/neighborhood
Dichlorobenzene	Solvents and pesticides	Region wide/neighborhood
Acetaldehyde	Chemical formation in atmosphere <sup>1</sup>	Region wide

1. Toluene and xylene from vehicle exhaust and vegetation react in the atmosphere to form formaldehyde and acetaldehyde.
2. 1,3 butadiene from vehicle exhaust reacts in the atmosphere to form acrolein.

*Portland Air Toxics Solutions estimates of air toxics in 2017*

### How do air toxics impact minority and low income people in the Portland region?

As part of the Portland Air Toxics Solutions Study, DEQ used its modeling estimates to conduct an environmental justice analysis of air toxics impacts. Environmental Justice entails the fair treatment and meaningful involvement of all people regardless of race, age, gender, national origin, education or income level, in the development, implementation and enforcement of environmental laws, regulations and policies. DEQ's environmental justice analysis demonstrated that disproportionate impacts from air toxics do occur for minority

and low-income populations in the Portland region. Different minority groups are affected by different types of emission sources.

In general, DEQ found that the Hispanic/Latino population experienced the highest impacts from residential wood combustion emissions, the Asian population from car and truck emissions, and the African American/Black population from commercial solvent and fuel use emissions. In addition we found that the general population (all races) living below the poverty level is disproportionately affected by toxic air pollution from cars and trucks. Emissions from construction and other non-road engines also significantly impact minority populations, while industrial and business sources disproportionately impact populations of all races living below the poverty level. This information will be incorporated into emission reduction strategies and used by communities and local government to prioritize efforts to improve public health. The chart below summarizes DEQ's statistical analysis of air toxics impacts on minority and low income populations in the Portland region.

Disproportionate impact from all sources:  
Higher → Lower

Higher Disproportionate impact by source category: Lower	Hispanic/Latino	Asian	African American/Black	Below Poverty
	Residential Wood Burning	Cars and Trucks	Commercial Solvent and Fuel Use	Cars and Trucks
	Construction and Non-Road Engines	Construction and Non-Road Engines	Construction and Non-Road Engines	Commercial Solvent and Fuel Use
	Cars and Trucks	Residential Wood Combustion		Point Sources
	Commercial Solvent and Fuel Use	Commercial Solvent and Fuel Use		

*Summary of minority and low income air toxics impacts in the Portland region*

### What are the next steps to reduce air toxics in the Portland region?

DEQ and its advisory committee identified five high priority emission categories for follow up action, along with potential emission reduction recommendations for each category. While the emission recommendations reflect the advisory committee's best efforts at consensus, they were not endorsed by all members. The prioritization is based on total estimated risk from air toxics, practicability of emission reductions, and the directive in Oregon air toxics regulations to address both region wide and localized risk.

The five priority categories are:

