

FY 2018-2023 STORMWATER UNFUNDED NEEDS

DECEMBER 13, 2016



OVERVIEW OF STORMWATER UNFUNDED NEEDS

- Driving Factors of Unfunded Needs
- Primary Components of the Fully Integrated Stormwater Program
- Prioritization of Unfunded Needs
- Project Detail of Unfunded Needs
- Financing the Virginia Beach Enhanced Stormwater Program

STORMWATER PROGRAM

DRIVING FACTORS OF UNFUNDED NEEDS

- New MS4 Permit Requirements effective July 1, 2016
- New project proposals associated with the recent flooding from Hurricane Matthew
- Increasing Maintenance Cost to address aging infrastructure
- Increase Citizen Satisfaction by reducing maintenance cycle times

PRIMARY COMPONENTS OF THE FULLY INTEGRATED STORMWATER PROGRAM

Water Quality & Regulatory Compliance
Melanie Coffey



Flood Control
Phill Roehrs



Operations & Maintenance
Cheryl Cole



STORMWATER PROGRAM PRIORITIZATION OF UNFUNDED NEEDS

- **Tier 1 – Critical**

Action that is pressing and is both important and urgent. This includes tidally influenced flood control projects.

- **Tier 2 – Necessary**

Actions to prevent predictable deterioration of assets or to minimize existing service impacts due to minimal system design.

- **Tier 3 – Recommended**

Sensible improvements to current conditions. These are not required for the most basic function of the stormwater system but improve overall service and usability. These may also lower maintenance costs.

STORMWATER PROGRAM PRIORITIZATION TIER SUMMARY

Summary of Current FY17 Annual Operating Budget and Capital Improvement Program

FY17

Operating Budget*	Capital Improvement Program	Other Program Expenditures	Total Program (Revenue + Bonds)
\$25,194,296	\$23,779,414	\$7,165,387	\$56,139,097

* Sum of budget units 10701-10709

Summary of All Tier 1, 2 and 3 Unfunded Needs

Program	Flood Control	Water Quality/ Regulatory Compliance	Operations and Maintenance	Totals
Tier 1 Unfunded Needs	\$362,200,000	\$33,750,000	\$8,400,000	\$404,350,000
Tier 2 Unfunded Needs	\$ TBD	\$0	\$35,100,000	\$35,100,000
Tier 3 Unfunded Needs	\$ TBD	\$13,000,000	\$12,000,000	\$25,000,000
Totals	\$362,200,000	\$46,750,000	\$55,500,000	\$464,450,000

STORMWATER PROGRAM SUMMARY OF FLOOD CONTROL NEEDS

Unfunded Needs for Tier 1 Flood Control Projects

CIP	Project Title	Funding Needs
7028	Windsor Woods Drainage	\$31,100,000
SW-FC4	Princess Anne Plaza/Pecan Gardens Drainage Improvements	\$66,000,000
SW-FC3	The Lakes Drainage Improvements	\$28,000,000
7029	Eastern Shore Drive Drainage - Phase II	\$65,400,000
SW-FC1	Ashville Park Drainage Improvements	\$35,000,000
SW-FC2	Sherwood Lakes Drainage Improvements	\$20,000,000
7041	Central Resort District Drainage Improvements	\$113,000,000
7400	Aragona Drainage Improvements	\$1,400,000
7027	SW Master Plan - for each Sub-Watershed	\$2,300,000
Total		\$362,200,000

STORMWATER PROGRAM PROGRAM IMPLEMENTATION

Additional Staff Required to Implement the Program

- 26 FTEs in FY18 and 4 FTEs in FY19

Summary of Requested Positions by FY 18 SL3 Budget Issue

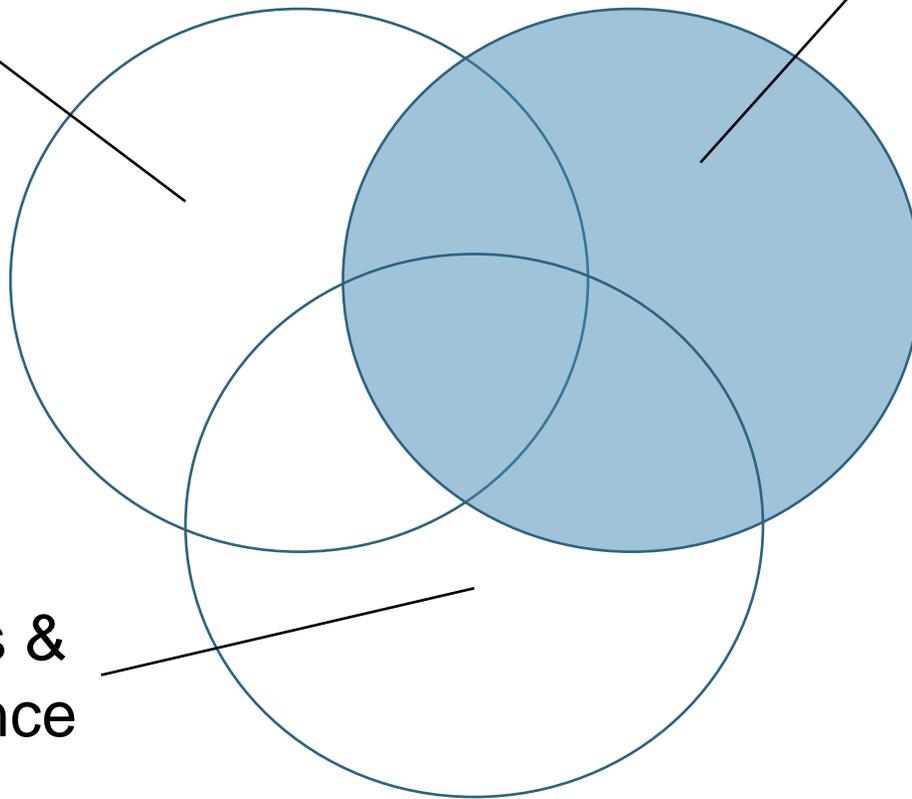
FTE Needs	Driver
Flood Control – Engineers - 2 FTEs & Construction Inspector - 1 FTE	Implement New Projects
Storm Water Center of Excellence –Engineers - 5 FTEs	Implement New Projects/ SLR/ MP/Development Review Support
MS4 Permit Program Management –Engineers, Media Coordinator, & Admin Technician - 6 FTEs FY18 & Engineers & Scientists - 4 FTEs FY19	Implement New Projects / Regulatory Compliance
Stormwater Data Management - Engineer Technician -1 FTE	Implement New Projects / Regulatory Compliance
Permit Related Project Management –Engineers - 2 FTEs	Implement New Projects / Regulatory Compliance
Enhanced BMP Inspections – Inspectors - 2 FTEs	Regulatory Compliance
BMP / Environmental Maintenance Crew – Supervisor & MEOs – 7 FTEs	Regulatory Compliance
Total Funding Need	\$3,072,398

