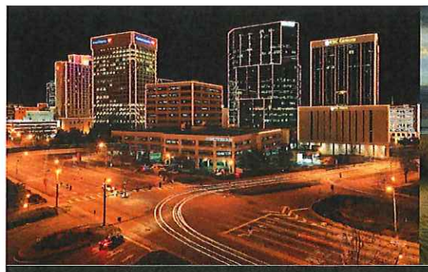
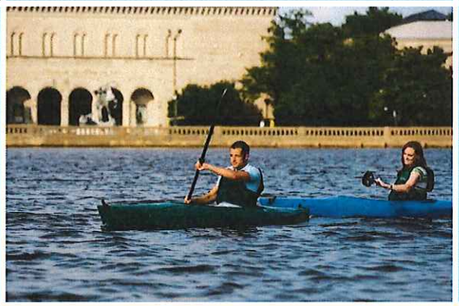


Combined Coastal & Precipitation Flooding Master Plan

City of Norfolk
Department of Public Works

Operations Division
Environmental Storm Water Management



JUNE 2014

CITY OF NORFOLK

DEPARTMENT OF PUBLIC WORKS

OPERATIONS DIVISION

ENVIRONMENTAL STORM WATER MANAGEMENT

COMBINED COASTAL AND PRECIPITATION FLOODING

MASTER PLAN

JUNE 2014

TABLE OF CONTENT

PURPOSE AND INTRODUCTION

Purpose

The purpose of this Master Plan is to unify the prioritization of storm water projects that have been identified in prior Coastal and Precipitation master planning studies that were performed between 2010 and 2012. During this period, these two major storm water City-wide master plan studies were conducted to determine the extent and costs of storm water infrastructure needs from both a coastal and precipitation storm water perspective to meet City priorities and goals.

The City has many challenges to face in its future, including a growing and diverse population, education, systemic poverty and potential changes in military priorities that could deeply impact the economic future of the region. One of the largest challenges facing the City is sea level rise. Sea level rise has occurred over most of the last century and is expected to continue, though the rate of change remains under debate. Our ability to remain resilient through this challenge will impact our ability to address all of the other current and future challenges facing the City. Sea level rise will have serious impacts to storm water infrastructure for both coastal and storm water flooding. Failure to account for future sea level rise will reduce the effectiveness of storm water system upgrades.

This Master Plan will include the following reports by reference:

- City-wide Drainage Master Plan, November 8, 2012
  Prepared by Timmons Group
- Preliminary City-wide Coastal Flooding Mitigation Concept Evaluation and Master Plan Development, May 2, 2012 , Prepared by Fugro Atlantic

Summaries and excerpts will be taken from these reports; however, if more information is required, it may be beneficial to consult the original source reports.

Introduction

In the early 1990's, State and federal laws issued under the Clean Water Act allowed certain communities to develop storm water utilities in order to raise revenues for compliance with new regulations. Communities of a certain population were issued National Pollutant Discharge Elimination System (NPDES) permits for the discharge of storm water and outlined specific programmatic requirements for the locality to address flooding and pollution prevention. These permits were generally referred to as MS-4 or Municipal Separate Storm Sewer System Permits.

The City's Storm Water Fund was created as a special revenue fund. The Storm Water Fund serves as a utility, charging a fixed rate for single family residences equivalent to one Equivalent Residential Unit (ERU) and a non-residential property rate based on impervious areas in increments of 2,000 square feet. A separate storm water rate is used for residential and commercial properties. The Storm Water fee is billed out as part of the Hampton Roads Utility Billing System (HRUBS) along with other utility charges for sanitary sewage, water, Hampton Roads Sanitation District (HRSD), and solid waste.

The mission established for the storm water utility was to:

- Improve water quality
- Reduce flooding

The basic service included in the Storm Water Utility, includes, but not limited to the following:

- Storm Water Pipe Repairs and Maintenance
- Streets Sweeping Operations
- Hand Crew Cleaning of Underpasses and Dead Ends
- Storm Water Structure Repairs
- Management of City's MS-4 Storm Water Permit
- Storm Water Outfall Cleaning and Maintenance

- Ditch Maintenance
- Periodic Inspection of Private Owned BMP
- Engineering Services for CIP
- Flushing and cleaning of pipes and Structures
- Flooding Response and Emergency System Roding
- Maintenance of GIS Storm Water mapping layers
- Pump Stations O&M
- Shopping Cart Removal
- Site Plan Review for compliance with State Regulations.
- Storm Water BMP Maintenance
- Lot Cleaning Operations
- Financial Management and Billing Services

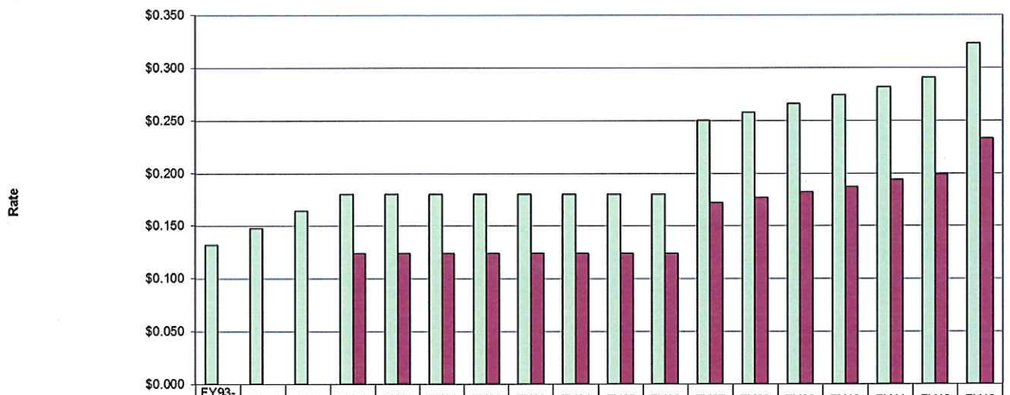
In addition to the above basic services, Storm Water manages new storm water and other environmental regulations that impact the City. The most recent example is the Chesapeake Bay TMDL or Total Maximum Daily Load.

As a special revenue fund, Storm Water has charge-outs for major services provided by other City Departments, such as fleet maintenance, information technology and mail room services. In addition, the City and the Department of Public Works budget overhead expenses to the Storm Water fund in order to cover direct and indirect costs that can not normally be charged out, such as human resources, finance, budget, and legal services.

The Storm Water Fund directly funds a number of positions that are directly or indirectly related to storm water in the Department of Public Works and the Department of Planning and Community Development. Programs, such as the administration of the Erosion and Sedimentation Control and the Construction General Permit or Virginia Storm Water Management Permit (VSMP) are financed by a combination of permit fees and the Storm Water fund. Other positions are paid for in whole by Storm Water

The Storm Water fee was designed to fund operational needs of maintaining and repairing the storm water infrastructure throughout the City, as well as fund a modest capital improvement program. The storm water fee has increased steadily to meet the increased state and federal regulations mandated on the City. The following chart shows the storm water fees growth:

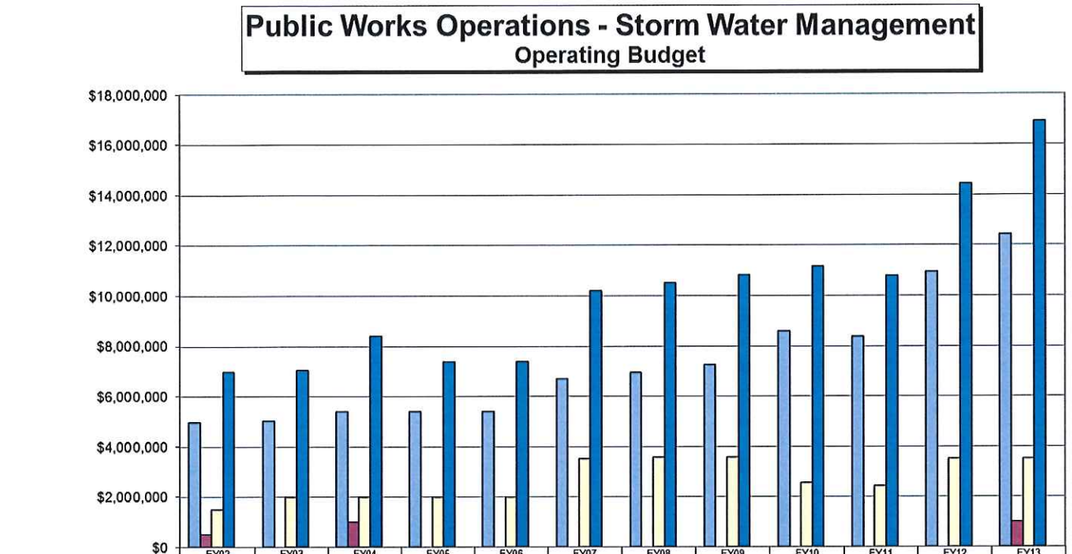
Public Works Operations- Storm Water Management
Storm Water Rates



	FY93-96*	FY97*	FY98*	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Residential Rate Per Day	$0.132	$0.148	$0.164	$0.180	$0.180	$0.180	$0.180	$0.180	$0.180	$0.180	$0.180	$0.250	$0.258	$0.266	$0.274	$0.282	$0.291	$0.323
Non Residential Rate Per Day				$0.124	$0.124	$0.124	$0.124	$0.124	$0.124	$0.124	$0.124	$0.172	$0.177	$0.182	$0.187	$0.194	$0.199	$0.233

Residential rate is per day. Non residential rate is per day per 2,000 sq. ft. of impervious area.
*For commercial rates (FY-93 - 98) graduated rates within ranges of impervious area were used to bill

The storm water operating budget has also increased to meet the challenges of new regulations and aged infrastructure. The following chart is a depiction of the increases in the storm water budget between FY 2002 and FY 2013.



	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Operating Budget (less debt service)	$4,971,098	$5,042,200	$5,413,000	$5,393,000	$5,393,000	$6,709,800	$6,956,398	$7,265,781	$8,600,598	$8,366,297	$10,932,450	$12,440,173
Cash Funded CIP	$500,000	$0	$1,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$1,000,000
Capital Costs	$1,500,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$3,500,000	$3,559,702	$3,559,702	$2,559,702	$2,438,703	$3,500,000	$3,500,000
Total	$6,971,098	$7,042,200	$8,413,000	$7,393,000	$7,393,000	$10,209,800	$10,516,100	$10,825,483	$11,160,300	$10,805,000	$14,432,450	$16,940,173
Capital Costs Percentage	28.4%	28.7%	28.4%	35.7%	27.1%	27.1%	34.3%	33.9%	22.9%	22.6%	24.3%	20.7%

History

The City's infrastructure was installed primarily by developers as the City expanded. Parts of the city's downtown, Freemason District and Ghent date back to the late 19th Century and very early parts of the 20th Century. The City saw significant growth after World War I, with expansions in Larchmont, Colonial Place, Ghent, Lafayette, Winona and Fairmount Park. Other parts of the City continued to develop afterwards with a very large growth rate during and after World War II. Large subdivisions were installed, expanding the roadways and storm water systems throughout the City.

Parts of the current City limits were, at the time, portions of Norfolk and Princess Anne Counties and not part of the City government. The design standards in the counties required rudimentary storm water systems that designed systems for 2-year (50%) storm or less and may not have considered upstream developments within the

watershed that would eventually add flows to the downstream storm drain systems. Consequently, much of the existing systems in many City neighborhoods are old and under sized to current 10-year (10%) storm designs.

Further county design standards did not require newly developed roadways to include curbs, gutters and sidewalks. Sometime in the late 1950's the City of Norfolk consolidated some of the old counties into its current configuration. This development of the City has resulted in some neighborhoods with the full array of streetscape infrastructure to include curbs and gutters with sidewalks on both sides of the street and a planting verge with mature trees. At the same time, streets in other neighborhoods are devoid of infrastructure amenities. Many of these neighborhoods have roadside ditches with driveway pipe culverts under each driveway and house-walks. These neighborhoods often do not have sidewalks. In many cases, the county neighborhoods do not have adequate rights of way to fit all of the infrastructure in the more developed areas.

Another important element that can be gleaned from the City's history is that the existing storm water system is approaching the end of its useful life. Most of the storm water pipes and structures are made up of concrete. These elements are generally considered to have a 100-year life. While, it is not unusual for a concrete pipe to last more than 100-years, some of the system needs to be rehabilitated or replaced. One technique the City uses is to slip-line existing pipes with various types of thermoplastic liner. This technique has the ability to extend the life of the pipes by 100 or more years.

COASTAL FLOODING

Introduction

Two major coastal storms hit the region in 1933 and 1936. The 1933 storm became the storm of record for this region, possibly exceeding the 100-year (1%) storm event. The next major storm to hit this area occurred in 1962, better known as the Ash Wednesday Storm, nearly 30-years after the previous major storm event. Moderate strength storms hit the area over the next 30-plus years; however, the next major coastal storm to severely impact the City and the region was Hurricane Isabel in 2003. Since 2003, tropical and subtropical storms impacted the City in 2006 (Ernesto), 2009 (November Nor'easter) and 2011 (Irene). These storms caused widespread coastal flooding of the City's low elevation areas.

The City issued a Request for Proposal in 2007 for a consulting firm with expertise in coastal flooding. Fugro Atlantic was selected and awarded a contract. Fugro's prime sub-consultant was Moffatt & Nichol.

