



Stormwater Program Advisory Committee Report Draft February 10, 2014

SUMMARY REPORT

On July 9, 2013, the Roanoke County Board of Supervisors (BOS) passed a resolution establishing the Roanoke County Stormwater Advisory Committee (RCSWAC). The objectives of the RCSWAC were to consider existing County services in relationship to unfunded state and federal mandated stormwater requirements and existing needs; and to develop recommendations on the following:

- Stormwater management priorities;
- Appropriate and affordable levels of service;
- Level of interest in public participation in stormwater management program activities;
- Preliminary stormwater management needs assessments;
- Preliminary regulations and policies; and,
- Preliminary financial requirements and funding mechanisms

The RCSWAC committee members were appointed by the Board of Supervisors (BOS) and included representatives of key stakeholders from across a broad spectrum of community interests, including:

- Residents, civic leagues, homeowner associations;
- Institutional and tax exempt entities, including colleges and churches;
- Business community, including residential, commercial and industrial property owners, malls and business groups; and,
- Special interest groups that represent economic development, environmental and outdoor recreation interests.

At a meeting on August 27, 2013, the BOS appointed 21 members of the RCSWAC (a list of committee members is attached). The RCSWAC began meeting in September 2013. The Town of Vinton also participated in the stormwater program discussions because of the shared services between the Town and County stormwater programs. The County provides plan review and erosion and sediment control inspections for the Town.

Key Findings and Recommendations of the Stormwater Advisory Committee

A. Drivers

The committee agreed upon three primary drivers for evaluating the County and Town's stormwater management programs.

The three key drivers are:



1. **Compliance with Increasing Regulation** – Stormwater discharges from Roanoke County and the Town of Vinton are regulated under the Virginia Stormwater Management Act and the Federal Clean Water Act as point source discharges. The County and Town’s Municipal Separate Storm Sewer System (MS4) permits (reissued in July 2013) have more specific program metrics and reporting requirements than previous permits. The MS4 Permit requires more training for County/Town employees and additional implementation and tracking of activities such as: public education and outreach to targeted audiences, nutrient management on County/Town properties and pollution prevention at County/Town facilities. New Virginia Stormwater Management Regulations (to be effective July 1, 2014) and the need to develop and implement Total Maximum Daily Load (TMDL) action plans as a requirement of the MS4 permit are anticipated to require a significant increase in cost for local stormwater facility retrofits and inspection and maintenance activities. The revised stormwater management regulations will also require increased plan review, and inspection and enforcement services, primarily to support administration of the Virginia Stormwater Management Program (VSMP) permit for Construction Activities.
2. **Managing Aging Infrastructure** – The County has over 200 miles of public stormwater conveyance systems that require management. The County has two storm drainage crews that perform approximately 4 major stormwater projects and 25 emergency repairs on average annually. There are no stormwater projects in the County’s Capital Improvement Plan and system repairs are addressed on a complaint driven basis. The most common problems are related to erosion, pipe separation and system capacity. There is a significant backlog of storm drainage projects with an estimated cost of \$3.5 million and this backlog of projects grows by 10-15% annually. There are also issues related to aging equipment, stream erosion and stormwater management facility maintenance.
3. **Quality of Life and Economic Growth** - While RCSWAC members supported the resource conservation goal expressed in Chapter 5 of the County’s Comprehensive Plan, they expressed the need to balance environmental and stormwater needs with the goal of maintaining a thriving and growing economy in Roanoke County and the Town of Vinton. The stormwater program should be cost effective and allow the County and Town to remain economically competitive.

B. Program Priorities

The committee participated in two prioritization exercises to assess stormwater program priorities. In general, the RCSWAC reached consensus that the stormwater program should consist of basic compliance activities for the following regulatory program areas and additional resources should be dedicated only as needed to maintain compliance:

- Public Education & Outreach
- TMDL Action Plans
- VSMP Permit Administration & Construction Inspection
- Illicit Discharge Detection & Elimination
- Stormwater Pollution Prevention Plans
- Staff Training & Nutrient Management Plans

The RCSWAC reached general agreement that the following six program areas should be priorities for the County and the Town and that more resources should be dedicated to address existing needs:



