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# PORT OF SEATTLE

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## FORMATION AND OPERATION OF THE MARINE STORMWATER UTILITY

Category: Comprehensive Environmental Management

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## Introduction

Stormwater is an increasing challenge for the Port of Seattle, with potential environmental, community and, even competitive impacts. Stormwater has become the focus of environmental groups, regulators and the general public, while compliance requirements become more stringent and third party lawsuits under the Clean Water Act become more common. This is true for ports around the country and especially evident in the Puget Sound region, which has a thriving economy and growing populations combined with important fisheries and transportation hub. The Port of Seattle (Port) has about 1,000 acres of maritime property draining into the Puget Sound, Elliott Bay and Duwamish Waterway (see Figure 1). The cost to responsibly address stormwater is increasing rapidly for the Port and its tenants. The Port of Seattle created the Marine Stormwater Utility (Utility) to bring more resources to address these challenges. The Utility is expected to bring in \$25M in stormwater fees over the next 5 years that will be dedicated to responsibly addressing stormwater: assessing and improving infrastructure and implementing best management practices (BMPs) to prevent pollutants from entering these water bodies and ultimately improving water quality of the region.

## Goals and Objectives

One component of the Port of Seattle's vision is to be the greenest port in the nation, which includes stormwater stewardship. The Marine Stormwater Utility provides a clear path and, importantly, resources for the Port to achieve this goal.



Figure 1 - Port of Seattle Maritime properties (image via Google Earth)

The Utility has environmental, community and economic benefits; the triple bottom line. The fees collected by the Utility from tenants and users of the properties provide a reliable and constant funding source and are reinvested into maintaining and upgrading stormwater infrastructure; providing economic development by funding construction projects; meeting water quality goals; and meeting and exceeding stormwater requirements. The result is cleaner stormwater and a healthier environment to benefit the greater community.

## Discussion

### Background

The Port of Seattle is subject to the Phase I Municipal Permit (MS4) issued by the Washington State Department of Ecology. Additionally, the Port holds two Industrial Stormwater General Permits (ISGPs) while more than 20 tenants hold ISGPs, boatyard, and individual stormwater permits. Specific requirements must be met for each type of permit including meeting water quality standards for pollutants such as zinc and copper, and implementing best management practices to provide source control.

Historically, the Port paid stormwater drainage fees to the City of Seattle (City). The fees increased annually at approximately 10%, reaching nearly \$4 million in 2014. Since the Port of Seattle maintains our own stormwater system, these funds were directed elsewhere to the City maintained stormwater system. The Port decided to create its own stormwater utility in order to reinvest these fees into the maintenance and improvement of the Port stormwater infrastructure ultimately benefitting the water quality of the Puget Sound. To do this, the Port withdrew from the City of Seattle's utility, so funds previously directed to the City now stay with the Port. This was a serious financial impact to the City of Seattle. However, the City and Port share a commitment for the environment and the vibrancy of the local economy, so we were able to negotiate an agreement that allowed the Port to move forward with the City's support.

## Objectives and Methodology

The Port’s Commission adopted the Utility Charter in 2014 to officially create the Utility. This Charter includes stormwater drainage rates through 2017 at an annual increase of 4%, lower than corresponding City utility increases. Rates are based on both the area leased or operated as well as the percentage of impervious surface. The Utility must properly both collect and spend stormwater fees in a consistent, auditable fashion. In 2016, the Port upgraded our system to utilize a geographic information system (GIS) to accurately assess fees based on the leased square footage within a facility, with the rate determined by the total facility impervious area. The final fee structure provided an accurate forecast of revenue for the Utility (see Figure 2 for the initial rates).

Stormwater Service Charge Per 1,000 Square Feet Billable Area			
Stormwater Rate Category	2015	2016	2017
<b>Undeveloped (0%-15% Impervious Coverage)</b>			
Regular	\$ 28.05	\$ 29.17	\$ 30.34
Low Impact	16.42	17.08	17.76
<b>Light (16%-35% Impervious Coverage)</b>			
Regular	43.37	45.11	46.91
Low Impact	34.12	35.48	36.90
<b>Medium (36%-65% Impervious Coverage)</b>			
Regular	63.00	65.52	68.14
Low Impact	50.68	52.71	54.81
<b>Heavy (66%-85% Impervious Coverage)</b>	84.53	87.91	91.42
<b>Very Heavy (86%-100% Impervious Coverage)</b>	99.98	103.98	108.14

Figure 2 - Utility stormwater drainage rates through 2017

The Port negotiated with Seattle Public Utilities (SPU), Seattle’s municipal water and sewer utility, for over two years on the details of the infrastructure ownership and how the Port would amicably separate and operate a parallel utility. The culmination of the negotiation was the document, *Port of Seattle-City of Seattle Interlocal Agreement Regarding Stormwater Utility Operations* (ILA; November 2016). The ILA details the legal requirements, how the utilities will work together, where

the City's role as a regulator applies, and the infrastructure connection points shared between the two entities. The ILA also includes methods for dispute resolution and a process for resolving questions of infrastructure ownership.

