SECTION 1: Introduction and Origin of the Plan

As a designated Outstanding Florida Water (OFW) and principal driver of economic activity for the region, the Charlotte Harbor and all waters that feed it are of paramount concern to the Charlotte County Commission and citizens. Tourism is a primary economic draw to this area, with charter fishing and other water-related recreational activities being especially popular. The harbor and its surrounding natural environs are estimated to bring upward of $1.49 billion in economic benefits and $1.1 billion in recreational spending to Charlotte County per year. Maintaining the ecological viability of Charlotte Harbor is thus essential to maintaining the economic viability of Charlotte County.

Thanks in part to the county's competitive cost of living in relation to other coastal counties in the region, Charlotte Harbor and Lemon Bay have proven to be major attractants for residents and businesses alike. Like much of Southwest Florida, Charlotte County has experienced a recent boom in residential development (**Figure 1**). From 2016–2021, the jobs market in Charlotte County increased by 6.1 percent, outpacing the national growth rate.

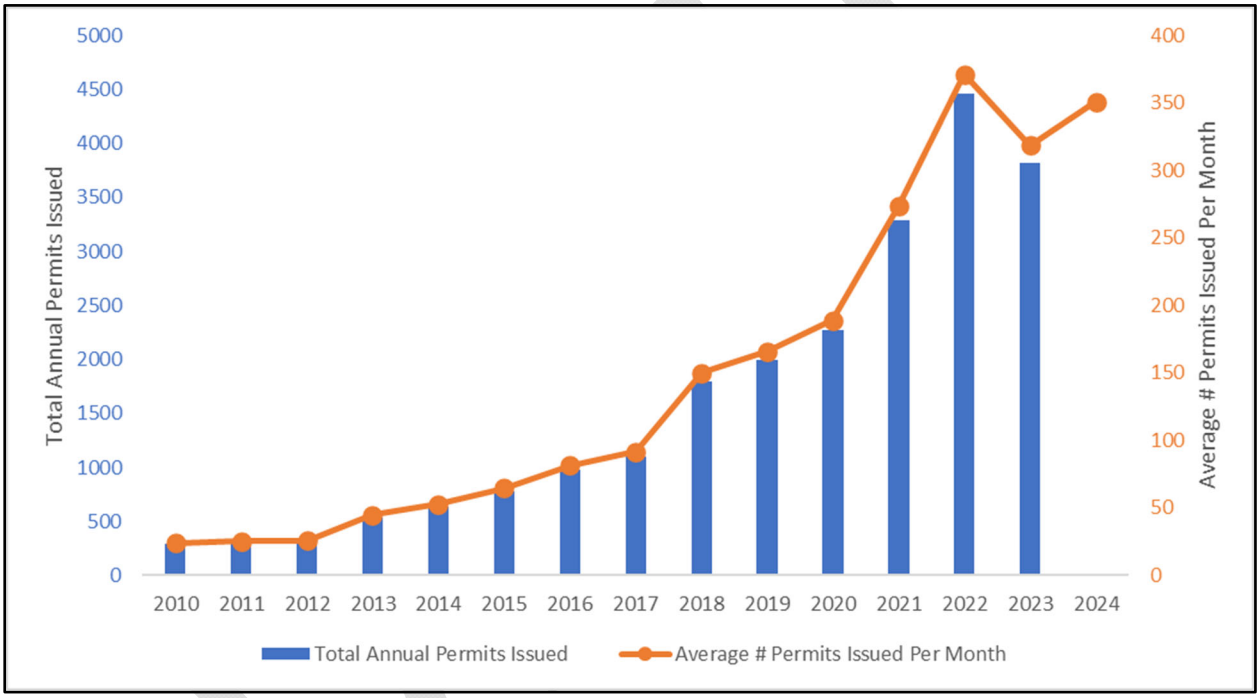


Figure 1. Single-family building permits issued in Charlotte County through July 2024.

