

STORMWATER

OVERVIEW

Nags Head's Stormwater Management Program improves the collection and transport of stormwater through publicly owned infrastructure and, where feasible, treats stormwater prior to discharging to receiving waters. Elements of the program include maintenance and repair of existing facilities, construction of new facilities where warranted, public education, and network analysis. Analyses include, but are not limited to, hydrologic evaluation, runoff quantity determinations, water quality analyses and hydraulic sizing. The program is implemented by using Town personnel and equipment, contractors when necessary, engineering and scientific consultants, and by working with other local governments and appropriate state agencies.

Stormwater Management in Nags Head is a complex balancing act between several competing factors, such as: economic development, natural resource preservation, flood control, and water quality. Development and redevelopment create a loop with respect to stormwater runoff. As development occurs, stormwater runoff increases from the additional impervious surfaces, reducing available pervious surfaces for infiltration. Evapotranspiration decreases as vegetation is removed and trees are cleared. Furthermore, groundwater elevations tend to increase when vegetation and trees are removed. As groundwater elevations increase, developers are more likely to fill lots to make them buildable, thereby eliminating natural drainage features and infiltration areas. More stormwater runoff then enters the system, thus continuing the cycle.

Frequent flooding can curtail investment and tourism where tourism is a critical part of the economy. The desire to limit flooding must be tempered by the need to limit pollutant loads to critical waterbodies such as the Roanoke Sound and Atlantic Ocean. Degradation of the waterways can lead to beach closures and shellfish harvesting closures, causing impacts to tourism and economies. The Stormwater Management Program provides the Town with a prioritized list of flood control and water quality capital improvement projects that will help balance competing stormwater management issues and respond to an increasingly strict regulatory environment.

GOALS

- Develop environmentally sensitive solutions to drainage infrastructure improvements and maintenance, while maintaining fiscal responsibility.
- Involve the public in decision making, which balances residential, tourism, and business needs, is fiscally responsible, and results in projects that are supportive of community needs.
- Continually improve customer service and communications.
- Construct an affordable long-range action plan for progressively improving the Town's stormwater drainage infrastructure.

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- Maintain Town-wide visibility of the plan's progress and effectiveness.
- Reduce the Town's carbon footprint via promotion of initiatives such as Low Impact Development, rainwater harvesting, tree plant/preservation and protection of water quality. Explore opportunities to switch to green electricity for maintenance equipment, if available.

OBJECTIVES AND PERFORMANCE INDICATORS

Objective - Improve Town drainage infrastructure through planning, maintenance, or new construction, where appropriate.

Performance Indicators -

- Continue to identify stormwater infrastructure improvement, maintenance and repair projects through on-the-ground observations by Town staff and citizen feedback.
- Implementation of a comprehensive Stormwater Management Plan via the development of a multi-year Capital Improvement Program. The focus is to develop a strategic basin-wide multi-objective plan to assist in prioritizing stormwater maintenance and capital projects based upon select criteria (i.e. frequency of flooding, system condition, water quality, etc.). The CIP deliverable is meant to serve as a "living document" so that the Town can update it as projects are completed and new ones are added.
- Continue to pursue assistance and support from NCDOT to address areas of nuisance flooding along South Virginia Dare Trail (NC 12), South Old Oregon Inlet Road, (NCSR 1243) and South Croatan Highway (US Hwy 158).
- Maintain a high level of readiness and necessary preparations to address emergency floodwater conditions.
- Purchase equipment to conduct systematic annual maintenance, on-demand maintenance, and post-storm maintenance.
- Continue to explore opportunities for public education and outreach via social media, the Town's website, public forums, and other available media outlets.
- Maintain an adequate fund reserve for operation of equipment and materials to perform necessary maintenance on existing drainage infrastructure.
- Seek additional funding opportunities from local, state, and federal agencies to assist with future stormwater planning and construction efforts.
- Perform hydraulic and hydrologic analyses of identified areas of concern for appropriate infrastructure sizing, when required.
- Promote Low-Impact Development at various development scales, via sustainable, cost-effective and attractive stormwater features.

