CAPITAL IMPROVEMENT PROGRAM

Background

Kimley-Horn prepared this Capital Improvement Program (CIP) for stormwater improvements to prioritize and set the budgets required to plan, construct, operate, and maintain the Village's Stormwater Management Program. The CIP is a budgetary tool and is intended to provide an order of magnitude for the Village's yearly funding for the implementation of the Stormwater Utility.

The proposed CIP is based on the findings from the assessment of existing drainage conditions within the Village and the detailed analysis of the ten drainage sub-basins that were identified as priority sub-basins in this Stormwater Master Plan Update. The two primary components of the CIP include operation/maintenance and capital improvements.

The operation and maintenance component is based on the general assessment of the existing drainage conditions within the Village limits. Recommended operation and maintenance procedures were identified as part of the original Stormwater Master Plan and preliminary budgets were established at that time. With the operation and maintenance program implemented, the Village has current cost data for the various components, and the condition of the existing stormwater system indicates the program has been effective.

The capital improvement component is based on the findings of the analysis of the priority sub-basins. Recommended improvements to achieve the stated performance goals were identified for each sub-basin. The recommended improvements were quantified based on the available data and preliminary opinions of probable costs (preliminary budgets) were prepared for each sub-basin. Based on the preliminary budgets, the priority sub-basin improvements were prioritized to provide the proposed CIP. The following is an explanation and summary of each component of the CIP.

Operation and Maintenance Plan

The intent of the operation and maintenance plan is to maintain the integrity of the stormwater management system. This is accomplished by maintaining the existing stormwater management system to provide the level of service as originally designed. To achieve this goal, periodic observations, routine maintenance, and general improvements are required. This section of the overall report is not intended to provide a complete operation and maintenance manual, but to provide some of the key components and allow sufficient budget to implement these items.

Catch Basin Maintenance

Catch basin maintenance is a two-step process. This task includes cleaning the external grate to permit stormwater to enter the system and removing sand, silt, and debris from the sedimentation chamber of the intake structure. The catch basins are cleaned using mechanical and manual methods. The Village is currently budgeting to clean 20% of all catch basins annually. However, the Village does monitor areas of heavy foliage and other debris to schedule catch basin maintenance more frequently if required.

Pipe Flushing and Exfiltration Trench Cleaning

Exfiltration trench is important in the storage, disposal, and water quality treatment of stormwater runoff. Maintenance of exfiltration trench includes removing the sediment, oil, and grease that accumulates in the bottom of the catch basins attached to exfiltration trench and pipes to reduce the amount of these pollutants entering the pipe system and adversely impacting the exfiltration or outfall rate. Even with removal of sediment from the catch basins, over time sediment will build up in drainage pipes. Therefore, the pipes should be cleaned and flushed on a regular basis. Pipe flushing and exfiltration trench cleaning are typically performed in conjunction with catch basin and manhole cleaning and are usually contracted out on an as-needed basis. During these activities, a high-pressure water hose is inserted into the pipe

network. This process flushes debris into the catch basin where it can then be removed. The Village is currently budgeting to flush 20% of all piping, 20% of all exfiltration trench, 50% of all manholes, 50% of all outfall pipes, and 100% of all French drain annually.

Canal Maintenance

Local canals play an important role in stormwater disposal. The Village has a five-year interlocal agreement with Miami-Dade County for canal maintenance. Miami-Dade County currently maintains the SW 160th Street Ditch. The Village owns the SW Maral Estates canal and the Bel Aire Section canal. The Village is currently budgeting for canal maintenance.

Swale Inspection, Maintenance, and Restoration

Grassed swales and landscaped medians also play an important role in stormwater disposal. Consistent mowing, inspection, and restoration of such features promote stormwater retention and efficient percolation. The Village maintains swales and medians within public roadways and parking lots. Individual business owners and residents are mandated through local codes to maintain their facilities. The Village is currently budgeting for swale inspection, maintenance, and restoration.

WASD Utility Fee Collection

All real properties within the jurisdictional boundaries of the Village shall be subject to Stormwater Utility Fee's unless specifically exempted. The Village has an agreement with the Miami Dade Water and Sewer Department (WASD) to include the Village's Stormwater Utility fee on bills for water and sewer service for properties within the Village. WASD bills customers on a monthly or quarterly basis on behalf of the Village and charges the Village a fee to collect the Village's Stormwater Utility Fee. Properties on well water within the Village are billed on an

annual basis by the Village's Finance Department to collect their fair share of Stormwater Utility Fee.

Minor Repairs and Improvements

Maintaining the stormwater collection system requires routine improvements and repairs. This task covers a significant spectrum of activities including limited infrastructure projects, repair of collapsed pipes and manholes, replacement of catch basins or catch basin grates, and swale grading to address ponding. As discussed earlier, these projects are typically classified as localized drainage improvements. Localized drainage improvement projects can range from design and permitted projects to maintenance activities in response to an immediate problem using the best methods available.

