# RESOLUTION NO. 14-52

**A RESOLUTION OF THE MAYOR AND THE CITY COUNCIL OF THE CITY OF DORAL, FLORIDA ADOPTING THE 2013 STORMWATER MASTER PLAN UPDATE AND CAPITAL IMPROVEMENT PLAN; AND PROVIDING FOR AN EFFECTIVE DATE**

**WHEREAS,** The City of Doral 2013 Stormwater Master Plan Update identified several stormwater drainage problem areas throughout the City; and

**WHEREAS,** the 2013 Stormwater Master Plan Capital Improvement Plan provides a measure to fund different improvement projects within the Stormwater infrastructure and addresses sites that have been identified to be in need of improvement; and

**WHEREAS,** a copy of the 2013 Stormwater Master Plan Update is attached as Exhibit "A"; and

**WHEREAS,** the City Council finds that adopting the 2013 Stormwater Master Plan Update is in the best interest of the City.

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DORAL AS FOLLOWS:**

**Section 1. Recitals.** The above recitals are true and correct and incorporated herein.

**Section 2. Adoption.** The 2013 Stormwater Master Plan Update and the Capital Improvement Plan included in the Update, a copy of which is attached hereto as Exhibit "A", is hereby adopted by City Council.

**Section 3. Effective Date.** This Resolution shall take effect immediately upon adoption.

The foregoing resolution was offered by Councilmember Ruiz who moved its adoption. The motion was seconded by Vice Mayor Fraga and upon being put to a vote, the vote was as follows:

| | |
|---|---|
| Mayor Luigi Boria | Yes |
| Vice Mayor Christi Fraga | Yes |
| Councilwoman Ana Maria Rodriguez | Yes |
| Councilwoman Bettina RodriguezAguilera | Yes |
| Councilwoman Sandra Ruiz | Yes |

PASSED and ADOPTED this 12th day of March, 2014.

LUIGI BORIA, MAYOR

ATTEST:

BARBARA HERRERA, CITY CLERK

APPROVED AS TO FORM AND LEGAL SUFFICIENCY FOR THE USE AND RELIANCE OF THE CITY OF DORAL ONLY:

JOHN R. HERIN, JR., CITY ATTORNEY

# EXHIBIT “A”

# City of Doral

# Stormwater Master Plan

## Executive Summary

Prepared by:

A-D-A ENGINEERING

8550 NW 33rd Street, Suite 202
Doral, Florida 33122

February 2014

# 1.0 EXECUTIVE SUMMARY

The City of Doral Stormwater Master Plan (SWMP) serves as a planning-level engineering document that analyzes the current condition of the City's existing stormwater management systems, identifies high priority flood prone areas, and establishes a five-year capital improvement plan to implement the most cost-effective projects to address these areas. SWMPs are typically updated in 5-year cycles, at a minimum, and this current version of the SWMP supersedes the most recent SWMP update that was performed for the City in 2009. The analysis performed for this SWMP takes into consideration the primary components of the existing stormwater management systems (manholes, inlets, major conveyance pipes), canals and lakes, topography, land uses, as well as groundwater elevations, and historical rainfalls when analyzing the primary existing drainage infrastructure throughout the City. These elements are all combined and analyzed within a mathematical Hydraulic and Hydrologic model that simulates the performance of the City's primary drainage systems using design rainfall events. The City's secondary drainage stormwater management systems, such as individual inlets, manholes, and minor conveyance systems which control drainage within the sub-basin, are not analyzed as a part of this SWMP because this SWMP is a planning-level analysis. The secondary drainage systems are typically analyzed in the design phase and not in the Master Planning study phase.

The results of this SWMP analysis serve to help identify and prioritize general areas where major drainage systems are deficient and define the extent of the deficiencies. With problem areas identified, planning-level drainage projects can be developed and prioritized with the intent of alleviating flooding in flood prone areas. Additionally, planning-level construction costs for these projects can be determined in order to budget and define the implementation schedule for the proposed planning-level projects.

