

STANTEC SCOPE OF WORK FOR WATER QUALITY MONITORING

Task 0 – Resume Key West Harbor Monitoring

The CONSULTANT shall evaluate and identify the minimum level of technology necessary to re-establish water quality monitoring in Key West Harbor. The proposed monitoring approach shall, to the extent practicable, mirror prior data collection methodologies to ensure consistency and comparability of results.

The City anticipates that this effort may be funded through a combination of funds currently allocated under Task No. 4, in an amount not to exceed \$43,355, and funds identified within the optional additional bi-weekly sampling component, in an amount not to exceed \$5,720. Based on the estimated costs associated with the recommended monitoring technology and related services, and if additional funding is required, the City shall determine and obtain the appropriate level of approval—whether at the City Manager or City Commission level, as applicable—prior to implementation.

Deliverables – Task 0

- One (1) Draft Harbor Plan with Budget
- One (1) Final Harbor Plan with Budget
- Once Plan and Budget approved, Quarterly summaries of monitoring results with data attached.

Task 1 – Review of Existing Data Across All GOCs and Identification of Opportunities

1.1 Project Initiation and Coordination

The CONSULTANT shall conduct a virtual kickoff meeting with City staff and the City's Water Quality Improvement Plan members and technical experts to:

- Confirm project goals, objectives, and performance expectations;
- Review roles, responsibilities, and communication protocols;
- Identify and assemble all relevant data sources; and
- Finalize a project schedule including progress meetings, milestones, submittal deadlines, and deliverables.

1.2 Comprehensive Data Collection and Quality Assurance

The CONSULTANT shall compile, review, and validate all relevant water quality data, including but not limited to:

- City-collected data
- Florida Department of Environmental Protection (FDEP)
- Florida Department of Health (FDOH)
- College of the Florida Keys (CFK)
- Previous consultant reports and studies
- Stormwater and infrastructure-related data

Datasets shall be evaluated using scientifically accepted QA/QC procedures to ensure completeness, accuracy, and regulatory integrity. Any data gaps, inconsistencies, or reliability concerns shall be documented.

1.3 Pollutant Identification by Geographic Area of Concern

Using validated datasets, the CONSULTANT shall identify pollutants of concern within each GOC, including but not limited to nutrients, bacteria, metals, hydrocarbons, turbidity, and other parameters of relevance. The analysis shall identify:

- Primary pollutant drivers
- Likely pollution sources
- Spatial and seasonal trends
- Exceedances of water quality standards established by state, regional and/or federal agencies
- Violations of Section 80-2
- Any GOC-specific anomalies requiring further investigation

1.4 Public-Friendly Data Summaries

The CONSULTANT shall prepare simplified, public-friendly summaries of complex water quality data, including but not limited to:

- Pollutants presenting the highest concern
- Geographic concentration of pollutants
- Impacts to recreational safety and environmental health

1.5 Identification of Water Quality Design Opportunities

Based on pollutant trends and GOC-specific findings, the CONSULTANT shall identify targeted improvement opportunities, which may include:

- Green infrastructure (bioswales, rain gardens, etc.)
- Stormwater retrofits and BMP enhancements
- Enhanced beach monitoring options
- Cruise ship discharge compliance strategies
- Turbidity and sediment control measures
- Structural and non-structural BMPs
- Other pollutant source control options

Recommendations shall be technically feasible, cost-conscious, and tailored to the unique conditions of each GOC.

Deliverables – Task 1

- One (1) Draft Technical Report
- One (1) Final Technical Report
- Presentation to City Commission
- Dissemination of Final Technical Report to FDEP
- Consolidated water quality dataset used in the analysis

Task 2 – Identification of Pollutant Mitigation Actions

2.1 Identification of Feasible Mitigation Strategies

Using conclusions from Task 1, the CONSULTANT shall compile a list of actionable mitigation measures appropriate for each pollutant of concern. Examples include:

- Infrastructure improvements
- Regulatory or policy-based measures
- Community-based initiatives
- BMP implementation or expansion

The CONSULTANT shall estimate the likely effectiveness of each measure, noting price, effort, timelines, etc.

2.2 Action Profiles and Implementation Considerations

For each recommended action, the CONSULTANT shall provide:

- Scope of work and technical requirements
- Expected timeline for implementation
- Resource requirements
- Any permitting or regulatory considerations

2.3 Cost Estimates

The CONSULTANT shall develop high-level cost estimates for each mitigation action, including:

- Initial implementation costs
- Long-term O&M and monitoring needs

2.4 Presentation to City Commission

The CONSULTANT shall present all recommended mitigation strategies for Commission feedback and prioritization.

