



The City of Raleigh

## Stormwater Management Advisory Commission

December 1, 2016

3:00 pm

Conference Room 305  
Raleigh Municipal Building

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3:00 **Welcome, Introductions, Excused Absences**

3:05 **Approval of the Minutes – November 3, 2016 Meeting**

3:10 **Stormwater Staff Report**  
- Update on items of note

3:15 **Stormwater Quality Cost Share Project – 813 Darby Street**  
*Lory Willard, EI – Project Engineer*

Saint Ambrose Episcopal Church has submitted a petition for Stormwater Quality Cost Share assistance for the installation of a 516 sf rain garden that will capture runoff from 4,600 sf of parking lot. The design and installation are being facilitated by the NCSU Water Resources Research Institute. The estimated total cost for this project is \$5,500. The project is located in the Walnut Creek Watershed, and is available for a 75% City/25% petitioner contribution. Therefore, the maximum City contribution is \$4,125.

Following the staff presentation, the Commission may vote to recommend approval or denial of the project to the City Council, or request additional information.

3:45 **Stormwater Utility Fee Credit Manual – Continued Discussion**  
*Scott Bryant, PE – Senior Engineer/Strategic Planning*

As a continuation of the Fee Crediting Program discussion begun at the October Commission meeting, staff will facilitate a brainstorming session to gather ideas for possible adjustments to the Stormwater Utility Fee Credit Manual/policy. No formal Commission action is necessary at this time.

4:45 **Fiscal Year 2018 Draft CIP Overview**  
*Blair Hinkle, PE – Stormwater Program Manager*

Staff will present a high-level overview of the draft FY2018 Stormwater Program CIP. While not finalized, this discussion will provide information on the integration of the prioritization model output in the staff planning process, and outline possible program adjustments moving into the next fiscal year. No formal Commission action is required.

5:00 **Other Business**

**CITY OF RALEIGH**  
**STORMWATER MANAGEMENT ADVISORY COMMISSION (SMAC)**

Minutes

Raleigh Municipal Building · 222 W. Hargett Street · Conference Room 305 3:00pm · Thursday, November 3, 2016
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**Commission Members Present:** Chris Bostic, David Webb, Marion Deerhake, Ken Carper, Kevin Yates, Vanessa Fleischmann, Matthew Starr (*vice chair*), Marc Horstman (*chair*), and Evan Kane

**Stormwater Staff Present:** Blair Hinkle, Suzette Mitchell, Kelly Daniel, Kevin Boyer, Kristin Freeman, Scott Bryant, James Pflaum, Lory Willard, Jennifer Schmitz, Brad Stuart, Chris Stanley, Carmela Teichman, Lauren Witherspoon, Ashley Rodgers, Veronica High and Veronica Barrett

**Members Absent:** Francine Durso

**Guest:** John Kistle, Lexi Herndon, Stef Mendell, Marsha Presnell-Jeanette, Nancy Wehling and Amy Wazenegger

**Meeting called to order:** 3:03 by Marc Horstman (*chair*)

**Motions** (Absentees and Minutes)

- Absence: Mr. Webb made a motion to excuse Ms. Durso from today's meeting and Mr. Starr seconded. The motion was approved unanimously.
- October Meeting Minutes: Mr. Horstman made a motion to approve and Ms. Fleischmann seconded. The motion was approved unanimously.

The following items were discussed with action taken as shown.

1. **Stormwater Staff Report**

- Staffing Update
  - Communication Specialist - *Kristin Freeman started on October 17<sup>th</sup>.*
- TC-2-16 – (*Impervious surface limitation*) – *The item was approved by City Council on Tuesday, November 1<sup>st</sup>. The Communication Specialist wrote a press release that was sent out on Wednesday, November 2<sup>nd</sup>.*

**Public Comments**

- ***Stephanie Mendell*** (*Oak Road Circle*) *commented the neighborhood is thrilled and grateful for what is being done. She hopes there will be more tweaking to make it even stronger, particularly with the 400 square foot exemption, which they hope to see a sliding scale.*
- ***Marsha Presnell-Jeanette*** (*Stacey Street*) *commented that TC-2-16 does not directly impact the stream problems she has, but she's appreciative that the document is ready to go. She's looking forward to the next phase that hopefully will work with tree preservation and elevation changes. She's glad that Stormwater has a Communication Specialist because there's been a lack of communication from Stormwater that has hampered informing citizens on things they need to know.*
- ***Blair Hinkle*** *expressed a special thanks to the Development Review section for the work done on TC-2-16.*
- GI/LID – *this item was presented at the City Council work session on October 11<sup>th</sup>. We are looking at December 6<sup>th</sup> for a text change authorization to add the enabling language to the UDO for Green Infrastructure and Low Impact Development techniques. Once it's granted by*

City Council it moves to Planning Commission, then likely their Planning Commission Text Change Committee and back to Planning Commission for a vote and then City Council for public hearing.

- Reappointment - *Chris Bostic for another term on the Stormwater Management Advisory Commission (SMAC).*
- Environmental Awards – *Ms. Deerhake has volunteered to represent the Commission.*
  - *Mr. Horstman made a motion to appoint Ms. Deerhake to the Environmental awards committee and Ms. Fleischman seconded. The motion was approved unanimously.*

2. **Drainage Assistance Project Presentation**

Chris Stanley informed the Commission there are three projects (*one previously approved*) up for review and recommendation under the new policy. A presentation will be presented on these projects and the consideration taken to bring these forward.