In 2008, The City Council was briefed on the risk from sea level rise, land subsidence and the impact on coastal storm events. Flooding from both coastal storm events and from precipitation became a City Manager and City Council priority in 2011.

U.S. Army Corps of Engineers thru 2014

In 2011 the City and the Norfolk District of the U.S. Army Corps of Engineers agreed to study two drainage watersheds, The Hague and Pretty Lake, both of which are tidally influenced and have a constricted connection to the adjacent tidal waters. The project was submitted and approved under the USACOE continuing authority program (CAP), Section 205. Under this program a prescribed percentage of federal and non-federal sponsor funds are set out as follows:

Definition of Federal Interest..... 100% Federal funded
Feasibility Cost Share Agreement Development.....100% Federal funded

Feasibility Phase.....50% Federal and 50% Non-Federal
Final Design and Construction.....65% Federal and 35% Non-Federal

Prior studies by the City's consultant recommended a wall with a navigational gate to mitigate tidal flooding in both areas.

In 2013, the City requested additional CAP 205 projects with the Corps of Engineers to include Freemason, Mason Creek and Ohio Creek watersheds. The projects are currently funded to the first level of the CAP 205, definition of federal interest.

In 2013 The USACOE began work on the North Atlantic Coastal Comprehensive Analysis on coastal flooding in the aftermath of Super Storm Sandy. The City of Norfolk became an Appendix to this large study, which became a reconnaissance level study. After the NACCS is completed, the Corps' Norfolk District will begin work on the Norfolk Flood Risk Analysis, this report will be done with a general investigation level study and should contain specific recommendations for mitigating coastal storm events.

In 2014, the effectiveness of using U.S. Army Corps of Engineers' CAP 205 project programs remain in question. The size of projects that are being proposed exceed the limits of the CAP authorization and do not lend themselves to phasing. Consequently, it has been difficult to scope a project within the CAP limits that is able to produce effective risk reductions from coastal flooding.

Preliminary City-Wide Coastal Flooding Mitigation Master Plan

Fugro Atlantic conducted a cursory study of the entire City to define potential flood mitigation programs and projects. The Preliminary City-wide Coastal Flooding Mitigation Master Plan reviews the City limits and applies potential coastal flooding mitigation techniques to reduce the incidents of coastal flooding from storm surge.

The coastal flooding mitigation techniques used include:

Flood Walls	Structure raising
Flood Gates	Pumping Stations
Berms	Roadway raising
Sand Dune Lines	Off-Shore Causeways
Utilizing Existing Structures in Coastal Protection System	Public Information and Education

The prioritization of coastal flooding mitigation projects are based on the following criteria.

Past FEMA Flood Insurance Claim	Population	Critical Infrastructure
Public Property Assets	Private Property Values	Employers and Businesses
Positive Benefit – Cost Ratio	Schools	

Ultimately each coastal flood mitigation project will be measured on a benefit-cost ratio. The cost of the mitigation project will be compared to the level of protection that the project provides to the watershed. The benefit is measured in terms of the damage avoided if the project is completed. Another way of looking at the project benefit is the cost of doing nothing. Thus, if a project is not constructed, how much damage will be sustained in the watershed over the life of a potential project and the extent of the project protection limits?

Elements that comprise the cost portion of the Benefit-Cost Ratio will be:

- Land and Easement Acquisition
- Design and Permitting

- Construction
- Operations and Maintenance

Large Coastal Flood Mitigation Projects

Projects Under this program include:

Eastern Branch of the Elizabeth River

Convert the elevated Interstate 264 from Harbor Park to the Interstate 64 interchange into a coastal flood mitigation Berm

Install flood gates at all overpasses along Interstate 264

Install a flood wall, navigation gate and pumping station at the Broad Creek outlet at Interstate 264

For outboard neighborhoods use a combination of structure raising and smaller berms to provide protection against coastal storm events

Harbor Park to Downtown Floodwall

Install flood gates and combination of floodwalls and berms and a large pumping station to manage the Tidewater Drive drainage basin

Install a berm from Harbor Park along the waterfront past the Dominion Towers Buildings across Towne Point Park and tie into the Downtown Floodwall

Downtown Floodwall

Raise the downtown Floodwall and gates to meet the Federal Emergency Management Agency's requirement to meet the certification under CFR 44 65.10

Downtown Floodwall to The Hague

Install a floodwall similar in design to the Downtown Floodwall through Freemason District to Brambleton Avenue. Install one or more storm water pumping stations

The Hague

Install a floodwall, moveable navigation gate and large storm water pumping station

The Hague to Fort Norfolk

Raise Brambleton Avenue to use as a coastal storm barricade

Raise roadways within the Fort Norfolk development.

Fort Norfolk to Lamberts Point

Raise various streets to provide flood berms

Construct berms across open areas to prevent flood waters.

Provide storm water pumping stations to discharge storm water from protected areas

Lamberts Point to Norfolk International Terminal

Causeway and Navigational Flood Gate

Very large storm water pumping station to manage storm water from the Lafayette River watershed during periods when flood systems are deployed

Norfolk International Terminals to Mason Creek Watershed

Construct flood berms or floodwall along Hampton Boulevard to Terminal Avenue corridor

Construct flood berms or floodwalls parallel with Terminal Boulevard to raised portion of Interstate 564

Reinforce the raised sections of Interstate 564 and Interstate 64 to the Mason Creek Bridge

Install flood gates and floodwalls at underpass sections in this corridor

Mason Creek Watershed to 4th View in Willoughby

Reinforce the raised portion of Interstate 64 from Oates Creek Bridge to the 4th View Exit

Install gates and floodwalls at underpass

Construct pumping stations along section to manage storm water when flood control features are deployed

15th View in Willoughby to the Little Creek Inlet in East Ocean View

Utilize natural and nature based berm systems to mitigate storm surge from coastal storm events

Lake Whitehurst Watershed

(If future sea level rise rates substantially increase and the potential risk warrants)

Raise weir or install an adjustable weir to reduce the potential for storm surge overtopping the dam at Shore Drive

Construct a large pumping station to manage storm water in the Lake Whitehurst watershed when the flood control features are deployed

Small to Mid-Sized Coastal Mitigation Projects

In addition to large scale projects that have the potential to mitigate coastal flooding on a watershed basis within the City, there are smaller scale modest projects that could be done for adaptation efforts to mitigate the impacts of sea level rise and associated coastal flooding. An example of this type of project is the Richmond and Surrey Crescents and Myrtle Park roadway raising. The project was never intended to provide a level of protection from coastal storms, but rather reduce the number of times the roadways are flooded during the year from coastal events. Some of the projects planned are included as follows:

▪ Mayflower Road and Colonial Avenue	Colonial Place
▪ Mayflower Road and New Jersey Avenue	Colonial Place
▪ Hampton Boulevard at Lexan Avenue	Larchmont
▪ Hampton Boulevard at Glendale	Glenwood Park
▪ Llewellyn Avenue between Granby Street and 38th Street	Colonial Place
▪ Virginia Beach Boulevard and Tidewater Drive	Brambleton
▪ Brambleton Avenue and Tidewater Drive	Brambleton
▪ Tidewater Drive and City Hall Avenue	Downtown
▪ Ocean View Avenue at 1st Bay Street	East Ocean View

▪ Pleasant Avenue between 22nd Bay and 17th Bay Street	East Ocean View
▪ Ocean View Avenue at 4th View Street	Willoughby
▪ 50th Street at Killam	Highland Park
▪ Mowbray Arch at Chrysler Museum	Ghent
▪ Mowbray Arch at Stockley Gardens	Ghent
▪ Duke Street and Olney Avenue	Arts District
▪ Monticello Ave between St. Paul's and Brambleton Ave.	Arts District
▪ Princess Anne Road and Ballentine Boulevard	Ballantine Place
▪ Princess Anne Road in vicinity of Cedar Grove	Ghent
▪ Llewellyn Avenue in vicinity of Shirley Avenue	Ghent
▪ Park Avenue and Virginia Beach Boulevard	Brambleton / NSU
▪ Thole Street, near Galveston Blvd	Suburban Acres
▪ Willow Wood Drive and Lakewood Drive	Lakewood/Lafayette Shore
▪ Norway Place at Ashland Avenue	Lafayette Shore / Winona

Criteria used to rank a project's viability in this category include following:

- ❖ Significant flooding on a regular basis resulting from coastal storm events or a combination of a coastal event and precipitation occurrence
- ❖ Ability to leverage an existing planned project to include elements of coastal storm mitigation, similar to Brambleton Avenue Improvements between the Brambleton Bridge and Colley Avenue.
- ❖ Costs
- ❖ Implications to private property. Projects that adversely impact private property will need to be evaluated against the project's overall benefit

The above list contains only arterial and major collector streets that serve the traveling public and multiple neighborhoods. There are a significant quantity of neighborhood streets which flood during both moderate and large coastal flooding events. These streets were not included for brevity. However, the City can be opportunistic and

provide some relief from coastal flooding through raising street grades when other improvements are planned and funding allows.

PRECIPITATION

Introduction

In 2012 the City retained Timmons Group, a large regional consulting engineering firm, to conduct a storm water precipitation flooding and infrastructure planning study. The goal of the study was to determine the needs for storm water collection and conveyance infrastructure improvements within the City. Cost estimates were also made to add streetscape infrastructure to areas that were developed without these elements. Streetscape infrastructure includes sidewalks, curbs and gutters and street trees and other landscaping.

Methodology

The study was conducted to determine the order of magnitude of storm water infrastructure needs and associated aggregate costs. To conduct this study the consultant relied primarily on existing data contained in the City's geographical information systems. Using the City's existing storm water system, 253 individual drainage basins were identified and analyzed. Individual drainage basins were modeled and analyzed using GIS and other hydraulic software systems to evaluate age, condition and capacity of the storm water infrastructure. Storm water pipes and structures were evaluated with upgrades to a 10-year or 10-percent storm event. The costs of these upgrades were aggregated to the City's Planning District level. Major assumptions were used to determine the costs. The assumptions, included, but are not limited to:

- System Depth
- Geotechnical and Soil Conditions
- Groundwater conditions
- Traffic Control and Access needs
- Special conditions that may impact project phasing

Prioritization Criteria

Each drainage basin was prioritized based on five primary and three supplemental criteria:

1. Complaint Areas: City storm water engineers and maintenance supervisors were interviewed and identified known areas of complaints for flooding. In addition, Hansen Asset Management System was queried for complaints. The more independent complaints, the higher the score awarded to the individual drainage area. The maximum score for this criteria was 30 points.

2. Locations of Recently Completed or Planned Capital Improvement or Large Maintenance Projects. Projects that could leverage the work on other projects were given a higher score than projects that would stand alone. The maximum score under this criterion was 20 points.

3. Existing Infrastructure Capacity per Acre of Developed Area. In this criterion a measure of the existing capacity was determined and normalized over the developed area served. Areas with the lowest capacity of storm water conveyance were awarded the highest scores. Under this criteria, areas under served by adequate storm water systems would score high, thus be given priority. The maximum score under this category was 20 points.

4. Portions of the Drainage Area Designed to Pass a 10-Year or 10 Percent Storm. Again, as in the previous criteria, drainage areas that already included areas that have the capacity to manage the 10-year storm event were awarded lower scores. Again, areas that have not had recent development or newer major roadway construction would be given priority. The maximum score that could be obtained by this category was15.

5. Infrastructure Condition and / or Age: In this criterion, priority was given to areas with older infrastructure in order to renew the system with improvements. Infrastructure condition had a maximum score of 15 points.

Supplemental Criteria

Once the primary prioritization criteria were developed, projects were ranked. After which, the projects were reprioritized with the supplemental criteria, as follows:

6. Road Classification: Drainage areas serving higher road classifications, such as arterial and collector streets were given a higher score than drainage areas serving primarily residential roadways. The maximum score for this criterion was 15 points.

7. Critical Infrastructure: Drainage areas serving critical public and private infrastructure, such as, fire station, police precincts, hospitals and schools were given added prioritization as opposed to drainage areas that did not contain these facilities. The critical infrastructure category contained a maximum of 15 points.

8. Business Development Focus Areas: Areas in the City that have targeted development or redevelopment potential were scored higher to leverage the potential redevelopment opportunities. This criterion had a maximum score of 10 points.

Outcome

The drainage areas were aggregated into individual Planning Districts in order to develop an effective data summary system and planning tool. The City's Planning Districts are distinct geographic areas of similar land use and are used for zoning, long range planning and other purposes. There are a total of 90 Planning Districts containing most of the areas of the City.

In addition to prioritizing the City's precipitation storm water projects, this study estimated the public works infrastructure needs of the under developed areas, namely the areas developed under Norfolk and Princess Anne Counties. Large scale cost estimates were developed to get the overall costs of adding curbs, gutters, sidewalks, street landscaping and other improvements to bring most neighborhoods to a common City standard street cross-section.

Infrastructure improvements necessary to upgrade most of the storm water pipes, culverts and structures to manage the 10-year or 10% storm was estimated around $700 million. Adding streetscape infrastructure to neighborhoods where little or none currently exist would add another $90 million.

PROGRAM FUNDING

Pressures on the Storm Water Fund

There are other pressures on the Storm Water fund beyond those needed to meet the goals for City on flood reduction. The other pressures include the ability meet new State and Federal regulations on water quality improvements. One of the major water quality initiatives is the Chesapeake Bay Total Maximum Daily Load (TMDL). Another potential pressure on the Storm Water fund is the new requirements that will be added to the City's new MS-4 Storm Water Permit.