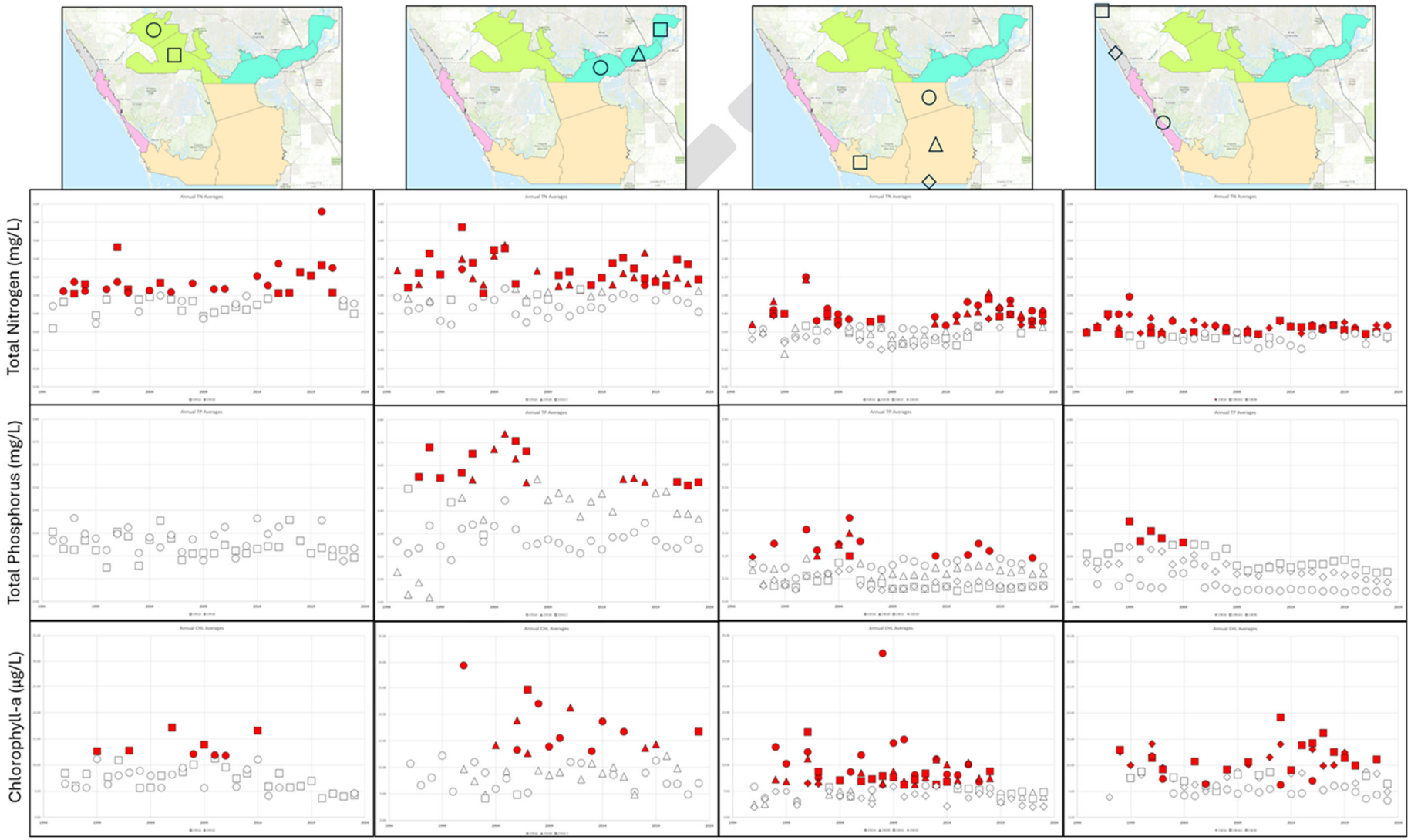
Charlotte Harbor is facing multiple environmental challenges. The analysis of results from long standing and recently implemented water quality and seagrass monitoring programs have suggested that overall, there is a degrading trend in water quality in the Harbor. This downward trend has led to downward shifts in the health and proliferation of seagrass habitat – a key component in the lifecycle of most marine animals.

Coinciding with the loss of seagrass abundance has been a proliferation of various macroalgae and cyanobacteria species, such as *Caulerpa fastigiata* and *Dapis* sp. Anecdotal reports from regional water managers imply algal bloom conditions were observed with some frequency in the early 2010s, with widespread blooms occurring shortly after Hurricane Irma and a subsequent protracted red tide bloom in 2018–2019. Large-scale bloom events in Charlotte Harbor have been documented as recently as the 2024 wet season (**Figure 3**). In addition, recent regional data analysis efforts indicate nitrogen concentrations are trending upwards in the upper reaches of Charlotte Harbor, particularly the Tidal Peace, Tidal Myakka, and East and West Walls of Charlotte Harbor (**Figure 2**).