- Residential wood combustion
- Cars and trucks



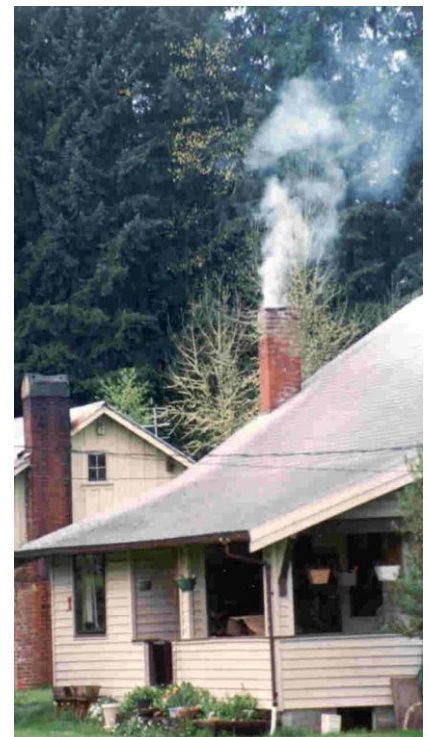
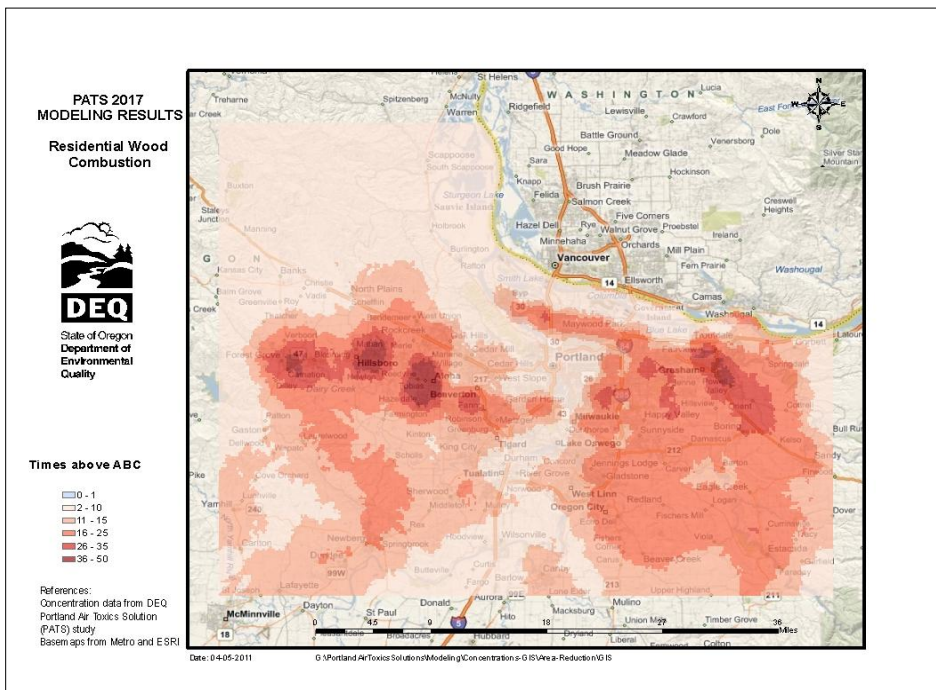
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- Heavy duty vehicles
- Construction equipment
- Industrial metals facilities

For all priority categories, DEQ will further consult with affected people and businesses to develop emission reduction actions. This consultation will include more detailed technical analysis and more thorough investigation of emission reduction considerations including cost effectiveness, feasibility and benefits analysis. DEQ and partners will implement the emission reduction recommendations by integrating them into DEQ's ongoing emission reduction work.

## What are the recommendations to reduce emissions from the priority categories?

### Residential wood burning

In the Portland region, roughly two percent of homes are heated by wood. Many people burn woodstoves and fireplaces as an additional heat source or for aesthetic reasons. Old uncertified woodstoves and conventional fireplaces contribute the bulk of toxic pollution in this category. The pollutants causing the most risk from wood burning are 15 PAH, 1,3-butadiene and formaldehyde. The map below shows estimated risk from wood combustion in the Portland area. Darker red areas have higher estimated concentrations of pollutants from wood burning, many of which are Environmental Justice communities.



