MINUTES
OF THE
TOWN OF WHITE LAKE
PLANNING BOARD MEETING
March 20, 2025
7:00 P.M.

The White Lake Planning Board met in the Town Hall, 1879 White Lake Dr., White Lake, North Carolina at 7:00 p.m. on Thursday, March 20, 2025. Those present were Sarah Cook, Jonathan Langston, Hope Campbell, Sky Moore, and Wade Lowry. Sean Martin, Town Administrator, and Lee Cain, Zoning Inspector were also present. Tina Merritt-Smith served as Clerk to the Board. Absent were Vice-Chair, Paul Norris, Stephanie Ensminger, and Lisa Young.

Opening & Call to Order: Jonathan Langston declared a quorum and called the meeting to order.

Invocation: Wade Lowry gave the invocation.

Pledge of Allegiance: Jonathan Langston led the reciting of the Pledge of Allegiance.

Approval of Minutes: Jonathan Langston called for approval of the minutes of the January 16th, 2025 meeting. There being no further discussion, Hope Campbell moved, seconded by Sky Moore TO APPROVE THE MINUTES OF THE JANUARY 16, 2025 MEETING (Unanimous in favor).

Nomination of a New Chair to the Planning Board: Hope Campbell nominated Paul Norris as the new Planning Board Chair. There being no further discussion, Jonathan Langston moved, seconded by Sarah Cook TO APPROVE THE NOMINATION AND APPOINTMENT OF PAUL NORRIS AS PLANNING BOARD CHAIR (Unanimous in favor)

Recommendation to fill vacancy on Planning Board: Jeane Pope spoke on her hopes to become a productive member of the Planning Board. She also mentioned that she moved to White Lake in 2021. Sarah Cook nominated and moved, seconded by Wade Lowry TO APPROVE THE NOMINATION OF JEANE POPE FOR CONSIDERATION OF THE BOARD OF COMMISSIONERS AS A MEMBER OF THE PLANNING BOARD (Unanimous in favor)

Town of White Lake Stormwater Ordinance: Town Administrator, Sean Martin gave a comparative review of Stormwater Ordinances. He reminded the Board that there are a limited number of empty parcels available for development so possible development is mainly renovations and parcels in the ETJ. Mr. Martin also informed the Board that Stormwater regulations can be defined as both structural and non-structural practices. He gave a comparison between Oak Island and White Lake pointing out the fact that Oak Island is concerned about their canals as we are about our lake. It is important that the Town does not set unrealistic conditions expressed Mr. Martin, but he was expecting that the Draft Ordinance will be ready next month. As requested by Jonathan Langston, Mr. Martin spoke on the need for a Stormwater Ordinance and grants. Other topics that Mr. Martin was asked to elaborate on and Board members discussed were protecting beach areas, how the ordinance will pertain to residential versus businesses, direction of water flow and drains, vegetation buffers, the number of undeveloped lot (approximately 15), incentive plans, and protecting native plants. Said update is listed as Exhibit "A".

Other Business: The Board discussed voting on Second Chair at the next meeting.

Open Forum: Three (3) minutes per citizen: No Comments Received

Meeting Adjourned: There being no other business to come before the Town of White Lake Planning Board, Jonathan Langston moved, seconded by Hope Campbell.

Respectfully Submitted by:
Tina Merritt-Smith
Tina Merritt-Smith, Town Clerk

Approved:
Paul Norris, Chairman

TOWN OF WHITE LAKE

PLANNING & ZONING BOARD AGENDA
7:00 P.M.

March 20, 2025

To: White Lake Planning Board Members

From: Tina Merritt-Smith, Clerk to Planning & Zoning Board

CC: Sean Martin, Town Administrator & Zoning Administrator
Lee Cain, Zoning Inspector
Dale Brennan, Fire Chief
Kevin Taylor, Public Works Director

Date: March 20, 2025

Re: Planning Board Agenda Items

- **OPENING & CALL TO ORDER:** 7:00 PM
- **INVOCATION**
- **PLEDGE OF ALLEGIANCE**

AGENDA ITEMS:

1. **Approval of Minutes**
   January 16, 2025, Planning Board Minutes **(ITEM #1A)**

   ACTION: Approve the minutes of the January 16, 2025 meeting **(ITEM#1A)**

2. **Nominate a New Chair to the Planning Board**

   ACTION: Board will nominate a new Chair to the Planning Board

3. **Recommendation(s) to fill vacancy on Board**

   ACTION: Board will consider make recommendations for a new Board Member

4. **Town of White Lake Stormwater Ordinance**
   Comparative Review of Stormwater Ordinance **(ITEM #4A)**

5. **Other Business**

6. **Open Forum:** Three minutes per citizen. Please state name and address.