Figure 2. Nutrient Trends in Charlotte Harbor-Lemon Bay, 1996-2023

Red Icons = Exceedance of nutrient criteria for that constituent/region

Source: Florida EPD Impaired Waters Rule Database 66



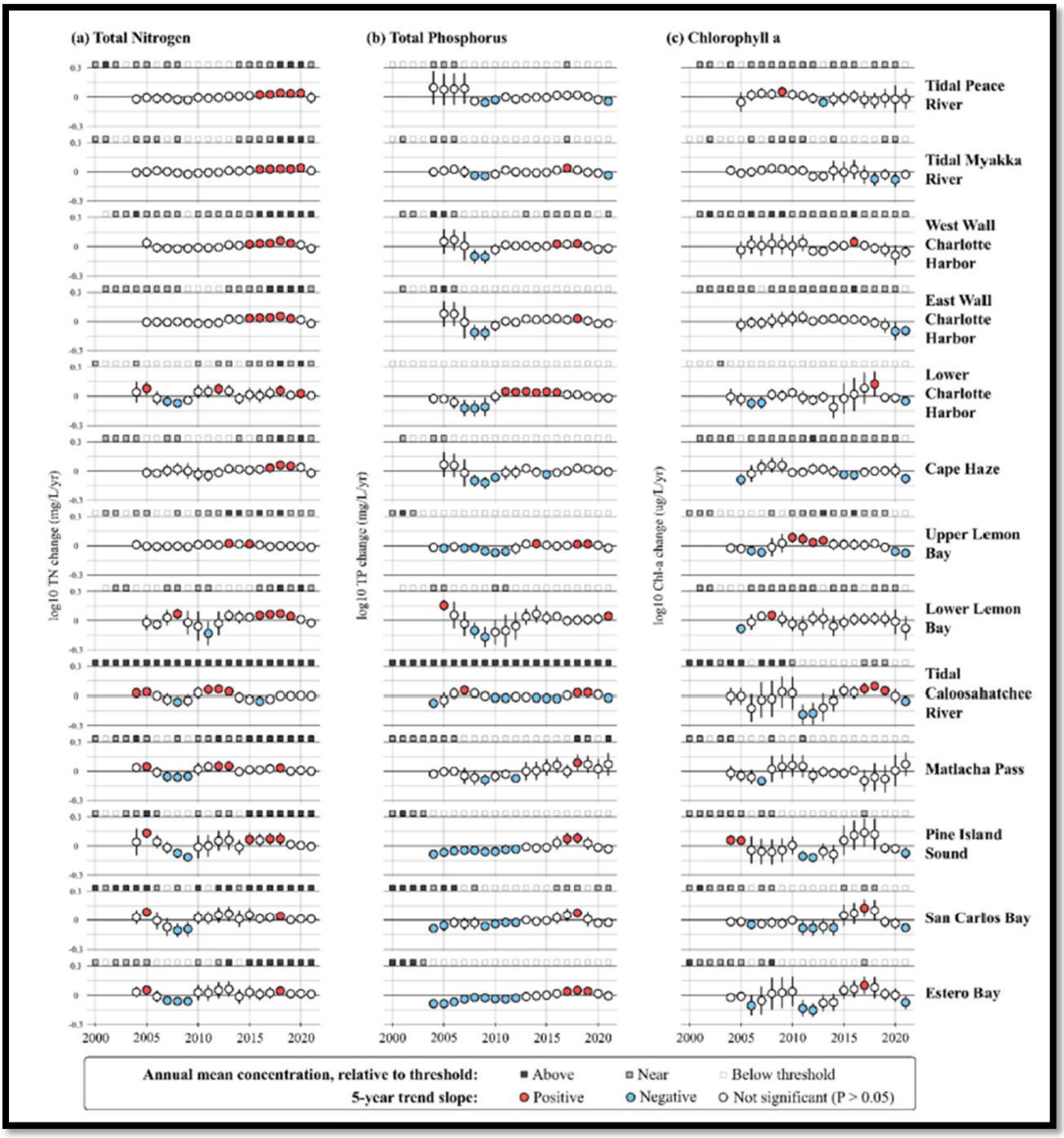


Figure 3: Rolling five-year trends for annual mean concentrations of a total nitrogen, b total phosphorus, and c chlorophyll-a via data collected by the Coastal Charlotte Harbor Monitoring Network, 2004-2021. Within each plot, circles indicate 5-year periods with significant upward trends (red), significant downward trends (blue), and no significant trends (white) (α = 0.05). Slope values are assigned to the terminal year of each 5-year window. Above each plot, squares classify annual mean concentrations relative to FDEP water quality standards: black squares indicate the 95% confidence interval (CI) of the mean is wholly above the standard, gray squares indicate the CI overlaps the standard, and white squares indicate the CI is wholly below the standard (Medina et al 2025).

