Southern Outfall Priority Rehabilitation Project Town of Lake Park, FL

VIRTUAL PRE-SITE VISIT CONFERENCE

REBUILD FLORIDA GENERAL INFRASTRUCTURE PROGRAM(GIP)

INTRODUCTIONS (5 Mins.)

PROJECT SETTING – TOWN OF LAKE PARK, FL

- Area of 2.4 square miles
- Originally incorporated in 1923 as Kelsey City (first zoned municipality in FL)
- Approximately 9,000 residents
- Town was fully developed by the 1980's
- Town composition: Residences (east), industry (west) + traditional downtown (along Park Ave)
- Minority-majority community
- Per capita income of \$23,162, 38% lower than the state's average of \$34,103 (US Census Bureau)
- Poverty rate of a 15.6%, FL statewide rate=10.5% (US Census Bureau)





PROJECT SETTING – TOWN OF LAKE PARK, FL

- Stormwater CIP Planning—Assessed historical flooding locations for Town has identified flood hazard locations, exposure levels, risks, and identified adaptation strategies for these threats
- Majority of drainage deficiencies (quantity and quality) are associated with Southern Outfall; project 100% within Town limits
- Implemented Vulnerability Assessment and Updated Stormwater Master Plan



PROJECT OVERVIEW

- Drains 446 acres (or 48%) of 928 acres of storm sewer areas
- Located along a historical ditch draining west to east along the southern boundary of the Town
- As the Town developed, storm sewers were connected without proper engineering planning
- The ditch was later enclosed as a storm sewer outfall discharging to Lake Worth Lagoon (LWL)
- Large trunk sewers ranging from 48 to 72 inches along the outfall reach capacity quickly with increasing high tides, causing frequent backups and flooding along the entire network
- Discharges untreated runoff toward the Lake Worth Lagoon, an impaired waterbody in the EPA's 303d list
- Flooding is more intensely experienced along the mid and upstream (western) portion of the watershed area





3-Year/24-Hr Level of Service

PROJECT OVERVIEW (Cont.)



100-year Inundation

Affected Properties From 100-year Inundation

100-year Flooding Is Very Intense With Severe Private Property Losses Throughout The Watershed

PROJECT PURPOSE

- Decentralize the Southern Outfall storm sewer network
- Replace dilapidated 72" CAP outfall
- Implement more sustainable GI/LID best management practices (BMP's) in the watershed
- Rehabilitate aging corrugated metal pipes (CMP) via trenchless CIPP lining



VALUE TO THE COMMUNITY

- The segment was found to be in poor to failing condition in 2013; classified as a high risk in need of immediate replacement
- Avert a sudden failure that would result in the closing of a significant portion of US Highway 1 with resulting local and regional transportation impacts
- Prevent unsafe high-water conditions that restrict mobility for a sustained periods of time
- Protect community's water supply and gas, phone, and cable utilities



VALUE TO THE COMMUNITY (Cont.)

- The project's flood inundation reduction impact will allow critical services such as medical, energy and transportation to continue uninterrupted throughout the Town
- Mitigate extensive backup flooding west of US Highway 1
- Eliminate expensive bypass flows to the LWL (\$35K/week)
- Prevent significant financial loss to local businesses



AREA OF BENEFIT (LMI)



WORK TO BE COMPLETED

PHASE 1 – Southern Outfall:

Goal: Improve drainage along the eastern/lower end of the watershed

- Complete 100% design plans and specifications
- Replace 72-inch corrugated aluminum pipe (CAP) outfall with a 10' x 5' concrete box culvert (CBC)
- Install in-line valve or flap gate
- Install sea level rise (SLR) pump station
- Place large biodetention facility for water quality treatment

GREEN INFRASTRUCTURE FOR CLIMATE CHANGE PHASE 1—SOUTHERN OUTFALL (72" CAP OUTFALL REPLACEMENT WITH 10'x5' CBC)





WORK TO BE COMPLETED (Cont.)

PHASE 2 – Bert Bostrom Park

Goal: Improve watershed; decentralize northern/southern tributary network

- Redirect runoff discharges to field
- Collect data in support of design plans and specifications
- Complete 100% design plans and specifications for underground storage filtration chambers
- Install flow bypass storm sewers and hydraulic structures from north and south branches
- Install baseball field-sized farm of underground storage filtration chambers, below ground at Bert Bostrom Park

PHASE 2 – BERT BOSTROM PARK GREEN INFRASTRUCTURE FOR CLIMATE CHANGE



Strategy: Upstream peak discharge diversion, attenuation and water quality treatment using GI/LIDbased underground chamber filtration

PHASE 2 – BERT BOSTROM PARK GREEN INFRASTRUCTURE FOR CLIMATE CHANGE

(60% Design)



Existing Playing Fields

Proposed Underground Filtration Chambers Proposed Southern Outfall Drainage System Bostrom Park Runoff Attenuation/Treatment Bypass

WORK TO BE COMPLETED (Cont.)

