Anne Arundel County WATERSHED Protection & Restoration PROGRAM

Anne Arundel County
A LAND OF RIVERS

ANNE ARUNDEL COUNTY MARYLAND

Anne Arundel County Department of Public Works

www.aarivers.org

FY 2014 Report

Table of Contents

Introduction

Anne Arundel County is a land of rivers. With over 533 miles of shoreline and twelve different major watersheds, everything that happens on Anne Arundel's landscape is just a short trip away from its waterways. From its colonial beginnings in the middle of the 17th century, to today, with a population of over 550,000 residents, the land has been used intensively and continuously, shifting from a largely forested landscape to one that was heavily agricultural and cleared, then to the blend of urban, suburban, and rural uses that we see today.

The current health of our local waterways – very poor, by almost any metric – is a product of more than 350 years of intensive land use and an insufficient recognition that the clearing of the landscape, much of which was accomplished by the mid-18th century, followed by increasingly intensive development over the course of the past 50 years has left our rivers with a broken network of streams and creeks.

Over the course of the past decade, the Anne Arundel County Department of Public Works (DPW) has invested considerable time and money in conducting watershed assessments of each of the County's river systems. These assessments have involved walking hundreds of miles of streams throughout the county, evaluating their biological and physical condition, and developing a restoration implementation plan to recover their health and arrest the continued flow of pollutants into our rivers.

In 2010, with the implementation of the Chesapeake Bay Total Maximum Daily Load (TMDL) requirements by the US Environmental Protection Agency (EPA), and just this year, the delivery of a more aggressive Municipal Separate Storm Sewer System (MS4) permit issued by the Maryland Department of the Environment, the demand to increase the pace of local restoration implementation has increased considerable.

These more ambitious pollution reduction goals will require greater coordination between the local, state, and federal government agencies permitting and implementing restoration work, and with the public-at-large who will be expecting accountability and results from programs that are requiring their substantial financial participation.

Anne Arundel County possesses the expertise, the plan, and the resources to accomplish our shared clean water goals, and its Watershed Protection and Restoration Program (WPRP) has hundreds of projects programmed over the next several years to ensure that we succeed in our ambitious mission to restore the health of our local creeks and rivers.

The Restoration Plan

As part of the TMDL development process, in 2010 the State of Maryland was required to provide EPA with a Watershed Implementation Plan (WIP), a strategy, that laid out, in broad terms, the State's strategies for reaching its pollution reduction goals. Subsequently, in 2011, each of the counties within Maryland was, in turn, required to develop their own WIPs to provide more detailed strategies for how local implementation efforts would be structured in order to achieve local pollution reductions. As a result of the time and resources Anne Arundel County had already invested in assessing its watersheds and developing restoration strategies, it was one of two counties selected by the State (the other was Caroline County) to help provide technical assistance to other localities developing their own plans.

In July of 2012, the County finalized its WIP, which enumerated three primary strategies for achieving its required pollution reduction targets: 1) Upgrading, to the current limits of technology, the County's major wastewater treatment plants (WWTPs); 2) Converting roughly half (~20,000) of the County's septic systems to more effective, nutrient-reducing wastewater treatment alternatives, and; 3) Reducing pollution from urban stormwater. This third strategy dovetails completely with the County's obligations under its MS4 permit, which require the treatment of currently untreated impervious areas within the County over the next five years and beyond.

Anne Arundel's stormwater strategy is informed by nearly $6 million in physical and chemical assessments of hundreds of miles of stream corridors within the county. These assessments have demonstrated widespread degradation – both in the physical condition and biological vitality – of the county's non-tidal watershed networks from the Patapsco River basin in the north to Herring Bay in the south, and have had an instrumental role in shaping Anne Arundel County's restoration strategy.

Funding Implementation

In 2012, in response to State legislation creating a mandate that the 10 largest MS4 jurisdictions develop dedicated and protected revenue streams to fund local stormwater restoration, Anne Arundel County convened a Stormwater Fee Implementation Committee comprised of County staff, community stakeholders, and local legislative representatives. After several months of consideration and deliberation – including consultation with economic and financial experts – the committee recommended a rate and structure that would allow the County to fully achieve both its near term MS4 permit goals as well as its longer range WIP goals.

The following year, the Anne Arundel County Council made modifications, but largely adopted many of the committee's recommendations, eventually passing legislation to create a Watershed Protection and Restoration Special Revenue Fund and Program.

