

STORMWATER MASTER PLAN DRAINAGE IMPROVEMENT PROGRAM



APRIL 25, 2019
PRESENTATION TO THE SFWMD BIG CYPRESS BASIN BOARD

PROGRAM SUMMARY

- Stormwater Management involves manmade means to manipulate the flow of water that results from a rainfall event. The City's stormwater management facilities include structures that are designed to collect, hold, divert, or discharge stormwater and may involve stormwater sewers, canals, swales and other facilities.
- The purpose of this program is to provide Public Works staff with the background and current information concerning the existing system and the related stormwater management facilities.

PROGRAM FUNDING

- The City of Marco Island continues to develop strategies towards financing major capital drainage and water quality projects in the short term and long term, including budget provisions and management plans for a coordinated and continuous drainage improvement program. An effective program for the City's infrastructure is considered paramount to preserving the integrity of the stormwater assets.
- Each year the City develops and updates the Five-Year Capital Improvement Program (CIP) which provides for the system wide stormwater management improvements including funding for drainage improvement projects and operations. Partial funding for maintenance activities is also included within the Public Works Operating Budget.

10-YEAR MASTER PLAN DRAINAGE IMPROVEMENTS

1. Swallow Ave. Phase 3 Drainage Project	2015	Completed
2. Tahiti Drainage Area Analysis	2015	Completed
3. Goodland Road Hydrologic Study	2015	Completed
4. Bald Eagle to Bayport/Tahiti Drainage Improvements/Outfall	2016	Completed
5. San Marco/Heathwood Intersection Drainage/Outfall	2018	*Designed
6. S. Barfield at San Marco Rd. to Hawaii Ct. Improvements	2019	*
7. San Marco Rd. from Collier Blvd. to Landmark Improvements	2019	*
8. Collier Blvd. from Winterberry to S. Collier Ct.	2020	
9. Mackle Park Area Basin Improvements	2021	
10. San Marco Tide Leveling Improvements	2021	
11. Caxambas Island Drainage Improvements	2023	
12. Marco Lake Area Basin Improvements	2024	

* FDEP Grant Funded

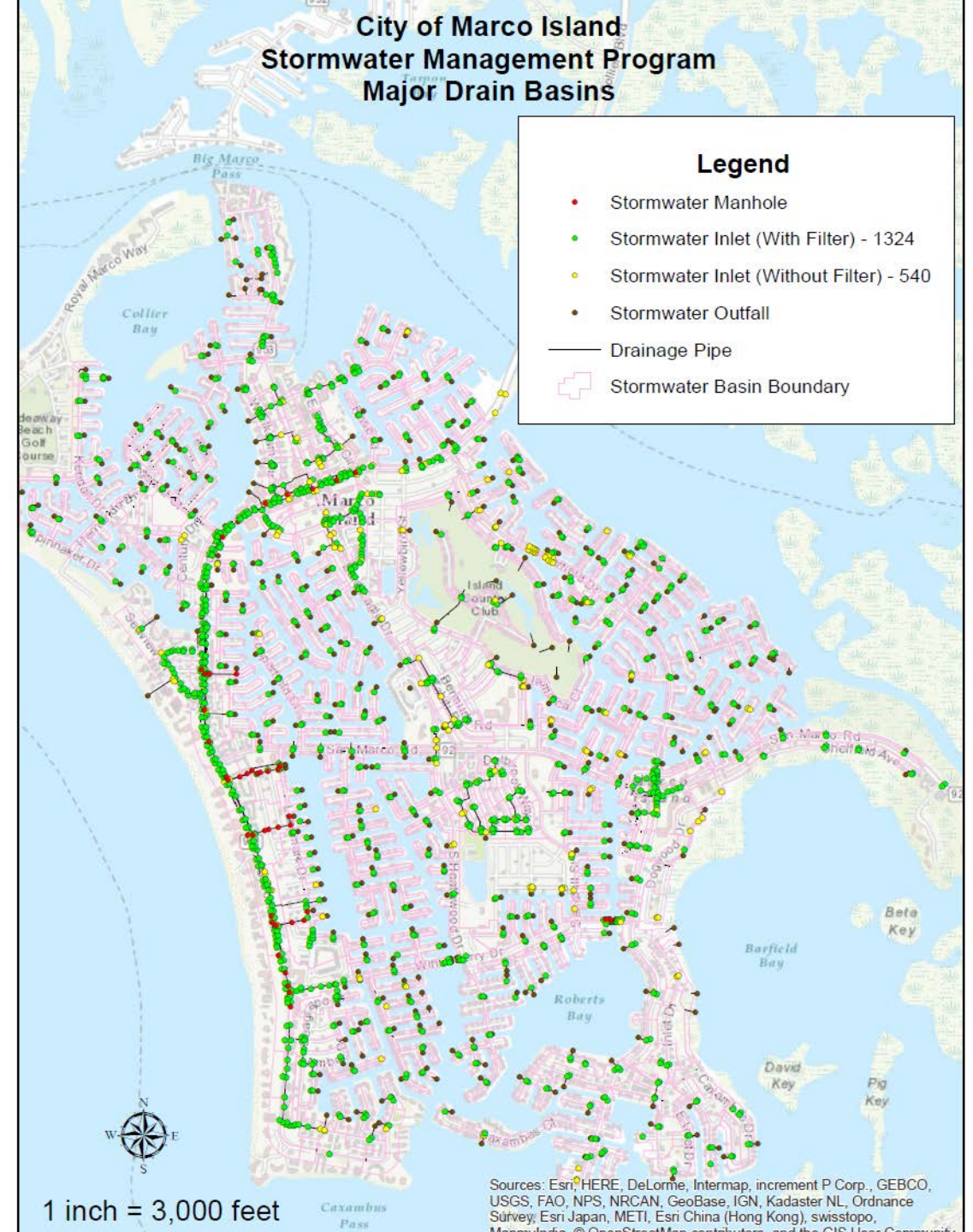
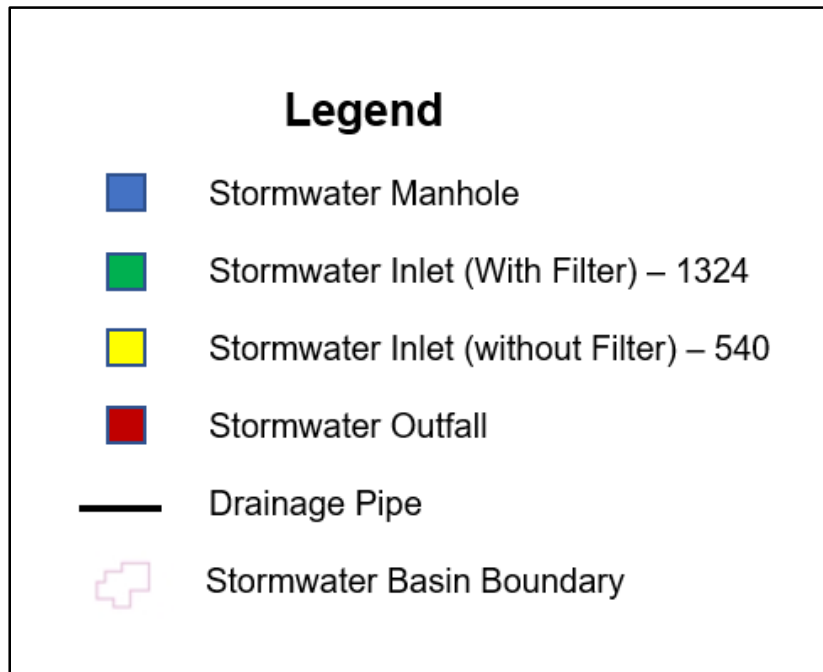
DRAINAGE PROGRAM CATEGORIES