Estimated Project Costs	
Dixie Trail	\$105,000
Hollirose Place	\$250,000
Gary Street ( <i>previously funded through Drainage Petition -October 2011</i> )	---
FY17 Project Funds Approved to Date	\$520,000
Total Estimated Project Costs This Period	\$355,000
FY17 Budget	\$1,250,000
FY17 Remaining DA Funds	\$375,000

**Ms. Deerhake** asked about the undecided easements issues for the Dixie Trail project and how did Commission proceed in the past when it was not fully settled for access.

**Chris Stanley** stated there could be a potential issue since we don't have full support from the property owner. In the past we were not getting easements. Under the cost share requirements we would do the projects, design it and it wasn't a cost share, so it's basically the same situation. With our CIP projects we don't have that requirement for dedication. We ask they be dedicated, but we have the option for easement negotiation depending on the severity and priority in terms of public benefit. You don't have that with the Drainage Assistance policy so we ask they be dedicated or we will not do it.

**Blair Hinkle** mentioned that a potential option is the Commission can approve the project on the southern property and not the northern property. If we go ahead and recommend approving the larger overall project, it allows us the flexibility should the northern property owner decide to grant us an easement to move forward with the bigger project. If that doesn't occur, we would inform the Commission that the project cost was scaled down and the funds left in the overall drainage budget will be accurate.

A homeowner living in the area remarked the property owner possibly is uneasy about the easement because they are trying to sell their home.

**Chris Bostic** stated he's believes what Blair suggested is reasonable.

**Motion:**

Mr. Bostic made a motion to approve the projects, and Mr. Starr seconded. The motion was approved unanimously.

Kevin Yates remarked that the priority model has been a great tool.

3. **Stormwater Quality Cost Share Project – 106 E Drewry Lane**

Lory Willard informed the Commission she will be presenting one project for review. The project is for a 900 sf permeable paver driveway.

Design/Construction Estimate	\$13,490
Cost of Conventional Pavers	\$4,500
Acceptable Cost	\$8,990
Stormwater/City Contribution	\$6,743
Petitioner Contribution	\$2,247

**Motion:**

Mr. Horstman made a motion to approve the Water Quality Cost Share project, and Mr. Yates seconded. The motion was approved unanimously.

4. **Stormwater Quality Cost Share Policy**

Kevin Boyer provided a brief overview of the policy followed by a discussion on increasing the program participation and how to enhance the program benefits.

**SMAC Feedback and Guidance**

A. – ***“Downspout disconnection, tree planting, rain barrels”***

- Encourage retrofits to existing BMPs/SCMs
  - *Including conversion and uplift for water quality performance improvement*
- Consider alternatives to irrigation with potable water supply
  - *Review relevance to usage of stormwater utility funds*
  - *This represents more of an integrated water resource management view*
- Excellent idea to add in “smaller scale” options for the program
- Review/develop design standards for rainwater harvesting/cisterns/rain barrels/other
- Consider potential secondary impacts of measures
  - *Example of disconnected downspouts creating erosion concerns*
- Coordination of program measures with the City’s “Neighbor Woods” program noted by staff
- Consider adding in Regenerative Stormwater Conveyance (RSC) devices to the menu of program options
- Encourage retrofits for established commercial properties
  - *Note interaction/overlap with fee credit policy*
  - *Note this would represent voluntary stormwater treatment with the SWQCS (and also possibly the fee crediting program) providing extra incentive*

B. – ***“Reduce process, steps and time for smaller projects”***

- Review/consider the “level of design” appropriate for smaller projects
- Review/consider if smaller projects fit into the SWQCS program and/or the stormwater utility fee crediting program
- A citizen attending the SMAC meeting provided perspectives from an end user/customer of the program
  - *Pre-approved designs would be helpful*
  - *Consider partnering with providers/vendors*
  - *Current process is challenging for devices like rain barrels, for example*
- Consider a website with pre-approved standards and information
- Example provided of the City’s low volume toilets program whereby City PUD partnered with Home Depot

C. – ***“Upgrading code-required runoff treatment practices”***

- Great idea – especially for existing SCMs/retrofit projects
- This would generate probable interest from developers and designers
- City should link the increased benefit derived from the upgraded practice with the level

of the cost share (\$)

o *Link SCM performance with \$ of cost share/incentive/credit*

- City may want to consider seeking out potential repeat violators and/or those that need additional support

**D. – “Projects may extend into the street ROW”**

- A really good idea with examples noted such as
  - o *Green streets*
  - o *Green infrastructure and low impact development programs,*
  - o *Working with existing topography and within wide existing right-of-ways*
- Similar in concept to upgrading water and sewer utilities
- Good example of public – private partnering

**E. – “Projects eligible also for stormwater fee credits”**

- A key point here is maintenance of the device – who is responsible for maintaining the device following construction?
- Review/consider the frequency and type of inspection required (for SWQCS and credits)
- Making projects also eligible for ongoing fee credits would increase the attractiveness of the program for customers
- Review/consider City providing additional funding to help with inspections of stormwater controls
- Review/consider the City’s overall Stormwater Management Program goals/standards
  - o *Regulatory standard for nitrogen noted by staff*
  - o *The “Maximum Extent Practicable” standard was discussed briefly by staff*
- Connect water quality performance targets with percentages available for different practices

**F. – “Leaking private sanitary sewer aerial crossings”**

- Does the City have an inventory of sanitary sewer aerials?
- Staff noted that the scope would be limited to the City of Raleigh corporate limits
- Is there a potential to work with City PUD to pay the up-front costs of such a program?
- SMAC noted that the County has taxing authority for infrastructure
- Could this be a potential pilot program?
- Could this be a potential separate grant-type program to support this real need within the community?
- Gather information from Durham/others
- Coordinate review with City Attorney Office

**5. Other Business**

- January 2017 SMAC Meeting – *The Commission discussed cancelling the January meeting.*
  - o *Mr. Horstman made the motion to cancel and Ms. Fleischmann seconded. The motion passed unanimously.*

**Adjournment:** Mr. Horstman made a motion to adjourn and Mr. Kane and Mr. Webb seconded. The meeting adjourned at 5:20 p.m.

