SECTION 6

CAPITAL IMPROVEMENT PROGRAM

CITY OF COCOA BEACH, FLORIDA
STORMWATER MASTER PLAN

PARSONS ENGINEERING SCIENCE, INC.

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SECTION 6
CAPITAL IMPROVEMENT PROGRAM

The purpose of the Capital Improvement Program (CIP) is to provide a technically defensible implementation plan of projects that address specific flooding and water quality needs and/or deficiencies. The previous sections of the master plan have established what the City's problems are and provided various BMP alternatives for addressing them. This CIP section incorporates this information in the formation of a logical projects plan based on maximizing cost benefit. The following subsections present the methodology and results of a prioritization and grouping of the individual project identified in the BMP Evaluation section. Included are considerations to the economics, pollutant reduction effectiveness, construction, and operations & maintenance. The end result is a project listing that will make best use of the City's Stormwater Utility capital expenditures for the next 5-10 years. Also, provided are individual fact summary sheets of the projects identified.

This section also continues the PLRG-based LOS definition process discussed in the Water Quality Assessment and BMP Evaluation sections. The BMP Evaluation section presented a *FULL BMP* scenario that considers implementation of technically feasible water quality BMPs considering land constraints, but without consideration to time and economic constraints. From the *FULL BMP* case, a TAPLRG was established as a reasonable technology-based pollutant reduction goal that can be used to evaluate the effectiveness of the CIP. This section describes the process by which a CIP was identified to make the best effort towards achieving the TAPLRG.

6.1 PROJECT PRIORITIZATION

6.1.1 Prioritization Methodology

In order to identify a cost-effective, technology reflective CIP that works within the municipality's constraints, a site-specific project prioritization methodology was developed. Although the CIP would be expected to address both water quality and flooding issues, water quality issues, in the form of pollutant reduction effectiveness were used as the basis for project evaluation. As discussed in the BMP Evaluation section, this approach is considered viable as many of the borderline LOS flooding problems would be expected to be addressed through the implementation of water quality BMPs with runoff volume reducing attributes. Accordingly, the objective of this prioritization methodology was to establish a means of determining the individual projects or combination of projects that provide the best pollutant reduction for the cost incurred.

Using the individual BMP projects from the *FULL BMP* pollutant loading case presented in the BMP Evaluation section, project specific economic and pollutant reduction considerations were incorporated to prioritize the projects. TSS was selected as a key evaluation pollutant based on the discussions in the Water Quality Assessment section. This pollutant is also more easily measured relative to nitrogen and phosphorus making it better for project effectiveness verification purposes. In addition, freshwater was selected as a parameter influencing BMP project prioritization. Freshwater represents not only a pollutant source to the estuary, but an important resource for the future. Projects that provide

storage (ponds) or recharge to the surface aquifer (retention/exfiltration) should be afforded a higher consideration for prioritization.

6.1.2 Project Ranking Criteria

Three ranking methods were utilized in an effort to compare and prioritize projects on a fair basis:

- **Unit Cost Effectiveness (UCE):** This method ranks BMP projects based unit cost per mass of pollutant reduced.
- **Cost Equalized UCE:** This method was also used to normalize BMP projects types of varying sizes and highlight location advantages by assuming all BMPs were the same length or area.
- **Pollutant Reduction Rank:** BMP projects were ranked solely based on the ability to reduce pollutant mass without regard to cost.

These three methods were used with respect to both TSS removal and Freshwater reduction as pollutants, for a total of six ranking scenarios.

6.1.3 Project Cost Factors

To calculate the UCE of an individual BMP, the construction, capital, land acquisition, and operation and maintenance (O&M) costs for the project must be estimated. BMP reference documents and past engineering experience were the basis for the cost estimations. Construction cost is the actual cost that a contractor would bear for construction of a stormwater management facility or stormwater retrofit. Construction costs were calculated by using average unit costs per BMP as shown on Table 6-1.

Table 6-1 UNIT CONSTRUCTION COSTS

BMP Type	Unit Construction Cost (Assumed Average)	Units
Exfiltration	$ 100	Linear foot
Sediment Trap		
Type 1	$ 15000	Each
Type 2	$ 25000	Each
Type 3	$ 40000	Each
Type 4	$ 60000	Each
Pond	$ 70000	Acre
Swale	$ 25	Linear foot

Capital cost is the total cost to the City for project implementation and reflects additional costs beyond the cost of actual construction. These costs include contingency, engineering, legal and administrative, and permitting. These additional costs were estimated to be a percentage of the construction costs based on the type of BMP implemented. Table 6-2 presents the capital cost percentages for the BMPs considered.

Table 6-2 COST FACTORS *

BMP Type	Capital Cost Factors					Labor** Factors
	Engineering	Admin. / Legal	Permitting	Contingency	Total	
Exfiltration	10 %	5 %	5 %	10 %	30 %	25 %
Sediment Trap	10 %	5 %	5 %	15 %	35 %	25 %
Pond	15 %	5 %	5 %	20 %	45 %	30 %
Swale	10 %	5 %	5 %	5 %	25 %	50 %

* As a percentage of Construction Cost

** Percentage of Construction Costs related to Labor. Values are based on literature information and engineering judgment. Labor factors were considered for City budget tracking.

After construction, BMPs require ongoing O&M in order to ensure they perform according to design standards. In this analysis, O&M was calculated as a percentage of the construction cost (per the EPA and previous studies) and or based on the type and size of the BMP as presented in Table 6-3.

Table 6-3 OPERATION AND MAINTENANCE FACTORS

BMP Type	Annual O&M Factor
Exfiltration	10% of construction costs
Sediment Trap	
Type 1	$300 / year
Type 2	$400 / year
Type 3	$500 / year
Type 4	$500 / year
Pond	15% of construction costs
Swale	$1/linear foot

The implementation of both new and retrofit BMPs may require the purchase of land. Factoring land costs into the analysis allowed comparison of two BMPs with differing footprints. Since land availability is limited in the City of Cocoa Beach, land acquisition costs were estimated at $100,000 per acre. Land costs for the stormwater pond projects at Seminole and Cocoa Isles were factored in at $100,000 each although the actual land costs are much higher. This amount was chosen as a nominal amount to establish the ability to seek grants and cost-share funding from the Florida Department of Transportation (FDOT). Given the amount of State roadway drainage impacting these two basins, the City should petition considerable support from FDOT for these two projects.

These standard BMP cost units and factors allow the BMP projects to be fairly compared as to their relative economic benefit in conjunctions with their pollutant and/or flooding reduction effectiveness. In practical application, however, these costs would vary for a given BMP from project to project based on site-specific considerations. In addition, economies of scale would apply whereas smaller BMP projects would generally carry a higher average unit rate as compared to larger projects. This may result in some underestimation of smaller project cost and O&M and overestimation of larger project costs and O&M. Land costs would also be expected to vary considerably. **Based on the foregoing qualifications, the cost estimations provided in this report should be considered reasonable estimates useful for effective comparison of relative project benefits and overall**

CIP planning and budgeting purposes, but not for construction estimation without further project specific refinement.

6.1.4 Equivalent Annual Cost

Once the construction, capital, land acquisition, and operation and maintenance (O&M) costs were estimated for each individual project, the equivalent annual cost (EAC) of each project was determined. EAC is a means of comparing alternative projects. This approach annualizes the construction, capital, and land acquisition cost of a project so it can be added to the annual O&M costs to obtain the total cost per year.

For this evaluation, a 10-year analysis period and an interest rate of 7.5% were selected. Unit costs were calculated by dividing the EAC by the area served. The development of unit costs allows BMPs to be compared on the basis of TSS removal effectiveness by dividing the unit cost by TSS removed per acre (TSS removed by the BMP/area served) to obtain the UCE.

6.1.5 Project Applicability

The BMP projects included in the prioritization analysis were taken from the FULL BMP case evaluation minus the existing BMPs (existing swales, ponds, street sweeping, canal/dredge, and public education). Also, not included were proposed BMPs that would be expected to be implemented by entities other than the City's Stormwater Utility (i.e., not paid for by the Stormwater Utility fee). These include any proposed BMPs along FDOT roadways (swales/exfiltration) and at the public golf course (swales). BMPs that were included but not cost analyzed were several proposed private development partnerships with existing wet ponds, costs for which cannot be quantified at this time.

6.1.6 Project Ranking Results

The results of the project rankings by the various methods are included in Appendix 6A. These spreadsheets present the results of the individual ranking methods as well as the costs and data (i.e., construction costs, EAC, unit cost, etc.) used to calculate them. Since each ranking method compares each project differently, an average of the UCE, cost equalized UCE, and pollutant abatement rank was calculated for both the TSS removal and freshwater reduction scenarios. Each of these ranking methods was considered equally beneficial, so no preference was given to one versus the others at this time. **Based on consideration of each prioritization method equally, this average rank is considered to represent the most useful prioritization results and is included in Table 6-4.**

6.1.7 Project Implementation Considerations

After review of the prioritization results, consideration was made to the grouping of smaller, similar type BMPs by location. Originally, projects were segmented for the purposes of calculating their effectiveness by model nodes or discrete physical locations (street blocks). This aggregation of projects resulted in the combination of many swale and exfiltration projects into convenient groups for more efficient implementation purposes. In addition, some of the lower ranked projects along with locations that were considered of marginal benefit in light of implementation difficulties were removed from the project list.

The project groupings are defined on Table 6-5. The resulting project list developed following the grouping effort is shown on Table 6-6, which includes pertinent project specific

performance and cost data. This is considered the most feasible CIP project listing. The relative coverage of these BMP projects from a geographical perspective is shown on Exhibit 6-1.

Once the final project grouping was established, consideration was given to each project's relative value with respect to water resource/supply benefit as described in Section 6.1.1. **Although the potential freshwater infiltration/retention ability of the BMPs were taken into account in the project rankings, an important aspect of project value that is not directly reflected in the ranking spreadsheet prioritization is the ability of a project to provide water supply value in the future.** Stormwater is still in the infancy of its application to Florida's water supply. Stormwater is expected to become a component of water supply much the way wastewater has become a water resource and water supply alternative. Stormwater can come into the water supply picture in two ways. First, stormwater can act to recharge the City's surface aquifer thereby abating salt water intrusion and keeping the shallow well lens fresh. Also, water can be pumped directly into the deep aquifer (i.e., ASR) via wells during wet weather, along with wastewater, and can then be withdrawn during dry weather as a commodity. These future values are not currently tangible and costs are not clearly defined. Projects exhibiting the potential for providing this future value were given a more direct priority through logical ranking in the CIP.

Based on the foregoing project implementation considerations, including City review and input, the following 10 projects are recommended for implementation first under the first ten years of the CIP:

1. **2nd Street South Sediment Oil/Grease Trap**
2. **Northend Stormwater Pond Park**
3. **Downtown Stormwater Pond Park**
4. **Ocean Beach Swale/Exfiltration**
5. **Barello/Carmine Sediment Oil/Grease Trap**
6. **Cocoa Isles Stormwater Pond Park/Easement Swale on Vacant Property East of Samar**
7. **North Shore Sediment Oil/Grease Trap**
8. **Seminole Lane Stormwater Pond Park**
9. **St. Lucie Sediment Oil/Grease Trap**
10. **8th Street South Sediment Oil/Grease Trap**

It should be noted that many of these projects serve the State A1A roadway and all effort should be made to partner with FDOT on implementation. In particular, the stormwater ponds proposed for the major outfalls in Basins D (Seminole Lane) and E (Cocoa Isles) take mostly State highway drainage. These two projects in particular deserve special treatment by the State Department of Transportation. It is recommended that the City work very closely with FDOT to accomplish these projects.

