

THE NORTHWEST SEAPORT ALLIANCE
MEMORANDUM

MANAGING MEMBERS
BRIEFING ITEM

Item No.	<u>5A</u>
Date of Meeting	<u>November 7, 2017</u>

DATE: October 25, 2017

TO: Managing Members

FROM: John Wolfe, CEO
Sponsor: Jason Jordan, Director, Environmental and Planning Services
Project Manager: Sara Cederberg, Sr. Manager, Air Quality & Sustainable Practices

SUBJECT: Clean Truck Program – Policy Update Briefing

A. BRIEFING REQUESTED

The Ports of Seattle, Tacoma, and Vancouver, BC collectively set a goal in 2008 of having 2007 or newer model year truck engines exclusively serving the international container terminals by January, 2018. To date, the gateway has approximately 50% of the trucks that meet the standard. Therefore, the NWSA staff recommends to the Managing Members to defer the January 1, 2018 Clean Truck, such that all drayage trucks entering an NWSA cargo terminal must register with the NWSA on or before July 1, 2018 and, per the schedule below, NWSA cargo terminal tenants and users will not allow drayage trucks onto their cargo terminals that do not comply with the below-listed model year engine standards.

- 1) July 1, 2018 – pre-2001 truck model year.
- 2) January 1, 2019 – pre-2007 model year engines.

Drayage trucks with emission control technology equivalent to a 2007 model year engine will submit verification of efficacy to the NWSA.

The NWSA will be responsible for providing the identifying mechanisms to enable the tenants and users to identify drayage trucks.

B. BACKGROUND

The Northwest Seaport Alliance is committed to responsible, sustainable growth that protects public health and the environment. The NWSA plays an important role in the greening of the supply chain and recognizes our responsibility extends beyond our customers to the communities where our ports reside. The Clean Truck Program is one of the programs under the umbrella of the Environmental and Planning Services group within the Northwest Seaport Alliance and the home port of the Port of Tacoma. The Environmental and Planning Services group activities include water quality, air quality and sustainable practices across both harbors. Additionally, both home ports are responsible for remediation cleanup projects and habitat and restoration sites.

Northwest Ports Clean Air Strategy

The Northwest Ports Clean Air Strategy was developed in 2007 and adopted in 2008 in collaboration between Port Metro Vancouver (PMV), the Port of Seattle (POS), and the Port of Tacoma (POT) with the aim of reducing air emissions from maritime and port-related activities that affect air quality and contribute to climate change in the Puget Sound-Georgia Basin air shed. The strategy encompasses goals across our whole scope of operations: ocean-going vessels, harbor vessels, trucks, cargo-handling equipment, locomotives and fleet vehicles. Several government agencies worked in partnership with the ports to support implementation, including the US Environmental Protection Agency (EPA), the Washington State Department of Ecology (Ecology), the Puget Sound Clean Air Agency (PSCAA), Environment Canada, and Metro Vancouver. The strategy guides decision-making to reduce diesel and greenhouse gas emissions in advance of, and complementary to, applicable regulations.

The strategy is the first such port program in the U.S. to proactively and voluntarily outline emission reduction targets. Other ports with similar programs are in nonattainment areas and therefore required to take action to return to attainment under the Clean Air Act. A key goal of the joint strategy is to stay in attainment of ambient air quality standards and objectives. In addition to concerns about ambient air quality, reducing risk from exposure to diesel particulate is also a primary goal of the strategy.

The Northwest Seaport Alliance became a full partner to the strategy upon its formation in 2015. The home ports of Seattle and Tacoma remain partners in the strategy, as they produce their own port-related air emissions under operations outside of the alliance (e.g. cruise ships, fishing vessels and harbor craft). The strategy is updated periodically to reflect changes in legislation, and to update the goals and performance targets. The most recent update was in 2013. The next update will begin in 2018 to set goals and targets for 2020-2025.

The goals of the strategy are:

- Goal 1: Reduce diesel particulate matter (DPM) emissions per ton of cargo by 75% by 2015 and by 80% by 2020, relative to 2005.
 - In 2010/11, the average reduction was 22%. This will be updated following the 2016 emissions inventory.
- Goal 2: Reduce greenhouse gas emissions (GHG emissions) per ton of cargo by 10% by 2015 and by 15% by 2020, relative to 2005.
 - In 2010/11, the average reduction was 9%. This will be updated following the 2016 emissions inventory.

