Monitoring Plan for the Sarasota County
National Pollutant Discharge Elimination System
Municipal Separate Storm Sewer System Permit
January 10, 2018

Monitoring plans are a requirement of National Pollutant Discharge Elimination System (NDPES) Municipal Separate Storm Sewer System (MS4) permits. The permits allow the discharge of urban stormwater to waters of the state in accordance with a Stormwater Management Program (SWMP) that must reduce pollutants to the Maximum Extent Practicable (MEP) by implementing Best Management Practices (BMPs).

The objectives of the monitoring plan are to determine the effectiveness of the SWMP, to identify pollution sources that are adversely affecting water resources, and to prioritize areas needing additional controls. The monitoring plan must include pollutant load modeling. Annual reports must include a monitoring summary, a trend evaluation, and an analysis of SWMP effectiveness. Waterbodies with Total Maximum Daily Loads (TMDLs) also have monitoring requirements to demonstrate progress toward achieving waste load allocations.

This monitoring plan is intended to fulfill Part V.B., Monitoring and Reporting Requirements and Monitoring Data Collection of permit FLS000004 for Sarasota County, the City of Sarasota, the City of Venice, the Town of Longboat Key and the Florida Department of Transportation (FDOT), but not including the City of North Port.

Background

There are two major drainage areas in Sarasota County - the Southern Coastal Basin and the Myakka River Basin. Within the coastal area there are about 21 basins named after creeks plus barrier island and coastal fringe drainage areas. Waterbodies include the Gulf of Mexico, 8 bays, several creeks, Myakka River, numerous wetlands, a handful of natural lakes, over 6,000 created ponds, hundreds of miles of canals and thousands of miles of ditches.

Several agencies are actively involved in watershed management in the area, including three National Estuary Programs (NEPs), the Southwest Florida Water Management District (SWFWMD), the Environmental Protection Agency (EPA), the Florida Department of Environmental Protection, the County, four municipalities, and the FDOT. Studies have highlighted the need to protect receiving waters from nutrients, sediments, toxins, and bacteria. Unnatural volumes and timing of stormwater are often cited as a problem. Implementation of the SWMP has been successful since 1995. Improved stormwater management is often cited as a reason for a countywide rebound of seagrass to the 1950s extent. Many projects have been implemented to reduce pollution from stormwater as well as wastewater and septic system pollution.

Joint Monitoring Plan

1. <u>Ambient Water Quality of Bays</u>
   Healthy estuaries are among the foremost economic values to our community. Excessive stormwater pollution of the bays can have negative impacts on fish and wildlife, businesses, and the health of our citizens. Monitoring bays provides an integrated assessment of the cumulative impacts of stormwater.

   Monthly water samples will be analyzed for specific conductance, salinity, temperature, pH, dissolved oxygen, dissolved oxygen saturation, light attenuation, secchi depth, total nitrate and nitrite, total kjeldahl nitrogen, ammonia nitrogen, orthophosphate, total phosphorus, turbidity, color, 5-day biochemical oxygen demand, and chlorophyll-a (corrected for pheophytin).

   Sampling locations (See Appendix A) will be distributed among all bays, including Sarasota Bay, Roberts Bay (Sarasota), Little Sarasota Bay, Dryman Bay, Blackburn Bay, Lyons Bay, Dona Bay, Roberts Bay (Venice), the Intracoastal Waterway (Venice) and Lemon Bay.

2. <u>Ambient Water Quality of Watersheds</u>
   Monitoring water quality in the watersheds is a direct assessment of management success. This program is valuable in measuring compliance with surface water quality standards, and identification of impaired waters.

   Monthly water samples will be taken from creeks and rivers throughout Sarasota County (See Appendix B). Special attention will be paid to those water bodies designated as not meeting regulatory criteria.

   Samples will be analyzed for specific conductance, salinity, temperature, pH, dissolved oxygen, dissolved oxygen saturation, secchi depth, nitrate and nitrite, ammonia, kjeldahl nitrogen, orthophosphate, total phosphorus, 5-day biochemical oxygen demand, total suspended solids, turbidity, color and chlorophyll-a (corrected for pheophytin), as appropriate.

3. <u>Biological Monitoring</u>

A. *Oyster Monitoring*: Oysters are naturally abundant in coastal creeks and vulnerable to excessive freshwater or sediment coming from stormwater runoff. Healthy oysters provide water quality benefits by functioning as a keystone organism, by providing habitat by building reefs, by filter feeding and thereby improving water quality, and by preventing erosion by stabilizing shorelines. Oysters will be monitored annually in select creeks as a direct indicator of stormwater management.

B. *Seagrass Monitoring*: Seagrass is rebounding to historic levels in the bays of Southwest Florida because of successful wastewater and stormwater management. Seagrass meadows are critical habitat for the fishing economy and have inherent ecological value. Seagrass was the response variable used in the development of Numeric Nutrient Criteria. In cooperation with the SWFWMD and the NEPs, the health of seagrass will be

monitored annually to determine status and trends and also to enhance the accuracy of the SWFWMD aerial surveys.

C. *Scallop Monitoring*: Bay scallops are sensitive indicators of excessive freshwater inflows to bays. In cooperation with the Florida Fish and Wildlife Conservation Commission (FWC) and others, scallop monitoring may include larval surveys, adult surveys, and growth and survival rates of caged sentinel animals.

4. Pollutant Load Modeling
   Modeling of pollutant loading identifies priority areas for pollution reduction and also estimates trends in loading of nutrients and other pollutants. The Spatially Integrated Model for Pollutant Loading Estimates (SIMPLE-Monthly) was developed in cooperation with the
   SWFWMD and was used for the development of loading targets for Numeric Nutrient Criteria and County watershed plans. The model will be used to comply with the Annual Pollutant Loading and Event Mean Concentration requirement of the NPDES MS4 permit.

5. Rainfall
   Rainfall data will be used to explain the ambient monitoring results, the pollutant loading, and the effectiveness of the SWMP. Rainfall is the principal driving force in understanding stormwater and stormwater pollution. Data sources may include the National Weather Service, the Southwest Florida Water Management District, or the County's Automated Rainfall Monitoring System (ARMS).

Evaluation of the Effectiveness of SWMP
The monitoring program is intended to assess the SWMP, to identify problem areas, to evaluate progress, and to assess pollutant loading. Ambient monitoring in bays is an effective method to evaluate progress and identify problem areas on a broad scale. Declining trends or noncompliance with bay standards would indicate a renewed focus is needed in those bays and associated watersheds. Creek and river ambient monitoring provides a similar but more basin-specific focus. GIS-based pollutant load modeling identifies where on the landscape the pollutants are originating. Based on previous studies, it is expected that the volume of runoff is more influential than the concentration of the runoff. This comprehensive monitoring approach is expected to prioritize activities in the SWMP and also to identify where water quality improvement projects should be located.

Quality Assurance
All monitoring shall be conducted in accordance with Chapter 62-160, Florida Administrative Code and all National Environmental Laboratory Accreditation Conference (NELAC) standards. Participation in the Southwest Florida Regional Ambient Monitoring Program ("RAMP") will continue. RAMP fosters scrutiny of data outliers and improvement of sampling and analysis techniques to maintain a central tendency among results from various monitoring agencies.

<u>Data Analysis and Reporting</u>
Basic analysis of the data will be submitted in the annual reports to the FDEP and will include narrative, tabular, graphical depictions and trend analysis, as appropriate. Monitoring data and reports shall be regularly posted on the Sarasota Water Atlas website at www.sarasota.wateratlas.org. Metadata will be provided on request. Ambient water quality data will be posted to the FDEP WIN database.