TABLE 6.4
CIP PROJECT PRIORITIZATION RANKING SUMMARY
STORMWATER MASTER PLAN
CITY OF COCOA BEACH, FLORIDA

	PROJECT PRIORITIZATION SCENARIO								
AVERAGE RANK *	UCE (TSS-BASED) RANK	COST EQUALIZED (TSS- BASED) RANK	TSS REMOVAL RANK	UCE (FRESH WATER-BASED) RANK	COST EQUALIZED (FRESH WATER-BASED) RANK	FRESH WATER REATINED RANK	BASIN	BMP TYPE	BMP LOCATION / DESCRIPTION
3.7	5	3	7	3	3	1	C	SWALE	OCEAN BEACH BLVD - 520 TO DIXIE TO MARION
5.3	3	4	10	5	6	4	B	SWALE	OCEAN BEACH BLVD. - SUWANEE TO GADSDEN
5.7	4	6	12	4	5	3	B	SWALE	OCEAN BEACH BLVD. - LEON TO PASCO
7.2	10	5	11	11	4	2	C	SWALE	ST. LUCIE - A1A TO BANANA RIVER BLVD - WEST
9.7	1	1	13	1	1	41	C	POND	WET POND - ROCK POINT - FLOW DIVERSION / REHABILITATION
10.5	9	12	24	6	7	5	H	SWALE	S 11TH ST - ATLANTIC TO N ORLANDO
11.5	6	8	20	9	14	12	B	SWALE	OCEAN BEACH BLVD. - PASCO TO OSCEOLA
11.7	7	9	22	8	13	11	H	SWALE	S 8TH ST - ATLANTIC TO N ORLANDO
12.0	11	14	26	7	8	6	B	SWALE	OCEAN BEACH BLVD. - 520 TO VOLUSIA
12.8	13	7	18	17	12	10	C	SWALE	ST. LUCIE - A1A TO BANANA RIVER BLVD - EAST
13.8	8	11	23	10	16	15	A	SWALE	BEACH BLVD - LEON TO ALACHUA
15.3	19	15	28	14	9	7	C	SWALE	MARION TO BREVARD LN TO PALM
17.5	21	17	31	16	11	9	G	SWALE	S 4TH ST - RIVERVIEW TO YACHT HAVEN
22.2	2	2	29	2	2	96	H	POND	RIVER LAKES WET POND - FLOW DIVERSION/REHABILITATION
22.2	12	19	33	18	22	29	A	SWALE	OCEAN BEACH BLVD - ALACHUA TO CALIFORNIA
23.0	16	24	44	13	19	22	I	SWALE	MINUTEMAN CSWY AND COUNTRY CLUB
23.3	18	26	46	12	18	20	H	SWALE	S 10TH ST - ATLANTIC TO N ORLANDO
23.7	32	22	39	21	15	13	E	SWALE	BANANA RIVER BLVD - EAST
28.8	23	31	58	15	20	26	H	SWALE	S 11TH ST - N ORLANDO TO N BREVARD
29.8	26	29	56	19	21	28	B	SWALE	SUWANEE BETWEEN AIA AND BANANA RIVER
30.5	34	20	36	40	23	30	C	SWALE	ST. LUCIE - A1A TO BEACH BLVD
31.8	44	23	14	62	34	14	C	EXFILTRATION	OCEAN BEACH BLVD - 520 TO DIXIE TO MARION
32.5	68	27	48	34	10	8	E	SWALE	EAST OF SAMAR BEHIND DENNYS
34.5	45	28	21	55	39	19	A	EXFILTRATION	MEAD WEST
36.8	48	44	35	43	35	16	F	EXFILTRATION	N BREVARD AVE - MINUTEMAN - N 2ND ST
38.2	63	38	66	27	17	18	B	SWALE	PARK - BETWEEN A1A AND BANANA RIVER
38.3	46	42	32	46	43	21	F	EXFILTRATION	N BREVARD AVE - MINUTEMAN - N 1ST ST - N 2ND ST
38.3	31	41	69	20	27	42	F	SWALE	MINUTEMAN BETWEEN CRYSTAL RIVER AND DANUBE - EAST
38.3	24	33	59	29	33	52	I	SWALE	MINUTEMAN CSWY - MIDDLE SCHOOL
38.5	30	40	68	22	28	43	I	SWALE	MINUTEMAN CSWY - EAST DRIVERS ED
39.5	20	60	45	23	57	32	C	EXFILTRATION	MAIN TO WAKULLA
40.7	42	39	67	32	25	39	G	SWALE	MINUTEMAN CSWY - CRYSTAL TO DANUBE RIVER
41.3	28	37	63	31	36	53	H	SWALE	S 9TH ST - ATLANTIC TO N ORLANDO
41.8	47	43	34	51	51	25	G	EXFILTRATION	N BREVARD AVE - MINUTEMAN - N 1ST ST - SOUTH
42.0	50	46	37	49	47	23	G	EXFILTRATION	N BREVARD AVE AT S 1ST
43.2	33	45	70	28	32	51	C	SWALE	FLAGLER TO ST. LUCIE
43.7	36	48	71	26	31	50	I	SWALE	MINUTEMAN CSWY - WEST DRIVERS ED
44.2	25	36	61	35	45	63	B	SWALE	OCEAN BEACH BLVD. - OSCEOLA TO PARK
44.7	38	52	74	25	30	49	C	SWALE	PALM TO ST. LUCIE
45.5	27	25	1	88	95	37	D	POND	SEMINOLE STORMWATER POND PARK
46.2	60	54	40	50	49	24	G	EXFILTRATION	N BREVARD AVE - MINUTEMAN
46.7	52	49	6	76	80	17	A	POND	NORTHEND STORMWATER POND PARK
48.8	29	51	73	30	46	64	B	SWALE	OCEAN BEACH BLVD. - VOLUSIA TO SUWANEE
50.7	35	63	80	24	42	60	G	SWALE	MINUTEMAN CSWY - EAST OF RIVIERA
50.7	40	57	77	33	40	57	H	SWALE	S 9TH ST - N ORLANDO TO N BREVARD
53.8	55	59	78	38	38	55	G	SWALE	MINUTEMAN CSWY - DELEON TO RIVIERA
54.2	51	47	3	91	98	35	E	POND	COCOA ISLES STORMWATER POND PARK
54.5	69	61	47	59	58	33	G	EXFILTRATION	N BREVARD AVE - MINUTEMAN - N 1ST ST - NORTH
56.5	83	72	83	41	24	36	B	SWALE	OSCEOLA BETWEEN AIA AND BANANA RIVER
56.7	72	65	50	60	59	34	G	EXFILTRATION	N BREVARD AVE - MINUTEMAN - S 1ST ST
57.2	53	67	81	37	44	61	G	SWALE	N BREVARD - S 2ND TO S 3RD
58.5	73	66	51	61	62	38	C	EXFILTRATION	WAKULLA TO FLAGLER
59.0	86	73	85	44	26	40	B	SWALE	PASCO BETWEEN AIA AND BANANA RIVER
59.8	70	62	15	82	85	45	F	POND	WET POND N 2ND & BREVARD
60.3	54	50	38	75	77	68	A	EXFILTRATION	OCEAN BEACH BLVD - LEON TO ALACHUA
61.0	71	64	49	68	66	48	B	EXFILTRATION	OCEAN BEACH BLVD. - SUWANEE TO GADSDEN
61.7	100	35	60	84	37	54	E	SWALE	BANANA RIVER BLVD
61.8	74	69	53	65	64	46	B	EXFILTRATION	OCEAN BEACH BLVD. - LEON TO PASCO
63.0	89	77	91	48	29	44	B	SWALE	VOLUSIA BETWEEN AIA AND BANANA RIVER
63.8	14	10	2	119	119	119	E	SED TRAP - 4	HOLIDAY CENTER (SE035M / SE036O)
64.2	76	74	57	66	65	47	F	EXFILTRATION	N BREVARD AVE - N 1ST ST
64.7	57	78	92	39	53	69	H	SWALE	S 10TH ST - N ORLANDO TO N BREVARD
65.0	84	58	43	77	72	56	C	EXFILTRATION	MARION TO BREVARD LN TO PALM
65.3	15	13	4	120	120	120	A	SED TRAP - 3	JACK DR. / KENT DR. / BANANA RIVER BLVD. (SA038M / SA039O)
65.5	104	70	54	80	54	31	G	EXFILTRATION	N BREVARD AVE - S 4TH TO S 5TH
66.8	17	16	5	121	121	121	F	SED TRAP - 3	NORTHSHORE (SF073I / SF074O)
67.0	59	80	93	42	56	72	F	SWALE	MINUTEMAN BETWEEN CRYSTAL RIVER AND BOUGANVILLEA - EAST
67.2	77	89	101	36	41	59	B	SWALE	GADSDEN - BETWEEN A1A AND BANANA RIVER
67.7	103	88	65	71	52	27	H	EXFILTRATION	N BREVARD AVE - S 10TH TO S 11TH
68.3	49	71	55	74	83	78	A	EXFILTRATION	BEACH BLVD - ALACHUA TO CALIFORNIA
68.5	82	75	88	53	48	65	I	SWALE	MINUTEMAN CSWY AND WARRINGER - NE SIDE
69.7	22	21	8	122	123	122	G	SED TRAP - 3	SOUTH 2ND STREET (SG077I / SG078O)

