

DATA COLLECTION AND EXISTING CONDITIONS

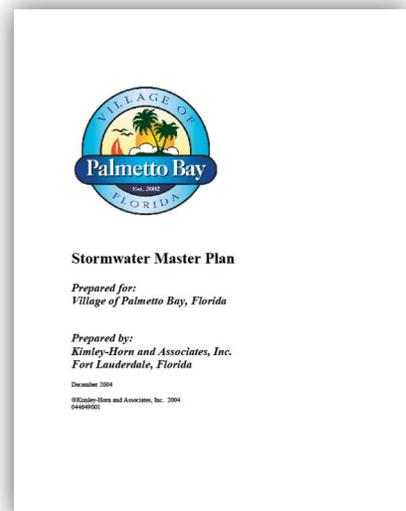
Available stormwater management information for the Village of Palmetto Bay was reviewed to provide a baseline for this Stormwater Master Plan Update. The information reviewed included the following:

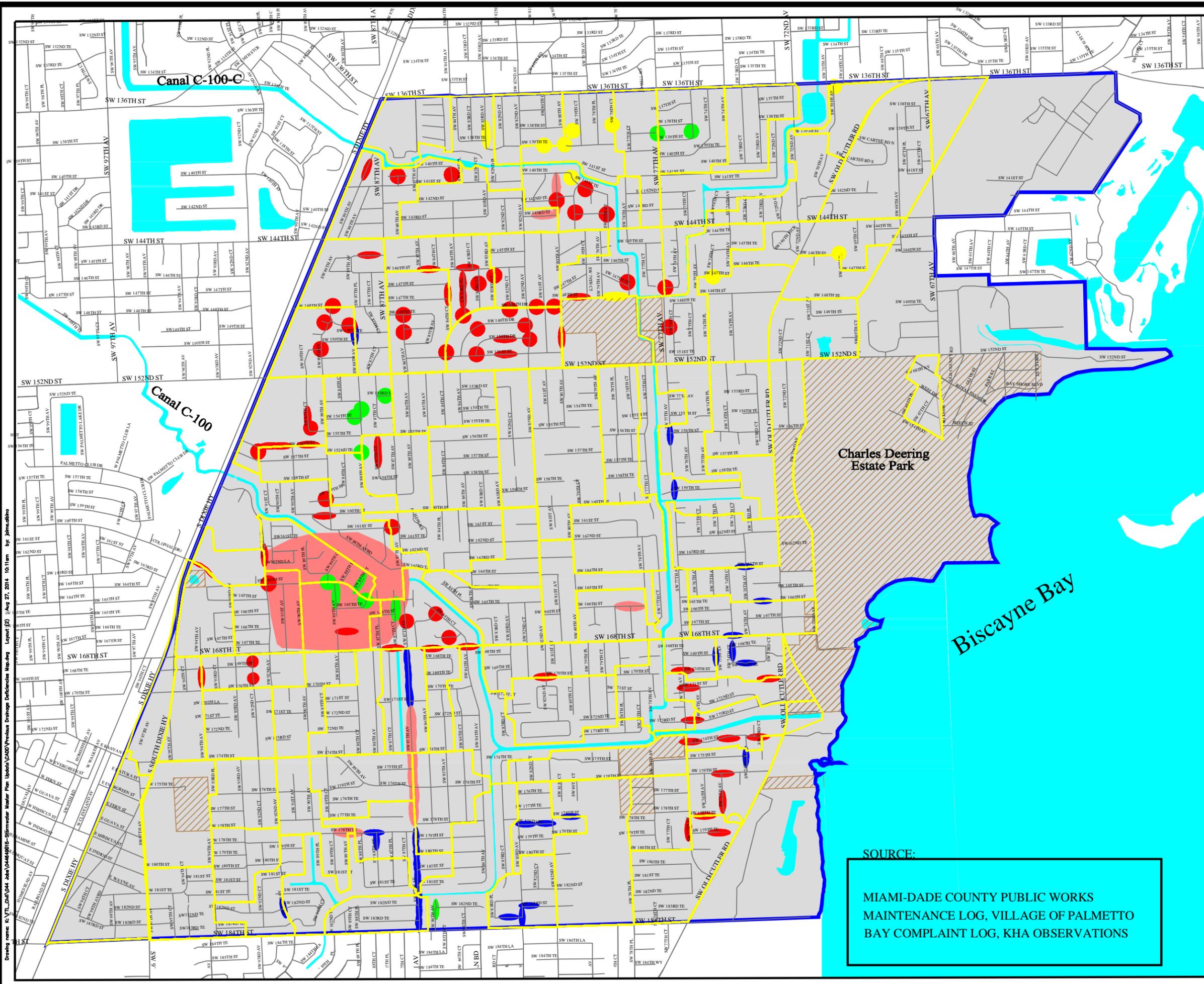
- The original Village of Palmetto Bay Stormwater Master Plan
- Village ordinances, regulations, and guidelines for stormwater management
- Stormwater management GIS coverage
- Design and record drawings of completed and proposed stormwater management and local drainage improvement projects
- Village records related to drainage and stormwater management issues
- Field review of the Village during storm events to identify stormwater problem areas

