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# SEWERS

## Sewers

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## Sewers

Subsection	Project	Unallocated Balance	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY2008-FY2013
<b>Sanitary Sewers</b>									
	Correction of Infiltration/Inflow	\$0	\$1,000,000	\$0	\$0	\$0	\$0	\$0	\$1,000,000
	Hoof's Run Relocation	\$0	\$60,000	\$630,000	\$0	\$0	\$0	\$0	\$690,000
	Holmes Run Trunk Sewer	7,037,000	0	0	0	0	0	0	\$0
	Holmes Run Infiltration & Inflow	0	700,000	735,000	6,771,750	810,338	7,350,854	893,000	\$17,260,942
	Mitigation of CSOs	1,950,190	262,500	275,625	289,406	303,876	319,070	335,024	\$1,785,501
	Reconstructions and Extentions	0	1,361,000	1,404,050	949,253	996,715	1,046,551	1,098,878	\$6,856,447
	Royal Street Relief Sewer	0	0	0	0	0	0	10,000	\$10,000
	Sewer Map Update	0	0	0	0	0	0	10,000	\$10,000
	Street Recon. due to Sanitary Sewers	0	367,500	385,875	405,169	425,427	446,699	469,033	\$2,499,703
	Sanitary Sewer Projects TBD	500,000	0	194,804	0	1,571,463	0	1,381,374	\$3,147,641
	Sanitary Sewer Capacity Study	0	380,000	399,000	418,950	0	0	0	\$1,197,950
	Sewer Separation Projects	0	500,000	525,000	551,250	578,813	607,753	638,141	\$3,400,957
	LESS REVENUES /1	0	0	0	0	0	0	0	\$0
	<b>SUBTOTAL</b>	<b>\$9,487,190</b>	<b>\$4,631,000</b>	<b>\$4,549,354</b>	<b>\$9,385,778</b>	<b>\$4,686,632</b>	<b>\$9,770,927</b>	<b>\$4,835,450</b>	<b>\$33,260,234</b>
<b>Storm Sewers</b>									
	Miscellaneous Storm Sewer Repairs	\$359,500	\$213,150	\$223,808	\$234,998	\$246,748	\$259,085	\$272,039	\$1,449,828
	Key Drive Flood Mitigation	0	0	0	0	0	0	10,000	\$10,000
	Taylor's Run at Janney's Lane	500,000	0	0	0	0	0	0	\$0
	NPDES	175,000	0	0	0	0	0	0	\$0
	Oronoco Outfall	2,127,670	0	0	0	0	0	0	\$0
	Storm Sewer Capacity Analysis	0	787,500	826,875	0	0	0	0	\$1,614,375
	Storm & Combined Assessment	600,000	0	200,000	0	900,000	900,000	900,000	\$2,900,000
	Braddock & West Storm Sewer	0	200,000	TBD	TBD	TBD	TBD	TBD	\$200,000
	LESS REVENUES	617,670	0	0	0	0	0	0	\$0
	<b>SUBTOTAL</b>	<b>\$3,144,500</b>	<b>\$1,200,650</b>	<b>\$1,250,683</b>	<b>\$234,998</b>	<b>\$1,146,748</b>	<b>\$1,159,085</b>	<b>\$1,182,039</b>	<b>\$3,074,203</b>
<b>Total Projects</b>		<b>\$13,249,360</b>	<b>\$5,831,650</b>	<b>\$5,800,037</b>	<b>\$9,620,776</b>	<b>\$5,833,380</b>	<b>\$10,930,012</b>	<b>\$6,017,489</b>	<b>\$44,033,344</b>
<b>Less Total Revenues</b>		<b>\$617,670</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>TOTAL NET CITY COSTS</b>		<b>\$12,631,690</b>	<b>\$5,831,650</b>	<b>\$5,800,037</b>	<b>\$9,620,776</b>	<b>\$5,833,380</b>	<b>\$10,930,012</b>	<b>\$6,017,489</b>	<b>\$44,033,344</b>

1/ City sanitary sewer revenues from the sanitary sewer fund, which now fund 100 percent of sanitary sewer capital costs for all the proposed six years of the CIP, are reflected separately in the funding sources table as City revenues.

# Sewers

## Correction of Infiltration/Inflow

**Subsection:** Sanitary Sewers  
**Managing Department:** T&ES  
**Phase:** Phase IV (Construction)

**Estimated Useful Life of Improvement:** 40 years  
**Priority:** Essential

**Project Summary:** This project provides for the evaluation and remediation of infiltration/inflow conditions in older parts of the City's separate sanitary sewer system. These areas include the sanitary sewer systems tributary to the Commonwealth Interceptor and areas in the Holmes Run sewer service area. During wet weather, infiltration and inflow into these older sanitary sewers have created overload conditions causing basement back-ups. This project will identify leaking sewers and connections (which allow excessive infiltration/inflow to enter sewers) and correct the problem through the repair of the sewers and removal of direct storm water sources such as down spouts.