The Chesapeake Bay TMDL is a regulation that was promulgated by a Presidential Executive Order directing the U.S. Environmental Protection Agency to expedite the clean-up of the Chesapeake Bay watershed. To accomplish this a water quality computer model was developed for the 6 States and the District of Columbia that make up the Chesapeake Bay watershed. Based on this computer model, each state and locality within the Bay watershed are assigned waste load reductions to be achieved by 2025 for:

- Nitrogen
- Phosphorus
- Sediment

Notwithstanding several technical and administrative errors in the computer model and administration of the regulations, this requirement will be a challenge for localities to meet.

Under the regulations EPA assigned Virginia with the overall waste load reduction. Virginia subsequently distributed its waste load reduction allocation to individual localities. It is anticipated that these waste load reduction allocations will be become permit requirements in future renewal of the MS-4 Storm Water Permit.

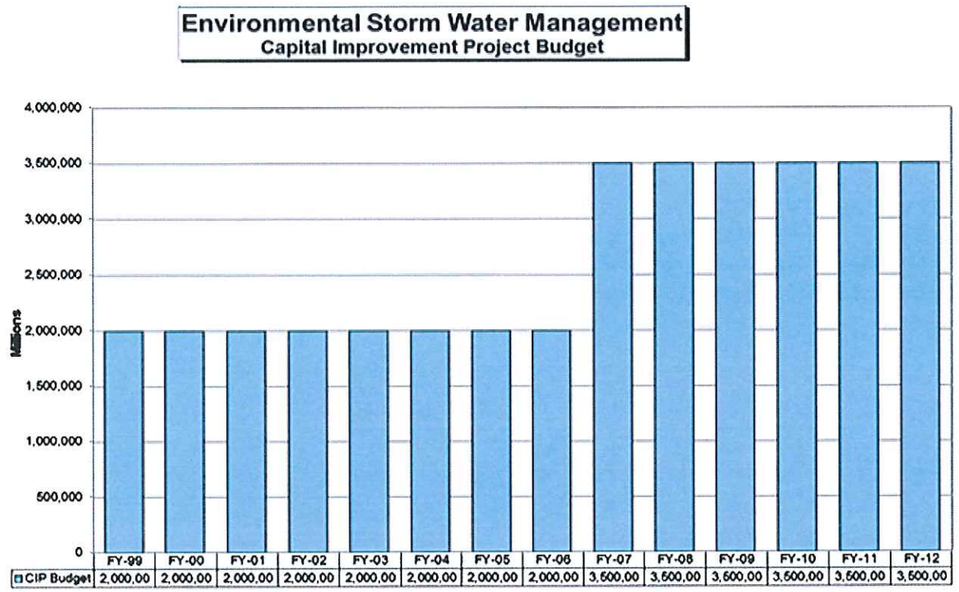
To meet this waste load reduction, retrofitted best management practices (BMP) will need to be installed throughout the City. Some of the load reductions will be met by normal public and private redevelopment in the City. Other waste load reductions will be accomplished by addition of BMPs and street sweeping and other City programs.

A preliminary estimate of costs required to meet the Chesapeake Bay TMDL is $500 million. This is a huge cost that will further challenge the Storm Water CIP and the City. Currently, approximately $1.0 million from the Storm Water CIP is allocated to water quality programs. Other funding sources, such as grants will need to be pursued to meet the City's obligations under this new regulation.

In addition to the TMDL waste load reduction requirements, the State has contemplated adding new requirements into future versions of the MS-4 Storm Water Permit. These requirements may include more extensive water quality monitoring, including wet weather monitoring requirements. These new monitoring requirements have the potential to add substantially to the costs of administering he MS-4 Storm water Permit.

Introduction

The Storm Water Fund, funds a capital improvement program. This CIP was increased from $2.0 million to $3.5 million in 2007. The following table depicts the Storm Water CIP allocation:



The Storm Water fund was increased $1 per month per customer account in 2012. This increase has raised approximately $1.3 million annually with a current aggregated total of approximately $3.9 million. These funds are being held in reserve to serve as a match for the City's cost share on federal projects or other large scale, costly projects.

Infrastructure Cost

With coastal flooding infrastructure costs estimated to exceed $1.5 billion and precipitation flooding infrastructure improvements and additions to run between $700 and $800 million, current level of funding will not make a serious impact to the needs of the City. For precipitation infrastructure alone, it is estimated to achieve the improvements over a 100-year period, investment of more than $20 million annually would be required. Coastal flooding infrastructure would likely take more than double the amount. These estimates are excluding annualized operations and maintenance costs. Thus to resolve the precipitation flooding infrastructure and address the coastal flooding infrastructure needs of the City, the annual expenditure of the CIP program for

storm water should be in excess of $60 million annually. This amount would ensure all needed infrastructure improvements and additions be completed in the next 100-years

Adaptation type projects, that address coastal flooding symptoms, but do not protect to the 100-year or 1% coastal storm, need to be included in the overall master plan. Ultimately, these projects and their associated costs will not be included in the above referenced costs. Also projects that improve quality of life by reducing flooding may also not provide service to the 10-year or 10% storm need to be included in the mix of projects. Again, these type of projects may not be included in the overall infrastructure upgrade costs.

Financing Large Scale Projects

Projects can be financed through a number of mechanisms some of which are currently available, others may require action by the Commonwealth of Virginia Legislator. Some of the options include

- Sales Tax
- Property Tax
- Storm Water Fee
- Improvement Districts
- Federal and State Direct Investment

Sales Tax

Under a sales tax scenario, the State would authorize an increase in the sales tax and the increase would be earmarked for coastal flooding. This was proposed in the late 1990's for transportation and road construction, wherein a portion or all of the sales tax increase would have been dedicated to highway construction. Under the transportation scenario, the sales tax was dedicated and collected on a regional basis. With flooding, the Commonwealth may consider a state-wide tax increase or again develop a regional approach.

Property Tax

This scenario has multiple options and a level of complexity that is beyond the scope of this plan; a review of the elements and variables included in the property tax finance option will be discussed. Property Tax increases could be dedicated to flooding and assessed and collected from properties within a specific watershed or from properties at or below a pre-determined elevation. Under that scenario, the special property tax may be linked to improvement districts, which could coincide with the watershed limits.

Alternatively, a City-wide tax rate increase could be implemented to finance large scale coastal flood mitigation projects. This means may lack a defensible position against detractors claiming it would require some property owners to subsidize the properties of others. Also, a large increase in property tax rates could discourage economic vitality within the City.

Storm Water Fees

Financing large scale coastal storm flood mitigation projects using Storm Water Fees has many of the same variables and options as property tax. The storm water fee is currently a relative small portion of a resident's utility bill. As a financing mechanism, this would change drastically, making it a very large element of a utility bill.

A review of state law may be necessary to ensure that the Storm Water Fee is a legitimate mechanism for combatting coastal storms, though it does seem to be compatible.

Improvement Districts

Improvement Districts were discussed in both the Property Tax and Storm Water Fee options. The Improvement District would likely be drawn within the limits of existing watersheds and improvements necessary for coastal storm protection could be made for the direct benefit of the properties within the watershed limits.

All of these scenarios have limitations given the current economic make-up of the City. Elderly and low-income individuals and those fixed incomes may no longer be able to afford to live in an improvement district. There may be a serious impact on non-owner occupied housing and apartments such that no low and moderate income housing will be available within the City. The Property Tax and Storm Water Fee would offer long term benefits to the City; however, the short term impacts on the City's financial viability may be challenged.

State and/or Federal Direct Investment

The federal government has made direct investment in areas of the country to construct coastal flooding barricades and improve storm water drainage. Most of this investment occurred after a major incident that prompted both political will and funding authorization from Congress. The most recent examples of this was the flood control systems constructed in the wake of Hurricane Katrina. The U.S. Army Corps of Engineers spent $14 Billion worth of infrastructure to protect the City of New Orleans from flooding by a future Category 3 Hurricane storm event. While getting 100% federal funding is possible, it is unlikely. A higher potential scenario for federal funding would include a cost share agreement with the City, with the Federal portion likely ranging between 50 to 90 percent. Under a cost share agreement scenario, the City would be responsible for 10 to 50 % of the costs. With rough estimates for the work ranging from $1 to $2 billion, this would translate to a financial obligation for the City of between $100 million and $1 billion. There is a potential for State financial assistance, though the political foundation of such support is just being established.

FIVE YEAR PRIORITIZATION

Introduction

Current level of funding mentioned earlier and include:

Storm Water Funded Capital Improvement Plan	$3.5 million
General CIP Funding Under Address Street Flooding City-wide	$1.5 million
Total CIP Funding	$5.0 million

Included in the Storm Water CIP are projects essential for compliance to federal and state regulation in order to meet future Storm Water Permit (MS-4) requirements including Chesapeake Bay TMDL. These projects are funded at $1.0 million. In addition the Storm Water CIP funds renovation and replacement of Storm Water facilities and infrastructure, particularly 11 storm water pumping stations located throughout the City and outfalls. The combined funding of these programs is another $1.1 million. Under the General CIP, Address Street Flooding Citywide, funding to resolve small flooding complaints and standing water issues and future buy-outs of Spartan Village are funded at a total of $0.5 million. The small flooding and standing water complaint has proven popular among citizens as it gives the City the opportunity to immediately impact perceived quality of life from minor standing water issues resulting from Utility and resurfacing projects. While important, this program will not ultimately help with long term flood mitigation efforts.

Water Quality Improvement Program	$1.0 million
Storm Water Facilities and Storm Water Waterfront Structures	$1.1 million
Spartan Village and Small Flooding and Standing Water	$0.5 million

Actual CIP funds dedicated to flood mitigation for both Precipitation and Coastal Flooding is limited to approximately $2.5 million

FY 2015

23rd Avenue and Colonial Avenue	Park Place	$95,000 Design
Glencove Pumping Station	*Lochhaven*	*$350,000 Const.*
Hampton Blvd and Lexan	*Larchmont*	*$100,000 Study*
South Newtown Road	Easton Pl.	$160,000 Design
Overbrook Master Plan	Coleman Pl.	$145,000 Design
Slip Lining Program	City-wide	$300,000 Const.
Outfall Maintenance and Dredging	City-wide	$300,000 Const.
Downtown Floodwall Improve.	*Downtown*	*$150,000 Study*
East Ocean View Drainage Improve.	East Ocean View	$300,000 D and C
Chesapeake Blvd Downstream Drain	South Bayview	$300,000 D and C
Coleman Place Drainage Improve.	Coleman Place	$300,000 D and C

FY 2016

23rd Street Drainage Improve.	Park Place	$400,000 Const.
Overbrook / Coleman Place	Coleman Place	$300,000 Const.
Slip Lining Program	City-wide	$300,000 Const.
Outfall Maintenance and Dredging	City-wide	$300,000 Const.
Downtown Floodwall Improve.	*Downtown*	*$300,000 Design*
East Ocean View Drainage Improve	East Ocean View	$300,000 D and C
Colonial Ave at Mayflower	*Colonial Place*	*$300,000 D and C*
Janaf Place	Lake Terrace	$300,000 D and C

FY 2017

Downtown Floodwall Improve.	*Downtown*	*$2,500,000 Const.*

FY 2018

Downtown Floodwall Improve	*Downtown*	*$2,500,000 Const.*

FY 2019

Downtown Floodwall Improve	*Downtown*	*$2,500,000 Const.*

FY 2020

Rogers Avenue Drainage	Glenwood Park	$400,000 Const.
Tidewater Drive Drainage Improve	Brambleton	$300,000 Const
Slip Lining Program	City-wide	$300,000 Const.
Outfall Maintenance and Dredging	City-wide	$300,000 Const.
Downtown Floodwall Improve.	*Downtown*	*$300,000 Design*
East Ocean View Drainage Improve	East Ocean View	$300,000 Const.
Colonial Ave at Mayflower	*Colonial Place*	*$200,000 Const.*
Azalea Garden Road at Tallyho Ter.	Azalea	$400,000 D and C

Alternate for FY 2017 through FY 2019

FY 2017- Alternate

Hollywood Drainage Improve.	Hollywood	$400,000 D and C
Overbrook / Coleman Place	Coleman Place	$300,000 Const.
Slip Lining Program	City-wide	$300,000 Const.
Outfall Maintenance and Dredging	City-wide	$300,000 Const.
Downtown Floodwall Improve.	*Downtown*	*$300,000 Design*
East Ocean View Drainage Improve	East Ocean View	$300,000 Const.
Colonial Ave at Mayflower	*Colonial Place*	*$200,000 Const.*
Azalea Garden Road at Tallyho Ter.	Azalea	$400,000 D and C

FY 2018 Alternate

Hollywood Drainage Improve.	Hollywood	$400,000 Const.
Tidewater Drive Drainage Improve	Brambleton	$300,000 Design
Slip Lining Program	City-wide	$300,000 Const.
Outfall Maintenance and Dredging	City-wide	$300,000 Const.
Downtown Floodwall Improve.	*Downtown*	*$300,000 Design*
East Ocean View Drainage Improve	East Ocean View	$300,000 Const.
Colonial Ave at Mayflower	*Colonial Place*	*$200,000 Const.*
Azalea Garden Road at Tallyho Ter.	Azalea	$400,000 D and C

