

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
 APPLICATION FOR STORMWATER LOCAL ASSISTANCE FUND (SLAF)
 STORMWATER CAPITAL PROJECTS

SECTION A - ORGANIZATIONAL DATA

Name of Applicant:

Applicant Address:

Contact Person:

Phone: Email:

Name of Engineer:

Engineer Address:

Contact Person:

Phone: Email:

SECTION B - PROPOSED FUNDING

PROJECT FUNDING

a) Amount of SLAF Grant Funds Requested

| | Source of Match Funds | Amount | CHECK BOX IF COMMITTED |
|---|---|---------|------------------------|
| 1 | City of Richmond Department of Public Utilities | 635,000 | |
| 2 | | | |
| 3 | | | |

b) Total Other Funding Available (1 + 2 + 3 ...) **

c) Total Project Cost (a + b)

*SLAF Grants provide up to 50% of project costs. Applicant must identify anticipated source(s) and amount(s) of match funds.

**This amount must be at least equal to the amount of Grant Funds being requested.

SECTION C - WATER QUALITY DATA

Location of Project Latitude Longitude

(Latitude and Longitude of project is a required entry on this application. The points should be the nearest approximation of the center of your project. Please identify them in decimal degrees.)

Name of Stream / Waterbody impacted by stormwater runoff being addressed by the project

River Basin for Receiving Stream / Waterbody

SECTION D -BRIEF PROJECT DESCRIPTION AND STATEMENT OF NEED

Please include a description of project including: type of project (e.g. extended detention pond retrofit), size of area treated (acres), TMDL or impaired water the project addresses, if the project is relevant to a TMDL Implementation Plan, and other relevant information pertaining to the project. Describe the need for the proposed project. Needs should be in areas of restoring, protecting or preventing pollution in State waters.
(attach additional pages if necessary)

The proposed project consists of the restoration of approximately 2,200 linear feet of Reedy Creek and a tributary to Reedy Creek on land owned by the City of Richmond Department of Parks, Recreation and Community Facilities. The potential for creation of constructed wetlands is also proposed in conjunction with the stream restoration. Approximately 2,310 acres drain to this section of Reedy Creek and the tributary, which ultimately flow into the James River. The project addresses the Chesapeake Bay TMDL. Using the most recent pollutant removal rate, it was estimated that approximately 150 lbs. of phosphorus removal can be achieved upon completion of the stream restoration. Restoration of this section of stream will re-connect the section of Reedy Creek to the floodplain and increase pollutant removal. The downstream portion of Reedy Creek and the James River will also benefit in terms of water quality from this proposed project.

SECTION E - POLLUTION REDUCTION

The calculated Total Pounds (Per Year) of Total Phosphorous reduced from stormwater as a result of this project

= pounds per year

The established methodology for calculating the TP reduction is outlined in Attachment A of the SLAF Guidelines. To verify calculations for pollution reduction, the following information is required with the application:

- 1) Print out the Site Data tab of the Virginia Runoff Reduction Method Spreadsheet showing the data entered and resultant TP load. Supporting documentation with rationale for parameter selection must be provided to demonstrate that the parameter estimates are valid for the project.
- 2) Provide Text to indicate which pollution reduction calculation methodology was selected, why it is appropriate for the project, the calculated phosphorus load reduction, any assumptions with supporting documentation, and parameters selected with rationale for selection (must be provided to demonstrate that the estimates are valid for the project). All supporting calculations must be provided.
- 3) If the project is a retrofit of an existing BMP provide photographs showing the BMP before the upgrade. Provide text to describe the upgrade / enhancement and the incremental phosphorus load reduction achieved utilizing the SLAF guideline references, with supporting documentation. Rationale and calculated estimates for BMP's current (former) efficiency must be provided.

