



FLOWING FORWARD - IMPLEMENTING NEW STORMWATER DESIGN STANDARDS



SESWA
October 6, 2022



Overview

1. SOLOCO History
2. Manual Development
3. Manual Implementation - Beaufort
4. Manual Implementation - Bluffton
5. Conclusions/Lessons Learned
6. Questions



What Fuels Stormwater Management?



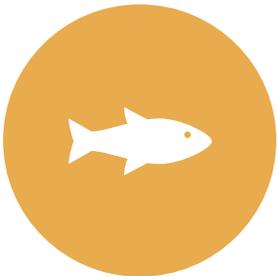
Ordinance Revision and Adoption



MS4 Permits



Public Concern

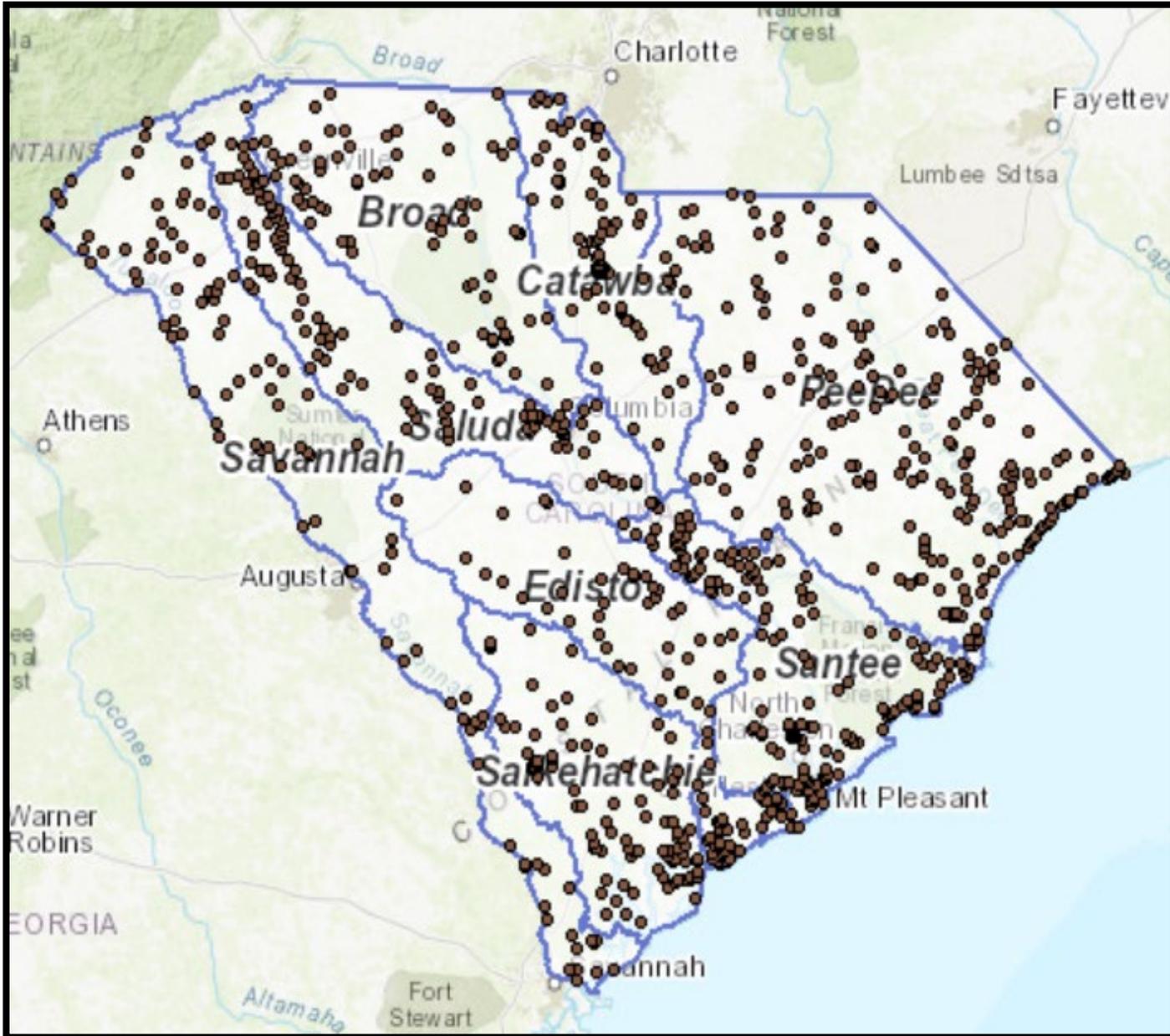


Impaired Waters



2018 DRAFT SC DHEC 303(d) List of impaired waterbodies

- 1,242 impairments
- 1,041 sites



Source: <https://gis.dhec.sc.gov/watersheds/>



Southern Lowcountry Regional Board (sloco)

Vision

The Vision of the SoLoCo Board is to enhance:

- the building of relationships among elected officials; and
- the communication among the members internal as well as to subdivisions external, and most importantly to the Communities in which we serve.

Our Vision is a vibrant Low Country, a united Low Country and a sustainable Low Country.