In 2016, the Utility revenue was used to acquire necessary equipment to conduct assessment and repair of infrastructure. A CCTV truck used to camera and assess the stormwater infrastructure, was the first major acquisition. The Utility will complete assessment of all 78 miles of stormwater infrastructure within its system by the end of 2019 (see Appendix A for additional infrastructure details). The assessment data includes internal video of the condition of the pipe, condition ratings, and GPS coordinates of the infrastructure locations. This data is compiled into a database where reports are generated to track assessment as well as scope future projects to repair issues found. Appendix B provides one example of a report. To date, we have assessed 11 miles or 14% of our stormwater lines.

As assessment progresses, urgent repairs are made to severely damaged pipe that poses a safety or operational hazard (see Appendix C for a repair example). Once repaired, the pipe is reassessed to provide an updated scoring to track rehabilitation of the stormwater system. The Utility has a goal to rehabilitate 75% of the system by 2035. We have installed 21 tide gates to date and plan to rehabilitate the remaining 174 outfalls.

Utility-funded activities include but are not limited to dock and plaza cleaning and catch basin insert replacement and repair. Tools and equipment to perform the maintenance activities are also included in the expense. All maintenance, assessment and urgent repair activities are performed by Port staff.

## Fulfillment of Awards Criteria

### Benefits to Environment and Community

*Level and nature of benefits to environmental quality, beautification or community involvement.* As discussed in the *Goals and Objectives* section, the Utility provides triple bottom line benefits for the Port of Seattle. The revenue collected from stormwater drainage fees will be reinvested into the Port's stormwater system to benefit the water quality of the Puget Sound and provide a healthier community for all to enjoy.

### Independent Involvement and Effort

*Level of independent involvement and effort by the port.* The Port of Seattle staff created the framework of the Utility including fee structure, charter and standard operating procedures. Staff also negotiated the terms of the ILA with the City of Seattle between 2014 and 2016. The governing authorities of each entity, the Port of Seattle Commission and the Seattle City Council, approved the decision for the Port to form the Marine Stormwater Utility.

### Creativity of the Program

*Creativity of the solution or program.* The Port of Seattle's Marine Stormwater Utility is the first of its kind in the port industry, and can provide a model for other ports to adopt. Stormwater is an area of growing community and regulatory focus and the Utility provides resources to effectively address these issues. Every developed parcel of land contributes to stormwater runoff and typically pays



fees to a municipal district to manage the environmental impact. However, creating a port specific stormwater utility allows those resources to be deployed by the Port.

## Project Results

The Utility began collecting fees in 2015, which under the 2014 agreement were provided to the City. In 2016, the collected fees were fully available to the Utility. The revenue collected through the end of 2017 will be about \$9.7 million. Another \$10.53 million in revenue is projected to be collected through end of 2019 assuming an annual 4% rate increase. All told, the Utility would provide over \$20 million through 2019 that will be used to assess all 78 miles of pipe within the Port's stormwater system, rehabilitate infrastructure, install tide gates and make other improvements that benefit water quality.

Additionally, funding has been approved and work has started on a capital project to upgrade infrastructure by replacing pipe and installing tide gates at each outfall at Terminal 18, the Port's largest active container terminal. This work coincides with a tenant led project to install stormwater treatment systems at the facility. Other potential capital projects for infrastructure upgrades have been identified, including Fishermen's Terminal, the Port's oldest property. A number of locations have also been identified as potential sites for green stormwater infrastructure such as bioswales that are installed with low impact development techniques. Oyster shell treatment barrels were installed on down spouts from a building roof (see Appendix D). Before and after water quality sampling data showed reductions in copper and zinc.

The Utility has also provided an opportunity to identify and complete urgent repairs to collapsed stormwater pipes, one of which caused a sinkhole at a container terminal. Other Utility-funded

maintenance activities have been ongoing such as dock and plaza cleaning and catch basin repairs to alleviate flooding. Given the heavy industrial and commercial operations at Port facilities, investing in preventative versus reactive maintenance will greatly improve the stormwater system, preventing pollutants from entering the waterways.