MS4 Permit and CRS Program Activities

To comply with the Miami-Dade County Multiple Separate Storm Sewer System Permit (MS4) administered by the U.S. Environmental Protection Agency and Florida Department of Environmental Protection, the Village must perform certain activities on an annual basis. The preceding maintenance activities are all required by the MS4 Permit. In addition to these maintenance activities, the Village is required to monitor water quality in the canals and prepare a pollutant loading study as part of the MS4 Permit. The Village pays an annual fee to Miami-Dade County DERM for water quality monitoring in the canals. The MS4 Permit also requires annual public outreach activities on water quality and the dangers associated with flooding such as mailings to residents and workshops for the general public, pesticide applicators, and construction contractors.

In addition to the MS4 permit, the Village of Palmetto Bay was accepted into the National Flood Insurance Program (NFIP) in 2008 and submitted a request to join the Community Rating System (CRS) program in 2011. Prior to submitting the application to become a member of the CRS, the Village needs a letter of compliance with the NFIP. Prior to the NFIP preparing that letter, a FEMA regional coordinator will require satisfactory completion of a Community

Assistance Visit (CAV) with the Village. The CAV occurred in 2012 and the Village is currently working with FEMA to obtain their letter of compliance from FEMA. Once the Village becomes a member of the CRS, it can receive credit for public outreach programs dedicated to informing the public about the risks of flooding and steps people can take to protect themselves and their property. Additionally, property owners within the Village can receive a discount on flood insurance. The more credit the Village receives in the CRS, the higher the flood insurance discount.

Administrative Expenses

There are two items noted in the budget to provide personnel to oversee the operation and maintenance of the stormwater system. These items are "Professional Services" and "Stormwater Utility Administration." The Professional Services item will include the engineering and legal services associated with developing contract documents and procuring services for drainage improvement projects. The Stormwater Utility Administration item includes general administration, clerical support, program planning, and public awareness.

Unit costs associated with the components discussed throughout the operation and maintenance plan section were provided by Village staff. Table 31 details the Stormwater Utility Annual Operation and Maintenance Budget.

Table 31: Stormwater Utility Annual Operation and Maintenance Budget

Item	Quantity	Units	Unit Price	Amount
Storm water Utility Administration	1	L.S.	$68,400	$68,400
Clean Catchbasins – 1/5 Annually	315	EA.	$69	$21,700
Clean Manholes – 1/2 Annually	179	EA.	$114	$20,400
Clean Outfalls – 1/2 Annually	45	EA.	$171	$7,700
Clean French Drain and Slab Covered Trench – Annually	75	EA.	$86	$6,500
Pipe Flushing – 1/5 Annually	11,400	L.F.	$2.30	$26,200
Exfiltration Trench Cleaning – 1/5 Annually	18,580	L.F.	$2.30	$42,700
Canal Maintenance	1	L.S	$23,300	$23,300
NPDES MS4 Permit Monitoring Fee to DERM	1	L.S.	$6,300	$6,300
Swale Maintenance	1	L.S.	$30,000	$30,000
WASD Fee Collection	1	L.S.	$26,000	$26,000
Professional Services – Engineering and Legal	1	L.S.	$25,000	$25,000
Minor Repairs and Improvements	1	L.S.	$100,000	$100,000
Community Rating System – FEMA Program	1	L.S.	$10,000	$10,000
Public Outreach and Workshop for MS4 Permit	1	L.S.	$5,000	$5,000
QNIP Debt Service Payment	1	L.S.	$132,700	$132,700
Total				$552,000

Stormwater Capital Improvement Projects

The Capital Improvement Program (CIP) is based on the findings from the analysis of the priority sub-basins. Recommended improvements to achieve the stated performance goals were identified for each sub-basin. The recommended improvements were quantified based on the available data and preliminary opinions of probable costs (preliminary budgets) that were prepared for each sub-basin. Prior to each individual project being implemented, professional services such as surveying, engineering, and permitting will be required and estimates are included within the budgets. The scope of the proposed improvements is subject to change based on actual field survey data and resulting stormwater design calculations necessary to permit the projects.

The following assumptions have been made in the formulation of the budgets for the drainage improvements:

- The budgets include the recommended improvements identified in the analysis of the ten priority sub-basins.
- The budgets include restoration of the roadway impacted by the proposed trenching and a final asphalt overlay or surface course. Costs do not include any additional roadway improvements.
- The budgets do not include any costs of obtaining drainage or construction easements.
- The budgets include a 10% allowance for mobilization and a 3% allowance for maintenance of traffic for each project.
- The budgets include a 10% contingency for each project.

- The budgets include a 17% allowance for surveying, engineering, permitting, and limited construction phase assistance (site observations).
- The budgets do not include any landscape costs for improvements or restoration.

