

Richland County Watershed Master Plan, a 25-year Roadmap

SESWA Annual Conference

October 16 | 2015



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Why Develop a Roadmap?



- Perception the Stormwater Department had a lot of \$\$\$
- Weren't spending the \$\$\$ fast enough
- Council wanted a framework for project recommendations
- Status quo was the Screamer Index

Four Program Areas

- Stormwater/Drainage Management
- Water Quality Improvement
- Floodplain Management
- Business Operations

Plan – Process – Technology – CIP

Richland County Goals Related to Stormwater Management

COUNTY “...improve public safety, enhance public health, and increase public service through Departmental and Divisional coordination and public awareness.”



DEPT. “...to provide a broad range of services and infrastructure to help ensure safe and desirable communities for the people of Richland County. Areas of responsibility include: engineering, floodplain management, stormwater quality, roads and drainage.”



Division “...provides stormwater management support (drainage and water quality) in order to improve public safety, enhance public health and increase public service through departmental and divisional coordination and public awareness.”



A large blue circle containing the text "Steering Committee" in white, bold, sans-serif font.

Steering Committee

Inter-departmental staff with watershed/stormwater oriented functions

Guides plan development to achieve a dynamic & flexible process that can adapt to changing drainage and road conditions

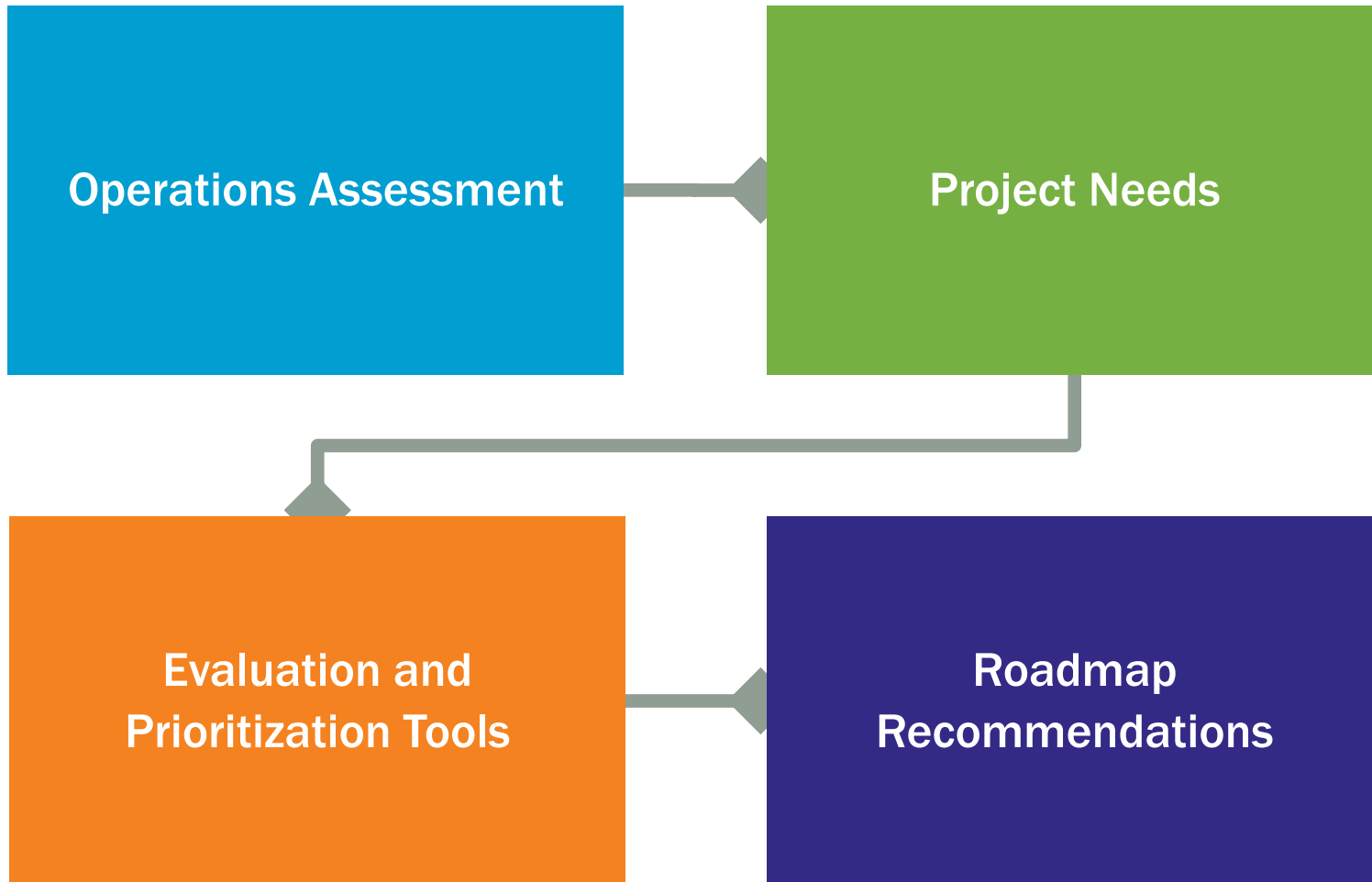
A large orange circle containing the text "Watershed Advisory Council" in white, bold, sans-serif font.