**Changes from Prior Year:** A total of \$1 million is budgeted in FY 2009 for the correction of infiltration and inflow in the Taylor Run sub-shed of the Holmes Run sewer service area.

**Project History:** This correction program was started in FY 1999 when studies were conducted in the Four Mile Run sewer service area. This area is a tributary to the Four Mile Run Pumping Station and comprises the upper part of the City served by the Commonwealth Interceptor. As a result of these studies, the City conducted field inspections and flow monitoring of the existing sewers. Field inspections included street by street TV investigations of sewers, followed by visual investigations of connections employing nondestructive methods such as dye and smoke testing to identify the sources of connections to the existing sewers. The fieldwork and monitoring was performed by dividing sewer service areas into sections and proceeding through each section sequentially. Fieldwork was completed in the sanitary sewer system's tributary to the Commonwealth Interceptor. Construction on the Commonwealth Interceptor sewer shed began in Fall 2005 and was completed in the spring of 2007. Field work in the Taylor Run sub-shed of the Holmes Run sewer service area is continuing. The studies show the sanitary sewers require substantial repairs to correct broken and cracked pipe, root intrusion, leaking joints, damaged connections between street sewers and laterals (house sewer connections), and leaking manholes. Most of the conditions are remediated by internal repair methods such as installation of an internal lining in the pipe. However, some conditions such as broken pipes require excavation and replacement to restore the structural integrity of the sewer. The information from the field work completed to date shows that the relining and repairs required to reduce inflow and infiltration to non-excessive quantities and restore structural integrity are substantially greater than previously anticipated. Due to a significantly higher percentage of defective sewers identified during the field evaluation of the Taylor Run sewer service area, additional funding of \$1 million in FY 2009 is requested to complete this project. To date, \$10 million has been spent on this project.

**Schedule:** This project is currently in the construction phase (Phase 4), which is scheduled to begin in the spring of 2008. Construction is expected to be completed during Summer 2010 and post-construction flow monitoring will be completed in Winter 2011.

**Customer Service Level Impact:** This project will reduce infiltration and inflow in sanitary sewer lines as well as reduce the need for emergency repairs. Some reduction in Average Daily Flow at the Alexandria Sanitation Authority Advanced Waste Water Treatment Facility is anticipated, resulting in a small amount of ultimate future City capacity availability.

**Operating Impact:** This project will have no impact on the operating budget.

Correction of Infiltration/Inflow	Unallocated Balance	FY 2009 Proposed						Total FY2009-FY2014
		FY 2009 Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	0	1,000,000	0	0	0	0	0	1,000,000
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	1,000,000	0	0	0	0	0	1,000,000
<b>Capital Performance Measures</b>								
On-time (within projected time period)								
On-budget (within projected range of costs)								
Reduction in Inflow and infiltration in the sanitary sewer systems								

# Sewers

## Hoof's Run Sanitary Sewer Relocation

Subsection: Sanitary Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: 40 years  
 Priority: Essential

**Project Summary:** This project provides for the relocation of the Hooff's Run Sanitary Sewer. During the field evaluation of the Commonwealth Inflow and Infiltration project, an existing sanitary sewer was identified as located beneath the Hooff's Run storm box culvert. Access restrictions prevent rehabilitation of the existing sewer via trenchless relining. Consequently, the rehabilitation method requires that the sewer be relocated. This project includes funds for the design and construction of the sanitary sewer relocation and will provide the additional benefit of future maintenance access. Design of this project will begin in Fall 2009, with construction expected to begin in Winter 2010 and be completed in Summer 2011.

**Changes from Prior Year:** This is a new project, not previously in the CIP. \$60,000 is budgeted in FY 2009 for design and \$630,000 is planned in FY 2010 for construction of this project.

**Operating Impact:** This project will have no impact on the operating budget.

Hoof's Run Sanitary Sewer Relocation	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	0	60,000	630,000	0	0	0	0	690,000
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	60,000	630,000	0	0	0	0	690,000

## Holmes Run Trunk Sewer

Subsection: Sanitary Sewers  
 Managing Department: Transportation & Environmental Services

Estimated Useful Life of Improvement: 40 years  
 Priority: Essential

**Project Summary:** This project provides for an increase in capacity in the Holmes Run trunk sewer line, required to support rapid development occurring in the Eisenhower Valley, as well as future development and redevelopment in the West End. Preliminary engineering studies indicated that lining the existing sewer with specialized materials would provide the needed capacity increase with minimal environmental disruption. Relining will increase the capacity in the western portion of the sewer from Van Dorn Street to Eisenhower Avenue at Cameron Run. The Alexandria Sanitation Authority advertised for construction bids in February 2007, and construction is anticipated to begin in the winter or spring of 2008, lasting approximately 8 months. Further analysis, however, has determined that pipe lining alone will not increase capacity sufficiently in the East Eisenhower section. Alternatives are currently under study. A total of \$7.04 million in prior year unallocated monies remains for this project.