SECTION F - READINESS-TO-PROCEED

PROJECT STATUS

| | Yes | No | N/A |
|---|-----|----|-----|
| Is the project included in Stormwater or Watershed Management Plan? (If Yes, attach documentation to application) | | ✓ | |
| Is the project identified in current year Capital Improvement Plan or Annual Budget? (If Yes, attach documentation to application) | | ✓ | |
| Is acquisition of land necessary to complete project? | | ✓ | |
| Has the land necessary for the project already been acquired? (If Yes, attach documentation to application) | | | ✓ |
| Has an engineer been selected for project design? (If Yes, provide name) | ✓ | | |

ANTICIPATED SCHEDULE

| | <i>Schedule Item Description</i> | <i>Date</i> |
|----|---|--------------|
| a. | Notice to Proceed on Design | January 2015 |
| b. | Completion of Plans/Specifications | April 2015 |
| c. | Plans and Specs Approved | May 2015 |
| d. | Advertise for Bids | July 2015 |
| e. | Bid Opening | August 2015 |
| f. | Award Contracts | October 2015 |
| g. | Estimated Construction Time (expressed in months) | 8 |

SECTION G -PROJECT BUDGET INFORMATION

| | |
|--------------------------------------|-------------------|
| Legal / Administration | \$0.00 |
| Land, Right-of-Way | \$0.00 |
| Architectural Engineering Basic Fees | 120,000 |
| Project Inspection Fees | \$50000.00 |
| Other (Explain) | \$0.00 |
| Stormwater BMP Construction | 1,000,000 |
| Contingencies | 100,000 |
| TOTAL* | 1,270,000* |

*This amount should be the exact same as the amount in Item c) Total Project Cost, Section B, Page 1.

SECTION H

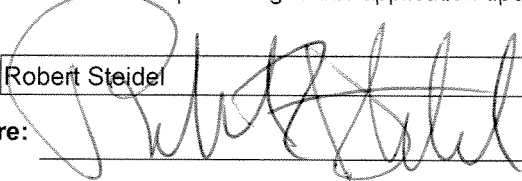
| | Yes | No | N/A |
|--|-----|----|-----|
| Has applicant adopted a dedicated source of revenue to implement a stormwater control program in accordance with §15.2-2114? (If so, attach documentation) | ✓ | | |
| Is the applicant subject to an MS4 discharge permit in accordance with §62.1-44.5? | ✓ | | |
| Does the project address requirements of your MS4 permit? If yes, explain: | ✓ | | |
| <p>The City of Richmond MS4 permit requires BMP retrofits to meet Chesapeake Bay Total Maximum Daily Load (TMDL) removal requirements. The proposed project will restore approximately 2,200 linear feet of Reedy Creek and a tributary to Reedy Creek, to address the Chesapeake Bay TMDL special requirements of the MS4 permit.</p> | | | |

Name of MS4 Permittee if different from Applicant City of Richmond

SECTION I - ASSURANCES AND CERTIFICATIONS

The undersigned representative of the applicant certifies that the information contained herein and the attached statements and exhibits are true, correct and complete to the best of their knowledge and belief. The undersigned also agrees to clarify or supplement information pertaining to this application upon request.

Name: Robert Steidel Title: DPU Director

Signature:  Date: October 24, 2014

SECTION J - ATTACHMENTS

Include all required attachments appropriate for your application. The following is a list of potential attachments:

- 1) Documentation supporting the Pollution Reduction methodology, calculations, text, etc. as described in Section E.
- 2) Excerpt from Stormwater or Watershed Management Plan. (Section F)
- 3) Excerpt from Capital Improvement Plan or Annual Budget. (Section F)
- 4) Documentation of land acquisition. (Section F)
- 5) Documentation of Dedicated Revenue Source for Stormwater Management Program. (Section H)

METHODOLOGY FOR CALCULATING TOTAL PHOSPHORUS REDUCTION

REEDY CREEK STREAM RESTORATION PROJECT

For the purpose of determining stormwater pollution reduction, Total Phosphorus (TP) is the representative pollutant that will serve as a surrogate for other pollutants of concern.

The initial TP loads for the approximately 2,310 acre watershed draining to Reedy Creek upstream of the proposed stream restoration project site (see Attachment A, watershed drainage area map) was calculated utilizing the Site Tab of the Virginia Runoff Reduction Method Spreadsheet (Version 2.8, June 2014; 2013 BMP Stds & Specs). The initial (current conditions) calculated TP load is approximately 2,536 lbs/yr (see Attachment B).

As part of the stream restoration efforts, the Forested land cover project site is planned to be bush hogged to allow access for construction equipment; following construction activities, the soils will be restored and the entire project site will be reforested to return the site to a natural vegetated state.