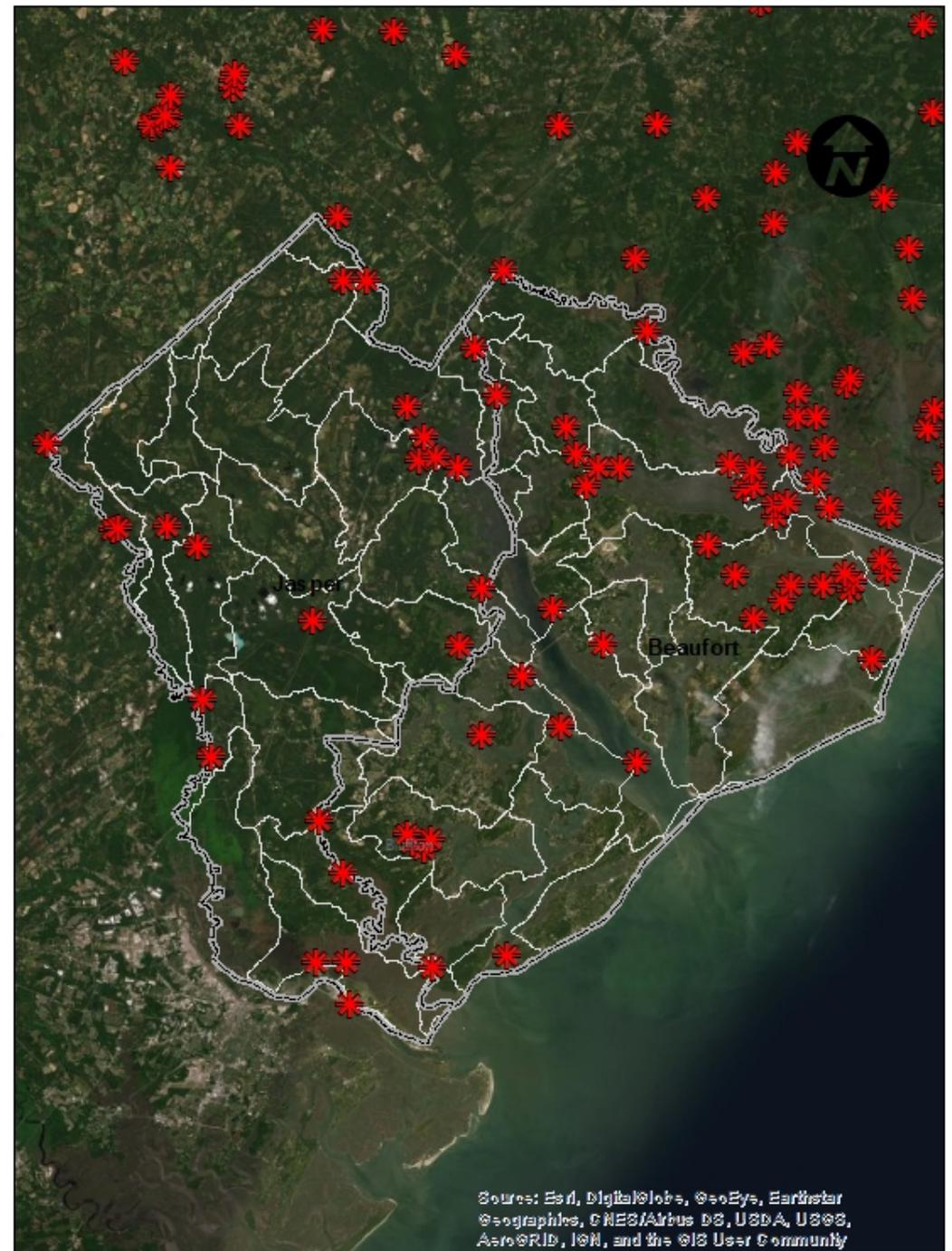
Mission

To create a regional think tank that will identify the problems and opportunities that face the entire southern low country... To discuss the zoning, housing, employment, quality of life and social issues and propose action plans to the appropriate legislative bodies.



Southern Lowcountry Water Quality Issues

- Waters in Beaufort & Jasper Counties with an impairment *
- Water does not follow jurisdictional boundaries
- 2017 – SoLoCo charged respective staff to summarize & compare stormwater standards to protect natural resources and waterways



Stormwater Runoff

Following Watershed Boundaries

Following Political Boundaries



Stormwater Technical Subcommittee: Mission Statement

To protect and increase the quality of public health, property, and aquatic habitats through collaborative policies and practices to manage both stormwater quantity and quality from our developed and developing areas.

In summary, our mission is:

- Recognize and preserve our unique character and environment.
- Develop and promote a consistent and effective approach to stormwater management throughout the Lowcountry.
- Support continued economic growth throughout the region without increased demand on public investment.



Project team: southern Lowcountry regional stormwater ordinance & design manual



Beaufort County – lead and contract administrator



Jasper County



City of Beaufort



Town of Bluffton – project manager



City of Hardeeville



Town of Port Royal

Stormwater Technical subcommittee (2017)

Findings

- Most restrictive/highest criteria are not necessarily “the best”
- Stormwater runoff does not follow political boundaries
- Not every watershed is the same

Recommendation to SoLoCo

- Develop a **regional** stormwater standard to provide consistent protection of water resources and consistent design requirements that are current “State of Knowledge”



CONSULTANT TEAM PROJECT TASKS



Leading the nation with clean water solutions...



1.
Develop

Model Stormwater Ordinance

2.
Develop

Comprehensive Stormwater Design Manual

3.
Facilitate

Stakeholder and Public Review

4.
Deliver

Manual, Calculations Tool, and Training



Task 2 – Stormwater Design Manual overview

- **Watershed-based** approach, not by jurisdiction
- Incorporate **green infrastructure/low impact development** standards
- Protect existing **natural areas** & incorporate **open space** in new development
- Water quantity and quality credit for 13 BMPs



TASK 2 – STORMWATER DESIGN MANUAL CHAPTERS

Chapter 1: Background, Purpose, and Administration

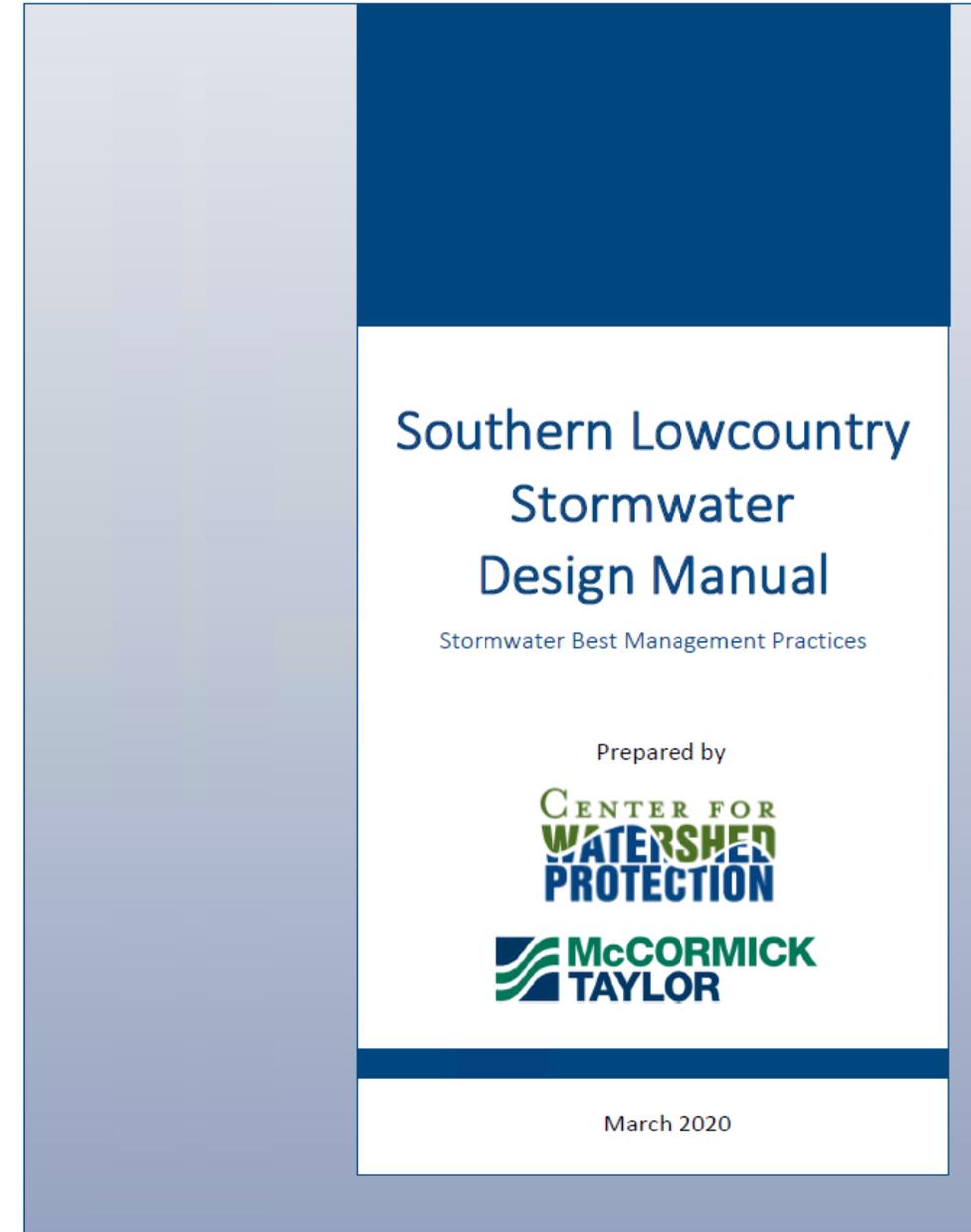
Chapter 2: Design Review and Permitting Process