Village of Palmetto Bay Stormwater Master Plan

The original Village of Palmetto Bay Stormwater Master Plan was completed in December 2004. The first section described existing conditions within the Village of Palmetto Bay at the time the Village assumed responsibility for the drainage system from Miami-Dade County.

Figure 2 shows the location of stormwater problem areas identified in the original Stormwater Master Plan. The various types of drainage and flood related complaints or observations were identified with color coded dots.





**Figure 2:
Village of Palmetto Bay
Drainage Deficiencies
Original 2004 Plan**

Legend

- COMPLAINT RECORDED BY MIAMI-DADE PUBLIC WORKS ●
- FLOODING REPORTED BY VILLAGE OF PALMETTO BAY STAFF ●
- FLOODING ACROSS ROADWAY OBSERVED BY KHA STAFF ◌
- LOCALIZED PONDING IN ROADWAY OBSERVED BY KHA STAFF ◌
- FLOODING TO BE MITIGATED BY PROJECTS UNDER DESIGN OR CONSTRUCTION ●
- SUB-BASIN BOUNDARY —

SOURCE:
MIAMI-DADE COUNTY PUBLIC WORKS
MAINTENANCE LOG, VILLAGE OF PALMETTO
BAY COMPLAINT LOG, KHA OBSERVATIONS



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The second section of the original Stormwater Master Plan contained drainage analysis of 17 sub-basins that were selected as priority areas for improvement. Drainage improvements for the priority sub-basins were recommended to meet performance goals associated with both reducing flooding and improving water quality. The location of the priority sub-basins (shaded grey) identified in the original Stormwater Master Plan can be seen in Figure 3.



The third section of the original Stormwater Master Plan outlined a Capital Improvement/Operations and Maintenance Program for the Village's Stormwater Utility. The capital improvement projects included in the original Stormwater Master Plan that have been completed will be discussed later in the report. The report will also provide a summary of area specific or localized drainage improvements that have been completed by the Village. The localized drainage improvement projects can range from limited infrastructure projects at intersections or along roadways to swale grading to address ponding.

NPDES Permit and CRS Application Information

The Village of Palmetto Bay is a co-permittee on the Miami-Dade County Multiple Separate Storm Sewer System Permit through the EPA's National Pollutant Discharge Elimination System (NPDES). The permit is administered by the Florida Department of Environmental Protection (DEP). Each year, the co-permittees are required to submit an annual report to DEP detailing progress on permit-mandated activities. These activities range from inspecting stormwater treatment facilities to conducting public awareness events to publicize the environmental consequences of illegal dumping. The permit is now entering Year 3 of Cycle 3 which covers the time period between June 2013 and June 2014. The deadline for submitting the annual report for Year 3 of Cycle 3 is December 2014. MS4 permit mandated activities are reflected in the Village's Stormwater Utility Operation and Maintenance Budget.