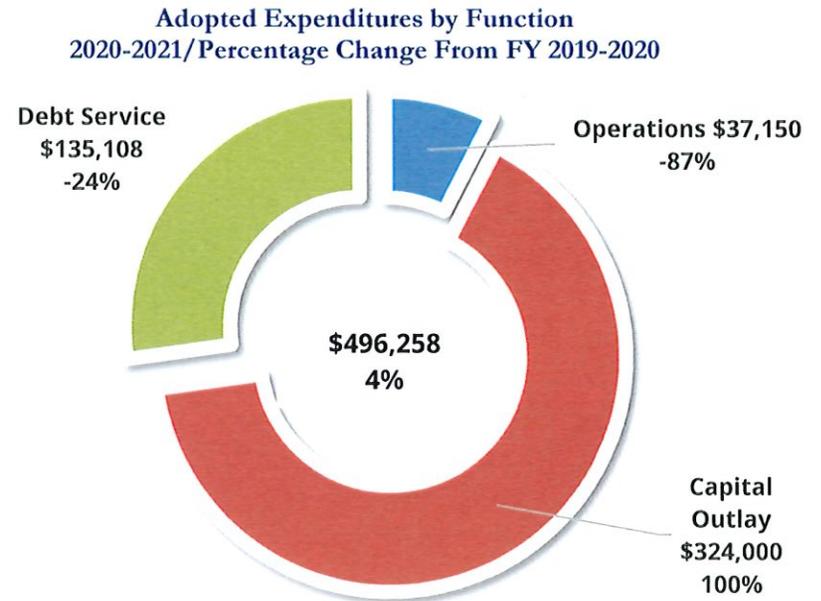
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- Continue to engage and pursue research opportunities with Academia and the scientific community related to the interaction of stormwater, groundwater and dynamics of the coastal environment that influence the performance and function of Town drainage infrastructure.
- Pursue a holistic “One Water” approach which considers the interaction between rainfall, stormwater runoff, groundwater, on-site wastewater and impacts on surface waters.
- Collaborate via a community of practice with other North Carolina coastal communities to collectively address coastal water quality issues at a regional scale and to work together on addressing stormwater runoff related issues to maximize resources.

