

## SECTION 1 | INTRODUCTION

### Implementing the Northwest Ports Clean Air Strategy at the Port of Seattle

For more than a decade, the Port of Seattle (the Port) has worked collaboratively with regional ports, government, community, and industry partners to reduce seaport-related air pollution and greenhouse gas (GHG) emissions. With the release of the 2020 Northwest Ports Clean Air Strategy (2020 Strategy) the Port continues its commitment to work jointly with the Port of Tacoma, the Northwest Seaport Alliance (NWSA), and the Port of Vancouver (Canada) to phase out emissions in the ports’ shared airshed. The ports recognize that broad, transformative changes are needed in the coming decades to protect air quality and limit global climate change, and that they play a key role in enabling those changes.



The 2020 Strategy provides the overarching policy framework to guide the Port’s decision-making and actions related to air quality and climate protection in its maritime operations. *Charting the Course to Zero: Port of Seattle’s Maritime Climate and Air Action Plan* (the Plan) is the Port’s implementation plan to carry out the 2020 Strategy, along with the Port’s Century Agenda goals and GHG reduction targets. The Plan adds critical detail on strategies and actions that the Port can take to cut 2005 baseline emissions in half by 2030 and continue reducing air pollutant emissions. In some places, the Plan goes beyond the commitments of the 2020 Strategy to set accelerated timelines and address sectors not covered in the 2020 Strategy. Future updates to the Plan will address a longer planning horizon to phase out emissions from maritime operations by 2050.

### What the Plan covers: scope and organization

#### The Plan’s scope covers climate impacts and air pollution from Port Maritime functions

**Port Maritime Scope** | The Plan’s scope is limited to the Port’s seaport operations, which include cruise, grain cargo, commercial and recreational marinas, and maritime-related commercial and industrial real estate. The term “Maritime” in this Plan refers

 <p><b>Port of Seattle</b></p> <p><b>Maritime Businesses</b></p> <ul style="list-style-type: none"> <li>• Cruise operations</li> <li>• Grain cargo operations</li> <li>• Commercial and recreational marina operations</li> <li>• Commercial and industrial real estate</li> </ul>	 <p><b>THE NORTHWEST SEAPORT ALLIANCE</b></p> <p>Port maritime lines of business managed by The Northwest Seaport Alliance (a marine cargo operating partnership of the Port of Seattle and Port of Tacoma):</p> <ul style="list-style-type: none"> <li>• Containerized cargo operations</li> <li>• Breakbulk and bulk (non-grain) cargo operations</li> </ul>
 <p><b>SEA</b> Seattle-Tacoma International Airport</p>	

collectively to these functions. The Plan excludes the Port's aviation-related operations associated with Seattle-Tacoma International Airport (SEA Airport).

While seaport-related, emissions associated with the NWSA's lines of business are not addressed in this plan. Excluded emissions include those from NWSA-managed buildings, container trucks, container and cargo ships, harbor vessels, and cargo handling equipment operating at NWSA terminals. The Port works collaboratively with the NWSA and will provide input on NWSA's air and climate action initiatives, particularly where they overlap with Seattle's near-port communities.

**Focus** | The Plan focuses on actions to reduce GHG emissions and improve air quality. The Plan does not address actions to adapt to or prepare for the impacts of a changing climate, which are addressed in separate planning efforts by the Port.

**Pollutants covered** | The Plan identifies strategies to reduce emissions of GHGs and air pollutants produced by maritime-related sources. The primary air pollutant of concern for near-port communities is diesel particulate matter (DPM), found in diesel exhaust, which is the leading source of toxic air pollution in the Puget Sound.<sup>4</sup> Strategies to reduce DPM will also reduce other pollutants including sulfur dioxide, oxides of nitrogen, black carbon, and volatile organic compounds.