This legislation created a dedicated Watershed Protection and Restoration Special Revenue Fund (WPRF) as well as a stormwater remediation fee levied on impervious surfaces throughout the county to finance stormwater restoration work.

The first stormwater remediation fee bills went out in July of 2013, and the Watershed Protection and Restoration Program (WPRP) was created within the Department of Public Works to implement the County's required stormwater restoration strategies.

The fee has been phased in over a 3-year period such that 60% of the fee was assessed in 2014, 80% will be assessed in 2015, and 100% will be assessed in 2016 and beyond. The fee structure varies between land use type and intensity as seen in the table below:

Annual Stormwater Remediation Fee Rates				
Zoning	Rate Calculation	Phase In 2014	Phase In 2015	Full WPRF
R10, R15, R22	$85 x 0.4	$20.40	$27.20	$34
R1, R2, R5	$85	$51	$68	$85
RA, RLD	$85 x 2	$102	$136	$170
Non-Residential	Actual sf of impervious divided by 2,940 x $85	60%	80%	100%

Carrying Out the Plan

Within Anne Arundel County, the Anne Arundel County Watershed Protection and Restoration Program (WPRP), part of the Anne Arundel County Department of Public Works, has been charged with administering and reporting on the County's MS4 permit and carrying out the stormwater restoration work tied to both federal and state water quality requirements.

The WPRP stormwater restoration strategy is focused on three key areas: Stormwater pond retrofits; stormwater outfall repairs; and, stream restoration. Existing facilities, such as dry ponds, detention ponds, or infiltration basins that have failed will be rebuilt to optimize their pollution reduction capacity and provide an array of ecosystem benefits. Eroded or failing stormwater outfalls – locations where drainage systems discharge onto erosive soils – will be reconstructed into systems that can both safely convey high flows as well as provide water quality benefits and habitat. Stream erosion is the largest contributor of sediment and phosphorus to our local rivers, and the County's strategy to re-hydrate valley bottoms through restoration will provide water quality, flooding, and ecological benefits on a broad scale.

In addition to the work above, funds from the WPRP will be used to address a $30-40 million backlog of stormwater infrastructure repairs and replacement, ensuring that the County's culverts and drainage infrastructure are functioning properly and are not a threat to public health and safety.