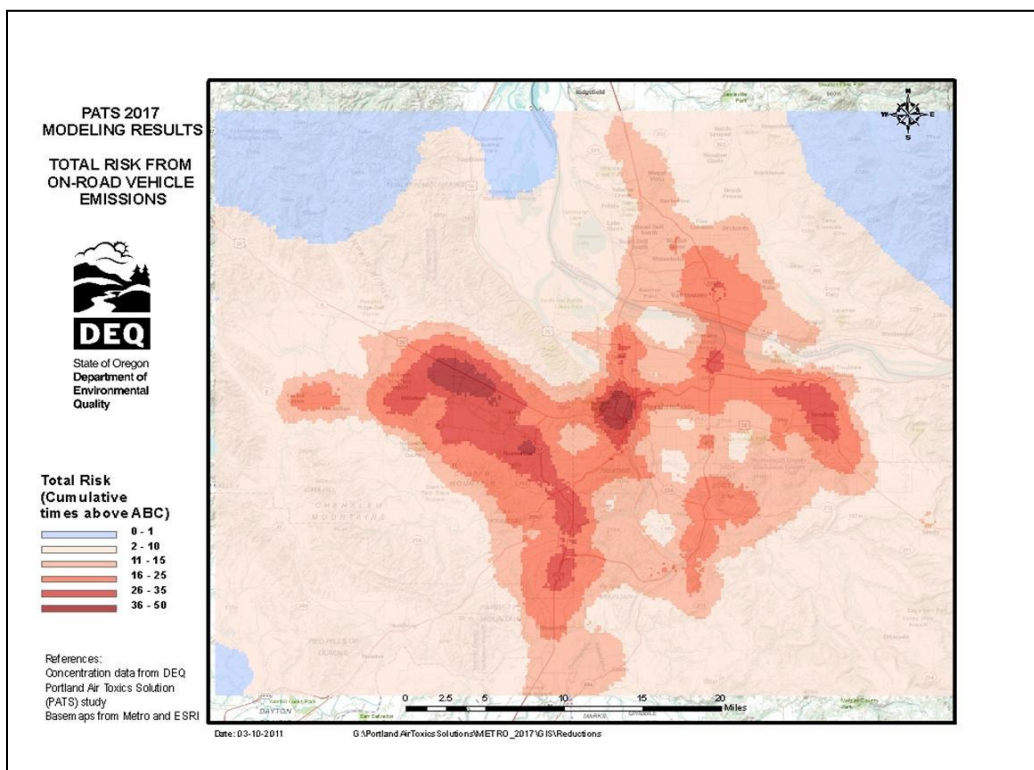
In addition to emitting air toxics, residential wood burning emits fine particulate pollution that contributes to violations of national clean air standards. DEQ plans to coordinate efforts to reduce air toxics from residential wood burning with ongoing work to meet the fine particulate standard. Recommendations for next steps to decrease pollution from residential wood burning include:

- Conduct a residential wood heating survey to refine DEQ emission estimates

- Implement a regional public awareness campaign to promote cleaner burning techniques
- Improve DEQ's uncertified woodstove change out program, with emphasis on assistance to low income communities
- Find long term funding for woodstove change outs
- Evaluate the effectiveness of setting smoke density limits
- Support stronger national standards for new wood heating devices

## Cars and trucks

Vehicles have both gasoline and diesel engines. For emission reduction recommendations, there are two categories: light duty vehicles, which are mostly use gasoline, and heavy duty vehicles, which are mostly use diesel. The map below shows the estimated risk in 2017 from both categories together. Darker red areas have higher estimated concentrations of pollutants from cars and trucks. Higher concentrations of pollution from cars and trucks follow major highways.



## Light duty cars and trucks

Air toxics from light duty vehicles occur throughout the Portland region with the highest concentrations occurring in high traffic areas. Emissions are highest within 500 yards, the length of five football fields, of roadways with high traffic. However, because much of the study area is developed, on road gasoline emissions influence risk in much of the Portland Air Toxics Solutions study area.



Gas powered vehicles are subject to federal and state regulations that limit new car and truck emissions. To meet emission requirements automakers developed better engine designs, computerized engine controls and pollution control technology such as catalytic converters. These efforts reduced the emission of traditional pollutants to a fraction of what they were thirty years ago. In the Portland region, vehicle inspection requirements ensure proper vehicle maintenance, further controlling emissions. Both the federal Corporate Average Fuel Economy standards and Oregon's greenhouse gas emission limits reduce the amount of gasoline vehicles use. This reduces metallic air toxics that may be naturally present in gasoline and which are not reduced by pollution control equipment. The pollutants causing the most risk from light duty cars and trucks are 15 PAH, benzene, 1,3 butadiene, formaldehyde, arsenic and chromium.