Funds were also spent acquiring much of the equipment used to assess and make repairs of the stormwater system, including a CCTV truck, vacuum truck, a boat, and other support equipment. The Utility funded an information technology project to upgrade the stormwater GIS, connecting the pieces into a user friendly and functional mapping system and database available Port-wide. The new GIS program is due to be released by the end of June 2017 and will have assessment reports, videos, pictures depicting conditions of pipe, areas of concern, and accurate GPS locations. These activities would have been delayed or not undertaken without the funding provided by the Utility.

### **Cost Effectiveness of the Program**

Although the City's utility collected stormwater fees from the Port, no investments were made to Port property under that system. By creating and operating its own Utility, the Port retained funding to invest in the aging stormwater infrastructure. There is a zero net cost to the tenants as the fees paid to the City are now paid to the Port. In addition, the fees provide a steady income stream to use towards the rehabilitation of the stormwater system.

After the initial assessment phase is complete by the end of 2019, the revenue collected will fully fund the MS4 stormwater compliance program.

## Transferability to the Port Industry

The Port of Seattle made use of a Washington State law (RCW 53.08.043) to form its own stormwater utility. Other ports will need to review local and state law to determine whether forming a stormwater utility is allowed in their jurisdictions. The high cost of City of Seattle stormwater drainage fees made the decision financially feasible for the Port to pursue this solution. Other ports may face a similar situation where the economic feasibility warrants similar outside the box thinking.

## Conclusion

The initial returns from the creation of the Marine Stormwater Utility have been overwhelmingly positive. Many tenants have expressed positive feedback as they have benefitted from the initial assessments, urgent repairs and Utility-supported maintenance activities. The revenue generated by stormwater fees will provide a steady cash flow for short- and long-term improvements to achieve the Port's environmental stormwater goals.

## Appendix A: Marine Stormwater Utility Fact Sheet

# Marine Stormwater Utility Factsheet

### 1. What is the Marine Stormwater Utility?

The Utility was formed in November 2014 to benefit the Port's stormwater system. Prior to that, the Port paid stormwater fees to the City of Seattle, which were increasing as much as 10% a year. The Utility directly assesses and collects fees to maintain and improve the Port's stormwater system, ultimately improving the water quality of discharges to the Puget Sound.

### 2. What properties does the Utility affect?

All Maritime Port properties (38) totaling nearly 1,000 acres of drainage. This includes all Port properties managed by the Northwest Seaport Alliance (Alliance).

### 3. How are drainage fees determined?

In the 2014 Utility Charter, the Port Commission approved rates for 2015-2017. The Utility adopted these rates and applies them to all Maritime properties. Fees are assigned to tenants, Alliance and Port business units based on type of impervious surface of leased area. The majority of property falls into the highest rate category of "very heavy" (86-100% impervious coverage).

### 4. What is happening today and in the future?

In 2016, we began assessing stormwater infrastructure with a goal to complete all 78 miles of lines by 2019. The collected data will guide our rehabilitation and reassessment program. Ultimately, the revenue will support rehabilitation of 75% of the stormwater infrastructure by 2035 and fund compliance with stormwater regulations.

### Revenue

- \$4.7 million collected in 2016 and \$5 million in 2017.
- Expected increase of 4% annually pending Commission Approval.

### By the Numbers

999.6 acres

of drainage area

43,543,447 sq ft

of drainage area

78 miles/411,900 ft

of stormwater pipe

2,720

catch basins

1,066

manholes

195

outfalls

3,455

other structures (drains, filters, vaults, etc.)

225\*

of tenants (Port & NWSA)