### **The Plan provides context, emission trends, emission reduction strategies, and implementation steps**

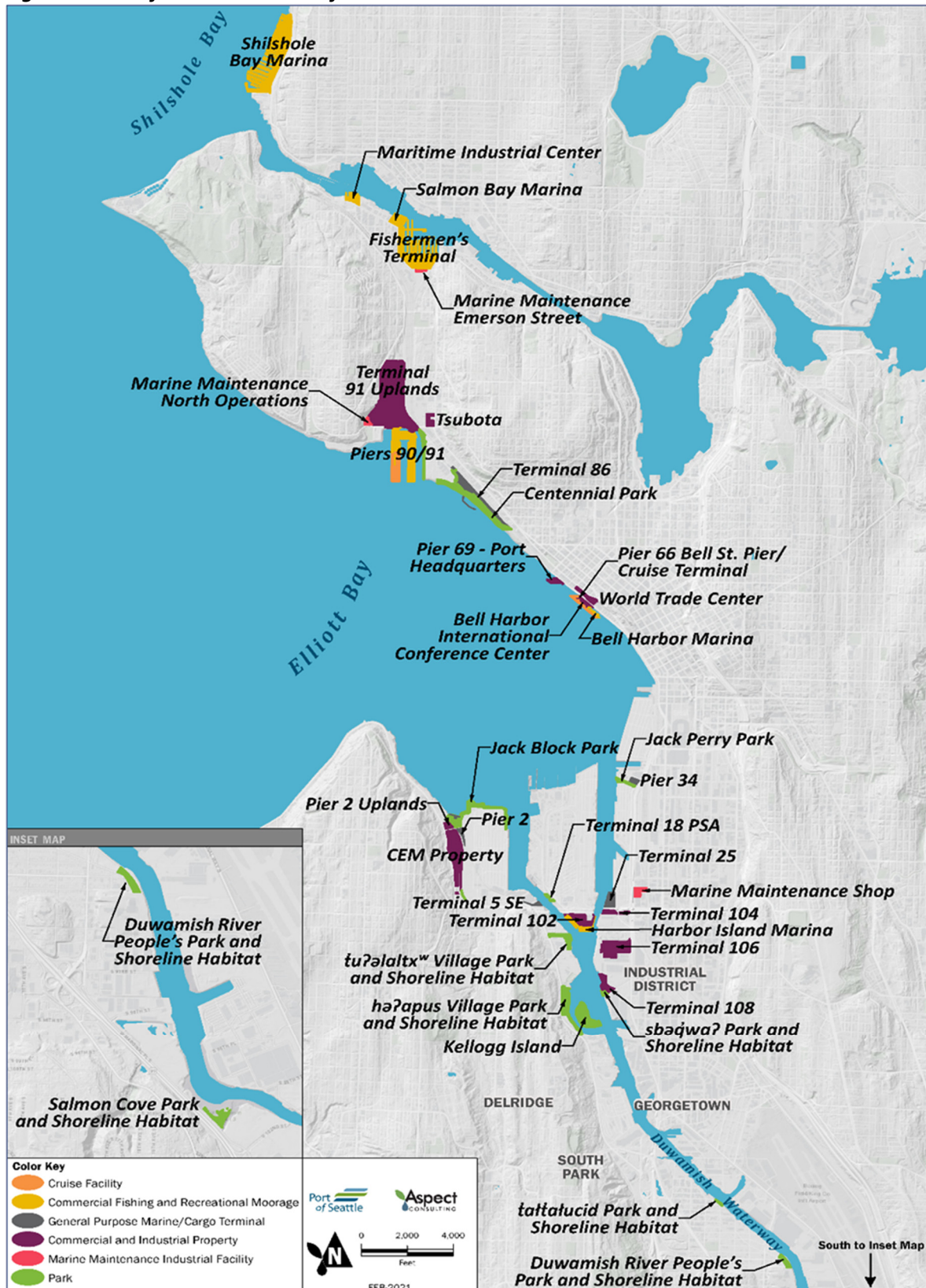
The Plan provides Port context for the 2020 Strategy vision, guiding principles, and targets to reduce emissions from air pollutants and GHGs. It discusses emission trends, strategies to reduce Port emissions by 50% from baseline levels by 2030, emission reduction targets, and action to be taken over the next decade to implement the strategies. Future updates to the Plan will address a longer planning horizon to phase out emissions from our maritime operations by 2050.