PHASE 3 – 10th Street

Goal: Improve drainage on 10th Street/upper western watershed; implement pilot project

- Gather data in support of design plans and specifications
- Design 100% design plans and specifications of GI/LID-based water quality treatment and BMP's
- Install bioswales, bioretention areas, native trees, pervious pavers and underground storage filtration chambers

M&O

 Cured in-place pipe (CIPP) lining of storm sewer segments upstream from the Southern Outfall

GREEN INFRASTRUCTURE FOR CLIMATE CHANGE PHASE 3 - 10TH STREET ROW GI/LID PILOT PROJECT





Treatment Strategies

- Bioswales
- Pervious Pavement
- Underground Filtration Chambers



GREEN INFRASTRUCTURE FOR CLIMATE CHANGE PHASE 3 - 10TH STREET ROW GI/LID PILOT PROJECT





Biodetention Area and Road Resurfacing Detail

(******* HILLINI I MILLIN - III W/ Matall Millill 11111 NON MAN

Composite View: 10th Street (looking North near Cypress Drive)



IMPLEMENTATION TIMELINE

Public Notice: August 27, 2021 through September 10, 2021

Milestones and Tasks				
Activity	Start	End	Duration	Label
Southern Outfall Project Public Presentation (Milestone 1) - 9/2/2020				
Project Presentation SWMP Committee Public Meeting (Milestone 2) - 7/21/2021				
Task 1	08/27/2021	09/10/2021	14	Project Public Notice
Project Start (Milestone 3) - 5/2/2022				
Task 2	05/02/2022	06/06/2022	35	DEO Award and Sub Agreement
Task 3	06/06/2022	07/04/2022	28	Environmental Review
Task 4	07/04/2022	08/30/2022	57	O&M/CIPP Project Implementation
Task 5	06/06/2022	08/08/2022	63	Phase 1 (P1) Design
Task 6	08/08/2022	10/10/2022	63	P1 Bidding
Begin Phase 1 Construction (Milestone 4) - 10/10/2022				
Task 7	10/10/2022	10/13/2023	368	P1 Construction
Task 8	10/16/2023	11/17/2023	32	P1 Close Out
Task 9	11/20/2023	02/19/2024	91	P1 Monitoring
Task 10	09/05/2022	11/11/2022	67	Phase 2 (P2) Design
Task 11	03/06/2023	05/08/2023	63	P2 Bidding

IMPLEMENTATION TIMELINE (Cont.)

Begin Phase 2 Construction (Milestone 5)				
Task 12	05/11/2023	05/31/2024	386	P2 Construction
Task 13	05/23/2024	06/21/2024	29	P2 Close Out
Task 14	06/21/2024	08/23/2024	63	P2 Monitoring
Task 15	12/06/2022	02/19/2023	75	Phase 3 (P3) Design
Task 16	10/02/2023	11/07/2023	36	P3 Bidding
Begin Phase 3 Construction (Milestone 6) - 11/7/2023				
Task 17	11/07/2023	11/11/2024	370	P3 Construction
Task 18	11/11/2024	12/16/2024	35	P3 Close Out
Task 19	12/16/2024	02/17/2025	63	P3 Monitoring
Task 20	02/17/2025	04/30/2025	72	Overall Project Closeout
Overall Project Completion (Milestone 7) - 4/30/2025				

ESTIMATED BUDGET

PHASE 1: (72" CAP 800-foot Southern Outfall Segment)

- \$150,000 (For 100% design plans and specifications for SLR pump station/flap gate)
- \$2,817,000 (Construction of 10'x5' CBC and appurtenances)
- **\$236,200** (Town-leveraged funds for 90% design to be completed December 2021)

PHASE 2: (Bert Bostrom Park Underground Storage Filtration Chambers)

- \$115,000 (For field data gathering and 100% design plans and specifications of underground storage filtration chambers)
- \$2,402,500 (Construction of underground storage filtration chambers, utilities relocation and bypass appurtenances)
- \$25,000 match + \$30,000 (FDEP/Coastal Resiliency grant; Town-leveraged funds for 60% design completed September 2021)

ESTIMATED BUDGET (Cont.)

PHASE 3: (10th Street Green Infrastructure Water Quality GI/LID-Based Drainage Project)

- \$345,000 (For field data gathering and 100% design plans and specifications of GI/LID BMP facilities)
- \$4,955,000 (Construction of bioswales, pervious pavers, underground storage filtration chambers, utilities relocation, road and sidewalk reconstruction, lighting, landscaping)
- \$25,940 (Town-leveraged funds for 60% design completed October 2021)
- \$50,000 (Town-proposed leveraged/matching funds for 100% design)

O&M: (Southern Outfall System Rehabilitation)

- \$409,135 for CIPP lining of storm sewer segments upstream from the Southern Outfall
- \$24,000 Town-proposed leveraged/matching funds

DELIVERABLES

PHASE 1: (72" CAP 800-foot Southern Outfall Segment)

- 60% and 90% project design plans and specification reviews
- 100% bid-ready package for pump station mechanical, structural, electrical design plans and specifications

PHASE 2: (Bert Bostrom Park Underground Storage Filtration Chambers)

- Topographic, subsurface utility engineering (SUE) and geotechnical survey reports
- 60% and 90% project design plans and specification reviews
- 100% bid-ready underground storage filtration chambers design plans and specifications package

DELIVERABLES (Cont.)

PHASE 3: (10th Street Green Infrastructure Water Quality GI/LID-Based Drainage Project)

- Topographic, SUE and geotechnical survey reports
- 60% and 90% design plans and specifications of GI/LID-based water quality BMP's (bioswales, bioretention, rain trees, pervious pavers and underground storage filtration chambers).
- 100% bid-ready design plans and specifications package for GI/LID-based water quality BMP's, road/sidewalk reconstruction, lighting and landscaping)

O&M: (Southern Outfall System Rehabilitation)

 As-built CCTV logs of completed CIPP lining of storm sewer segments at Cypress Drive, llex Drive and Jasmine Drive

06/08/2016 13:27

Street Flooding at 2nd Street/E. Ilex Drive

700 Block, Ilex Court

Q&A SESSION (25 Mins.)