Watershed Advisory Council

Understanding & addressing community concerns

Educating community leadership & elected officials on the County's watershed oriented strategic direction

What did we accomplish?



Developing a Strategic Framework

- Project Database
- Evaluation Criteria
- Steering Committee
 - Project nomination and review
 - Annual Checklist
 - Routine Stormwater Checklist

Purpose of Richland County Stormwater Division Planning

1 | 

Review existing conditions facing the organization including regulations, infrastructure needs and available funding



2 | 


Develop a strategic framework to prioritize improvements and meet stakeholder expectations

3 | 

Implement strategies to proactively meet stakeholder expectations and manage stormwater over the next 25 years

Project Database - Overview

Richland County - Project Prioritization



Introduction

- This is tool was developed by Richland County to track programmatic and capital projects resulting from the Countywide Watershed Improvement Plan (CWIP).

Introduction Tab

Data Entry Tab

- As new project concepts are developed, the project may be entered into the database via the Data Entry tab. The Data Entry tab may also be used to edit existing projects (those previously entered). **TO ADD, EDIT OR DELETE PROJECTS CLICK ON THE DATA ENTRY TAB.**

Raw Data Tab

- All project data is stored in the Raw Data tab. This tab is the data warehouse and is not directly edited by the user.

Summary Tool & Table Tabs

- Use the Summary Tool tab to develop a summary table of the projects stored in the Raw Data tab based on user specified criteria. The results of the Summary Tool are displayed in the Summary Table tab. Also use this tab to generate Project Summary Sheets. **TO DEVELOP A SUMMARY TABLE OR PROJECT SUMMARY SHEETS CLICK ON THE SUMMARY TOOL TAB.**

Project Database- Project Data Entry

Richland County - Project Prioritization

Project Data Entry

To add new projects, complete all yellow fields and click the Add Project to Database button. User may also edit or delete projects already stored in the database (Raw Data tab).

Project Details

Project ID:

Project Name:

Project Description:

Activity Type:

Functional Area:

Project Driver:

County Council District:

Project Status:

Lead Department:

Lead Staff 1:

Lead Staff 2:

Funding Source:

Regulatory Requirement: Yes No

Ownership:

Jurisdiction:

Duration: years
 months

Evaluation Criteria

Select score for each criteria below. Total score is calculated based on these selections.

Drainage Management:	<input type="text"/>	60	Weight
Floodplain Management:	<input type="text"/>	40	
Water Quality:	<input type="text"/>	40	
Fiscal Responsibility:	<input type="text"/>	30	
Customer Service:	<input type="text"/>	50	
Workforce:	<input type="text"/>	20	

Total Score: Select a score for all criteria to populate Total Score

Risk of Doing Nothing

Consequence of Not Doing:

Budget¹

Select Activity Type dollars

Select Activity Type dollars

Select Activity Type dollars

Contingency: \$0.00 Select % contingency. Contingency % multiplied by sum of three cost categories above

Total Cost: \$0.00 dollars

Project Management: hours

¹ All costs based on external contractor/consultant completing work. Internal Management costs based on relative level of effort. If Cost breakdown is not available, then enter total cost in the first budget category and enter \$0 for other categories.

When form is complete, click this button to add the project to the database. To reset the data entry form to all blank fields click the button below.


To EDIT an existing project select it from the drop down below and click Edit Project. When edits are complete, click Apply Edits to record edits in the project database.