The Reedy Creek Stream Restoration Project is an urban stream restoration project that will be based on natural channel design practices to emphasize contribution to stream functional improvements, while reducing stormwater pollutants in an urban watershed of more than 20% impervious cover.

The TP load reduction (in pounds) as a result of this project was determined per the SLAF Program Guidelines, Attachment A List of BMPs. On this list, Urban Stream Restoration is listed as Chesapeake Bay Program BMP Practice 18. For this BMP practice, the annual TP Mass Load Removal is calculated in pounds of TP removal per linear foot of stream restoration. The SLAF Program Guidelines indicates the annual TP Mass Load Removal is to be calculated using a removal rate of 0.068 lbs/linear feet restored.

The identified stream reach of Reedy Creek is approximately 2,200 linear feet of impaired stream channel. The following annual total phosphorus load reduction is based on the SLAF Program Guidelines indicated TP Mass Load Removal and assumed length of existing stream channel:

$$(2,200 \text{ linear feet}) \times (0.068 \text{ lbs./linear foot}) = 150 \text{ lbs/yr}$$

The revised interim rate for TSS Reduction is 44.88 lbs/ft/yr as given by the recommendations of the expert panel to define removal rates for individual stream restoration projects (Sep 8, 2014 revision).

$$(2,200 \text{ linear feet}) \times (44.88 \text{ lbs./linear foot}) = 98,736 \text{ lbs/yr}$$

Virginia Runoff Reduction Method ReDevelopment Worksheet - v2.8 - June 2014

To be used w/ DRAFT 2013 BMP Standards and Specifications

Site Data

Project Name: Reedy Creek Stream Restoration - Watershed Loading

Date: 10/20/14

data input cells
calculation cells
constant values

Post-ReDevelopment Project & Land Cover Information

Total Disturbed Acreage

2.52

Constants

| | | | |
|--|------|---------------------|------|
| Annual Rainfall (inches) | 45 | | |
| Target Rainfall Event (inches) | 1.00 | | |
| Phosphorus EMC (mg/L) | 0.26 | Nitrogen EMC (mg/L) | 1.86 |
| Target Phosphorus Target Load (lb/acre/yr) | 0.41 | | |
| Pj | 0.90 | | |

Pre-ReDevelopment Land Cover (acres)

| | A Soils | B Soils | C Soils | D Soils | Totals |
|--|---------|---------|---------|---------|---------|
| Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land | 0.00 | 50.84 | 84.37 | 260.98 | 395.99 |
| Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed | 0.00 | 109.77 | 491.31 | 403.75 | 1004.83 |
| Impervious Cover (acres) | 0.00 | 85.87 | 280.92 | 541.56 | 908.35 |
| | | | | Total | 2309.17 |

Post-ReDevelopment Land Cover (acres)

| | A Soils | B Soils | C Soils | D Soils | Totals |
|--|---------|---------|---------|---------|---------|
| Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land | 0.00 | 50.84 | 84.37 | 260.98 | 395.99 |
| Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed | 0.00 | 109.77 | 491.31 | 403.75 | 1004.83 |
| Impervious Cover (acres) | 0.00 | 85.87 | 280.92 | 541.56 | 908.35 |
| | | | | Total | 2309.17 |

Area Check

| | | | |
|------|------|------|------|
| Okay | Okay | Okay | Okay |
|------|------|------|------|

Rv Coefficients

| | A Soils | B Soils | C Soils | D Soils |
|-------------------|---------|---------|---------|---------|
| Forest/Open Space | 0.02 | 0.03 | 0.04 | 0.05 |
| Managed Turf | 0.15 | 0.20 | 0.22 | 0.25 |
| Impervious Cover | 0.95 | 0.95 | 0.95 | 0.95 |

