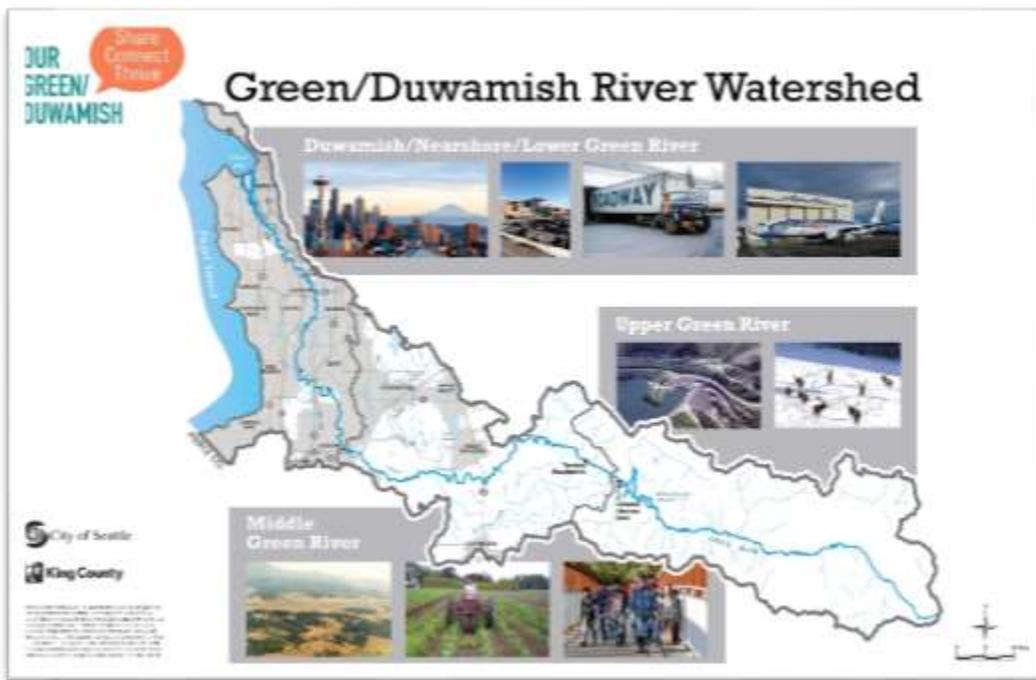


## Improving Air Quality and Human Health

### Introduction

In September 2014, King County, in partnership with the City of Seattle, launched the *Our Green/Duwamish* initiative to develop strategies to strengthen communities and improve air, land, and water conditions in Green/Duwamish Watershed. This initiative is intended to increase coordination of current work in the watershed at the local, state, and federal levels to manage habitat restoration, salmon recovery, flood control, stormwater management, public health, social equity, environmental cleanups, economic development, open space preservation, water quality and more.

Figure 1 - Our Green/Duwamish Geography



Over a year of initial background research and community meetings culminated in a [Preliminary Background Report \(PBR\)](#), which provides a summary of current conditions and existing plans and programs active in the Green/Duwamish Watershed. The report documents the need for improved air quality in the watershed. More specifically, it recommends the following:

Develop a strategy to improve air quality and reduce the incidence of air quality related health impacts.



## Background

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The Puget Sound Clean Air Agency (PSCAA) serves to protect public health, improve neighborhood air quality, and reduce the Puget Sound region’s contribution to climate change in the King, Snohomish, Pierce and Kitsap counties. Within the Green/Duwamish Watershed PSCAA has identified four major air quality issues.

The first is exposure to airborne toxics and fine particulate pollution for people living near major roadways and in communities with significant wood burning for home heating. In particular, residents near major goods movement/transportation corridors or facilities are exposed to significantly higher levels of pollution. This type of air pollution impacts several communities in the Green/Duwamish Watershed.

