

APPENDIX D:

Overview of Port of Long Beach Water and Sediment Quality Improvement Activities

1. Introduction

The following is a description of key programs the Port of Long Beach has developed to improve both sediment and water quality in the Long Beach Harbor. A detailed description of implementation actions is provided in the letter from the Port of Long Beach submitted to the Los Angeles Water Board on January 29, 2019 (Port of Long Beach, 2019)

2. Water Resources Action Plan (WRAP) Implementation

The WRAP was developed and implemented by the Port of Long Beach in 2009 with two primary drivers: first, to assist the Ports in achieving their broad mission to protect and improve water and sediment quality and second, to put in place the programs and mechanisms for the Ports to achieve the goals and targets established by the TMDL and Clean Water Act National Pollutant Discharge Elimination System (NPDES) permits. The WRAP identifies a number of control measures (land-based as well as on-water) designed to directly reduce pollutant loadings to harbor waters and sediment.

3. Inspection Program

Port of Long Beach staff have conducted annual stormwater compliance inspections at industrial and commercial sites within the Harbor District since the mid-1990s. Currently, Port staff conducts compliance inspections at industrial, commercial, and construction sites as required by the City of Long Beach Municipal Stormwater Permit (MS4 Permit). Industrial sites are inspected annually, while commercial sites are inspected either annually or biennially. Construction sites (those requiring coverage under the construction general permit) are inspected monthly.

4. Structural BMP Implementation

The Port of Long Beach is under constant development and/or redevelopment. Over the last decade, the Port has initiated construction on multiple projects. Stormwater BMPs were designed into Major Port development and redevelopment projects including the Pier G Terminal Redevelopment, the Gerald Desmond Bridge Replacement Project, the Anaheim Street redevelopment, the Middle Harbor Redevelopment, and the Harbor Scenic Roadway Redevelopment. The Middle Harbor Redevelopment Project, expected to complete construction in late 2020, will include hydrodynamic separators upstream of all twelve new outfalls. This design will ensure that 100% of the facility's land area will receive stormwater treatment to remove trash, sediment, and debris, as well as hydrocarbons, organics, and metals bound to sediment and debris. Table 1 summarizes major structural stormwater BMPs installed within the Port from 2012 to date.

Table 1 Structural BMPs Installed after 2012 in POLB

BMP Type	Number Installed/Constructed	Location	Planned
Hydrodynamic Separator (CDS unit)	22	Pier G (ITS)	
Hydrodynamic Separator (CDS unit)	8	Pier E (Middle Harbor)	12 total
Hydrodynamic Separator (CDS unit)	4	Pier F	
Hydrodynamic Separator (CDS unit)	2	Pier D	
Hydrodynamic Separator (CDS unit)	2	Pier S	
Hydrodynamic Separator (CDS unit)	1	Pier T (Weyerhaeuser)	
Hydrodynamic Separator (CDS unit)	3	Maintenance Facility and Harbor Scenic	
Inverted Catch Basins	3	Pier B	
Tree box Biofilter/Bioswale	5	Anaheim Street and Harbor Scenic	
Stormfilter/Catch Basin Inserts	6	Anaheim Street and Harbor Scenic	
Austin Vault Sand Filters		Gerald Desmond Bridge	2
Bioswale		Gerald Desmond Bridge	10
Stormceptor (catch basin insert)		Gerald Desmond Bridge	2
Catch Basin Inlet Filter		Gerald Desmond Bridge	1

5. Community Partnering

In 2018, as part of the Community Mitigation Grant Program, the Port of Long Beach awarded \$3.04 million for water quality and stormwater projects within the greater Long Beach area to help mitigate water quality impacts associated with Port operations. Awarded projects included a ceramic filtration

unit capable of treating up to 365,000,000 gallons of stormwater annually for the City of Long Beach Municipal Urban Stormwater Treatment facility, a large bioswale for the Wilmore City Heritage Association expected to treat approximately 1,800,000 gallons of stormwater, a new permeable pavement parking lot at Camp Fire Angels to infiltrate up to 171,400 gallons of stormwater annually, and an underground cistern, infiltration channels, and permeable pavement at rancho Los Cerritos capable of infiltrating 24,000 gallons of stormwater and treating up to 19,000 gallons of stormwater. These projects discharge stormwater to the Greater Harbor Waters affected by the TMDL and contribute to a pollutant load reduction to those receiving waters.