The Village of Palmetto Bay was accepted into the National Flood Insurance Program (NFIP) in 2008 and submitted a request to join the Community Rating System (CRS) program in 2011. As part of the CRS program, the NFIP offers flood insurance at more affordable rates than are generally available from private insurers. A better rating with the CRS will provide additional savings to Village residents on their flood insurance. The CRS rating is determined by activities implemented by the Village ranging from stormwater infrastructure maintenance to public outreach programs. Prior to submitting the application to become a member of the CRS, the Village needs a letter of compliance with the NFIP. Prior to the NFIP preparing that letter, a FEMA regional coordinator will require satisfactory completion of a Community Assistance Visit

(CAV) with the Village. The CAV occurred in 2012. The FEMA representative met with the Village and reviewed the Village's Floodplain Management ordinance and the Building Department's enforcement of the ordinance. The Village is currently working with FEMA to obtain their letter of compliance from FEMA. CRS activities should be included in the Village's Stormwater Utility Operation and Maintenance Budget.

Village Ordinances, Regulations, and Guidelines

Upon incorporation, the Village of Palmetto Bay adopted the entire Miami-Dade County Code. Since that time, the Village has passed additional ordinances pertaining to stormwater management. In May of 2006, the Village passed Ordinances 06-07 which established the Village's Stormwater Utility and set the Stormwater Utility rate at \$4.00 per Equivalent Residential Unit. This ordinance established the Village's Stormwater Utility as a source of funding for Stormwater-related projects and maintenance activities within the Village.

In 2009, the Village adopted Ordinance 09-20, updating their original Floodplain Management Ordinance (incorporated in to the Village's Land Development Code in 2008 and codified in Muni Code as Chapter 18) to comply with changes made by FEMA. A newer version of a floodplain ordinance was later developed with the intent of being more compliant with the Florida Building Code. In 2012, the Village adopted the new Floodplain Management Ordinance as Ordinance 2012-16. The Floodplain Management Ordinance sets flood protection minimum standards for new and substantially improved properties within the Village.

In March 2011, the Village adopted Ordinance 2011-31. This ordinance is a 5-year interlocal agreement with Miami-Dade County for canal maintenance. The agreement resulted in the Village owning the SW Maral Estates canal and the Bel Aire Section canal. Miami-Dade County currently maintains the SW 160th Street ditch in the Village.

In December 2003, the Village adopted their Comprehensive Plan as Ordinance 03-46. The Comprehensive Plan contains a section on Stormwater Management which sets stormwater

management Level of Service standards for development within the Village. More recently, Kimley-Horn prepared, in conjunction with Village staff, the Village's Evaluation and Appraisal Report (EAR) Based Comprehensive Plan amendments; these amendments were transmitted to the Florida Department of Economic Opportunity (DEO) in July 2014 and are anticipated to be adopted by the Village in October 2014. The Village's Comprehensive Plan includes Goals, Objectives and Policies (GOPs) relating to stormwater planning within the Infrastructure Element, Stormwater Management Sub-Element, Conservation Element, Capital Improvements Element, Level of Service Standards, and the Water Supply Facilities Element. These Elements and their respective GOP establish stormwater management policies for development within the Village.