In addition to emitting air toxics, light duty cars and trucks emit greenhouse gases and pollutants that contribute to ozone. DEQ plans to coordinate efforts to reduce air toxics from light duty cars and trucks with Metro's ongoing work to reduce vehicle miles travelled and DEQ's work to reduce greenhouse gas emissions and prevent a recurrence of unhealthy ozone levels. Recommendations for next steps to decrease pollution from light duty vehicles include:

- Use the ongoing regional transportation planning process to reduce vehicle use
- Target a 20 percent person per person reduction in vehicle emissions by 2035
- Improve traffic signals to reduce congestion
- Support strong national standards for clean vehicles
- Adopt the latest California clean car standards
- Promote electric vehicle charging stations
- Work with Metro and other partners to incorporate environmental justice considerations into transportation and land use planning

### Heavy duty vehicles

Air toxics from on-road heavy duty vehicles occur throughout the Portland region, with the highest concentrations occurring in areas of high vehicle traffic. Heavy duty vehicles include trucks that make deliveries within the Portland area and trucks that are used mainly in interstate freight. The majority of these vehicles have diesel engines. Like light duty vehicles, heavy duty vehicles have become cleaner over the last decade with tighter federal emission standards. However, because diesel engines are long lasting, the turnover from older dirtier engines to newer cleaner engines is much slower. Pollutants from heavy duty vehicles causing the most risk are diesel particulate matter, 15 PAH, benzene, and 1,3 butadiene.

DEQ has an active clean diesel program to reduce diesel particulate emissions from heavy duty vehicles. Recommendations for next steps to decrease pollution from heavy duty vehicles include:

- Identify opportunities for financial support of clean diesel projects
- Identify the most effective use of education and outreach
- Accelerate engine turnover, repowering, and retrofits
- Evaluate requirements for clean diesel fleets at publically funded projects
- Evaluate alternative fuels and the need for a fuels technical clearinghouse
- Evaluate efficiency measures, and current idling restrictions in Oregon and other jurisdictions