**Changes from Prior Year:** There has been no change in funding for this project.

**Operating Impact:** This project does not have an impact on the City's operating budget, since it is maintained by the Alexandria Sanitation Authority.

Holmes Run Trunk Sewer	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	7,037,000	0	0	0	0	0	0	0
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	7,037,000	0	0	0	0	0	0	0

# Sewers

## Holmes Run Sewershed Inflow and Infiltration

Subsection: Sanitary Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: 40 years  
 Priority: Essential

**Project Summary:** This project provides for the evaluation and remediation of infiltration/inflow conditions for the sanitary sewer system in the Holmes Run Sewershed. During wet weather, infiltration and inflow into the sanitary sewers have created overload conditions causing basement backups. The field work and monitoring will be performed by dividing the 4,600 acre sewer shed into sections and proceeding through each section sequentially. Leaking sewers and connections (which allow excessive infiltration/inflow to enter sewers) will be identified via street by street CCTV inspection of sewers. The results of this field work will be evaluated to develop remediation projects that are expected to include the relining of sewers and manhole repairs. Construction costs will be more accurately determined based on the results of field evaluations.

**Changes from Prior Year:** A total of \$17.3 million is planned over six years (FY2009 – FY 2014) for this project. Of this amount, \$4.76 million will provide for field work, monitoring, and developing remediation plans. In addition, \$12.5 million will provide for construction of remediation projects, including \$6 million in FY 2011 and \$6.5 million in FY 2013.

**Project History:** In June 2007, \$631,440 was allocated to begin an assessment of the Holmes Run Infiltration/Inflow.

**Operating Impact:** This project will have no impact on the operating budget.

Holmes Run Infiltration & Inflow	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	0	700,000	735,000	6,771,750	810,338	7,350,854	893,000	17,260,942
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	700,000	735,000	6,771,750	810,338	7,350,854	893,000	17,260,942
<b>Capital Performance Measures</b>								
On-time (within projected time period)								
On-budget (within projected range of costs)								
Reduction in Inflow and infiltration in the sanitary sewer systems								

## Mitigation of CSOs

Subsection: Sanitary Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: 40 Years  
 Priority: Essential

**Project Summary:** This project provides for the mitigation of combined sewer overflows. The City's combined storm and sanitary sewer system is comprised of areas east of the railroad corridor (primarily Old Town), which includes an area of approximately 560 acres. Combined sewer outfalls (discharge points for wet weather overflows) are located at the foot of Pendleton and Royal Streets and under Duke Street at Hooff's Run. \$1.95 million in prior year unallocated funds remains to be used for the program required by the existing permit. In addition, a total of \$1.79 million has been planned over six years (FY 2009 through FY 2014). These funds will be used to continue the implementation of permit conditions and solids and floatables control through FY 2014.

**Changes from Prior Year:** Annual funding has been added to the out-year (FY 2014) and compounded by 5 percent per year to account for increases in construction costs.

**Project History:** The City, through its engineering consultant, began studies in the early 1990's to seek alternative approaches to control combined sewer overflows and in 1995 submitted a Long Term Control Plan (LTCP) to the Virginia Department of Environmental Quality (VADEQ). The VADEQ first issued the City a permit for its combined sewer system in 1995. Based on the City's studies, the permit calls for the City to operate and maintain the combined sewer system according to the United States Environmental Protection Agency's (USEPA) technology-based best management practices. The practices are known as the Nine Minimum Controls

# Sewers

## Mitigation of CSOs, continued

(NMCs) and are part of the National CSO Control Policy. The NMCs that the City implemented for controlling CSO discharges comprise the following:

1. Proper operation and regular maintenance programs for the sewer system and the combined sewer overflows;
2. Maximum use of the collection system for storage;
3. Review and modification of the pretreatment program to assure CSO impacts are minimized;
4. Maximization of flow to the publicly owned and treated works (POTW) for treatment;
5. Prohibition of CSOs during dry weather;
6. Control of solid and floatable materials in CSOs;
7. Pollution prevention programs that focus on containment reduction activities;
8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and
9. Monitoring and reporting to effectively characterize CSO impacts and the efficacy of CSO controls.

The City reapplied for its permit during FY 2006 and the permit was re-issued in FY 2007. The new permit requires additional monitoring, modeling, and reporting requirements, including:

- A five year bacteria monitoring for Hunting Creek to assess impacts of CSO discharges from Royal Street and Duke Street (via Hooff's Run) outfalls and additional monitoring at Oronoco Bay.
- Additional monitoring, modeling, reporting, and evaluation throughout the permit term of the discharges from all CSO outfalls.
- More frequent inspections, increased maintenance activities, and more detailed record keeping and performance reporting for all parts of the combined sewer system.