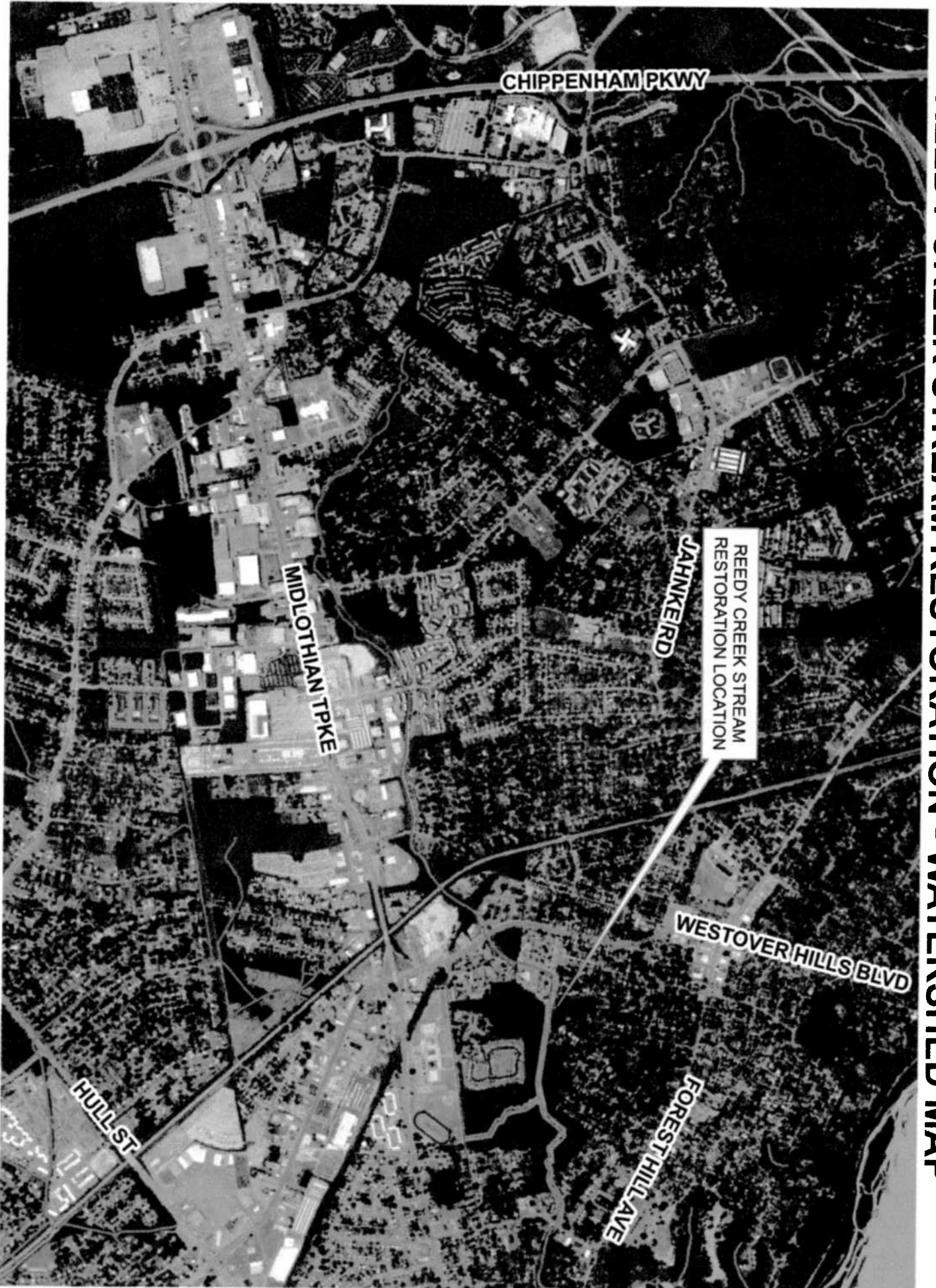
Land Cover Summary

| | Listed | Adjusted ¹ | Land Cover Summary Post-ReDevelopment | Land Cover Summary Post-ReDevelopment New Impervious | |
|---------------------------------|---------|-----------------------|---------------------------------------|--|------------|
| Forest/Open Space Cover (acres) | 395.99 | 395.99 | Forest/Open Space Cover (acres) | 395.99 | |
| Composite Rv(forest) | 0.05 | 0.05 | Composite Rv(forest) | 0.05 | |
| % Forest | 17% | 17% | % Forest | 17% | |
| Managed Turf Cover (acres) | 1004.83 | 1004.83 | Managed Turf Cover (acres) | 1004.83 | |
| Composite Rv(turf) | 0.23 | 0.23 | Composite Rv(turf) | 0.23 | |
| % Managed Turf | 44% | 44% | % Managed Turf | 44% | |
| Impervious Cover (acres) | 908.35 | 908.35 | ReDev. Impervious Cover (acres) | 908.35 | |
| Rv(impervious) | 0.95 | 0.95 | Rv(impervious) | 0.95 | |
| % Impervious | 39% | 39% | % Impervious | 39% | |
| Total Site Area (acres) | 2309.17 | 2309.17 | Total ReDev. Site Area (acres) | 2309.17 | |
| Site Rv | 0.48 | 0.48 | ReDev. Site Rv | 0.48 | |
| | | | | New Impervious Cover (acres) | 0.00 |
| | | | | Rv(impervious) | 0.95 |
| | | | | % Impervious | Check Area |
| | | | | Total New Dev. Site Area (acres) | 0.00 |
| | | | | New Dev. Site Rv | 0.95 |

| | Pre-Development | Adjusted ¹ | Post-ReDevelopment | Post-Development |
|--|-----------------|-----------------------|--|------------------|
| Pre-Development Treatment Volume (acre-ft) | 92,654.6 | 92,654.6 | Post-ReDevelopment Treatment Volume (acre-ft) | 92,654.6 |
| Post-Development Treatment Volume (acre-ft) | | | | 0.0000 |
| Pre-Development Treatment Volume (cubic feet) | 4,036,034 | 4,036,034 | Post-ReDevelopment Treatment Volume (cubic feet) | 4,036,034 |