Chapter 3: Minimum Control Requirements

Chapter 4: Stormwater Best Management Practices

Chapter 5: Erosion and Sediment Control

Chapter 6: Enforcement and Violations



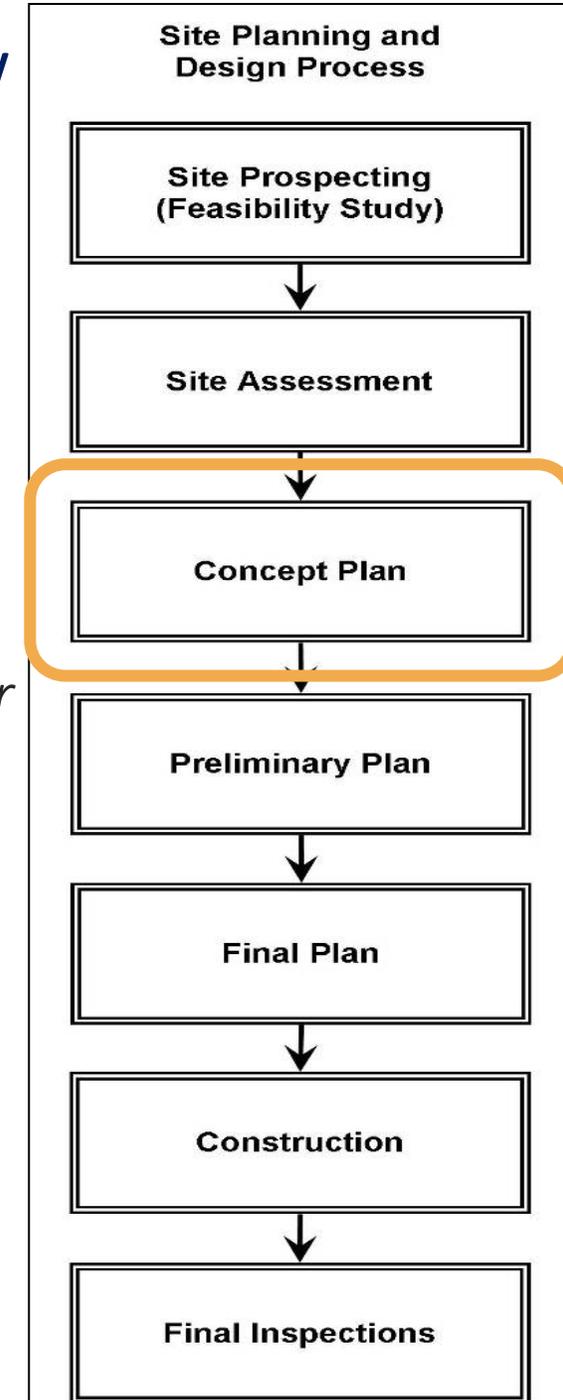
TASK 2 – STORMWATER DESIGN MANUAL APPENDICES

- Appendices A – T
- A. Southern Lowcountry Regional Post Construction Stormwater Ordinance
- B. Infiltration Testing & Geotech Requirements
- C. Soil Compost Amendment Requirements
- D. Design Checklist
- E. Construction Stormwater Inspection Forms
- F. Maintenance Inspection Checklists Spreadsheet
- G. Compliance Calculator Spreadsheet Instructions
- H. Compliance Calculator
- I. General Design Criteria & Guidelines
- J. Rainwater Harvesting Treatment & Management Requirements
- K. Rainwater Harvesting Calculator
- L. Glossary
- M. References & Resources
- N. Summary of Fed. & State Stormwater Regulations
- O. Maintenance Agreement Template
- P. Reserved
- Q. Reserved
- R. Land Cover Designations
- S. Reserved
- T. Beaufort County Single Family Lot Requirements



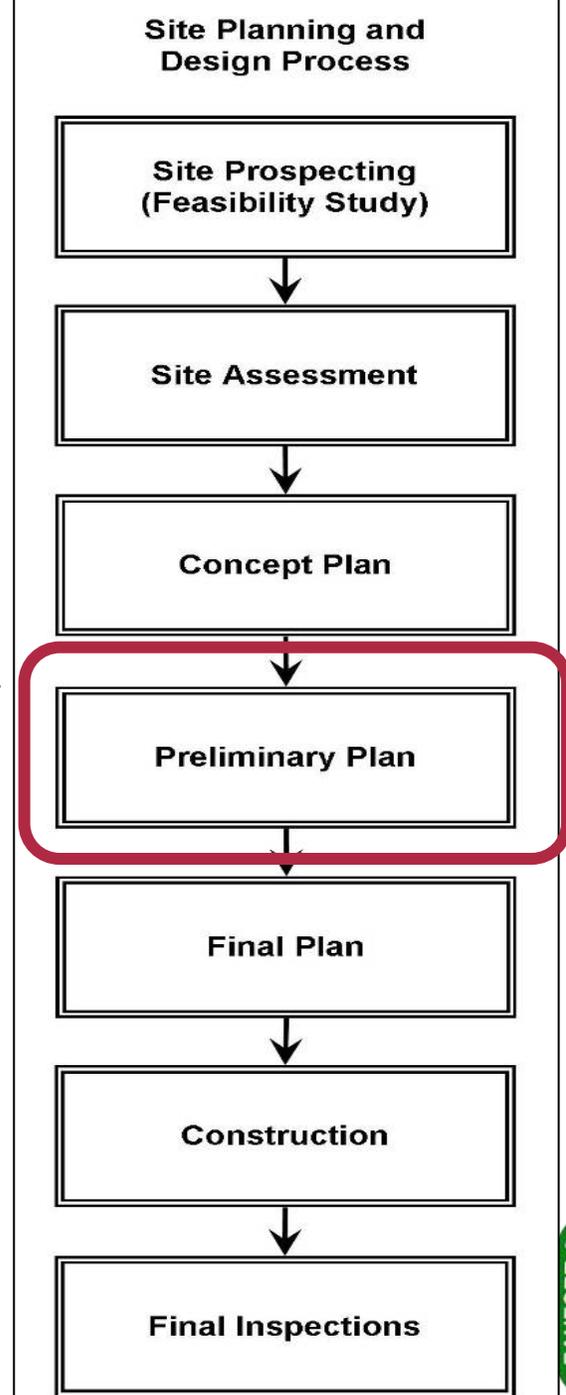
Design Manual Chapter 2: design & review permitting

- Better Site Design
- Natural Resources Inventory
- Site Planning and Design Process
 - *Integrate natural resource protection and stormwater management (SWM)*
 - *Assess opportunities for infill and/or redevelopment*
- Specifies stormwater management plan submittal requirements
 - *To be included on plan sheets*
- Stipulates required forms found in Appendices