Future permits may require the City to revise its LTCP, which may include partial separation, detention, or end of pipe technologies. An "Area Reduction Plan" study identifies areas within the combined system shed that can be potentially separated as part of new development or re-developments.

**Operating Impact:** This project will have no impact on the operating budget.

Mitigation of CSOs	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	1,950,190	262,500	275,625	289,406	303,876	319,070	335,024	1,785,501
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	1,950,190	262,500	275,625	289,406	303,876	319,070	335,024	1,785,501

# Sewers

## Reconstructions & Extensions of Sanitary Sewers

**Subsection:** Sanitary Sewers  
**Managing Department:** T&ES

**Estimated Useful Life of Improvement:** 40 years  
**Priority:** Essential

**Project Summary:** This project provides for the construction of new sewer mains and the replacement and rehabilitation of old lines as needed. The project also includes funds for the City's share of the cost of sewer extensions required for development. This is an essential infrastructure project.

A total of \$6.86 million is planned over six years (FY 2009-FY 2014) for this project. This includes \$2.17 million for a comprehensive program that will fund the relining of sewers on an as needed basis outside of the City's Inflow and Infiltration (I/I) program areas on an annual basis. In addition, this includes \$1.41 million for repair of existing, aging sanitary sewers City-wide.

Other sanitary sewers in the City have more significant problems and require reconstruction. Sites identified with non-standard existing sanitary sewers that have high maintenance problems slated for reconstruction include the following: the siphon at Hooff's Run; the siphon at Commonwealth Avenue and Glebe Road; and the siphon near Edison Street and Four Mile Run. While these projects have been identified as needing construction, other projects may be added or substituted as identified. \$1.58 million is planned for construction projects for FY 2009 through FY 2014. In addition, \$0.7 million from FY 2009 through FY 2014 is budgeted for the design of sanitary sewer projects.

**Changes from Prior Year:** Annual funding has been compounded by 5 percent per year to account for increases in construction costs and extended to the out-year (FY 2014). In addition, a total of \$1 million (\$500,000 in each year) has been added to FY 2009 and FY 2010 to complete delayed sanitary sewer projects.

**Project History:** In FY 1987, the City initiated an on-going program to reline existing leaking sewers in the City. Recent sewer projects completed include Beverley Drive, Circle Terrace, Walnut Street, Pine Street, Birch Street, MacArthur Road, and Tennessee Avenue. Other projects either under design or under construction include: West Uhler Avenue, Groves Avenue, Forrest Street, Sycamore Street, Hickory Street, Diagonal Road, Timberbranch Drive, and Caton Avenue.

**Operating Impact:** This project will have no impact on the operating budget.

Recon. and Extensions	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	0	1,361,000	1,404,050	949,253	996,715	1,046,551	1,098,878	6,856,447
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	1,361,000	1,404,050	949,253	996,715	1,046,551	1,098,878	6,856,447

## Sewers

### Royal Street Relief Sewer

**Subsection:** Sanitary Sewers

**Estimated Useful Life of Improvement:** 40 years

**Managing Department:** Transportation & Environmental Services

**Priority:** Essential

**Project Summary:** This project, approved in FY 2001, provided for the engineering and construction of relief measures to alleviate flooding at the intersection of Pitt and Gibbon Streets. Portions of the combined sewer in areas constructed in the early 1900's were inadequate to carry the storm water flows connected to them. Final design, with additional drainage improvements for Pitt Street extending to Union Street, was completed in FY 2005. Construction was completed on schedule in 2006.

**Changes from Prior Year:** \$10,000 is budgeted in the out-year (FY 2014) as a placeholder in the event that further capital improvements are required in a future CIP

**Operating Impact:** This project will have no impact on the operating budget.

Royal Street Relief Sewer	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	0	0	0	0	0	0	10,000	10,000
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0	10,000	10,000

### Street Reconstructions Due to Sanitary Sewers

**Subsection:** Sanitary Sewers

**Estimated Useful Life of Improvement:** 25 years

**Managing Department:** T&ES

**Priority:** Essential

**Project Summary:** This project provides funds for reconstruction of streets following small, individual sewer reconstruction projects, such as the recently completed Royal Street relief sewer. Sewer reconstruction projects often result in partial or complete demolition of streets. Streets to be reconstructed include Forrest Street, Hickory Street, West Uhler Avenue, Groves Avenue, and Sycamore Street. A total of \$2.5 million is planned over six years (FY 2009 – FY 2014) for this project.

**Changes from Prior Year:** Annual funding has been compounded by 5 percent per year to account for increases in construction costs and extended to the out-year (FY 2014)

**Project History:** In FY 2007, reconstructions were completed on Caton Avenue and Timberbranch Parkway.

**Operating Impact:** This project will have no impact on the operating budget.

Street Recon. Due to Sanitary Sewers	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	0	367,500	385,875	405,169	425,427	446,699	469,033	2,499,703
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	367,500	385,875	405,169	425,427	446,699	469,033	2,499,703

# Sewers

## Sewer Map Update

Subsection: Sanitary Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: As Updated  
 Priority: Essential

**Project Summary:** This project, approved in FY 2001, provided for the mapping of the City's sanitary and storm sewer systems. Fieldwork has been completed on a comprehensive inventory of the existing subterranean sanitary and storm sewer systems. A GIS layer for City-wide sewer structures has been completed.