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70.3	56	76	90	54	67	79	E	SWALE	ST CROIX AVE / BANANA RIVER BLVD
71.3	67	85	98	45	60	73	H	SWALE	S 6TH ST - ATLANTIC TO N ORLANDO
71.5	65	84	97	47	61	75	G	SWALE	S 3RD ST - N ORLANDO TO ATLANTIC
74.3	43	68	16	106	115	98	E	POND	LORI WILSON PARK
74.3	37	30	9	123	124	123	C	SED TRAP - 4	ST. LUCIE LANE / BANANA RIVER BLVD. (SC063I / SC064O)
75.7	87	87	64	73	76	67	B	EXFILTRATION	OCEAN BEACH BLVD. - PASCO TO OSCEOLA
76.5	92	82	95	64	55	71	E	SWALE	BANANA RIVER BLVD - WEST
76.7	75	90	103	52	63	77	F	SWALE	MINUTEMAN BETWEEN CEDAR AND AZALEA - EAST
76.7	64	83	96	57	71	89	H	SWALE	S 6TH ST - N ORLANDO TO N BREVARD
77.7	41	34	17	124	126	124	H	SED TRAP - 3	SOUTH 8TH STREET (SH071I / SH072O)
78.2	95	92	108	58	50	66	B	SWALE	ALACHUA BETWEEN AIA AND BANANA RIVER
78.8	39	32	25	126	125	126	F	SED TRAP - 2	NORTH 4TH STREET / BLAKEY (SF233I / SF234O)
80.0	85	86	27	99	109	74	F	POND	WET POND N 1ST & CEDAR
82.5	78	95	112	56	70	84	H	SWALE	S 7TH ST - ATLANTIC TO N ORLANDO
84.7	110	102	84	81	73	58	H	EXFILTRATION	N BREVARD AVE - S 9TH TO S 10TH
84.8	90	94	111	63	69	82	G	SWALE	MINUTEMAN CSWY - CHIPOLA TO DELEON
85.0	112	98	79	85	74	62	H	EXFILTRATION	N BREVARD AVE - S 8TH (W)
86.0	62	56	19	125	129	125	D	SED TRAP - 4	SEMINOLE LANE (SD040O)
87.7	66	18	62	129	122	129	F	SED TRAP - 1	CEDAR AVENUE (SF426I / SF427O)
88.0	61	55	30	127	128	127	B	SED TRAP - 3	CARMINE DR. / BARRELLO LANE / BANANA RIVER BLVD. (SB049I / SB050O)
88.2	106	93	72	100	82	76	H	EXFILTRATION	N BREVARD AVE - S 10TH TO S 11TH
89.3	93	97	52	101	110	83	G	POND	DOWNTOWN STORMWATER POND PARK
89.3	58	53	42	128	127	128	G	SED TRAP - 2	MINUTEMAN / BREVARD (SG131I / SG132O)
90.0	88	100	117	67	75	93	G	SWALE	S 4TH ST - N ORLANDO TO ATLANTIC
90.3	81	96	115	69	81	100	H	SWALE	S 8TH ST - N ORLANDO TO N BREVARD
91.3	94	99	41	110	113	91	F	POND	WET POND N 3RD & BREVARD (N OF JONATHANS)
91.8	102	107	99	79	84	80	G	EXFILTRATION	N BREVARD AVE - S 1ST TO S 2ND
92.5	114	106	94	93	78	70	H	EXFILTRATION	N BREVARD AVE - S 9TH TO S 10TH
93.3	109	109	123	70	68	81	G	SWALE	N BREVARD - S 4TH TO S 6TH
93.7	97	101	82	90	97	95	C	EXFILTRATION	FLAGLER TO ST. LUCIE
95.0	96	105	121	72	79	97	G	SWALE	MINUTEMAN CSWY - AUCILA TO BOCA CIEGA
95.2	99	104	89	89	96	94	C	EXFILTRATION	PALM TO ST. LUCIE
95.8	105	110	102	83	88	87	F	EXFILTRATION	N BREVARD AVE - N 3RD ST - N 4TH ST
102.5	117	114	107	97	90	90	H	EXFILTRATION	N BREVARD AVE - S 6TH
102.8	111	119	116	86	93	92	F	EXFILTRATION	N BREVARD AVE - N 2ND ST - N 3RD ST
103.5	124	111	104	111	86	85	H	EXFILTRATION	N BREVARD AVE - S 7TH
103.5	101	120	124	78	91	107	F	SWALE	MINUTEMAN BETWEEN CEDAR AND AZALEA - WEST
103.8	79	79	75	130	130	130	B	SED TRAP - 1	BARRELLO LANE / ANGELO LANE / BANANA RIVER BLVD. (SB214I / SB215O)
104.2	121	113	106	108	89	88	G	EXFILTRATION	N BREVARD AVE - S 2ND TO S 3RD (SW)
104.8	127	112	105	112	87	86	G	EXFILTRATION	N BREVARD AVE - S 3RD TO S 4TH
105.0	80	81	76	131	131	131	F	SED TRAP - 1	NORTH 3RD STREET (SF323I / SF324O)
106.3	107	115	109	96	107	104	B	EXFILTRATION	OCEAN BEACH BLVD. - OSCEOLA TO PARK
107.5	119	108	100	109	106	103	H	EXFILTRATION	N BREVARD AVE - S 9TH TO S 10TH
109.0	115	118	114	105	103	99	A	EXFILTRATION	MEAD EAST
109.5	108	124	120	92	108	105	B	EXFILTRATION	OCEAN BEACH BLVD. - VOLUSIA TO SUWANEE
109.5	116	121	125	95	92	108	C	SWALE	BEACH BLVD - 520 TO DIXIE TO MARION
110.7	91	91	86	132	132	132	E	SED TRAP - 1	HOLIDAY LANE (SE054I)
110.7	113	125	126	87	101	112	G	SWALE	MINUTEMAN CSWY - BOCA CIEGA TO CHIPOLA
112.0	120	122	118	107	104	101	H	EXFILTRATION	N BREVARD AVE - S 8TH (E)
113.2	122	116	110	114	111	106	H	EXFILTRATION	N BREVARD AVE - S 9TH TO S 10TH
114.5	98	103	87	133	133	133	B	SED TRAP - 2	BRIGHTWATERS DR. / DORSET DR. / FAIRVIEW DR. (SB134M / SB135O)
114.7	130	130	131	94	94	109	G	SWALE	S 4TH ST - YACHT HAVEN TO SLOOP
115.2	118	117	113	115	114	114	H	EXFILTRATION	N BREVARD AVE - S 6TH
115.2	125	127	128	102	99	110	B	SWALE	LEON BETWEEN AIA AND BANANA RIVER
115.5	131	123	119	113	105	102	G	EXFILTRATION	N BREVARD AVE - S 2ND TO S 3RD
116.5	128	128	129	103	100	111	G	SWALE	N BREVARD - S 3RD TO S 5TH
117.8	129	129	130	104	102	113	G	SWALE	N BREVARD - S 2ND TO S 4TH
119.3	126	132	132	98	112	116	G	SWALE	N BREVARD - S 2ND TO S 3RD
119.7	123	126	122	116	116	115	H	EXFILTRATION	N BREVARD AVE - S 8TH (E)
123.7	132	131	127	118	117	117	C	EXFILTRATION	BEACH BLVD - 520 TO DIXIE TO MARION
125.3	133	133	133	117	118	118	F	SWALE	MINUTEMAN BETWEEN CRYSTAL RIVER AND BOUGANVILLEA - WEST

NOTES:
*** Equal weighting applied to each ranking type for average**
(i.e., (UCE TSS + TSS Removed + Cost Equalized UCE TSS + UCE Freshwater + Freshwater Retained + Cost Equalized uce Freshwater) / 6)

TABLE 6.5
PROJECT GROUPING LISTING FOR EXFILTRATION AND SWALE PROJECTS
STORMWATER MASTER PLAN
CITY OF COCOA BEACH, FLORIDA

PROJECT GROUP	INDIVIDUAL BMP LOCATION / DESCRIPTION	BASIN	BMP TYPE
ENHANCED SWALE / EXFILTRATION PROJECTS - OCEAN BEACH BOULEVARD BETWEEN CALIFORNIA & VOLUSIA	OCEAN BEACH BLVD - ALACHUA TO CALIFORNIA	A	EXFILTRATION
	OCEAN BEACH BLVD - LEON TO ALACHUA	A	EXFILTRATION
	OCEAN BEACH BLVD. - LEON TO PASCO	B	EXFILTRATION
	OCEAN BEACH BLVD. - OSCEOLA TO PARK	B	EXFILTRATION
	OCEAN BEACH BLVD. - PASCO TO OSCEOLA	B	EXFILTRATION
	OCEAN BEACH BLVD. - SUWANEE TO GADSDEN	B	EXFILTRATION
	OCEAN BEACH BLVD. - VOLUSIA TO SUWANEE	B	EXFILTRATION
	OCEAN BEACH BLVD - ALACHUA TO CALIFORNIA	A	SWALE
	OCEAN BEACH BLVD - LEON TO ALACHUA	A	SWALE
	OCEAN BEACH BLVD. - 520 TO VOLUSIA	B	SWALE
	OCEAN BEACH BLVD. - LEON TO PASCO	B	SWALE
	OCEAN BEACH BLVD. - OSCEOLA TO PARK	B	SWALE
	OCEAN BEACH BLVD. - PASCO TO OSCEOLA	B	SWALE
	OCEAN BEACH BLVD. - SUWANEE TO GADSDEN	B	SWALE
	OCEAN BEACH BLVD. - VOLUSIA TO SUWANEE	B	SWALE
ENHANCED SWALE / EXFILTRATION PROJECTS - OCEAN BEACH BOULEVARD 520 TO FLAGLER	OCEAN BEACH BLVD - 520 TO DIXIE TO MARION	C	EXFILTRATION
	OCEAN BEACH BLVD - 520 TO DIXIE TO MARION	C	EXFILTRATION
	FLAGLER TO ST. LUCIE	C	EXFILTRATION
	MARION TO BREVARD LANE TO PALM	C	EXFILTRATION
	PALM TO ST. LUCIE	C	EXFILTRATION
	OCEAN BEACH BLVD - 520 TO DIXIE TO MARION	C	SWALE
	OCEAN BEACH BLVD - 520 TO DIXIE TO MARION	C	SWALE
	FLAGLER TO ST. LUCIE	C	SWALE
	MARION TO BREVARD LN TO PALM	C	SWALE
	PALM TO ST. LUCIE	C	SWALE
EXFILTRATION PROJECTS - BREVARD AVENUE FROM NORTH 4TH STREET TO MINUTEMAN CAUSEWAY	N BREVARD AVE - MINUTEMAN - N 1ST ST - N 2ND ST	F	EXFILTRATION
	N BREVARD AVE - MINUTEMAN - N 2ND ST	F	EXFILTRATION
	N BREVARD AVE - N 1ST ST	F	EXFILTRATION
	N BREVARD AVE - N 2ND ST - N 3RD ST	F	EXFILTRATION
	N BREVARD AVE - N 3RD ST - N 4TH ST	F	EXFILTRATION
	N BREVARD AVE - MINUTEMAN	G	EXFILTRATION
	N BREVARD AVE - MINUTEMAN - N 1ST ST - NORTH	G	EXFILTRATION
	N BREVARD AVE - MINUTEMAN - N 1ST ST - SOUTH	G	EXFILTRATION
EXFILTRATION PROJECTS - BREVARD AVENUE FROM MINUTEMAN CAUSEWAY TO SOUTH 5TH STREET	N BREVARD AVE - MINUTEMAN - S 1ST ST	G	EXFILTRATION
	N BREVARD AVE - S 1ST TO S 2ND	G	EXFILTRATION
	N BREVARD AVE - S 2ND TO S 3RD	G	EXFILTRATION
	N BREVARD AVE - S 2ND TO S 3RD (SW)	G	EXFILTRATION
	N BREVARD AVE - S 3RD TO S 4TH	G	EXFILTRATION
	N BREVARD AVE - S 4TH TO S 5TH	G	EXFILTRATION
	N BREVARD AVE AT S 1ST	G	EXFILTRATION
EXFILTRATION PROJECTS - BREVARD AVENUE FROM SOUTH 5TH STREET TO SOUTH 11TH STREET	N BREVARD AVE - S 10TH TO S 11TH	H	EXFILTRATION
	N BREVARD AVE - S 10TH TO S 11TH	H	EXFILTRATION
	N BREVARD AVE - S 6TH	H	EXFILTRATION
	N BREVARD AVE - S 7TH	H	EXFILTRATION
	N BREVARD AVE - S 8TH (E)	H	EXFILTRATION
	N BREVARD AVE - S 8TH (E)	H	EXFILTRATION
	N BREVARD AVE - S 8TH (W)	H	EXFILTRATION
	N BREVARD AVE - S 9TH TO S 10TH	H	EXFILTRATION
	N BREVARD AVE - S 9TH TO S 10TH	H	EXFILTRATION
	N BREVARD AVE - S 9TH TO S 10TH	H	EXFILTRATION
	N BREVARD AVE - S 9TH TO S 10TH	H	EXFILTRATION

TABLE 6.5
PROJECT GROUPING LISTING FOR EXFILTRATION AND SWALE PROJECTS
STORMWATER MASTER PLAN
CITY OF COCOA BEACH, FLORIDA