The ports adopted a goal as part of the Northwest Ports Clean Air Strategy to have 100% of the drayage trucks serving the international container terminals have cleaner diesel technology – a 2007 engine with diesel particulate filter or equivalent. Known as the Clean Truck Program, it aims to keep trucking partners in business while supporting clean air for our communities.

In 2010, the ports met the first goal in the Northwest Ports Clean Air Strategy that all trucks be at least a model year 1994 or newer. EPA emission control requirements for heavy

duty trucks changed in 1994, 2007, 2010 and 2014. The 2007 standard removes 85-90% more diesel particulate matter as compared to pre-1994 trucks.

The 2011 Washington State Department of Ecology comprehensive three-year emissions inventory includes both point source emissions and mobile sources. On road mobile sources, which includes all vehicles, not just heavy-duty trucks, contributed 45% of the diesel particulate matter emissions and 7% of PM 2.5 emissions in the state in 2011.

According to the 2011 Puget Sound Emission Inventory, heavy duty trucks contribute roughly 4% of the PM2.5 emissions, 5% of diesel particulate matter (DPM), and 22% of the CO2e associated with maritime-related transportation activity in the Puget Sound airshed. Strategies included in this memo primarily address reducing PM2.5 and DPM emissions, not GHG emissions directly.

Of the DPM emitted by maritime-related heavy duty trucks in the Puget Sound airshed, 76% is associated with NWSA (45%, POS; 31%, POT). Of the PM2.5, 87% is associated with NWSA (53%, POS; 34%, POT).

Measured against the 2005 baseline, PM2.5 contributions from heavy duty trucks decreased by 55%, DPM by 52%, and CO2e by 3% between 2005 and 2011.

Community Impacts

The local pool of drayage truck owner-operators and fleet truck drivers consists predominantly of immigrants from Eastern Europe, Africa and Asia, many of whom come from low-income households and have limited English-language proficiency.

Seattle's Duwamish Valley, neighboring north harbor operations, is home to some of the city's most ethnically diverse and lowest-income neighborhoods. According to a 2011 report produced by the City of Seattle and the King County Department of Public Health, area residents are more likely than the King County average to: live in poverty, be foreign born, have no bachelor's degree, and have no health insurance. An EPA study also found that the area's childhood asthma hospitalization rate ranged from 265.1 to 299.1 per 100,000, well above the King County average of 129.7 hospitalizations per 100,000.

In neighborhoods adjacent to the Port of Tacoma, the population has a higher number of residents below the poverty level than the city overall, where 20 percent or more of residents are below the federal poverty line, or are neighborhoods with 30 percent or greater minority populations.

Costs

The Ports of Seattle, Tacoma and the Northwest Seaport Alliance have a total investment of over \$15 million dollars to spur truck conversion and invest in gate infrastructure. Historically, the two ports funded the Clean Truck program from operation revenues which funded grant matching, staff time, infrastructure upgrades and customer support packages. Over 410 trucks were scrapped and replaced with new trucks through partnership with the Puget Sound Clean Air Agency and grant funding through Environmental Protection Agency Diesel Emissions Reduction Act (DERA) and Congestion Mitigation and Air Quality (CMAQ) grants.