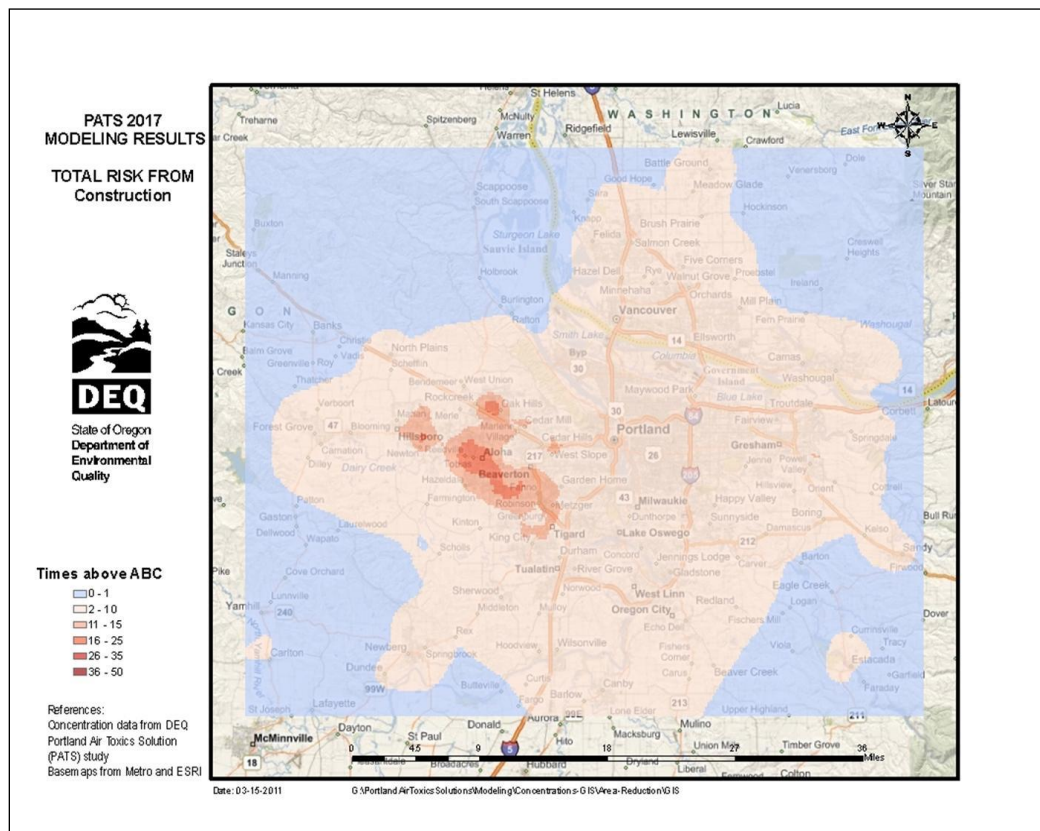




- Work with Metro and other partners to incorporate environmental justice considerations into transportation and land use planning

### Construction equipment

Construction equipment emissions are caused mainly by diesel engines. These engines power non-road equipment such as backhoes and graders. Construction equipment emissions are widely dispersed across the Portland area associated with construction projects. Compared to light and heavy duty on road engines, construction equipment engines have the slowest rate of turnover to cleaner engines. The pollutants causing the most risk in the construction category are diesel particulate matter and 15 PAH. The map below shows the estimated risk in 2017 from construction equipment. Darker red areas have higher estimated concentrations of pollutants from construction engines. Because construction projects can occur in many locations, elevated concentrations as shown on the map will fluctuate throughout the region.



While DEQ's clean diesel program has focused on trucks, buses and barges, it can also be used to reduce diesel particulate emissions from construction equipment. Recommendations for next steps to decrease pollution from construction include:

- Conduct a survey to better understand the universe of construction equipment
- Evaluate an equipment registration system

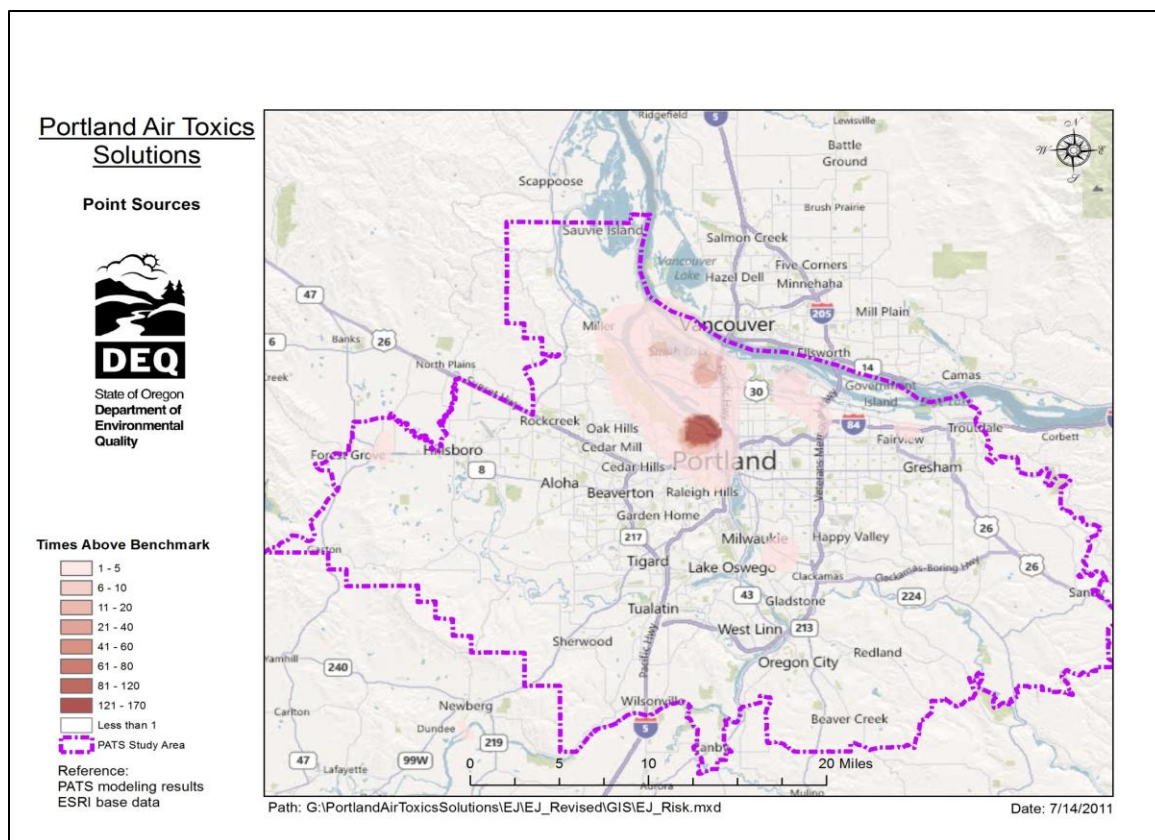
- Evaluate the impacts of higher emission equipment imported from California, which has more stringent standards for construction equipment
- Identify opportunities for financial support of clean diesel projects
- Accelerate engine turnover, repowering and retrofits
- Evaluate requirements for clean diesel equipment on publically funded projects
- Evaluate alternative fuels and the need for a fuels technical clearinghouse
- Evaluate efficiency measures and the feasibility of idle reduction for construction equipment