PROJECT GROUP	INDIVIDUAL BMP LOCATION / DESCRIPTION	BASIN	BMP TYPE
SWALE PROJECTS - BETWEEN VOLUSIA & ALACHUA AND SRA1A & NORTH BANANA RIVER BLVD.	ALACHUA BETWEEN AIA AND BANANA RIVER	B	SWALE
	GADSDEN - BETWEEN A1A AND BANANA RIVER	B	SWALE
	LEON BETWEEN AIA AND BANANA RIVER	B	SWALE
	OSCEOLA BETWEEN AIA AND BANANA RIVER	B	SWALE
	PARK - BETWEEN A1A AND BANANA RIVER	B	SWALE
	PASCO BETWEEN AIA AND BANANA RIVER	B	SWALE
	SUWANEE BETWEEN AIA AND BANANA RIVER	B	SWALE
	VOLUSIA BETWEEN AIA AND BANANA RIVER	B	SWALE
EASEMENT SWALES - OCEAN BEACH TO BANANA RIVER BLVD.	ST. LUCIE - A1A TO BANANA RIVER BLVD - EAST	C	SWALE
	ST. LUCIE - A1A TO BANANA RIVER BLVD - WEST	C	SWALE
	ST. LUCIE - A1A TO BEACH BLVD	C	SWALE
SWALE PROJECTS - BANANA RIVER BLVD & ST. CROIX	BANANA RIVER BLVD - EAST	E	SWALE
	BANANA RIVER BLVD - WEST	E	SWALE
	ST CROIX AVE / BANANA RIVER BLVD	E	SWALE
SWALE PROJECTS - MINUTEMEN CAUSEWAY SWALES - AUCILA TO COUNTRY CLUB	MINUTEMAN BETWEEN CEDAR AND AZALEA - EAST	F	SWALE
	MINUTEMAN BETWEEN CEDAR AND AZALEA - WEST	F	SWALE
	MINUTEMAN BETWEEN CRYSTAL RIVER AND BOUGANVILLEA - EAST	F	SWALE
	MINUTEMAN BETWEEN CRYSTAL RIVER AND BOUGANVILLEA - WEST	F	SWALE
	MINUTEMAN BETWEEN CRYSTAL RIVER AND DANUBE - EAST	F	SWALE
	MINUTEMAN CSWY - AUCILA TO BOCA CIEGA	G	SWALE
	MINUTEMAN CSWY - BOCA CIEGA TO CHIPOLA	G	SWALE
	MINUTEMAN CSWY - CHIPOLA TO DELEON	G	SWALE
	MINUTEMAN CSWY - CRYSTAL TO DANUBE RIVER	G	SWALE
	MINUTEMAN CSWY - DELEON TO RIVIERA	G	SWALE
	MINUTEMAN CSWY - EAST OF RIVIERA	G	SWALE
	MINUTEMAN CSWY - EAST DRIVERS ED	I	SWALE
	MINUTEMAN CSWY - MIDDLE SCHOOL	I	SWALE
	MINUTEMAN CSWY - WEST DRIVERS ED	I	SWALE
	MINUTEMAN CSWY AND COUNTRY CLUB	I	SWALE
	MINUTEMAN CSWY AND WARRINGER - NE SIDE	I	SWALE
SWALE PROJECTS - SOUTH 3RD TO SOUTH 7TH STREET FROM ATLANTIC TO BREVARD	N BREVARD - S 2ND TO S 3RD	G	SWALE
	N BREVARD - S 2ND TO S 3RD	G	SWALE
	N BREVARD - S 2ND TO S 4TH	G	SWALE
	N BREVARD - S 3RD TO S 5TH	G	SWALE
	N BREVARD - S 4TH TO S 6TH	G	SWALE
	S 3RD ST - N ORLANDO TO ATLANTIC	G	SWALE
	S 6TH ST - ATLANTIC TO N ORLANDO	H	SWALE
	S 6TH ST - N ORLANDO TO N BREVARD	H	SWALE
	S 7TH ST - ATLANTIC TO N ORLANDO	H	SWALE
SWALE PROJECTS - SOUTH 4TH STREET FROM ATLANTIC TO SLOOP	S 4TH ST - N ORLANDO TO ATLANTIC	G	SWALE
	S 4TH ST - RIVERVIEW TO YACHT HAVEN	G	SWALE
	S 4TH ST - YACHT HAVEN TO SLOOP	G	SWALE
SWALE PROJECTS - SOUTH 8TH TO SOUTH 11TH STREET FROM ATLANTIC TO BREVARD	S 10TH ST - ATLANTIC TO N ORLANDO	H	SWALE
	S 10TH ST - N ORLANDO TO N BREVARD	H	SWALE
	S 11TH ST - ATLANTIC TO N ORLANDO	H	SWALE
	S 11TH ST - N ORLANDO TO N BREVARD	H	SWALE
	S 8TH ST - ATLANTIC TO N ORLANDO	H	SWALE
	S 8TH ST - N ORLANDO TO N BREVARD	H	SWALE
	S 9TH ST - ATLANTIC TO N ORLANDO	H	SWALE
	S 9TH ST - N ORLANDO TO N BREVARD	H	SWALE

TABLE 6.6
CIP PROJECT SUMMARY BY BASIN
STORMWATER MASTER PLAN
CITY OF COCOA BEACH, FLORIDA

			Estimated Pollutant Load Reduction Data				Estimated Construction costs			Estimated Capital Costs								
BASIN	**BMP LOCATION / DESCRIPTION**	AREA SERVED (acres)	TSS REMOVED BY BMP (lbs/yr)	TN REMOVED BY BMP (lbs/yr)	TP REMOVED BY BMP (lbs/yr)	FRESH WATER RETAINED BY BMP (Mgal/yr)	Factored Labor Portion of Construction Costs ($)	Factored Equipment/ Materials Portion of Construction Costs ($)	**Total Construction Cost ($)**	CONTINGENCY Capital Cost ($)	ENGINEERING Capital Cost ($)	PERMITTING Capital Cost ($)	ADMIN/LEGAL Capital Cost ($)	**Total Capital Cost ($)**	**Estimated Land Cost ($)**	**Total Estimated Implementation Cost**	**Estimated Annual O&M ($/year)***	**Estimated Implementation Schedule (months)**
A,B	ENHANCED SWALE / EXFILTRATION PROJECTS - OCEAN BEACH BOULEVARD BETWEEN CALIFORNIA & VOLUSIA	81.6	4712	128.1	19.17	10.25	$51,250	$115,000	$166,250	$14,688	$16,625	$8,313	$8,313	$47,938	$0	$214,188	$7,150	6
C	ENHANCED SWALE / EXFILTRATION PROJECTS - OCEAN BEACH BOULEVARD 520 TO FLAGLER	35.1	3059	76.7	17.48	8.97	$63,750	$148,750	$212,500	$19,125	$21,250	$10,625	$10,625	$61,625	$0	$274,125	$9,350	6
F,G	EXFILTRATION PROJECTS - BREVARD AVENUE FROM NORTH 4TH STREET TO MINUTEMAN CAUSEWAY	18.8	1641	41.2	9.06	4.44	$40,000	$120,000	$160,000	$16,000	$16,000	$8,000	$8,000	$48,000	$0	$208,000	$8,000	6
G	EXFILTRATION PROJECTS - BREVARD AVENUE FROM MINUTEMAN CAUSEWAY TO SOUTH 5TH STREET	13.1	808	18.6	4.58	2.28	$110,000	$330,000	$440,000	$44,000	$44,000	$22,000	$22,000	$132,000	$0	$572,000	$22,000	6
H	EXFILTRATION PROJECTS - BREVARD AVENUE FROM SOUTH 5TH STREET TO SOUTH 11TH STREET	33.4	596	28.7	6.53	2.06	$167,500	$502,500	$670,000	$67,000	$67,000	$33,500	$33,500	$201,000	$0	$871,000	$33,500	6
B	SWALE PROJECTS - BETWEEN VOLUSIA & ALACHUA AND SRA1A & NORTH BANANA RIVER BLVD.	39.9	524	5.7	1.84	3.52	$43,750	$43,750	$87,500	$4,375	$8,750	$4,375	$4,375	$21,875	$0	$109,375	$1,750	4
C	EASEMENT SWALES ALONG ST. LUCIE FROM OCEAN BEACH TO BANANA RIVER BLVD.	18.4	1726	9.5	3.71	3.88	$17,500	$17,500	$35,000	$1,750	$3,500	$1,750	$1,750	$8,750	$0	$43,750	$700	4
E	SWALE PROJECTS - BANANA RIVER BLVD & ST. CROIX	10.7	365	3.1	1.25	1.40	$15,000	$15,000	$30,000	$1,500	$3,000	$1,500	$1,500	$7,500	$0	$37,500	$600	4
E	EASEMENT SWALE ON VACANT PROPERTY EAST OF SAMAR	9.0	208	2.0	0.87	1.39	$12,500	$12,500	$25,000	$1,250	$2,500	$1,250	$1,250	$6,250	$0	$31,250	$500	4
F,G,I	SWALE PROJECTS - MINUTEMEN CAUSEWAY SWALES - AUCILA TO COUNTRY CLUB	39.2	1173	8.3	2.93	4.32	$48,125	$48,125	$96,250	$4,813	$9,625	$4,813	$4,813	$24,063	$0	$120,313	$1,925	4
G,H	SWALE PROJECTS - SOUTH 3RD TO SOUTH 7TH STREET FROM ATLANTIC TO BREVARD	21.8	248	2.1	0.91	1.01	$35,000	$35,000	$70,000	$3,500	$7,000	$3,500	$3,500	$17,500	$0	$87,500	$1,400	4
G	SWALE PROJECTS - SOUTH 4TH STREET FROM ATLANTIC TO SLOOP	11.0	358	3.0	1.16	1.43	$12,500	$12,500	$25,000	$1,250	$2,500	$1,250	$1,250	$6,250	$0	$31,250	$500	4
H	SWALE PROJECTS - SOUTH 8TH TO SOUTH 11TH STREET FROM ATLANTIC TO BREVARD	46.6	1590	11.7	4.55	5.36	$20,000	$20,000	$40,000	$2,000	$4,000	$2,000	$2,000	$10,000	$0	$50,000	$800	4
A	STORMWATER POND - NORTHEND STORMWATER POND PARK	59.4	1362	68.9	16.38	0.98	$25,200	$58,800	$84,000	$16,800	$12,600	$4,200	$4,200	$37,800	$1,500	$123,300	$10,500	12
C	STORMWATER POND - WET POND - ROCK POINT - FLOW DIVERSION / REHABILITATION	72.7	825	84.9	24.18	0.44	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6
D	STORMWATER POND - SEMINOLE STORMWATER POND PARK	83.0	4153	264.1	41.64	0.48	$16,800	$39,200	$56,000	$11,200	$8,400	$2,800	$2,800	$25,200	$100,000	$181,200	$10,500	12
E	STORMWATER POND - COCOA ISLES STORMWATER POND PARK	81.2	1931	189.2	38.50	0.50	$21,000	$49,000	$70,000	$14,000	$10,500	$3,500	$3,500	$31,500	$100,000	$201,500	$10,500	12
F	STORMWATER POND - WET POND N 1ST & CEDAR	6.8	411	13.1	2.98	0.17	$10,500	$24,500	$35,000	$7,000	$5,250	$1,750	$1,750	$15,750	$50,000	$100,750	$5,250	12
F	STORMWATER POND - WET POND N 2ND & BREVARD	33.5	742	61.0	7.23	0.40	$10,500	$24,500	$35,000	$7,000	$5,250	$1,750	$1,750	$15,750	$50,000	$100,750	$5,250	12
F	STORMWATER POND - WET POND N 3RD & BREVARD (N OF JONATHANS)	4.6	242	9.4	2.15	0.08	$10,500	$24,500	$35,000	$7,000	$5,250	$1,750	$1,750	$15,750	$50,000	$100,750	$5,250	12
G	STORMWATER POND - DOWNTOWN STORMWATER POND PARK	18.7	193	26.3	7.16	0.12	$12,600	$29,400	$42,000	$8,400	$6,300	$2,100	$2,100	$18,900	$0	$60,900	$5,250	12
H	STORMWATER POND - RIVER LAKES WET POND - FLOW DIVERSION/REHABILITATION	110.5	393	36.6	7.35	0.07	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6
A	SEDIMENT / OIL & GREASE TRAP - JACK DR. / KENT DR. / BANANA RIVER BLVD. (SA038M / SA039O)	64.4	1824	56.3	1.37	0.00	$10,000	$30,000	$40,000	$6,000	$4,000	$2,000	$2,000	$14,000	$0	$54,000	$500	6
B	SEDIMENT / OIL & GREASE TRAP - BARRELLO LANE / ANGELO LANE / BANANA RIVER BLVD. (SB214I / SB215O)	11.0	84	6.7	0.15	0.00	$3,750	$11,250	$15,000	$2,250	$1,500	$750	$750	$5,250	$0	$20,250	$300	6
B	SEDIMENT / OIL & GREASE TRAP - BRIGHTWATERS DR. / DORSET DR. / FAIRVIEW DR. (SB134M / SB135O)	23.0	55	5.0	0.13	0.00	$6,250	$18,750	$25,000	$3,750	$2,500	$1,250	$1,250	$8,750	$0	$33,750	$400	6
B	SEDIMENT / OIL & GREASE TRAP - CARMINE DR. / BARRELLO LANE / BANANA RIVER BLVD. (SB049I / SB050O)	61.5	356	34.2	0.81	0.00	$10,000	$30,000	$40,000	$6,000	$4,000	$2,000	$2,000	$14,000	$0	$54,000	$500	6
C	SEDIMENT / OIL & GREASE TRAP - ST. LUCIE LANE / BANANA RIVER BLVD. (SC063I / SC064O)	72.7	1032	66.1	1.96	0.00	$15,000	$45,000	$60,000	$9,000	$6,000	$3,000	$3,000	$21,000	$0	$81,000	$500	6
D	SEDIMENT / OIL & GREASE TRAP - SEMINOLE LANE (SD040O)	83.0	519	64.8	1.12	0.00	$15,000	$45,000	$60,000	$9,000	$6,000	$3,000	$3,000	$21,000	$0	$81,000	$500	6
E	SEDIMENT / OIL & GREASE TRAP - HOLIDAY CENTER (SE035M / SE036O)	81.2	3075	161.6	3.38	0.00	$15,000	$45,000	$60,000	$9,000	$6,000	$3,000	$3,000	$21,000	$0	$81,000	$500	6
E	SEDIMENT / OIL & GREASE TRAP - HOLIDAY LANE (SE054I)	7.6	56	1.5	0.05	0.00	$3,750	$11,250	$15,000	$2,250	$1,500	$750	$750	$5,250	$0	$20,250	$300	6
F	SEDIMENT / OIL & GREASE TRAP - NORTH 3RD STREET (SF323I / SF324O)	9.6	81	4.0	0.13	0.00	$3,750	$11,250	$15,000	$2,250	$1,500	$750	$750	$5,250	$0	$20,250	$300	6
F	SEDIMENT / OIL & GREASE TRAP - CEDAR AVENUE (SF426I / SF427O)	12.9	128	5.8	0.19	0.00	$3,750	$11,250	$15,000	$2,250	$1,500	$750	$750	$5,250	$0	$20,250	$300	6
F	SEDIMENT / OIL & GREASE TRAP - NORTH 4TH STREET / BLAKEY (SF233I / SF234O)	26.5	424	13.4	0.45	0.00	$6,250	$18,750	$25,000	$3,750	$2,500	$1,250	$1,250	$8,750	$0	$33,750	$400	6
F	SEDIMENT / OIL & GREASE TRAP - NORTHSHORE (SF073I / SF074O)	49.5	1691	63.2	1.68	0.00	$10,000	$30,000	$40,000	$6,000	$4,000	$2,000	$2,000	$14,000	$0	$54,000	$500	6
G	SEDIMENT / OIL & GREASE TRAP - MINUTEMAN / BREVARD (SG131I / SG132O)	21.0	241	20.5	0.58	0.00	$6,250	$18,750	$25,000	$3,750	$2,500	$1,250	$1,250	$8,750	$0	$33,750	$400	6
G	SEDIMENT / OIL & GREASE TRAP - SOUTH 2ND STREET (SG077I / SG078O)	85.6	1241	41.8	1.30	0.00	$10,000	$30,000	$40,000	$6,000	$4,000	$2,000	$2,000	$14,000	$0	$54,000	$500	6
H	SEDIMENT / OIL & GREASE TRAP - SOUTH 8TH STREET (SH071I / SH072O)	49.8	600	52.4	1.47	0.00	$10,000	$30,000	$40,000	$6,000	$4,000	$2,000	$2,000	$14,000	$0	$54,000	$500	6