**Changes from Prior Year:** \$10,000 is budgeted in the out-year (FY 2014) as a placeholder in the event that further capital improvements are required in a future CIP.

**Project History:** Existing maps were last updated in the 1970's and projects completed since that time are not documented or mapped. Once sanitary sewer and storm water permit regulations, currently being adopted by the U.S. Environmental Protection Agency, are applied to the City, the City will be required to perform much more accurate assessments of the capacity of City sewers and demonstrate compliance with prospective permit requirements. The field inventory located 30 percent more sewer structures than were originally indicated by primary estimates.

**Operating Impact:** This project will have no impact on the operating budget.

Sewer Map Update	Unallocated Balance	FY 2009 Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY2009-FY2014
Funded	0	0	0	0	0	0	10,000	10,000
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0	10,000	10,000

## Sanitary Sewer Capacity Studies

Subsection: Sanitary Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: As Updated  
 Priority: Essential

**Project Summary:** This project provides for an ongoing sanitary sewer capacity study to assess the sanitary sewer's systems ability to support existing flows and ongoing development. This study began in Fall 2007 and is expected to be completed in Winter 2012.

**Changes from Prior Year:** This is a new project, not previously in the CIP. A total of \$1.2 million is planned over three years (\$380,000 in FY 2009; \$399,000 in FY 2010; and \$418,950 in FY 2011) for this project.

**Operating Impact:** This project will have no impact on the operating budget.

Sanitary Sewer Capacity Studies	Unallocated Balance	FY 2009 Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY2009-FY2014
Funded	0	380,000	399,000	418,950	0	0	0	1,197,950
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	380,000	399,000	418,950	0	0	0	1,197,950

## Sewers

### Sanitary Sewer Projects To Be Determined (TBD)

Subsection: Sanitary Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: 40 years  
 Priority: Essential

**Project Summary:** A total of \$3.15 million has been planned to address unforeseen conditions and costs in existing sanitary sewer projects and for any to be planned, to be identified future sanitary sewer projects. These surplus funds may also be reallocated to other years (FY 2012 and FY 2014) where sufficient funding for sanitary sewers has not yet been identified.

**Changes from Prior Year:** Funding amounts in each year have been adjusted to equal the amount of funds for sanitary sewer projects from estimated future revenues dedicated to this purpose. These funds will be used to fund sanitary capital projects.

**Operating Impact:** This project will have no impact on the operating budget

Sanitary Sewer Projects TBD	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	500,000	0	194,804	0	1,571,463	0	1,381,374	3,147,641
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	500,000	0	194,804	0	1,571,463	0	1,381,374	3,147,641

## Sewers

### Sanitary Sewer Line Maintenance Charge:

The sanitary sewer line maintenance charge for FY 2009 remains at \$1.00 per 1,000 gallons of water consumption as part of the Council approved multi-year phased rate increase intended to attain full cost recovery of all sanitary sewer maintenance and construction expenditures. The rate increase began in FY 2004 with an increase from \$0.20 per 1,000 gallons to \$0.40 per 1,000 gallons. The FY 2005 rate was \$0.60 per 1,000 gallons. In FY 2006, the rate was increased to \$1.00 per 1,000 gallons of water, or approximately \$70 per year for a typical household. A higher rate may be needed beyond the \$1.00 rate in future fiscal years if VADEQ mandates new CSO requirements. The revenue from the fees collected will be used for the following:

<b>SANITARY SEWER SOURCES AND USES</b>							
<b>REVENUE SOURCES/2</b>	<b>FY 2008 Approved</b>	<b>FY 2009 Proposed</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>
Usage Fee - Operating	\$5,850,000	\$5,943,353	\$5,943,353	\$5,943,353	\$5,943,353	\$5,943,353	\$5,943,353
Connection Fee - Capital (Budgeted)	\$1,500,000	\$1,545,000	\$1,591,350	\$1,639,091	\$1,688,263	\$1,738,911	\$1,791,078
Use of Fund Balance	\$0	\$144,222	\$0	\$0	\$0	\$0	\$0
Project Funding TBD /3	\$0	\$0	\$0	\$4,748,697	\$0	\$5,033,363	\$0
Sources Subtotal	\$7,350,000	\$7,632,575	\$7,534,703	\$12,331,141	\$7,631,616	\$12,715,627	\$7,734,431
<b>USES</b>							
Taylor Run Infiltration & Inflow	\$0	\$1,000,000	\$0	\$0	\$0	\$0	\$0
Reconstruction and Extension	\$820,000	\$1,361,000	\$1,404,050	\$949,253	\$996,715	\$1,046,551	\$1,098,878
Sewer Map Update	\$0	\$0	\$0	\$0	\$0	\$0	\$10,000
Holmes Run Trunk Sewer	\$1,600,000	\$0	\$0	\$0	\$0	\$0	\$0
Holmes Run Infiltration & Inflow	\$0	\$700,000	\$735,000	\$6,771,750	\$810,338	\$7,350,854	\$893,000
Combined Sewer Mitigation	\$250,000	\$262,500	\$275,625	\$289,406	\$303,877	\$319,070	\$335,024
Royal Street Relief Sewer	\$0	\$0	\$0	\$0	\$0	\$0	\$10,000
Street Reconstructions due to Sanitary Sewers	\$350,000	\$367,500	\$385,875	\$405,169	\$425,427	\$446,699	\$469,033
Sanitary Sewer Capacity Study	\$0	\$380,000	\$399,000	\$418,952			\$0
Separation Project	\$0	\$500,000	\$525,000	\$551,250	\$578,813	\$607,756	\$638,141
Hooff's Run Relocation	\$0	\$60,000	\$630,000	\$0	\$0	\$0	\$0
Sanitary Sewer Projects to be Determined	\$1,511,440	\$0	\$194,804	\$0	\$1,571,463		\$1,381,374
Operating Expenditures /1	\$1,517,000	\$1,677,665	\$1,711,000	\$1,745,000	\$1,780,000	\$1,816,000	\$1,853,000
Debt Service	\$1,301,560	\$1,323,910	\$1,274,349	\$1,200,361	\$1,164,983	\$1,128,697	\$1,045,981
Uses Subtotal	\$7,350,000	\$7,632,575	\$7,534,703	\$12,331,141	\$7,631,616	\$12,715,627	\$7,734,431
<b>ENDING BALANCE</b>	\$0	\$0	\$0	\$0	\$0	\$0	\$0

/1 Includes \$1,136,000 in Personnel costs; and \$381,000 in Non Personnel costs.

/2 Actual revenues may vary.

/3 Project funding to-be-determined (TBD) would likely be funded with utility fee backed general obligation bonds, and then the debt service on the bonds would likely be paid for from the current or an increased sanitary sewer maintenance charge.

# Sewers

## Extension and Replacement of Storm Sewers

Subsection: Storm Sewers                      Estimated Useful Life of Improvement: 25 years  
 Managing Department: T&ES                      Priority: Essential

**Project Summary:** \$1.45 million is planned over six years (FY 2009-FY 2014) for this continuing essential infrastructure maintenance project, used for tasks identified throughout the year and also for scheduled projects. In addition, \$359,500 in prior year unallocated monies remains budgeted. A portion of this budget will be used for the replacement of the 72 inch corrugated metal (CM) pipe at Edsall Road and Cameron Station that has shown signs of potential structural failure and for several other projects related to deteriorating conditions and new developments.

Funds will also be used for a hydraulic study of the storm water shed to determine capacity inadequacies in various locations of the Commonwealth Avenue storm water outfall system. Additionally, this project will fund projects identified on an as needed basis.

**Changes from Prior Year:** Annual funding has been compounded by 5 percent per year to account for increases in construction costs and extended to the out-year (FY 2014)

**Project History:** Recently completed projects include the reconstruction of three culverts at Francis Hammond Parkway.

**Operating Impact:** This project will have no impact on the operating budget.

Storm Sewer Recon. & Exten.	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	359,500	213,150	223,808	234,998	246,748	259,085	272,039	1,449,828
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	359,500	213,150	223,808	234,998	246,748	259,085	272,039	1,449,828

## Key Drive Flood Mitigation

Subsection: Storm Sewers                      Estimated Useful Life of Improvement: 25 years  
 Managing Department: T&ES                      Priority: Very Desirable

**Project Summary:** This project provides for the design and construction of a storm sewer bypass to alleviate drainage problems on Key Drive and Francis Hammond Parkway and to prevent flooding in residential areas with lower elevations. This project is currently under design.

**Changes from Prior Year:** \$10,000 is budgeted in the out-year (FY 2014) as a placeholder in the event that further capital improvements are required in a future CIP.

**Operating Impact:** This project will have no impact on the operating budget.

**Project History:** In June 2007, \$850,000 was allocated for this project. Design is currently underway. Construction is expected to begin in Fall 2008.

Key Drive Flood Mitigation	Unallocated Balance	FY 2009						Total FY2009-FY2014
		Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	
Funded	0	0	0	0	0	0	10,000	10,000
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	0	0	0	0	0	10,000	10,000

## Sewers

### Taylor's Run at Janney's Lane

Subsection: Storm Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: 25 years  
 Priority: Very Desirable

**Project Summary:** This project provides for the replacement of a deteriorating culvert at Taylor Run and Janney's Lane. At the time that it is replaced, the culvert will also be enlarged to alleviate flooding that occurs during major storm events. \$500,000 in unallocated prior-year funds remain for this project.