| Post-Development Treatment Volume (cubic feet) | | | | 0 |
| Pre-Development Load (TP) (lb/yr) | 2535.83 | 2535.83 | Post-ReDevelopment Load (TP) (lb/yr) | 2535.83 |
| Post-Development Load (TP) (lb/yr) | | | | 0.00 |

| | | | | |
|---|---|------------------------------------|--|------|
| ¹ Adjusted Land Cover Summary reflects the pre redevelopment land cover minus the previous land cover (forest/open space or managed turf) acreage proposed for new impervious cover. The adjusted total acreage is consistent with the Post Redevelopment acreage (minus the acreage of new impervious cover). The load reduction requirement for the new impervious cover to meet the new development load limit is computed in Column I. | Maximum % Reduction Required Below Pre-ReDevelopment Load | 20% | | |
| | TP Load Reduction Required for Redeveloped Area (lb/yr) | 507.17 | TP Load Reduction Required for New Impervious Area (lb/yr) | 0.00 |
| | Total Load Reduction Required (lb/yr) | 507.17 | | |
| Pre-Development Load (TN) (lb/yr) | 18140.84 | Post-Development Load (TN) (lb/yr) | 18140.84 | |

REEDY CREEK STREAM RESTORATION - WATERSHED MAP



REEDY CREEK STREAM
RESTORATION LOCATION

CHIPPENHAM PKWY

MIDLOTHIAN TPKE

JAHNKE RD

WESTOVER HILLS BLVD

FOREST HILL AVE

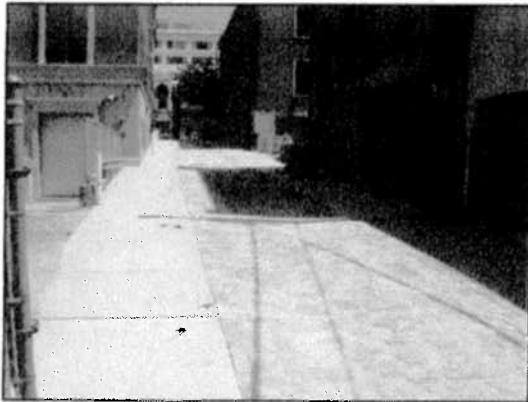
HULL ST

0 375 750 1,500 2,250 3,000 Feet

STORMWATER FACILITIES IMPROVEMENTS

CATEGORY: UTILITIES
 FOCUS AREA: SNE
 LOCATION: CITYWIDE
 EST. COMPLETION DATE: ONGOING

DEPARTMENT: PUBLIC UTILITIES
 SERVICE: STORMWATER MANAGEMENT
 FUND: 0806
 AWARD #: 500084,500085,500086



DESCRIPTION & SCOPE: This project provides for Citywide rehabilitation and upgrade of stormwater sewers and associated facilities, inspection and replacement programs, miscellaneous stormwater extensions, and emergency replacements.