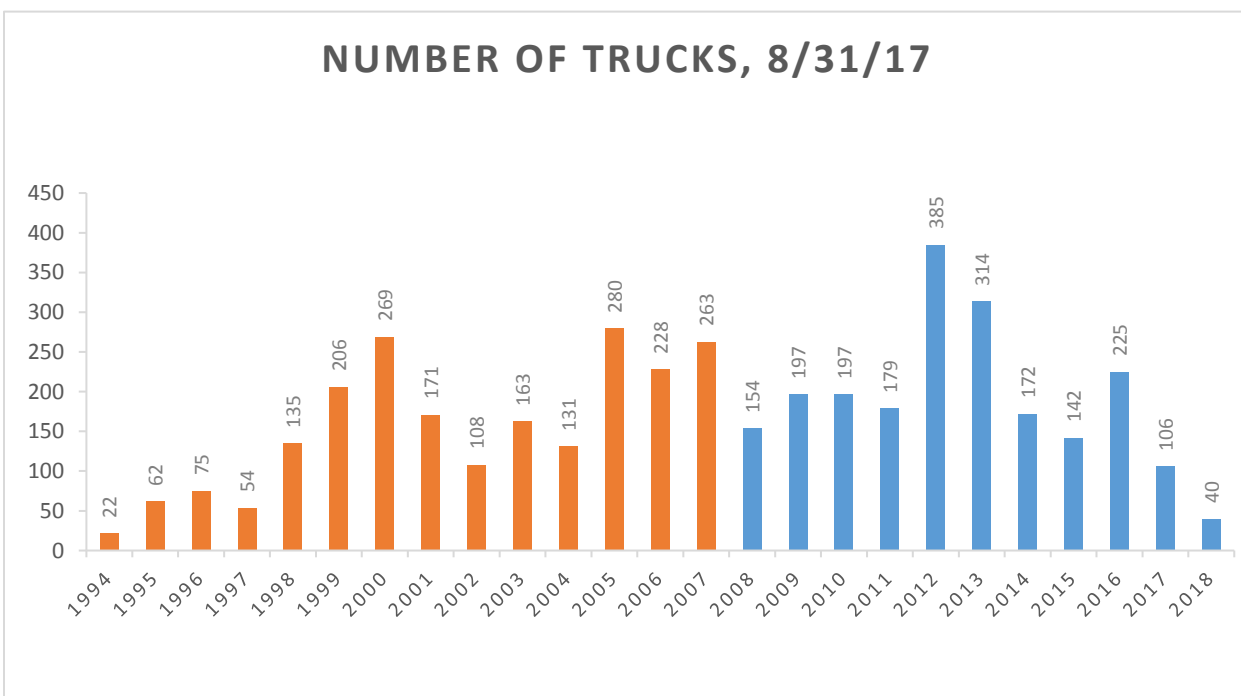
The 2009 Customer Support Package in Seattle included Clean Truck requirements and cost \$3.1 million. Additional costs to install RFID readers and signals at the gates were approximately \$1.5 million.

	2010	2011	2012	2013	2014	2015	2016	2017
POS	\$1,599,295	\$160,680	\$186,985	\$97,963	\$1,448,788	\$2,789,925	\$2,732,598	\$0
POT	\$74,758	\$102,790	\$88,995	\$183,885	\$157,822	\$150,591	\$16,000	\$0
NWSA	\$0	\$0	\$0	\$0	\$0	\$0	\$326,870	\$800,410
Total	\$1,674,053	\$263,470	\$275,980	\$281,848	\$1,606,610	\$2,940,516	\$3,075,468	\$800,410
Subtotal								\$10,918,355
2009 Customer Support Package								\$3,100,000
RFID Readers and Signals								\$1,500,000
Grand Total								\$15,518,355

The Capital Improvement Plan for 2017-2021 currently allocates \$1.9m to this project as noted in the table below. The Capital Improvement Plan is proposed to be adjusted for 2018-2022, as noted below.

	2017	2018	2019	2020	2021	Total
Current Approved 2017-2021 CIP	\$800,410	\$367,000	\$295,000	\$195,000	\$195,000	\$1,852,410
Proposed 2018-2022 CIP		\$1,380,000	\$1,500,000	\$200,000	\$200,000	\$3,280,000

C. CURRENT STATUS



Progress towards 100% compliance as of August 31, 2017:

- Combined total: 49.5% (4282 trucks)
 - Seattle: 49.5%
 - Tacoma: 51.5%

Based upon the above distribution, staff recommends two deadlines: the first representing roughly 20% of the total number trucks (July 1, 2018: pre-2001 trucks), and the second the remaining portion of the non-compliant trucks (January 1, 2019: pre-2007 trucks). This gives the market time to respond and avoids having too few trucks to service the terminals.