## Industrial Metals Facilities

Industrial metals facilities account for most of the documented cadmium, manganese and nickel concentrations estimated above benchmarks in the Portland Air Toxics Solutions Study. These pollutants occur fairly close to industrial facilities, with concentrations decreasing greatly at the distance of a quarter mile. DEQ needs to further investigate emissions from industrial metals facilities for a full understanding of their impacts. In particular, DEQ is working to identify the sources of cadmium in the Portland region. Monitored levels of cadmium are considerably higher than modeled levels, indicating that there are additional unknown sources that were not included in the model. The map below shows the estimated risk in 2017 from industrial facilities, the majority of which comes from metals processing. Darker red areas have higher estimated concentrations of pollutants from industrial facilities.



*Metal casting equipment*



DEQ's industrial permitting program ensures that industrial facilities comply with federal and state air toxics emission limits. Recommendations for next steps to decrease pollution from industrial metals facilities include:

- Refine emission estimates using facility-specific models and improved emission characteristics
- DEQ to encourage facilities with modeled impacts above benchmarks to make voluntary early reductions

### **How will DEQ implement the recommendations for the high priority categories?**

DEQ will incorporate the recommended air toxics reduction strategies into ongoing ozone, particulate, clean diesel and green house gas reduction work. DEQ is also coordinating with local government partners to bring current air toxics considerations into the transportation and land use planning process.

## **1. Executive Summary**

### **1.1 Background and Purpose**

Compared to other areas in Oregon, the Portland region has the highest risk to the population from air toxics due to business and population density. Along with national estimates of air toxics emissions, Portland monitoring studies confirm the presence of air toxics at levels that can cause adverse health effects. Forming individual airsheds based on geography allows the Department of Environmental Quality or DEQ to define problem areas for air toxics in Oregon. It also allows DEQ to prioritize and focus efforts to reduce air toxics. Under this geographic approach, DEQ and community members evaluate air toxics holistically in an area, striving for reductions from various sources roughly commensurate with their contributions.

DEQ created the Portland Air Toxics Solutions project, also called PATS, to work with local communities to develop an air toxics reduction plan for the Portland region. Ultimately DEQ seeks to reduce concentrations of air toxics to ambient benchmark concentrations, health based clean air goals established in state regulations. Between August 2009 and October 2011, DEQ collaborated with a diverse stakeholder committee called Portland Air Toxics Solutions Advisory Committee, known as PATSAC, to develop a foundation and framework for an air toxics reduction plan. In a series of 14 meetings, the committee and DEQ worked through the challenges of understanding and discussing air toxics problems and potential solutions in the Portland area, considering monitoring and modeling data, pollutants above health based benchmarks, sources of pollutants and potential emission reduction strategies.