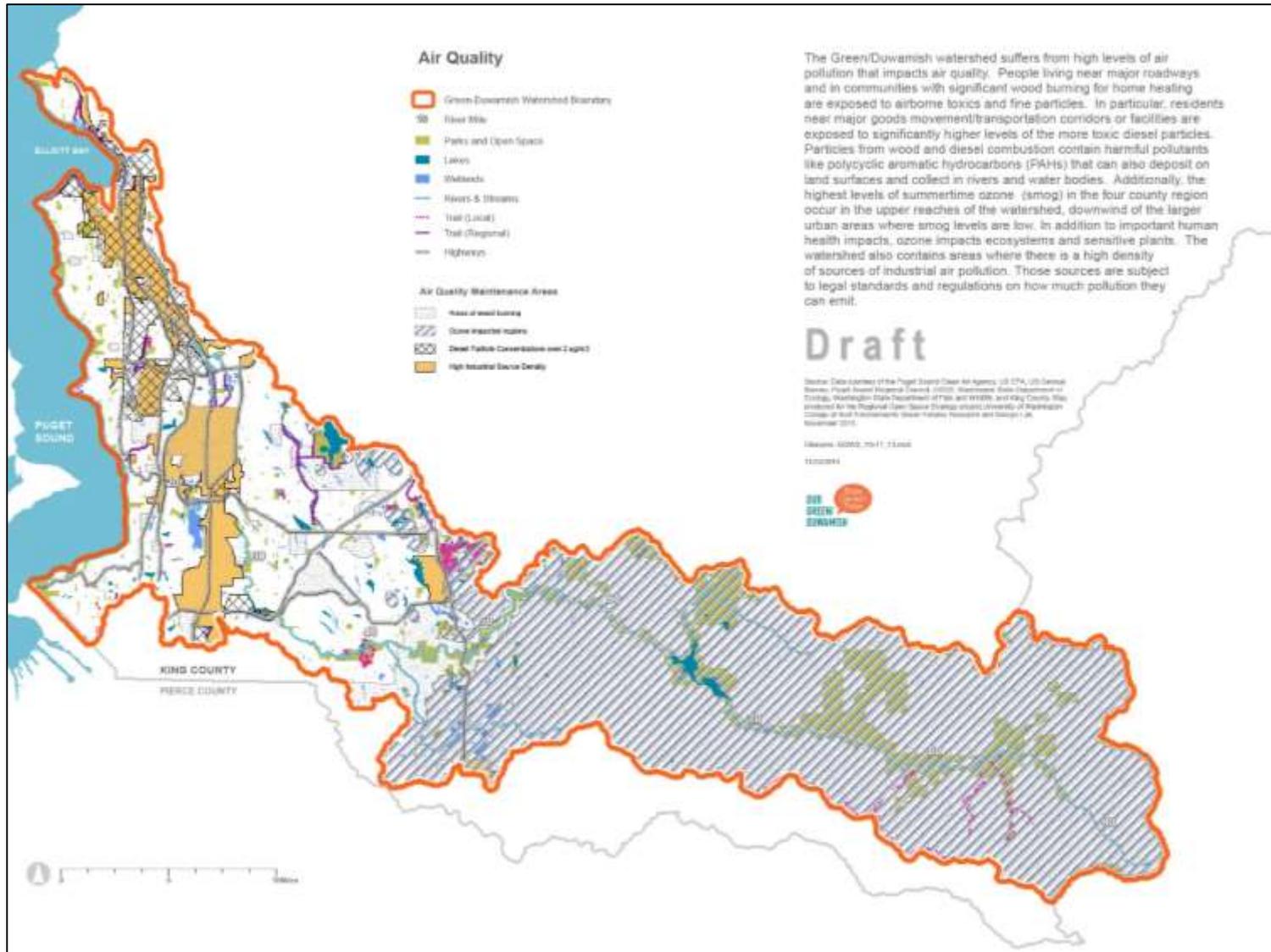
Additionally, the highest levels of ozone (smog) in the four county region occur in the upper reaches of the Green/Duwamish watershed. Ozone is a summertime pollutant that comes from a mixture of chemicals (in our region primarily from vehicle emissions), heat and sunlight. Because of where those emissions occur and factors like prevailing winds, the air shed for ozone runs west to east, with ozone from the west with lowest ozone levels and the east with the highest levels. This results in lower levels in Seattle and higher levels in the Cascade foothills.

The watershed, also, contains a number of stationary sources of air pollution. Those sources are subject to legal standards and regulations on how much pollution they can emit. Under the federal Clean Air Act, some of those sources are not required to use more modern controls until they expand or modify their operations in a substantial way.

Finally, climate change is a major issue for air quality and can impact human health significantly by increasing chronic disease amongst the population. All reductions in climate altering pollution also produce important co-benefits by reducing the emissions that produce ozone and fine particulate and emissions from vehicles resulting in day-to-day improved air quality.