Figure 4: Cyanobacteria bloom and die-off event in east Charlotte Harbor, June 2023 (photo courtesy FWC)

In 2020, Charlotte County convened the inaugural One Charlotte, One Water Conference. During this event, subject matter experts and local stakeholders gathered to discuss the state of the County's water management programs, water challenges facing our region, and recommendations for ensuring responsible stewardship of all our water resources into the future. Central to this conversation was the theme of the "One Water" concept; that is, water management should be an integrated approach involving all aspects of water and the departments that manage and benefit from these water resources, including surface, ground, potable, and stormwater. This holistic approach can support the foundation of a thriving coastal community (**Figure 5**).

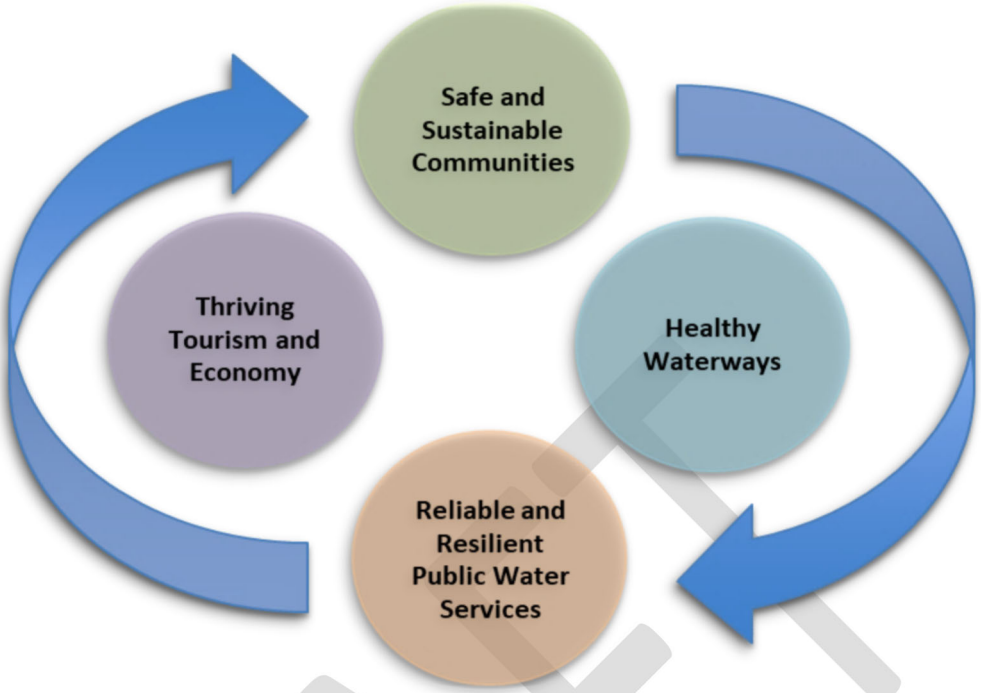


Figure 5. Conceptual One Water Approach

Subsequently, the Board of County Commissioners updated their Strategic Plan to include two water-management-related goals:

- Inventory current water monitoring efforts throughout the county, identify gaps in those efforts, and implement a county monitoring program to expand our knowledge of regional water quality/quantity dynamics.

- Develop and implement a "One Charlotte, One Water" plan to guide the County's current and future water management efforts.

Following the 2020 conference and Strategic Plan update, county staff developed and implemented a water quality monitoring program to better understand local watersheds' contribution to the current water quality conditions of Charlotte Harbor, Lemon Bay, and the Peace and Myakka Rivers. In addition, the county created a Water Quality Manager position to coordinate this and other water management-related efforts not in the purview of county departments. Through these efforts, staff have identified the following issues facing Charlotte County and our adjacent waters, which in turn drive the focus and goals of this initial iteration of the One Water Plan:

1. The surface hydrology of coastal Charlotte County and the immediate Charlotte Harbor watersheds have been substantially altered, most of which have occurred within the last 70 years.