### **1.2 Technical Study**

To understand Portland air toxics problems and sources, DEQ produced a PATS modeling study that projects air toxics concentrations for 19 pollutants in 2017. The PATS model used the most current and detailed emissions information from industrial, mobile, and residential activities. The model also factored in economic conditions, population growth, topography, weather and new regulations to reduce pollution. PATSAC reviewed all stages of the PATS modeling and monitoring data and initiated technical advances that improved methodologies and data quality. In addition, DEQ and the advisory committee considered monitoring data from a 2005 regional monitoring study and performed a model to monitor comparison.

The PATS modeling study identified 14 of the 19 pollutants above health based benchmarks. Eight of the 14 pollutants cause the most risk. These pollutants are: 1, 3 butadiene, benzene, diesel particulate, 15 PAH, naphthalene, cadmium, acrolein, and formaldehyde. The study shows that most air toxics are found throughout the study area. Higher concentrations are found in densely populated neighborhoods, near busy roads and highways and in areas with business and industrial activity.

### **1.3 Portland Air Toxics Solutions Advisory Committee Contributions**

The advisory committee provided DEQ with a wide diversity of opinion on the technical study and developing emission reduction options. DEQ fully considered and incorporated much of the committee's input. While the scientific complexity, need for additional stakeholder representation, and lack of consensus about air toxics in the study area prevented DEQ and PATSAC from developing the type of ten year plan envisioned in the project charter, PATSAC work resulted in ground-breaking analysis and understanding of toxics problems and potential solutions in the Portland area.

PATSAC and DEQ developed a framework for next steps, including:

- A priority list of air toxics source categories;
- White papers that lay an initial technical foundation for future emission reduction strategies;



- Definition of key considerations;
- Future steps for technical analysis; and
- Future steps for stakeholder involvement, including representation and consideration of environmental justice issues.

#### **1.4 Priority Emission Source Categories**

Five categories of emissions are high priority for near term follow up action, including stakeholder consultation, planning, and emission reduction actions. This prioritization is based on total modeled risk, practicability of emission reductions, and the directive in Oregon air toxics regulations to address both area wide and localized risk. The prioritized source categories will guide DEQ and partner actions to reduce toxics. However DEQ and others may take advantage of additional emission reduction opportunities as they arise. The five priority categories are:

- Residential Wood Combustion
- On Road Mobile Light Duty
- On Road Mobile Heavy Duty
- Construction
- Industrial Metals

For all priority categories, it is clear that additional stakeholder consultation will be necessary to thoroughly consider emission reductions. This consultation will allow development of more detailed technical information and more complete consideration of affected stakeholder interests. Future stakeholder processes will also evaluate strategies to achieve emission reductions, and recommend specific actions consistent with the PATSAC considerations, including cost effectiveness, feasibility and benefits analysis as well as options for ongoing improvement. Highlights of recommendations for the priority categories are summarized below.

##### **1.4.1 Residential Wood Combustion**

In the category of residential wood combustion, the next steps are to conduct a residential wood heating survey to refine DEQ emission estimates, to implement a regional public awareness campaign to promote cleaner burning techniques, and to improve implementation of the uncertified woodstove change out program, with emphasis on assistance to affected environmental justice communities. DEQ follow-up actions also include evaluation of opacity limits, finding long term funding for woodstove change out, and supporting stronger national standards for new wood heating devices.