Federal pollution standards are designed to assess regional air quality. They assure clean air for most people, most of the time, but do not prevent disparate harmful impacts to smaller areas and some populations. Because of that, the PSCAA uses other metrics beyond federal standards. On fine particulates, the PSCAA’s health goal is to not exceed 25 micrograms per cubic meter in a 24-hour period (the federal standard is 35). In the Green/Duwamish watershed, the Duwamish Valley exceeds the PSCAA 24 hour standard several times a year and other parts of the watershed see elevated levels on occasion, driven largely by wood smoke. The communities along the lower Duwamish experience the highest annual average of fine particle pollution across the four counties and the highest levels of estimated diesel pollution.

Figure 2 – Air Quality in the Green/Duwamish Watershed





PSCAA recently assessed which communities in its four county region are highly impacted by air pollution, suffer other health inequities and have barriers to addressing those issues. Across the four counties, the Green/Duwamish Watershed contains seven of the top 10 most impacted communities and for King County, nine of the top 10 most impacted. Highly impacted communities are defined as those that have degraded air quality, and whose residents face economic or historic barriers to participation in clean air decisions and solutions<sup>1</sup>. There is an opportunity to improve air quality conditions in these communities and throughout the watershed with better resource management, innovative land use and transportation planning measures, improved air quality monitoring and community outreach and training. Benefits of working to reduce impacts at the watershed-scale will help:

- reduce watershed-wide air pollution;
- improve conditions for people that are disproportionately impacted by poor air quality and;
- increase awareness of watershed connections that influence air quality.

During Phase I of *Our Green/Duwamish* stakeholders identified specific gaps and opportunities to improve air quality and public health outcomes in the watershed. They are:

1. Partnership development with communities to better understand localized air pollution
2. Localized air quality monitoring to improve and refine data collection
3. Focus improvements on industrial centers and transportation corridors where poor air quality is generally concentrated
4. Co-benefit of open space with trees which can effect airflow, pushing pollutants into upper air layers and clean the air

There are many efforts underway in the region that address these gaps and opportunities and more in the Green/Duwamish Watershed. PSCAA is making headway on many identified air quality gaps. In 2014, published the PSCAA Strategic Plan, which highlights strategies to address inequities in air pollution exposure (shown below).

**PSCAA Strategic Plan Objective 1.6: Reduce inequities in air pollution exposure.**

*Targets:*

- A. *New initiatives are launched in at least four communities by 2020, designed and implemented in partnership with community-based organizations*
- B. *Air quality in highly impacted communities improves by 2020 as much as or more than, air quality in the rest of the region.*

*Strategies:*

- A. *Identify locations of greatest disparity (“highly impacted communities”) where we can address relevant air quality concerns.*
- B. *Develop equity guidelines for prioritizing where we should focus our efforts.*
- C. *Engage with communities in the prioritized locations so that they are aware of the risk, and can be involved with the design of programs and policies.*
- D. *Building on community engagement, design and implement programs to reduce exposure and disparity.*

In addition, below is Table 1, which highlights current initiatives, related to reducing air pollution.

Table 1- Current Air Quality Initiatives

Identified Gaps/Opportunities	Initiatives Addressing Gap/Opportunity in the Green/Duwamish Watershed
<p>1. Partnership development with communities to better understand localized air pollution.</p>	<ul style="list-style-type: none"> <li>• PSCAA is dedicating staff capacity and resources to focus on four highly impacted communities: Chinatown/International District, South Park/Georgetown, Tukwila/Allentown, Auburn/Algona.</li> <li>• PSCAA has adopted a more holistic approach to engagement with community partners than in the past. This helps to better connect with each of the four highly impacted communities with as many tools and perspectives as possible.</li> <li>• PSCAA partners with Casa Latina to provide day laborers with information around asbestos. The goal is to educate individuals who may be at risk of exposure, help understand their rights and who to contact if they witness a health and safety violation.</li> <li>• PSCAA partnered with InterIM’s Wilderness Inner-City Leadership Development (WILD) program in the Chinatown/International District. WILD allows high-school youth to engage in the environment, the outdoors and advocacy of their community with the goal of developing greater leadership skills. This two-way learning opportunity teaches the students about air pollution, monitoring and data interpretation while learning about the cultural connections and concerns they and other community</li> </ul>