Stormwater Management GIS Coverage

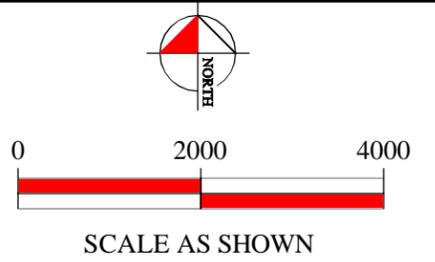
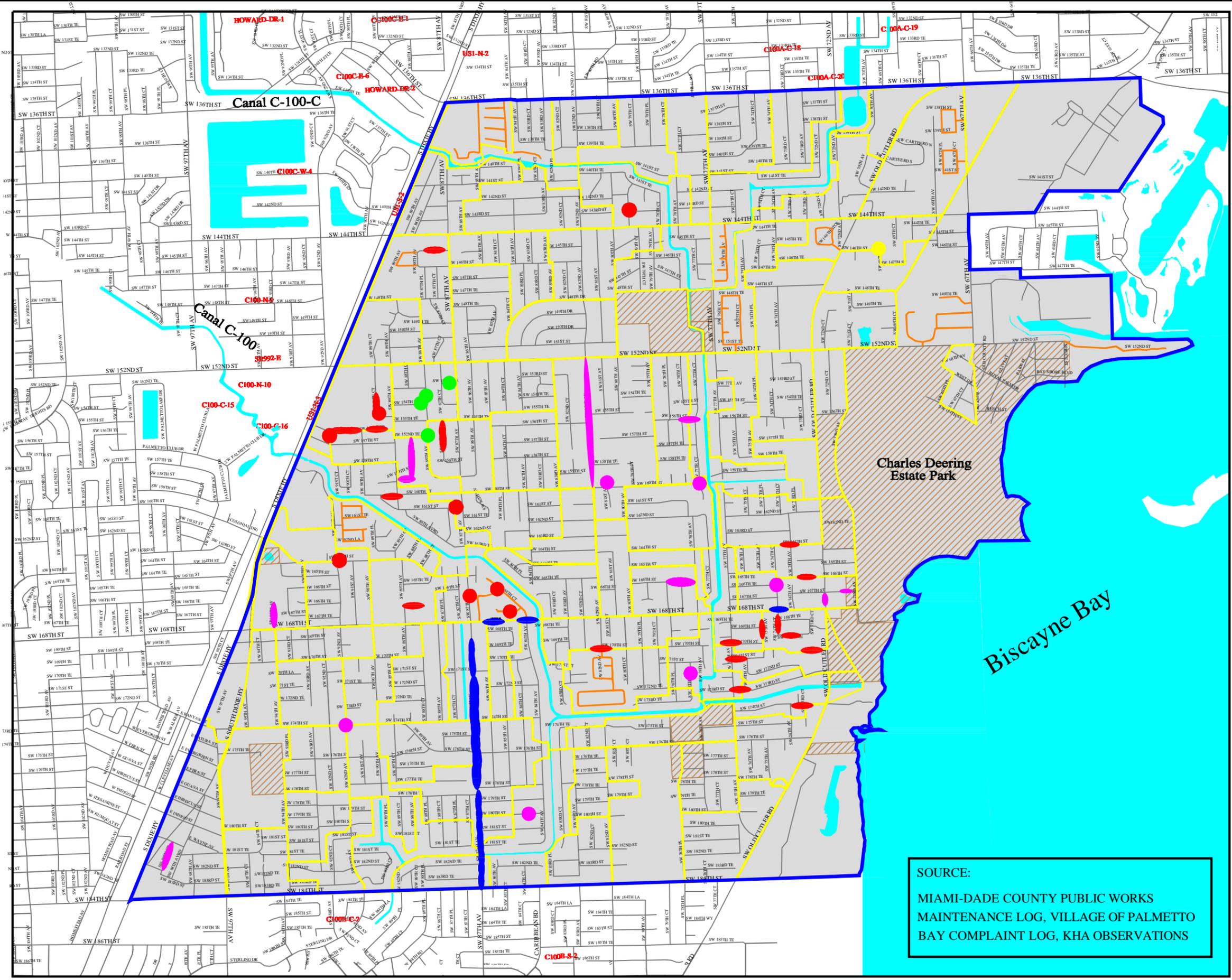
As part of the original Village of Palmetto Bay Stormwater Master Plan, Kimley-Horn obtained Geographic Information System (GIS) information on existing stormwater systems from Miami-Dade County DERM. This information was in the form of an AutoCAD file showing the location of drainage infrastructure and several hard copy data sheets showing additional information on each drainage structure. As part of this Stormwater Master Plan Update, Kimley-Horn used the GIS data to analyze the amount of pervious versus impervious areas on each of the priority stormwater sub-basins that were hydraulically modeled. The hydraulic modeling was required to evaluate the performance of the existing stormwater systems, as well as the performance of the stormwater systems after implementing proposed improvements.