PURPOSE: To complete the necessary replacement of and upgrades to the stormwater facilities.

HISTORY & KEY MILESTONES: This project has been funded to rehabilitate and/or replace drainage structures, ditches and culverts throughout the city. Development and use of "Green" technology has proven to be a

positive step toward the reduction of untreated urban runoff into the City's rivers and streams. A proactive approach is being taken to meet federal, state and local regulations.

FINANCIAL SUMMARY

| | FY 2014 | FY 2015 | FY 2016 | FY 2017 | FY 2018 | FY 2019 | TOTAL FY 2015-2019 |
|------------------------|-----------|-------------|------------|------------|------------|------------|--------------------|
| FY 2015 ADOPTED | N/A | 5,170,000 | 13,900,000 | 13,900,000 | 13,900,000 | 13,900,000 | 60,770,000 |
| FY 2014 ADOPTED | 7,550,000 | 13,900,000 | 13,900,000 | 13,900,000 | 13,900,000 | N/A | 55,600,000 |
| CHANGE | N/A | (8,730,000) | - | - | - | 13,900,000 | 5,170,000 |

OPERATING IMPACT THE FUNDS REQUESTED IN THIS PROJECT ARE NECESSARY TO REDUCE MAINTENANCE COSTS AND ORDINARILY KEEP RATE INCREASES TO A MINIMUM.

FY 2015 BUDGET DISTRIBUTION

| | AMOUNT |
|------------------------------|------------------|
| TOTAL PROJECT COST | ONGOING |
| PRIOR YEAR FUNDING | 24,023,665 |
| PRIOR YEAR AVAILABLE | 6,761,512 |
| FY 2015 ADOPTED | 5,170,000 |
| FY 2016 – FY 2018 PLANNED | 55,600,000 |
| REMAINING NEED | ONGOING |
| PLANNING/DESIGN | - |
| ACQUISITION/RELOCATION | - |
| SITE IMPROVEMENTS | - |
| CONSTRUCTION | 5,170,000 |
| FURNITURE/FIXTURES/EQUIPMENT | - |
| OTHER | - |
| TOTAL | 5,170,000 |

FUNDING SOURCE(S): CASH, UTILITY BONDS, GRANTS

NOTES: ON MAY 28, 2013 CITY COUNCIL ADOPTED THE FY2014-2018 CIP WHICH INCLUDED AN AMENDMENT TO INCREASE THE STORMWATER UTILITY FY2014 APPROPRIATION AMOUNT BY \$50,000.

Section J – Supporting Documentation

Dedicated Revenue Source

The City’s Stormwater Utility was implemented in 2009 to ensure that Richmond’s stormwater management program receives adequate financial support independent of the City’s tax rate and general fund. These funds are used to implement and maintain a comprehensive stormwater quality management plan as required by the US EPA and Virginia DEQ.

The Utility fees cover the City’s MS4 and the surface drainage of the combined sewer system. The Utility has an annual budget of approximately \$7.6 million used to maintain 180 miles of separate stormwater drainage pipes, 22,000 catch basins, 600 miles of ditches, and 50 public BMPs. The Utility also funds Stormwater Capital Improvement Projects.

- All owners of developed properties are charged a fee for service.
- Bills are sent out on a monthly basis and included with water and wastewater fees.
- Residential rates are shown in the table below:

| Impervious Surface Area | Monthly Fee |
|--------------------------------|-------------|
| 1. Up to 1000 sq ft | \$2.08 |
| 2. Between 1001 and 2399 sq ft | \$3.75 |
| 3. Greater than 2400 sq ft | \$5.83 |

- Non-residential rates are calculated as follows:

First, the number of Equivalent Residential Units (ERU) is calculated using the equation:

$$1 \text{ ERU} = 1,425 \text{ sq ft.}$$

A facility having 15,000 sq ft of impervious area would have $15,000 \div 1,425 = 10.5$ ERUs.

To determine the fee, multiply the ERU by \$3.75.

$$10.5 \text{ ERU} \times \$3.75 = \$39.38 \text{ per month.}$$