FY 2019 Alternate

Rogers Avenue Drainage	Glenwood Park	$400,000 Const.
Tidewater Drive Drainage Improve	Brambleton	$300,000 Const
Slip Lining Program	City-wide	$300,000 Const.
Outfall Maintenance and Dredging	City-wide	$300,000 Const.
Downtown Floodwall Improve.	*Downtown*	*$300,000 Design*
East Ocean View Drainage Improve	East Ocean View	$300,000 Const.
Colonial Ave at Mayflower	Colonial Place	$200,000 Const.
Azalea Garden Road at Tallyho Ter.	Azalea	$400,000 D and C

Project Italicized are Exclusively Coastal Flood Mitigation Projects

Implementation

The above is a framework for executing the Storm Water CIP under current funding levels based on priorities developed in the Coastal Flooding and Precipitation Master Plans. Deviations from the plan can be expected due to, but not limited to, the following:

- City Manager and / or City Council Priority
- Leverage Development or Redevelopment Opportunity
- Federal Funding Direction
- Leverage Virginia Department of Transportation Revenue Share Program Match Funding
- Compliment Planned Capital Improvement Project
- Leverage or Compliment Another Organization's Improvement Project
    - VDOT
    - U.S. Navy
    - Norfolk Southern
    - Hampton Road Sanitation District
    - Etc.
- Grant Opportunities
- Permit or other Mandates

APPENDIX A

Project Summaries for 1% Annual Chance Tidal Flood Event

(Table 1-1 from Preliminary City-wide Coastal Flooding Mitigation Concept Evaluation and Master Plan Development)

Table 1-1. Project Summaries for 1% Annual Chance Tidal Flood Event

Project Area	General Project Area Characteristics						Project Cost ($, Millions)			Potential Susceptibility of Buildings for 1% Annual Chance Tidal Flood Event				Predicted Building Damages		
	Total Area[a] (acres)	Parcels	Critical and Essential Infrastructure[b]	Total Real Estate Values[c] ($, Million)	Total Assessed Building Values ($, Million)	Total Number of Buildings in Project Area[d]	Infrastructure	Building Raises	Total	Assessed Building Values of Potentially Susceptible Buildings[e] ($, Millions)	Buildings Potentially Susceptible to Flooding	Protected Buildings (Infrastructure and Raises)	Unprotected Buildings (Infrastructure and Raises)	Total Damages without a Project ($, Millions)	Total Building Damages with a Project ($, Millions)	Damage Reduction ($, Millions)
Eastern Branch - Military	1,303	1,909	0	455	266	1,265	Bulkhead Only			133	400	Bulkhead Only		4.7	Bulkhead Only	
							131.2	-	131.2			269	131		0.6	4.1
							McGinnis Road Raise					McGinnis Road Raise			McGinnis Road Raise	
							108.6	-	108.6			226	174		1.0	3.8
Broad Creek	3,857	5,599	7	1,518	1,039	4,528	Flood Gate			280	520	Flood Gate		15.0	Flood Gate	
							111.4	-	111.4			520	0		0.0	15.0
							Bulkhead					Bulkhead			Bulkhead	
							57.5	0.4	57.9			145	375		11.0	4.0
Eastern Branch - Ingleside	456	979	0	345	166	871	17.0	-	17.0	9	63	63	0	0.8	0.0	0.8
Eastern Branch - I-264	487	1,210	2	210	138	599	-	1.7	1.7	62	278	19	259	8.0	5.5	2.5
Ohio Creek*	275	720	0	1,740	254	527	20.7	-	20.7	15	16	16	0	1.8	0.0	1.8
Tidewater	520	828	10	1,666	257	334	Harbor Park Floodwall			110	89	Harbor Park Floodwall		19.1	Harbor Park Floodwall	
							17.6	-	17.6			88	1		0.0	19.1
							I-264 Underpass Floodwall					I-264 Underpass Floodwall			I-264 Underpass Floodwall	
							11.4	-	11.4			88	1		0.0	19.1
							I-264/Holt St. Floodwall					I-264/Holt St. Floodwall			I-264/Holt St. Floodwall	
							9.6	-	9.6			88	1		0.1	19.0
Downtown	202	260	11	1,220	842	92	4.4	-	4.4	142	15	0	15	11.2	10.0	1.2
Berkley and Campostella	1,340	3,272	3	1,687	270	1,710	Clifton Option			60	285	Clifton Option		17.5	Clifton Option	
							19.5	-	19.5			45	240		17.1	0.4
							South Main Option					South Main Option			South Main Option	
							30.3	0.6	30.9			118	167		15.7	1.8

Project Area	General Project Area Characteristics						Project Cost ($, Millions)			Potential Susceptibility of Buildings for 1% Annual Chance Tidal Flood Event				Predicted Building Damages		
	Total Area[a] (acres)	Parcels	Critical and Essential Infrastructure[b]	Total Real Estate Values[c] ($, Million)	Total Assessed Building Values ($, Million)	Total Number of Buildings in Project Area[d]	Infrastructure	Building Raises	Total	Assessed Building Values of Potentially Susceptible Buildings[e] ($, Millions)	Buildings Potentially Susceptible to Flooding	Protected Buildings (Infrastructure and Raises)	Unprotected Buildings (Infrastructure and Raises)	Total Damages without a Project ($, Millions)	Total Building Damages with a Project ($, Millions)	Damage Reduction ($, Millions)
Hague*	971	2,437	9	4,063	1,126	1,564	Flood Gate at Brambleton Ave 67.1 - 67.1 Norfolk General – Existing Topography - - -			692	765	Flood Gate at Brambleton Ave 765 0 Norfolk General – Existing Topography - -		82.1	Flood Gate at Brambleton Ave 3.6 78.5 Norfolk General – Existing Topography - -	
West Ghent	959	1,639	2	818	586	1,060	West Ghent Norfolk General/Hampton Blvd 10.5 - 10.5 Midtown Tunnel 7.1 - 7.1			327	213	West Ghent Norfolk General/Hampton Blvd 44 169 Midtown Tunnel 135 78		43.9	West Ghent Norfolk General/Hampton Blvd 15.9 28.1 Midtown Tunnel 10.4 33.5	
Lambert Point	296	544	0	286	59	415	24.2 - 24.2			9	75	75 0		0.8	0.0	0.8
Lafayette River	9,082	29,503	22	13,557	4,713	22,838	Hampton Blvd (Median) 158.8 18.6 177.4 Hampton Blvd (East of Blvd) 187.9 18.6 206.5 Larchmont-Eleanor Crossing 178.1 4.0 182.1 Larchmont-NIT Crossing 188.9 - 188.9 Lambert Point-NIT Crossing 306.5 - 306.5			2,421	6,997	Hampton Blvd (Median) 5,866 1,131 Hampton Blvd (East of Blvd) 5,869 1,128 Larchmont-Eleanor Crossing 6,869 128 Larchmont-NIT Crossing 6,997 0 Lambert Point-NIT Crossing 6,997 0		266.6	Hampton Blvd (Median) 39.4 227.2 Hampton Blvd (East of Blvd) 39.4 227.2 Larchmont-Eleanor Crossing 8.7 257.9 Larchmont-NIT Crossing 0.0 266.6 Lambert Point-NIT Crossing 0.0 266.6	
Mason Creek*	4,173	8,480	2	3,700	1,768	8,327	30.8	1.6	32.4	102	398	354	44	12.3	0.0	12.3
Willoughby and Ocean View	554	1,392	1	587	293	1,284	-	28.2	28.2	175	808	579	229	26.9	11.4	15.5
Pretty Lake*	2,714	8,345	11	2,450	1,249	7,875	46.3	-	46.3	197	1,339	1,339	0	31.3	0.0	31.3

* Hydrologic and Hydraulic (H&H) analyses that incorporate precipitation and performance of existing storm water infrastructure are currently being performed for this area
[a] Total Area includes overland area only.
[b] Critical and Essential Infrastructure include hospitals, fire stations, police stations, shelters, schools etc.
[c] Includes real estate (property and building) values.
[d] Potentially Susceptible Buildings include houses and non-residential buildings. Accessory structures (e.g. detached garages, sheds, etc.) are not included.
[e] Based on 2010 tax assessor database.

Table 1-2. Project Summaries for 1% Annual Chance Tidal Flood Event with 1-Foot Sea Level Rise

Project Area	General Project Area Characteristics						Project Cost ($, Millions)			Potential Susceptibility of Buildings for 1% Annual Chance Tidal Flood Event				Predicted Building Damages		
	Total Area[a] (acres)	Parcels	Critical and Essential Infrastructure[b]	Total Real Estate Values[c] ($, Million)	Total Assessed Building Values ($, Million)	Total Number of Buildings in Project Area[d]	Infrastructure	Building Raises	Total	Assessed Building Values of Potentially Susceptible Buildings[e] ($, Millions)	Buildings Potentially Susceptible to Flooding	Protected Buildings (Infrastructure and Raises)	Unprotected Buildings (Infrastructure and Raises)	Total Damages without a Project ($, Millions)	Total Building Damages with a Project ($, Millions)	Damage Reduction ($, Millions)
Eastern Branch - Military	1,303	1,909	0	455	266	1,265	Bulkhead Only			133	559	Bulkhead Only		14.0	Bulkhead Only	
							156.6	-	156.6			453	106		0.6	13.4
							McGinnis Road Raise					McGinnis Road Raise			McGinnis Road Raise	
							139.5	-	139.5			398	161		1.0	13.0
Broad Creek	3,857	5,599	7	1,518	1,039	4,528	Flood Gate			280	763	Flood Gate		44.8	Flood Gate	
							111.7	-	111.7			763	0		0.0	44.8
							Bulkhead					Bulkhead			Bulkhead	
							65.2	0.7	65.9			169	594		11.0	33.8
Eastern Branch - Ingleside	456	979	0	345	166	871	17.0	-	17.0	9	140	140	0	2.1	0.0	2.1
Eastern Branch - I-264	487	1,210	2	210	138	599	-	3.0	3.0	62	357	26	331	17.1	15.7	1.4
Ohio Creek*	275	720	0	1,740	254	527	20.7	-	20.7	15	24	24	0	2.6	0.0	2.6
Tidewater	520	828	10	1,666	257	334	Harbor Park Floodwall			110	128	Harbor Park Floodwall		24.0	Harbor Park Floodwall	
							23.0	-	23.0			127	1		0.0	24.0
							I-264 Underpass Floodwall					I-264 Underpass Floodwall			I-264 Underpass Floodwall	
							12.1	-	12.1			127	1		0.0	24.0
							I-264/Holt St. Floodwall					I-264/Holt St. Floodwall			I-264/Holt St. Floodwall	
							10.6	-	10.6			127	1		0.1	23.9
Downtown	202	260	11	1,220	842	92	6.7	-	6.7	142	18	0	18	25.0	10.0	15.0
Berkley and Campostella	1,340	3,272	3	1,687	270	1,710	Clifton Option			60	419	Clifton Option		18.6	Clifton Option	
							22.1	-	22.1			58	361		17.1	1.5
							South Main Option					South Main Option			South Main Option	
							35.5	0.4	35.9			157	262		15.7	2.9
Hague*	971	2,437	9	4,063	1,126	1,564	Flood Gate at Brambleton Ave			692	1,024	Flood Gate at Brambleton Ave		133.5	Flood Gate at Brambleton Ave	

Project Area	General Project Area Characteristics						Project Cost ($, Millions)			Potential Susceptibility of Buildings for 1% Annual Chance Tidal Flood Event				Predicted Building Damages		
	Total Area[a] (acres)	Parcels	Critical and Essential Infrastructure[b]	Total Real Estate Values[c] ($, Million)	Total Assessed Building Values ($, Million)	Total Number of Buildings in Project Area[d]	Infrastructure	Building Raises	Total	Assessed Building Values of Potentially Susceptible Buildings[e] ($, Millions)	Buildings Potentially Susceptible to Flooding	Protected Buildings (Infrastructure and Raises)	Unprotected Buildings (Infrastructure and Raises)	Total Damages without a Project ($, Millions)	Total Building Damages with a Project ($, Millions)	Damage Reduction ($, Millions)
							78.0	-	78.0			1,024	0		3.6	129.9
							Norfolk General – Road Raises					Norfolk General – Road Raises			Norfolk General – Road Raises	
							7.8	-	7.8			97	927		117.3	16.2
West Ghent	959	1,639	2	818	586	1,060	West Ghent Norfolk General/Hampton Blvd			327	530	West Ghent Norfolk General/Hampton Blvd		62.1	West Ghent Norfolk General/Hampton Blvd	
							14.4	-	14.4			142	388		15.9	46.2
							Midtown Tunnel					Midtown Tunnel			Midtown Tunnel	
							11.9	-	11.9			294	236		10.4	51.7
Lambert Point	296	544	0	286	59	415	32.5	-	32.5	9	263	261	2	2.1	0.0	2.1
Lafayette River	9,082	29,503	22	13,557	4,713	22,838	Hampton Blvd (Median)			2,421	8,638	Hampton Blvd (Median)		477.4	Hampton Blvd (Median)	
							194.0	47.2	241.2			7,557	1,081		39.4	438.0
							Hampton Blvd (East of Blvd)					Hampton Blvd (East of Blvd)			Hampton Blvd (East of Blvd)	
							200.8	47.2	248.0			7,560	1,078		39.4	438.0
							Larchmont-Eleanor Crossing					Larchmont-Eleanor Crossing			Larchmont-Eleanor Crossing	
							183.7	9.1	192.8			8,511	127		8.7	468.7
							Larchmont-NIT Crossing					Larchmont-NIT Crossing			Larchmont-NIT Crossing	
							193.4	-	193.4			8,638	0		0.0	477.4
							Lambert Point-NIT Crossing					Lambert Point-NIT Crossing			Lambert Point-NIT Crossing	
							306.5	-	306.5			8,638	0		0.0	477.4
Mason Creek*	4,173	8,480	2	3,700	1,768	8,327	30.8	4.4	35.2	102	667	623	44	23.0	0.0	12.3
Willoughby and Ocean View	554	1,392	1	587	293	1,284	-	47.9	47.9	175	872	808	64	38.3	11.4	26.9
Pretty Lake*	2,714	8,345	11	2,450	1,249	7,875	46.3	-	77.9	197	1,806	1,806	0	53.0	0.0	53.0

* Hydrologic and Hydraulic (H&H) analyses that incorporate precipitation and performance of existing storm water infrastructure are currently being performed for this area
[a] Total Area includes overland area only.
[b] Critical and Essential Infrastructure include hospitals, fire stations, police stations, shelters, schools etc.
[c] Includes real estate (property and building) values.
[d] Potentially Susceptible Buildings include houses and non-residential buildings. Accessory structures (e.g. detached garages, sheds, etc.) are not included.
[e] Based on 2010 tax assessor database.