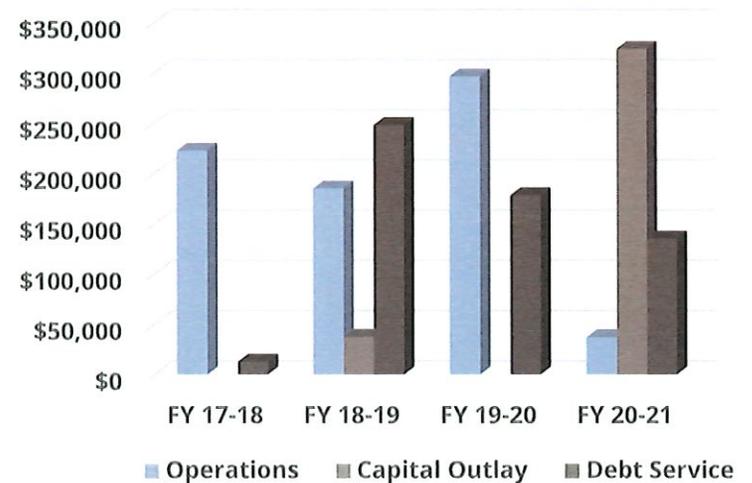
STORMWATER - BUDGET HIGHLIGHTS

HIGHLIGHTS

- The Stormwater Capital Reserve is funded through a \$400,000 general fund allocation. Use of those funds, as well as \$96,258 carried over from prior fiscal years, include:
 - \$247,000 for the West Danube Street pipe replacement beginning at South Croatan Highway and extending to West Old Cove Road as well as replacing a portion of pipe along West Old Cove Road from West Danube Street to the canal outfall
 - \$44,000 for a storm drainage system at Barracuda Drive in the proximity of Kipper Court
 - Replacement of pipe on Wrightsville Avenue at Barnes Street at \$33,000
 - Third of five annual debt payments at \$135,108 for stormwater project improvements for areas around the Red Drum ocean outfall, Nags Head Acres/Vista Colony neighborhood, and the Village at Nags Head-South Virginia Dare Trail-Mall Drive to Epstein Street
 - \$12,750 for floodwater pump rental



FY 2020-2021 Adopted Expenditures and Expenditure History



Town of Nags Head
 Adopted Budget
 For the Fiscal Year 2020-2021

Department: *Stormwater*

Account Description	Manager's Recommended 2020-2021	Adopted Budget 2020-2021	Financial Plan 2020-2021	Adopted Budget 2019-2020	Adjusted Budget 2019-2020	Estimated Actual Expenditures 2019-2020	Actual Expenditures 2018-2019	Actual Expenditures 2017-2018
OPERATIONS								
UTILITIES	\$ 2,600	\$ 2,600	\$ 2,600	\$ 2,600	\$ 2,600	1,539	\$ 1,409	\$ 972
FUEL COSTS	2,750	2,750	2,000	2,500	2,500	2,553	1,537	1,389
DEPARTMENT SUPPLIES	7,000	7,000	12,500	12,000	12,565	8,520	3,605	4,118
MAINT/REPAIR EQUIPMENT	6,250	6,250	6,600	6,250	6,250	4,860	612	2,017
PROFESSIONAL FEES	4,000	4,000	4,000	4,000	4,000	4,000	5,400	3,000
PROF FEE/WATER QUALITY TESTING	1,800	1,800	2,000	1,800	1,800	1,080	360	360
CONTRACTED SERVICES	12,750	12,750	288,548	267,567	267,567	104,047	32,849	36,672
Subtotal Operations	\$ 37,150	\$ 37,150	\$ 318,248	\$ 296,717	\$ 297,282	\$ 126,599	\$ 45,772	\$ 48,528
CAPITAL OUTLAY								
CAPITAL OUTLAY EQUIPMENT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 37,221	\$ -
CAPITAL OUTLAY INFRASTRUCTURE	324,000	324,000	-	-	395,461	395,461	711,822	274,768
Subtotal Capital Outlay	\$ 324,000	\$ 324,000	\$ -	\$ -	\$ 395,461	\$ 395,461	\$ 749,043	\$ 274,768
DEBT SERVICE								
L/P PRINCIPAL	\$ 124,000	\$ 124,000	\$ 148,026	\$ 162,720	\$ 177,559	\$ 151,571	\$ 136,545	\$ 12,360
L/P INTEREST	11,108	11,108	13,530	15,617	28,286	15,489	379	565
Subtotal Debt Service	\$ 135,108	\$ 135,108	\$ 161,556	\$ 178,337	\$ 205,845	\$ 167,060	\$ 136,924	\$ 12,925
TOTAL	\$ 496,258	\$ 496,258	\$ 479,804	\$ 475,054	\$ 898,588	\$ 689,120	\$ 931,739	\$ 336,221

**Town of Nags Head
 Adopted Budget
 For the Fiscal Year 2020-2021**

Stormwater Capital Reserve

Description of Capital Items	Manager's Recommended 2020-2021	Adopted Budget 2020-2021	Financial Plan 2020-2021
<i>Capital Outlay Infrastructure</i>			
1. West Danube pipe replacement	\$ 247,000	\$ 247,000	\$ -
2. Wrightsville Avenue at Barnes Street pipe replacement	33,000	33,000	-
3. Kipper Court swale and storm drainage system	44,000	44,000	-
<i>Total Capital Outlay Infrastructure</i>	\$ 324,000	\$ 324,000	\$ -