1. **Storm Sewer Maintenance** - System maintenance is currently conducted on a complaint basis rather than systematically planning for the rehabilitation of the system based on age and condition. The RCSWAC supported budgeting annually for system assessment and repair/replacement. This program would provide for planned, on-going routine maintenance of the storm sewer system.
2. **Mapping/GIS (Information Technology)** – The County’s Department of Community Development does not have staff to routinely update stormwater mapping, track inspection and enforcement data, maintain records, and to perform analyses of watershed pollutant loadings based on land use or impervious area mapping for state reporting. The RCSWAC supported adding a position to update, maintain and analyze stormwater mapping data.
3. **Equipment Replacement** - Much of the County’s existing equipment for drainage system maintenance has exceeded its planned life expectancy. The County currently does not amortize the cost to replace this equipment; rather the County must pay the full cost all at once for each new purchase. The RCSWAC supported amortizing the cost for equipment to fund replacement over 10 years.
4. **Stormwater Project Backlog** - The County has a significant backlog of drainage repair projects that have been identified (approximately \$3.5 million); and the backlog is growing by 10% - 15% per year. The RCSWAC supported updating the County’s stormwater drainage plan to prioritize projects and to fund two additional crews (6 full-time employees and equipment, or equivalent funding for private sector contractors) to address the current and growing drainage project backlog.
5. **Stream Maintenance** - The County conducts very limited maintenance of streams within the County right-of-way, in response to complaints. The RCSWAC supported the development of a comprehensive watershed management plan to assess overall stream conditions and identify and prioritize restoration projects throughout the County. These projects should also support TMDL (water quality) compliance for impaired streams in the County.
6. **Best Management Practice (BMP) Inspection & Maintenance** – The MS4 permit requires that the County and Town inspect all stormwater BMP facilities in their jurisdictions and ensure that they are properly maintained. There are many private facilities in the County that are not being properly maintained by private owners and homeowners associations (HOAs) and enforcement of maintenance, by HOAs, has proven extremely difficult. The RCSWAC agreed that additional staff resources are needed for enforcement and inspection. There was also general support for implementing a service district which HOAs could voluntarily join to have the County assume facility maintenance. The County would impose a service district fee that would generate revenue sufficient to make the program cost-neutral for the County.

C. Recommended Program Enhancements

Following discussions around various levels of service for each of the key elements of the stormwater program, the RCSWAC reached general consensus in support of services to address current and projected stormwater needs as detailed in Table 1. The new program increases overall spending in stormwater programs from approximately \$1.7M currently to approximately \$3.7M in



Year 5 of the program. The program will be phased in over a five year period. This spending would include the funding for new positions as well as contracted support services to implement this proposed program. The table below summarizes proposed new program components and funding levels for each of the first five years of the program. One of the options being considered is to fund the entire program (current and new costs) by a stormwater user fee. If current program costs are included in the fee, the RCSWAC recommends that the general fund should be reduced to reflect the transfer of general funds to the stormwater user fee. (Note: the dollars on this table have not been adjusted for inflation.) All costs are preliminary and are subject to adjustment during subsequent study.

Table 1: Proposed New Stormwater Program Services

Program Area – Additional Program Costs	Year 1	Year 2	Year 3	Year 4	Year 5
Storm Sewer Maintenance	250,000	350,000	500,000	500,000	500,000
Mapping/GIS (Information Technology)	70,000	70,000	70,000	70,000	70,000
Equipment Replacement	120,000	120,000	120,000	120,000	120,000
Stormwater Project Backlog	250,000	250,000	500,000	500,000	500,000
Public Education and Outreach	21,250	21,250	21,250	21,250	21,250
TMDL Action Plans	140,000	200,000	250,000	300,000	350,000
Stream Maintenance	50,000	50,000	100,000	150,000	150,000
BMP Inspection and Maintenance	115,000	175,000	235,000	202,500	202,500
Illicit Discharge Detection & Elimination	-	-	-	-	-
Stormwater Regulations – VSMP Permit Administration and Construction Inspection	-	-	-	-	-
Stormwater Pollution Prevention Plans	14,000	14,000	7,000	5,000	5,000
Staff Training/Nutrient Management Plans	13,500	13,500	10,000	16,500	13,000
Total Draft Program – Additional Costs	1,043,750	1,263,750	1,813,250	1,885,250	1,931,750
Current Program Costs	1,741,041	1,741,041	1,741,041	1,741,041	1,741,041
Total Draft Program	2,784,791	3,004,791	3,554,291	3,626,291	3,672,791



D. Rate Structure and Rate Recommendations

The Committee discussed the following options for funding the recommended program:

- **General Fund:** Distributes cost primarily based on property value (each penny on the real estate tax generates approximately \$780,000). The key considerations are:
 - Tax-exempt properties do not pay.
 - No relationship between need for program and fees paid.
 - Funds are not legally segregated from other uses.
 - Does not provide credit for on-site stormwater facilities.
 - Less stable – annually competes with other budget items.
 - Least complicated approach.
- **Service District Fee:** Distributes cost based on property value and generates the same revenue as the real property tax. Key considerations include:
 - Tax-exempt properties do not pay.
 - No relationship between need for program and fees paid.
 - Funds are legally segregated from other uses.
 - Does not provide credit for on-site stormwater facilities.
 - Allows for greater program stability.
 - Relatively simple approach – requires establishment of service district by ordinance.
- **Stormwater Utility Fee:** Distributes cost based on impervious cover and the rate structure depends on program goals and available impervious surface data. Key considerations include:
 - Tax-exempt properties do pay.
 - Relationship between program need and fees paid by property owners.
 - Funds are legally segregated from other uses.
 - Does provide credit for on-site stormwater facilities.
 - Allows for greater program stability.
 - More complex – requires ordinance and ability to track changes to impervious areas.