Prepared by: Suzette Mitchell



**TO:** Stormwater Management Advisory Commission

**FROM:** Stormwater Program Manager

**DATE:** December 1, 2016

**SUBJECT:** Stormwater Quality Cost Share Petition – 813 Darby Street

**MESSAGE:**

Saint Ambrose Episcopal Church is petitioning the City for funding assistance in the amount of \$4,125 under the [Stormwater Quality Cost Share Program](#) for a 516 square foot rain garden to treat 4,600 square feet of parking lot runoff.

The total estimated cost of the rain garden installation is \$5,500. The project is within the Walnut Creek Watershed and is eligible for a 75% City / 25% Petitioner cost share of the acceptable cost per the Stormwater Quality Cost Share Policy.

Staff has evaluated the project in the Integrated Stormwater Management Project Prioritization Model. The proposed project received a Total Project Score (TPS) of 28.8, a Safety Criticality Score (SCS) of 0 and a Mission Criticality Score (MCS) of 20 in the model. The total estimated project cost translates to \$51,887 per acre served and \$7,051 per pound of nitrogen removed annually. This is a low cost compared to past rain garden and bioretention projects. .

The project has met each of the qualifying criteria for petitions seeking funding from the program:

1. Saint Ambrose Episcopal Church is paying the stormwater utility fee and there is no outstanding balance.
2. The rain garden will be a retrofit and is not for compliance with stormwater regulations.
3. Funding is available. If City Council approves the most recent Stormwater Quality Cost Share Petition project at the 12/6 meeting, the account will have \$596,215 available.
4. Saint Ambrose Episcopal Church agrees to a 10-year maintenance term.



**STORMWATER UTILITY**  
**STORMWATER QUALITY COST SHARE ASSISTANCE PROGRAM**

**Back Yard Rain Garden Operation and Maintenance Plan**

The Petitioner shall perform inspections on the Project as shown in the list below and within 24 hours after every storm event greater than 1.0 inches. Inspection activities shall be kept on file by the Petitioner and submitted with each Annual Report. Any problems that are found shall be remedied immediately.

<b>Monthly Inspections</b>			
<b>Rain garden element:</b>	<b>Activity:</b>	<b>Potential problem:</b>	<b>How to remediate the problem:</b>
Perimeter of rain garden	Visual inspection	Areas of bare soil and/or erosive gullies have formed	Re-grade the soil, if necessary, to remove the gully and then plant ground cover and water until it is established. Provide lime and a one-time fertilizer application.
Inlet device: pipe or swale	Visual inspection	Erosion is occurring in the swale	Re-grade the swale, if necessary, to smooth it over and provide erosion control devices such as reinforced turf matting or riprap to avoid future erosion problems.
Inlet device: pipe or swale	Visual inspection	The pipe is clogged	Unclog the pipe. Dispose of sediment offsite.
Inlet device: pipe or swale	Visual inspection	The pipe is cracked or damaged	Replace the pipe
Overflow berm	Visual inspection	Erosion or other signs of damage have occurred at the outlet	Re-grade the soil, if necessary, to remove the gully and then plant ground cover and water until it is established. Provide lime and a one-time fertilizer application.

<b>Twice-a-Year Inspections</b>			
<b>Rain garden element:</b>	<b>Activity:</b>	<b>Potential problem:</b>	<b>How to remediate the problem:</b>
Entire rain garden	Trash/debris removal	Public nuisance/aesthetics	Remove the trash/debris
Rain garden planted area	Remove dead and dying vegetation	Vegetation is dead, diseased, or dying	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace the plants. Provide a one-time fertilizer application to establish the ground cover, if necessary.
Rain garden mulched area	Repair mulch	Mulch has been washed away or simply needs replenishing	Re-mulch any areas missing mulch
Rain garden planted area	Weed removal	Weeds are present	Remove any weeds, preferably by hand. If a pesticide is used, wipe it on the plants rather than spraying.
Entire rain garden	Visual inspection for clogging	Water ponded within rain garden is not draining beneath the mulch within 48 hours after rainfall has stopped	The mulch may be clogged, replace the mulch with fresh mulch. If the area still does not drain, amended sanding soils may need to be installed. If the area still does not drain, an under drain system may need to be installed. Follow each course of action until the rain garden drains properly.

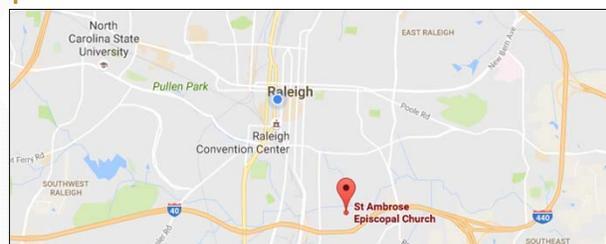
<b>Annual Inspections</b>			
<b>Rain garden element:</b>	<b>Inspection Method:</b>	<b>Potential problem:</b>	<b>How to remediate the problem:</b>
Rain garden planted area	Maintain vegetation	Best professional practices show that pruning is needed to maintain optimal plant health	Prune according to the best professional practices.
Rain garden planted area	Maintain vegetation	Vegetation is too short or too long	Maintain vegetation at an appropriate height.