CIP BASIS OF UNFUNDED NEEDS FLOOD CONTROL

Water
Quality

Flood Control
Phill Roehrs

Operations &
Maintenance



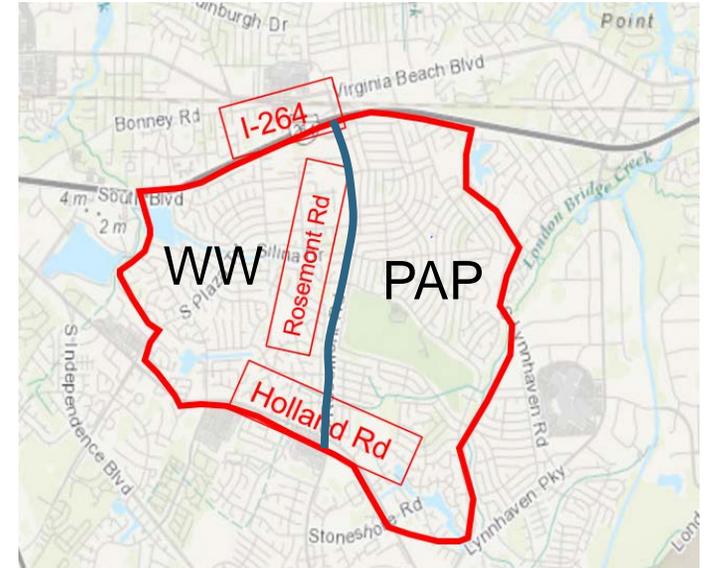
7-028 WINDSOR WOODS DRAINAGE

Tier 1

- Storm drain improvements to address severe roadway and structural flooding
- Includes tide gate & pump station
- Includes internal pump station
- Includes drainage pipe improvements
- First Phase of construction 5/2017 – 4/2018
- Construction: 5/2017 – 12/2023

**Total Programed:
\$3.9M**

**> \$31.1M Additional
Request**



PRINCESS ANNE PLAZA DRAINAGE IMPROVEMENTS

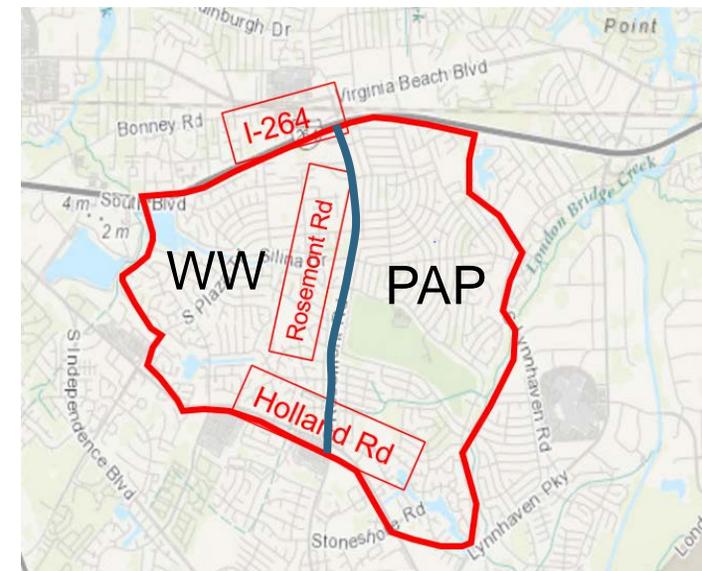
Tier 1

- Storm drain improvements to address severe roadway and structural flooding to the highest level of service practicable
- Includes multiple pump stations
- Includes Tide Gates
- Includes drainage pipe improvements
- Construction: 7/2018 – 6/2025



Project Split From Windsor Woods Project in FY18

\$66M Additional Request



THE LAKES DRAINAGE IMPROVEMENTS

- Storm drain improvements to address severe roadway and structural flooding
- Includes tide valves & pump station
- Includes diverting Holland Road drainage away from the Lakes - directly to London Bridge Creek
- Construction: 1/2021 – 6/2023