Notes:
* For combined BMP project areas, annual O&M costs were reduced 50% from combined total to account for double maintenance

6.2 CIP WATER QUALITY IMPACT

The CIP project list was input into the BMP evaluation spreadsheets to determine the specific impact to the pollutant loading results. This *CIP BMP* pollutant loading case was then compared to the *FULL BMP* and Existing BMP cases which established the site specific TAPLRG. The results of this comparison are summarized in Table 6-7, and Figure 6-1. The results of the *EXISTING BMP* and *FULL BMP* cases are reiterated for comparison purposes.

The results indicate that the *CIP BMP* case comes close to the pollutant reduction performance of the *FULL BMP* case, with only a 1-2% difference in overall pollutant reduction for TSS (83% versus 85%), TN (68% versus 69%), and TP (67% versus 69%). The difference in the reduction in runoff volume was more pronounced but not significant differing by approximately 12% (34% versus 46%) from the *FULL BMP* case.

The CIP projects appear to provide a good effort at meeting the TAPLRG developed in the previous sections. Considering the approximations and inherent estimations used in the pollutant loading calculation process, the CIP projects may in fact provide nearly the same level of water quality benefit as indicated the *FULL BMP* implementation. This would require confirmation during the implementation process through reevaluation of the pollutant loading model utilizing actual project data. The City's CIP implementation along with significant actions by others (FDOT, Golf Course) could achieve a very beneficial level of pollutant reduction. This degree of water quality improvement would put the City in a good, if not excellent position with regard to the upcoming TMDL regulations.

TABLE 6.7
POLLUTANT LOADING COMPARISON
STORMWATER MASTER PLAN
CITY OF COCOA BEACH, FLORIDA

CIP BMP	TSS				TN				TP				FRESHWATER			
BASIN	BMP % REMOVAL	LBS. REMOVED	LBS. BEGIN	LBS. REMAIN	BMP % REMOVAL	LBS. REMOVED	LBS. BEGIN	LBS. REMAIN	BMP % REMOVAL	LBS. REMOVED	LBS. BEGIN	LBS. REMAIN	BMP % REMOVAL	MILLION GALLONS RETAINED	MILLION GALLONS BEGIN	MILLION GALLONS REMAIN
A	79.3%	11,042	13,918	2,876	67.5%	321	476	154	68.7%	49.6	72.1	22.6	22.5%	5.6	25.0	19.3
B	65.0%	11,111	17,095	5,984	60.2%	409	680	271	55.7%	53.5	96.1	42.6	39.4%	13.1	33.1	20.1
C	82.1%	29,490	35,902	6,412	66.1%	736	1,114	378	64.7%	115.4	178.4	63.0	44.8%	22.9	51.1	28.2
D	90.4%	29,846	33,011	3,165	71.9%	715	994	279	73.8%	111.8	151.6	39.8	41.8%	20.3	48.4	28.2
E	92.6%	40,107	43,295	3,188	76.7%	1,149	1,499	350	77.6%	191.8	247.1	55.3	32.4%	23.9	73.9	50.0
F	93.6%	26,621	28,434	1,814	80.4%	763	949	186	74.6%	120.3	161.3	41.0	27.3%	13.7	50.1	36.4
G	89.9%	19,185	21,336	2,151	74.1%	577	779	202	74.2%	101.8	137.1	35.3	29.9%	12.2	40.8	28.6
H	67.9%	9,164	13,505	4,342	40.9%	230	563	333	39.8%	42.3	106.3	64.0	48.1%	14.9	31.0	16.1
I	38.6%	4,373	11,328	6,956	39.5%	151	381	231	35.3%	14.7	41.7	27.0	16.7%	5.7	34.0	28.3
TOTALS	83.1%	180,939	217,824	36,886	67.9%	5,052	7,435	2,384	67.2%	801	1,192	391	34.1%	132	387	255

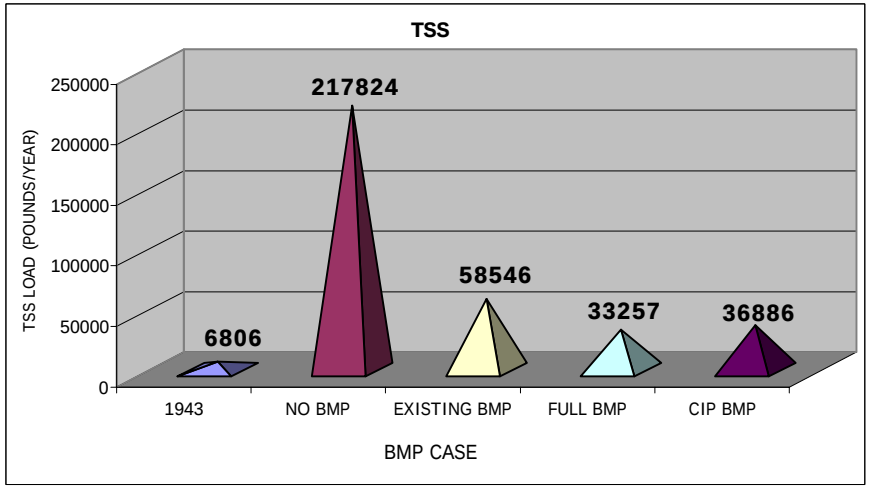
REFERENCE DATA FROM WATER QUALITY ASSESSMENT AND BMP EVALUATION SECTIONS

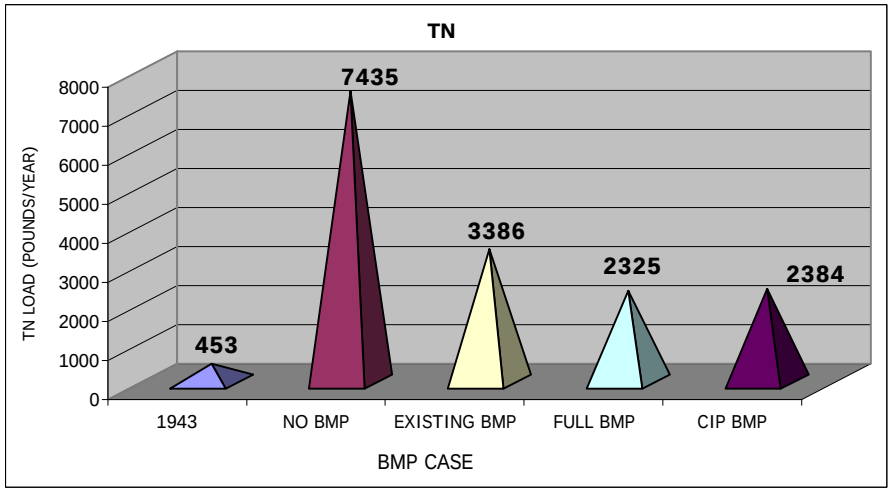
	TSS				TN				TP				Freshwater Volume			
BASIN	BMP % REMOVAL	LBS. REMOVED	LBS. BEGIN	LBS. REMAIN	BMP % REMOVAL	LBS. REMOVED	LBS. BEGIN	LBS. REMAIN	BMP % REMOVAL	LBS. REMOVED	LBS. BEGIN	LBS. REMAIN	BMP % REMOVAL	MILLION GALLONS RETAINED	MILLION GALLONS BEGIN	MILLION GALLONS REMAIN
EXISTING BMP CASE																
TOTALS	73.1%	159,278	217,824	58,546	54.5%	4,049	7,435	3,386	55.4%	660	1,192	531	21.1%	82	387	306
FULL BMP CASE																
TOTALS	84.7%	184,567	217,824	33,257	68.7%	5,111	7,435	2,325	68.6%	818	1,192	374	46.0%	178	387	209