Healing Our Rivers

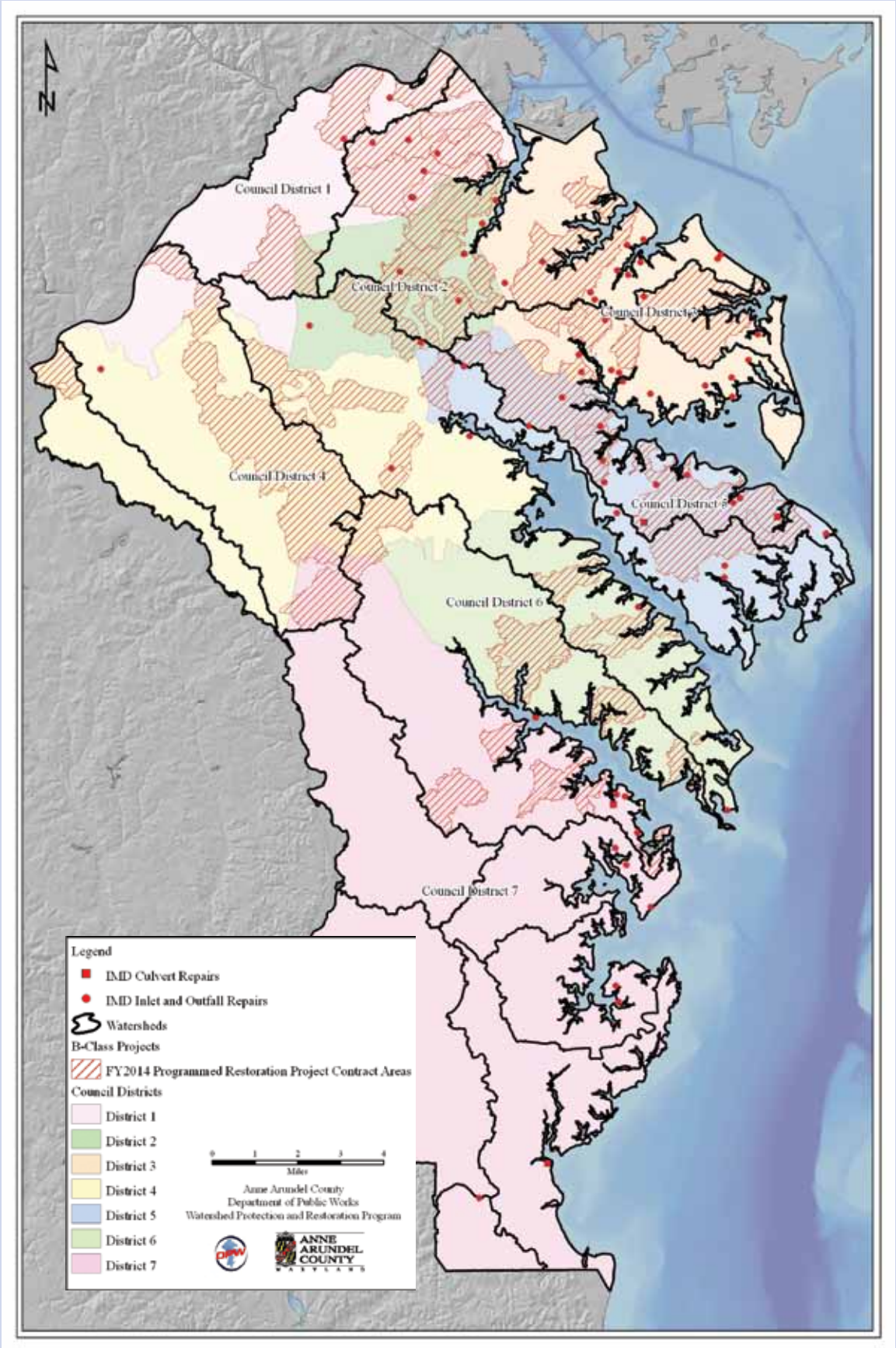
The health of Anne Arundel County's waterways is tied to the health of its watersheds. While the health of the Chesapeake Bay itself is integrally tied to inputs from the region's largest waterways, such as the Susquehanna and Potomac Rivers, the health of our rivers and creeks has been demonstrated to be largely driven by activities – both past and present – in their own watersheds. Nutrient discharges from our wastewater treatment plants and septic systems, and sediment and nutrient runoff from our businesses and homes are the drivers of our local impairments. Our restoration work, paired with that being required of the other bay jurisdictions, can ensure that our creeks and rivers, as well as the Chesapeake, are put on the path to recovery.

Summary Of Stormwater Remediation Projects

WATERSHED IMPLEMENTATION PLAN (WIP) PROJECTS INITIATED IN FY 14	
Bodkin Creek Watershed	$2,641,800
Little Patuxent River Watershed	$2,285,800
Magothy River Watershed	$3,749,600
Patapsco River (Non-Tidal) Watershed	$11,042,300
Patapsco River (Tidal) Watershed	$27,544,800
Upper Patuxent River Watershed	$2,877,500
Severn River Watershed	$9,140,600
South River Watershed	$3,245,900
TOTAL	**$62,528,300**

NOTE: Watershed Implementation Plan (WIP) project costs include: Stream Restoration, Stormwater Management Pond Retrofits, Storm Drain Outfall Enhancements. The funding identified in the above table represents only that portion of the project costs that were funded in the FY 14 Capital Budget. Watershed assessments for Little Patuxent, West/ Rhode River Herring Bay and Middle Patuxent are scheduled for completion by 2017.

Watershed Protection & Restoration Program
Projects Initiated in FY 2014



Stream & Wetland Restoration Program

Purpose & Function

Anne Arundel County's Stream & Wetland Restoration Program is a watershed based approach to restoring degraded stream systems to improve stream morphology, ecological function, water quality, aquatic and riparian habitat to ensure the resilience of the County's environment for its citizens. The Stream & Wetland Restoration Program is at the core of Anne Arundel County's program to meet federal and state mandated pollutant load reductions (TMDLs) and impervious surface management (NPDES MS4) requirements.

Stream Restoration Project Tasks

- Assessment and Evaluation
- Prioritization and Project Selection
- Design
- Community Input
- Federal, State and Local Permits
- Private/Public Property Access Approval
- Construction
- As-Built Approval
- Adaptive Management

Monitoring

Pre- and post- construction monitoring is often integral to restoration projects and is, many times, required by Federal and State permitting agencies. Collecting data on the performance and function of restoration projects provides decision makers with information that assists managers in making informed management decisions.