	<p>members share. The students are key in providing portable monitoring capacity to supplement the EPA air toxics grant described later in this document. The students will be walking through the neighborhood to capture air pollution on various handheld and portable devices.</p>
<p>2. Localized air quality monitoring to improve and refine data collection.</p>	<ul style="list-style-type: none"> <li>• After years of air monitoring and community studies in South Park and Georgetown, the Duwamish Community Action for Clean Air coalition developed an effort to turn the data collected into actionable change. In partnership with the coalition and community members, PSCAA helped facilitate pre- and post-monitoring of a do-it-yourself filter fan project. This low-cost measure is determined to be more effective at filtering out indoor particulates than originally anticipated.</li> <li>• PSCAA received an EPA air toxics grant in late 2015 for the Chinatown/International District. Due to extensive community input and interest, PSCAA secured five out of six sites to locate the air toxics canisters/monitors within the community. The goal of the study is to better understand cancer risk for those living in the neighborhood. From there, PSCAA intends to support the community in advocating for mitigation or policy change to ensure many of the vulnerable elders who reside in the community are no longer disproportionately impacted by pollution from surrounding sources.</li> <li>• In partnership with a committed group of concerned community residents, PSCAA installed an air monitoring station at the Duwamish Park in Allentown. Preliminary studies indicate the community experiences disproportionately high levels of air pollution. PSCAA is partnering with Tukwila School District to better understand this and aims to collaborate with after-school programs to incorporate curriculum around air pollution and air science with students and their families.</li> </ul>
<p>3. Focus improvements on industrial centers and transportation corridors where poor air quality is generally concentrated</p>	<ul style="list-style-type: none"> <li>• PSCAA manages the Seaport Truck Scrappage and Replacements for Air in Puget Sound program (ScRAPs 2), which aims to replace pre-2007 diesel engines on short-haul drayage trucks in order to meet the new requirements at the Port of Seattle and Port of Tacoma. While 188 old trucks were replaced in 2016, there have been reports regarding issues with the newer diesel particulate filter (DPF) technology, and the downstream consequences if those are not properly addressed. In efforts to support the success of many owner/operators, PSCAA worked with a group of stakeholders to obtain input on the design of a training workshop that will help drivers maximize their newer vehicle purchases and minimize maintenance and repair issues related to the new diesel particulate filter technology.</li> </ul>

<p>4. Explore the co-benefit of open space with trees which can effect airflow, pushing pollutants into upper air layers and clean the air</p>	<ul style="list-style-type: none"> <li>• King County’s <a href="#">Land Conservation and Preservation Work Plan</a> is an effort to conserve land in order to reduce climate change impacts, improve biodiversity, social equity, human health, economic development, and competitive advantage.</li> <li>• King County announced a new partnership in 2016 to plant one million trees by the end of 2020. The initiative will help confront climate change and improve the health of neighborhoods and natural habitats across the county.</li> </ul>
<p><b>Other Initiatives to Improve Air Quality in the Green/Duwamish Watershed</b></p>	
<p>King County Metro</p>	<ul style="list-style-type: none"> <li>• <b>King County Metro</b> recently announced plans to expand zero-emission battery bus fleet. A report on the long-term feasibility of transitioning the full transit fleet to zero-emission will be available in 2017. The report quantifies the air pollution benefits of transition to zero-emission from diesel hybrid and has an equity impact analysis of air pollution vulnerability by census tract to prioritize bus deployment.</li> </ul>

## Next Steps

PSCAA is the primary organization in the region improving air quality, reducing the incidence of related health impacts from air pollution, and helping to reduce the regions contribution to climate change. *Our Green/Duwamish* provided an opportunity for further collaboration between PSCAA, jurisdictions and community groups to continue to improve air quality conditions in the watershed. PSCAA will continue to explore community-directed ideas and projects that improve residents’ health and reduce local pollution. **It is recommended that PSCAA continue to partner with communities in the Green/Duwamish Watershed to reduce air pollution in the watershed, focusing on the identified highly impacted communities first.**

<sup>1</sup> PSCAA, September 2014. Highly Impacted Communities PS Clean Air Committee Recommendations. Accessed at: [http://www.pscleanair.org/library/Documents/HI-C\\_Report\\_pscleanair\\_20150415.pdf](http://www.pscleanair.org/library/Documents/HI-C_Report_pscleanair_20150415.pdf)