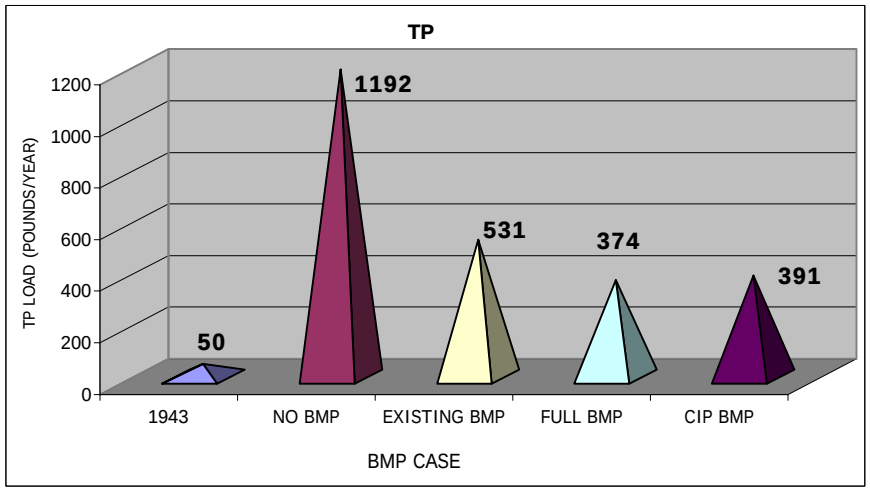
DIFFERENCE CIP BMP TO EXISTING BMP CASE	9.9%	21,660			13.5%	1,002			11.8%	141			13.1%	51		
DIFFERENCE CIP BMP TO FULL BMP CASE	1.7%	3,628			0.8%	59			1.4%	17			11.9%	46		

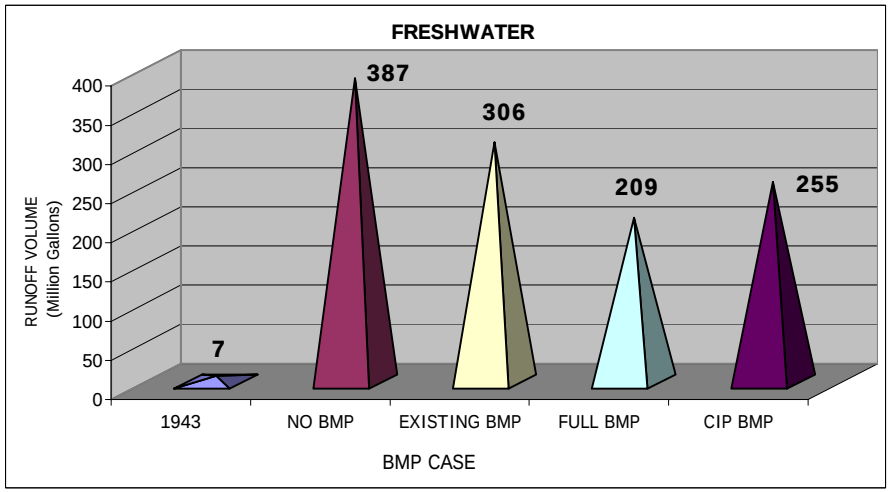
% REDUCTION FROM FULL BMP TO EXISTING BMP CASE:	43%		31%		30%		32%
% REDUCTION FROM CIP BMP TO EXISTING BMP CASE:	37%		30%		27%		17%

FIGURE 6-1
POLLUTANT LOADING COMPARISON - CIP BMP IMPLEMENTATION TO FULL BMP, EXISTING BMP, NO BMP CASES, AND 1943 CASES
STORMWATER MASTER PLAN
CITY OF COCOA BEACH, FLORIDA









6.3 CIP PROJECT DESCRIPTIONS

Included as Attachment 6-1 to this section are detailed one-page fact summary sheets about the projects identified for the CIP program. Included are photos of the proposed locations along with project descriptions, cost information, implementation scheduling estimates, and site-specific considerations.

It should be reiterated that the cost, schedule, and other technical data associated with these project sheets are estimates based on the CIP prioritization and comparison analysis provided in this section. Actual costs and schedules will vary based on economies of scale and method of implementation (i.e., City versus contractor constructed). These estimated should not be used for construction purposes without further refinement based on additional services required (e.g., engineering, surveying, utility identification, etc.).

Included as Attachment 6-2 are separate generalized fact sheets of project descriptions recommended for the City's State highways SRA1A and SR520. These projects would be under the jurisdiction of the FDOT for implementation. Although these projects are not directly addressed in this Master Plan, the benefit of these projects is considered significant enough to warrant their recommendation.

ATTACHMENT 6-1

CIP
STORMWATER PROJECT DATA SHEETS

Project #	Project Name
1.	SWALES & EXFILTRATION - Ocean Beach Boulevard between California & Volusia
2.	SWALES & EXFILTRATION - Ocean Beach Boulevard between 520 & Flagler
3.	EXFILTRATION - Brevard Avenue from North 4th Street to Minuteman Causeway
4.	EXFILTRATION - Brevard Avenue from Minuteman Causeway To South 5th Street
5.	EXFILTRATION – Brevard Avenue from South 5th Street to South 11th Street
6.	SWALES - Between Volusia & Alachua and SRA1A & North Banana
7.	SWALES - Easement Swales along St. Lucie from Ocean Beach to Banana River Blvd.
8.	SWALES - Banana River Blvd & St. Croix
9.	SWALES - Easement Swale on vacant property east of Samar
10.	SWALES - Minutemen Causeway Swales - Aucila to Country Club
11.	SWALES - 3rd - 7th St. S from Atlantic to Brevard
12.	SWALES - 4th St S from Atlantic to Sloop
13.	SWALES - 8th - 11th St. S from Atlantic to Brevard
14.	PONDS – Northend Stormwater Pond Park
15.	PONDS - Rock Point Condos - Flow Diversion / Private Retention Partnership
16.	PONDS - Seminole Lane Stormwater Pond Park
17.	PONDS – Cocoa Isles Stormwater Pond Park
18.	PONDS - North 1st & Cedar
19.	PONDS - North 2nd & Brevard
20.	PONDS - North 3rd & Brevard (North of Jonathans)
21.	PONDS – Downtown Stormwater Pond Park
22.	PONDS - River Lakes Wet Pond - Flow Diversion / Private Retention Partnership
23.	SEDIMENT TRAPS - Jack Dr. / Kent Dr. / Banana River Blvd. (SA038M / SA039O)
24.	SEDIMENT TRAPS - Barrello Ln. / Angelo Ln. / Banana River Blvd. (SB214I/SB215O)
25.	SEDIMENT TRAPS - Brightwaters Dr. / Dorset Dr. / Fairview Dr. (SB134M/SB135O)
26.	SEDIMENT TRAPS - Carmine Dr. / Barrello Ln. / Banana River Blvd. (SB049I/SB050O)
27.	SEDIMENT TRAPS - St. Lucie Lane / Banana River Blvd. (SC063I / SC064O)
28.	SEDIMENT TRAPS - Seminole Lane (SD040O)
29.	SEDIMENT TRAPS - Holiday Center (SE035M / SE036O)
30.	SEDIMENT TRAPS - Holiday Lane (SE054I)
31.	SEDIMENT TRAPS - North 3rd Street (SF323I / SF324O)
32.	SEDIMENT TRAPS - Cedar Avenue (SF426I / SF427O)
33.	SEDIMENT TRAPS - North 4th Street / Blakey (SF233I / SF234O)
34.	SEDIMENT TRAPS - Northshore (SF073I / SF074O)
35.	SEDIMENT TRAPS - Minuteman / Brevard (SG131I / SG132O)
36.	SEDIMENT TRAPS - South 2nd Street (SG077I / SG078O)
37.	SEDIMENT TRAPS - South 8th Street (SH071I / SH072O)

SWALES & EXFILTRATION - Ocean Beach Boulevard between California & Volusia

View to west along Ocean Beach Boulevard between Leon and Alachua

View to south along Ocean Beach Boulevard between Alachua and California

View to north along Ocean Beach Boulevard between Suwanee and Volusia

View to north along Ocean Beach Boulevard between Volusia and 520

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
A, B	81.6	0	4712	128.1	19.17	10.25

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$ 115,000	$ 51,250	$ 14,688	$ 16,625	$ 8,313	$ 8,313	$ 0	$ 214,188	$ 7,150

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	1	1	0.5	2.5	0.5	6

Constructed By:	***Additional Services Required:***
City or Contractor	Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES & EXFILTRATION - Ocean Beach Boulevard between 520 & Flagler

View to north along Ocean Beach Boulevard between 520 and Dixie Lane

View to south along Ocean Beach Boulevard between Brevard Lane and Palm Lane

View to north along Ocean Beach Boulevard between St. Lucie Lane and Flagler Lane

View to south along Ocean Beach Boulevard between Flagler Lane and Wakulla Lane

Project Data

Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
C	35.1	0.00	3059	76.7	17.48	8.97

Estimated Project Cost (year 2000 dollars)

Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$148,750	$63,750	$19,125	$21,250	$10,625	$10,625	$0	$274,125	$ 9,350

Estimated Implementation Schedule (months)

Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	1	1	0.5	2.5	0.5	6

Constructed By:	***Additional Services Required:***
City or Contractor	Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

EXFILTRATION - Brevard Avenue from North 4th Street to Minuteman Causeway

View to north along Brevard Avenue at typical roadside section.