- **ADJOURN**

MINUTES
OF THE
TOWN OF WHITE LAKE
PLANNING BOARD MEETING
January 16, 2025
7:00 P.M.

DRAFT

The White Lake Planning Board met in the Town Hall, 1879 White Lake Dr., White Lake, North Carolina at 7:00 p.m. on Thursday, January 16, 2025. Those present were Chairwoman Joy Warren, Sarah Cook, Jonathan Langston, Hope Campbell, Lisa Young, and Sky Moore. Sean Martin, Town Administrator, was also present. Tina Merritt- Smith served as Clerk to the Board. Absent were Vice-Chair Paul Norris, Stephanie Ensminger, and Wade Lowry.

Invocation: Chairman Joy Warren declared a quorum, called the meeting to order and gave the invocation.

Pledge of Allegiance: Jonathan Langston led the reciting of the Pledge of Allegiance.

Approval of Minutes Chairman Joy Warren called for approval of the minutes of the January 16th, 2025 meeting. There being no further discussion, Hope Campbell moved, seconded by Lisa Young TO APPROVE THE MINUTES OF THE JANUARY 16, 2025 MEETING (Unanimous in favor).

Stormwater Ordinance Project Kick-Off: Project Manager, Amanda Hollingsworth with Engineering Firm, Withers Ravenel gave an informative presentation via Zoom while also providing the Board with a Project Timeline and Task Overview. Sean Martin, Town Administrator, reiterated and expanded on the information provided in the Zoom presentation emphasizing that the Stormwater Ordinance would be a stand-alone document that works in conjunction with the current Zoning Code.

Stormwater Ordinance Draft Existing Conditions Review: Town Administrator, Sean Martin spoke on existing ordinances that have been reviewed. Jonathan Langston asked about using and combining key elements out of the existing drafts to develop a personalized one for White Lake. Mr. Martin replied by saying, while we would be using the existing drafts for reference and ideas, certain conditions will be exclusive to White Lake and our needs.

Other Business: Chairwoman, Joy Warren made an announcement that she has decided to tenure her resignation as Chairwoman and as a member of the Town of White Lake Planning Board. She stated that she has enjoyed serving all these years and she appreciates the opportunity to work with so many wonderful members as well as staff during her time on the Board.

Open Forum: Three (3) minutes per citizen: Layton Bledsole voiced his concerns about public input on the Stormwater Project.

Meeting Adjourned: There being no other business to come before the Town of White Lake Planning Board, Hope Clark moved, seconded by Sky Moore.

Respectfully Submitted by:

_____
Tina Merritt-Smith, Town Clerk

Approved:

_____
Joy Warren, Chairwoman

TOWN OF WHITE LAKE
PLANNING & ZONING BOARD
MARCH 20, 2025
EXHIBIT "A"

WithersRavenel
Our People. Your Success.

Memorandum

To:	Sean Martin
CC:	Dori Sabeh
From:	Alisha Goldstein
Date:	March 11, 2025
Project:	Town of White Lake Stormwater Ordinance
Subject:	Comparative Review of Stormwater Ordinances

This memorandum provides information on recommended stormwater management regulations through a comparative peer municipality evaluation, review of the state model ordinance and consideration of future land use planning in the Town of White Lake (Town) and Bladen County (County). The objective of this review is to identify and understand stormwater regulations that could be implemented to preserve and improve the water quality of White Lake (Lake). A draft stormwater ordinance was prepared for the Town by the Lumber River Council of Governments through a Water Quality Management Planning 205(j) grant. The draft ordinance has not been adopted by the Town. The Town adopted in 1997 a floodplain damage ordinance as codified in Chapter 152. There is only one parcel within town limits that is partially within a special flood hazard area.