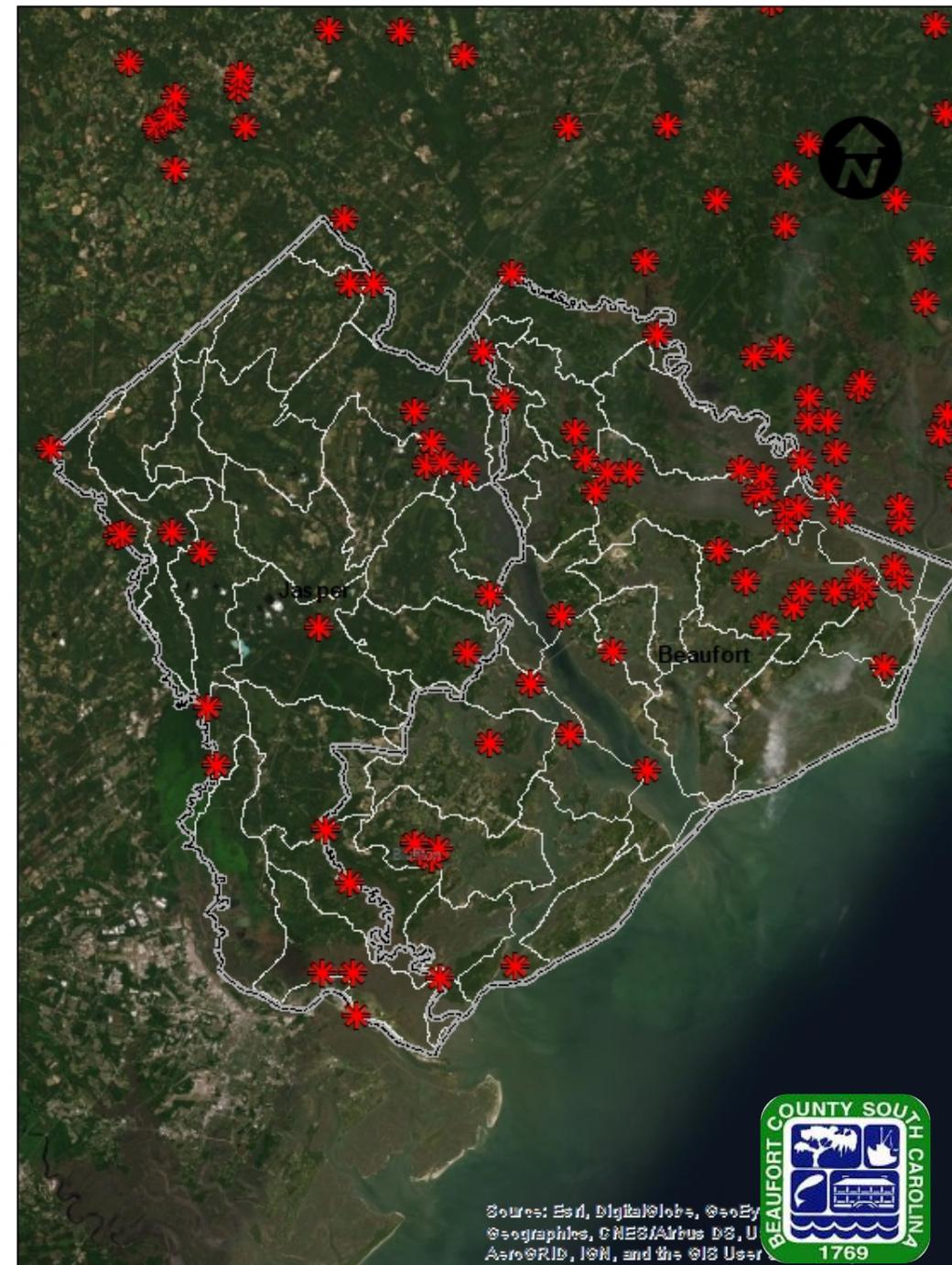
Design Manual Chapter 2: design & review permitting

- Better Site Design
- Natural Resources Inventory
- Site Planning and Design Process
 - *Integrate natural resource protection and stormwater management (SWM)*
 - *Assess opportunities for infill and/or redevelopment*
- Specifies stormwater management plan submittal requirements
 - *To be included on plan sheets*
- Stipulates required forms found in Appendices



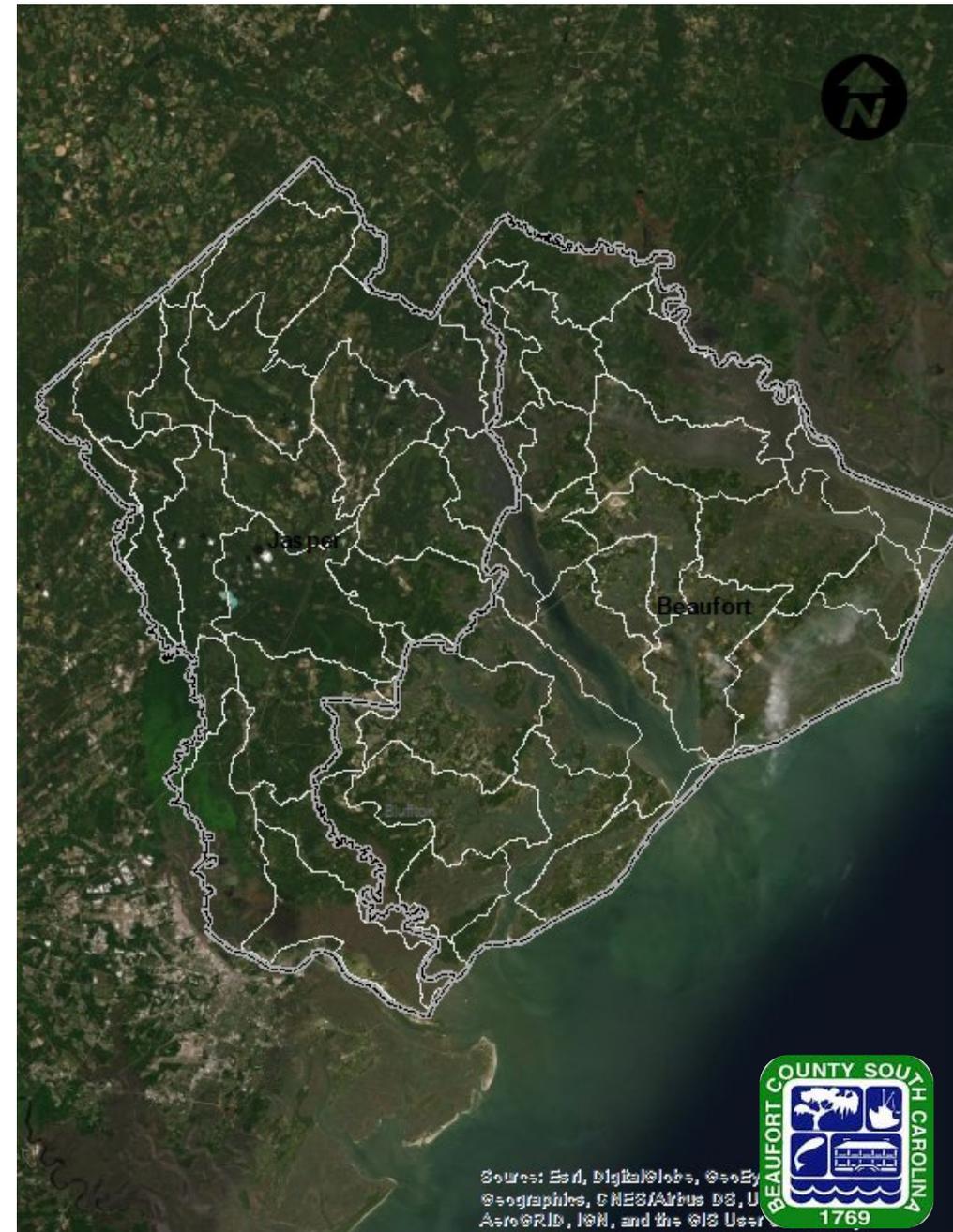
Design Manual Chapter 3: Stormwater Management Performance Requirements

- Water does not follow jurisdictional boundaries, nor do impairments
- Manual defines requirements for three Watershed Protection Areas based on watershed boundaries of HUC-12
- Also allows for additional Special Watershed Protection Areas based on current or future water quality concerns



