

## **Hermosa Avenue Green Street Project**

The Hermosa Avenue Green Street Project (Project) will retrofit existing development using LID techniques to divert storm water and dry weather runoff from a 47-acre coastal area fronting a heavily used recreational beach where diversion to the sanitary sewer is not feasible.

### **Goals and Objectives:**

The project will restore REC-1 beneficial uses and address 303d impairments for fecal indicator bacteria, trash and sediment-borne legacy DDT and PCB. The project will be designed to intercept and divert the 85<sup>th</sup> percentile, 24-hour storm water runoff volume of 2.69 acre-feet to subsurface infiltration systems prior to entry into the storm drain system thus preventing pollutants associated with storm water discharges from reaching receiving waters. The project will eliminate all non-storm water discharge to Santa Monica Bay from the Herondo Storm Drain as all other catchments have already been diverted.

The map shows two subdrainages within the project area. The northern subdrainage is 26-acres lying north of second street with runoff collected into two catch basins on the northeast and southeast corners of the intersection of Hermosa Avenue and 2<sup>nd</sup> Street. The southern subdrainage is 21-acres south of second street with runoff from that area collected in a series of catch basins along Hermosa Avenue and Herondo Street. Infiltration units lined with filter fabric will be distributed along the curb-and-gutter throughout the project area. After filtration, the runoff will be piped by gravity into a subsurface infiltration gallery within the public right-of-way where the runoff and associated pollutants will infiltrate into the native sandy soils. At select locations tree box biofilters will supplement the infiltration units. In particular, tree box biofilters will be installed along the sidewalks along Herondo Street where installation of infiltration units in the right-of-way is not feasible. Storm drain catch basins within the project area will be retrofit with certified full-capture devices for trash to address the Santa Monica Bay Debris TMDL. Sidewalks along both sides of Hermosa Avenue along the length of the project area will be replaced with permeable paving to increase the perviousness of this highly impermeable watershed and where feasible downspouts from buildings fronting Hermosa Avenue will be directed to the permeable sidewalks to disconnect them from the curb-and-gutter.

Lessons learned and design recommendations from the award-winning Pier Avenue Improvement Project will be applied in designing and implementing this project. The proposed filter boxes are of standard design previously tested by City engineering staff and already in operation in other locations in the City. The task of maintenance of the filter boxes is simple and only requires lifting the flush mounted grate, removing the filter fabric liner when full, and cleaning or replacing it as needed.

Some vendors of biofilter media have experimented with various formulations to promote biofilm development and enhance secondary pollutant removal mechanisms such as biological decomposition, assimilation and predation of fecal coliforms and related bacteria. An engineered soil media will be selected for use in the tree box biofilters to prioritize both flow rate and biofilm development to achieve efficient bacteria removal performance.

**Purpose and Need:**

The project area consists of highly impervious medium-density residential and commercial development and is bounded by Herondo Street to the south and the Santa Monica Bay to the west. The project map shows how runoff is conveyed in a southwesterly direction through the project area along the curb-and-gutter until it reaches storm drain catch basins arrayed along the last two blocks of Hermosa Avenue which discharge into the Hermosa Avenue storm drain which then discharges into the regional Herondo Storm drain and into the Santa Monica Bay.

The nearest AB 411 monitoring location is SMB 6-1 which is located at the zero point of the Herondo Storm drain outfall at the extension of Herondo Street, this monitoring location is also known as DPH 115. Runoff from the project area discharges through the Hermosa Avenue storm drain that connects into the Herondo Storm drain approximately 500 feet upstream from the outfall at a point downstream of the existing dry weather diversion such that dry weather runoff is not currently diverted. Both the Herondo Storm drain as well as the Hermosa Avenue storm drain that connects to it, are tidally influenced, i.e., seawater flows up into the storm drains during high tide or storm surges. The Los Angeles County Sanitation Districts does not permit the diversion of seawater into the sanitary sewer system, hence the dry weather diversion was placed at a location on the Herondo storm drain above the level where seawater could enter the diversion structure. As a consequence, a green street system is the best means of retrofitting this area to eliminate non-storm water and reduce storm water discharge to the Santa Monica Bay from this catchment.

The intersection of Hermosa Avenue and 2<sup>nd</sup> Street will be a focal point for the project. The intersection will be reconstructed to create pedestrian-friendly landscaped bulb-outs and the center medians in Hermosa Avenue will be extended to improve pedestrian safety. A bench and interpretive signage for the project will be installed to offer passive public outreach. Tree box biofilters will also be installed at this intersection to provide supplemental infiltration and treatment of storm flows as well as aesthetic enhancement of the intersection.

**Site Investigation:**

This area is known to be underlain by sandy, highly pervious dune soils. Infiltration testing conducted for a previous project along the Hermosa Strand found infiltration rates of 113 inches per hour, however a percolation test will be conducted as part of design to provide site-specific data for this project.

**Sustainability:**

The project will utilize control technology which will provide sustained, long-term water quality for a period of more than 20 years, address the causes of degradation, rather than the symptoms, and be consistent with TMDL Implementation Plans and the Beach Cities' Enhanced Watershed Management Program/Storm Water Resource Plan. By retrofitting the project area with low-impact development technology to increase the effective permeability of the project area, the project is addressing the root cause of degradation—the impervious nature of the developed urban environment. The infiltration boxes and tree box biofilters are constructed of pre-cast concrete and have been tested for durability and performance that will provide benefits for 20 years and beyond. The filter fabric in the infiltration boxes and engineered soil media in the tree box biofilters provides filtration and removal of fines which

serves to protect the underlying sandy soils from clogging over time thereby protecting the service life of the project.

The City of Hermosa Beach is currently completing a focused assessment of subsurface infrastructure including coastal storm drain systems to forecast their vulnerability to sea level rise—results of that study will be used to inform the design of this project.

The project supports the City's goal to become a net-zero carbon city since there will be no ongoing energy cost associated with the project other than regular maintenance. The project will rely on gravity flow to convey storm water through the green infrastructure, and as such, will not cause greenhouse gas emissions associated with storm water conveyance.

**Regional Map: (included)**

**Project Map: (included)**

**Impaired Waters:**

Coastal Near-shore Zones in Hermosa Beach are designated for beneficial uses of: navigation, contact- and non-contact water recreation (REC-1 & REC-2), commercial and sport fishing, marine habitat, wildlife habitat, shellfish harvesting and for potential beneficial use for spawning, reproduction and/or early development of fish. The Santa Monica Bay beach near the outfall of the Herondo Storm drain in the City of Hermosa Beach is listed as impaired for human body contact recreation, also known as REC-1 beneficial use, and is included on California's 303(d) list due to excessive amounts of coliform bacteria (bacteria used as indicators for the presence of pathogens). Santa Monica Bay nearshore and offshore waters are impaired for debris (trash, plastic pellets) as well as DDT/PCBs in fish tissue and sediment. There is a fish consumption advisory for DDT and PCBs in Santa Monica Bay. All of these listed impairments are being addressed by adopted TMDLs.

**Project Timing and Phasing:**

The project will be phased to allow for continuous traffic access during project construction. Hermosa Avenue is a street with two lanes of traffic on each side of a center median and as such construction can proceed on one side while allowing for bi-directional traffic on the other side, albeit with a carefully conceived traffic control plan.

# HERMOSA BEACH LID PROJECT DESCRIPTION



## Background

- 47-acre coastal sub-watershed
- Project will divert dry & wet weather runoff from one of the most popular beaches in Los Angeles
- Diversion of run-off to the sanitary sewer is not feasible







## City of Hermosa Beach

### Hermosa Ave Green Street Project Concept