Context

The Town of White Lake is primarily a tourist destination. The full-time population according to the 2020 census is 843 residents which was a 5% growth since 2010. Information from Bladen County Chamber of Commerce indicates that approximately 200,000 tourists visit the White Lake area over the season as stated in the Bladen County Future Land Use Plan 2014-2030.

The Town of White Lake is comprised of 1,732 acres, including about 1,200 acres of Lake area. There are 5,008 acres within its extraterritorial jurisdiction (ETJ) which is governed by the Town's zoning ordinance. The Town has a limited number of empty parcels for development. Most of the area around the Lake is privately owned and already has been developed. Possible development opportunities are infill, renovations, and parcels in the ETJ.

Mitigating the impacts of growth will be vital to preserving and protecting the Lake specifically the water quality as stated in the mission for the Town of White Lake Comprehensive Plan 2023-2043. The Comprehensive Plan recommends several action steps regarding stormwater and land use. These actions are:

- To adopt and enforce stormwater controls.
- Revise the current land use ordinance to help reduce impervious surfaces on or near the Lake body and prevent, where possible, the increase of impervious surfaces in these same areas.
- Revise the current land use ordinance to increase setbacks and increase minimum lot sizes to protect the Lake body
- Developing a streetscape plan for White Lake Drive to improve aesthetics as well as to slow, absorb, and help clean storm water

These recommendations in the Comprehensive Plan summarize actions steps from the White Lake Strategic Management Plan, Bladen County Resilient Recovery Plan, and the Bladen County Future Land Use Plan 2014-2030.

Stormwater Regulations

Stormwater regulations can be defined as both structural and non-structural practices. Structural practices require engineered stormwater measures that control and treat stormwater runoff. These measures are designed to mitigate the volume and peak runoff rate of stormwater runoff. Non-structural practices focus on the protection of existing natural resources and/or utilizing zoning to minimize new imperviousness. The focus of this review will be on structural practices and one non-structural practice – vegetated buffers.

The first objective of municipal stormwater ordinances is defining applicability. Applicability refers to what types of development have to comply with the stormwater rules. The applicability of stormwater regulations can be based on the area of disturbance, proposed built-upon area (BUA), or project density. Additionally, the standards could vary based on the type of development such as new development, redevelopment, and cluster development. Built-upon area is defined in NC Administrative Code as impervious surface that does not allow water to infiltrate through the surface and into the subsoil. Therefore, the addition of BUA can lead to larger stormwater runoff volumes. Runoff carries oils, pesticides, animal waste, and other residue chemicals directly into local waters. During the construction phase of BUA, sediment from disturbed area is a detriment to water quality.

Currently, Bladen County has minimal stormwater regulations. The only stormwater regulations mentioned in the Bladen County Code of Ordinances applies to subdivisions and water supply watersheds (WSW). As outlined in Appendix A, Article 15, Part VII 15.64, subdivisions are "to develop a stormwater management plan that describes adequate drainage system for the proper drainage of all surface water". The system shall minimize water quality impacts by designing to the NC Department of Environmental Quality (DEQ) Best Management Practices (BMP) standards and complying with state sedimentation and erosion control standards. The water supply watershed rules set allowable project density by limiting the number of homes per acres or BUA percentage for a project. Built upon area, except for water dependent structures or a public project, is not allowed within a 30-foot vegetative buffer along perennial streams. The WSW areas within the County are not within the jurisdiction of the Town. The Town would need to implement their own stormwater regulation since there are no County ordinances that would impose regulations within its jurisdiction.

Municipalities of a certain size or in an urbanizing area are required to have a permit to discharge stormwater runoff to local waterbodies as regulated through the Clean Water Act. This permit is referred to as the National Pollutant Discharge Elimination System Municipal Separate Storm Sewer (NPDES MS4) permit. A MS4 permit includes provisions for education, development regulations, municipal facility management, and illicit discharge. A model ordinance for Phase II NPDES MS4 communities developed by UNC School of Government is a reference for this comparative review. Another state regulation that regulates development is the Coastal Area Management Act (CAMA). CAMA requires local land use planning in 20 coastal communities. The Town of White Lake is not regulated under CAMA but its location adjacent to a lake has similar needs to coastal communities.