2. Much of the landscape immediately surrounding Charlotte Harbor and Lemon Bay was platted and dredged before stormwater management rules were established in the early 1980s. As such, large scale detention-based methods of treating stormwater may not be possible in certain parts of the county. More innovative solutions for stormwater treatment may be necessary, such as using existing water conveyance features (canals and swales) as the primary means for treating runoff. Water quality improvement mechanisms implemented within canals and

swales will thus also need to allow for these features to continue serving their intended purpose of mitigating against flood events in the County.

3. Population growth in the County has increased dramatically since 2020, resulting in accelerated loss of land that previously helped attenuate pollutants in stormwater runoff before discharging into Charlotte Harbor/Lemon Bay. Given that significant portions of fallow land in Charlotte County are platted and available to be used for construction of single-family homes, that loss of attenuation capacity is expected to continue.

4. Much of our citizenry possess knowledge gaps regarding water quality-related topics, though alongside those gaps are a substantial desire among our community to take action to ensure our waters are as free of pollutants as possible. The county foresees opportunities to provide more resources to better serve the community in this capacity.

5. Charlotte Harbor serves as the receiving waters for the Peace and Myakka Rivers, which drain 224,000 acres of lands within 6 counties. In addition, multiple communities within these basins and outside Charlotte County's jurisdiction are experiencing even greater rates of population influx and development than our county, which will impact the harbor. Overall, our capacity to directly impact the quantity and quality of water entering Charlotte Harbor and lower Lemon Bay is limited to the region immediately surrounding the harbor and bay. Advocacy and participation in regional partnerships are going to be critical in ensuring that the county's concerns are made known and that effective water protection practices are implemented outside our jurisdiction.

6. Charlotte County Utilities is but one of multiple drinking/wastewater treatment providers within the county. In addition to the City of Punta Gorda, several independent regional operators serve their local communities; operation of all of these are beyond Charlotte County's oversight authority.

7. Substantial water quality monitoring efforts have been ongoing in Charlotte Harbor, Lemon Bay, and the mainstem Peace and Myakka Rivers for decades. Data obtained through these programs have been used to identify impairments throughout these waterbodies. However, these impairment determinations are only the first step in addressing pollution issues; source assessments and management plans must be developed so that appropriate pollution-reduction measures are identified and acted on. For Charlotte Harbor and the rivers, development of management plans are either beyond the County's authority (e.g., Total Maximum Daily Loads [TMDLs] and Basin Management Action Plan [BMAPs], which are driven by FDEP) or must consist of a regional effort requiring participation from multiple independent jurisdictions (Alternative Restoration Plans).

8. For many waters within Charlotte County's jurisdiction, prior to 2022 insufficient information had been collected to determine their impairment status and to what extent they may contribute to identified impairments in Charlotte Harbor, Lemon Bay, and the Peace/Myakka Rivers. As of this writing, many basins have been monitored for over three years, and it is expected FDEP will be using that data to make impairment determinations in future assessment cycles.

9. Multiple water-related Comprehensive Plan elements, codes, and programs should be reviewed to determine if the extent to which they meet the county's modern water management needs.

10. Current state rules may prevent implementation of changes to Comp Plan goals or codes the county might wish to pursue. For example, Senate Bill 250 bars Charlotte County from proposing or adopting more "restrictive or

burdensome" amendments to its Comprehensive Plan or land development regulations. However, the recent ratification of updated statewide stormwater rules may provide an opportunity to revisit and revise our policies to conform to these rules.

Plan Structure and Metrics for Success

The long-term goals of the Plan and proposed performance metrics are presented in **Table 1** and summarized below:

1. Identify, prioritize, and execute measures assuring that at a minimum, State water quality standards are met, and our waters can support healthy, vibrant ecosystems in county waters, the tidal Peace and Myakka Rivers, Charlotte Harbor, and Lemon Bay;

2. Support a comprehensive system for monitoring water quality and quantity trends in Charlotte County, creating meaningful stories to inform those activities that affect our waters now and into the future, while developing watershed management and improvement plans to guide future water protection actions;

3. Integrate further water quality protection/improvement practices within the county's stormwater management program, above and beyond the mandatory minimum pollutant treatment standards where necessary;

4. Maintain efficient, resilient, and fiscally sound water supply and treatment services to Charlotte County while protecting our aquatic resources;

5. Achieve and build on water protection goals in the Comprehensive Plan and establish and outlay formal mechanisms for regular public participation in One Water visioning, watershed protection, and the water quality program.