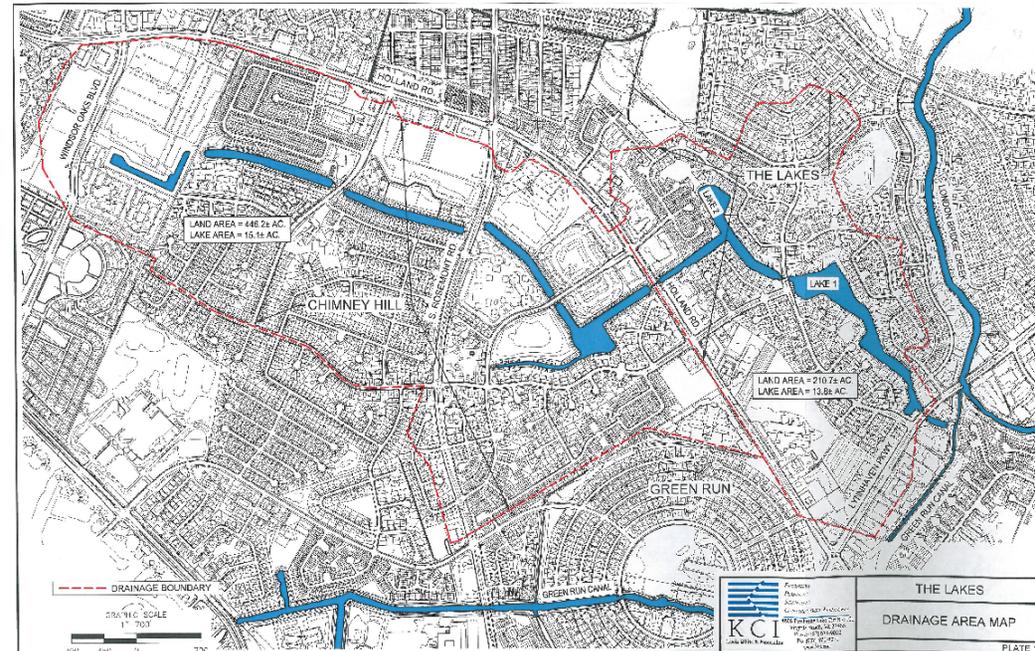
Tier 1

Hurricane
Matthew



New Project in FY 18

\$28M Additional Request



7-151 EASTERN SHORE DRIVE DRAINAGE

- Interim - Phase under construction completion (May 2017)
- Phases I and II design & partial acquisition underway – (construction is not funded)
- Includes tide gates & pump stations
- Includes canal improvements and drainage pipe improvements

Tier 1



**Total Programed:
\$17.7M**

**\$65.4 M Additional
Request**



ASHVILLE PARK DRAINAGE IMPROVEMENTS

Tier 1

- Storm drain improvements to address severe roadway and property flooding
- Includes tide gate & pump station
- Includes additional culvert interconnections between lakes
- Under Preliminary Engineering Design (Complete March 2017)
- Construction: 6/2018 – 6/2022

New Project in FY 18



\$35M Additional Request

SHERWOOD LAKES DRAINAGE IMPROVEMENTS

Tier 1

- Storm drain improvements to address severe roadway and property flooding
- Includes pump station
- Includes interconnecting two lakes
- Under Preliminary Engineering Design (Complete March 2017)
- Construction: 6/2019 – 12/2021

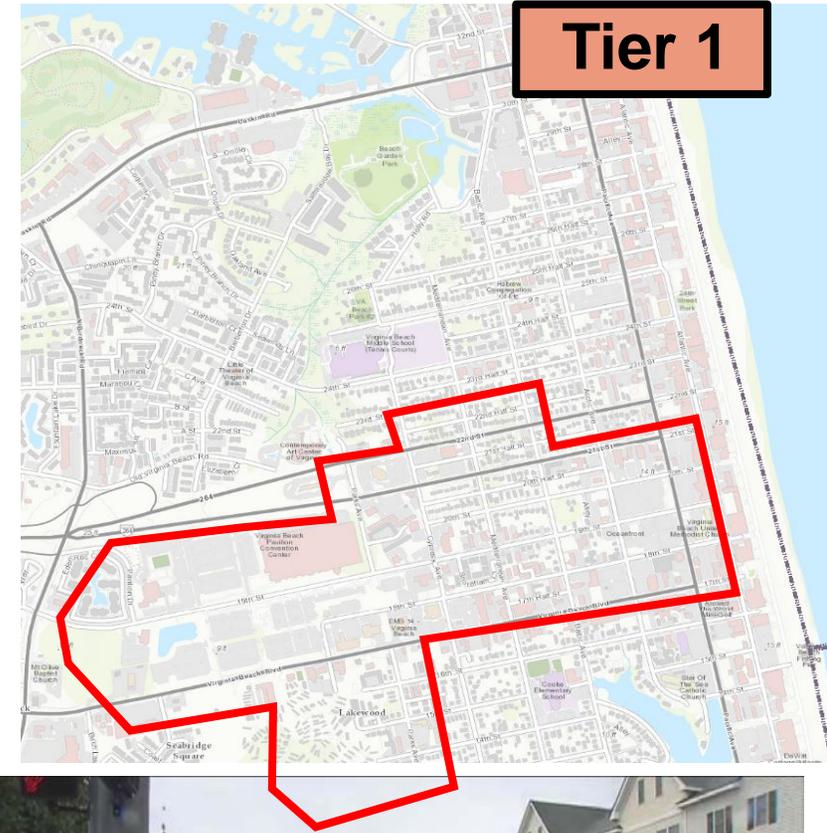
New Project in FY 18



\$20M Additional Request

7-041 CENTRAL RESORT DISTRICT DRAINAGE IMPROVEMENTS

- Storm drain improvements to address severe roadway and structural flooding
- Includes tide gate, pump station & ocean outfall
- Includes internal pump stations and backbone drainage pipe improvements
- Interim Project: Redirect approx. 15 ac area of 21st St and Baltic Ave. to exist. 16th St. Pump Station
 - Construction: 1/2020 – 6/2022