To DELETE an existing project select it from the drop down below and click Delete Project.

Project Database Tool – Summary Tool

Richland County - Project Prioritization

Summary Tool – Use this tool to produce a Summary Table based on projects in the database ("Raw Data" tab) or to generate Project Summary Sheets



Summary Table Set Up

Step 1

Select the fields to be included in the table:

Select ALL Fields

<p><u>Project Details</u></p> <p><input type="checkbox"/> Project ID</p> <p><input type="checkbox"/> Project Name</p> <p><input type="checkbox"/> Project Description</p> <p><input type="checkbox"/> Activity Type</p> <p><input type="checkbox"/> Functional Area</p> <p><input type="checkbox"/> Project Driver</p> <p><input type="checkbox"/> County Council District</p> <p><input type="checkbox"/> Project Status</p> <p><input type="checkbox"/> Lead Department</p> <p><input type="checkbox"/> Lead Staff 1</p> <p><input type="checkbox"/> Lead Staff 2</p> <p><input type="checkbox"/> Funding Source</p> <p><input type="checkbox"/> Regulatory Requirement</p> <p><input type="checkbox"/> Ownership</p> <p><input type="checkbox"/> Jurisdiction</p> <p><input type="checkbox"/> Duration</p>	<p><u>Evaluation Criteria</u></p> <p><input type="checkbox"/> Drainage Management</p> <p><input type="checkbox"/> Floodplain Management</p> <p><input type="checkbox"/> Water Quality</p> <p><input type="checkbox"/> Fiscal Responsibility</p> <p><input type="checkbox"/> Customer Service</p> <p><input type="checkbox"/> Workforce</p> <p><input type="checkbox"/> Total Score</p> <p><u>Budget</u></p> <p><input type="checkbox"/> Category 1</p> <p><input type="checkbox"/> Category 2</p> <p><input type="checkbox"/> Category 3</p> <p><input type="checkbox"/> Contingency</p> <p><input type="checkbox"/> Total Cost</p> <p><input type="checkbox"/> Project Management (Internal Hours)</p> <p><input type="checkbox"/> Annual Hours (Internal Hours)</p> <p><u>Risk of Doing Nothing</u></p> <p><input type="checkbox"/> Consequence of Not Doing</p>
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Cost Category Names are a function of the Activity Type

Step 2

Select this option to add an aggregate row at the bottom of the summary table for applicable fields (Count for Project ID and Sum for Budget items)

Add Aggregate Row to Summary Table

Step 3

Sort by:

leave blank if no sorting is desired

Step 4

Then sort by:

leave blank if second level sorting is not desired

Step 5

Then sort by:

leave blank if third level sorting is not desired

Step 6

Select field to filter by:

leave blank if no filtering is desired

Select filter operator:

Input filter threshold:

Step 7

Select second field to filter by:

leave blank if no filtering is desired

Select filter operator:

Input filter threshold:

Summary Table Generation

When form is complete click this button to develop a summary table

Develop Summary Table

To reset the Summary Table Set Up form click the button below

Reset form

Project Sheet Generation

Select the Project Sheet(s) to be developed

All Projects (in Raw Data tab)

Projects in Summary Table

One Project

Select Project from drop down

Generate Project Sheets

Edit Project Criteria Weighting

Use the dropdowns to select revised weights and then click Apply. Edits will be applied to all projects in the Raw Data tab and the project score

	current weighting	revised
Drainage Management:	60	<input type="text"/>
Floodplain Management:	40	<input type="text"/>
Water Quality:	40	<input type="text"/>
Fiscal Responsibility:	30	<input type="text"/>
Customer Service:	50	<input type="text"/>
Workforce:	20	<input type="text"/>

Apply Revised Weights

Tips for Filters

- For text fields only the 'equal to' filter is applicable.
- Step 7 is applied as an AND filter to Step 6. For example, total cost is greater than a certain amount in Step 6 AND less than a specified amount in Step 7.
- For text filters the match must be exacted. If no

Introduction | Data Entry | Raw Data | **Summary Tool** | Summary Table | Project Sheet Template | Evaluation Criteria