**Changes from Prior Year:** \$551,250 proposed for FY 2010 remains unfunded due to fiscal constraints.

**Operating Impact:** This project will have no impact on the operating budget.

Taylor's Run at Janney's Lane	Unallocated Balance	FY 2009 Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY2009-FY2014
Funded	500,000	0	0	0	0	0	0	0
Unfunded	0	0	551,250	0	0	0	0	551,250
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	500,000	0	0	0	0	0	0	0

### Municipal Separate Storm Sewer System Permit Program, NPDES Permit

Subsection: Storm Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: 5 years  
 Priority: Essential

**Project Summary:** This project provides for the data collection, reporting activities, public education, outreach, involvement and citizen participation associated with initiating implementation of the programs required by the National Pollution Discharge Elimination System (NPDES) Permit. A total of \$175,000 in prior year unallocated monies remains for this purpose.

**Changes from Prior Year:** There has been no change in funding for this project.

**Project History:** The Federal Water Quality Act of 1987 required that small municipalities obtain storm water discharge permits for their municipal separate storm sewer system (MS4) under Phase II of the National Storm Water Program. The City submitted an application for a MS4 permit to the Virginia Department of Environmental Quality (VDEQ) and received an approved permit effective July 8, 2003. The permit requires that the City develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), protect the water quality and satisfy the appropriate water quality requirements of the Clean Water Act. The permit allows up to five years from the date of the permit issuance for the City to develop and implement the program. The City's Storm Water Management Program will have to be fully developed and implemented by the end of the first permit term in 2008. In December 2007, the City submitted a registration statement to the Virginia Department of Conservation and Recreation for the next permit cycle. The MS4 Permit has numerous requirements including an illicit discharge detection and elimination program and associated concept designs; preliminary concept designs of structural and non-structural floatable controls; and best management practices. Identifying needs and conducting preliminary concept designs for post-construction storm water management will be included.

**Operating Impact:** This project will have no impact on the operating budget.

NPDES	Unallocated Balance	FY 2009 Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY2009-FY2014
Funded	175,000	0	0	0	0	0	0	0
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	175,000	0	0	0	0	0	0	0

# Sewers

## Oronoco Outfall

**Subsection:** Storm Sewers  
**Managing Department:** T&ES

**Estimated Useful Life of Improvement:** 25 years  
**Priority:** Essential

**Project Summary:** \$2.1 million in prior year unallocated monies remains budgeted to address ground contamination at the Potomac River Oronoco Street Outfall caused by coal tar contaminants from the former City (and then Washington Gas) owned Alexandria Gas Works that operated in the 19<sup>th</sup> and 20<sup>th</sup> centuries. The City has been accepted into the Virginia Voluntary Remediation Program for the site with the Virginia Department of Environmental Quality (VDEQ). The City has retained an environmental consultant to study the extent of contamination and to develop and implement a remediation program to clean up the site. Washington Gas is working cooperatively with the City on this matter.

Work involving relining the storm sewer was completed in FY 2007. As a result of the success of the relining, the City is evaluating an alternative in-situ biological remediation method. The City initiated a pilot study of this in-situ method in FY 2008 and the results should be available in FY 2009. The original remediation method of designing a hydraulic control and treatment system is still under consideration. A final decision on the remedial method and its initial design are expected in FY 2009/FY 2010. At the conclusion of the design phase of the chosen system, construction costs will be more clearly defined, and funding needs will be more clearly identified. Once the system is functioning effectively, the City intends to tread or dredge and remove the most contaminated sediment near the outfall. The City received additional funding from a settlement with Washington Gas Light Company, totaling \$926,505, which has been used to fund clean up, monitoring, maintenance and operation costs.

**Changes from Prior Year:** There has been no change in funding for this project.

**Project History:** The preliminary site investigation was completed in FY 2001. The next step is to complete a Site Characterization/Risk Assessment and Remedial Alternative Screening Report. The additional sampling needed for the risk analysis and remedial screening has been completed. The City performed extensive air monitoring in FY 2003 and FY 2004 and initiated short-term corrective actions in FY 2004. The final Site Characterization/Risk Assessment and Remedial Alternative Screening Report was submitted to VDEQ in FY 2004 and VDEQ reviewed and accepted the report. In FY 2006, VDEQ requested additional data be collected, which was completed in FY 2007. With VDEQ input, the City has developed a Corrective Action Plan (CAP) and is continuing its community outreach efforts. Implementation of the CAP began in FY 2004 with the installation of the free product recovery system.

**Operating Impact:** If the installation of the hydraulic control and treatment system is the selected remedial action, funds to maintain and operate that system will be needed beginning as early as FY 2010. Estimated costs equal \$175,000 per year. If the alternative in-situ method is selected, annual maintenance costs are expected to be lower. A better estimate of annual operating costs of the in-situ method will be determined if that system is chosen and implemented.