**Total Programed:
\$0.3M**

**\$113M Additional
Request**



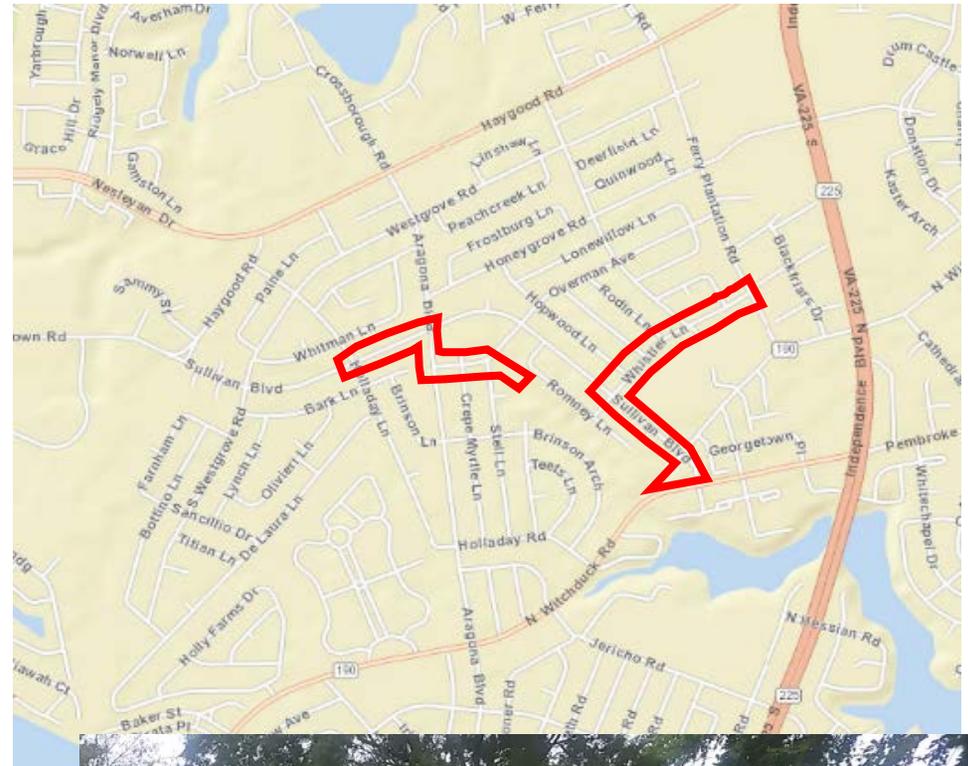
7-400 ARAGONA DRAINAGE IMPROVEMENTS

Tier 1

- Storm drain improvements to address severe roadway and property flooding
- Rescoped in 2015
- Under Design
- Construction: 1/2018 – 7/2019

**Total Programed:
\$2.3M**

**\$1.4 M Additional
Request**



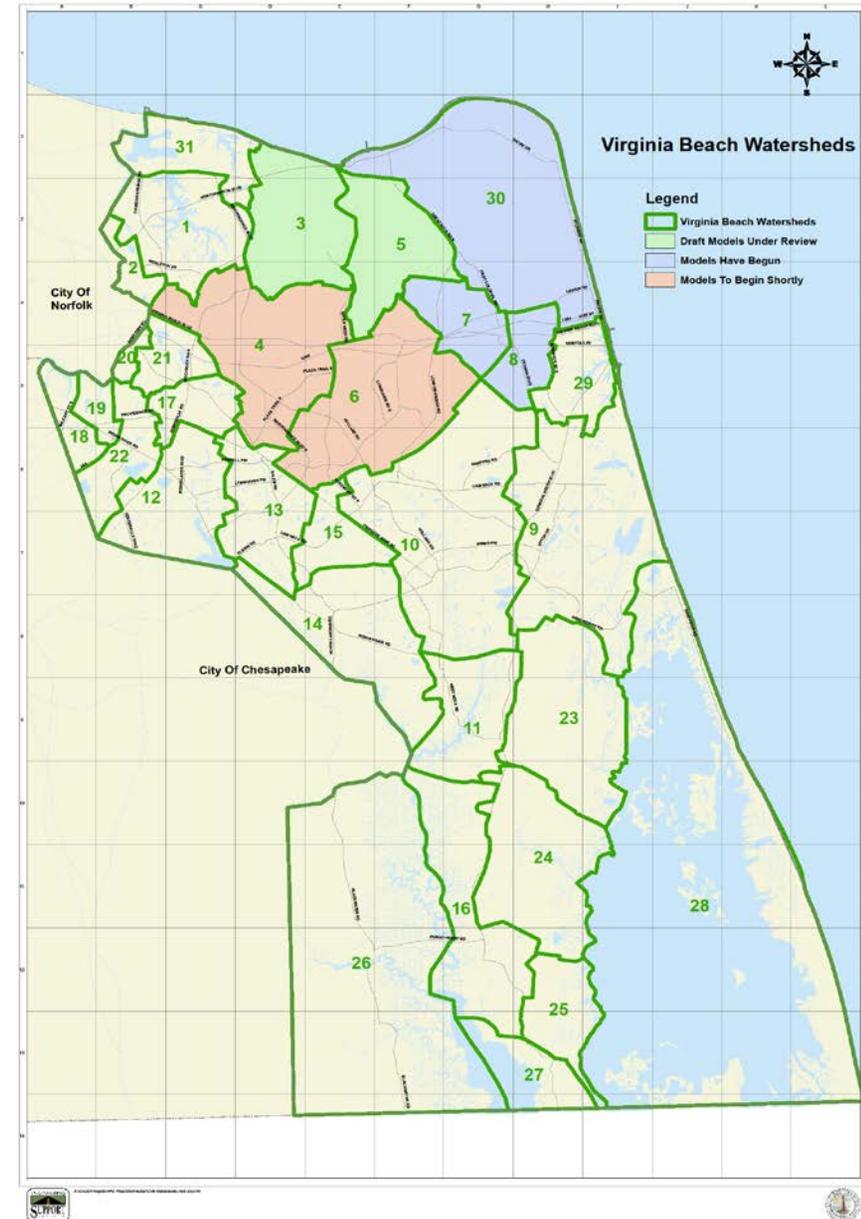
7-027 SWM MASTER PLANNING, ANALYSIS, AND INVENTORY

- Updating the City's 31 Stormwater Watersheds Models
- Includes Preliminary Drainage Analysis to identify future Capital Drainage Projects
- Models will be live and reside in the Center of SW Excellence
- Funding necessary to accelerate the project