A comparative review of peer communities was undertaken to review applicability, standards, and other regulations for stormwater management. In selecting peer communities for the Town of White Lake, municipal characteristic of location, size and type of stormwater regulation were considered. The selected peer communities were the Town of Davidson, Town of Jacksonville, Town of Lake Waccamaw, and Town of Oak Island. Lake Lure was reviewed but the municipality only has erosion and sediment control regulations enacted. The Town of Davidson is a NPDES MS4 Phase II community located on Lake Norman.

The Town of Jacksonville is subject to both NPDES MS4 and CAMA regulation. It is also adjacent to high quality and nutrient sensitive waters as identified in the 2022 NC Integrated Report for Water Quality. The Town of Waccamaw has a similar population, is adjacent to a Carolina Bay, and is in the same geographic region. Lastly, the town of Oak Island is a coastal NPDES MS4 Phase II and CAMA community that experiences a seasonal tourism population. The regulations for each municipality, the model ordinance, and the draft stormwater Ordinance from the 205(j) grant effort are presented in Table 1.

The stormwater regulations have been organized based on applicability, stormwater control measure design, water quality design, vegetative buffers, and other regulations. The following concepts are consistent across all the municipalities:

- Applicability depends on the amount of disturbed area or built-upon area proposed
- The thresholds for built-upon area are 10%, 12%, or 25% with the lower allowable thresholds required when proposed BUA is in areas that drain to high quality waters
- There are different stormwater regulations depending on whether the project is classified as low density or high density
- All municipalities encouraged the implementation of vegetated conveyances to the maximum extent possible especially for low development projects
- High density projects require engineered control measures
- Coastal municipalities require the treatment of 1.5 inch of rainfall while noncoastal municipalities require the treatment of 1 inch of rainfall
- A minimum and maximum drawdown time for runoff discharge from a stormwater control measure are specified
- Projects located within one-half mile of and draining to a Shellfish Resource Waters or Outstanding Resource Waters are subject to higher standards for peak runoff rates and volume retention
- Requirement for stormwater control measures to achieve a minimum 85% average annual removal of TSS
- Establishment of vegetated buffers which vary between municipality due to classified waters within the jurisdiction.
- Setback requirements for when BUA can be built in a buffer.

There are some differences between the municipalities as identified below:

- Oak Island has specific standards for single family, two-family, and three-family residential development that requires the collection and treatment of roof runoff and stormwater control measures on-site
- Davidson had peak control requirements based on design storms or a downstream flood analysis
- Davidson and Jacksonville have a requirement for stormwater volume storage for the 1-year, 24-hour storm event
- Davidson requires total phosphorous mitigation and undisturbed open space

There are additional stormwater related regulations required of any NPDES MS4 Phase II regulated municipality. These standard practices include the recordation of operation and maintenance plans for any stormwater control measure, an illicit discharge ordinance, and erosion and sediment control requirements for projects greater than 1 acre. These programs are not specifically discussed since the text is uniform across municipalities based on the model stormwater ordinance.

Comparative Review

The comparative review presents the key differences between the proposed draft 205(j) stormwater ordinances with the selected peer communities and the model ordinance.

Classified Waters

A distinguishing element of the stormwater regulations for the Towns of Davidson, Jacksonville, and Oak Island are distinct stormwater standards for projects that are located within or draining to classified waters. A classified water is a state determined designation to surface water bodies. The designation defines best uses to protect these waters and water quality standards. There is a regional precedent for outstanding resource waters in Bladen County. Currently, the State has classified sections of the Cape Fear River, South River, Black River, and drainage area to Lake Waccamaw all within Bladen County as Outstanding Resource Waters (ORW). This designation is a subset of High Quality Water and is intended to protect unique and special waters. The criteria that could apply to White Lake to achieve this classification is its water-based recreation and scientific significance as a Carolina Bay as outlined in 15A NCAC 02B.0225. Site specific management strategies are established for ORW during the classification. At minimum, no new discharges or expansions of existing discharges shall be permitted and stormwater controls for all new development activities requiring an Erosion and Sedimentation Control Plan. There are further requirements regarding project density, storm depth, and vegetated setbacks as stated in 15ANCAC 02H.1021. Language for classified waters is presented in the Phase II Stormwater Model Ordinance.