The emission reduction strategies in Sections 3 and 4 are organized by sector (a sector is a category of emission source, such as fleet vehicles). Each sector sub-section can be used as a stand-alone document. The sub-sections include a brief description of the sector, sector-specific progress to date, emission reduction strategies and implementing actions, and the estimated GHG emission reduction potential for each strategy.

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<sup>4</sup> Puget Sound Clean Air Agency, [Fact Sheet on Air Toxics](#)

Figure 1. Port of Seattle Maritime facilities.



Facilities shown fall within the scope of the Plan.

## The Plan depends on ongoing engagement to inform implementation

The Plan provides interim actions and details on how the Port will achieve to the vision and objectives set by the 2020 Strategy. However, while the Plan charts the course toward zero emissions at the Port, many decision points remain intentionally open-ended regarding the Port's actions and priorities. Engagement with near-port communities impacted by maritime emissions, maritime industries, government agencies, Tribal nations, and others will be critical to identify, scope, and prioritize projects that can improve air quality, protect community health, and achieve GHG emission reductions targets. The Port is committed to working with near-port communities on an ongoing basis to identify community-based projects and investment priorities and to help inform an equitable transition to zero emission Maritime Activity and Port Maritime Administration.

## Why we need this plan: climate change, air quality, and the Port of Seattle

The Port developed this Plan at the intersection of two global crises: climate change and the emergence of coronavirus disease 2019 (COVID-19). Although global attention has turned to the COVID-19 pandemic, climate change remains the challenge of our lifetime and one for which action cannot be ignored or delayed. Scientists predict the impacts observed today will only get worse unless there is significant and immediate global action.

### Bold action is needed to combat global climate change

The International Panel on Climate Change (IPCC) determined that global temperature increase must be limited to 1.5 degrees Celsius (°C) above pre-industrial levels to avoid the most extreme impacts of climate change.<sup>5</sup> Even still, widescale impacts will mean more intense or more frequent droughts, wildfires, heat waves, rainstorms, sea level rise, floods, and landslides in the coming years, as well as geopolitical disruptions and global changes in resource availability.



**The International Panel on Climate Change determined that global temperature increase must be limited to 1.5°C above pre-industrial levels to avoid the most extreme impacts of climate change.**

For Port operations specifically, rising temperatures, changing weather patterns and reduced snowpack threaten access to relatively clean, affordable electricity from hydropower. Climate change may also affect production of agricultural exports that move through Port terminals. Sea-level rise and storm events threaten marine terminal infrastructure, stormwater systems, port properties, and cargo movements at the Port and ports throughout the world.<sup>6</sup>

<sup>5</sup> IPCC, 2018. [Summary for Policymakers](#).

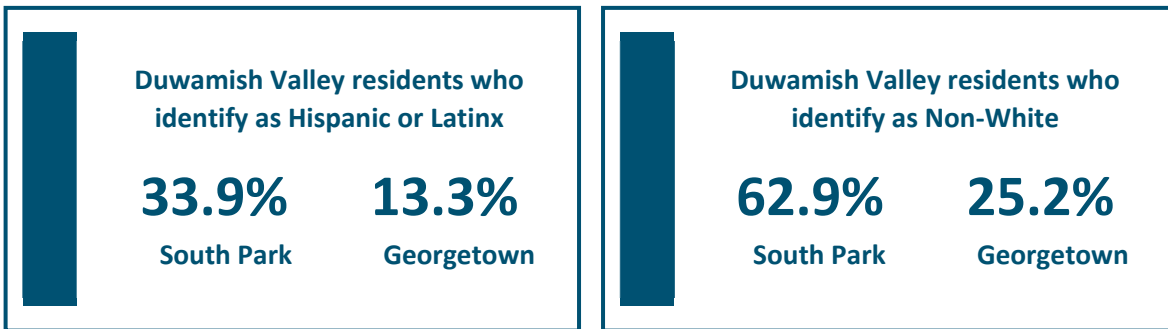
<sup>6</sup> Gellings, Joseph, 2018. [Climate change adaptation planning for Port of Seattle waterfront properties](#). Salish Sea Ecosystem Conference.