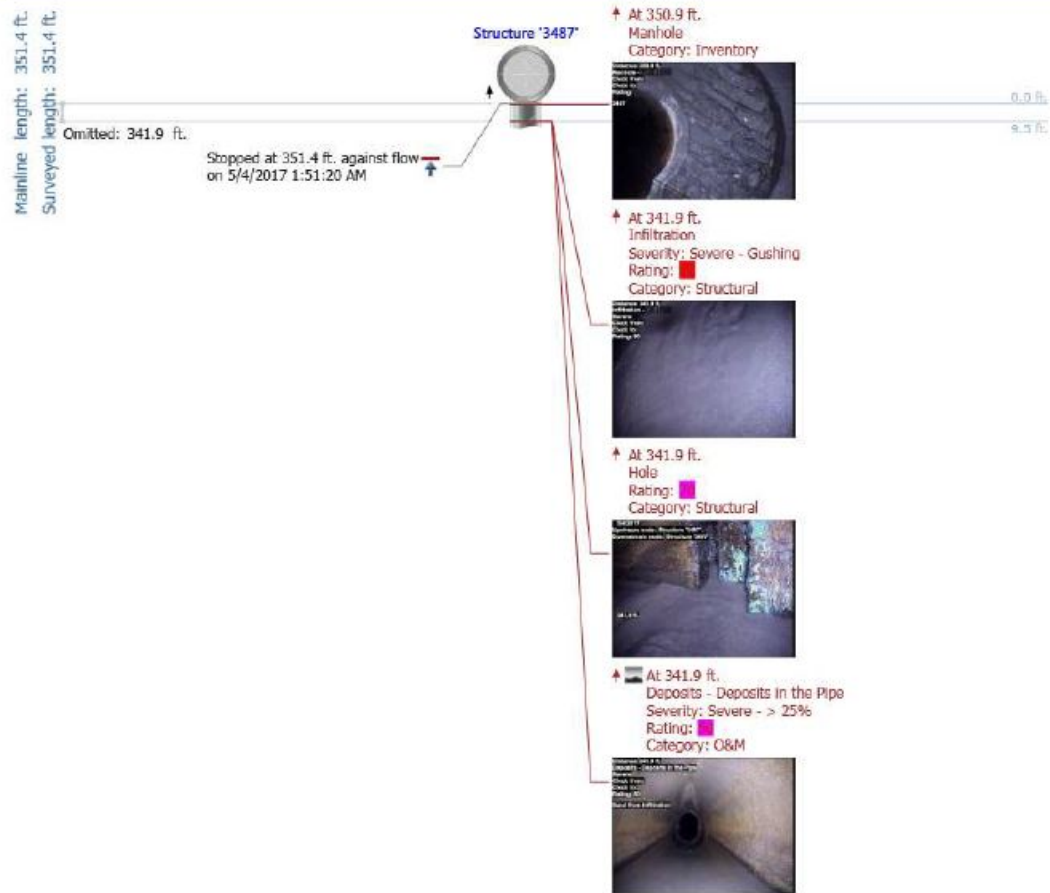
\*as of April, 2017

5/2017

# Appendix B: Sample CCTV Assessment Report

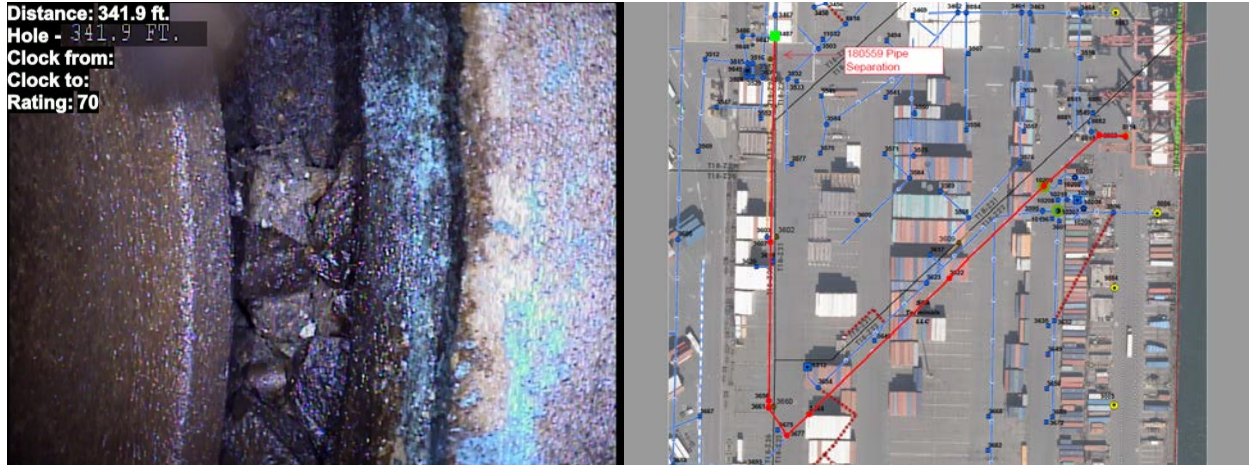
## Main Inspections Pipe Run with Images

Project name: <b>T18</b>	Mainline ID: <b>180559</b>	Terminal: <b>T18</b>	Zone: <b>Terminal 18: SSA (Zone 27)</b>
Start date/time: <b>5/4/2017 1:35 AM</b>	Direction: <b>Against the flow</b>	Weather: <b>Dry</b>	Surface condition: <b>Asphalt</b>
Pipe shape: <b>Circular</b>	Pipe material: <b>CON</b>	Pipe height: <b>18.0 in.</b>	Pipe width:



## Appendix C: Urgent Repair Summary

5/08/2017 During assessment of pipes at T18, a large pipe separation was discovered in Asset 180559. This asset serves the new treatment system installed on the terminal.



5/19/2017 We excavated to the separation in the pipe, made the repair and asphalted the excavation.



## Appendix D: Green Stormwater Infrastructure