STREAM RESTORATION PROJECTS INITIATED IN FY14					
Project #	**Community Location**	**Council District**	**Watershed**	**Stream Length (Linear Feet)**	**Cost Estimate**
B552000	Jacobsville	3	Magothy	1,430	$1,938,000
B552100	Severna Park	5	Magothy	3,761	$2,122,000
B552300	Cape St. Claire	5	Magothy	2,434	$4,546,000
B553500	Brooklyn Park	1	Patapsco Tidal	13,123	$34,032,000
B553500	Glen Burnie	3	Patapsco Tidal	12,389	$10,962,000
B553900	Marley	3	Patapsco Tidal	4,195	$4,648,000
B558400	Annapolis Rds	6	Severn	2,032	$1,325,000
	TOTAL			**39,364**	$59,573,000
FY14 FUNDED STREAM RESTORATION PROJECTS TOTAL: $59,573,000					

NOTE: Stream restoration project costs are programmed in the CIP budget over multiple years.

Stormwater Management Pond Retrofit/Conversion And Storm Drain Outfall Enhancement Program

Purpose & Function

Anne Arundel County's Stormwater Management (SWM) Pond Retrofit/Conversion and Storm Drain Outfall Enhancement Program utilizes a watershed based approach to reducing pollutant loads from upland sources and managing stormwater from impervious surfaces within Anne Arundel County. The SWM Pond Retrofit/Conversion and Storm Drain Outfall Enhancement projects along with the Stream & Wetland Restoration projects make up Anne Arundel County's Stormwater Tier One Watershed Implementation Strategy (WIP). The County's WIP was structured to meet Federal and State mandated pollutant load reductions required to achieve the Chesapeake Bay TMDL, including those local TMDLs established for Anne Arundel County's waterways, and impervious surface management (NPDES MS4) requirements.

Pond Retrofit/Conversion & Outfall Enhancement Project Tasks

- Assessment and Evaluation
- Prioritization and Project Selection
- Design
- Community Input
- Federal, State and Local Permits
- Private/Public Property Access Approval
- Construction
- As-Built Approval
- Adaptive Management

SWM POND RETROFIT/CONVERSIONS INITIATED IN FY14				
Project #	**Watershed**	**Council District**	**# of Ponds**	**Cost Estimate**
B552000	Magothy	3	1 (PC)	$430,600
B552100	Magothy	5	1 (PP)	$22,300
B552300	Magothy	5	± 2 (PP) 1 (PC)	$303,800
B552900	Magothy	3,5	± 35 (PC)	$2,638,500
B553400	Patapsco Tidal	1,2,3	± 40 (PC)	$7,236,200
B555700	Patapsco NonTidal	1	± 22 (PC)	$3,158,100
B556100	Bodkin	3	± 17 (PC)	$2,641,800
B556500	Upper Patuxent	4	1 (PC)	$235,700
B557100	Little Patuxent	4	± 9 (PC)	$2,285,800
B558100	Severn	4,5	± 28 (PC)	$8,122,600
B560200	South	6,7	± 21 (PC)	$3,245,900
	TOTAL		**177**	**$30,321,300**
FY 14 FUNDED POND RETROFIT PROJECTS TOTAL: $30,321,300				

NOTE: (PC) = Public Ponds (PP) = Private Ponds

STORM DRAIN OUTFALL ENHANCEMENTS INITIATED IN FY14				
Project #	**Watershed**	**Council District**	**# of Outfalls**	**Cost Estimate**
B552000	Magothy	3	± 8	$1,746,400
B552100	Magothy	5	± 8	$683,300
B552300	Magothy	5	± 8	$1,512,100
B553400	Patapsco Tidal	1	± 22	$5,047,700
B553500	Patapsco Tidal	1	± 9	$1,736,100
B553700	Patapsco Tidal	3	± 34	$9,783,000
B553900	Patapsco Tidal	3	± 19	$8,987,100
B554100	Patapsco Tidal	1	± 20	$6,617,100
B554900	Patapsco Tidal	2	± 17	$4,656,300
B555300	Patapsco NonTidal	1	± 17	$7,884,200
B556300	Upper Patuxent	4	± 7	$274,100
B558400	Severn	6	± 5	$1,325,400
	TOTAL		**174**	**$50,252,800**
FY 14 FUNDED OUTFALL ENHANCEMENT PROJECTS TOTAL: $50,252,800				

Stormwater Infrastructure Maintenance Projects

CURRENT INFRASTRUCTURE & MAINTENANCE COSTS FY 14	
Culvert & Closed Storm Drain Repair	$4,766,600
Emergency Storm Drain	$600,000
Storm Drainage/SWM Infrastructure	$1,000,000
TOTAL	**$6,366,600**

Funds from the Watershed Protection and Restoration Program will be used to address a $30 million+ backlog of stormwater infrastructure repairs and replacements, ensuring that the County's culverts and drainage infrastructure are functioning properly and are not a threat to public health and safety.