Project Database – Summary Sheets

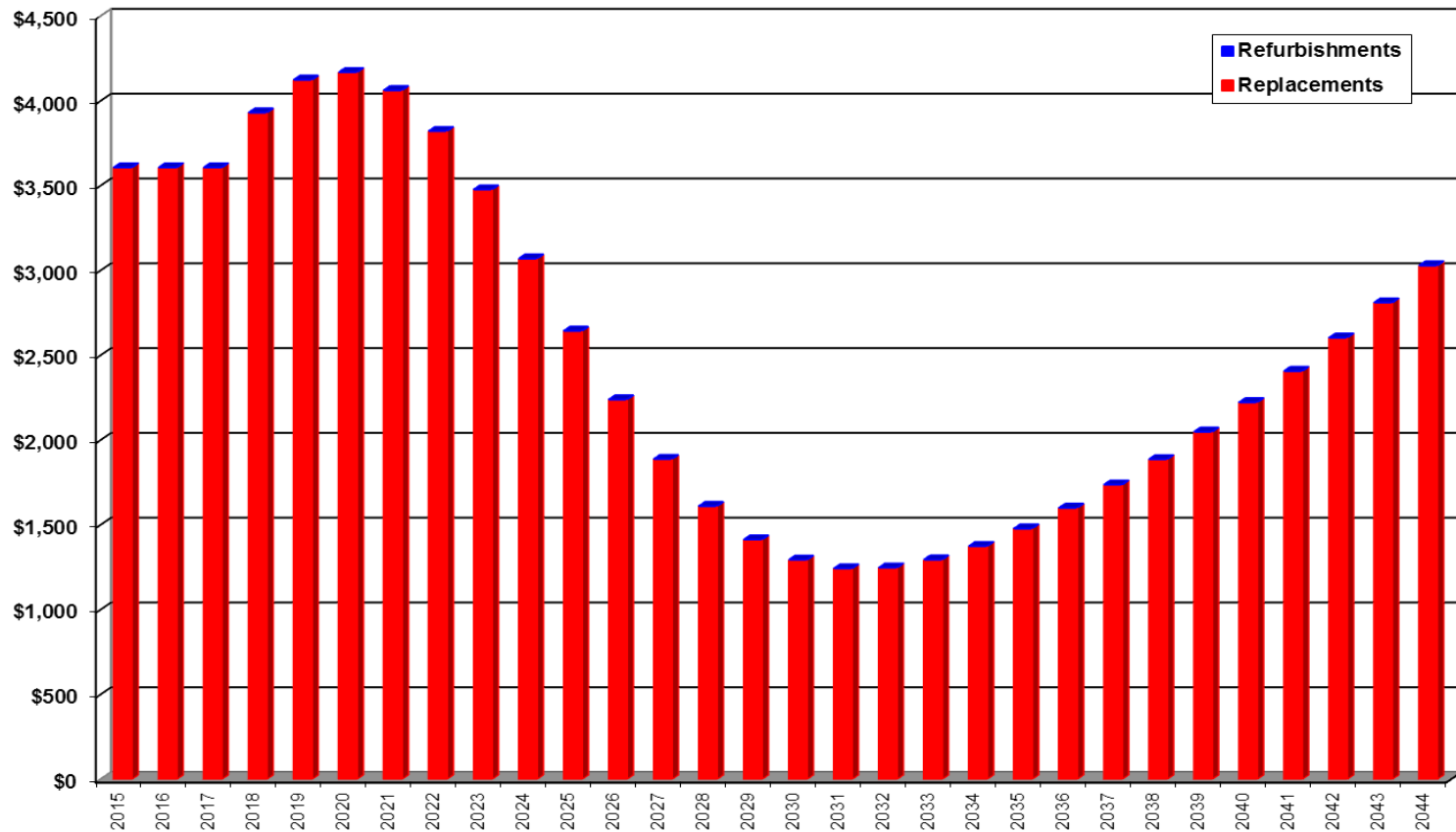
	A	B	C	D
1	Richland County Stormwater Management Plan			
2	Project Summary			
3				
4	Project Details			
5	Project ID:	1		
6	Project Name:	Optimize Business Processes		
7	Project Description:	Discuss and document key business processes implemented by staff within the organization. Focus on problem areas to identify efficiency improvements to performing work including building reviews, responding to the public, data gathering (monitoring and enforcement), data usage for problem identification, and routine project prioritization approaches.		
8				
9				
10				
11				
12				
13				
14	Activity Type:	Process		
15	Functional Area:	General		
16	Project Driver:	County/Department/Division		
17	County Council District:			
18	Project Status:	Planning		
19	Lead Department:			
20	Lead Staff 1:			
21	Lead Staff 2:			
22	Funding Source:			
23	Regulatory Requirement:	No		
24	Ownership:			
25	Jurisdiction:			
26	Consequence of Not	Inefficiencies in staff work, slower progress, lost resources, more		
27	Doing:	expensive operational costs		
28	Prioritization Criteria			
29		Evaluation Score	Weight	Score x Weight
30	Drainage Management:	7	60	420
31	Floodplain Management:	5	40	200
32	Water Quality:	6	40	240
33	Fiscal Responsibility:	8	30	240
34	Customer Service:	8	50	400
35	Workforce:	4	20	80
36	Total Score:			1,580
37				
38	Project Schedule and Budget			
39	Duration:	0.50	<i>years</i>	
40	Analysis/Evaluation:	\$45,000		
41	Implementation:	\$5,000		
42	Not Applicable:			
43	Contingency:	\$0		
44	Total Cost:	\$50,000		
45	Project Management:	200	<i>internal hours</i>	
46	Annual Hours:	200	<i>internal hours per year</i>	
47				