6. Stormwater Capture and Reuse

Stormwater is currently captured and injected into the subsurface at the Port of Long Beach oil extraction sites and captured and re-used in industrial processes where feasible. In late 2018, the Port issued a request for qualifications from consultants to conduct a planning level study focused on water recycling and stormwater harvesting within the Port, assessing sources of stormwater and reclaimed water, end uses, infrastructure and treatment needs, among others. By capturing and reusing stormwater, the Port may be able to remove the pollutant loads associated with industrial stormwater runoff in key areas

7. Sediment Management Activities

Sediment removal projects implemented by the Port of Long Beach through routine maintenance dredging, capital improvement projects, remediation, and habitat improvement projects have also improved the sediment condition. On average, the Port of Long Beach dredges approximately 30 percent of the Inner Harbor surface area every 10 years. These activities have contributed to the overall reduction of contaminants in sediment throughout Long Beach Harbor over the past 30 years.

- Sediment Remediation – IR Site 7: IR Site 7 was identified as a sediment management activity to be completed in Phase I of the TMDL. IR Site 7 comprises approximately 700 acres of submerged land in the Port of Long Beach’s West Basin adjacent to three former dry docks used by the U.S. Navy at the former Long Beach Naval Complex. In August 2007, a Record of Decision (ROD) issued by the Department of the Navy defined remedial objectives. Dredging of IR Site 7 officially began on July 26, 2010 and was completed on February 12, 2011. Approximately 503,007 cubic yards (cy) of impacted sediment from three areas (Figure 1) was removed and placed inside the Pier G slip fill containment area (located within the Port of Long Beach) and covered with up to 24 feet of clean fill material. This remedial action resulted in approximately 35,000 kg of copper, 16,000 kg of zinc, 17 kg of DDTs and 250 kg of PCBs being removed from the marine environment.
- Middle Harbor Redevelopment Project: The Middle Harbor Redevelopment Project included both capital dredging and maintenance dredging projects. Primary sediment borrowed areas for the fill included the West Basin, Back Channel, and the Inner Harbor Turning Basin, and more impacted surface sediments were placed in the fill, exposing unimpacted native materials in the footprint of the borrow sites. This is estimated to have resulted in the removal of approximately

33,000 kg of copper, 82,000 kg of zinc, 10 kg of DDTs and 28 kg of PCBs from the marine environment.

- **Maintenance Dredging:** Maintenance dredging is required to maintain existing berths, approach channels and turning basins, through the removal of accumulated sediments and restoration of the original design depth. It is the maintenance dredging programs that continue to serve as the major mechanism for the continued reduction in surface sediment contaminant concentrations. The effectiveness of maintenance dredging programs in reducing contaminated sediments continues to improve as ongoing sources continue to decline. In summary, the Port of Long Beach's operational activities related to sediment management (routine maintenance dredging, capital improvement projects, remediation, and habitat improvement projects) have resulted in the removal of approximately 2.6 million cy of sediment. The amount of contaminants removed was quantified by examining the average concentration of specific contaminants for each project. Overall, the Port of Long beach estimates that these sediment management activities have resulted in a removal of approximately 70,000 kg of copper, 100,000 kg of zinc, 30 kg of DDTs and 280 kg of PCBs from the marine environment.

Figure 1 Site 7 Areas



References

Port of Long Beach Overview of Port of Long Beach Water and Sediment Quality Improvement Activities [Report]. - 2019.