**Total Programed:
\$10.6M**

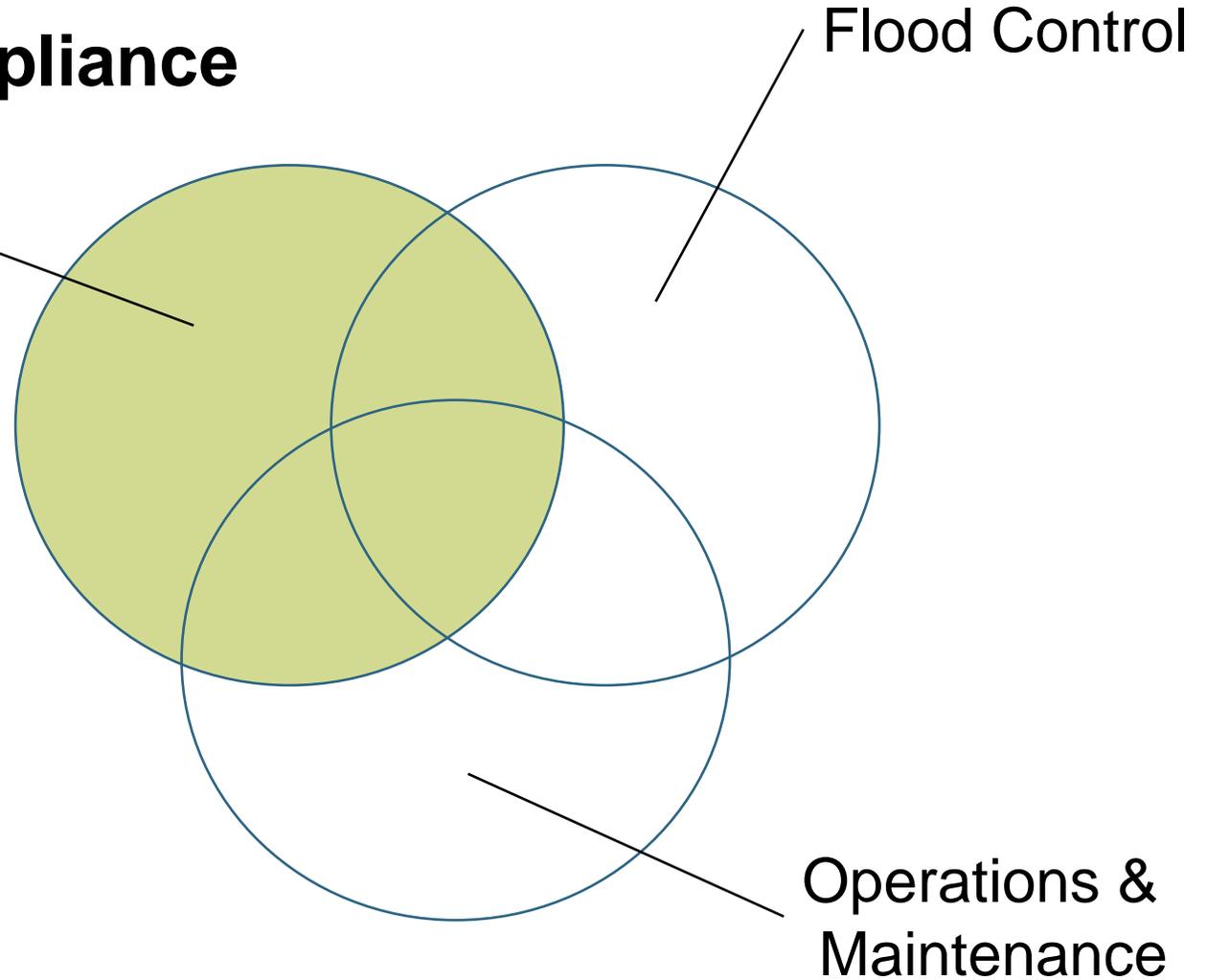
Tier 1

**\$2.3M Additional
Request**



CIP BASIS OF UNFUNDED NEEDS WATER QUALITY & REGULATORY COMPLIANCE

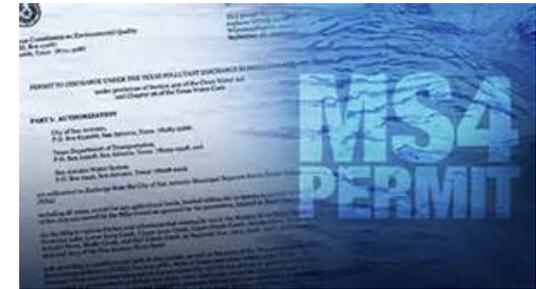
**Water Quality &
Regulatory Compliance**
Melanie Coffey



7-042 SURFACE WATER REGULATORY COMPLIANCE PROGRAM

Funds compliance activities for the new MS4 Stormwater Permit

- Program Administration and Reporting
 - Reporting, Training, City Facilities
- Stormwater Pollution Reduction
 - Chesapeake Bay TMDL Implementation
- Operational Requirements
 - Illicit Discharge & Improper Disposal Program, Industrial Stormwater Program Oversight
- Infrastructure Data Management
 - System, Outfall and Drainage Area Mapping
- Public Outreach and Education
 - Outreach Programs, Website, & Residential SWMF Program



Current Funding
\$1.1 M/year

Additional Need
\$1.3 M/year

Tier 1 – Required by new MS4 permit

7-406 ELIZABETH RIVER TMDL IMPLEMENTATION PLAN

- Identification ~ Design ~ Construction for TMDLs
 - BMP Retrofit Projects
 - Constructed Wetland Projects
 - Shoreline Management Projects
 - Stream Restoration Projects
- Local TMDL Action Plans for Bacteria

**Current Funding
\$200 K/year**

**Additional Need
\$920 K/year**



Proposed Kemps Lake BMP Retrofit Project - \$5.1M

Tier 1 – Required by new MS4 permit

7-414 STORM WATER QUALITY IMPROVEMENTS II

- Identification ~ Design ~ Construction of water quality improvements to meet compliance with Chesapeake Bay and Local TMDLs
 - BMP Retrofit, Constructed Wetlands, Shoreline Management and Stream Restoration Projects
 - Regional Facilities and Cost Participation Projects
- Action Plan Development for Chesapeake Bay and Local TMDLs
- Private Property Retrofit Program & Projects
- Comprehensive Water Quality Monitoring Program