FY14 INFRASTRUCTURE MANAGEMENT DIVISION WPRP CAPITAL PROJECTS				
Council District	**Road Name**	**Community**	**Project Scope of Work**	**Capital Funding**
1	Burwood Avenue	Glenmore	Replace CSD pipes. Repair inlets and manholes.	$23,000
1	Fairmount Road	Linthicum Heights	Replace CSD pipes. Repair inlets and manholes.	$55,000
1	Gordon Drive	North Wellham	Replace CSD pipes. Repair inlets and manholes.	$17,000
1	Lake Front Drive	Linthicum Heights	Replace CSD pipes. Repair inlets and manholes.	$5,047,700
1	Longwood Ave/ Eastern St	Fernglen Manor	Reconstruct inlets.	$15,000
1	Longwood Avenue	Fernglen Manor	Replace CSD pipes. Repair inlets and manholes.	$10,000
1	Ritchie Street	Arundel Hills	Replace CSD pipes.	$31,000
1	Trussel Oak Court	Linthicum Oaks	Replace CSD pipes. Repair inlets and manholes.	$20,000
2	Benmere Road	Country Club Estates	Replace CSD pipes. Repair inlets and manholes.	$37,000
2	Foxwell Road	Fox Chase	Replace CSD pipes. Repair inlets and manholes.	$14,000
2	Furnace Avenue	Shoreland	Replace CSD pipes. Repair inlets and manholes.	$72,000
2	Guildford Road	Harundale	Replace CSD pipes.	$45,000
2	Guildford Road #2	Harundale	Replace CSD pipes. Repair inlets and manholes.	$48,000
2	Harvey Avenue	Severn	Install new inlet.	$7,000
2	Millrace Pond - Inflow Pipe	Millrace	Slipline existing CSD pipe. Multiple joint failures.	$92,000
2	Ridgely Road	Glen Burnie Park	Replace CSD pipes. Repair inlets and manholes.	$69,000
3	A Street	Chelsea Beach	Replace CSD pipes. Repair inlets and manholes.	$15,000
3	Bertha Road Infil Trench	Rock View Beach	Reconstruct infiltration trench.	$10,000
3	Cheverly Lane	Sun Valley	Replace CSD pipes. Repair inlets and manholes.	$40,000
3	Choptank Avenue	Paradise Beach	Replace CSD pipes. Repair inlets and manholes.	$29,000
3	Cobbler Lane	Country Place	Replace CSD pipes. Repair inlets and manholes.	$20,000
3	Deerbrooke Court	Deerfield	Replace CSD pipes. Repair inlets and manholes.	$16,000
3	Dunlap Road	Rock Creek Estates	Replace CSD pipes.	$14,000
3	Falcon Drive	Sillery Bay	Replace CSD pipes. Repair inlets and manholes.	$11,000
3	Hickory Point Road	Hickory Point	Replace CSD pipes. Repair inlets and manholes.	$17,000
3	Inlet Repairs - Pasadena	Country Place	Reconstruct inlets.	$49,000
3	Joanne Road	West Riverdale	Replace CSD pipes. Repair inlets and manholes.	$16,000
3	Kurtz Avenue	Paradise Beach	Replace CSD pipes. Repair inlets and manholes.	$23,000
3	Laurel Drive	Laurel Acres	Replace CSD pipes. Repair inlets and manholes.	$48,000