Project Density

The draft 205(j) ordinance differentiates stormwater standards based on proposed project density. Low density refers to development with built upon area (BUA) of less than or equal to 25 percent per lot with no stormwater control measures. If a project doesn't meet these criteria, it is a high density project. These thresholds are identical to language from Lake Waccamaw. The low density threshold for Davidson, Jacksonville, and Oak Island is 24 percent. If the project drains to an ORW or is located inside water supply watersheds (WSW), the low density threshold for these towns is 12 percent BUA. This lower threshold is consistent within management zones of non-coastal county High Quality Waters (HQW) and Outstanding Resource Waters (ORW) (15ANCAC02H.1021). Furthermore, any project located within one mile of and draining to HQW or ORW or located within a WSW are required to have an erosion and sedimentation control plan.

Water Quality Treatment

With respect to water quality requirements, the draft 205(j) ordinance doesn't explicitly state a storm depth for runoff treatment. For projects in non-coastal areas, a high density project has to achieve runoff treatment for the one inch storm. This standard is consistent with the model ordinance, Town of Davidson and the Town of Lake Waccamaw. Both towns are non-coastal communities. The engineered stormwater control measure for a high density project is required to achieve a minimum 85 percent annual removal of Total Suspended Solids (TSS). The draft ordinance references wet ponds and vegetative filters. There is a wider selection of permissible SCMs that meet the TSS requirements in the NC Stormwater Design Manual which is widely used by municipalities. Low Density projects are encouraged to use vegetative conveyance to the maximum extent possible and cannot have a stormwater control measure.

Vegetative Buffers

Per the model ordinance and the municipal ordinances review, any built-upon area regardless of project density and location shall be at a minimum of 30 feet landward of all perennial and intermittent surface waters. The intent of this regulation is to create undisturbed vegetation buffers that stabilize banks, regulate water temperatures, and provide aquatic habitat. The draft ordinance limits disturbed area in the buffer but doesn't set any regulations regarding BUA in the vegetated buffer. The draft ordinance doesn't specify any width for a vegetated buffer. Peer municipalities require a 50-foot vegetative buffer adjacent to outstanding resource waters for new development.

Other Stormwater Regulations

The draft ordinance includes additional stormwater provisions for landscaping, erosion and sediment control, and shoreline protection. The draft ordinance states that no impervious materials be used for landscaping particularly solids plastic and vinyl. This requirement is replicated in the Lake Waccamaw ordinance but not in any other ordinance. The draft ordinances state that for projects adding at least 500 square feet of impervious surface, it is at the discretion of Town staff to require erosion and sediment control plan. This language is also stated in the Lake Waccamaw ordinance. The state sediment and pollution control act require a minimum disturbance threshold of 1 acre which is the common threshold cited in municipal ordinances including Oak Island and Jacksonville. The draft ordinance and Lake Waccamaw also have language regarding the protection of shoreline resources. The shoreline protection regulation reiterates state policy requiring permits for any new development that may infringe upon surface waters. These additional stormwater regulations in the draft ordinance and the Lake Waccamaw ordinance are not stated in the model ordinance or in the municipal ordinances reviewed.

Summary

The draft 205(j) stormwater ordinance touches on the key stormwater management strategies of project density, water quality design storm, and vegetated buffers. The language is not up to date with the model ordinance with respect to the suite of acceptable stormwater control measures per the state stormwater design manual. It also lacks specificity for the desired water quality treatment and vegetated buffers. The draft ordinance references only disturbances in the vegetative buffer but makes no mention of new built-upon area within the buffer. Some of the requirements in the draft 205(j) ordinance might be considered too restrictive (e.g., use of impervious plastic for landscaping).

The proposed stormwater ordinance could incorporate select standards set by peer communities and the model ordinance to set stormwater standards for the Town of White Lake that promotes stormwater improvements without overburdening existing homeowners. Such balance could be accomplished through a local watershed or set boundary conditions to enforce specific stormwater standards for new development or increase in BUA. Considerations for providing stormwater credit for re-development that improve stormwater conditions could also be considered.