Current Funding \$1.15M/year	Additional Need \$2.34M/year
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Tier 1 – Required by new MS4 permit



Mill Dam Creek
Before Construction



Mill Dam Creek
Stream
Restoration After
Construction

7-153 LYNNHAVEN WATERSHED RESTORATION

- Identification, Design, and Construction of water quality improvements to meet Chesapeake Bay TMDL

- BMP Retrofit Projects
- Constructed Wetland Projects
- Shoreline Management Projects
- Stream Restoration Projects

- Local TMDL Action Plans for Bacteria



Proposed Pembroke Lakes BMP Retrofit Project
Total Estimated Project Cost \$8M

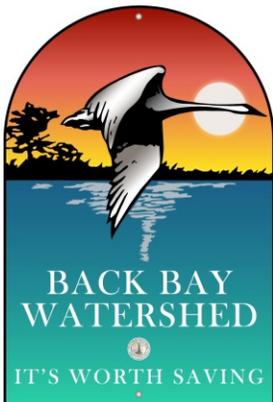
Current Funding
\$309K/year

Additional Need
\$733K/year

Tier 1 – Required by new MS4 permit

7-410 SOUTHERN RIVER TMDL IMPLEMENTATION PLAN

- Identification, Design, and Construction of water quality improvements
 - Local TMDL Capital Projects
 - BMP Design & Construction Projects
- Local TMDL Action Plans
 - Phosphorus
 - Bacteria



**Current Funding
\$200 K/year**

**Additional Need
\$208 K/year**

Tier 1 – Required by new MS4 permit

7-043 WATER QUALITY AND RESTORATION PARTICIPATION PROJECTS II

Lynnhaven River Basin Ecosystem Restoration Project Joint Venture with the Army Corps of Engineers (USACE)

- Phase I – Design and Acquisition
 - Design of reef habitat and submerged aquatic vegetation
 - Cost Participation Agreement
65% ACOE / 35% City ~ \$1.5M
- Phase II – Design, Acquisition, Construction
 - Total Project Funding ~ \$38M



Oyster Reefs in the Lynnhaven River



**Current
Funding
Level:
\$50K/YR**

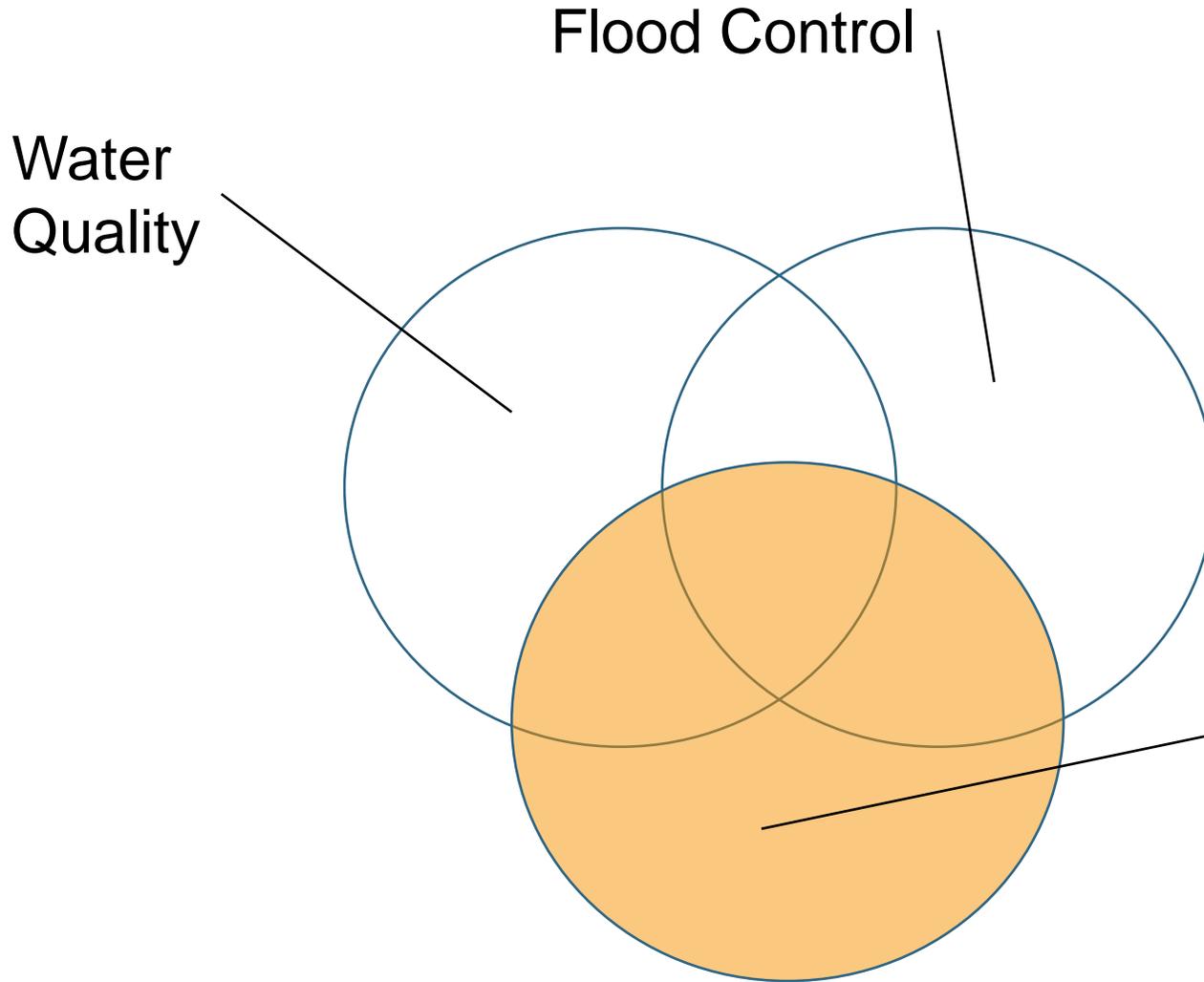
Tier 1 – Match Federal Funding

\$750K Additional Need

Tier 3 – Future Federal Funding Match

\$13M Additional Need

CIP BASIS OF UNFUNDED NEEDS OPERATIONS AND MAINTENANCE



**Operations &
Maintenance
Cheryl Cole**

7-411 OCEANFRONT SW FACILITIES MAINTENANCE

Current Funding = \$750K/yr

Tier 1 – Required for Flood Control

Additional Need = \$900K/yr

- Seawall Concrete Joint Sealants: \$300K/yr
- Pump Station Slab Repairs: \$200K/yr
- Full Depth Boardwalk Repairs: \$200K/yr
- Stair Nosing Replacements: \$200K/yr