Evaluation Criteria

Criterion	Weight	Metric
Improves Stormwater Drainage	60	<i>Size of area improved</i>
		<i>Part of a larger plan</i>
		<i>Public safety</i>
Improves Floodplain Management	40	<i>Size of area improved</i>
		<i>Improves floodplain management program</i>
		<i>Public safety</i>
Improves Water Quality	40	<i>Watershed area improved</i>
		<i>Part of a larger plan</i>
		<i>Public safety</i>
Improves Fiscal Responsibility	30	<i>Promotes efficiency</i>
		<i>Leverage additional funding</i>
		<i>Return on investment</i>
Improves Customer Service	50	<i>Improves responsiveness</i>
		<i>Improves communication</i>
		<i>Provides education</i>
Improves Workforce	20	<i>Basic training for job</i>
		<i>Education/enhances staff skills</i>
		<i>Succession planning</i>

Stormwater Infrastructure – R&R Annual Planning

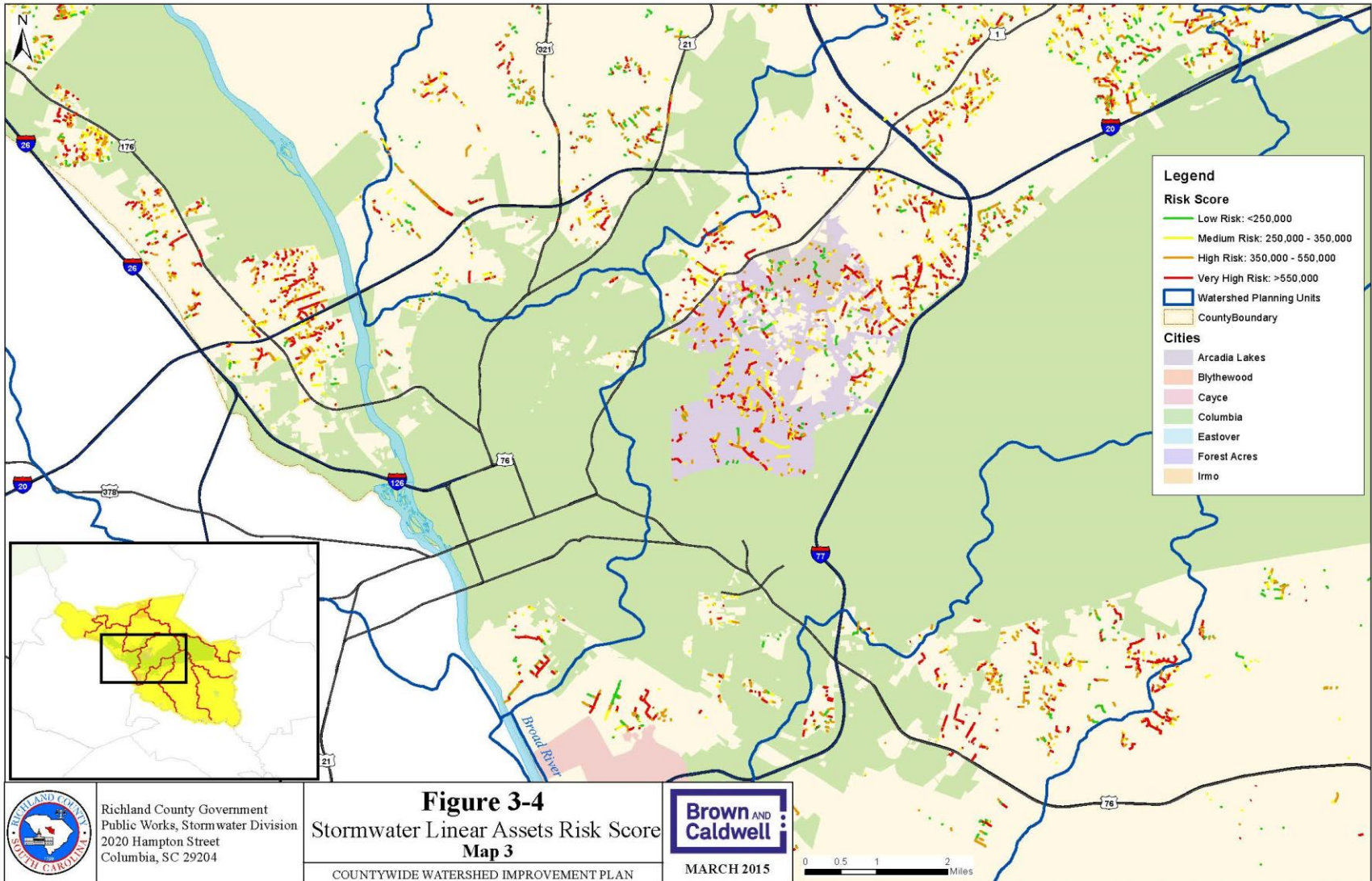
Richland County
R&R Fund Expenditures
Year 2015 dollars, Smoothed, \$000s Scenario: Baseline