After discussing rate structure options, the RCSWAC voiced general support for the establishment of a dedicated stormwater utility to fund the stormwater program with the approach of using impervious area on a parcel as the appropriate measure of impact on the public stormwater system. Since the County's current impervious data is based on remote sensing and not highly accurate, the committee recommended that the County invest in development of more accurate impervious mapping (including manual digitizing) to make billing as accurate as possible (this cost is not reflected in Table 1). Digitizing consists of a technician viewing high resolution aerial photography and manually outlining all impervious areas (structures, pavements, packed gravel, etc.). It is estimated that the current County impervious data, created by remote sensing, is off by 10-20% because it is capturing areas such as bare earth and rock outcroppings as impervious.

Based on the program of services as summarized in Table 1, rate models were run to evaluate the rate needed to generate sufficient revenue to support the proposed program for each of the potential rate structure options outlined below:

- Flat rate for single family detached (based on Equivalent Residential Unit, ERU) – bill in increments of ERU for all other properties. Under this rate structure there are two billing



categories: all single family residential properties would pay the same fee (1 billing unit or ERU) and all non-single family properties would pay a fee based on the actual measured impervious of their property divided by the number of billing units (or ERUs). This would be the least expensive and simplest billing mechanism to set up and implement, as only a sampling of single family properties would need to be digitized to develop the square foot impervious value for an ERU, all non-single family residential properties would need to be digitized.

- Tiered rate for residential – flat rate for single family detached, % flat rate for single family attached and condominiums, bill in increments of ERU for all other properties. This rate structure would include more than two billing categories. Single family detached residential properties would pay a flat fee and townhomes and condominiums would pay a percentage of the single family rate. For example, if townhomes averaged 75% and individual condominium units averaged 50% of the impervious of single family homes: single family detached properties would pay 1 billing unit, townhouses would pay 0.75 of a billing unit, and condominiums would pay 0.5 billing unit (residential properties that have common areas owned by their HOA, would also pay, through the HOA, for these areas separately). Other properties would pay the fee based on the actual measured impervious of their property divided by the number of billing units (or ERUs).
- Straight impervious cover – bill all properties based on increments of impervious cover (500 square feet billing units used for discussion purposes). In this scenario, every property would pay the same rate for every 500 square feet of measured impervious surface on their property. For example, a 2,000 square foot home would pay 4 billing units and a 5,000 square foot home would pay 10 billing units. An industrial property with 50,000 square feet of impervious surface would pay 100 billing units. This is the method being used by the City of Roanoke This would be the most expensive and most complicated billing mechanism to set up, implement, and maintain as all properties in the County would need to be digitized.

The following assumptions were made in development of the preliminary rate models:

- For options that use a flat or tiered residential rate the ERU = 3225 square feet (based on digitized measurement of impervious area on 750 residential properties in Roanoke County)
- All properties are billed including tax-exempt properties such as government and non-profits
- Interest earning at 1.5% of annual operating costs for six months each year
- Credits set at 2% of annual operating costs
- Delinquencies set at 3% of annual revenue requirement, recovered at 90% in the next fiscal year
- The stormwater fee will be deposited in a dedicated, separate fund and prudent financing requires a fund balance be positive at the end of each year. The fund balance is appropriated in the following fiscal year
- A 15% operating reserve is established in year one with contributions each year
- Operating expenses are escalated at 2% each year for inflation
- No contributions from the General Fund for new services/ for “all program” model General Fund dollars were shifted to fees (Note that money would still need to come from the General



Fund for the portion of the stormwater utility fee assessed to local government (Roanoke County and Public Schools). This is estimated at approximately 12% to 15% of the total stormwater utility fees.

- No bonds for capital project financing
- Costs for annual operation of the stormwater utility for billing, data management and credit program coordination were estimated at 1 full time employee (FTE) (\$80,000)

If the County decides to proceed with the implementation of stormwater utility fee, there would be startup costs that are not reflected in the rate model (which only reflects annual operating costs). It is estimated that implementation of the fee will require impervious area digitization (cost varies based on the rate structure chosen); billing file development; finalization of the program and rate; credit policy development; public outreach; customer service training; and ordinance development. It is estimated that these costs could range from \$100,000 to \$150,000 depending on the final selected option.