In selecting appropriate stormwater management standards, staff resources and other zoning regulations should be evaluated. The selection of applicability threshold will impact the number of plan reviews and thus the number of staff hours needed. Additionally, an increased number of design standards such as adding low impact development standards for single family homes as regulated in Oak Island would translate into longer plan review times. Longer plan review times equate to more staff time.

References

Bladen County Code of Ordinances Stormwater and Drainage, https://codelibrary.amlegal.com/codes/whitelake/latest/whitelake_nc/0-0-0-2606

NC Census Data: 2010-2020 Population Change (municipality) https://www.osbm.nc.gov/facts-figures/population-demographics/nc-census-data

NC Phase II Model Ordinance https://www.deq.nc.gov/water-quality/surface-water-protection/spu/spu-model-ordinances/npdes-phii-modord-20070101-dwq-spu-0/download

North Carolina Administrative Code http://reports.oah.state.nc.us/ncac.asp

Oak Island Code of Ordinances https://library.municode.com/nc/oak_island/codes/code_of_ordinances?nodeId=COORTOOAISNOCA

Town of Davidson Post Construction Storm Water Ordinance https://www.townofdavidson.org/DocumentCenter/View/8092/Section-20-Post-Const-Storm-Water-20150501?bidId=

Town of Jacksonville Code or Ordinances https://library.municode.com/nc/jacksonville/codes/code_of_ordinances?nodeId=10534

Town of Lake Waccamaw Code of Ordinances, https://library.municode.com/nc/lake_waccamaw/codes/code_of_ordinances?nodeId=12268

Town of White Lake Flood Damage Prevention Ordinance, https://codelibrary.amlegal.com/codes/whitelake/latest/whitelake_nc/0-0-0-2606

Town of White Lake Zoning Ordinance, https://www.whitelakenc.org/zoning-ordinance

White Lake NC Comprehensive Plan 2023-2043 https://www.whitelakenc.org/_files/ugd/ffdcb9_c6e17da25d0842149552f78fd7b7aa46.pdf

Table 1 - Peer Communities Regulation Comparison

	Draft Stormwater Ordinance (205j) Grant effort	Model Ordinance
Regulations		NPDES MS4 Phase II
Applicability	Low Density refers to development with BUA of ≤25% per lot, no stormwater control measure, same applicability for cluster development applied to entire area High Density refers to development projects that are not low density	Development disturbing ≥ 1 acre , or < 1 acre but part of larger common plan
Stormwater Control Measures Design	High Density - Structural SCMs shall control and treat the 1" design storm (references wet pond and vegetative filters) Runoff volume drawdown shall be a minimum of 24 hours, but not more than 120 hours.	Non-coastal: Control runoff from ≥ 1" of rainfall Coastal: Control of runoff from ≥ 1.5" of rainfall Post development peak flow shall not exceed pre development peak flow for 1-year, 24-hour storm event.
Water Quality Design	Treat runoff from the 1-inch rainfall	SCMs shall be designed to achieve a minimum 85% annual removal of TSS.
Vegetative Buffers	Retain or establish a 5 foot vegetated buffer adjacent to any surface water bordering a land disturbing activity. Exception is water dependent land disturbing activity.	Thirty (30) foot setback for BUA from all perennial & intermittent surface waters, except for roads, paths & water-dependent structures
Other Regulations	Existing Development - no impervious materials used for landscaping Addition of impervious surface ≥ 500 sf may require ESC plan based on Town staff determination Land disturbance ≥ 1 acre requires state ESC plan Protection of shoreline resources. - New developments may not infringe upon surface waters unless the proper approvals have been obtained from the state. - All necessary approvals have been obtained from the state.	Coastal - If 10,00 sq ft of disturbance and one half mile and draining to tidal salt waters, fecal coliform control measures to the maximum extent possible - No new stormwater discharge points to SA waters or expansion of existing stormwater conveyance system draining to SA waters - Diffuse flow of stormwater providing effective infiltration of 1-year, 24 hour storm not considered a direct point of stormwater discharge