##### **1.4.2 On Road Mobile Light Duty Vehicles**

For on road mobile emissions, DEQ plans to coordinate with Metro's ongoing regional transportation planning process to reduce vehicle miles traveled (VMT) from light duty vehicles. Under this effort, Metro, DEQ and partners would work to identify sustainable funding for VMT reduction, incorporate air toxics reductions into existing VMT reduction planning and strive to achieve a per capita reduction of 20% of light duty vehicle air toxics emissions by 2035. Other VMT reduction elements include transportation demand management, operation improvements and transit improvements. DEQ plans to advocate for strong national standards for light duty vehicles, adopt California LEV III standards and promote infrastructure for low emitting vehicles. Cleaner fuel recommendations include a life cycle evaluation of air toxics reductions from low carbon fuels, and an evaluation of reformulated gasoline.

##### **1.4.3 On Road Mobile Heavy Duty Vehicles**

General strategies to reduce emissions from on road mobile heavy duty vehicles are to identify opportunities for financial support of clean diesel activities and to identify the most effective use of education and outreach. To

burn fuel cleaner, DEQ is directed to work with stakeholders to accelerate engine turnover, repowering, and retrofits. DEQ can also work with partners to assess the feasibility and effectiveness at all levels of government of incenting or requiring clean diesel fleets at publically funded projects. To burn cleaner fuel, DEQ can evaluate alternative fuels as well as the need for a technical clearinghouse on environmental benefits of alternative fuels. To burn less fuel DEQ can evaluate efficiency measures, and current idling restrictions in Oregon and other jurisdictions.

#### **1.4.5 Construction Equipment**

Recommendations in this category direct DEQ to conduct a survey of construction equipment in the Metro area. This would better define equipment characteristics, improve emission estimates, and inform reduction strategies. Other general strategies include evaluations of an equipment registration system and evaluation of the impacts of high emission equipment imported from California. DEQ can identify opportunities for financial support of clean diesel activities as well as the role of education in promoting clean diesel activities. Strategies to burn fuel cleaner include acceleration of engine turnover, repowering and retrofits, and evaluation of requiring clean diesel equipment on publically funded projects. To burn cleaner fuel, next steps include evaluation of alternative fuels and a technical clearinghouse on alternative fuels. To burn less fuel, DEQ and partners can evaluate efficiency measures and the feasibility of idle reduction for construction equipment, including private and other jurisdictions' idle reduction programs.

#### **1.4.6 Industrial Metals**

For industrial metals facilities DEQ would refine emission estimates using facility-specific models and improved emission characteristics. DEQ would encourage facilities with modeled impacts above benchmarks to make voluntary early reductions, and as with all the other high priority categories, convene a stakeholder process to identify and evaluate strategies to achieve emission reductions.

### **1.5 Additional Technical Information**

The PATS process highlighted several areas in need of data refinement for better understanding of emissions, potential risks and possible emission reduction strategies. With assistance from EPA and other state and local partners, DEQ would develop additional and more accurate information in the following areas:

- Methylene chloride
- Secondary formation pollutants
- Cadmium
- Arsenic
- Additional Monitoring Studies

### **1.6 Next Steps**

In collaboration with PATSAC, DEQ identified several important future considerations for implementing emission reduction strategies. For many categories of emissions there are common potential future needs:

- 1) continuous improvement in achieving emission reductions,
- 2) responding to growth in emissions,
- 3) providing the best quality information about air toxics, and
- 4) mitigating exposures in ways that complement reduction strategies.

DEQ understands through comments received and group discussion that many PATSAC members support the next steps stated in this section. However, the report and recommendations do not represent the views of all PATSAC members. DEQ will seek further comment from the public and stakeholders before finalizing this proposal for presentation to the Environmental Quality Commission.

At the time of this report, DEQ has exhausted the funding for ongoing air toxics work. However, because air toxics are produced by many of the same sources that produce particulate, ozone precursors and greenhouse gases, DEQ will link efforts to reduce all of these pollutants in a comprehensive approach. While DEQ will coordinate local air toxics reduction efforts, it is also relying on partnerships and collaborations with local agencies and communities for resources and for strategy implementation.

## PORTLAND AIR TOXICS SOLUTIONS ADVISORY COMMITTEE

Participant roster as of Sept. 30, 2011

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