APPENDIX B:

Priority Drainage Areas and Project

(Appendix F from City-wide Drainage Master Plan)

Appendix F
Priority Drainage Areas and Projects
(sorted by Class then Planning District Name)

Line	Project or Drainage Area Name	Cost Estimate	Planning District Name (Number)		Class	High DA Score	Priority Project	CIP	Complaint Area
1	HALIFAX LANE	$1,216,000	BERKLEY	(90)	1	√		√	√
2	COLONIAL AV THAT TURNS INTO MAYFLOWER	$354,000	COLONIAL PLACE	(53)	1	√		√	√
3	NEW JERSEY NEAR TIDE VALVE	$91,000	COLONIAL PLACE	(53)	1	√		√	√
4	GRANBY STREET BETWEEN BAYVIEW BOULEVARD AND BAY AVENUE*	$403,000	COMMODORE PARK	(10)	1	√	√		√
5	HOUSTON AVENUE (EASTON PLACE)	$229,000	EASTON	(80)	1	√	√	√	√
6	WALNUT HILL & SYLVAN	$78,000	EDGEWATER-LARCHMONT	(37)	1	√		√	√
7	TIDEWATER DRIVE / GOFF STREET	$1,673,000	HUNTERSVILLE	(66)	1	√		√	√
8	JANAF PLACE	$288,000	LAKE TERRACE	(77)	1	√		√	√
9	HOLLYWOOD	$3,308,000	MAPLE HALL-HOLLYWOOD	(78)	1	√		√	√
10	LAND STREET	$406,000	MAPLE HALL-HOLLYWOOD	(78)	1	√		√	√
11	EAST WESTMONT AVENUE / STRATFORD STREET	$67,000	NORTHSIDE	(11)	1	√		√	√
12	GRANBY STREET BETWEEN BAYVIEW BOULEVARD AND BAY AVENUE*	$403,000	NORTHSIDE	(11)	1	√	√		√
13	GRANBY STREET BETWEEN BAYVIEW BOULEVARD AND BAY AVENUE*	$403,000	PAMLICO	(8)	1	√	√		√
14	ADDERLEY ST NEIGHBORHOOD	$1,157,000	RIVER FORREST	(81)	1	√		√	√
15	CURLEW DRIVE	$700,000	RIVER FORREST	(81)	1	√	√	√	√
16	HARGROVE STREET	$283,000	RIVER FORREST	(81)	1	√		√	√
17	LEVINE COURT	$246,000	RIVER FORREST	(81)	1	√		√	√
18	HEUTTE & MARTONE	$141,000	SOUTH CAMELLIA	(20)	1	√		√	√
19	SUBURBAN PARKWAY	$1,238,000	SUBURBAN	(33)	1	√		√	√
20	TIDEWATER DRIVE OUTFALL	$13,551,000	TIDEWATER-YOUNG PARK	(65)	1	√		√	√
21	AZALEA GARDEN RD - TALLYHO TER - HOLLYBRIAR POINT	$264,000	AZALEA	(22)	2	√			√
22	BRADLEY AV - BUDD DR	$50,000	AZALEA	(22)	2	√			√
23	LESLIE AV - GAMAGE DR - BUDD DR	$72,000	AZALEA	(22)	2	√			√
24	LEAD ST - JAMAICA AV - CARY AV	$232,000	BRAMBLETON	(69)	2	√			√
25	MALTBY AV - GOFF ST*	$422,000	BRAMBLETON	(69)	2	√			√
26	ARLINGTON - MONTCLAIR AV	$50,000	CAMPOSTELLA HEIGHTS	(88)	2	√			√
27	CAROLINA AV & MAYFLOWER	$179,000	COLONIAL PLACE	(53)	2	√		√	
28	COLONIAL PLACE	$413,000	COLONIAL PLACE	(53)	2	√		√	
29	COLONIAL PLACE SHORELINE	$104,000	COLONIAL PLACE	(53)	2	√			√
30	DELAWARE NEAR GREENWAY	$4,272,000	COLONIAL PLACE	(53)	2	√		√	
31	E 40TH ST - HOLLY AV	$89,000	COLONIAL PLACE	(53)	2	√			√
32	E 42ND ST - HOLLY AV	$118,000	COLONIAL PLACE	(53)	2	√			√
33	GEORGIA AV & MAYFLOWER	$179,000	COLONIAL PLACE	(53)	2	√		√	
34	GOSNOLD AVENUE / MICHIGAN AVENUE	$179,000	COLONIAL PLACE	(53)	2	√		√	
35	LLEWELLYN AV*	$1,626,000	COLONIAL PLACE	(53)	2	√			√
36	VIRGINIA AV & MAYFLOWER	$179,000	COLONIAL PLACE	(53)	2	√		√	
37	COMMODORE DR - BURRAGE RD	$50,000	COMMODORE PARK	(10)	2	√			√
38	E & W CHESTER ST - EVANS ST - CAP LANE*	$406,000	COMMODORE PARK	(10)	2	√			√
39	BRAMBLETON AVENUE	$228,000	DOWNTOWN	(59)	2	√		√	
40	MONTICELLO SYSTEM TO THE HAGUE	$23,406,000	DOWNTOWN	(59)	2	√		√	
41	VIRGINIA BEACH BLVD SOUTH OF HOPE VI	$3,492,000	DOWNTOWN	(59)	2	√		√	
42	13TH - 11TH - GRANBY ST - ARMISTEAD AV*	$166,000	EAST 21st STREET-MONTICELLO	(58)	2	√			√
43	GHENT	$1,626,000	EAST GHENT	(63)	2	√		√	
44	LLEWELLYN AV - BOUSH ST - W VIRGINIA BEACH BLVD	$324,000	EAST GHENT	(63)	2	√			√
45	CURLEW DR - BANGOR AV - N ABILENE AV	$479,000	EASTON	(80)	2	√			√
46	CATALPA ST - POWHATAN AV	$50,000	EDGEWATER-LARCHMONT	(37)	2	√			√

Appendix F
Priority Drainage Areas and Projects
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47	LARCHMONT	$745,000	EDGEWATER-LARCHMONT	(37)	2	√		√	
48	POWHATAN LOW SPOT NEAR CATALPA	$1,971,000	EDGEWATER-LARCHMONT	(37)	2	√		√	
49	SURREY CRESCENT	$1,231,000	EDGEWATER-LARCHMONT	(37)	2	√		√	
50	SURRY - RICHMOND CRESCENT	$50,000	EDGEWATER-LARCHMONT	(37)	2	√			√
51	CHESAPEAKE BLVD - AMHERST ST	$50,000	ESTABROOK	(47)	2	√			√
52	CHESAPEAKE BLVD - HENRICO ST	$50,000	ESTABROOK	(47)	2	√			√
53	MANTEO STREET	$154,000	GHENT	(64)	2	√		√	
54	W ONLEY RD - STOCKLEY GARDENS - W PRINCESS ANNE RD	$65,000	GHENT	(64)	2	√			√
55	HONAKER AV	$50,000	GLENROCK	(85)	2	√			√
56	POPLAR HALL DR - CHAMBERS ST - LUCAS AV**	$835,000	GLENROCK	(85)	2	√			√
57	ROGERS - GLEN MYRTLE - EVERGREEN AV	$4,394,000	GLENWOOD PARK	(28)	2	√			√
58	ROGERS AVENUE	$314,000	GLENWOOD PARK	(28)	2	√		√	
59	13TH - 11TH - GRANBY ST - ARMISTEAD AV*	$79,000	HUNTERSVILLE	(66)	2	√			√
60	CHURCH ST - JOHNSON AV - C AV	$2,433,000	HUNTERSVILLE	(66)	2	√			√
61	E VIRGINIA BEACH - SAINT PAULS BLVD - LINCOLN ST*	$159,000	HUNTERSVILLE	(66)	2	√			√
62	HUNTERSVILLE	$11,784,000	HUNTERSVILLE	(66)	2	√		√	
63	MALTBY AV - GOFF ST*	$414,000	HUNTERSVILLE	(66)	2	√			√
64	GLEN ROCK	$604,000	JANAF-MILITARY CIRCLE	(87)	2	√		√	
65	POPLAR HALL DR - CHAMBERS ST - LUCAS AV**	$15,000	JANAF-MILITARY CIRCLE	(87)	2	√			√
66	VA BEACH BLVD UPGRADE (POPLAR HALL DR TO NEWTOWN RD)	$123,000	JANAF-MILITARY CIRCLE	(87)	2	√		√	
67	CLARENCE ST - HUDSON AV - REEL ST - ADAIR AV	$373,000	KEMPSVILLE	(79)	2	√			√
68	DITCH (EAST OF KEMPSVILLE ROAD)	$246,000	KEMPSVILLE	(79)	2	√		√	
69	E VIRGINIA BEACH BLVD - KEMPSVILLE RD**	$21,000	KEMPSVILLE	(79)	2	√			√
70	ELIZABETH AV - MILITARY HWY*	$38,000	LAKE TAYLOR	(76)	2	√			√
71	LOWERY RD - CHILD CARE CT - JANAF PL*	$28,000	LAKE TAYLOR	(76)	2	√			√
72	LOWERY RD -PASCAL PL*	$27,000	LAKE TAYLOR	(76)	2	√			√
73	E VIRGINIA BEACH BLVD - KEMPSVILLE RD**	$29,000	LAKE TERRACE	(77)	2	√			√
74	FRAMENT AV - JANAF PL - PASCAL PL	$288,000	LAKE TERRACE	(77)	2	√			√
75	GAINOR PL - JANAF PL - JARRETT RD	$601,000	LAKE TERRACE	(77)	2	√			√
76	LOCKAMY LANE	$265,000	LAKE TERRACE	(77)	2	√		√	
77	LOWERY RD - CHILD CARE CT - JANAF PL*	$60,000	LAKE TERRACE	(77)	2	√			√
78	LOWERY RD -PASCAL PL*	$68,000	LAKE TERRACE	(77)	2	√			√
79	OLD PHILLIPS RD	$116,000	LAKE TERRACE	(77)	2	√		√	
80	TARRALL - BOYCE - TIDEWATER - CROMWELL DR	$436,000	LAKEWOOD	(35)	2	√			√
81	HOLLAND AV - HUNTINGTON CRESCENT	$58,000	LAYFAYETTE	(51)	2	√			√
82	SAINT DENIS - POPE - BAPAUME AV - TIDEWATER DR	$50,000	LAYFAYETTE	(51)	2	√			√
83	THISTLE ST - LEAD ST - SAINT JULIAN AV**	$37,000	LINDENWOOD	(67)	2	√			√
84	LAND ST - WAILES AV - ADAIR AV	$65,000	MAPLE HALL-HOLLYWOOD	(78)	2	√			√
85	TAYLOR DRIVE (O13121)	$702,000	MAPLE HALL-HOLLYWOOD	(78)	2	√		√	
86	CAMELLIA ROAD	$59,000	NORTH CAMELLIA	(19)	2	√		√	
87	DOMINION AVENUE	$862,000	NORTH CAMELLIA	(19)	2	√		√	
88	KILLAM AVENUE / WEST 51ST STREET	$96,000	NORTH COLLEY	(54)	2	√		√	
89	BAYLOR - HAMPTON BLVD	$401,000	NORTH SHORE	(30)	2	√			√
90	MAURY ARCH	$175,000	NORTH SHORE	(30)	2	√			√
91	NORTH SHORE RD - HAMPTON BLVD	$617,000	NORTH SHORE	(30)	2	√			√
92	NORTH SHORE ROAD / MAURY ARCH	$678,000	NORTH SHORE	(30)	2	√		√	