7-412 SW PUMP STATION MAINTENANCE

Current Funding:

FY 17 & 19+ = \$750K/yr, FY 18 = \$1.25M

Tier 1 – Required for Flood Control

Tier 1 Additional Need = \$500K/yr

Tier 2

Additional Need = \$500K/yr

- The 15 stations are aging
- Rehab/overhaul program developed

Current plan:

- FY 18 - 79th Street Station
- FY 19 - Goodspeed Rd & Ocean Park Stations
- FY 20 - Cape Story Station
- FY 21 - Ocean view Station
- FY 22 - 16th Street Station
- FY 23 - 42nd Street Station



7-023 PRIMARY SYSTEM INFRASTRUCTURE IMPROVEMENTS II

Current Funding = \$2.27M/yr

Tier 2

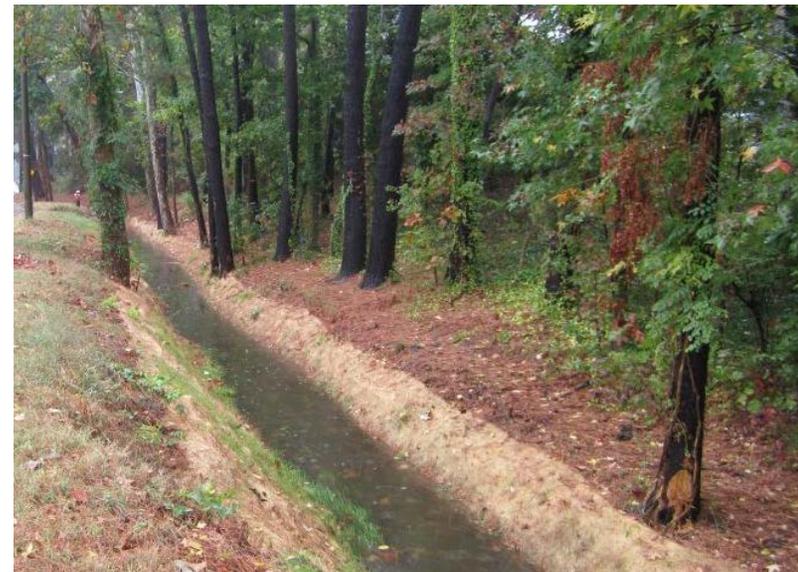
Additional Need = \$500K/yr

Program Cycles:

- 16 years - Original Cycle
- 8 years - Goal Cycle
- 12 years - Current Cycle
- 11 years - Cycle w/\$500k more



Arrowfield Rd ORD (Zone F) Before



Arrowfield Rd ORD (Zone F) After

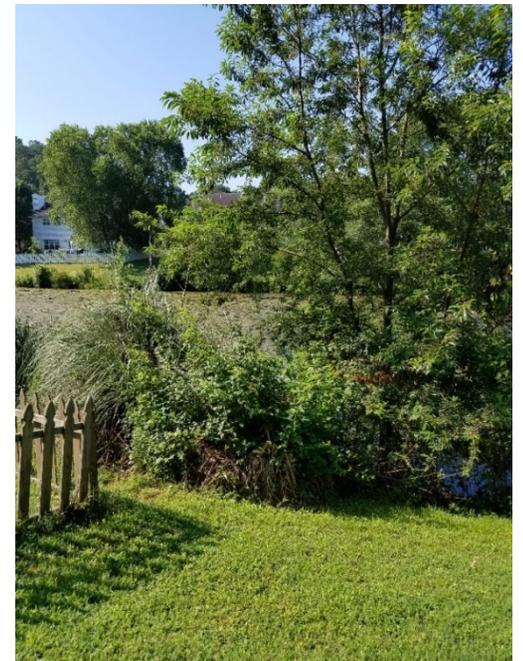
7-026 RESIDENTIAL COST PARTICIPATION

Current Funding = \$50K/yr

Tier 2

Additional Need = \$100K/yr

- Citizen cost participation programs for road-side pipe and lake algae control
- 600+ lakes eligible for treatment at \$5-10K per lake



7-415 LAKE & CANAL MANAGEMENT II

Current Funding:

FY 17 = \$5.2M, FY18+ = \$4.9M/yr

Tier 2

Additional Need = \$500K/yr

- Increasing requests for canal dredging
- Allows us to maintain current 95 yr cycle
- Cost of Dam/spillway maintenance