- **National Pollution Discharge Elimination System (NPDES) Water Quality Measures.** Long-term efforts to construct and maintain drainage infrastructure will result in the elimination or reduction of localized flooding along roadways and developed properties. From a stormwater management perspective, increasing flow capacity in conveyance and outfall systems results in improvement to the quantity side of drainage. However, of equal and increasing importance is the water quality component of stormwater management. The NPDES stormwater quality program addresses three types of point source discharges of stormwater; (1) construction activity disturbing 1 or more acres; (2) stormwater associated with industrial activity; and (3) discharges from Municipal Separate Storm Sewer Systems (MS4). The City of Marco Island has received a Phase II MS4 permit which emphasizes source controls to manage the discharge of pollutants.

- **Right-of-Way Swale Drainage.** Annual regrading of drainage swales is required to minimize nuisance ponding, and to maintain adequate stormwater discharges and to increase stormwater retention for increased water quality along City streets. The maintenance effort serves to address the most critical swale segments that require major regrading efforts through the use of specialized construction equipment. Public Works staff utilize the newly purchased Gradall Excavator to facilitate this operation. Regrading of the swales eliminate flow restrictions due to sedimentation and improper flow line elevations. Through the use of Swale blocks or check dams we allow stormwater runoff to temporarily pond in the swale for up 24 to 36 hours to sufficient percolation.

- **Grate Skimmer Inlets.** The South Florida Water Management District (SFWMD) approved the use of grate inlet skimmer box filters for stormwater treatment of roadway discharges and runoff for the City of Marco Island. Currently the City has a total of approximately 1324 stormwater inlets that contain “Suntree” grate skimmer inlet filters. Public Works staff maintains these filters on an annual basis, with the use of our Vacuum Truck and current staff. The annual maintenance includes the replacement of the filter medium (skimmer booms) and the removal of debris collected within the basket. Without maintenance these units will not operate efficiently and stormwater treatment will suffer. Use of water quality inlets are a SFWMD approved BMP.

City of Marco Island Stormwater Management Program Major Drain Basins



- **Reconstructing Existing Swale Inlet Structures.** The existing throat inlets are generally located at the very bottom of road side swales. This is due to the original design concept of quickly removing stormwater from our roadways. Reconstructing these existing inlets to elevate the rim and grates to at least 6-inches from the bottom of the swale will provide areas for water to pond, therefore allowing water quality parameters to be improved since pollutants and debris are restricted from directly entering downstream receiving waters when the structures are above the swale flow line.