# Stormwater Quality Cost Share Program

December 2016 Petition Request  
Stormwater Management Advisory Commission  
**813 Darby Street**  
**St. Ambrose Episcopal Church**

## 813 Darby Street

- Walnut Creek Watershed
  - Cost share formula = 75% City and 25% Petitioner
- Rain garden treating parking lot runoff
- Education for the community and beautification for the church
- Partnership with NCSU WRI and American Rivers



## 813 Darby Street

- 516-sf rain garden treating 4600 square feet of impervious surface adjacent to Walnut Creek



## Project Site



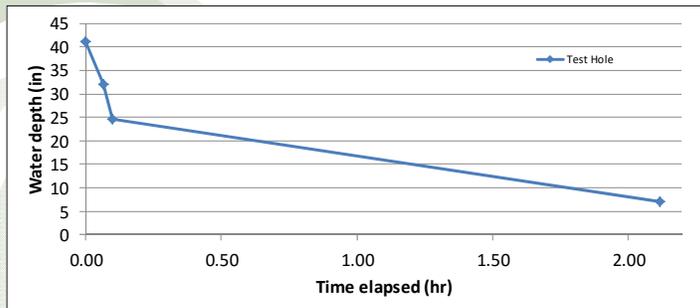
## Infiltration

Map Unit	Name	Hydrologic Soil Group
ApC2	Appling Sandy Loam	B



Test Pit	Infiltration Rate (in/hr)
Hole 1	16.0

\* Underdrains are recommended when infiltration rates are less than 2 in/hr



## 813 Darby Street

<b>Total Project Cost</b>	<b>\$5,500</b>
Stormwater/City Contribution (75%)	\$4,125
Petitioner Contribution (25%)	\$1,375

- Total project estimate translates to \$51,887 per impervious acre served

## Project Comparison

Project Address	Project Type - Description	Project Costs			Reduction of Nitrogen in Runoff		Project Approval Date
		Total Project Cost	City Contribution		Pounds of Nitrogen/Year	Total Cost/Pound of Nitrogen/Year	

BIORETENTION CELLS/RAIN GARDENS							
813 Darby Street	516-SF rain garden	\$5,500	\$4,125	75%	0.78	\$7,051	
416 Latimer Road	175-SF rain garden	\$7,854	\$5,890	75%	0.35	\$22,439	3/15/2011
2300 Lowden Street	Three 300-SF bioretentions	\$38,100	\$28,575	75%	0.88	\$43,543	11/1/2011
510 W Martin St	1,175-SF bioretention	\$92,700	\$63,434	68%	2.09	\$44,290	9/4/2014
						Average: \$29,331	

Device Type	Average Total Cost/Pound of Nitrogen/Year
Permeable Paver	\$81,107
Green Roof	\$127,381
Cisterns	\$31,336
Bioretention Cells/Rain Gardens	\$29,331

## Project Evaluation

- ISWMPMM Scores
  - First rain garden scored with ISWMPMM
  - Scored slightly higher than other SWQCS projects
    - Total Project Score = 28.8
    - Safety Criticality Score = 0
    - Mission Criticality Score = 20

Annual TN Pollutant Load Reduced	Cost / TN Reduced	Annual TSS Pollutant Load Reduced	Cost / TSS Reduced	Cost-Score Index
(lbs TN/yr)	(\$/lbs TN/yr)	(lbs TSS/yr)	(\$/lbs TSS/yr)	(\$/TPS)
0.78	7,051	43.6	126	190.81

## Funding & Maintenance Considerations

- Funding is available
  - Uncommitted account balance: \$596,215
- Annual reporting/inspection by City Staff
- Maintenance requirements in agreement:

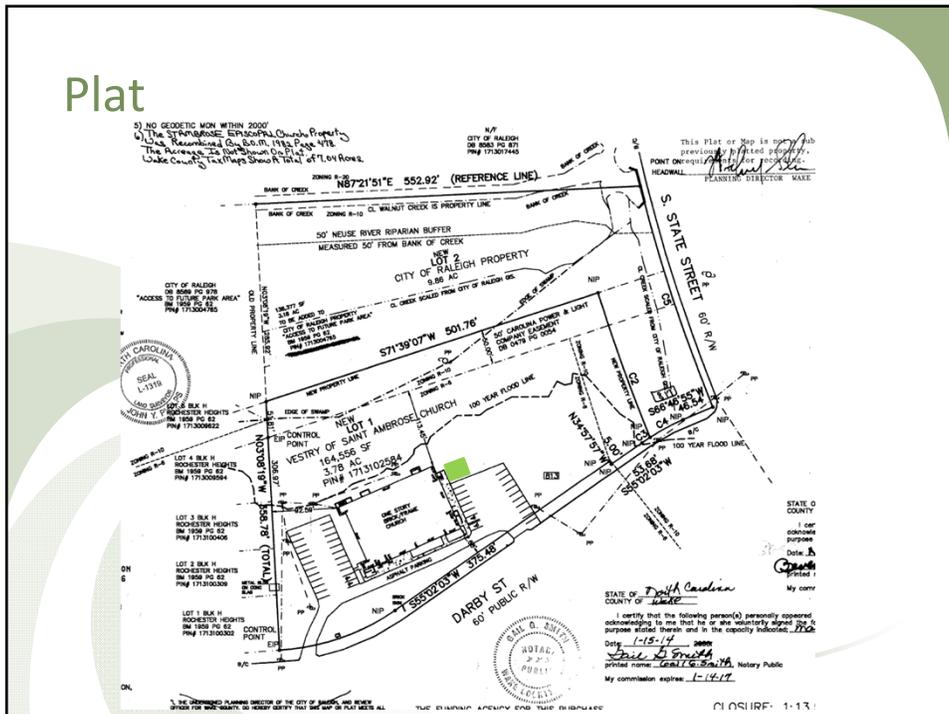
Monthly	Bi-annual	Other
<ul style="list-style-type: none"> <li>• Repair erosion near inlets or sideslopes</li> <li>• Verify overflow berm is not eroding</li> </ul>	<ul style="list-style-type: none"> <li>• Remove trash throughout</li> <li>• Replace mulch as needed</li> <li>• Remove and replace vegetation as needed</li> <li>• Remove weeds</li> <li>• Verify drainage &lt;48 hours</li> </ul>	<ul style="list-style-type: none"> <li>• Prune vegetation (yearly)</li> <li>• Remove and replace mulch (every 2-3 years)</li> </ul>

