

TOWN OF HOLDEN BEACH STORMWATER MASTER PLAN





Project Background

Develop a Stormwater Management Plan and evaluate the feasibility of developing a stormwater utility (SWU).

- Inventory and assessment of the existing condition of Town's stormwater system
- Survey, analysis/modeling and evaluation of alternatives for 6 key areas of concern
- GIS system inventory map and maps identifying flood prone areas
- Feasibility of a SWU to address the specific needs of the Town
- Stormwater Management Plan



Inventory and Assessment

- o Existing records collection/review
- o Data collection & GIS mapping
- o Field surveying
- o Closed Caption Television (CCTV)
- o Outfall pipe inspections cleaning

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Areas of Concern



Areas of Concern Analysis

Analysis

- Analyze the existing stormwater system and drainage conditions at each area of concern for the 2-year and 10-year rainfall events.
- Identify deficiencies in the network at these locations and evaluate available alternatives to remedy flooding.
- Develop probable estimates of construction cost
- Provide supporting documentation to Town for US Army Corps of Engineers (USACE) Federal 5113 Environmental Infrastructure Assistance grant



Area 1 – Phase 1





Area 1 – Phase 2























Probable Cost of Construction Estimate

300 Block OBW - Alternative 2 Phase 1 Opinion of Probable Construction Cost May 29, 2024 Unit Unit Unit Cost Total Cost* 1 MOBILIZATION 1 LS \$ 21,300 \$ 21,500.0 2 MAINTENANCE OF TRAFFIC 1 LS \$ 12,780 \$ 13,000.0 3 EROSION CONTROL 1 LS \$ 12,780 \$ 13,000.0 4 CLEARING & GRUBBING 1 LS \$ 1,500.0 \$ 1,500.0 5 REMOVE & REPLACE CATCH BASIN 1 EA \$ 9,000.00 \$ 9,000.0 6 INSTALL NEW CATCH BASIN 4 EA \$ 5,000.00 \$ 20,000.0 7 CONTROL OF WATER/ DEWATERING 1 LS \$ 3,000.00 \$ 3,000.00 9 REMOVAL OF EXT ASPH PVMT 2,433 SY \$ 3,000.00 \$ 23,500.0 10 2" ASP CONC SURF CRS 9.5D BO R S9.5C 219 TON \$ 60.50 \$ 13,500.0 11 8" ASP CONC BASE CRS B25.0C 876 TON \$ 79.00 \$ 69,500.0 12 REMOVE & REPLACE SIDEWALK 167 SY	Hole	Holden Beach Stormwater Improvements												
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Price Escalation Factor (20%)* \$ 99,600.0 Total* \$ 747,000.0		Contingencies (30%)*					\$	149,400.00						
Total* \$ 747,000.0		Price Escalation Factor (20%)*					\$	99,600.00						
						Total*	\$	747,000.00						
Opinion of Probable Construction Cost Range [*] : \$498,000.00 to \$747,000.00														

* Rounded to the nearest \$1000



Selected Alternatives

Project Area	Project Description	Selected Alternative	Cost Estimate
1	300 Block OBW	2	\$498k - \$747k
2	East End Mullet St. & East End Avenue A	2	\$808k - \$1.21 million
3	West End ROW	1	\$121k - \$241k
4	760 Block OBW	2	\$273k - \$409k
5	Carolina Ave	2	\$204k - \$327k
6	Davis St	-	\$17.5k - \$26.25k



Other Problem Areas

Island-wide Analysis

- Heat map of likely roadway or structure flooding
- Extents of the MHHW tide show impacts of sunny day tidal flooding
- o Potential future projects



The SWU feasibility provides a conceptual evaluation of establishing a SWU to address administration, a stormwater capital improvement plan (CIP), annual maintenance, sinking fund, rate study, and ordinance and policy development.



Revenue

- Residential flat fee
- Rate comparison to 4 other NC beach communities

Expenses

- Administration
- Personnel
- Operations & maintenance
- Capital investment
- Debt service
- Transfers
- Repayment of the startup funding

Fund Balance managed to maintain minimum 90 days of Cash on Hand

- Scenario A Assumes 100% of the projected capital investment needs are funded by user fees generated by the stormwater utility.
- Scenario B assumes 75% of the projected capital investment needs are funded using US Army Corps of Engineers (USACE) Environmental Infrastructure Assistance.

Scenario A - Model Outputs and Tracking

Parameter		Year 1	Year 2	Year 3	Year 4	Year 5
Per-Parcel Monthly Fee		\$7.20	\$7.40	\$7.60	\$7.80	\$7.90
Sinking Fund Balance	s	62,000	\$ 124,000	\$ 154,000	\$ 214,000	\$ 269,000
Fund Balance		458,000	\$ 540,000	\$ 567,000	\$ 494,000	\$ 362,000
Days Cash on Hand		1,076	821	678	435	276

Scenario B - Model Outputs and Tracking

Parameter		Year 1		Year 2		Year 3		Year 4		Year 5	
Per-Parcel Monthly Fee		\$5.30		\$5.40		\$5.60		\$5.70		\$5.90	
Sinking Fund Balance		62,000	\$	124,000	\$	154,000	\$	224,000	\$	299,000	
Fund Balance	\$	375,000	\$	366,000	\$	382,000	\$	312,000	\$	199,000	
Days Cash on Hand		882		546		613		356		195	



Recommendations

Based on the project cost of capital stormwater projects and on-going and planned maintenance for the stormwater system we recommend proceeding with implementation of Scenario A with an initial flat rate of \$7.20/month.

If pursuit of 5113 grant funding is favorable, the utility can easily be converted to Scenario B in the future and rates reevaluated at that time.

Both scenarios provide sufficient funds to cover the planned activities for the next ten years while maintaining a sufficient fund balance that suggests the utility will remain stable and fiscally healthy.