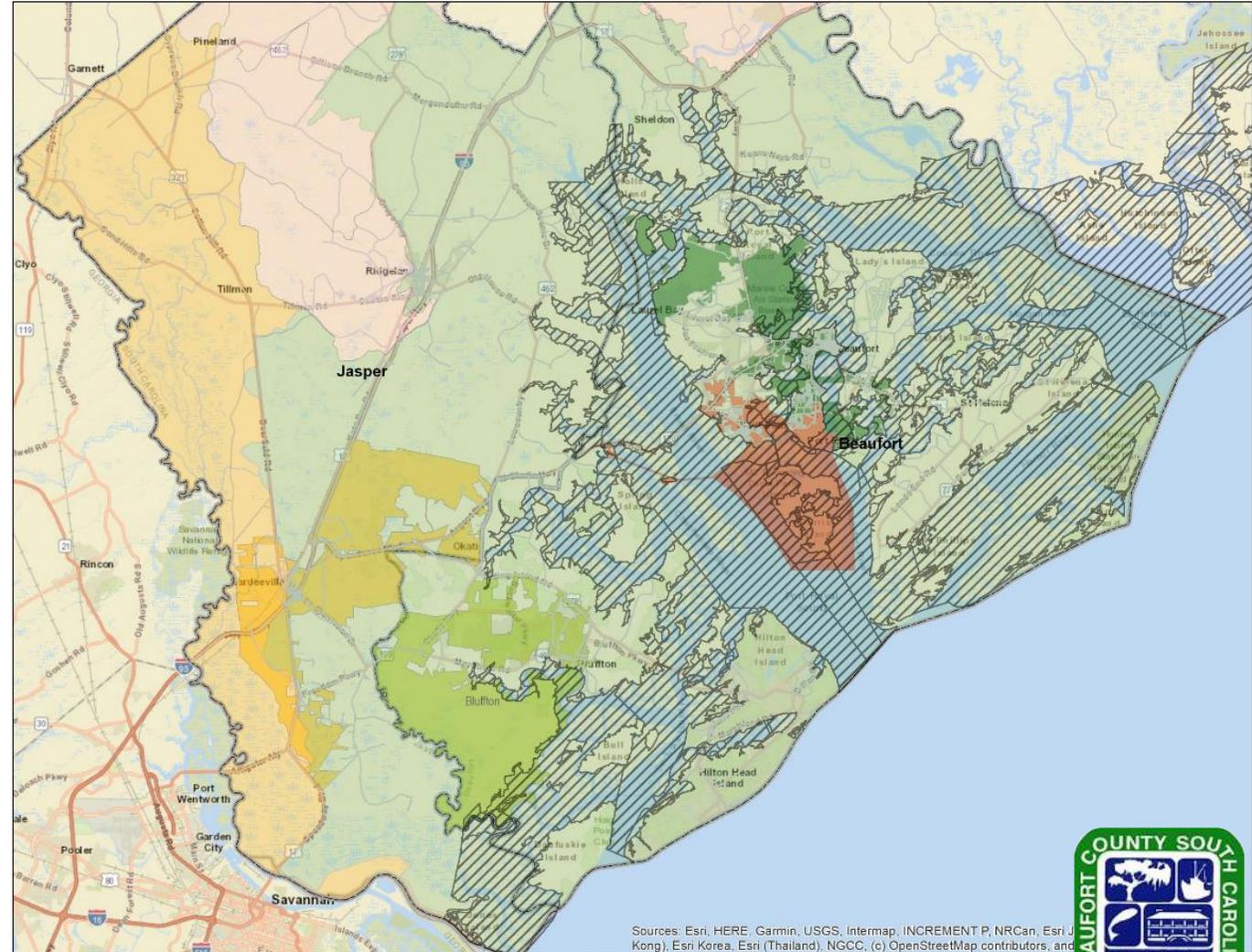
Design Manual Chapter 3: Requirements for all Watersheds

- Complete Natural Resources Inventory
- Implement Better Site Design
- Minimum Pollutant Removal:
 - *TSS 80%*
 - *TN 30%*
 - *Bacteria 60%*
- Control the post-development peak runoff
 - *2, 10, 25-year, 24-hour storm*
- Capacity of the existing downstream receiving conveyance



Design Manual Chapter 3.5.5: Shellfish

- Much of Beaufort County is classified for shellfish harvesting and requires higher levels of protection.

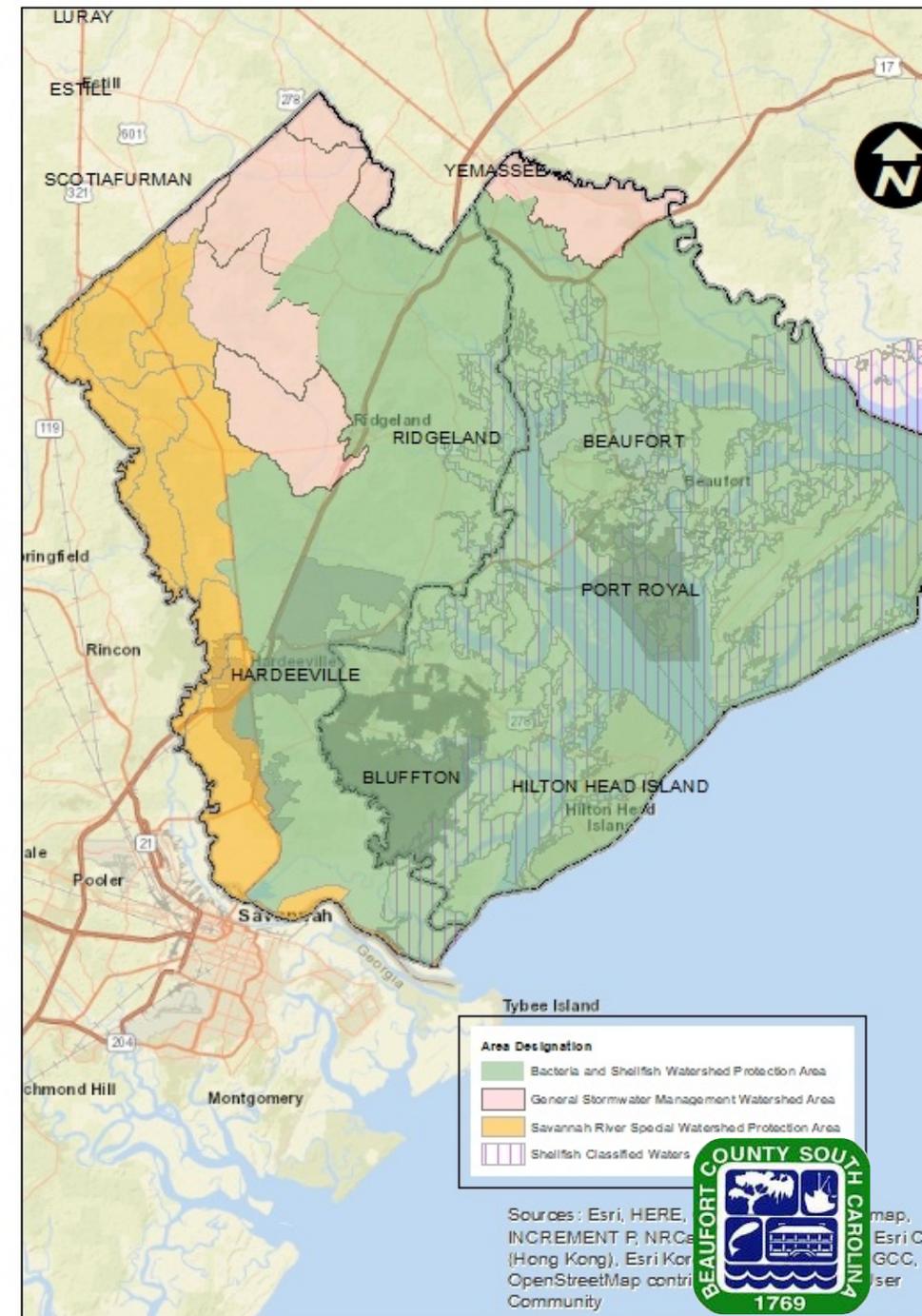


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri J. Kong, Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and