Appendix F
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93	RUNNYMEDE ROAD / HAMPTON BOULEVARD	$265,000	NORTH SHORE	(30)	2	√		√	
94	E & W CHESTER ST - EVANS ST - CAP LANE*	$796,000	NORTHSIDE	(11)	2	√			√
95	WINSHIRE ST - STRATFORD ST	$706,000	NORTHSIDE	(11)	2	√			√
96	LYNN ST - CROFT ST - N MILITARY HWY	$50,000	NORVELLA	(46)	2	√			√
97	BURKSDALE RD - DIXIE DR - DIGGS RD	$553,000	OAKDALE FARMS	(16)	2	√			√
98	WEST GLEN - E LITTLE CREEK - KEENE RD	$50,000	OAKDALE FARMS	(16)	2	√			√
99	TIDEWATER DRIVE / OLD OCEANVIEW ROAD	$160,000	OCEANAIR	(12)	2	√		√	
100	1ST VIEW - HICKORY - PEACHTREE ST	$794,000	PAMLICO	(8)	2	√			√
101	E & W CHESTER ST - EVANS ST - CAP LANE*	$14,000	PAMLICO	(8)	2	√			√
102	ORANGE AVENUE	$230,000	PAMLICO	(8)	2	√	√		
103	ORANGE AVENUE (PHASE 2)	$1,161,000	PAMLICO	(8)	2	√		√	
104	WEST GILPIN AVENUE / ST. GEORGE AVENUE	$160,000	PAMLICO	(8)	2	√		√	
105	COLONIAL AV NORTH OF RR	$3,827,000	PARK PLACE	(52)	2	√			√
106	HAMPTON BLVD - BOWDENS FERRY RD**	$23,000	PARK PLACE	(52)	2	√			√
107	LLEWELLYN	$1,705,000	PARK PLACE	(52)	2	√		√	
108	LLEWELLYN AV*	$44,000	PARK PLACE	(52)	2	√			√
109	LENOX - NORFOLK AV	$50,000	PINEWELL	(3)	2	√			√
110	LENOX AVENUE	$345,000	PINEWELL	(3)	2	√		√	
111	BERRY HILL RD - BARNHOLLOW RD - BROOKVILLE RD	$50,000	POPLAR HALLS	(84)	2	√			√
112	POPLAR HALL DR - BEACON HILL CIRCLE	$50,000	POPLAR HALLS	(84)	2	√			√
113	POPLAR HALL DR - CHAMBERS ST - LUCAS AV**	$93,000	RIVER FORREST	(81)	2	√			√
114	SHOREWOOD DR - LEVINE CT	$200,000	RIVER FORREST	(81)	2	√			√
115	E PRINCESS ANNE RD - RIVER OAKS DR	$50,000	RIVER OAKS	(75)	2	√			√
116	ELIZABETH AV - MILITARY HWY*	$151,000	RIVER OAKS	(75)	2	√			√
117	LEWIS RD - ANDES CT	$104,000	RIVER OAKS	(75)	2	√			√
118	ELON CT - KNOX RD	$50,000	SEWELLS GARDENS	(43)	2	√			√
119	REDMON ROAD	$277,000	SHORE DRIVE	(7)	2	√		√	
120	EDGEWOOD (K0546)	$613,000	SNUG HARBOR	(14)	2	√		√	
121	MODOC AVENUE	$751,000	SNUG HARBOR	(14)	2	√		√	
122	AZALEA GARDEN RD - JASPER CT	$50,000	SOUTH CAMELLIA	(20)	2	√			√
123	E LITTLE CREEK - CAMELLIA RD	$50,000	SOUTH CAMELLIA	(20)	2	√			√
124	E LITTLE CREEK - DUNNING - RANSOM RD	$50,000	SOUTH CAMELLIA	(20)	2	√			√
125	MARTONE RD - HEUTTE DR - TARPON PL	$142,000	SOUTH CAMELLIA	(20)	2	√			√
126	CARL ST - BRICKBY RD - KIRBY CRESCENT	$184,000	SUBURBAN	(33)	2	√			√
127	GALVESTON BLVD - SUBURBAN PKWY - BRICKBY RD	$102,000	SUBURBAN	(33)	2	√			√
128	GLEN ECHO DR - GRANBY ST	$123,000	SUBURBAN	(33)	2	√			√
129	MIDFIELD STREET	$154,000	SUBURBAN	(33)	2	√		√	
130	SUBURBAN ARCH	$76,000	SUBURBAN	(33)	2	√			√
131	RESTMERE RD - W LITTLE CREEK RD	$144,000	SUSSEX	(32)	2	√			√
132	AFTON AV - SEVERN RD - GRANBY ST	$454,000	TALBOT PARK	(36)	2	√			√
133	E CHARLOTTE ST - TIDEWATER DR - E CITY HALL AV*	$100,000	TIDEWATER DRIVE INDUSTRIAL	(68)	2	√			√
134	MALTBY AV - GOFF ST*	$1,051,000	TIDEWATER DRIVE INDUSTRIAL	(68)	2	√			√
135	MAY AV - SPRING ST - E ONLEY RD	$435,000	TIDEWATER DRIVE INDUSTRIAL	(68)	2	√			√
136	RUFFNER BOX CULVERT	$4,687,000	TIDEWATER DRIVE INDUSTRIAL	(68)	2	√		√	
137	THISTLE ST - LEAD ST - SAINT JULIAN AV**	$13,000	TIDEWATER DRIVE INDUSTRIAL	(68)	2	√			√
138	E CHARLOTTE ST - TIDEWATER DR - E CITY HALL AV*	$1,411,000	TIDEWATER-YOUNG PARK	(65)	2	√			√

Appendix F
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139	E VIRGINIA BEACH - SAINT PAULS BLVD - LINCOLN ST*	$2,558,000	TIDEWATER-YOUNG PARK	(65)	2	√			√
140	HAMPTON BLVD - BOWDENS FERRY RD**	$29,000	WEST 21st STREET	(57)	2	√			√
141	WEST OCEAN AV - PORTVIEW - 1ST VIEW ST	$1,038,000	WEST OCEAN VIEW	(2)	2	√			√
142	10TH VIEW ST - LITTLE BAY AV	$95,000	WILLOUGHBY	(1)	2	√			√
143	LEA VIEW AV - 15TH VIEW ST	$50,000	WILLOUGHBY	(1)	2	√			√
144	ALFRED LANE	$3,616,000	WILLOW TERRACE	(13)	2	√		√	
145	CHESAPEAKE BLVD - VIRGILINA AV - BEACH VIEW ST	$890,000	WILLOW TERRACE	(13)	2	√			√
146	E BAYVIEW BLVD - FISHERMAN RD - STURGIS RD	$234,000	WILLOW TERRACE	(13)	2	√			√
147	TAYLORS LANE	$172,000	WILLOW TERRACE	(13)	2	√		√	
148	CAPE HENRY AV BETWEEN BALLENTINE AND MCKANN	$400,000	BALLENTINE PARK	(50)	3		√		
149	ROBERTS ROAD DRAINAGE IMPROVEMENTS*	$275,000	BRAMBLETON	(69)	3		√		
150	SPARTAN VILLAGE	$7,000,000	BRAMBLETON	(69)	3		√		
151	1300 BLOCK OF CONOGA ST DRAINAGE IMPROVEMENTS	$725,000	CAMPOSTELLA	(89)	3		√		√
152	EAST OCEAN VIEW MASTER PLAN & IMPROVEMENTS**	$360,000	CAPE VIEW	(5)	3		√		
153	2500 BLOCK OF PALMETTO ST DRAINAGE IMPROVEMENTS†	$400,000	COLEMAN PLACE	(49)	3		√		√
154	DENVER ST - AZALEA GARDEN WATERSHED	$906,000	COLEMAN PLACE	(49)	3		√		
155	JUNIPER ST - AZALEA GARDEN WATERSHED	$600,000	COLEMAN PLACE	(49)	3		√		
156	SEWELLS POINT AND AZALEA GARDEN RD*	$2,247,000	COLEMAN PLACE	(49)	3		√		
157	ASPIN ST - NORCOVA AVE WATERSHED	$79,000	COLEMAN PLACE	(49)	3		√		
158	PETERSON DITCH IMPROVEMENTS*†	$150,000	CROMWELL ROAD INDUSTRIAL	(74)	3		√		√
159	PETERSON DITCH IMPROVEMENTS*†	$150,000	ESTABROOK	(47)	3		√		
160	SEWELLS POINT AND AZALEA GARDEN RD*	$1,082,000	FOXHALL	(48)	3		√		
161	SEWELLS POINT AND AZALEA GARDEN RD*	$832,000	INDUSTRIAL PARK	(73)	3		√		
162	SOUTH END OF VILLAGE AVENUE	$254,000	INDUSTRIAL PARK	(73)	3		√		
163	NORTH END OF VILLAGE AVENUE*	$238,000	INDUSTRIAL PARK	(73)	3		√		
164	BROOKSIDE COURT AND VILLAGE AVE OUTFALL*	$279,000	INDUSTRIAL PARK	(73)	3		√		
165	ROBERTS ROAD DRAINAGE IMPROVEMENTS*	$275,000	LIBERTY-ROBERTS PARK	(70)	3		√		
166	EAST OCEAN VIEW MASTER PLAN & IMPROVEMENTS**	$360,000	PRETTY LAKE	(6)	3		√		
167	ADDERLY STREET AND WELLMAN STREET	$100,000	RIVER FORREST	(81)	3		√		
168	SOUTH CAPE HENRY AVENUE AND ASPIN ST DRAINAGE IMPROVEMENTS	$150,000	RIVER OAKS	(75)	3		√		
169	SOUTH CAPE HENRY AVENUE - NORCOVA AVE WATERSHED	$37,000	RIVER OAKS	(75)	3		√		
170	NORTH END OF VILLAGE AVENUE*	$257,000	RIVER OAKS	(75)	3		√		
171	BROOKSIDE COURT AND VILLAGE AVE OUTFALL*	$202,000	RIVER OAKS	(75)	3		√		
172	EAST OCEAN VIEW MASTER PLAN & IMPROVEMENTS**	$360,000	ROOSEVELT GARDENS	(18)	3		√		
173	EAST OCEAN VIEW MASTER PLAN & IMPROVEMENTS**	$360,000	SHORE DRIVE	(7)	3		√		
174	PARKDALE DITCH**	$50,000	SUBURBAN	(33)	3		√		√
175	ROBERTS ROAD DRAINAGE IMPROVEMENTS*	$275,000	TIDEWATER DRIVE INDUSTRIAL	(68)	3		√		
176	PARKDALE DITCH**	$50,000	WARDS CORNER	(25)	3		√		√
177	MELLWOOD COURT	$60,000	EAST NORVIEW	(44)	4			√	√
178	SOUTH NEWTOWN ROAD	$148,000	EASTON	(80)	4			√	√
179	BEAMON RD AT AZALEA GARDEN	$533,000	NORVIEW	(45)	4			√	√
180	AVENUE J & MERRITT ST*	$1,116,000	ROSEMONT	(41)	4			√	√
181	AVENUE J & MERRITT ST*	$996,000	SOUTHERN SHOPPING CENTER	(24)	4			√	√
182	GATES AVENUE DITCH	$253,000	WEST GHENT	(61)	4			√	√
183	HARMON STREET / GIFFORD STREET	$95,000	LARRYMORE	(21)	5			√	
184	GAMAGE COURT	$240,000	AZALEA	(22)	5			√	