## Eligibility Requirements for all Petitions

- ✓ Property owner pays the Stormwater Fee
- ✓ Project is located within the City's incorporated area
- ✓ Proposed project will provide stormwater treatment beyond current stormwater treatment requirements
- ✓ Petitioner has agreed to a 10-year maintenance term

# Current Petition Requests Discussion

## Plat



## Budget Items

Item	Item Cost Estimate
Design & Engineering	\$850
Construction	\$3,500
Planting	\$500
Construction Oversight	\$650

Project Address	Project Type - Description	Project Costs			Reduction of Nitrogen in Runoff		Project Approval Date
		Total Project Cost	City Contribution		Pounds of Nitrogen/Year	Total Cost/Pound of Nitrogen/Year	
<b>CISTERNS</b>							
3402 Bradley Place	Cistern - 1,100-gal. above ground	\$2,350	\$1,763	75%	0.15	\$15,986	7/3/2012
316 Seawell Avenue	Cistern - 1,250-gal. underground	\$5,500	\$4,125	75%	0.34	\$16,200	6/21/2011
827 E Hargett Street	Cistern - 550-gal. above ground	\$2,950	\$2,213	75%	0.16	\$18,323	2/5/2013
405 Kinsey Street	Cistern - 1,200-gal. underground	\$6,072	\$4,555	75%	0.32	\$19,277	7/5/2011
2124 Fallon Oaks Court	Cistern - 200-gal. concrete vault	\$4,600	\$3,450	75%	0.22	\$20,862	8/7/2012
6001 Lead Mine Rd	Cistern - 1,750-gal. underground	\$8,700	\$6,525	75%	0.41	\$21,245	10/7/2015
403 Kinsey Street	Cistern - 1,700-gal. underground	\$10,000	\$7,500	75%	0.42	\$23,810	5/17/2011
1619 Sunrise Avenue	Cistern - 1,300-gal. above ground	\$4,500	\$2,250	50%	0.19	\$23,810	5/1/2012
213 E Franklin Street	Cistern - 10,000-gal. above ground and 1,200-gal. below ground	\$69,160	\$51,870	75%	2.56	\$27,068	8/7/2012
4505 Laurel Hills Road	Cistern - 2,000-gal. underground	\$6,775	\$3,388	50%	0.17	\$39,504	10/15/2013
562 New Bern Avenue	Cistern - 1,200-gal. underground	\$12,077	\$9,058	75%	0.30	\$39,662	6/3/2014
2909 Oneida Ct	Cistern - 1,050-gal. above ground	\$5,390	\$4,043	75%	0.13	\$41,462	2/2/2016
950 Peterson Street	Cistern - 2,200-gal. above ground	\$33,500	\$25,125	75%	0.63	\$53,175	11/1/2011
2405 Fairview Rd	Cistern - 3,400-gal. underground	\$19,137	\$17,224	90%	0.35	\$54,677	9/6/2016
1201 Watauga St	Cistern - 1,790-gal. underground	\$12,647	\$11,383	90%	0.23	\$54,987	11/1/2016
						Average:	\$31,336

Project Address	Project Type - Description	Project Costs			Reduction of Nitrogen in Runoff		Project Approval Date
		Total Project Cost	City Contribution		Pounds of Nitrogen/Year	Total Cost/Pound of Nitrogen/Year	
<b>PERMEABLE PAVERS</b>							
106 E Drewry Lane*	Permeable Pavers - 900-SF driveway	\$13,940	\$6,743	75%	0.35	\$25,686	
510 W Martin Street	Permeable Pavers - 5,500-SF parking lanes	\$56,100	\$38,388	68%	0.83	\$68,000	9/4/2014
562 New Bern Avenue	Permeable Pavers - 900-SF driveway	\$12,938	\$9,703	75%	0.13	\$98,015	7/1/2014
2705 W Talbot Court	Permeable Pavers - 1,150-SF driveway	\$21,900	\$16,425	75%	0.17	\$132,727	7/1/2014
						Average: \$81,107	
<b>GREEN ROOFS</b>							
5908 Buffalo Road	Green Roof - 7,500-SF green roof	\$139,000	\$104,250	75%	1.26	\$110,317	6/7/2011
510 W Martin St	Green Roof - 7,200-SF green roof (w/ cistern)	\$234,000	\$159,120	68%	1.62	\$144,444	9/4/2014
						Average: \$127,381	
<b>BIORETENTION CELLS/RAIN GARDENS</b>							
813 Darby Street	Rain Garden - 516-SF rain garden	\$5,500	\$4,125	75%	0.78	\$7,051	
416 Latimer Road	Rain Garden - 175-SF rain garden	\$7,854	\$5,890	75%	0.35	\$22,439	3/15/2011
2300 Lowden Street	Bioretention - Three 300-SF bioretentions	\$38,100	\$28,575	75%	0.88	\$43,543	11/1/2011
510 W Martin St	Bioretention - 1,175-SF bioretention	\$92,700	\$63,434	68%	2.09	\$44,290	9/4/2014
						Average: \$29,331	
		Overall average:	\$23,645		Overall average:	\$46,662	

## MEMORANDUM

**To:** Blair Hinkle - Stormwater Program Manager

**From:** Scott Bryant

**Date:** 22 November 2016

**Subject:** Continued Review of Raleigh's Stormwater Utility Fee Crediting Program

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Drawing upon the range of concepts presented and initial feedback received from SMAC, at the upcoming December meeting staff plans to facilitate an overview of a **working draft framework for an enhanced stormwater utility fee crediting program**. Topics of discussion are arranged in an outline format herein for efficient review by the Commission.