In searching for the best solution, staff developed and considered the following guiding principles:

- Support comprehensive goals and accompanying programs that benefit the environment we live and work in, the surrounding community that we share the air with, and our work force that helps us move cargo throughout gateway.
- Honor the importance of drayage truck drivers in the supply chain and treat both independent and fleet drayage truck drivers fairly, with respect and dignity.
- Implement the clean truck program consistently across the gateway in both the south and north harbor.
- Reward those drayage truck operators that have made an investment to meet the 2007 truck engine year standard.
- Be aggressive in working with the supply chain to improve air quality, while avoiding major harm to the gateway and our ability to move cargo.
- Learn from this experience to inform future iterations of the NWPCAS, of which trucks is one part of the larger framework, and develop strong partnerships with various stakeholders to develop consensus-based goals in the future.
- Commit financial and human resources to support the conversion of the fleet and to reduce emissions.

Outreach

Throughout 2017, NWSA staff has engaged multiple stakeholders to inform the direction of the program, including:

- Trucker Outreach Forums (TOF)
- NWSA's Executive Advisory Council
- African Chamber of Commerce Drayage Driver Workshop
- Marine Terminal Operators (MTOs)
- Just Health Action and Duwamish River Clean Up Coalition, through the EPA Environmental Justice Pilot
- Visits with Port of NY/NJ, Port of Oakland, Port of Vancouver, Ports of Los Angeles & Long Beach
- Puget Sound Clean Air Agency board and staff
- Counties: King County and Pierce County

- Cities of Seattle and Tacoma

Based on internal discussion and stakeholder feedback, staff has worked to balance the functionality of our gateway, our environmental goals and the economic well-being of local truck drivers.

NWSA staff have met regularly with Puget Sound Clean Air Agency staff throughout 2017 to discuss progress and options. Executive staff met with PSCAA June 1, 2017. PSCAA a clear implementation plan as well as equivalency and relevancy for the emissions associated with the noncompliant trucks who would continue to enter the NWSA beyond the original goal. Determining the exact amount of equivalent emissions has yet to be agreed upon and will depend on the number of trucks in the fleet that are not compliant by the end of 2017. Relevancy refers to where the truck emissions occur, mostly in near-port communities and other communities adjacent to major highways. Using the latest truck numbers from August, the proposed deferred implementation could result in ~65 tons of PM2.5 in 2018, assuming 0.037 tons/year of PM2.5 per truck and 823 trucks removed after 6 months and the additional 1,344 trucks removed January 1, 2019 (for reference, all POT cargo handling equipment combined produce ~10 tons of PM2.5 annually).

On October 18th and 26th the PSCAA board met and reviewed the Clean Truck Program. The board urged NWSA staff to establish a new deadline and work to find equivalency for the emissions expected to have been eliminated.

Challenges

Gate Technology

Consistent enforcement between terminals and between harbors requires infrastructure updates to enable quick and reliable truck identification at the gate. This includes a common registry of all the trucks serving the ports and signals at the gates. At the moment, there are two separate truck registries (North and South Harbors). NWSA staff engaged a consultant to review available truck management technology. That technology scan is ongoing but preliminary discussions have been around technology similar to the Washington State Department of Transportation's Good to Go Program, Radio Frequency Identification Tags (RFID); dedicated Bluetooth readers and on board GPS/emissions data collection.

The unified Clean Truck gate technology established in 2018 is expected to integrate with a future Port Community System. Still in the very early stages of conception, the Port Community System aims to ensure fluid and consistent movement of cargo, and will help reduce congestion across the gateway, therefore reducing emissions from trucks idling. As a result, economic opportunities for truck operators will improve, as they should be able to make more turns per day.

Staff anticipates making a final recommendation late 2017.

Economic Challenges for Independent Contracted Drivers

Approximately 80% of the drivers are independent owner operators who contract with larger motor carrier fleets. Many have little credit history and difficulty securing financing for newer trucks. To address these needs, the ports and NWSA have historically sought grant funding to serve those with the highest need and have successfully scrapped over 410 trucks through the ScRAPs program.

