



*The City of Pompano Beach  
Esquire Lake Neighborhood Stormwater  
Improvements  
Project #SW0624  
Fiscal Sustainability Plan*

January 2020



## SECTION 1 – INTRODUCTION

This Fiscal Sustainability Plan has been prepared for the Esquire Lake Stormwater Improvement Project for the City of Pompano Beach. The purpose of this plan is to assist the City with overall fiscal planning for the long-term management of their new stormwater system associated with this project. This Fiscal Sustainability Plan applies to new stormwater system constructed under this project.

### PROJECT PURPOSE:

Based on the City's Stormwater Master Plan (2013), the Esquire Lake Neighborhood was identified as a priority drainage basin in need of stormwater system improvements based on the historical flooding problems observed by City staff, the flooding complaints received from residents, and the results from the existing conditions stormwater model. The Esquire Lake Neighborhood consists mainly of residential properties. The City of Pompano Beach operates and maintains its own stormwater system within City ROW to provide flood control and water quality treatment within this neighborhood.

The area for the Esquire Lake Neighborhood is bounded on the east by Powerline Road, on the west by NW 27th Avenue, on the south by NW 6th Street and the north by Martin Luther King Boulevard. The residential neighborhood contains a lake towards the east side, which collects runoff from all local roadways through gravity stormwater pipes ranging in size from 12- inches to 36-inches. The discharge from the lake is controlled by the discharge pipe invert elevation that overflows to the stormwater system on Powerline Road and then to a series of 60-inch diameter pipes that extend south along NW 21st Avenue discharging to the Pompano Canal.

### STORMWATER SYSTEM IMPROVEMENTS:

For the recommended stormwater improvements in the project area (Alternative 3B), **Exhibit 2**. The recommended stormwater improvements include the installation of new exfiltration trench along selected City roadways in the project area to collect stormwater runoff for these areas, upsizing of Outfall #4 and Outfall #6 and two interconnects between subbasins. These recommended improvements will intercept stormwater runoff before it flows into Esquire Lake and will provide additional storage and infiltration capacity for stormwater runoff. The two interconnects between subbasins will divert flow from the northern (smaller lake outfalls) to the southern (larger lake outfall). This will help alleviate flooding to the north and the upsizing of the outfalls will improve the rate of discharge from the roadways into the lake. The grass swale areas throughout the project area should also be regraded and sodded to provide additional storage volume for stormwater runoff.

## SECTION 2 – STORM WATER INVENTORY- ASSETS

The Esquire Lake Neighborhood Stormwater Improvements included the installation of the following stormwater infrastructure assets within the public right of way areas throughout this neighborhood:

- Concrete Drainage Structures (85) includes 5 with PRB's
- RCP – ADS HP Drainage Pipe ( 3,815 LF)
- ADS HP Pipe- Exfiltration Trench ( 3,928 LF)
- Restored Roadway Swale Areas (16,218 SY)
- Replace (2) existing 36 inch dia. Outfalls- with (2) proposed 42 inch dia. Outfalls

Please refer to **Exhibit 1** – Stormwater Infrastructure Inventory within this report for a detailed breakdown of the new stormwater system constructed for the Esquire Lake Stormwater Improvement Project.

### SECTION 3 – STORMWATER RETAINAGE AND RUN-OFF

In regards to any water conservation efforts, the proposed stormwater improvements within the Esquire Lake neighborhood were designed to increase the quantity of stormwater runoff kept on-site within newly constructed exfiltration trenches and roadway swale areas. Both will improve the stormwater within the Esquire Lake neighborhood. The exfiltration trenches and swales will allow stormwater runoff to permeate through the pervious surfaces and aggregates, which in turn recharges back into the groundwater.

The proposed stormwater system improvements within the Esquire Lake neighborhood increases storm water retainage with the new exfiltration trench and new roadway swale areas, will provide additional storage capacity for the stormwater runoff and will lessen the amount of stormwater reaching the outfalls that discharge into the lake.

### SECTION 4 – STORMWATER MAINTENANCE PLAN

The existing stormwater system management requires continued maintenance operations and effort by the City to verify that the stormwater system will be at full capacity while complying with all the regulations and requirements. The operations and maintenance of the stormwater system is a continued effort, which includes the inspection of drainage structures, cleaning of drainage structures and piping, the removal and replacement of any damaged drainage structures, the replacement of collapsed or failed piping, the removal of any soils/sediments, trash, and debris from the system, and annual compliance with regulatory programs. A consensus operations and maintenance plan is necessary to limit flooding issues throughout the City especially during rainfall events.

Maintenance of storm water piping, culverts, and drainage structures on an annual basis is necessary to remove any sediment and debris from the stormwater system. Sediments can build up over time within the drainage structures, pipes, and culverts if the drainage system does not get cleaned. The buildup of sediments and debris within the drainage pipes and culverts can reduce the flow capacity of the pipe, and reduce the discharge capacity and reduce the percolation rate in the exfiltration trenches, which will increase the potential of flooding within the right-of-way areas during a rainfall event. The accumulation of sediments and debris within the pipes and culverts can also impact the water quality at lakes, rivers, and ditches when the accumulated pollutants are transported in the stormwater runoff and discharges at the outfalls directly into the bodies of water. Maintenance at the stormwater outfalls is necessary on a yearly basis.