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185	DANA ST - BALLENTINE BLVD	$2,124,000	BALLENTINE PARK	(50)	5				√
186	CALVIN CT - HALPRIN DR*	$17,000	BEL-AIRE	(17)	5				√
187	DITCHES BETWEEN BUFFALO & MEADOW CREEK	$433,000	BEL-AIRE	(17)	5			√	
188	HALPRIN DR - DOMINION AV*	$30,000	BEL-AIRE	(17)	5				√
189	MEADOW CREEK	$652,000	BEL-AIRE	(17)	5			√	
190	LIGON STREET / PEARL STREET	$308,000	BERKLEY	(90)	5			√	
191	PENDLETON STREET	$2,115,000	BERKLEY	(90)	5			√	
192	STATE STREET	$86,000	BERKLEY	(90)	5			√	
193	CLAIBORNE AVENUE & REEVES	$834,000	BRAMBLETON	(69)	5			√	
194	CORPREW - MARATHON AV	$54,000	BRAMBLETON	(69)	5				√
195	KIMBALL TERRACE AT TARMAC	$200,000	BRAMBLETON	(69)	5			√	
196	KIMBALL TERRACE EAST OF OHIO CREEK OUTFALL	$200,000	BRAMBLETON	(69)	5			√	
197	OHIO CREEK MANUAL VALVE	$250,000	BRAMBLETON	(69)	5			√	
198	PARK AVENUE / VA BEACH BOULEVARD	$166,000	BRAMBLETON	(69)	5			√	
199	REEVES AVENUE / WILLOUGHBY AVENUE (LYONS)	$209,000	BRAMBLETON	(69)	5			√	
200	BERKLEY - SELDEN AV - WILSON RD*	$1,474,000	CAMPOSTELLA	(89)	5				√
201	CAMPOSTELLA RD - VERNON DR - MELON ST	$1,310,000	CAMPOSTELLA	(89)	5				√
202	CONOGA STREET	$792,000	CAMPOSTELLA	(89)	5			√	
203	GREEN LEAF DR - CAMPOSTELLA RD	$50,000	CAMPOSTELLA	(89)	5				√
204	BERKLEY - SELDEN AV - WILSON RD*	$320,000	CAMPOSTELLA HEIGHTS	(88)	5				√
205	E INDIAN RIVER RD - POPPLETON ST	$386,000	CAMPOSTELLA HEIGHTS	(88)	5				√
206	MONTCLAIR AVENUE DITCH	$408,000	CAMPOSTELLA HEIGHTS	(88)	5			√	
207	TIFTON STREET	$351,000	CHESAPEAKE MANOR	(40)	5			√	
208	3425 WESTMINSTER AV (BRANSCOME)	$246,000	CHESTERFIELD	(72)	5			√	
209	KIMBALL TER - WESTMINSTER AV - VICTORIA AV	$1,329,000	CHESTERFIELD	(72)	5				√
210	WESTMINSTER AV AT BRANSCOME	$50,000	CHESTERFIELD	(72)	5			√	
211	CAPE HENRY AV - WYOMING AV - ARKANSAS AV	$580,000	COLEMAN PLACE	(49)	5				√
212	COLEMAN PLACE	$4,928,000	COLEMAN PLACE	(49)	5			√	
213	E PRINCESS ANNE RD - RUSH ST - AZALEA GARDEN RD*	$257,000	COLEMAN PLACE	(49)	5				√
214	GREATER PETERSON ST**	$2,184,000	COLEMAN PLACE	(49)	5				√
215	LLEWELLYN AVENUE / CONNECTICUT AVENUE	$283,000	COLONIAL PLACE	(53)	5			√	
216	NEAR HOLLY AV	$200,000	COLONIAL PLACE	(53)	5			√	
217	NEW JERSEY AVENUE	$234,000	COLONIAL PLACE	(53)	5			√	
218	NEW JERSEY AVENUE / MAYFLOWER ROAD	$1,762,000	COLONIAL PLACE	(53)	5			√	
219	CULFOR CRESCENT	$179,000	COMMODORE PARK	(10)	5			√	
220	EXECUTIVE DRIVE	$50,000	COMMODORE PARK	(10)	5			√	
221	PARTRIDGE STREET / PHILPOTTS ROAD	$209,000	CORONADO	(42)	5			√	
222	CAPE HENRY AVENUE (NEAR RR TRACKS)	$1,072,000	CROMWELL ROAD INDUSTRIAL	(74)	5			√	
223	CHESAPEAKE BLVD - ARIZONA AV - LAFAYETTE BLVD	$518,000	CROMWELL ROAD INDUSTRIAL	(74)	5				√
224	GREATER PETERSON ST**	$966,000	CROMWELL ROAD INDUSTRIAL	(74)	5				√
225	RABY RD / LANCE RD / HARMONY RD DITCHES	$170,000	CROWN POINT	(86)	5			√	
226	MACDONALD RD - PENNINGTON RD*	$3,481,000	DENBY PARK	(38)	5				√
227	MONTICELLO AVENUE / MARKET STREET	$6,160,000	DOWNTOWN	(59)	5			√	
228	26TH STREET, 27TH STREET / LLEWELLYN AVENUE	$222,000	EAST 21st STREET-MONTICELLO	(58)	5			√	
229	NORVIEW AV DITCH*	$265,000	EAST NORVIEW	(44)	5			√	
230	PICADILLY ST - EDWARD ST - MELLWOOD CT**	$34,000	EAST NORVIEW	(44)	5				√

Appendix F
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231	SHADYWOOD ROAD	$148,000	EAST NORVIEW	(44)	5			√	
232	EDISON AVENUE/EASTON PLACE	$786,000	EASTON	(80)	5			√	
233	S NEWTOWN RD - NEWARK AV - LYNDHURST AV	$121,000	EASTON	(80)	5				√
234	49TH STREET OUTFALL†	$500,000	EDGEWATER-LARCHMONT	(37)	5			√	
235	CAMBRIDGE CRESCENT / CARROLL PLACE	$628,000	EDGEWATER-LARCHMONT	(37)	5			√	
236	CARROLL PLACE OFF OF JAMESTOWN CRESCENT	$100,000	EDGEWATER-LARCHMONT	(37)	5			√	
237	HAMPTON BOULEVARD (SOUTH OF LEXAN AVENUE)	$942,000	EDGEWATER-LARCHMONT	(37)	5			√	
238	JAMESTOWN CRESCENT	$394,000	EDGEWATER-LARCHMONT	(37)	5			√	
239	MYRTLE PARK IMPROVEMENTS	$100,000	EDGEWATER-LARCHMONT	(37)	5			√	
240	ROLFE & CATALPA	$100,000	EDGEWATER-LARCHMONT	(37)	5			√	
241	GLEN AV - ROBIN HOOD RD	$160,000	ESTABROOK	(47)	5				√
242	GREATER PETERSON ST**	$260,000	ESTABROOK	(47)	5				√
243	SEWELLS POINT RD - BEAMON RD - AZALEA GARDEN RD**	$275,000	ESTABROOK	(47)	5				√
244	S. CAPE HENRY RR DITCH	$362,000	FOXHALL	(48)	5			√	
245	SEWELLS POINT RD - BEAMON RD - AZALEA GARDEN RD**	$1,071,000	FOXHALL	(48)	5				√
246	WOLFE ST - ASHBY ST - ARTHUR CIRCLE*	$2,908,000	FOXHALL	(48)	5				√
247	E PRINCESS ANNE RD - RUSH ST - AZALEA GARDEN RD*	$831,000	INDUSTRIAL PARK	(73)	5				√
248	KINWOOD AV - E VIRGINIA BEACH BLVD	$1,146,000	INDUSTRIAL PARK	(73)	5				√
249	NORFOLK SQUARE	$75,000	INDUSTRIAL PARK	(73)	5			√	
250	EASTON AVENUE	$500,000	INGLESIDE	(83)	5			√	
251	INGLESIDE	$269,000	INGLESIDE	(83)	5			√	
252	MANGROVE AV	$100,000	INGLESIDE	(83)	5			√	
253	PEAKE RD - INGLESIDE RD - RIVERSIDE DR	$431,000	INGLESIDE	(83)	5				√
254	SCOTT ST - SEAY AV - GATLING AV	$2,890,000	INGLESIDE	(83)	5				√
255	STAPLETON & WESTMINSTER AVENUE	$100,000	INGLESIDE	(83)	5			√	
256	STONEY POINT SOUTH	$3,293,000	KEMPSVILLE	(79)	5			√	
257	WELLVILLE STREET (ROUGHTON PONTIAC)	$191,000	KEMPSVILLE	(79)	5			√	
258	ARMISTEAD BRIDGE RD - GATES AV	$50,000	LAMBERTS POINT INDUSTRIAL	(56)	5				√
259	WEYANOKE ST - RED GATE AV*	$33,000	LAMBERTS POINT INDUSTRIAL	(56)	5				√
260	LISA DRIVE	$116,000	LARRYMORE	(21)	5			√	
261	BAPAUME AV - SILBERT ROAD	$2,870,000	LAYFAYETTE	(51)	5				√
262	BOURBON AVENUE	$3,038,000	LAYFAYETTE	(51)	5			√	
263	MARNE - ARGONNE - BELLEVUE AV	$2,714,000	LAYFAYETTE	(51)	5				√
264	TIDEWATER DRIVE (FROM BRIDGE TO BRIDGE)	$2,589,000	LAYFAYETTE	(51)	5			√	
265	E PRINCESS ANNE RD - BAYNE AV - MERRIMAC AV	$58,000	LIBERTY-ROBERTS PARK	(70)	5				√
266	E VIRGINIA BEACH BLVD - BELLMORE AV - MYRTLE AV	$550,000	LIBERTY-ROBERTS PARK	(70)	5				√
267	MIDDLE TOWN ARCH	$758,000	LIBERTY-ROBERTS PARK	(70)	5			√	
268	COURTNEY - CARONA AV - WALL ST	$2,037,000	LINDENWOOD	(67)	5				√
269	LINDENWOOD AV	$692,000	LINDENWOOD	(67)	5			√	
270	ABC DEAD ENDS	$100,000	NAVAL BASE	(26)	5			√	
271	HAMPTON BOULEVARD	$234,000	NAVAL BASE	(26)	5			√	
272	WILLOUGHBY	$3,616,000	NAVAL BASE	(26)	5			√	
273	NORVA PARK - E KENMORE DR - SUBURBAN PKWY**	$2,012,000	NAVAL BASE ROAD	(39)	5				√
274	LYNNBROOK DR - LYNNBROOK CT	$3,789,000	NORTH CAMELLIA	(19)	5				√
275	BRENTWOOD DITCH	$1,150,000	NORTH CHESAPEAKE BLVD.	(15)	5			√	
276	CHESAPEAKE BOULEVARD	$166,000	NORTH CHESAPEAKE BLVD.	(15)	5			√	

Appendix F
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277	NORTH OF BANCKER RD - SOUTH OF LEONARD RD	$50,000	NORTH CHESAPEAKE BLVD.	(15)	5				√
278	OLD OCEAN VIEW - BANCKER RD**	$15,000	NORTH CHESAPEAKE BLVD.	(15)	5				√
279	WESTCLIFF DR - E LITTLE CREEK RD - DOVERCOURT RD**	$154,000	NORTH CHESAPEAKE BLVD.	(15)	5				√
280	AZALEA GARDEN ROAD (SOUTH OF MILITARY HIGHWAY)	$339,000	NORVELLA	(46)	5			√	
281	MILITARY HIGHWAY CULVERTS	$128,000	NORVELLA	(46)	5			√	
282	NORVELLA AV - JANET DR	$50,000	NORVELLA	(46)	5				√
283	NORVIEW AV DITCH*	$128,000	NORVELLA	(46)	5			√	
284	WAYCROSS ROAD DITCH	$128,000	NORVELLA	(46)	5			√	
285	EAST NORVIEW NEIGHBORHOOD	$3,421,000	NORVIEW	(45)	5			√	
286	ELMHURST NEIGHBORHOOD DITCHES & DRIVEWAY PIPES	$2,016,000	NORVIEW	(45)	5			√	
287	HERBERT ST - KENNEBECK AV - ELMHURST AV	$403,000	NORVIEW	(45)	5				√
288	NORVELLA AVENUE	$87,000	NORVIEW	(45)	5			√	
289	SEWELLS POINT RD - BEAMON RD - AZALEA GARDEN RD**	$674,000	NORVIEW	(45)	5				√
290	SOUTH AVENUE	$271,000	NORVIEW	(45)	5			√	
291	TEXAS AV - HUMBOLDT ST - SEWELLS POINT RD	$151,000	NORVIEW	(45)	5				√
292	OLD OCEANVIEW ROAD / CREAMER ROAD	$308,000	OCEANAIR	(12)	5			√	
293	HULL VIEW AV - E BALVIEW AV - CHESAPEAKE ST**	$1,244,000	OCEANVIEW	(4)	5				√
294	30TH STREET / LLEWELLYN AVENUE	$1,743,000	PARK PLACE	(52)	5			√	
295	BRICKELL ROAD	$422,000	POPLAR HALLS	(84)	5			√	
296	SHOREWOOD COURT	$200,000	RIVER FORREST	(81)	5			√	
297	E PRINCESS ANNE RD - MILTATE AV - FLEETWOOD AV	$646,000	RIVER OAKS	(75)	5				√
298	KILMER LANE RR DITCH	$1,143,000	RIVER OAKS	(75)	5			√	
299	S. CAPE HENRY RR DITCH (KERREY AV TO NELMS AV)	$640,000	RIVER OAKS	(75)	5			√	
300	WOLFE ST - ASHBY ST - ARTHUR CIRCLE*	$1,364,000	RIVER OAKS	(75)	5				√
301	CALVIN CT - HALPRIN DR*	$65,000	ROOSEVELT GARDENS	(18)	5				√
302	HALPRIN DR - DOMINION AV*	$48,000	ROOSEVELT GARDENS	(18)	5				√
303	PICADILLY ST - EDWARD ST - MELLWOOD CT**	$957,000	ROSEMONT	(41)	5				√
304	ALEXANDER ST	$1,040,000	SEWELLS GARDENS	(43)	5			√	
305	PICADILLY SQUARE	$530,000	SEWELLS GARDENS	(43)	5			√	
306	PICADILLY ST - EDWARD ST - MELLWOOD CT**	$564,000	SEWELLS GARDENS	(43)	5				√
307	QUAIL / PARTRIDGE VALLEY GUTTER	$649,000	SEWELLS GARDENS	(43)	5			√	
308	BAKER STREET	$434,000	SEWELLS POINT	(27)	5			√	
309	SHORE DR - WISTERIA PL - DUNNING RD	$140,000	SHORE DRIVE	(7)	5				√
310	TURNER RD	$50,000	SHORE DRIVE	(7)	5				√
311	FISHERMANS RD - JENIFER ST - RADNOR RD	$55,000	SNUG HARBOR	(14)	5				√
312	KEARNEY RD - PORTAL RD	$61,000	SNUG HARBOR	(14)	5				√
313	CAMELLIA SHORES	$203,000	SOUTH CAMELLIA	(20)	5			√	
314	SHORE DR (LITTLE CREEK TO HEUTTE DR) DITCH	$525,000	SOUTH CAMELLIA	(20)	5			√	
315	LITTLE CREEK ROAD / TIDEWATER DRIVE	$9,855,000	SOUTHERN SHOPPING CENTER	(24)	5			√	
316	MACDONALD RD - PENNINGTON RD*	$301,000	SOUTHERN SHOPPING CENTER	(24)	5				√
317	OLD OCEAN VIEW - BANCKER RD**	$459,000	SOUTHERN SHOPPING CENTER	(24)	5				√
318	WESTCLIFF DR - E LITTLE CREEK RD - DOVERCOURT RD**	$11,000	SOUTHERN SHOPPING CENTER	(24)	5				√
319	NORTH SHORE RD - GRANBY ST**	$1,768,000	SUBURBAN	(33)	5				√
320	NORVA PARK - E KENMORE DR - SUBURBAN PKWY**	$130,000	SUBURBAN	(33)	5				√
321	ARMFIELD CIRCLE	$437,000	SUSSEX	(32)	5			√	
322	BRADFORD AVENUE	$302,000	SUSSEX	(32)	5			√	