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
H	33.4	0.00	1641	41.2	9.06	4.44

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$120,000	$40,000	$16,000	$16,000	$8,000	$8,000	$0	$208,000	$ 8,000

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	1	1	0.5	2.5	0.5	6

Constructed By:	***Additional Services Required:***
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

EXFILTRATION - Brevard Avenue from Minuteman Causeway To South 5th Street

View to north along N. Brevard between S. 2nd and S. 3rd

View to north along N. Brevard between S. 4th and S. 5th at SG055I and SG056M

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
H	33.4	0.00	808	18.6	4.58	2.28

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$330,000	$110,000	$44,000	$44,000	$22,000	$22,000	$0	$572,000	$22,000

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	1	1	0.5	2.5	0.5	6

Constructed By:	***Additional Services Required:***
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

EXFILTRATION – Brevard Avenue from South 5th Street to South 11th Street

View of typical roadside area for potential exfiltration

View of typical roadside area for potential exfiltration

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
H	33.4	0.00	596	28.7	6.53	2.06

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$502,500	$167,500	$67,000	$67,000	$33,500	$33,500	$0	$871,000	$33,500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	1	1	0.5	2.5	0.5	6

Constructed By:	***Additional Services Required:***
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES - Between Volusia & Alachua and SRA1A & North Banana

View to east along Pasco between A1A and Banana River Boulevard at SB118I

View to east along Park between A1A and Banana River Boulevard at SB044I

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
B	39.9	0.00	524	5.7	1.84	3.52

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$43,750	$43,750	$4,375	$8,750	$4,375	$4,375	$0	$109,375	$ 1,750

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	1	1	0.5	0.5	0.5	4

Constructed By:	***Additional Services Required:***
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: **Project would treat partial A1A (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES - Easement Swales along St. Lucie from Ocean Beach to Banana River Blvd.

View to east along St. Lucie Lane between A1A and Banana River Boulevard

View to west along St. Lucie Lane between A1A and Banana River Boulevard

Project Data

Basin	Area Served (acres)	Land Required (acres)	TSS Removal (lbs/yr)	TN Removal (lbs/yr)	TP Removal (lbs/yr)	Freshwater Retained (Million Gallons/yr)
C	18.4	0.00	1726	9.5	3.71	3.88

Estimated Project Cost (year 2000 dollars)

Construction		Capital				Land Cost	Total Cost	Estimated O&M / year
Equip/ Materials	Labor	Contingency	Engineering	Permitting	Admin / Legal			
$17,500	$17,500	$1,750	$3,500	$1,750	$1,750	$0	$43,750	$ 700

Estimated Implementation Schedule (months)

Initial Admin/ Legal	Engineering Design	Permitting	Interim Admin/ Subcontracting/ Procurement	Construction	Final Admin Certification/ Close-Out	Total
0.5	1	1	0.5	0.5	0.5	4

Constructed By:	Additional Services Required:
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES - Banana River Blvd & St. Croix

View to southwest along S. Banana River Boulevard at SE109I

View to northwest along S. Banana River Boulevard

Project Data

Basin	Area Served (acres)	Land Required (acres)	TSS Removal (lbs/yr)	TN Removal (lbs/yr)	TP Removal (lbs/yr)	Freshwater Retained (Million Gallons/yr)
E	10.7	0.00	365	3.1	1.25	1.40

Estimated Project Cost (year 2000 dollars)

Construction		Capital				Land Cost	Total Cost	Estimated O&M / year
Equip/ Materials	Labor	Contingency	Engineering	Permitting	Admin / Legal			
$15,000	$15,000	$1,500	$3,000	$1,500	$1,500	$0	$37,500	$ 600

Estimated Implementation Schedule (months)

Initial Admin/ Legal	Engineering Design	Permitting	Interim Admin/ Subcontracting/ Procurement	Construction	Final Admin Certification/ Close-Out	Total
0.5	1	1	0.5	0.5	0.5	4

Constructed By:	Additional Services Required:
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

Cocoa Isles Stormwater Pond Park/Easement Swale on vacant property east of Samar

SWALES - Easement Swale on vacant property east of Samar

View to north towards Denny's pond and proposed swale area east of Samar

Vacant area for potential swale east of Samar looking south

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
E	9.0	0.00	208	2.0	0.87	1.39

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$12,500	$12,500	$1,250	$2,500	$1,250	$1,250	$0	$31,250	$ 500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification / Close-Out***	***Total***
0.5	1	1	0.5	0.5	0.5	4

Constructed By:	***Additional Services Required:***
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES - Minutemen Causeway Swales - Aucila to Country Club

		
View to east along Minutemen between Crystal River and Bouganvillea at SF509I	View to east along Minutemen between Crystal River and Danube at SG901I	View to west along Minuteman between Boga Ciega and Chipola
		
View to west along Minuteman between DeLeon and Riviera at SG501I	View to east along Minuteman at Jr./Sr. High School	View to east along Minuteman east of Driver's Ed. at SI105I

Project Data

Basin	Area Served (acres)	Land Required (acres)	TSS Removal (lbs/yr)	TN Removal (lbs/yr)	TP Removal (lbs/yr)	Freshwater Retained (Million Gallons/yr)
F,G,I	39.2	0.00	1173	8.3	2.93	4.32

Estimated Project Cost (year 2000 dollars)

Construction		Capital				Land Cost	Total Cost	Estimated O&M / year
Equip/ Materials	Labor	Contingency	Engineering	Permitting	Admin / Legal			
$48,125	$48,125	$4,813	$9,625	$4,813	$4,813	$0	$120,313	$ 1,925

Estimated Implementation Schedule (months)

Initial Admin/ Legal	Engineering Design	Permitting	Interim Admin/ Subcontracting/ Procurement	Construction	Final Admin Certification/ Close-Out	Total
0.5	1	1	0.5	0.5	0.5	4

Constructed By:	Additional Services Required:
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES - 3rd - 7th St. S from Atlantic to Brevard

View to east along S. 3rd between N. Orlando and Atlantic at SG018I

View to east along S. 4th between N. Orlando and Atlantic at SG036I

View to east along S. 5th between N. Orlando and Brevard at SG054I

View to east along S. 5th between N. Orlando and Atlantic

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
G,H	21.8	0.00	248	2.1	0.91	1.01

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	*Estimated O&M / year*
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$35,000	$35,000	$3,500	$7,000	$3,500	$3,500	$0	$87,500	$ 1,400

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	1	1	0.5	0.5	0.5	4

Constructed By:	***Additional Services Required:***
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES - 4th St S from Atlantic to Sloop

View to west along S. 4th between Riverview and Yacht Haven

View to west along S. 4th between Yacht Haven and Sloop

View to west along S. 6th between Atlantic and N. Orlando

View to west along S. 6th between N. Orlando and N. Brevard

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
G	11.0	0.00	358	3.0	1.16	1.43

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$12,500	$12,500	$1,250	$2,500	$1,250	$1,250	$0	$31,250	$ 500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	1	1	0.5	0.5	0.5	4

Constructed By:	***Additional Services Required:***
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES - 8th - 11th St. S from Atlantic to Brevard

View to east along S. 8th between Atlantic and N. Orlando at SH016I

View to east along S. 10th between Atlantic and N. Orlando lat SH034I

View to west along S. 10th between N. Orlando and N. Brevard

View to east along S. 11th between Atlantic and N. Orlando at SH042I

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
H	46.6	0.00	1590	11.7	4.55	5.36

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$20,000	$20,000	$2,000	$4,000	$2,000	$2,000	$0	$50,000	$ 800

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	1	1	0.5	0.5	0.5	4

Constructed By:	***Additional Services Required:***
City or Contractor	Easement Acquisition, Engineering, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

PONDS – Northend Stormwater Pond Park

Aerial view showing location of vacant parcel for proposed Stormwater pond park.

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
A	59.4	0.50	1362	68.9	16.38	0.98*

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$58,800	$25,200	$16,800	$12,600	$4,200	$4,200	$1,500	$123,300	$10,500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
2	3	2	1	3	1	12

Constructed By:	***Additional Services Required:***
Contractor	Real Estate Acquisition, Surveying, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **State owned property to be leased by the City.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.
* Much greater potential if ASR is implemented in the future.

PONDS - Rock Point Condos - Flow Diversion / Private Retention Partnership (Alternative to St. Lucie Lane / Banana River Blvd. Sediment Trap)

View to west towards wet pond at Rock Point development

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
C	72.7	0.00	825	84.9	24.18	0.44*

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
ESTABLISH THROUGH PRIVATE PARTNERSHIP								

Estimated Implementation Schedule (months)						
Initial Admin / Legal	***Engineering Design***	***Permitting***	***Interim Admin / Subcontracting / Procurement***	***Construction***	***Final Admin Certification / Close-Out***	***Total***
ESTABLISH THROUGH PRIVATE PARTNERSHIP						

Constructed By:	***Additional Services Required:***
City or Contractor	Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.
* Much greater potential if ASR is implemented in the future.

PONDS - Seminole Lane Stormwater Pond Park

View to east at vacant lot along Seminole Lane

View to north at vacant lot along Seminole Lane

Project Data

Basin	Area Served (acres)	Land Required (acres)	TSS Removal (lbs/yr)	TN Removal (lbs/yr)	TP Removal (lbs/yr)	Freshwater Retained (Million Gallons/yr)
D	83.0	1.00	4153	264.1	41.64	0.48*

Estimated Project Cost (year 2000 dollars)

Construction		Capital				Land Cost	Total Cost	Estimated O&M / year
Equip/ Materials	Labor	Contingency	Engineering	Permitting	Admin / Legal			
$39,200	$16,800	$11,200	$8,400	$2,800	$2,800	$100,000	$181,200	$10,500

Estimated Implementation Schedule (months)

Initial Admin / Legal	Engineering Design	Permitting	Interim Admin / Subcontracting / Procurement	Construction	Final Admin Certification / Close-Out	Total
2	3	2	1	3	1	12

Constructed By:	Additional Services Required:
Contractor	Real Estate Acquisition, Surveying, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PRIMARILY AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.
* Much greater potential if ASR is implemented in the future.

Cocoa Isles Stormwater Pond Park/Easement Swale on vacant property east of Samar

PONDS – Cocoa Isles Stormwater Pond Park

View to east towards vacant lot north of Denny's

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
E	81.0	0.25	1931	189.2	38.50	0.50*

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$49,000	$21,000	$14,000	$10,500	$3,500	$3,500	$100,000	$201,500	$10,500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
2	3	2	1	3	1	12

Constructed By:	***Additional Services Required:***
Contractor	Real Estate Acquisition, Surveying, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PRIMARILY AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.
* Much greater potential if ASR is implemented in the future.

PONDS - North 1st & Cedar

View to southwest towards vacant parcel

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
F	6.8	0.25	540	411	13.1	2.98*

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$24,500	$10,500	$7,000	$5,250	$1,750	$1,750	$50,000	$100,750	$5,250

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
2	3	2	1	3	1	12

Constructed By:	***Additional Services Required:***
Contractor	Real Estate Acquisition, Surveying, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.
* Much greater potential if ASR is implemented in the future.

PONDS - North 2nd & Brevard

View to southwest towards vacant parcel

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
F	33.5	0.25	742	61.0	7.23	0.40*

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$24,500	$10,500	$7,000	$5,250	$1,750	$1,750	$50,000	$100,750	$5,250

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
2	3	2	1	3	1	12

Constructed By:	***Additional Services Required:***
Contractor	Real Estate Acquisition, Surveying, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.
* Much greater potential if ASR is implemented in the future.

PONDS - North 3rd & Brevard (North of Jonathans)

View to southwest towards vacant parcel

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
F	4.6	0.25	242	9.4	2.15	0.08*

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$24,500	$10,500	$7,000	$5,250	$1,750	$1,750	$50,000	$100,750	$5,250

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
2	3	2	1	3	1	12

Constructed By:	***Additional Services Required:***
Contractor	Real Estate Acquisition, Surveying, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.
* Much greater potential if ASR is implemented in the future.