Design Manual Chapter 3.5.6: General Watershed

- Rationale:
 - *Previous Jasper County stormwater design manual requirements*
- Water Quality:
 - *Maintain pre-development hydrology for 85th percentile storm (1.16")*



Design Manual Chapter 3.8: Extreme Flood & 10% Rule

- Documentation supporting safe passage of the 100-year post-development flow
- Evaluation must be provided to include downstream analysis to the point which the project comprises 10% of the total contributing drainage area
- *Address existing conveyance system capacity and “pinch points” where a pipe/culvert would be overtopped and where the pipe/culvert will need to be upgraded*

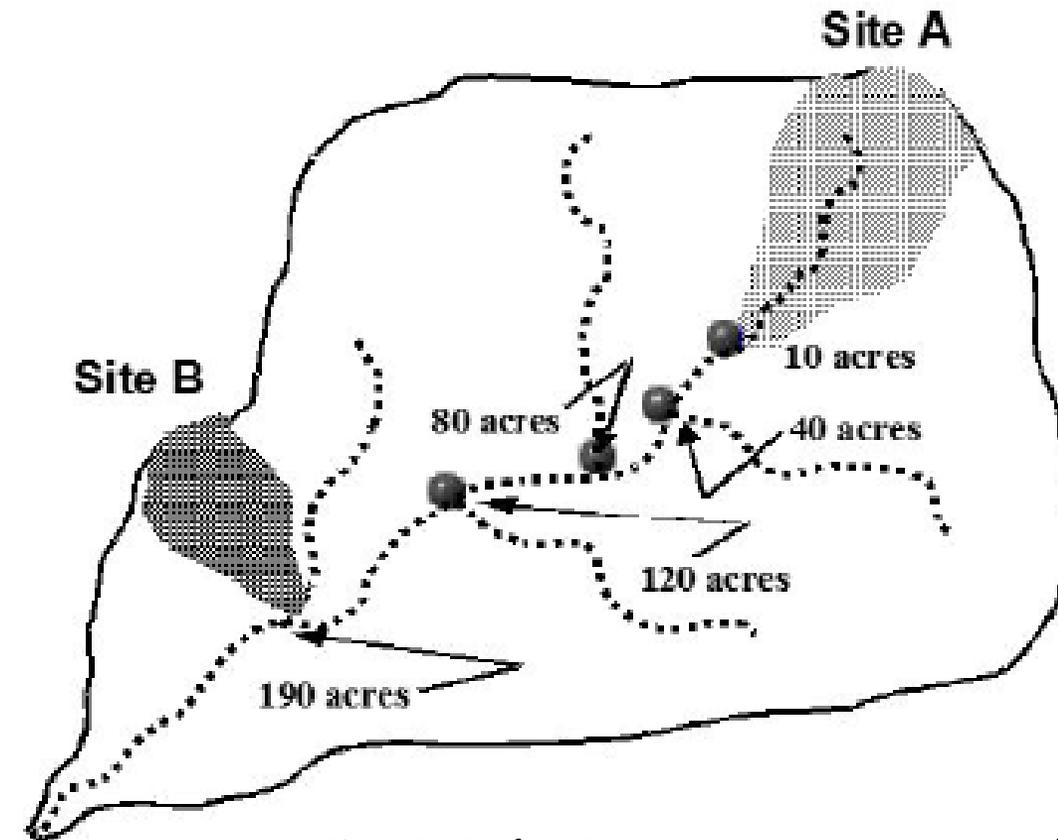


Figure 3.1.9-3 from GA Stormwater Management Manual



Design Manual chapter 3: Alternatives to On-Site Stormwater Management

- **3.9 Maximum Extent Practicable (MEP)**

- *There must a serious and demonstrated attempt to comply with the Manual*
- *8 Evaluation points are detailed*
- *MEP submittal must include documentable evidence of the process the applicant has performed*

- **3.10 Off-Site Stormwater Management**

- *MEP requirements must be met first on-site*
- *Off-site or regional practice must be located on property legally dedicated, sized & designed to meet requirements of this manual (stormwater quantity and quality control in same catchment as defined by the local jurisdiction)*

- **3.11 Fee-in-Lieu**

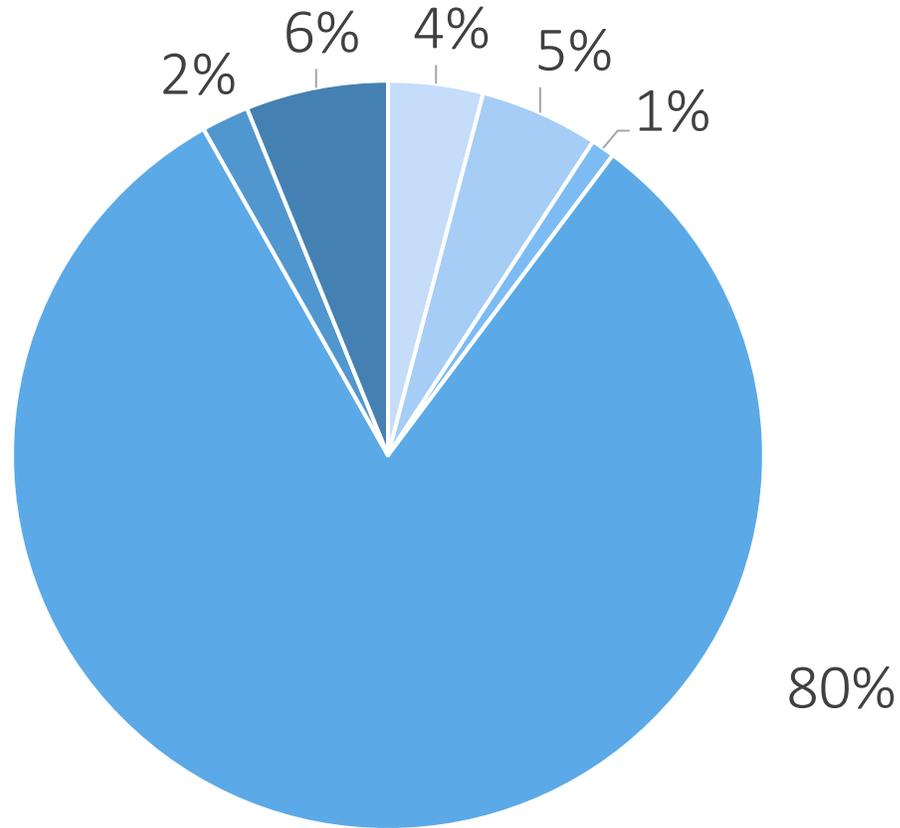
- *Assumes there's an entity responsible for managing stormwater off-site*
- *Fee-in-Lieu will be applied to the same HUC-12*