1. Recommend **branding the updated fee crediting program**
  - a. Currently the program is referred to simply as the *Stormwater Utility Fee Crediting Program*.
  - b. While the City does not have program awareness information currently, given the current (low) level of participation and related inquiries, it is likely that the fee crediting program is not widely known amongst stormwater utility rate-paying customers citywide.
  - c. As part of the crediting program review and enhancement, it is proposed that the City better promote the future program with an easily recognizable name/tag/brand.
2. Develop an **updated and forward looking sustainable "cap" on the total credits available**
  - a. An initial analysis of program budgeted expenditures and areas that would benefit directly/indirectly from creditable measures and practices will be shared with SMAC for discussion in December.
  - b. The analysis may show that the current 85% cap, given current and forward-looking program expenditures, may not be sustainable over the longer-term and may need to be adjusted. In particular the 35% NPDES credit is relatively high compared to many programs and also higher than the City's relative % expenditures on NPDES MS4 permit compliance.
  - c. The up to 50% existing credit for peak discharge flow control would likely be adjusted (downwards) under a more comprehensive and integrated approach that would include water quality and water quantity controls.
  - d. Analysis may indicate that credit percentage levels for existing fee credit program customers receiving the full 85% is relatively high and may need to be adjusted; at the

same time an enhanced crediting program would potentially “open up” credits for credit-worthy measures and practices that are not currently in the program, i.e., water quality and potentially non-structural measures. SMAC’s feedback on sharing a revised crediting approach with existing customers and program stakeholders will be important, particularly in the event that credit percentages have to be adjusted.

3. Enhance the crediting program to make it **open and available to any/all stormwater utility rate-paying customers** for heightened equity and to promote increased participation over time
  - a. **Currently only commercial** in general are eligible to apply for credits although there is the note in the existing program for Single-Family Residential (SFR) credits for areas served by neighborhood scale control(s).
  - b. Preliminary recommendation is to **develop a phased-in approach to open up reasonable credits for credit-worthy practices on SFR**, possibly over a 1 to 2 year timeframe to allow time for billing system administrative revisions, developing technical supporting content for (smaller) creditable stormwater control measures, etc. This would be an equitable approach for all rate paying customers and would also support implementation of stormwater control measures that might follow TC 2-16 and/or continued implementation of GI/LID.
  - c. Raleigh may likely be among the first movers in North Carolina in **opening up a broader program of SFR credits** if this approach is recommended. (Not a first mover in the industry, however, as SFR fee credits exist beyond the state in areas such as Chesapeake Bay, the Midwest, and the Pacific Northwest.)
  - d. **Align the SFR measures with working enhancements to the Stormwater Quality Cost Share (SWQCS) program** – note that some potential menu items for SWQCS may be worthy of ongoing fee credits (i.e., larger cisterns, significant permeable paving, designed bio-retention areas, etc.) while others might not fit well for ongoing credits (i.e., individual rain barrels).

**4. Potential Integrated Components of Enhanced Fee Credit (preliminary draft framework only)**

- a. Credit would be potentially comprised of structural and/or non-structural components that address water quantity and/or water quality.
- b. For a more comprehensive approach beyond focusing upon peak discharge only, **credit could be earned for controls that benefit one or more of the following areas of stormwater management:**
  - i. Peak Discharge Control ~ (flood control)
  - ii. Pollutant Control ~ (water quality control)
  - iii. Volume Control ~ (flood control, water quality, stream erosion)
- c. **Total Credit % = [Peak Discharge Control Credit % + Pollutant Control Credit % + Volume Control Credit %] + [Non-Structural/NPDES/Other Credit %]**

- d. This enhanced approach would incorporate water quantity and water quality control and also more closely mirror the City's programs and developing programs.
- e. In concept, **the more components that apply the higher the potential credit**. Credits would not be an all or nothing proposition. Credits could be "stacked" up to the potential maximum. Would hopefully encourage stronger, more integrated controls.
- f. Credit percentages should be equitably based on performance of the control measure in terms of mitigating stormwater-related impacts of the impervious areas. Performance-based credits would **include Green Infrastructure (GI) and/or any Stormwater Control Measure (SCM)**. An enhanced program could promote/encourage GI where fitting and applicable while also crediting any approved measure(s) based on performance.
- g. For estimating the level of potential (water quality) credit based upon performance we may be able to draw upon the State's new (draft) performance guidance/charts for SCMs.
- h. **Important discussion area:** Scaled performance-based credits would be consistent with SCMs "meeting requirements" earning a reasonable albeit likely modest level of credit; only higher performing controls (above and beyond) that provide greater public stormwater management benefits would earn higher levels of credit. If recommended this would imply that sites with post-construction stormwater controls in place meeting regulatory requirements would be eligible to apply for some percentage of fee credit whereas under the current program they have to go beyond requirements to be eligible for any level of credit.
- i. The **non-structural category of credits** could include NPDES and possibly an enhanced menu of items such as education, "NPDES-like" measures for sites that do not hold NPDES stormwater permits, and related.
- j. As a category, non-structural credits may be worthy of a reasonable but likely modest level of potential credit. As noted, the 35% credit for this category (currently only NPDES applies) is relatively high and may need to be adjusted.
- k. Under any enhanced program scenario, the total available credit would be capped at the updated "sustainable cap" on the overall fee crediting program, per above #2.
- l. Update the **renewal frequencies for various types of credits**, based on what fits and is appropriate, and then implement/enforce that approach.
- m. Make the **enhanced fee crediting program as customer-friendly as possible** yet also one that is reasonable and not onerous to administer.