Council District	Road Name	Community	Project Scope of Work	Capital Funding
3	Magothy Beach Road	Chelsea Beach	Replace CSD pipes. Repair inlets and manholes.	$56,000
3	Magothy Bridge Road #2	Magothy Forge	Replace CSD pipes. Repair inlets and manholes.	$15,000
3	Milburn Circle	Mil-Bur	Replace CSD pipes. Repair inlets and manholes.	$29,000
3	Patapsco Road	Green Gables	Replace CSD pipes. Repair inlets and manholes.	$58,000
3	Skip Jack Place	Green Gables	Replace CSD pipes. Repair inlets and manholes.	$15,000
3	Longwood Avenue	Fernglen Manor	Replace CSD pipes. Repair inlets and manholes.	$58,000
3	Skip Jack Place	Cottage Grove	Replace CSD pipes.	$21,000
3	South Carolina Avenue	Boulevard Park	Replace CSD pipes. Repair inlets and manholes.	$15,000
3	Stone Haven Drive	Stone Haven	Replace CSD pipes. Repair inlets and manholes.	$11,000
3	Turnberry Court	Brekenridge	Reconstruct inlets.	$14,000
3	Valley Road	Rock Hill	Replace CSD pipes.	$18,000
3	Waterton Court	Chandler Point	Replace CSD pipes. Repair inlets and manholes.	$40,000
3	Whites Cove Road	Orr Acres	Replace CSD pipes. Repair inlets and manholes.	$23,000
4	Cecil Avenue South	Millersville	Install new inlet.	$7,000
4	Cedarwood La / Bluebird La	Sunrise Beach	Replace CSD pipes. Repair inlets and manholes.	$23,000
4	Ridgemere Crossing	Russett	Install underdrain system.	$23,000
5	Benfield Road at Lutheran Church	Severna Park	Replace CSD pipes.	$12,000
5	Creek View Road	Manhattan Manor	Replace CSD pipes.	$30,000
5	East Joyce Lane	Arnold	Replace Culvert.	$25,000
5	Harbor Drive	Podickory Point	Replace CSD pipes. Repair inlets and manholes.	$33,000
5	Harting Farms / Jones Station Road	Harting Farms	Expansion of CSD system to alleviate flooding.	$146,000
5	Idylewild Drive	Cape St. Claire	Replace CSD pipes. Repair inlets and manholes.	$28,000
5	Kingsberry Drive	Saint Margarets Farm	Inlet repairs.	$9,000
5	Kingsberry Outfall	Saint Margarets Farm	Repair Outfall for WERS. Stopgap repair.	$52,000
5	Little Magothy View	Cape St. Claire	Replace Culvert.	$14,000
5	Minstrel Court	Shipleys Choice	Repair inlets and manholes.	$11,000
5	Oak Avenue	Oakleigh Forest	Replace CSD pipes. Repair inlets and manholes.	$11,000
5	Placid Court	Ulmstead Estates	Slipline existing CSD pipe. Multiple joint failures.	$33,000

Council District	Road Name	Community	Project Scope of Work	Capital Funding
5	Placid Court #2	Ulmstead Estates	Slipline existing CSD pipe. Multiple joint failures.	$29,000
5	Ramblewood Drive	Cape St. Claire	Expansion of CSD system to alleviate flooding.	$36,000
5	Severn View Outfall	Severn View	Re-establish outfall channel.	$166,000
5	Sonneborn Lane	Swann Point Estates	Reconstruct inlets.	$10,000
5	Tarks Lane	Berrywood Acres	Replace CSD pipes. Repair inlets and manholes.	$41,000
6	Friends Road	Cape St. John	Replace CSD pipes. Repair inlets and manholes.	$63,000
6	Lindamoor Dr	Lindamoor on the Severn	Replace CSD pipes. Repair inlets and manholes.	$20,000
6	Magnolia Avenue	Arundel on the Bay	Replace CSD pipes.	$24,000
7	Calawasse Road	Calawasse Park	Replace CSD pipes. Repair inlets and manholes.	$31,000
7	Cedar Grove Road	Selby on the Bay	Replace CSD pipes. Repair inlets and manholes.	$43,000
7	Chesapeake Drive	Edgewater	Replace CSD pipes. Repair inlets and manholes.	$52,000
7	Jewell Road	Tall Oaks	lace CSD pipes. Repair inlets and manholes.	$16,000
7	Johnson Drive	Avalon Shores	Replace CSD pipes.	$15,000
7	Leitch Road	Ark Haven	Replace CSD pipes.	$55,000
7	Lerch Drive at Community Beach	Avalon Shores	Replace CSD pipes. Repair inlets and manholes.	$43,000
7	Loch Haven Drive	Loch Haven Beach	Replace CSD pipes. Repair inlets and manholes.	$39,000
7	Loch Haven Road #2	Loch Haven Beach	Investigation Complete, culvert needs to be replaced.	$40,000
7	South River Terrace	Loch Haven Beach	Replace CSD pipes. Repair inlets and manholes.	$33,000
7	Valley View Avenue	Edgewater	Replace CSD pipes. Repair inlets and manholes.	$19,000

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