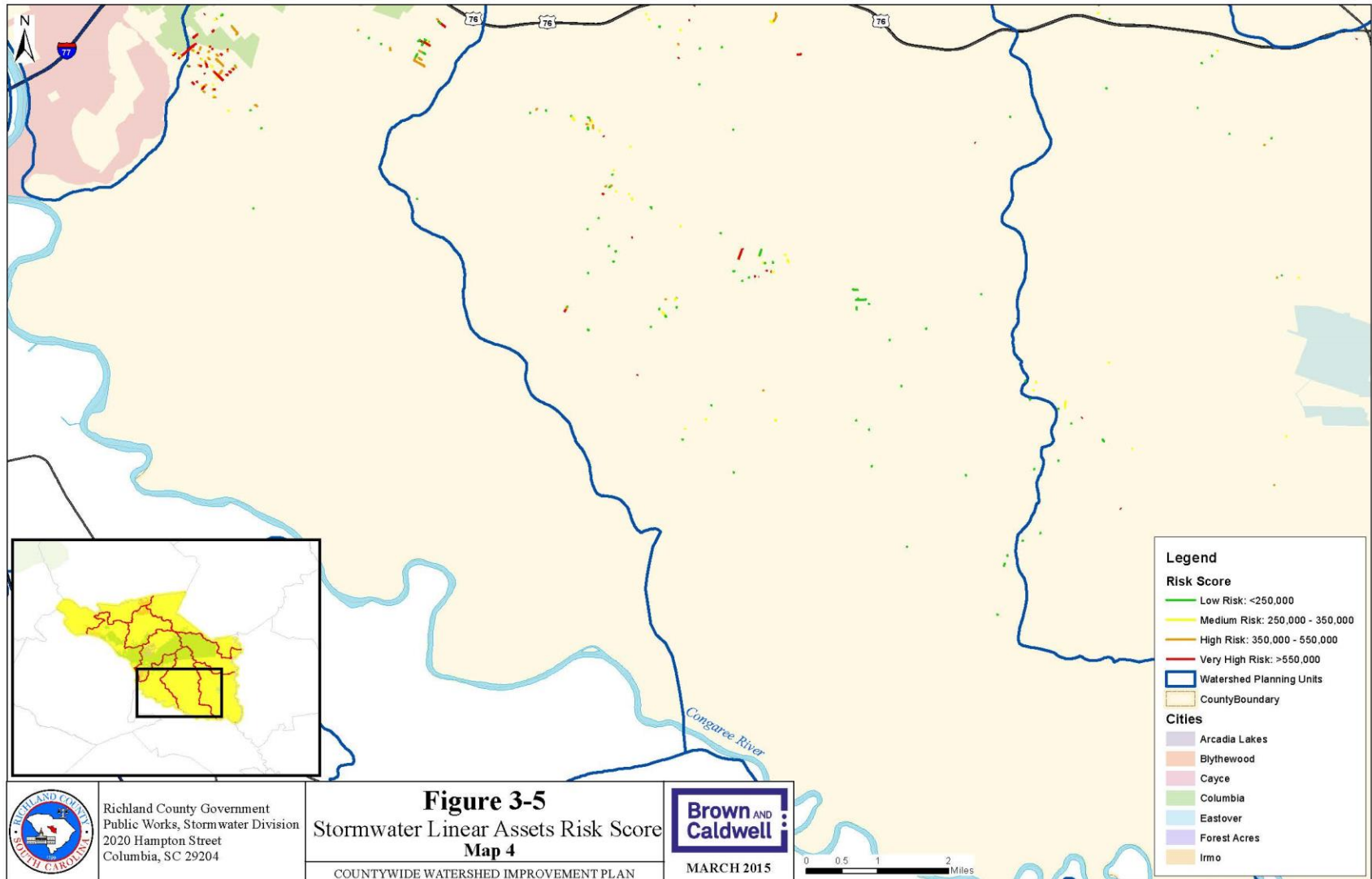
Criticality Analysis

Likelihood-of-Failure Scoring Criteria	
Material	10: clay, brick 8: plastic (CPP) 7: PVC, unknown, other 6: cast iron, plain corrugated metal 5: coated corrugated metal 3: polyethylene pipe (HDPE), ductile iron, concrete pipe 1: reinforced concrete, stone 0: steel, metal plate
Age/RUL	10: ≤ 20% RUL 8: 21%–40% RUL 6: 41%–60% RUL 4: 61%–80% RUL 2: 81%–100% RUL
Condition (based on known flooding areas)	10: within 1,000' of flooding location 7: within 2,500' of flooding location 5: within 4,000' of flooding location 2: within 5,000' of flooding location 0: outside of 5,000' radius of flooding location
Consequence-of-Failure Scoring Criteria	
Proximity to critical facilities	10: high (< 100') 6: mid (100'–2,000') 2: low (> 2,000')
Proximity to buildings	10: ≤ 30' 0: > 30'
Proximity to critical roads	10: interstates 8: U.S. and state highways 4: collectors 2: local roads, subdivisions
Pipe diameter	10: > 36" 5: 19"–36" 0: ≤ 18"