The effects of climate change—some of which are already happening now—will further strain natural resources, public health, social systems, human well-being, and the economy. These devastating impacts will now be felt amidst the backdrop of a global effort to recover from a pandemic. While compounding the unknowns about the future, the response to COVID-19 has demonstrated how governments, organizations, and individuals can and must take bold, comprehensive, coordinated, and immediate actions in response to an unprecedented global crisis. The same level of coordinated action is needed to tackle climate change. This is particularly true for the maritime sector where a complex interconnected network of industry, government, non-governmental organizations, and community groups play a role. Working with tenants, partners, and communities, the Port is committed to leading a collaborative effort to achieve zero emissions by 2050.

**Near-port communities are disproportionately exposed to air pollution**

Both climate change and COVID-19 have local impacts. Adverse effects of these crises are more likely to be borne by historically marginalized communities, including Black, Indigenous, and people of color (BIPOC). In addition, BIPOC communities, neighborhoods with lower levels of educational achievement and higher rates of poverty and unemployment are also disproportionately exposed to air pollution and other environmental hazards.<sup>7</sup> Although King County meets national air quality standards, the Port recognizes that pollution exposure, access to economic opportunity, and human health vary based on where people live. In Seattle, communities in the Duwamish Valley bear a disproportionate burden of health impacts and environmental injustices compared to other areas of the city. The Duwamish Valley comprises the neighborhoods of Georgetown and South Park, which border the Duwamish River and are home to about 5,600 people.



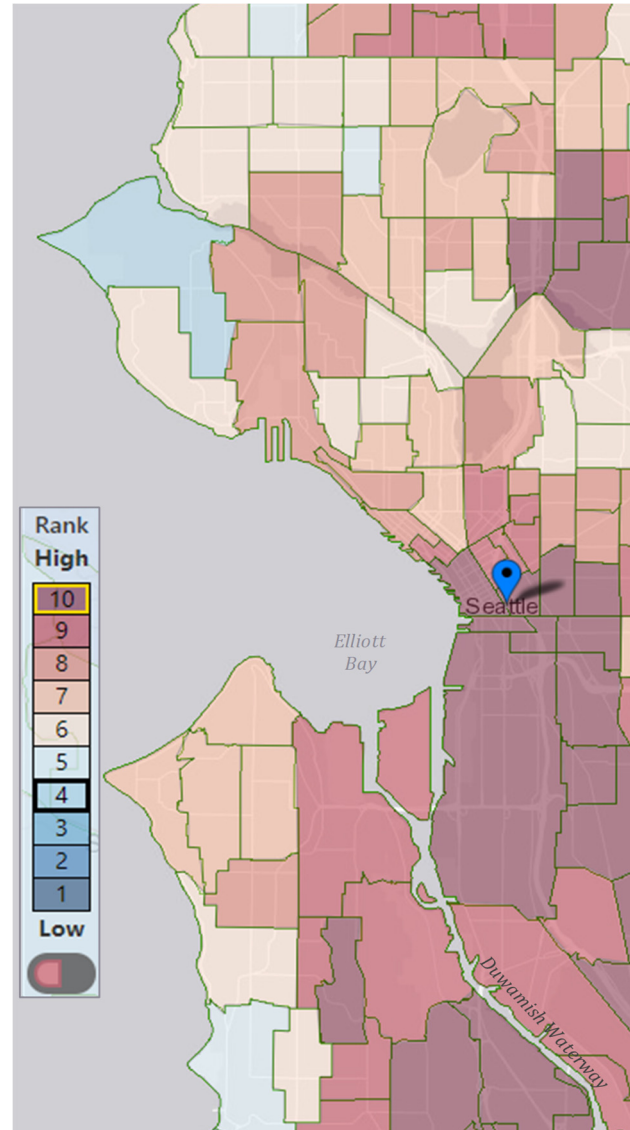
According to the June 2018, [Duwamish Valley Action Plan](#)

<sup>7</sup> Katz, Cheryl, 2012. [People in Poor Neighborhoods Breathe More Hazardous Particles](#). Scientific American.