Table 1. Summary of overarching goals and associated metrics.

One Water Goal	Quantitative Metrics	Policy Metrics
Prioritize measures assuring that at a minimum, State water quality standards are met, and our waters can support healthy, vibrant ecosystems.	Achieve compliance with applicable Water Quality Standards in county waters. Through interagency coordination and regional pollutant management strategies, achieve water quality standards in Charlotte Harbor and Lemon Bay. Maintain nutrient loading rates from county waterways at or below goals appropriate for all watersheds.[1]	Implement funding and workflow cycle to allow initiation of RAP/Watershed Management Plan development for waterways at a minimum rate of one per year.

One Water Goal	Quantitative Metrics	Policy Metrics
Support water monitoring and build meaningful stories to celebrate successes and relay calls to action.	Annual development and execution of basin restoration or management plans to address impaired waters based on the prioritization strategy in this plan.	Coordinate with partner agencies to develop chemistry/ecology annual reporting tools to inform managers and the public on progress towards achieving water protection goals. Increased research on circulation, hydrology, basin loading, and nutrient budgets in Charlotte County Waters and Charlotte Harbor/Lemon Bay.
Integrate water quality protection/improvement practices within the county's stormwater management program	Reduction in citizen-initiated service requests for algal bloom/aquatic weed treatment or drainage maintenance due to concerns related to vegetation impaction. Reduction in need for regular treatment of aquatic weeds. Increase in participation of private waterway stewardship activities.	Create county wide Level of Service (LOS) for maintenance that outlines current maintenance practices and identifies management practices that will support improved water quality.
Maintain efficient, resilient, and fiscally sound water supply and treatment services	Achieve progressively higher availability of reclaim water meeting AWT standards. Reduction of occurrences of wastewater transmission line breaks and spills, based on annual counts	Build partnerships with independent water provider and treatment authorities in the county to support good water stewardship practices. Promote responsible use of reclaimed water to encourage conservation of potable water.
Implement water quality goals in the Comprehensive Plan, and encourage increased public participation	Create citizen science monitoring database, tracking participation rates and water trends identified through their efforts. Track visitation rates to One Water online resources site, in order to evaluate rate of community interest/ messaging penetration in water stewardship concepts.	Initiate citizen science programs to supplement existing county-led monitoring Update the existing objectives and policies and add additional objectives and policies if applicable.

[1]SWFWMD recommends maintaining a nitrogen loading threshold in the Peace River basin of 2.7 lb/acre/year. Additional research is needed to determine the applicability of this threshold to other basins in Charlotte County.

Meeting these metrics while maintaining focus on the actions needed to achieve them require setting incremental pathways and tasks that move the county towards compliance with this plan. Each area of focus described in the plan breaks down needs and recommendations into three components and is shown in **Figure 6**:

One Water Vision: This is the overarching conceptual long-term goal for the focus area, used to guide recommendations and tasks for this and future iterations of the Plan.

Pathways to the Vision: These are proposed "steps" towards achieving the One Water Vision, which can change in future iterations of the Plan as they are achieved, or new information suggests a different direction is needed to meet the One Water Vision.

Vision Tasks: These are focused, actionable activities that should be executed to complete the Pathways. For those that may require external funding or support, each section contains a breakdown of those tasks, including resource costs, justification of need, and considerations. Ideally, the language contained in these task descriptions can be utilized in funding requests.