- **3.12 Waivers**



Public Comment Breakdown

115 total comments



- Certifications
- 10% Rule
- Ordinance

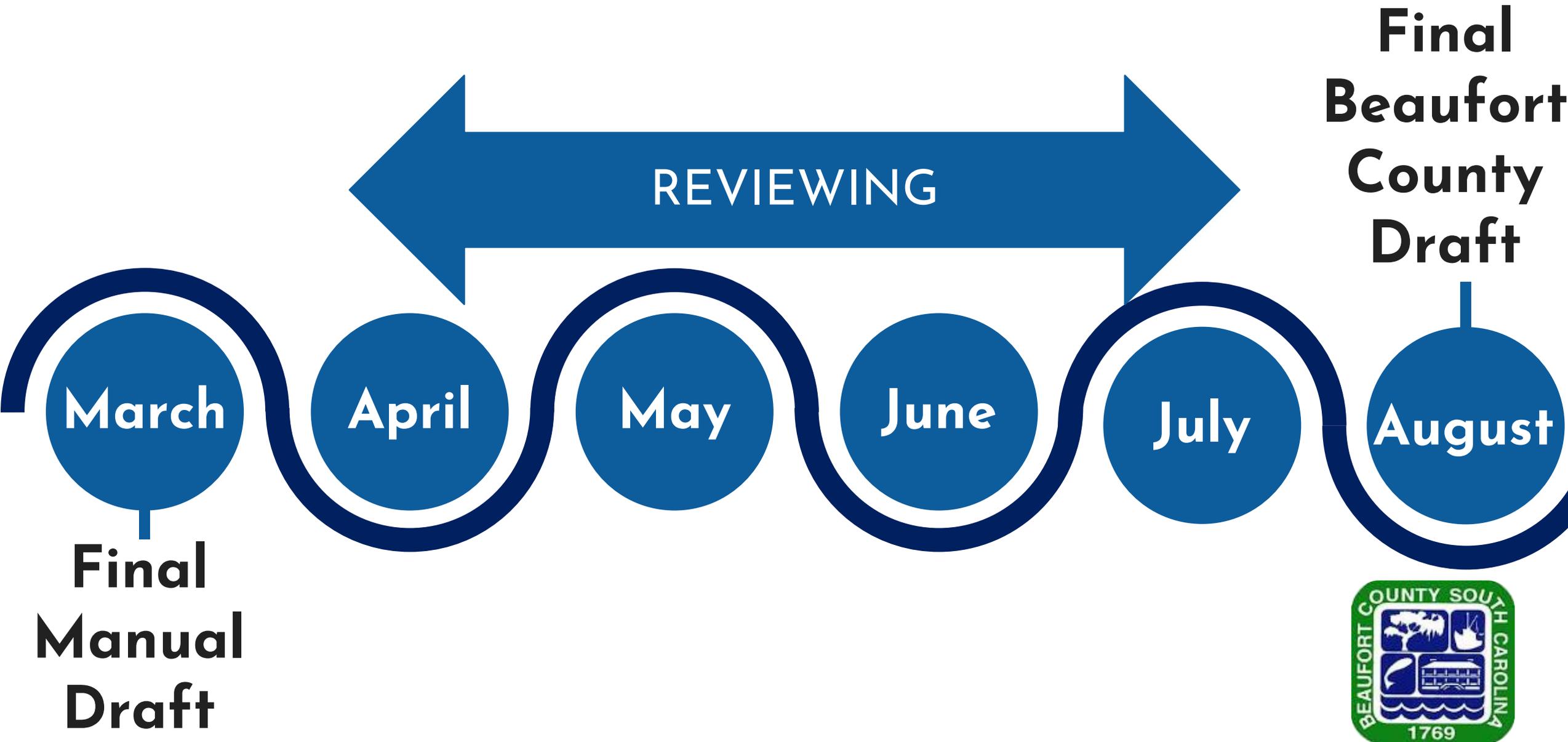
- Bonds
- Manual and Appendices
- Outside of Work



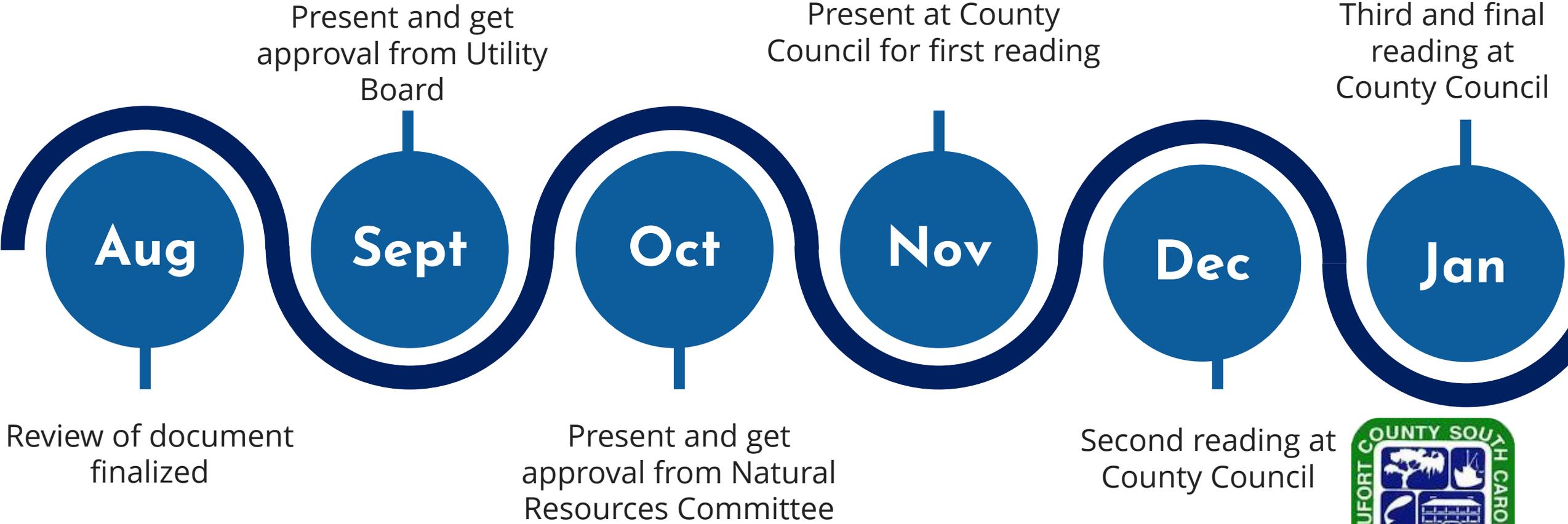
FINAL DRAFT MANUAL COMPLETED IN MARCH 2020



Beaufort Milestones Reached in 2020



Beaufort Milestones Reached in 2020 -2021



Beaufort Milestones Reached 2021



January

County hosts training sessions for developers and staff



February

Previous manual is officially replaced for implementation by the SoLoCo Manual



Beaufort County Phased Implementation

- Gave time for internal standards to be in alignment through jurisdictional process
- Align Community Development standards to Better Site Design principles



Beaufort County Exemptions Offered

- Plans submitted for approval prior to February 1st, 2021
- Plans submitted with an approved master plan adopting water quantity and water quality standards