The Duwamish River is an area of cultural significance to Native American tribes who historically used the river for transportation, fishing, and shellfish harvesting.<sup>8</sup> The river was dramatically altered to create the marine industrial assets there today. The Duwamish Manufacturing/Industrial Center represents nearly 80% of Seattle's industrial land.<sup>9</sup> The Duwamish Valley has the greatest number of contaminated waste sites, poorly built environment characteristics, and severe air pollution compared to the rest of Seattle. Life expectancy in the neighborhoods of Georgetown and South Park is up to 13 years shorter than wealthier parts of Seattle.<sup>10</sup>

The Washington Environmental Public Health Tracking Network's Environmental Health Disparities Map (an example is shown to the right) also illustrates the disparity among neighborhoods in Seattle and heavy burden of pollution – particularly diesel pollution – borne by communities that border Port properties in Elliott Bay. Census tracts where Terminals 5, 18, 30, and 46 are located, as well as census tracts that border the Duwamish River, are ranked as 9 or 10 on the Washington Health Disparities Map for the "Diesel Pollution and Disproportionate Impact" indicator.<sup>11</sup> This is a combined indicator of diesel pollution burden and priority populations, with 10 being the highest ranking.

In the Summer of 2020, a study in the Duwamish Valley engaged students to measure localized air pollution impacts by collecting and analyzing moss samples. Mosses are known to collect certain types of harmful air pollutants linked to fossil fuels and industrial pollution. The study's results showed areas within Duwamish neighborhoods with significantly higher levels of heavy metals and other air pollutant indicators. The findings demonstrate the need for immediate action but also provide valuable insight into where air quality



The [Washington Tracking Network's Environmental Health Disparities Map](#) compares communities across the state for environmental health disparities at the census tract level. The indicator visible in this snapshot of Elliott Bay and a portion of the Duwamish Waterway in Seattle is a combined score for Diesel Pollution and Disproportionate Impact.

<sup>8</sup> Duwamish River Cleanup Coalition. [River History and Photographs](#).

<sup>9</sup> City of Seattle Department of Planning and Development, May 2007. Seattle's Industrial Lands – Background Report.

<sup>10</sup> Gould L, Cummings BJ; March 2013. Duwamish Valley Cumulative Health Impacts Analysis. Seattle, WA: Just Health Action and Duwamish River Cleanup Coalition/Technical Advisory Group.

<sup>11</sup> Washington State Department of Health. [Washington Tracking Network \(WTN\) Information by Location Tool](#). Map retrieved 30 June 2020.

improvements are needed most. Adding to the urgency, air pollution exposure has been found to increase a person’s risk of death from COVID-19.<sup>12</sup>

The Port recognizes the environmental health disparities experienced in the Duwamish Valley, and that maritime activity—including ships, trains, trucks, and other equipment—contributes to air pollution. Even as marine and vehicle engines are becoming cleaner and more efficient, diesel exhaust remains a leading source of air pollution in the Puget Sound. More effective actions and investments are needed to address health and economic inequities and to dismantle environmental injustices. When implementing the Plan, the Port will advance its commitment to collaboration with Duwamish Valley community members to identify projects and priorities of greatest impact and value in regions that need clean air and climate action most.