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323	HARITON COURT	$277,000	SUSSEX	(32)	5			√	
324	NEWPORT - GLOUCESTER AV	$62,000	SUSSEX	(32)	5				√
325	TERMINAL BOULEVARD (DITCH)	$203,000	SUSSEX	(32)	5			√	
326	WEST LITTLE CREEK - GRANTHAM RD*	$43,000	SUSSEX	(32)	5				√
327	CATHERINE & CARLISLE	$500,000	TALBOT PARK	(36)	5			√	
328	RIVER ROAD	$39,000	TALBOT PARK	(36)	5			√	
329	MEADS ROAD	$86,000	TITUSTOWN	(31)	5			√	
330	WEST LITTLE CREEK - GRANTHAM RD*	$34,000	TITUSTOWN	(31)	5				√
331	NORTH SHORE RD - GRANBY ST**	$738,000	WARDS CORNER	(25)	5				√
332	NORVA PARK - E KENMORE DR - SUBURBAN PKWY**	$62,000	WARDS CORNER	(25)	5				√
333	YORKTOWN DITCH	$350,000	WARDS CORNER	(25)	5			√	
334	NORTH OF 21ST STREET	$530,000	WEST 21st STREET	(57)	5			√	
335	VALVE IN BOX (GREENWAY COURT)	$4,759,000	WEST GHENT	(61)	5			√	
336	WEYANOKE ST - RED GATE AV*	$125,000	WEST GHENT	(61)	5				√
337	EAST OCEAN VIEW	$2,174,000	WEST OCEAN VIEW	(2)	5			√	
338	MASON CREEK OUTFALL	$3,616,000	WEST OCEAN VIEW	(2)	5			√	
339	9TH VIEW OUTFALL	$3,616,000	WILLOUGHBY	(1)	5			√	
340	HULL VIEW AV - E BALVIEW AV - CHESAPEAKE ST**	$430,000	WILLOW TERRACE	(13)	5				√
341	OUTFALL ID L10638&41	$134,000	AZALEA	(22)	6	√			
342	OUTFALL ID M10644*	$303,000	AZALEA	(22)	6	√			
343	OUTFALL ID F18661	$1,339,000	BERKLEY	(90)	6	√			
344	OUTFALL ID F15530*	$1,031,000	BRAMBLETON	(69)	6	√			
345	OUTFALL ID H14148**	$1,389,000	BRAMBLETON	(69)	6	√			
346	OUTFALL ID H17132	$66,000	CAMPOSTELLA HEIGHTS	(88)	6	√			
347	OUTFALL ID K0546**	$442,000	CAPE VIEW	(5)	6	√			
348	OUTFALL ID E101	$759,000	COLONIAL PLACE	(53)	6	√			
349	OUTFALL ID E111	$1,142,000	COLONIAL PLACE	(53)	6	√			
350	OUTFALL IDS E1123&E1131	$1,142,000	COLONIAL PLACE	(53)	6	√			
351	OUTFALL ID E11404**	$1,269,000	COLONIAL PLACE	(53)	6	√			
352	OUTFALL ID F111	$413,000	COLONIAL PLACE	(53)	6	√			
353	OUTFALL ID F1110	$928,000	COLONIAL PLACE	(53)	6	√			
354	OUTFALL ID G04338	$1,089,000	COMMODORE PARK	(10)	6	√			
355	OUTFALL ID G04362	$752,000	COMMODORE PARK	(10)	6	√			
356	OUTFALL ID E143699*	$4,799,000	EAST 21st STREET-MONTICELLO	(58)	6	√			
357	OUTFALL ID E143699*	$1,707,000	EAST GHENT	(63)	6	√			
358	OUTFALL ID N164300*	$30,000	EASTON	(80)	6	√			
359	OUTFALL ID N16510**	$2,297,000	EASTON	(80)	6	√			
360	OUTFALL ID C099	$212,000	EDGEWATER-LARCHMONT	(37)	6	√			
361	OUTFALL ID I1180	$470,000	ESTABROOK	(47)	6	√			
362	OUTFALL ID D14124	$1,467,000	GHENT	(64)	6	√			
363	OUTFALL ID D14860	$1,821,000	GHENT	(64)	6	√			
364	OUTFALL ID E143699*	$225,000	GHENT	(64)	6	√			
365	OUTFALL ID N15799	$338,000	GLENROCK	(85)	6	√			
366	OUTFALL ID N164300*	$347,000	GLENROCK	(85)	6	√			
367	OUTFALL ID N16510**	$60,000	GLENROCK	(85)	6	√			
368	OUTFALL ID F15530*	$708,000	HUNTERSVILLE	(66)	6	√			

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369	OUTFALL IDS N1388&N1391*	$12,000	JANAF-MILITARY CIRCLE	(87)	6	√			
370	OUTFALL ID N16510**	$14,000	JANAF-MILITARY CIRCLE	(87)	6	√			
371	OUTFALL ID N16510**	$5,811,000	KEMPSVILLE	(79)	6	√			
372	OUTFALL ID O1350**	$114,000	KEMPSVILLE	(79)	6	√			
373	OUTFALL ID O142	$172,000	KEMPSVILLE	(79)	6	√			
374	OUTFALL ID M121003*	$36,000	LAKE TAYLOR	(76)	6	√			
375	OUTFALL IDS M1325&M133*	$337,000	LAKE TAYLOR	(76)	6	√			
376	OUTFALL IDS M1325&M133*	$376,000	LAKE TERRACE	(77)	6	√			
377	OUTFALL IDS N1388&N1391*	$3,992,000	LAKE TERRACE	(77)	6	√			
378	OUTFALL ID N14200*	$1,931,000	LAKE TERRACE	(77)	6	√			
379	OUTFALL ID G1124	$1,808,000	LAKEWOOD	(35)	6	√			
380	OUTFALL ID G118	$218,000	LAKEWOOD	(35)	6	√			
381	OUTFALL ID G1190	$224,000	LAYFAYETTE	(51)	6	√			
382	OUTFALL ID H12148	$782,000	LAYFAYETTE	(51)	6	√			
383	OUTFALL ID H14148**	$363,000	LINDENWOOD	(67)	6	√			
384	OUTFALL ID N14200*	$137,000	MAPLE HALL-HOLLYWOOD	(78)	6	√			
385	OUTFALL ID O1350**	$953,000	MAPLE HALL-HOLLYWOOD	(78)	6	√			
386	OUTFALL ID D14860	$3,681,000	MEDICAL CENTER	(60)	6	√			
387	OUTFALL ID G041**	$184,000	MERRIMAC PARK	(9)	6	√			
388	OUTFALL ID G041**	$67,000	NAVAL BASE	(26)	6	√			
389	OUTFALL ID G0838*	$40,000	NAVAL BASE ROAD	(39)	6	√			
390	OUTFALL ID N06200**	$429,000	NORTH CAMELLIA	(19)	6	√			
391	OUTFALL ID D11390	$1,854,000	NORTH COLLEY	(54)	6	√			
392	OUTFALL ID E11404**	$2,586,000	NORTH COLLEY	(54)	6	√			
393	OUTFALL ID C0734	$2,233,000	NORTH SHORE	(30)	6	√			
394	OUTFALL ID D07240	$1,653,000	NORTH SHORE	(30)	6	√			
395	OUTFALL ID G041**	$392,000	NORTHSIDE	(11)	6	√			
396	OUTFALL ID G05302	$1,650,000	NORTHSIDE	(11)	6	√			
397	OUTFALL ID H042031**	$2,235,000	NORTHSIDE	(11)	6	√			
398	OUTFALL ID H042031**	$514,000	NORTHSIDE	(11)	6	√			
399	OUTFALL ID UNK2*	$630,000	NORTHSIDE	(11)	6	√			
400	OUTFALL ID M10644*	$16,000	NORVELLA	(46)	6	√			
401	OUTFALL ID G065004	$277,000	OAKDALE FARMS	(16)	6	√			
402	OUTFALL ID H063102	$321,000	OAKDALE FARMS	(16)	6	√			
403	OUTFALL ID H063422	$80,000	OAKDALE FARMS	(16)	6	√			
404	OUTFALL ID G041**	$28,000	OCEANAIR	(12)	6	√			
405	OUTFALL ID H042031**	$1,063,000	OCEANAIR	(12)	6	√			
406	OUTFALL ID H042031**	$692,000	OCEANAIR	(12)	6	√			
407	OUTFALL ID H042031**	$44,000	OCEANVIEW	(4)	6	√			
408	OUTFALL ID J03311*	$921,000	OCEANVIEW	(4)	6	√			
409	OUTFALL ID K0546**	$812,000	OCEANVIEW	(4)	6	√			
410	OUTFALL ID G041**	$12,428,000	PAMLICO	(8)	6	√			
411	OUTFALL ID UNK2*	$133,000	PAMLICO	(8)	6	√			
412	OUTFALL ID E11404**	$6,828,000	PARK PLACE	(52)	6	√			
413	OUTFALL ID F1141	$3,086,000	PARK PLACE	(52)	6	√			
414	OUTFALL ID G041**	$24,000	PINEWELL	(3)	6	√			

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415	OUTFALL ID H042031**	$79,000	PINEWELL	(3)	6	√			
416	OUTFALL ID I024000&013*	$368,000	PINEWELL	(3)	6	√			
417	OUTFALL ID L1529	$177,000	POPLAR HALLS	(84)	6	√			
418	OUTFALL ID L1532	$90,000	POPLAR HALLS	(84)	6	√			
419	OUTFALL ID L1557	$109,000	POPLAR HALLS	(84)	6	√			
420	OUTFALL ID L16400	$631,000	RIVER FORREST	(81)	6	√			
421	OUTFALL ID L16500	$95,000	RIVER FORREST	(81)	6	√			
422	OUTFALL ID N16510**	$25,000	RIVER FORREST	(81)	6	√			
423	OUTFALL ID L12128	$383,000	RIVER OAKS	(75)	6	√			
424	OUTFALL ID M121003*	$1,014,000	RIVER OAKS	(75)	6	√			
425	OUTFALL ID I09500	$50,000	SEWELLS GARDENS	(43)	6	√			
426	OUTFALL ID UNK11	$64,000	SEWELLS POINT	(27)	6	√			
427	OUTFALL ID N06200**	$62,000	SHORE DRIVE	(7)	6	√			
428	OUTFALL ID N06556**	$39,000	SHORE DRIVE	(7)	6	√			
429	OUTFALL ID L081808	$490,000	SOUTH CAMELLIA	(20)	6	√			
430	OUTFALL ID M06181	$535,000	SOUTH CAMELLIA	(20)	6	√			
431	OUTFALL ID M071531	$437,000	SOUTH CAMELLIA	(20)	6	√			
432	OUTFALL ID M071562	$232,000	SOUTH CAMELLIA	(20)	6	√			
433	OUTFALL ID N06200**	$39,000	SOUTH CAMELLIA	(20)	6	√			
434	OUTFALL ID N06556**	$450,000	SOUTH CAMELLIA	(20)	6	√			
435	OUTFALL ID G0810	$421,000	SUBURBAN	(33)	6	√			
436	OUTFALL ID G0825	$551,000	SUBURBAN	(33)	6	√			
437	OUTFALL ID G0838*	$1,700,000	SUBURBAN	(33)	6	√			
438	OUTFALL ID H08110	$78,000	SUBURBAN	(33)	6	√			
439	OUTFALL ID F071	$535,000	SUSSEX	(32)	6	√			
440	OUTFALL IDS E09100&1031	$373,000	TALBOT PARK	(36)	6	√			
441	OUTFALL ID F09203	$36,000	TALBOT PARK	(36)	6	√			
442	OUTFALL ID F09500	$392,000	TALBOT PARK	(36)	6	√			
443	OUTFALL ID F10433	$56,000	TALBOT PARK	(36)	6	√			
444	OUTFALL ID G0868	$23,000	TALBOT PARK	(36)	6	√			
445	OUTFALL ID H14148**	$2,611,000	TIDEWATER DRIVE INDUSTRIAL	(68)	6	√			
446	OUTFALL ID E143699*	$1,151,000	TIDEWATER-YOUNG PARK	(65)	6	√			
447	OUTFALL ID E11404**	$3,207,000	WEST 21st STREET	(57)	6	√			
448	OUTFALL ID G041**	$10,427,000	WEST OCEAN VIEW	(2)	6	√			
449	OUTFALL ID H021028	$620,000	WEST OCEAN VIEW	(2)	6	√			
450	OUTFALL IDS I024000&013*	$6,242,000	WEST OCEAN VIEW	(2)	6	√			
451	OUTFALL ID D016	$560,000	WILLOUGHBY	(1)	6	√			
452	OUTFALL ID F0181	$1,048,000	WILLOUGHBY	(1)	6	√			
453	OUTFALL ID H042031**	$1,235,000	WILLOW TERRACE	(13)	6	√			
454	OUTFALL ID J03311*	$39,000	WILLOW TERRACE	(13)	6	√			
455	OUTFALL ID K0546**	$933,000	WILLOW TERRACE	(13)	6	√			

* Priority project area crosses planning district boundaries.

** Priority project area crosses PD and watershed group boundaries.

† Consturction pending