Salem Lakes



Brigadoon Lake # 4

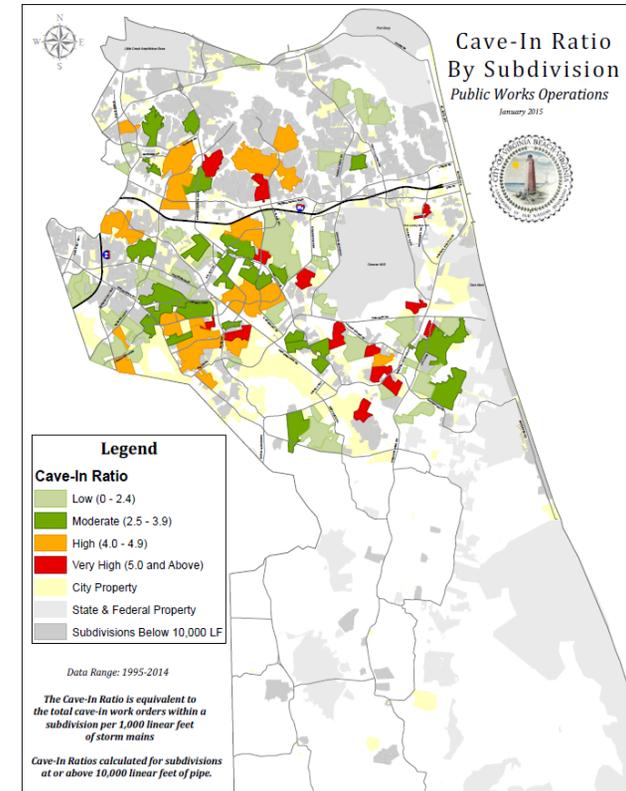
7-416 SW INFRASTRUCTURE REHABILITATION & IMPROVEMENTS II

Current Funding = \$5.5M FY17, \$5.75M FY 18+

Tier 2

Additional Need = \$2.5M FY 18, \$4.0M FY 19+

- Corrugated Steel Pipe Repairs - \$1M/yr
- CCTV Funds - \$1M/yr
- Cave Repairs - \$1 M/yr
- Small Projects (<\$500k) - \$1M/yr



HOLLIS AND PLEASURE HOUSE ROADS / SHORE DRIVE / CHURCH POINT DRAINAGE PARTIAL

Tier 2

Funding Need = FY 18 \$3M

New Project in FY 18

- To address severe roadway and property flooding
- Address initial system capacity limitations



CANAL MANAGEMENT

Funding Need = \$2M/yr

Tier 3

New Project in FY 18

- 47 miles of canal & 25 year cycle
- Restore urbanized canals to original drainage capacity and flow rates
- Dedicated funding mechanism to address canals without impacting lake dredging cycles
- Typical projects similar to Windsor Oaks canal projects



FINANCING THE VIRGINIA BEACH ENHANCED STORMWATER PROGRAM

- Driving Factors of Unfunded Needs
- Primary Components of the Fully Integrated Stormwater Program
- Prioritization of Unfunded Needs
- Project Detail of Unfunded Needs
- **Financing the Virginia Beach Enhanced Stormwater Program**

STORM WATER TIER I, II AND III FINANCING MODEL

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Real Estate Revenue	\$ 9,781,076	\$ 10,074,508	\$ 10,376,743	\$ 10,688,046	\$ 11,008,687	\$ 11,338,948
ERU Revenue	\$ 4,078,410	\$ 4,080,052	\$ 4,081,695	\$ 4,083,337	\$ 4,084,980	\$ 4,086,622
Operating Expenditures	\$ 3,072,398	\$ 2,793,316	\$ 2,844,266	\$ 2,973,716	\$ 3,066,566	\$ 3,146,566
CIP Pay-as-you-go	\$ 7,740,833	\$ 7,740,833	\$ 7,740,833	\$ 7,740,833	\$ 7,740,833	\$ 7,740,833
CIP Debt Service	\$ -	\$ -	\$ 1,486,518	\$ 2,973,036	\$ 4,459,553	\$ 5,946,071
Total	\$ 10,813,231	\$ 10,534,149	\$ 12,071,617	\$ 13,687,585	\$ 15,266,953	\$ 16,833,471
Revenue Minus Expenditures	\$ 3,046,254	\$ 3,620,411	\$ 2,386,821	\$ 1,083,798	\$ (173,286)	\$ (1,407,901)
Cumulative	\$ 10,380,254	\$ 14,000,665	\$ 16,387,486	\$ 17,471,284	\$ 17,297,997	\$ 15,890,097
Variables						
% Debt Service	75%					
% Pay-go	25%					
Real Estate						
Penny Rate Needed	1.8	-	-	-	-	-
Storm Water ERU						
Penny Rate Needed	4.5	-				
Real Estate as % of Total Revenue	71%	71%	72%	72%	73%	74%
ERU as % of Total Revenue	29%	29%	28%	28%	27%	26%
Impact Analysis for Citizens						
ERU Annual Impact	\$ 16.43	\$ 16.43	\$ 16.43	\$ 16.43	\$ 16.43	\$ 16.43
Real Estate Annual Impact*	\$ 42.81	\$ 44.09	\$ 45.42	\$ 46.78	\$ 48.18	\$ 49.63
Total Impact	\$ 59.23	\$ 60.52	\$ 61.84	\$ 63.20	\$ 64.61	\$ 66.05

*Impact reflected would be net zero as the 1.8 cents previously dedicated to light rail exist within the currently adopted 99 cent Real Estate Tax rate.

RESIDENTIAL VERSUS NON-RESIDENTIAL REVENUE IMPACTS

- Non-residential properties have a higher percentage of impervious surface
- Shifting costs to the real estate tax rate moves more of the financial burden to residential properties
- Tax-exempt organizations pay the ERU rate but do not pay real-estate tax rates

OTHER CONSIDERATIONS

- Impact of the current storm water program on rates/bonds
- Continue refining the right mix of pay-as-you go and bond financing
- Determine type of bonds to be issued
 - Revenue Bonds (financed by ERU rate) – Coverage
 - Public Facility Bonds – impact on debt indicators

CLOSING

STORMWATER UNFUNDED NEEDS FY 2018-23

Budget Issues

- Flood Control has become a critical neighborhood issue and is more complicated and expensive
- Stormwater Quality regulations and permitting are more demanding and compliance is mandatory
- More complicated projects and regulations are increasing Operation and Maintenance Requirements
- Aging infrastructure is increasing the amount of infrastructure maintenance
- Existing funding in the stormwater utility is not adequate to address current and future years
- Recent weather events have revealed our vulnerability to stormwater

DISCUSSION

NEXT STEPS