Field Review of Stormwater Problem Areas

Based on field reviews and review of stormwater complaints, it appears that several of the drainage deficiencies identified in the Village's original Stormwater Master Plan have been corrected by either improved maintenance by the Village, completion of capital improvements projects, or completion of localized drainage improvements. As a result, several of the original priority sub-basins have been removed and replaced with new priority sub-basins.

Figure 4 illustrates the updated drainage deficiency map. Based on sub-basin area, Figure 4 as compared to Figure 2 reflects that approximately 60% of the drainage deficiencies identified in the original Stormwater Master Plan have been addressed by the Village.





**Figure 4:
Village of Palmetto Bay
Drainage Deficiencies
Updated 2014 Plan**

Legend	
VILLAGE BOUNDARY	
SUB-BASIN BOUNDARY	
PRIVATELY OWNED COMMUNITY ROAD	
BASIN NAME	Basin Name
FLOODING ON MIAMI-DADE COUNTY ROADWAYS	
FLOODING REPORTED BY VILLAGE OF PALMETTO BAY	
FLOODING ACROSS ROADWAY OBSERVED BY KHA STAFF	
LOCALIZED PONDING IN ROADWAY OBSERVED BY KHA STAFF	
FLOODING TO BE MITIGATED BY PROJECTS UNDER DESIGN OR CONSTRUCTION	

SOURCE:
MIAMI-DADE COUNTY PUBLIC WORKS
MAINTENANCE LOG, VILLAGE OF PALMETTO
BAY COMPLAINT LOG, KHA OBSERVATIONS

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Summary of Completed Stormwater Management Projects

Kimley-Horn obtained and reviewed design and record drawings for priority sub-basin capital improvement projects as well as localized drainage improvement projects that have been completed for incorporation into the report. The following two sections provide an update to the sub-basin prioritization and a summary of the localized projects completed by the Village.

Updated Sub-basin Prioritization

Based on observed flooding, complaints, road conditions, and the other parameters noted above, the Village selected 17 sub-basins for more in-depth study under the original Stormwater Master Plan. Since the original Stormwater Master Plan was finalized, the Village of Palmetto Bay has implemented capital improvement projects in four of the original seventeen priority sub-basins:

- 1) Sub-basin 2 – SW 164th Street Drainage Improvements
- 2) Sub-basin 7 - SW 148th Street Drainage Improvements
- 3) Sub-basin 5 - SW 146th Street Drainage Improvements
- 4) Sub-basin 9 - SW 89th Avenue Drainage Improvements

The completed projects have substantially improved conditions in the areas that they serve. The Village has also completed the design and permitting of sub-basin 10 – SW 88th Avenue Drainage Improvements and anticipates advertising that project for construction in early 2015. Therefore, these five sub-basins have been removed from the drainage sub-basin analysis section of this Stormwater Master Plan Update.

Of the 12 remaining priority sub-basins from the original Stormwater Master Plan, ten have been removed based on either improved maintenance by the Village or completion of localized drainage improvements that resolved the flooding issues; those sub-basins are 1, 3, 4, 6, 8, 13, 14, 15, 16, and 17. As part of this Stormwater Master Plan Update, eight new priority sub-basins have been identified and sub-basins 11 and 12 from the original Stormwater Master Plan have stayed on the priority list. Selection of the eight new priority sub-basins was a function of

flooding complaints, site observations, and coordination with Village staff. The eight new priority sub-basins are 39, 41, 42, 43, 44, 57/96, 59/60, 61. The sub-basin names with a "/" represent addressing areas that include portions of two adjacent sub-basins. These ten priority sub-basins are the subject of hydraulic and hydrologic modeling as part of this Stormwater Master Plan Update. The four completed and one designed capital improvement projects and the ten priority sub-basins to be analyzed as part of this Stormwater Master Plan Update are highlighted in Figure 5.