- **Diesel Emissions Reduction Act (DERA) funds:** After several rounds of partnership between PSCAA, NWSA and the ports, PSCAA initially supported a joint application for the 2017 round of DERA funding for a further ScRAPs program, but subsequently prioritized their funding elsewhere.
- **Loan Loss Program:** To provide a more stable and scalable source of funding to these drivers, in September 2017 the NWSA advertised a Request for Information (RFI) on a loan loss program. The program is intended to provide access to market rate loans for drivers with little or no credit history. Pending additional legal and audit review, the NWSA is exploring providing a lump sum to a Certified Community Development Financial Institution (CDFI) who would administer market-rate loans to the port drayage community. Pending authorization from the Managing Members, any fund would be established in early 2018. The initial 12 months of the fund would be treated as a pilot – if successful, further funds (NWSA or external) could be contributed.
 - **RFI responses:** Two responses were received and showed that the CDFI would absorb any risk encountered. The risk to any funding partner will be limited to the funds contributed.

	RFI Response A	RFI Response B
Interest Rate	8-12%	Not listed
Loan Amount (average)	\$58,000	\$31,000
Down-payment required from truck owner	10-30% of loan value (\$5,800-\$17,400)	15-20% of loan value (\$4,650-\$6,200)
Funding partner contribution	\$1 million	\$1 million
CDFI match funds	\$ 5 million	n/a
Total Fund	\$6 million	\$1 million
Assumption truck driver has received ScRAPs voucher?	No	Yes
Number of drivers helped	100	30
Small business training	Not listed	Required

The CDFI would structure the fund so that loan repayments would be put back into the loan loss reserve fund, and be used to provide further loans in the future. The responses indicated that the fund could be structured to allow other organizations [i.e. truck companies, beneficial cargo owners (BCOs), shippers] to input their own funds in the future to increase the total amount available to truck owners with the aim that the fund be self-sustaining.

Truck Technology Review

Since the inception of the NWPCAS, a number of technology reviews have been conducted by home port and NWSA staff, and by consultants. The Port of Seattle conducted two industry reviews with Business Perspectives in 2015 – one on the drayage trucking business environment and a second to investigate retrofits, alternative fuels and technologies that could contribute towards meeting the January 1, 2017 goal. In 2017 NWSA staff reviewed the following technologies:

- **DPF (Diesel Particulate Filter) retrofits:** Several companies, including Diesel Emissions Services, provide diesel particulate filter retrofit options and are CARB verified. These cost ~\$20,000 and require a new truck engine. Staff is working with PSCAA to develop a process to validate the retrofit has been installed correctly and is operating effectively based on ~10 requests from drivers.
- **HyTech Power:** Staff have reviewed HyTech Power (formerly DEEC) over the past 3 years. HyTech have developed a hydrogen injection retrofit for diesel drayage trucks that improves fuel efficiency and claims to reduce PM2.5. They have since acquired another company and are currently pursuing California Air Resources Board (CARB) verification. This is anticipated in Q1 of 2018. They are located in Redmond, WA; retrofits cost approximately \$10,000.
- **LNG/CNG trucks:** Used natural gas trucks cost \$35,000-\$65,000 and have none of the maintenance issues of DPFs. New fueling stations around the Tideflats, and existing stations in Seattle, make this an attractive option for upgrading trucks. Clean Energy is building a renewable natural gas (landfill gas) line to their station in Fife. PSCAA, POS and Omnitek Engineering examined the suitability of CNG retrofits for pre-2007 drayage trucks during 2015, and completed in 2016, with installation and testing on two engine families. The trial had success in developing and certifying the retrofits, although the retrofit technology was not rolled out commercially.
- **DOC (Diesel Oxidation Catalyst) retrofits:** DOCs were never mandated through regulation, like a DPF or SCR (Selective Catalytic Reduction) was. Emissions are typically reduced 10-30% (as opposed to the 2007 engine standard which removes 85-90% diesel particulate matter). The cost of retrofitting a DOC on an older truck ranges from \$2000-\$3500. They are usually warrantied for 5 years. Because of more stringent regulations and more integrated filtration systems, few manufacturers still make DOCs for retrofits. Port of Vancouver currently requires 1994-2006 model year trucks to have a DOC.