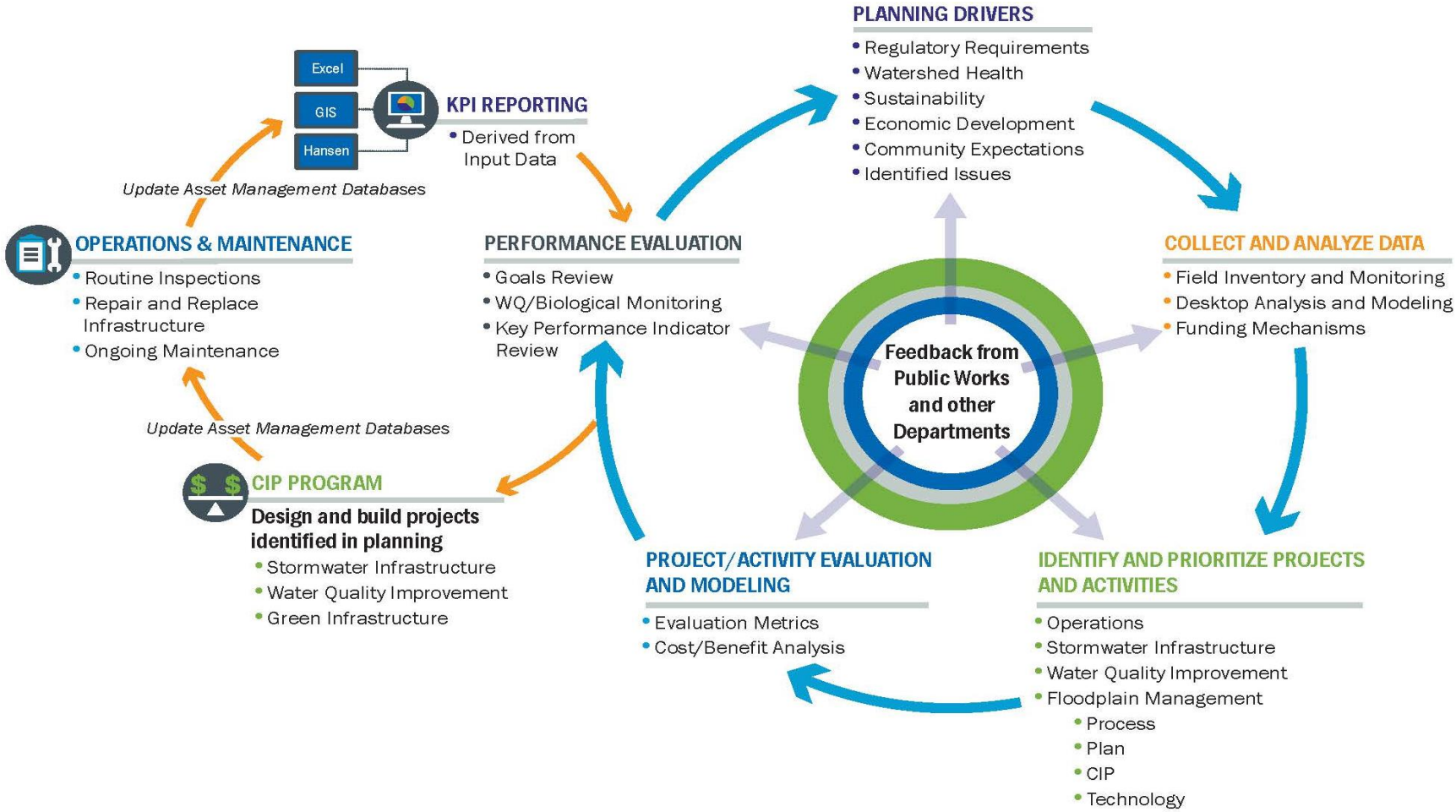
Criticality Analysis



Criticality Analysis



Flexible, adaptive approach



Overall Recommendations, Short-term

- Current department budget = \$3.5 million (\$2 million operations, \$1.5 million CIP)
- High ranked, non-CIP projects = 26 projects, \$4.6 million
 - Business operations improvements
 - Water quality improvement planning
 - SOPs
 - XXXXX – anything specific to highlight - XXXX
- Current CIP = 109 projects = \$19.5 million
- Equals \$34 million over 5 years for CIP and Operations OR \$6.8 annually
- Target 26 non-CIP projects and top 20 CIP projects over next five years to meet current budget of \$3.5 million per year

Make this slide look better

Overall Recommendations, Long-term

Estimated Long-Term Richland County Stormwater Funding Needs over 25 Years

Funding Category	Current Funding Need Assessed (\$)	Future Considerations	Budget Factor Increase	Future Funding Need (\$)
Planning, Process, and Technology Projects	\$15M	Future projects will be identified over next 25 years; changing conditions will warrant add-on studies to already completed projects.	\$15M plus 25% of \$15M	\$20M
Stormwater Infrastructure CIP	\$5.4M	RPM results show \$63M needed over next 25 years. Studies will help determine the actual projects.	\$5.4M plus 25% of \$5.4M plus \$63M	\$69.75M
Water Quality CIP	\$2.1M	Regulations continue to tighten around water quality and are becoming increased drivers in developing projects. Unknown how high a priority this will drive program currently.	\$2.1M plus 50% of \$2.1M plus additional \$10M-20M	\$13.15M-\$23.15M
Program Operations	\$2M	Current resource limitation, increasing asset management and maintenance, growing CIP, growth in community.	200% within 25 years, incrementally increased over time. Years 0-5 = \$2M/year. Total of \$10M. Years 6-10 = \$3M/year. Total of \$15M. Years 11-25 = \$4M/year. Total of \$60M.	\$85M
Total 25-year funding need				\$188.5M-\$198.5M or \$7.5M-\$7.9M/year¹

What's Next

- Steering Committee routine meetings
- PW Director recommendations – Pond policy
- Plan aligns with new MS4 permit – projects targeted over next five years that meet
- Focus on critical assets and operations improvements



Time to ask some questions...