	Town of Davidson
	Lakefront community
Regulations	NPDES MS4 Phase II
Applicability	All development and redevelopment except - Residential Development disturbing < 1 acre, and cumulatively creating < 24% BUA based on lot size or the lot is < 20,000 sf - Commercial and Industrial Development disturbing < 1 acre and cumulatively createing < 20,000 sf of built-upon area (BUA) - Redevelopment disturbing < 20,000 sf, is not part of a larger development, does not decrease existing storm water controls, and/or renovation and construction costs do not exceed 100% of the tax value of the property Catawba Watershed - Low Density refers to drainage area ≤ 12% BUA. - High Density refers to drainage areas > 12% BUA. Yadkin Watershed - Low Density refers to drainage area ≤ 10% BUA. - High Density refers to drainage areas > 10% BUA.
Stormwater Control Measures Design	Low Density - Use vegetative conveyance to the maximum extent possible - Stream Buffers High Density - Requires stormwater treatment systems and stream buffers. - Control volume leaving post development site for 1-year 24 hour storm event. - For residential development, peak control is based on downstream flood analysis or for the 10-year and 25-yr, 6-hr storms. - For residential development, peak control is based on downstream flood analysis or for the 10-year and 25-yr, 6-hr storms. For detention basins, the temporary storage capacity shall be restored within 72 hours. Drawdown time shall be a minimum of 24 hours, but not more than 120 hours
Water Quality Design	Treat runoff generated from the first inch of rainfall SCMs shall be designed to achieve a minimum 85% average annual removal of TSS and 70% average annual removal of TP.
Vegetative Buffers	Applies to perenneial and intermittent streams Catawba Watershed - Draining < 50 acres, minimum 30-foot vegetated buffer including a 10-foot zone adjacent to the bank. No structures allowed in the 30-foot buffer. Disturbance is allowed but must be revegetated. - Draining ≥ 50 acres, minimum 100-foot vegetated buffer. Uses allowed in the buffer are described in Section 21. Yadkin Watershed - Draining < 50 acres, minimum 50-foot vegetated buffer including a 10-foot zone adjacent to the bank. No structures allowed in the 30-foot buffer. Disturbance is allowed but must be revegetated. - Draining ≥ 50 acres, minimum 100-foot vegetated buffer. Uses allowed in the buffer are described in Section 21.
Other Regulations	Total Phosphorous Mitigation - Developments exceeding 50% BUA required to remove 70% TP. - For sites with less than 60% BUA, can achieve TP removal through off-site mitigation and a buy-down option. - For sites between 50-60% BUA, can achieve TP removal through off-site mitigation only allowed in same named creek system. Undisturbed open space is required for all development unless mitigated. Reduction of negative impacts from stormwater runoff through non-structural means. - Less than 24% BUA, minimum 35% of undisturbed open space within project area - ≥24% and <50% BUA. minimum 17.5% of undisturbed open space within project area - ≥BUA. minimum 10% of undisturbed open space within project area