Port of Vancouver

As a partner in the Northwest Ports Clean Air Strategy, Port of Vancouver has developed a similar Clean Truck Program and faces similar challenges as NWSA (their fleet is also at a similar compliance rate of 50%). The Port of Vancouver is a federal body and thus operate in a different regulatory capacity. The Office of the British Columbia Container Trucking Commissioner issues Container Trucking Services Licenses to carriers (trucking companies) that require access to Port Authority property. The Port Authority issues a commercial contract in the form of an Access Agreement to the carrier; through the Access Agreement, the port authority approves which trucks and drivers can have access to the property. The port limited the fleet size serving its terminals to approximately 1700 trucks. Below is a summary of the

Port of Vancouver's proposed 10 year rolling truck age requirement, to be introduced in 2022, and an overview of their current program.

The 10-Year Rolling Truck Age Policy:

- Effective 2022, the requirement for all trucks (model and engine year) must be no older than 10 years old in order to be granted approval and access to port property.
- Specifically, to qualify for approval, the oldest trucks approved will be as follows:

YEAR OF APPLICATION TO TLS	OLDEST TRUCK MODEL AND ENGINE YEAR
2022	2012
2023	2013
2024	2014
Etc...	

Current Vancouver Program

2006 and older trucks (approximately 350/1700 trucks):

- Environmental requirements established in 2008 specified that all 2006 and older trucks were to be replaced with newer, compliant trucks or have a Diesel Particulate Filter (DPF) installed by January 1, 2017. VFPA announced that this date would be deferred to a date (the "Deferred Date").
- The Deferred Date has not yet been determined, but they have committed to a minimum of 6 months' notice to the industry once a date has been decided upon.
- Currently, all trucks with 1994-2006 model year have Diesel Oxidation Catalyst retrofits installed.
- VFPA performs random, unannounced visual checks on trucks 1-2 times per year
- This applies only to all trucks currently approved in the port TLS (Truck Licensing System).

Exception to 2007 trucks (approximately 600/1700 trucks):

- 2007 model year trucks (~600 trucks) were given an exception to the requirement to have a DPF, and have been all deemed "compliant 2007 trucks". These trucks therefore meet minimum requirements until 2022, when the 10-Year Rolling Truck Age Policy will take effect.
- This exception was issued as truck manufacturers were transitioned that year to new federal environmental requirements. As a result of the manufacturers' standards changing for 2007 engines, an unusually high number of "leftover" 2006 engines were factory installed into 2007 truck models.
- VFPA made the decision to recognize that truck owners who purchased 2007 trucks for TLS did so in good faith, and therefore the exception was issued to those trucks.
- The exception is that this group is exempt from the DPF requirement.
- This applies only to all trucks currently approved in TLS.

New Truck Entrant requirements

- Since January 1, 2016, all trucks “new” to any TLS owner operator or company fleet must be a 2010 or newer truck engine and model year.

Considerations for next steps - Vancouver (No decision made)

- Looking to establish a new Deferred Date (mid-2018)
- To determine new truck entrant requirement (between 6-8 years old at the time of application)

Next Steps

The NWSA is committed to accomplishing comprehensive goals and accompanying programs that benefit the environment we live and work in, the surrounding community that we share the air with, and our work force that helps us move cargo throughout gateway. NWSA seeks the support, help and collaboration from our regional partners and stakeholders in implementing the Clean Truck Program and updating the goals in the Northwest Ports Clean Air Strategy in 2018.

This program and others support the broader goals to reduce diesel particulate and greenhouse gas emissions in the Puget Sound airshed both through the Northwest Ports Clean Air Strategy and the recently adopted Greenhouse Gas Reduction Resolution. These policies establish meaningful and achievable goals that balance the competitiveness of our gateway, our environmental goals, our community needs and the economic well-being of the region.

Staff will continue to examine and prepare for potential sources of grant funding for support programs for drivers, such as the upcoming VW Mitigation Fund in spring 2018.

The recommended dates for the Clean Truck Program are dependent on gate technology installation and lease amendments. Staff will update the Managing Members at their December, 2017 and January, 2018 meetings to finalize the revised deadlines for the Clean Truck Program. Staff will also request authorization from the Managing Members for the recommended gate technology.