	Unallocated	FY 2009						Total
Oronoco Outfall	Balance	Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY2009-FY2014
Funded	2,127,670	0	0	0	0	0	0	0
Less Revenues	617,670	0	0	0	0	0	0	0
Net City Share	1,510,000	0	0	0	0	0	0	0

# Sewers

## Storm Sewer Capacity Analysis

Subsection: Storm Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: As Updated  
 Priority: Desirable

**Project Summary:** This project will provide for a multi-year City-wide storm sewer analysis to determine the stormwater system's capacity. Field verification and metering to verify computations will be part of this project, which will be completed over a four-year timeframe. This study complements the Phase 1 work started in FY 2007 to study the feasibility of implementing a stormwater utility and determining the methodology for setting stormwater rates. A total of \$1.6 million is planned over two years (\$787,500 in FY 2009 and \$826,875 in FY 2010) for this project.

**Changes from Prior Year:** Funding has been compounded by 5 percent to account for increases in construction costs. \$868,219 proposed in FY 2011 remains unfunded due to fiscal constraints.

**Project History:** This study is budgeted as a response to several large magnitude storms in 2003 and 2006 that caused flooding in low lying areas of the City.

**Operating Impact:** This project will have no impact on the operating budget.

Storm Sewer Capacity Analysis	Unallocated Balance	FY 2009 Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY2009-FY2014
Funded	0	787,500	826,875	0	0	0	0	1,614,375
Unfunded	0	0	0	868,219	0	0	0	868,219
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	787,500	826,875	0	0	0	0	1,614,375

## Braddock Rd. and West St. Storm Sewer Drainage Improvements

Subsection: Storm Sewers  
 Managing Department: T&ES

Estimated Useful Life of Improvement: 40 years  
 Priority: Desirable

**Project Summary:** This project addresses flooding at the intersection of Braddock Road and West Street, adjacent to the Braddock Road Metro Station. The adjacent properties and streets drain to the intersection, which is a low point (sump condition). Stormwater is collected at the low points and conveyed beneath the rail corridor to the Hooff's Run storm culvert adjacent to Commonwealth Avenue. The conveyance system is inadequate to convey the stormwater in a timely fashion, resulting in flooding of the intersection. The City hired a consultant to investigate various alternatives to alleviate the problem. The \$200,000 budgeted in FY 2009 is for further studies.

**Changes from Prior Year:** This is a new project, not previously in the CIP. \$200,000 is budgeted for further studies in FY 2009.

**Project History:** Based on a drainage study completed in FY 2004, the storm sewers at the intersection of Braddock Road and West Street were found to be inadequate to relieve the frequent flooding of this critical rail crossing. An engineering evaluation was done with a feasibility study listing engineering alternatives due in the winter of 2007/2008. This project is being coordinated with the Braddock Road Small Area Plan.

**Operating Impact:** This project will have no impact on the operating budget.

Braddock and West	Unallocated Balance	FY 2009 Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY2009-FY2014
Funded	0	200,000	TBD	TBD	TBD	TBD	TBD	200,000
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	0	200,000	TBD	TBD	TBD	TBD	TBD	200,000

# Sewers

## Storm/Combined Sewer Assessment and Renovation

Subsection: Storm Sewers

Estimated Useful Life of Improvement: 40 years

Managing Department: T&ES

Priority: Desirable

**Project Summary:** This project provides for the City-wide condition assessment of the existing 14 miles of combined sewers and 185 miles of storm sewers. The field evaluation will include cleaning and CCTV inspection of sewers. The field work will be performed by dividing the City into sewer sheds and proceeding through each section sequentially. Structurally deficient sewers will be identified and the results of the field work will be evaluated to develop remediation projects, which are expected to include the relining of sewers and manhole repairs.

**Changes from Prior Year:** This is a new project, not previously in the CIP. A total of \$2.9 million is planned over four years (\$200,000 in FY 2010 and \$900,000 in FY 2010-FY 2012) for this project. In addition, \$600,000 in unallocated monies from Storm Sewer Reconstructions was reprogrammed for this project. \$900,000 proposed for FY 2011 remains unfunded due to budget constraints.

**Operating Impact:** This project will have no impact on the operating budget.

Storm and Combined Syst. Assess. & Remed.	Unallocated Balance	FY 2009 Proposed	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY2009-FY2014
Funded	600,000	0	200,000	0	900,000	900,000	900,000	2,900,000
<i>Unfunded</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>900,000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>900,000</i>
Less Revenues	0	0	0	0	0	0	0	0
Net City Share	<b>600,000</b>	<b>0</b>	<b>200,000</b>	<b>0</b>	<b>900,000</b>	<b>900,000</b>	<b>900,000</b>	<b>2,900,000</b>

## Sewers

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