	Town of Lake Waccamaw	Town of Jacksonville
	Carolina Bay community	Coastal community
Regulations	ORW Special Management Strategy Area Watershed	NPDES MS4 Phase II, CAMA
Applicability	Low Density refers to development with BUA of ≤25% per lot, no stormwater control measure, same applicability for cluster development applied to entire area High Density refers to development projects that are not low density	All development or redevelopment which disturbs > 1 acre or is part of a larger common plan of development. Low density - Within one-half mile of and draining to Shellfish Resource Water, project ≤ 12% built-upon area (BUA) - ≤ Two dwelling units per acre or ≤ 24% BUA for all residential and non-residential development. High Density Exceeds the low-density threshold for dwelling units per acre or BUA.
Stormwater Control Measures Design	Low Density - Shall not include a stormwater collection system. High Density -Within one-half mile of ORW waters, direct outlet channels are prohibited. Infiltration control systems are required to control runoff from 1.5 inch, 1-hour storm. Runoff in excess of the control volume must flow overland through vegetative filter with a minimum width of 50 feet. - Infiltration control systems to control runoff from 1 inch, 1-hour storm. Wet detention ponds must be designed for 85% TSS removal in the permanent pool and storage of runoff from a 1-inch rainfall above the permanent pool. Vegetative filters required for the overflow and discharge of all stormwater detention ponds.	Low Density - Use vegetated conveyance to the maximum extent possible - Shall not include a stormwater collection system. High Density development - Areas subject to CAMA, control and treat 1.5" of rainfall - Otherwise, control and treat runoff from the 1" of rainfall Within one-half mile of and draining to SA Waters, control and treat the difference in stormwater runoff from the pre- and post- development conditions for the 1-year, 24-hour storm. Drawdown time shall be a minimum of 24 hours, but not more than 120 hours
Water Quality Design	Treat 1.5-inch,1-hour storm within one-half mile of ORW; Otherwise, treat 1-inch, 1-hour storm Wet detention ponds must be designed for 85 percent removal of total suspended solids	SCMs shall be designed to achieve a minimum 85% average annual removal of TSS
Vegetative Buffers	Infiltration systems shall be a minimum of 30 feet from surface waters and a minimum of 50 feet from ORW waters.	For all development, all BUA must be > 30 feet landward of all perennial and intermittent surface waters.
Other Regulations	No landscaping using impervious materials such as solid plastic and vinyl will be permitted. Protection of shoreline resources. - New developments may not infringe upon surface waters unless the proper approvals have been obtained from the state. - All necessary approvals have been obtained from the state.	Projects draining to SA Waters - Best Management Practices (BMPs) that ensure the reduction of fecal coliform loading. - No new direct points of stormwater discharge - No increases in stormwater volume or conveyance capacity - No increase in peak discharge through existing outfalls from any modification or redesign of conveyance system - Diffuse flow of stormwater to a vegetated buffer or infiltration practice from the 1-year, 24-hour storm shall not be considered a direct point of stormwater discharge.

	Oak Island
	Coastal Tourist Destination
Regulations	NPDES MS4 Phase II, CAMA
Applicability	Single, two-family, and three family residential development must manage runoff from 1.5" rainfall if meet any of the following criteria - Disturb < 1 acre of land - Located within one-half mile of and draining to shellfishing waters - Built upon area(BUA) > 12% - Add ≤ 10,000 sf of BUA Low density - Within one-half mile of and draining to Shellfish Resource Water, project ≤ 12% built-upon area (BUA) - ≤ Two dwelling units per acre or ≤ 24% BUA for all residential and non-residential development.
Stormwater Control Measures Design	Low Density - Use vegetative conveyance to the maximum extent possible - Shall not include a stormwater collection system. High Density development - Control and treat the runoff from the first 1.5" of rainfall - Within one-half mile of class SA waters, control and treat the difference in the stormwater runoff from all surfaces from the predevelopment and post development conditions for a 1-year, 24-hour storm Drawdown time shall be a minimum of 48 hours, but not more than 120 hours Discharge the storage volume at a rate equal to or less than the predevelopment discharge rate for the one-year, 24-hour storm
Water Quality Design	Treat runoff generated from the first one and one-half inch of rainfall SCMs shall be designed to achieve a minimum 85% average annual removal of TSS.
Vegetative Buffers	All new development shall have a 50-foot-wide vegetative buffer and redevelopment activities a 30-foot-wide vegetative buffer.
Other Regulations	All development and redevelopment applications shall include an erosion and sedimentation control plan. For developments requesting fill over one foot, engineered stormwater retention measures, such as retention ponds or an underground infiltration system, and a soil stabilization plan is required. Projects draining to SA Waters - No new direct points of stormwater discharge - No increases in stormwater volume or conveyance capacity - Diffuse flow of stormwater to a vegetated buffer or infiltration practice from the 1-year, 24-hour storm shall not be considered a direct point of stormwater discharge.

NPDES MS4 - National Point Dsicharge Elimination System Municipal Separate Storm Sewer System
BUA - Built upon area
SCM - Stormwater Control Measure
TSS - Total Suspended Solids
SA - Market Shellfishing, Tidal Salt Water
ESC - Erosion and Sediment Control
TP - Total Phosphorous
BMP - Best Management Practice
CAMA - Coastal Area Management Act