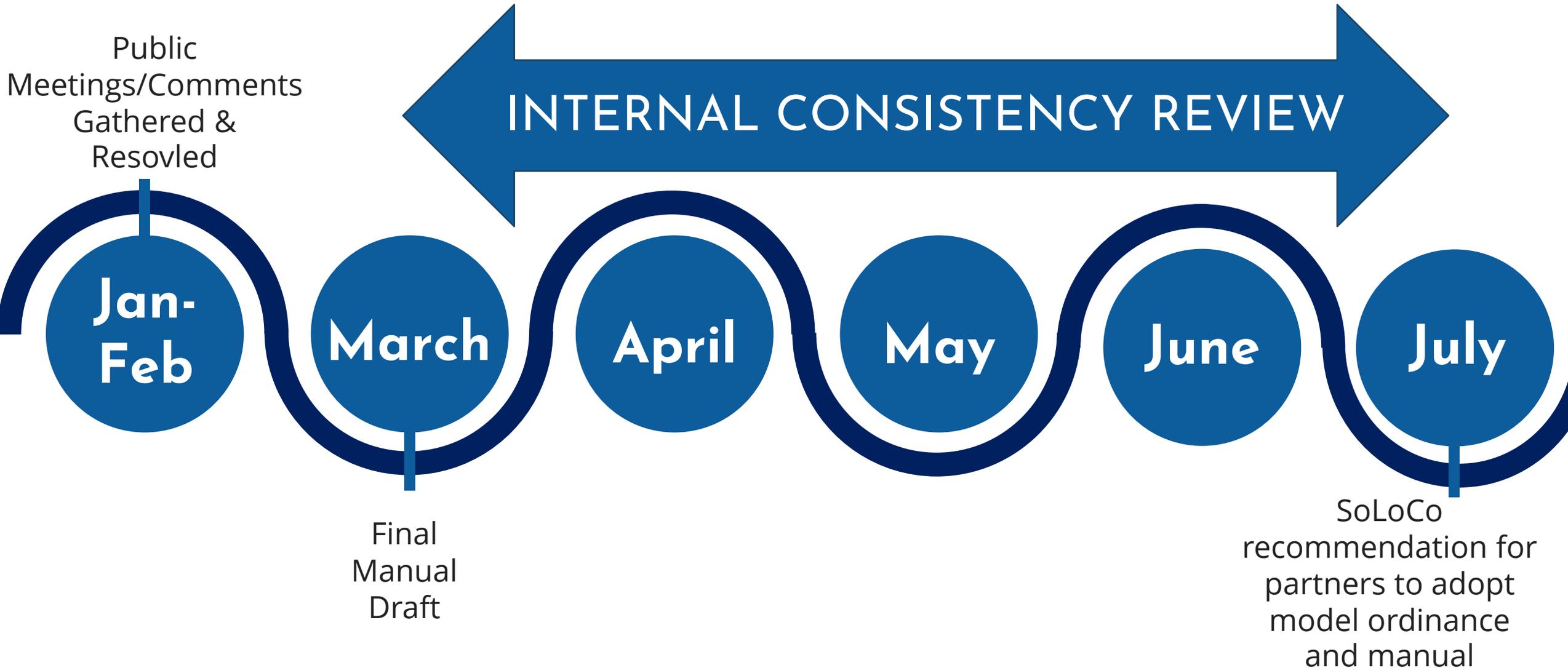


Differences between Bluffton and Beaufort County

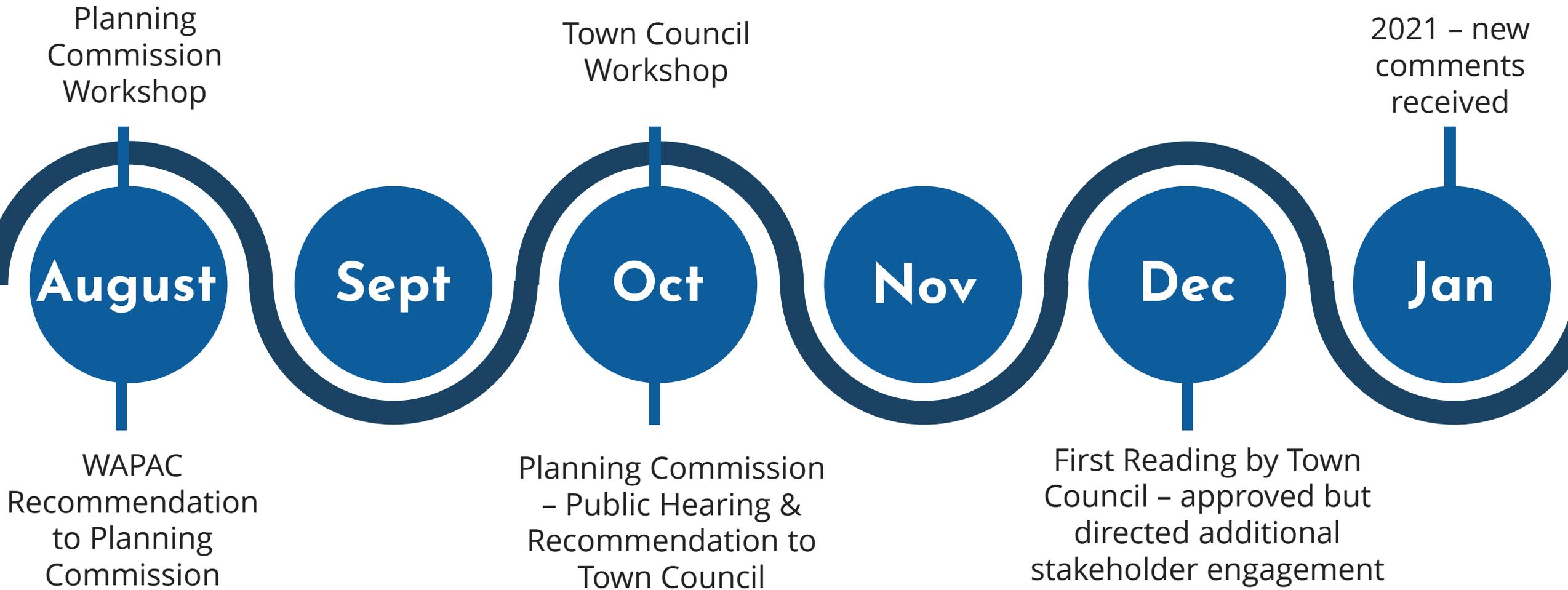
- Exemptions in Bluffton for plans submitted for approval prior to September 14th, 2021
- No master plan exemptions due to existing Development Agreements
- No phased approach to Better Site Design



Bluffton Milestones Reached in 2020



Bluffton Milestones Reached in 2020 - 2021



Planning Commission Workshop

Town Council Workshop

2021 - new comments received

August

Sept

Oct

Nov

Dec

Jan

WAPAC Recommendation to Planning Commission

Planning Commission - Public Hearing & Recommendation to Town Council

First Reading by Town Council - approved but directed additional stakeholder engagement

Bluffton Milestones Reached in 2021

← ADDITIONAL STAKEHOLDER
MTGS →

Feb

July

August

Sept

Town Council –
Public Hearing
& Final
Reading

Lessons Learned

Well defined goals

Knowing jurisdictional in addition to regional

Be practical

Rome wasn't built in a day, and neither was a regional stormwater design manual

Engagement

Partners, developers, internal departments, public, and leadership

Stick to timelines

Having a goal and working as hard as possible to get there will keep project momentum

Training

Internal and external participants



2022 NACo Achievement Award Winner





2022 South Carolina Association of Counties Barrett Lawrimore Memorial Regional Cooperation Award Winner



Thank You!

- Bill Hodgins, P.E., Center for Watershed Protection
- Bryan McIlwee, P.E., formerly Town of Bluffton
- Dan Ryback, formerly Beaufort County
- Eric Larson, P.E., formerly Beaufort County
- Gregg Hoffmann, P.E., Center for Watershed Protection
- Kathryn Ellis, EIT, McCormick Taylor
- Kim Jones, MS, CEPSCI, Town of Bluffton
- Lisa Wagner, CFM, Jasper County
- Nate Farrow, City of Beaufort
- Neal Pugliese, City of Beaufort
- Neil Desai, P.E., Beaufort County/City
- Rhett Lott, City of Hardeeville
- Van Willis, Town of Port Royal





KIM WASHOK-JONES,
M.S., CEPSCI

Director of Projects &
Watershed Resilience

Town of Bluffton

843.706.4593

1261 May River Road

Bluffton, SC 29910

www.townofbluffton.sc.gov



KATIE HERRERA, CPSR, CEPSCI

Stormwater Manager

Beaufort County

843.255.2813

120 Shanklin Rd

Beaufort, SC 29906

www.beaufortcountysc.gov