**STORMWATER MANAGEMENT [FY 2018 - FY 2027 Capital Improvement Program]**

Total Project Score (TPS)	CIP Category / Project	Approved FY 17 CIP Budget	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 18-22 TOTAL (Phase 1 CIP)	FY 23-27 TOTAL (Phase 2 CIP)	10 YR CIP TOTAL	
<b>Lake Preservation / Lake Management Evaluation</b>																
1	65.24	White Oak Lake Dam Rehab											0	0	0	
2	48.53	Lower Durant Lake Dam/Spillway Rehabilitation	3,000,000										0	0	0	
3	73.03	Upper Durant Lake/Wetland/Stream System Restoration	750,000			350,000	1,750,000						2,100,000	0	0	
4	56.42	Wycliff Rd Lake/Spillway Rehab - Eval/Analysis/Design				300,000		1,250,000					1,550,000	0	1,550,000	
5	TBD	Eastgate Lake/Dam - Eval/Analysis/Preliminary Design							150,000	750,000			0	900,000	900,000	
6	TBD	Glen Eden Pilot Park Lake/Dam - Eval/Analysis/Preliminary Design								150,000	750,000	750,000	0	900,000	900,000	
		<b>Subtotal</b>	<b>\$ 3,750,000</b>	<b>0</b>	<b>0</b>	<b>350,000</b>	<b>2,050,000</b>	<b>1,250,000</b>	<b>0</b>	<b>150,000</b>	<b>900,000</b>	<b>750,000</b>	<b>0</b>	<b>3,650,000</b>	<b>1,800,000</b>	<b>5,450,000</b>
<b>Water Quality Improvement Projects</b>																
7	22.08	Weybridge Bioretention				125,000	350,000						475,000	0	475,000	
8	27.97	Cowper Drive Stream Enhancement / SCM retrofit		100,000	300,000								400,000	0	400,000	
9	25.87	Wooten Meadows Park Wetland	100,000	300,000									300,000	0	300,000	
		<b>Subtotal</b>	<b>\$ 100,000</b>	<b>0</b>	<b>400,000</b>	<b>300,000</b>	<b>125,000</b>	<b>350,000</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,175,000</b>	<b>0</b>	<b>1,175,000</b>
<b>General Water Quality</b>																
10	n/a	Stormwater Quality Cost Share (SWQCS) Projects	250,000	200,000	200,000	200,000	250,000	250,000	250,000	250,000	250,000	250,000	1,100,000	1,250,000	2,350,000	
11	n/a	Water Quality Retrofit Projects	200,000	200,000	200,000	200,000	200,000	300,000	300,000	300,000	300,000	300,000	1,100,000	1,500,000	2,600,000	
12	n/a	TMDL Streams/Watersheds Water Quality Projects	200,000	200,000	300,000	300,000	300,000	300,000	500,000	500,000	500,000	500,000	1,400,000	2,500,000	3,900,000	
		<b>Subtotal</b>	<b>\$ 650,000</b>	<b>\$ 600,000</b>	<b>\$ 700,000</b>	<b>\$ 700,000</b>	<b>\$ 750,000</b>	<b>\$ 850,000</b>	<b>\$ 1,050,000</b>	<b>3,600,000</b>	<b>5,250,000</b>	<b>8,850,000</b>				
<b>Stream Restoration</b>																
13	n/a	Walnut Creek Watershed - Stream Restoration		350,000	1,000,000		350,000	1,500,000		350,000	1,500,000		1,700,000	3,350,000	5,050,000	
14	TBD	Wade Stream Restoration			150,000	500,000							650,000	0	650,000	
15	31.08	Devereux Meadows Stream Restoration			850,000								850,000	0	850,000	
16	TBD	Capital Blvd Stream Restoration					150,000	500,000					150,000	500,000	650,000	
		<b>Subtotal</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 350,000</b>	<b>\$ 2,000,000</b>	<b>\$ 500,000</b>	<b>\$ 500,000</b>	<b>\$ 2,000,000</b>	<b>\$ -</b>	<b>\$ 350,000</b>	<b>\$ 1,500,000</b>	<b>\$ -</b>	<b>3,350,000</b>	<b>3,850,000</b>	<b>\$ 7,200,000</b>
<b>General Drainage Infrastructure</b>																
17	n/a	Stormwater System Repairs / Asset Rehabilitation	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	2,500,000	2,500,000	5,000,000	
18	n/a	Drainage Assistance (DA) Projects	1,250,000	1,250,000	1,250,000	1,500,000	1,500,000	2,000,000	2,000,000	2,500,000	2,500,000	3,000,000	7,500,000	12,500,000	20,000,000	
19	n/a	Flood Hazard Mitigation / Flood Protection Projects	200,000	200,000	200,000	200,000	200,000	250,000	350,000	350,000	350,000	350,000	3,500,000	1,750,000	2,800,000	
20	n/a	Watershed Master Planning	150,000	400,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	1,400,000	1,250,000	2,650,000	
		<b>Subtotal</b>	<b>\$ 1,900,000</b>	<b>2,350,000</b>	<b>2,200,000</b>	<b>2,450,000</b>	<b>2,450,000</b>	<b>3,000,000</b>	<b>3,100,000</b>	<b>3,600,000</b>	<b>3,600,000</b>	<b>3,600,000</b>	<b>4,100,000</b>	<b>12,450,000</b>	<b>18,000,000</b>	<b>30,450,000</b>