## The Port’s greenhouse gas reduction targets

In 2017, the Port of Seattle Commission (Port Commission) adopted GHG reduction targets that align with the Paris Climate Agreement. The Port’s targets include a critical interim goal to cut emissions in half by 2030. The targets also entail a long-range commitment to deeply “decarbonize” maritime activity and make Port operations carbon neutral or carbon negative by 2050 and reduce Port-influenced emissions by 80% by 2050.<sup>13</sup>

### SCOPES 1 AND 2

*Port-controlled and Port indirect emissions*

- 15 percent below 2005 levels by 2020
- 50 percent below 2005 levels by 2030
- Carbon neutral OR carbon negative by 2050

### SCOPE 3

*Port-influenced, but not directly controlled*

- 50 percent below 2007 levels by 2030
- 80 percent below 2007 levels by 2050

Subsequently, the IPCC released a Special Report in 2018 stating that climate change impacts could be significantly reduced by limiting global warming to 1.5°C and demonstrated that carbon neutrality is needed by 2050.<sup>14</sup> The Plan is based on the 2020 Strategy vision for 2050 which incorporates the latest IPCC recommendations.

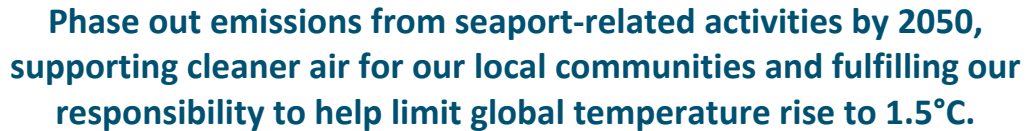
<sup>12</sup> Harvard T. H. Chan School of Public Health, 2020. [Air pollution linked with higher COVID-19 death rates.](#)

<sup>13</sup> This Plan uses the terms “carbon” and “greenhouse gas” interchangeably, unless otherwise noted.

<sup>14</sup> IPCC, 2018. [Summary for Policymakers.](#)

## Vision and guiding principles

The Plan charts a course for how the Port will implement actions to achieve the 2020 Strategy vision:



**Phase out emissions from seaport-related activities by 2050, supporting cleaner air for our local communities and fulfilling our responsibility to help limit global temperature rise to 1.5°C.**

Achieving this vision will involve:

- Enactment of policies that address climate change and reduce carbon emissions
- Widespread adoption of technology and infrastructure solutions, many of which are not currently market ready
- Monumental investment from industry, ports, and other stakeholders
- Unprecedented levels of collaboration between industry and government to identify constraints, opportunities, and shared investments
- Robust engagement with local communities, Tribal governments, Indigenous groups and non-governmental organizations.

The Plan also shares guiding principles with the 2020 Strategy. The following guiding principles inform how the Port will work toward achievement of the vision and the Port's Century Agenda targets:

- **Community Health** | Recognize the importance of reducing the impacts of seaport-related emissions on public health.
- **Climate Urgency** | Seek early achievement of the vision, recognizing the urgency to take action to limit global climate change.
- **Social Equity** | Prioritize action in communities that have been most impacted by port operations.
- **Innovation** | Promote innovative technologies, policies, and practices that drive continuous improvement.
- **Evidence-based Decisions** | Use best available climate change and air quality science to inform decisions.
- **Focused Resources** | Focus action in areas likely to have the highest environmental, social, and economic impact, recognizing the limits of port authority resources and operational control and influence.
- **Leadership** | Take a leadership role to facilitate government and industry support for the policy and actions needed to achieve the vision.
- **Accountability** | Provide clear, transparent, and timely updates on progress toward achieving the vision.
- **Port competitiveness** | Deliver the strategy in a way that supports competitiveness of ports and the prosperity of communities.



## Alignment with Port policies

The Plan identifies the strategies and actions needed to carry out the Port's Century Agenda GHG reduction targets, as well as the 2020 Strategy. The Plan is aligned with the Port's overarching policies and commitments to address environmental sustainability, equity, and economic development, as well as the other guiding principles described above.

### The Port is committed to sustainability

The Plan builds on the Port's foundation of environmental successes. The Port is committed to becoming "the greenest port in North America." This commitment is reflected in the [Port's Century Agenda goals](#) and its significant investment in environmental programs. The Century Agenda, adopted in 2012 and periodically updated, is the Port's roadmap to add jobs through economic growth while reducing its environmental footprint. In addition to economic goals, the Century Agenda calls for the port to reduce dependence on fossil fuels, reduce air pollutants, reduce GHG emissions, protect water quality, and restore habitat in Elliott Bay and the Green/Duwamish watershed.