The capital improvement budgets are a preliminary opinion of probable construction costs in the current marketplace. Unit pricing for similar projects constructed by the Village of Palmetto Bay, as well as other nearby municipalities, were used as the basis for the construction budgets. Kimley-Horn has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. The preliminary opinions of probable costs provided herein are based on the information known to Kimley-Horn at this time and represent only the engineer's judgment as a design professional familiar with the construction industry. Kimley-Horn cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its preliminary opinions of probable costs. Based on the preliminary budgets, the priority sub-basin proposed improvements were prioritized to provide the capital improvement program.

Table 32: Sub-basin Prioritization Matrix

Priority Ranking	Area	Hydraulic Analysis	Observed Flooding	Complaints	Roadway Condition	Traffic Volumes	Total Score
1	Drainage Sub-basin #59/60	2.19	4	4	3	3	16.19
2	Drainage Sub-basin #61	4.66	2	2	3	1	12.66
3	Drainage Sub-basin #43	4.61	2	2	3	1	12.61
4	Drainage Sub-basin #57/96	2.70	2	2	3	1	10.70
5	Drainage Sub-basin #11	1.70	4	1	3	1	10.70
6	Drainage Sub-basin #41	4.37	3	1	1	1	10.37
7	Drainage Sub-basin #12	3.36	3	2	1	1	10.36
8	Drainage Sub-basin #39	5.23	2	1	1	1	10.23
9	Drainage Sub-basin #42	3.20	2	1	3	1	10.20
10	Drainage Sub-basin #44	3.90	2	1	1	1	8.9

Table 32 shows the priority ranking for the capital improvement projects. With the exception of the hydraulic analysis score, each project was given a score between 1 and 5 in each of the four categories: observed flooding, complaints, roadway condition, and traffic volumes. The scores

were then totaled and the projects were ranked from highest to lowest. The basis for the category scores is detailed below.

Hydraulic Analysis

Based on the hydrologic and hydraulic analysis described in the Drainage Sub-basin Analysis section of this report, a number for "total flood stage above performance goal criteria" was determined for each of the sub-basins studied. This number was entered into the table above in the Hydraulic Analysis column.

Observed Flooding

1 = No flooding observed in sub-basin

2 = Roadway flooding observed in less than 1/3 of drainage areas within sub-basin

3 = Roadway flooding observed in 1/3 to 1/2 of drainage areas within sub-basin

4 = Roadway flooding observed in 1/2 to all but one of the drainage areas within sub-basin

5 = Roadway flooding observed in all of the drainage areas within sub-basin

Complaints

1 = No complaints recorded

2 = Complaints recorded for less than 1/3 of drainage areas within sub-basin

3 = Complaints recorded for 1/3 to 1/2 of drainage areas within sub-basin

4 = Complaints recorded for 1/2 to all but one of the drainage areas within sub-basin

5 = Complaints recorded for all drainage areas within the sub-basin

Roadway Condition

The ratings for this category are based on a percentage of roadway length in good, average, or poor pavement condition throughout the sub-basin according to the Village's Roadway Analysis Report.

1 = Majority of roadways in sub-basin in "good" condition

3 = Majority of roadways in sub-basin in "average" condition

5 = Majority of roadways in sub-basin in "poor" condition

Traffic Volumes

The ratings for this category are based on a percentage of roadway length classified as local, collector, or arterial roadways throughout the sub-basin according to the Village's Transportation Master Plan.

1 = Majority of roadways in sub-basin are local roadways

3 = Majority of roadways in sub-basin are collector roadways

5 = Majority of roadways in sub-basin are arterial roadways

The proposed CIP summary and schedule of work is contained in Table 33. Further budget detail for each of the proposed CIP projects can be found in the Drainage Sub-basin Analysis section of this report. Budget detail for the operations and maintenance component can be found in the preceding section. The projects are recommended to be coordinated with the roadway CIP project scheduling to ensure that the drainage improvements are complete before or at the same time as the roadway improvements in the same area.

Table 33: Stormwater Capital Improvement Program Budget Summary

Project	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Total
Drainage Sub-basin #11					$690,000	$200,000					$890,000
Drainage Sub-basin #12							$420,000				$420,000
Drainage Sub-basin #39								$670,000			$670,000
Drainage Sub-basin #41						$620,000	$220,000				$840,000
Drainage Sub-basin #42									$630,000		$630,000
Drainage Sub-basin #43			$940,000								$940,000
Drainage Sub-basin #44									$200,000	$800,000	$1,000,00
Drainage Sub-basin #57/96				$880,000	$220,000						$1,100,000
Drainage Sub-basin #59/60	$720,000	$180,000									$900,000
Drainage Sub-basin #61		$520,000									$520,000
Annual O&M	$552,000	$552,000	$552,000	$552,000	$552,000	$552,000	$552,000	$552,000	$552,000	$552,000	$5,520,000
Total	$1,272,000	$1,252,000	$1,492,000	$1,432,000	$1,462,000	$1,372,000	$1,192,000	$1,222,000	$1,382,000	$1,352,000	$13,430,000