To estimate the relative draft program costs to the community, three rate options were modeled. The models analyzed funding for the proposed new program costs only and for all program costs. The results are summarized below. These model runs are very preliminary and are meant to shown the relative financial impact of one rate approach versus another. The preliminary rates shown are for the estimated *annual* cost per billing unit and are based on very rough approximations of impervious area per property based on the County’s available impervious data. The rates below include the estimated \$80,000 per year in utility operating costs which are not reflected in Table 1.

Table 2: Preliminary estimated annual rates per billing unit. This information is for planning and discussion purposes only and does not reflect potential actual rates per category.

	Year One	Year Five
Stormwater Utility Fee		
New Program Costs Only		
Annual Rate Per ERU (Flat Rate for Residential 3,225 All Others)	\$ 16.47	\$ 25.40
Annual Rate Per 500 SF (All Properties)	\$ 1.99*	\$ 2.93*
All Program Costs		
Annual Rate Per ERU (Flat Rate for Residential 3,225 All Others)	\$ 43.24	\$ 48.40
Annual Rate Per 500 SF (All Properties)	\$ 5.52*	\$ 5.52*
Real Property Tax		
New Program Costs Only - Tax Rate Impact	\$ 0.016	\$ 0.022
All Program Costs - Tax Rate Impact	\$ 0.042	\$ 0.042

*For comparison purposes, the annual stormwater rate adopted in the City of Roanoke per 500 square feet is \$3.60 in Year 1, \$7.20 in Year 2 and \$10.80 in Years 3-5.



The following Table 3 uses the preliminary rate information from Table 2 to show how the various options would impact a typical single family home in Roanoke County. This typical single family home was assumed to have 3,225 square feet of impervious area.

Table 3: Preliminary estimated annual rates for typical residential property (3225 square feet of impervious) based on currently available data. This information is for planning and discussion purposes only and does not reflect potential actual rates per category.

Estimated Stormwater Utility Fee (for typical residence with 3,225 square feet of impervious area)			
	ERU - Flat Residential Annual Fee	ERU - Tiered Residential Annual Fee	Straight Impervious Cover (500 sq. ft. billing unit) Annual Fee**
New Program Costs (Year 5)			
Single Family Detached	\$ 25.40	\$ 25.40	\$ 20.54
Single Family Attached*	\$ 25.40	\$ 18.81	\$ 14.91
Condominium*	\$ 25.40	\$ 14.66	\$ 12.10
All Program Costs (Year 5)			
Single Family Detached	\$ 48.40	\$ 48.40	\$ 38.64
Single Family Attached*	\$ 48.40	\$ 35.60	\$ 27.84
Condominium*	\$ 48.40	\$ 27.54	\$ 22.44

* Townhomes and Condos may be subject to additional fees for common areas

** The average single family detached home in Roanoke County has 3,225 square feet of impervious area, or 7 500 SF billing units

E. Draft RCSWAC Consensus (pending final meeting on February 13, 2014)

At a meeting of the Committee on January 9, 2014, the RCSWAC members present were asked to give their draft recommendations on the future levels of service and funding of the stormwater program. The majority of the members agreed on the following key items:

- ✓ Stormwater services should be provided in accordance with the recommendations given earlier in this report under sections A, B, and C.
- ✓ The County should fund stormwater through a dedicated fund and move it out of the general fund.
- ✓ The County should fund stormwater through a utility structure with billing based on impervious surface (either ERU or straight impervious cover) because of equity.
- ✓ Impervious data should be clearly defined and defensible.
- ✓ Tax exempt properties should not be excluded from paying for stormwater.
- ✓ The County should establish a credit program to recognize stormwater management measures by property owners.



- ✓ The general fund taxes should be decreased if the entire stormwater program is funded through a dedicated user fee.

Five Public Meetings were held throughout the County during the week of February 3 – 7, 2014 to present the draft committee recommendations and to receive public comment. The meetings were attended by approximately 50 people. The public comments will be shared with the committee, and during a meeting on February 13, 2014, the draft recommendations will be revisited and finalized.

Additional Supporting Documentation

The following information was reviewed and discussed with the Committee to assist in policy development:

- Summary of Existing Level of Service and Gaps Analysis
- Code of Virginia § 15.2-2114 Regulation of Stormwater
- Draft Five-Year Stormwater Management Program

Meeting Notes

All meeting notes are available via the County website:
<http://www.roanokecountyva.gov/index.aspx?NID=1412>.