To further advance the Port's Century Agenda goals, the Port Commission adopted a policy directive in January 2020 requiring that a Sustainable Evaluation Framework be applied to all capital projects and key operational decisions. The framework creates a port-wide process to integrate sustainability into capital and operational decisions and increase transparency on how sustainability goals and decisions are being accomplished.

### The Port is committed to equity, diversity, and inclusion

In 2017, the Port and Duwamish Valley community members established a [Port Community Action Team](#), a community advisory committee representing Georgetown and South Park in program decisions and long-term planning. In 2019, the [Port Commission adopted Resolution 3767](#), the Duwamish Valley Community Benefits Commitment. The Community Benefits Commitment is the first policy of its kind at a port authority to partner with a near-port community on environmental justice issues and identifies specific shared goals with the community:

#### **PORT OF SEATTLE MARITIME ENVIRONMENTAL SUCCESSES**

##### *"BE THE GREENEST PORT IN NORTH AMERICA"*

- Provided shore power for cruise ships since 2005, and became the first global port to offer shore power at two cruise berths
- Installed solar panels on Port buildings and uses renewable fuels in Port vehicles
- Provided financial assistance for cleaner trucks, ships, and cargo-handling equipment
- Partnered with regional ports to implement the 2020 Strategy and conduct Puget Sound-wide maritime emissions inventories
- Developed comprehensive habitat restoration plan for the Duwamish Waterway to support salmon recovery
- Completed projects to improve water quality and restore shorelines
- Created a stormwater utility to manage critical stormwater infrastructure
- Received Green Marine, Salmon-Safe, and EnviroStars certifications.

A. Goal 1: community and port capacity building for ongoing collaboration. Under this goal, the Port commits to ensuring accessible and equitable delivery of its programs, training port employees in equity, diversity, and inclusion, ensuring equitable community engagement, maintaining the Port Community Action Team as a mechanism for community feedback, collaborating across agencies, and working with the community to collect and evaluate data to inform decisions for the Duwamish Valley Community Equity Program.

B. Goal 2: healthy environment and communities. Under this goal, the Port shall proactively address factors that affect the health of the community, including climate change, air quality, truck traffic, noise, public parks and greenspace, and water quality.

C. Goal 3: economic prosperity in place. Under this goal, the Port shall support anti-displacement solutions that enable the Duwamish Valley Community to thrive in place through equitable access to training, jobs, career pathways, and port-related economic opportunities.

The Port created an Office of Equity, Diversity, and Inclusion in 2019 to address institutional racism and increase equity, diversity, and inclusion in Port policies, programs, and processes. These changes were formalized in a May 2020 update to the Port's Century Agenda to increase focus on promoting prosperity in local communities, and to become a model of equity, diversity, and inclusion. The office developed a strategic plan to translate these commitments and policies into action. These steps will ensure that equity is a focal point when making decisions regarding all Port programs and practices—including the air and climate action initiatives detailed in this Plan. The Port is also developing a localized tool for evaluating equity impacts of Port decisions and projects. This will inform the development of future equity-based partnerships, resource allocation, and better support for historically under-served and under-represented communities adjacent to Port properties.

### **The Port is committed to economic development and prosperity**

The Port Commission updated its Century Agenda economic goal in June 2020. The Port pledges to responsibly invest in the economic growth of the region and all its communities. The goal aims to create opportunities by supporting, sustaining, and advancing port-related industries and industrial lands that are essential to the region's continued growth and prosperity.

Recognizing that maritime is one of Washington's biggest and oldest industries, the Port partnered with Washington Maritime Blue to launch the Maritime Innovation Accelerator program in 2019. The program is an intensive, four-month accelerator to help maritime startup businesses network, develop, and secure funding for continued growth.