Deliverables – Task 2

- One (1) Draft Technical Report summarizing mitigation strategies
- One (1) Final Technical Report
- Presentation to City Commission
- Dissemination of Final Technical Report to FDEP

Task 3 – Design of Water Quality Monitoring Programs

The CONSULTANT shall develop a comprehensive Water Quality Monitoring Program to establish priority baseline pollutant levels and track improvements over time, consistent with EPA, FDEP, and City Code Chapter 80.

3.1 Pollutant Prioritization and Monitoring Parameter Selection

The CONSULTANT shall evaluate pollutants listed in Chapter 80 and recommend practical monitoring parameters for nutrients, bacteria, hydrocarbons, turbidity, and select metals.

3.2 Turbidity Monitoring

The CONSULTANT shall recommend NTU-based turbidity testing approaches tied to background conditions and pollutant trend interpretation.

3.3 Expanded Beach Monitoring Framework

Recommendations shall include:

- Increased sampling frequencies
- New monitoring locations
- Options for microbial source tracking (MST)

3.4 Cruise Ship Discharge Monitoring

The CONSULTANT shall design monitoring strategies for Key West Harbor and Outer Harbor to identify prohibited discharges, specifying pollutants and appropriate methodologies.

3.5 Monitoring Scenarios

The CONSULTANT shall develop multiple monitoring scenarios:

- Baseline essential monitoring
- Intermediate options
- Advanced/continuous monitoring

Each scenario shall include detailed line-item cost estimates for equipment, analyses, staff time, and QA/QC.

3.6 Presentation to City Commission

The CONSULTANT shall present the Water Quality Monitoring Plan to Commission.

Deliverables – Task 3

- One (1) Draft Water Quality Monitoring Plan
- One (1) Final Water Quality Monitoring Plan
- Presentation to City Commission
- Dissemination of Final Technical Report to FDEP

Task 4 – Increased Availability of Recent Beach Reports

The CONSULTANT shall supplement FDOH beach sampling by doubling weekly sampling frequency at the four public beaches, following all FDOH protocols.

4.1 Coordination with FDOH

The CONSULTANT shall obtain and review:

- Sampling methods
- Locations
- Collection times/tide conditions
- Container and preservative requirements
- Chain-of-custody procedures

4.2 Collection & Laboratory Processing

The CONSULTANT shall collect 104 samples over a 12-month period and coordinate with a NELAC-certified laboratory for analysis.

Optional Add-On

Bi-weekly sampling of Rest Beach and Dog Beach.

Deliverables – Task 4

- Bi-weekly laboratory reports on sampling results

Task 5 – Increase Community Knowledge of Beach Data and Trends

The CONSULTANT shall analyze beach water quality trends and support the City in communicating findings to the public.

5.1 Trend Analysis

- Spatial analysis of high-risk beaches
- Seasonal trend assessment
- Statistical QA/QC validation
- Visual summaries (charts, maps, tables)

5.2 Public Communication Tools

The CONSULTANT shall develop:

- Clear explanations of FDOH categories (Good/Moderate/Poor)
- Seasonal context messages
- Infographics, signage, and visual tools
- Messaging aligned with FDOH guidance

Deliverables – Task 5

- One (1) Draft Technical Report on beach water quality trends
- One (1) Final Technical Report
- Dataset of compiled beach water quality data

Task 6 – Assist with the Design of a New Beach Water Quality Monitoring Plan

The CONSULTANT shall design a robust beach monitoring program.

6.1 Stakeholder Engagement

- Review existing goals and constraints
- Identify shared data needs
- Discuss monitoring parameters, frequency, and methods
- Collect local input on logistics and priorities

6.2 Refinement of Monitoring Plan

- Based on stakeholder feedback, the CONSULTANT shall refine the draft plan, including:

- Adjustments to sampling sites
- Pollutant prioritization
- Seasonal adjustments
- Alignment with City initiatives

6.3 Presentation to City Commission

The CONSULTANT shall present the water quality trends, public communication tools and new Beach Water Quality Plan to Commission.

Deliverables – Task 6

- One (1) Draft Beach Monitoring Program Report
- One (1) Final Beach Monitoring Program Report
- Presentation covering Tasks 5 and 6 to City Commission
- Dissemination of Final Technical Report to FDEP