Hydraulic and hydrologic analysis of these ten priority sub-basins will result in Capital Improvement Project recommendations for these sub-basins which will be incorporated into an updated Stormwater Capital Improvement Program (CIP).

Summary of Localized Drainage Improvements

As part of a Village-wide Drainage Improvement Program, the following is a list of localized drainage improvements that have been implemented by the Village since completion of the original Stormwater Master Plan:

Referenced as Phase II locations

SW 141st Terrace and SW 79th Avenue
SW 92nd Court and SW 176th Street
SW 93rd Avenue and SW 178th Street
SW 94th Court and SW 180th Street

Referenced as Phase III locations

SW 84th Avenue and SW 168th Street
SW 179th Terrace and SW 77th Avenue
SW 79th Avenue and SW 141st Terrace
SW 140th Terrace and SW 80th Avenue
SW 79th Court and SW 142nd Street
SW 174th Street and SW 92nd Court
SW 80th Avenue and SW 144th Street
SW 144th Terrace and SW 68th Avenue

Referenced as Phase IV locations

SW 159th Terrace and SW 89th Avenue
SW 150th Terrace and SW 86th Avenue
SW 149th Terrace and SW 86th Avenue

SW 85th Avenue and SW 144th Street

SW 81st Avenue and SW 144th Street

Referenced as Phase V locations

SW 174th Street and SW 77th Avenue

SW 74th Court and SW 175th Street

SW 176th Street and SW 76th Avenue

SW 74th Place and SW 176th Street

SW 75th Avenue and SW 178th Terrace

SW 178th Terrace and SW 77th Avenue

SW 92nd Avenue and SW 161st Lane

SW 91st Avenue and SW 164th Street

SW 81st Avenue and SW 151st Street

SW 73rd Court and SW 154th Terrace

SW 74th Avenue and SW 145th Terrace

SW 68th Court and SW 145th Terrace

SW 68th Court and SW 144th Terrace

SW 148th Street and SW 78th Avenue

SW 72nd Avenue and SW 144th Street

SW 161st Street and SW 78th Avenue

Additional locations

SW 75th Avenue and SW 139th Street

SW 77th Avenue and SW 139th Street

SW 86th Avenue and SW 182nd Terrace

SW 178th Terrace and SW 89th Avenue

SW 95th Avenue between US1 and SW 174th Street

SW 183rd Terrace and SW 83rd Place

SW 182nd Terrace and SW 83rd Place

SW 178th Street and SW 82nd Avenue
SW 175th Street and SW 79th Court
SW 77th Court and SW 167th Terrace
SW 78th Avenue and SW 164th Street
SW 162nd Street and SW 77th Court
SW 160th Street east of S. Dixie Highway
SW 80th Avenue and SW 152nd Street
SW 75th Avenue and SW 147th Street
SW 92nd Court and SW170th Street

The areas referenced above that received localized drainage improvements were based on observed flooding, citizen complaints, and road conditions that did not warrant a full capital improvement project, but required attention to address public health and safety issues. The localized drainage improvement projects can range from limited infrastructure projects along roadways and at intersections to swale grading at specific locations to address ponding. The scope of work varies for each project and while the roadways listed above provide a general project location, the actual drainage improvements can extend beyond the specific roadways listed. The localized drainage improvements projects are highlighted in Figure 5.

Localized drainage improvements associated with the installation of two new traffic circles also occurred at SW 168th Street and SW 87th Avenue and at SW 160th Street and SW 82nd Avenue.