### **The Port is committed to being a highly effective public agency**

In June 2020, the Port Commission also adopted a new goal to highlight its pledge to accountability, transparency, innovation, safe and healthy communities, and responsible financial stewardship. This newer commitment aligns well with the 2020 Strategy guiding principles and the need to prioritize and focus resources when implementing this Plan.

## Community, industry, and government engagement

In developing this Plan and the 2020 Strategy, the Port worked with the other U.S. member ports--the NWSA and the Port of Tacoma--to engage and solicit input from community members, environmental

**SUMMER 2019:** Engagement kick-off to collect feedback on the 2020 Strategy's draft vision targets and objectives. These strategy elements introduced an approach to reduce emissions from all sectors of maritime activity.

**SPRING 2020:** With the emergence of COVID-19, a scheduled in-person workshop transitioned to three sector-specific virtual workshops focused on draft conditions for success, objectives, and port authority actions.

**FALL 2020:** This third and final round of engagement sought feedback on the full draft of the 2020 Strategy and Port of Seattle's proposed port-specific implementation actions for Maritime Activity.

**SPRING 2021:** Full draft of MCAAP posted to Port website for a two-week public comment period. The Port also convened a Northwest Ports Clean Air Strategy community briefing with NWSA and Port of Tacoma to preview implementation actions.

and health advocacy organizations, industry representatives, and Tribal, federal, state, and local government agencies. The groups represent a cross-section of interest and involvement in maritime-related activity. To facilitate in-depth discussion, the ports set up a defined panel of representatives for key interest groups and convened three rounds of engagement.

In each of these rounds of engagement, the U.S. Ports collected feedback through workshops, virtual meetings, individual phone calls, and written comments. U.S. Ports heard broad support for the 2020 Strategy's vision to phase out emissions, and its focus on both criteria air pollutants and GHG emissions. All parties expressed interest in collaboration. There was also strong agreement on the need for ports to provide context on the state of industry, technology, and the other conditions needed for success, as well as the urgent need to address disproportionate impacts on communities.

Participants did not all agree on timelines for achieving zero-emission objectives presented in the second round



*A panel representing key interest groups discuss updates to the 2020 Strategy in 2019.*

of engagement. Some were concerned about the cost and readiness of zero-emission technology and the risk of investing in interim solutions that could quickly become obsolete. Others called for urgent action and expedited timelines like those used in California.

Participating government agencies, environmental groups, community members, and some port commissioners stressed the urgency of the climate crisis. This influenced a major change to the 2020 Strategy vision, which was originally written as "Phase out emissions from seaport-related activities as early as possible this century..." The ports added the specificity and increased level of ambition of a 2050 phase-out to recognize the urgency of the climate crisis. The discussion acknowledged that the vision seeks to go further than some established targets, and that the pathway to phase out fossil fuels remains unknown for some sectors. The ports also set interim goals to develop the infrastructure capacity to support the transition to zero-emission technology.

The final engagement workshop reviewed the full draft 2020 Strategy and draft list of implementation actions for each port, including those listed in this Plan. Feedback from the workshop led to changes in the final 2020 Strategy to emphasize the need for significant investment, innovative financing mechanisms, and policy changes to realize the Strategy's vision of a zero-emissions future.

Participants highlighted the importance of ongoing, active engagement with communities in addition to regular reports on progress and they expressed support for the Port's proposed actions to engage Duwamish Valley communities in implementing the Strategy. Participants agreed that it is important to recognize near-zero options with renewable fuels in the interim where zero-emissions not feasible, but some participants cautioned relying on this strategy too heavily, citing that interim solutions could shift the focus from finding zero-emission alternatives.

Participants also urged the ports to identify interim objectives and faster timelines to phase out emissions. The ports responded with a focus on interim actions in each port's implementation plan. This Plan identifies strategies for the next ten years, including priority actions to implement within 1-3 year and 5-year periods. The ports also added an adaptive management approach to Strategy implementation, which is reflected in the monitoring and reporting framework for this Plan. This adaptive approach allows the ports to update the Strategy objectives and timelines as the technology, funding, or policy environment evolves.