PONDS – Downtown Stormwater Pond Park

View to southeast towards City Hall Parking lot

View to northeast at City Hall parking lot

View of City Hall parking lot near old library

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
G	18.7	0.25	193	26.3	7.16	0.12*

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$29,400	$12,600	$8,400	$6,300	$2,100	$2,100	$0	$60,900	$5,250

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcon./ Procurement***	***Construction***	***Final Admin Cert./ Close-Out***	***Total***
2	3	2	1	3	1	12

Constructed By:	***Additional Services Required:***
Contractor	Real Estate Acquisition, Surveying, Engineering/Modeling, Utility I.D. Clearance, Contracting

Notes: **Project would treat PRIMARILY AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.
* Much greater potential if ASR is implemented in the future.

PONDS - River Lakes Wet Pond - Flow Diversion / Private Retention Partnership (Alternative to South 8th Street Sediment Trap)

View to west towards wet pond at River Lakes development

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
H	110.5	0.00	393	36.6	7.35	0.07*

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
ESTABLISH THROUGH PRIVATE PARTNERSHIP								

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
ESTABLISH THROUGH PRIVATE PARTNERSHIP						

Constructed By:	***Additional Services Required:***
City or Contractor	Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.
* Much greater potential if ASR is implemented in the future.

SEDIMENT TRAPS - Jack Dr. / Kent Dr. / Banana River Blvd. (SA038M / SA039O)
(Alternative to Northend Stormwater Pond Park)

View to west towards SB038M from Banana River Boulevard

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
A	64.4	0.00	1824	56.3	1.37	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$30,000	$10,000	$6,000	$4,000	$2,000	$2,000	$0	$54,000	$ 500

Estimated Implementation Schedule (months)						
Initial Admin / Legal	***Engineering Design***	***Permitting***	***Interim Admin / Subcontracting / Procurement***	***Construction***	***Final Admin Certification / Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **To be considered only if Northend Stormwater Pond Park option not feasible.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - Barrello Lane / Angelo Lane / Banana River Blvd. (SB214I/SB215O)

View to west towards SB214I from Banana River Boulevard

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
B	11.0	0.00	84	6.7	0.15	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$11,250	$3,750	$2,250	$1,500	$750	$750	$0	$20,250	$ 300

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - Brightwaters Dr. / Dorset Dr. / Fairview Dr. (SB134M/SB135O)

View to west towards SB134M from Fairview Drive

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
B	23.0	0.00	55	5.0	0.13	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$18,750	$6,250	$3,750	$2,500	$1,250	$1,250	$0	$33,750	$ 400

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - Carmine Dr. / Barrello Lane / Banana River Blvd. (SB049I/SB050O)

View to west towards SB049I from Banana River Boulevard

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
B	61.5	0.00	356	34.2	0.81	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$30,000	$10,000	$6,000	$4,000	$2,000	$2,000	$0	$54,000	$ 500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - St. Lucie Lane / Banana River Blvd. (SC063I / SC064O)

(Alternative to Rock Point Condos Private Retention Partnership)

View to west towards median near SC063I from St. Lucie Lane

Project Data

Basin	Area Served (acres)	Land Required (acres)	TSS Removal (lbs/yr)	TN Removal (lbs/yr)	TP Removal (lbs/yr)	Freshwater Retained (Million Gallons/yr)
C	72.7	0.00	1032	66.1	1.96	0.00

Estimated Project Cost (year 2000 dollars)

Construction		Capital				Land Cost	Total Cost	Estimated O&M / year
Equip/ Materials	Labor	Contingency	Engineering	Permitting	Admin / Legal			
$45,000	$15,000	$9,000	$6,000	$3,000	$3,000	$0	$81,000	$ 500

Estimated Implementation Schedule (months)

Initial Admin/ Legal	Engineering Design	Permitting	Interim Admin/ Subcontracting/ Procurement	Construction	Final Admin Certification/ Close-Out	Total
0.5	2	1	1	1	0.5	6

Constructed By:	Additional Services Required:
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **To be considered only if Rock Point Private Retention Partnership option not feasible.**
Project would treat PARTIAL AIA (FDOT) runoff.
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - Seminole Lane (SD040O)

(Alternative to Seminole Land Stormwater Pond Park)

View to west towards SD040O from Seminole Lane

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
D	83.0	0.00	519	64.8	1.12	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$45,000	$15,000	$9,000	$6,000	$3,000	$3,000	$0	$81,000	$ 500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **To be considered only if Seminole Stormwater Pond Park option not feasible.**
Project would treat PRIMARILY AIA (FDOT) runoff.
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - Holiday Center (SE035M / SE036O)
(Alternative to Cocoa Isles Stormwater Pond Park)

View to west towards SE036O from Holiday Center

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
E	81.2	0.00	3075	161.6	3.38	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$45,000	$15,000	$9,000	$6,000	$3,000	$3,000	$0	$81,000	$ 500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **To be considered only if Cocoa Isles Stormwater Pond Park option not feasible.**
Project would treat PRIMARILY AIA (FDOT) runoff.
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - Holiday Lane (SE054I)

View to west towards SE054I from Holiday Lane

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
E	7.6	0.00	56	1.5	0.05	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$11,250	$3,750	$2,250	$1,500	$750	$750	$0	$20,250	$ 300

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - North 3rd Street (SF323I / SF324O)

View to west towards SF323I from 3rd and Cedar Avenue

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
F	9.6	0.00	81	4.0	0.13	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$11,250	$3,750	$2,250	$1,500	$750	$750	$0	$20,250	$ 300

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - Cedar Avenue (SF426I / SF427O)

View to west towards SF426I from Cedar Avenue

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
F	12.9	0.00	128	5.8	0.19	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$11,250	$3,750	$2,250	$1,500	$750	$750	$0	$20,250	$ 300

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - North 4th Street / Blakey (SF233I / SF234O)

View to west towards SF233I from Cedar Avenue

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
F	26.5	0.00	424	13.4	0.45	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$18,750	$6,250	$3,750	$2,500	$1,250	$1,250	$0	$33,750	$ 400

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - Northshore (SF073I / SF074O)

View to south towards SF073I from Northshore Drive

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
F	49.5	0.00	1691	63.2	1.68	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$30,000	$10,000	$6,000	$4,000	$2,000	$2,000	$0	$54,000	$ 500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - Minuteman / Brevard (SG131I / SG132O)

(Alternative Downtown Stormwater Pond Park)

View to southwest towards SG131I, corner of Brevard and Minuteman

Project Data *

Basin	Area Served (acres)	Land Required (acres)	TSS Removal (lbs/yr)	TN Removal (lbs/yr)	TP Removal (lbs/yr)	Freshwater Retained (Million Gallons/yr)
G	21.0	0.00	241	20.5	0.58	0.00

Estimated Project Cost (year 2000 dollars) *

Construction		Capital				Land Cost	Total Cost	Estimated O&M / year
Equip/ Materials	Labor	Contingency	Engineering	Permitting	Admin / Legal			
$18,750	$6,250	$3,750	$2,500	$1,250	$1,250	$0	$33,750	$ 400

Estimated Implementation Schedule (months)

Initial Admin/ Legal	Engineering Design	Permitting	Interim Admin/ Subcontracting/ Procurement	Construction	Final Admin Certification/ Close-Out	Total
0.5	2	1	1	1	0.5	6

Constructed By:	Additional Services Required:
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **To be considered only if Downtown Stormwater Pond Park option not feasible.**
Project would treat PARTIAL AIA (FDOT) runoff.
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - South 2nd Street (SG077I / SG078O)

View to west towards SG077I, corner of Brevard and S. 2nd Street

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
G	85.6	0.00	1241	41.8	1.30	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$30,000	$10,000	$6,000	$4,000	$2,000	$2,000	$0	$54,000	$ 500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **Project would treat PARTIAL AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SEDIMENT TRAPS - South 8th Street (SH071I / SH072O)

(Alternative to River Lakes Private Retention Partnership)

View to west at SH071I at Brevard Avenue

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
H	49.8	0.00	600	52.4	1.47	0.00

Estimated Project Cost (year 2000 dollars)								
Construction		***Capital***				***Land Cost***	***Total Cost***	***Estimated O&M / year***
Equip/ Materials	*Labor*	*Contingency*	*Engineering*	*Permitting*	*Admin / Legal*			
$30,000	$10,000	$6,000	$4,000	$2,000	$2,000	$0	$54,000	$ 500

Estimated Implementation Schedule (months)						
Initial Admin/ Legal	***Engineering Design***	***Permitting***	***Interim Admin/ Subcontracting/ Procurement***	***Construction***	***Final Admin Certification/ Close-Out***	***Total***
0.5	2	1	1	1	0.5	6

Constructed By:	***Additional Services Required:***
Contractor	Easement Acquisition, Engineering / Modeling, Utility Identification and Clearance, Contracting

Notes: **To be considered only if River Lakes Private Retention Partnership option not feasible.**
Project would treat PARTIAL AIA (FDOT) runoff.
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

ATTACHMENT 6-2

NON-CIP
STORMWATER PROJECT DATA SHEETS

1. SWALES & EXFILTRATION – FDOT R-O-W - A1A from North City Limit to St. Lucie
2. SWALES - FDOT Right of Way - Median Swales along 520
3. PONDS - Seminole Lane Stormwater Pond Park
4. PONDS – Cocoa Isles Stormwater Pond Park
5. SWALES & EXFILTRATION – FDOT R-O-W - A1A from 4th Street North to 6th Street South (Basins F & G)
6. SWALES & EXFILTRATION – FDOT R-O-W - A1A from 6th Street South to South City Limit (Basin H)

SWALES & EXFILTRATION – FDOT Right of Way
A1A from North City Limit to St. Lucie

View of typical FDOT AIA right-of-way.

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
A,B,C	17.21	0.00	589.26	4.33	1.28	1.87

Notes: **Project would treat PRIMARILY A1A (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES - FDOT Right of Way
Median Swales along 520

View to east from north side of 520 towards median areas.

View to west from south side of 520 towards median areas.

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
B,C	14.52	0.00	1091.24	8.42	3.35	4.62

Notes: **Project would treat PRIMARILY 520 (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

PONDS - Seminole Lane Stormwater Pond Park

	
View to east at vacant lot along Seminole Lane	View to north at vacant lot along Seminole Lane

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
D	83.0	1.00	4153	264.1	41.64	0.48

Notes: **Project would treat PRIMARILY AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

PONDS – Cocoa Isles Stormwater Pond Park

View to east towards vacant lot north of Denny's

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
E	81.0	0.25	1931	189.2	38.50	0.50

Notes: **Project would treat PRIMARILY AIA (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES & EXFILTRATION – FDOT Right of Way
A1A from 4th Street North to 6th Street South (Basins F & G)

View of typical FDOT AIA right-of-way.

View of typical FDOT AIA right-of-way

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
F,G,H	188.9	0.00	11653	93.1	28.3	33.4

Notes: **Project would treat PRIMARILY A1A (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.

SWALES & EXFILTRATION – FDOT Right of Way
A1A from 6th Street South to South City Limit (Basin H)

View of typical FDOT AIA right-of-way in Basin H.

View of typical FDOT AIA right-of-way near south City limit.

Project Data						
Basin	*Area Served (acres)*	*Land Required (acres)*	*TSS Removal (lbs/yr)*	*TN Removal (lbs/yr)*	*TP Removal (lbs/yr)*	*Freshwater Retained (Million Gallons/yr)*
F,G,H	188.9	0.00	11653	93.1	28.3	33.4

Notes: **Project would treat PRIMARILY A1A (FDOT) runoff.**
Data Based on CIP project cost summary sheets – Table 6.9, for project comparison and planning purposes.
Actual values will vary based on economies of scale and method of implementation.
Not for construction estimation purposes without further refinement.