Yearly inspection of drainage structures is necessary to identify locations within the stormwater system that need to be addressed. According to the requirements of the NPDES Permit, all components of the stormwater system must be inspected during the year to verify that all components are operational. The new requirements of the NPDES Permit specify that the City inspects 10% of all drainage structures within the stormwater system each year. The City must also process and submit a yearly NPDES compliance report to the Florida Department of Environmental Protection for the structural controls and components of the stormwater system. The City has also developed Standard Operating Procedures (SOPs) which have been developed to provide guidance on the frequency of inspections and maintenance activities related to the stormwater management system. The City must continue to inspect and report all inspection activities in order to fulfill the requirements of the NPDES Permit.

The City's Stormwater Management Utility provides funding for the operations and maintenance program for the existing stormwater management system. The Utility is mandated to clean drainage structures

drainage pipe and culverts, repair damaged drainage structures, remove and replace collapsed drainage piping, remove debris and sediments from the stormwater system, and inspect the drainage structures. The City Stormwater Management Utility documents and records their performance measures each Fiscal Year which is shown in the Table below.

<b>Stormwater Management Utility Performance Measures</b>			
<b>Performance Measures</b>	<b>FY2015</b>	<b>FY2016</b>	<b>FY2017</b>
Structure Cleaning (EA)	1,656	1,998	1,849
Pipe Cleaning (LF)	92,118	102,660	102,073
Structure Repairs (EA)	45	75	14
Pipe Replacement (LF)	180	00	100
Debris Removal (TN)	264	417	554
Inspections (EA)	1,845	2,182	2,107

As part the City’s annual stormwater maintenance program for the stormwater system that is noted above, the City will perform inspections and maintenance of the newly constructed stormwater system within the Esquire Lake neighborhood. Operations and maintenance of the new stormwater system within the Esquire Lake neighborhood will be a continual work effort, which will include the inspection of drainage structures, cleaning trash, sediment, and debris from drainage structures and piping, the repair of damaged drainage structures, the removal and replacement of collapsed piping, the removal of sediments and debris from the stormwater system, and the annual compliance with regulatory programs.

Please refer to **Exhibit 1** – Stormwater Infrastructure Inventory within this report for a detailed breakdown of the new stormwater infrastructure implemented under the Esquire Lake Stormwater Improvement Project along with the associated replacement costs.

**CITY OF POMPANO BEACH**  
**ESQUIRE LAKE NEIGHBORHOOD STORMWATER IMPROVEMENTS**  
**FISCAL SUSTAINABILITY PLAN**  
**EXHIBIT 1 - STORMWATER INFRASTRUCTURE INVENTORY**

INFRASTRUCTURE CATEGORY	INFRASTRUCTURE DESCRIPTION	QUANTITY	UNIT	ACCEPTANCE DATE	EXPECTED SERVICE LIFE	END OF SERVICE LIFE	EXPECTED REPLACEMENT COST	FUNDING SOURCE	ALTERNATE FUNDING SOURCE
STORMWATER PIPING	Storm Pipe (ADS HP) - 15"	174	LF	Dec 2019	30 years	Dec 2049	\$9,570	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER PIPING	Storm Pipe (ADS HP) - 18"	1,331	LF	Dec 2019	30 years	Dec 2049	\$19,980	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER PIPING	Storm Pipe (ADS HP) - 24"	295	LF	Dec 2019	30 years	Dec 2049	\$23,000	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER PIPING	Storm Pipe (ADS HP) - 30"	616	LF	Dec 2019	30 years	Dec 2049	\$58,520	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER PIPING	Storm Pipe (FCPI) - 42"	533	LF	Dec 2019	30 years	Dec 2049	\$163,690	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER PIPING	Storm Pipe (ADS HP) - 42"	866	LF	Dec 2019	30 years	Dec 2049	\$142,890	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER PIPING	Storm Pipe (ADS HP) - 18" Exfiltration	2,790	LF	Dec 2019	30 years	Dec 2049	\$351,650	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER PIPING	Storm Pipe (ADS HP) - 42" Exfiltration	1,178	LF	Dec 2019	30 years	Dec 2049	\$259,180	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER STRUCTURES	Precast Concrete Structure - Type C Catch Basin	36	EA	Dec 2019	30 years	Dec 2049	\$126,000	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER STRUCTURES	Precast Concrete Structure - 66' Round Manhole w/ FRB	4	EA	Dec 2019	30 years	Dec 2049	\$72,200	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER STRUCTURES	Precast Concrete Structure - 48' Round Manhole	19	EA	Dec 2019	30 years	Dec 2049	\$85,500	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER STRUCTURES	Precast Concrete Structure - 60' Round Manhole	10	EA	Dec 2019	30 years	Dec 2049	\$80,000	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER STRUCTURES	Precast Concrete Structure - 72' Round Manhole	12	EA	Dec 2019	30 years	Dec 2049	\$93,600	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER STRUCTURES	Precast Concrete Structure - 84' Round Manhole	1	EA	Dec 2019	30 years	Dec 2049	\$12,000	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER STRUCTURES	Precast Concrete Structure - 6x6' with FRB	1	EA	Dec 2019	30 years	Dec 2049	\$9,000	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER STRUCTURES	Precast Concrete Structure - 5' X 3'	1	EA	Dec 2019	30 years	Dec 2049	\$5,000	Util. Stormwater Fees	Utility Stormwater Fees
STORMWATER STRUCTURES	Precast Concrete Outfall Endwalls	2	EA	Dec 2019	30 years	Dec 2049	\$29,500	Util. Stormwater Fees	Utility Stormwater Fees
						Total	\$1,549,740	2019 prices	