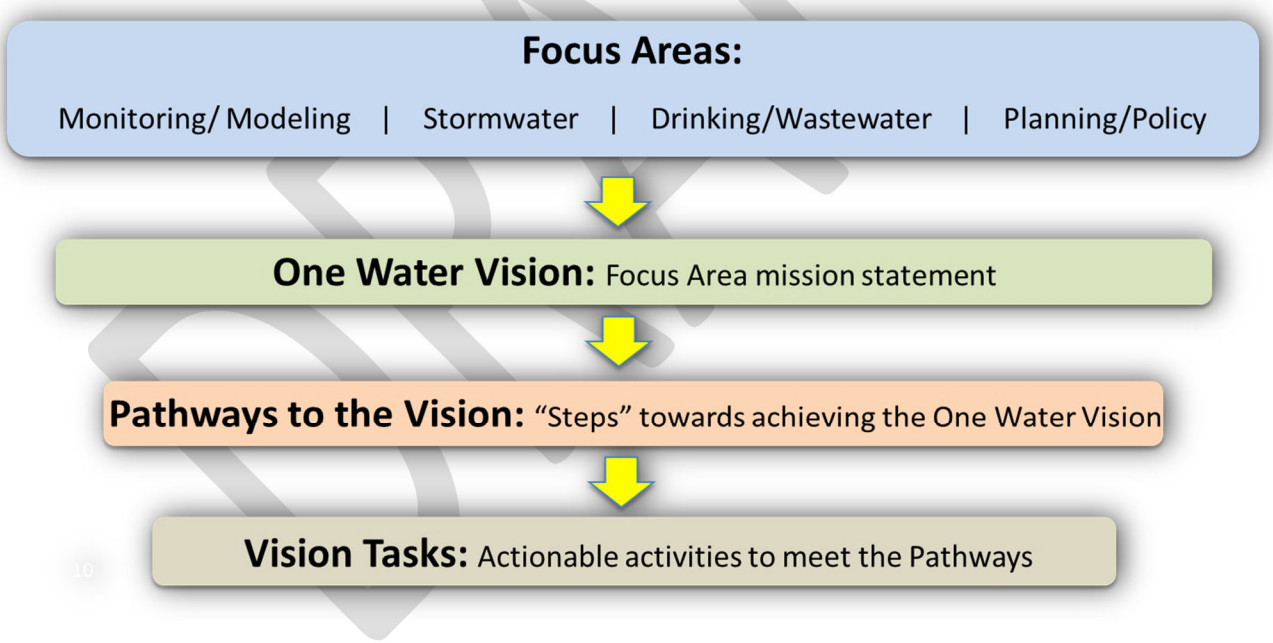


Figure 6. OCOW Plan Organizational Structure

Central to this effort is attaining these goals via a "House to Harbor" approach; that is, success in attaining our water quality and quantity goals depends on the actions of our county, neighbors, and citizens. Throughout this document are recommendations that address one or more of these facets:


Infrastructure and physical activities


Property-scale activities


Policy and planning-related activities


Local watershed-scale activities


Collaborative activities and partnerships


Regional-scale activities

It is anticipated that with the initiation of each of the above activities, the County will see regional benefits. The classification of benefits is noted below and assigned to the tasks.


Surface water benefits


Habitat-related benefits


Groundwater benefits


Water supply strategies

County departments have historically been engaged in addressing various facets of water quality and supply (**Table 2**). This Plan is not intended to replace their efforts, but rather to support them while identifying and filling gaps in knowledge or activities. In addition, the county must leverage the initiatives of regional, state, and federal agencies implementing their own water management plans for Charlotte Harbor, Lemon Bay, and the surrounding watersheds. Where applicable, this Plan will reference these complementary efforts.

Table 2. Water Management Entities in Charlotte County

Subject Focus	Entity
Drinking Water	Charlotte County Utilities
Wastewater/Reclaimed Water	Charlotte County Utilities
Stormwater	Charlotte County Public Works (county regional system), Charlotte County Community Development (Construction and code enforcement) Charlotte County Facilities Management (County-managed buildings) Charlotte County Community Services
Land Conservation, Aquatic Habitat, and Water Quality	Charlotte County Community Services (Parks and Recreation) Charlotte County Administration
Recreational Use	Charlotte County Tourism, Community Services

This Plan should be viewed as a living document, reviewed and revised every five years, with ongoing updates provided to the public and advisory panel proposed later in this document. The first iteration of the Plan is focused on building the foundation for creating and maintaining a robust water management platform for the county while identifying and recommending measures to address our information and programmatic needs. In addition, water quality improvement projects will be recommended for activities where sufficient data indicate those as potential sources of nutrient discharges into the receiving estuary system. Such recommendations will be limited in this first iteration of the Plan, however, because substantial information gaps exist. Therefore, this Plan intends for both planning and implementation activities to occur in parallel; for example, pilot projects should be implemented now to determine the efficacy of that activity in our waters, while planning projects are developed to identify areas best suited for increased implementation of those pilot efforts.