<b>Neighborhood Drainage System Improvements</b>																
21	57.48	Knights Way/Audobon/Rainwood/Wagram Ct (Phase 5)		2,500,000									2,500,000	0	2,500,000	
22	38.08	Sierra Drive Storm Drainage Improvements (Phase 1)		1,000,000									1,000,000	0	1,000,000	
23	TBD	Sierra Drive Storm Drainage Improvements (Phase 2)							1,500,000				0	1,500,000	1,500,000	
24	TBD	Sierra Drive Storm Drainage Improvements (Phase 3)										1,000,000	0	1,000,000	1,000,000	
25	44.37	Beechwood Dr Area Drainage Improvements (Phase 1)	3,000,000										0	0	0	
26	31.71	Churchill Culvert (Beaverdam Creek Phase 2)			680,000								680,000	0	680,000	
27	58.15	Grist Mill/ Harps Mill/Tanbark Drainage/W. North Ridge (Phase 1)		200,000	2,300,000								2,500,000	0	2,500,000	
28	49.73	Grist Mill/ Harps Mill/Tanbark Drainage/W. North Ridge (Phase 2)				1,600,000							1,600,000	0	1,600,000	
29	33.43	Laurel Hills Area Neighborhood Drainage Improvements (Phase 1)	525,000										0	0	0	
30	61.65	Swann St Area Improvements (Phase 1)		1,700,000									1,700,000	0	1,700,000	
31	59.00	Swann St Area Improvements (Phase 2)				200,000	1,000,000						1,200,000	0	1,200,000	
32	n/a	Walnut Creek Watershed - Drainage System Improvements			250,000	1,500,000		1,500,000		250,000	1,500,000		2,000,000	3,250,000	5,250,000	
33	51.32	Braceridge Dr Area Drainage Improvements			225,000		1,000,000						1,225,000	0	1,225,000	
34	49.92	Hemingway and Hiddenbrook Area Drainage Improvements				150,000	625,000						775,000	0	775,000	
35	69.44	Ramblewood Drive Area Drainage Improvements		1,600,000									1,600,000	0	1,600,000	
36	n/a	Various Neighborhood Drainage System Improvement Projects			400,000	225,000		1,100,000	1,700,000	1,950,000	500,000	1,850,000	625,000	7,100,000	7,725,000	
		<b>Subtotal</b>	<b>\$ 3,525,000</b>	<b>5,400,000</b>	<b>5,055,000</b>	<b>1,900,000</b>	<b>3,175,000</b>	<b>1,875,000</b>	<b>2,600,000</b>	<b>3,200,000</b>	<b>2,200,000</b>	<b>2,000,000</b>	<b>2,850,000</b>	<b>17,405,000</b>	<b>12,850,000</b>	<b>30,255,000</b>
<b>Street Drainage System Improvements</b>																
37	22.55	W. Drewry Lane Culvert Improvements	675,000										0	0	0	
38	26.33	Scotland St Culvert Rehabilitation	100,000	500,000									500,000	0	500,000	
39	27.57	Bragg St / State St Culvert Rehabilitation			500,000								500,000	0	500,000	
40	25.15	Newton Rd Culvert Improvement Design & Construction				250,000	1,575,000						1,825,000	0	1,825,000	
41	TBD	Dorothea Drive Drainage Improvements		500,000									500,000	0	500,000	
42	53.50	Dana Drive Culvert		150,000	650,000								800,000	0	800,000	
43	55.00	Whispering Branch Area Drainage Improvements		150,000	750,000								900,000	0	900,000	
44	n/a	Various Street Drainage System Improvement Projects		145,000	400,000	200,000	100,000	750,000	1,500,000	1,500,000	750,000	1,750,000	845,000	6,250,000	7,095,000	
		<b>Subtotal</b>	<b>\$ 775,000</b>	<b>1,150,000</b>	<b>795,000</b>	<b>1,800,000</b>	<b>450,000</b>	<b>1,675,000</b>	<b>750,000</b>	<b>1,500,000</b>	<b>1,500,000</b>	<b>750,000</b>	<b>5,870,000</b>	<b>6,250,000</b>	<b>12,120,000</b>	
		<b>Grand Total</b>	<b>\$ 10,700,000</b>	<b>9,500,000</b>	<b>9,500,000</b>	<b>9,500,000</b>	<b>9,500,000</b>	<b>9,500,000</b>	<b>9,500,000</b>	<b>9,600,000</b>	<b>9,650,000</b>	<b>9,750,000</b>	<b>\$ 47,500,000</b>	<b>\$ 48,000,000</b>	<b>\$ 95,500,000</b>	
<b>Revenue Sources</b>																
		Transfers from Stormwater Operations	10,232,000	9,107,000	9,332,000	9,332,000	9,332,000									
		Drainage Petition Fees	75,000													
		Interest On Investments	168,000	168,000	168,000	168,000	168,000									
		CIP Appropriation	225,000	225,000												
		<b>Total Revenues</b>	<b>10,700,000</b>	<b>9,500,000</b>	<b>9,500,000</b>	<b>9,500,000</b>	<b>9,500,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>				