As with most planning-level documents of this type, the projects presented in this SWMP do not require the City to allocate funding for, or require the City to, design and construct projects in this order or magnitude. The main intent of the contents of this SWMP is to serve as a guide for the City in order to identify problem areas, develop potential future projects, and correlating those future projects with a planning-level cost. With those items identified, the City can then internally decide which areas to concentrate engineering efforts and funding based on the recommendations of the SWMP.

## 1.1 Tasks Performed

The City retained A.D.A. Engineering, Inc. (ADA) under Resolution NO 12-373 to complete this SWMP update for the City. The SWMP update scope of work included the following key task and activities:

- Data collection
- Update the Hydraulic, Hydrologic and Water Quality models

- Develop Flood Plain Maps
- Rank problem areas
- Identify sub-basin wide projects
- Identify key high priority areas within sub-basins
- Prioritize high priority areas (Level 1 & Level 2)
- Develop Capital Improvement Plan using prioritized areas for Level 1 priority areas
- Community outreach
  - Workshop at project commencement (June 13, 18, 26, 2013)
  - Workshop After project development (January 30, 2014)

Data was requested and acquired from the various sources maintaining data within Miami-Dade County as well as from the City of Doral. The collected data was cataloged, evaluated, utilized as needed to support the analyses and preparation of the Stormwater Master Plan Report. Additional topographic, geotechnical, or other specific surveys were not included in the scope of work for this task.

With all pertinent data collected, including the hydrologic and hydraulic models from the previous SWMP, an update of the previous SWMP's models was performed in order to incorporate changes associated with stormwater management projects constructed since the development of the City's SWMPs in 2006 and 2009. Once completed, the models were then used to establish an existing baseline condition identifying peak stages, flows, and volumes for each City sub-basin. Flood plain maps for each of the simulated design storm events were also developed which identified the location and extent of flooding within the City given various critical design storm events – see **Figure 1-1**.

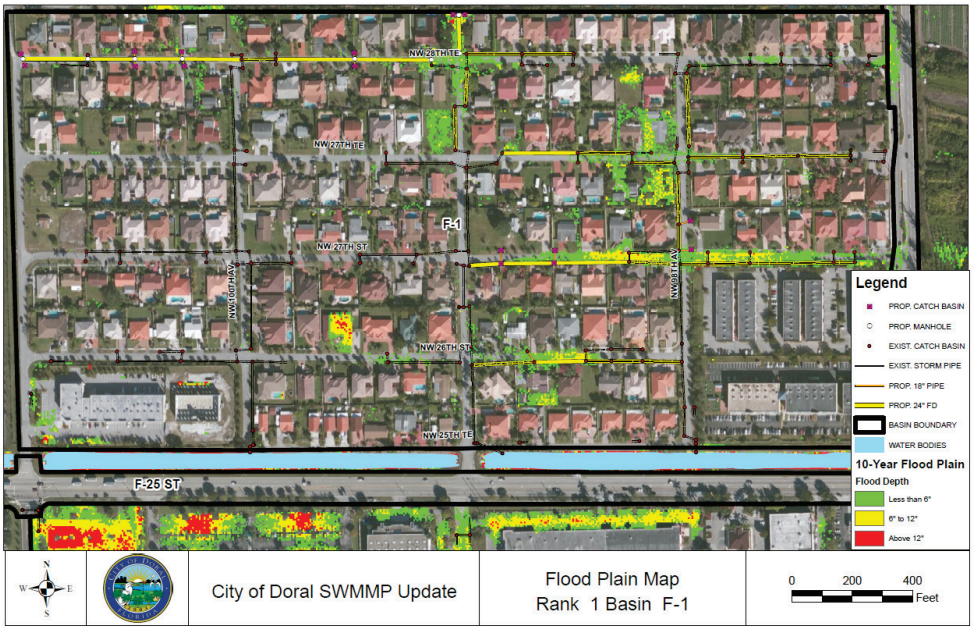


Figure 1-1 – Flood Plain Mapping Sample Sub-basin Map

Using the model result data, flood prone areas were identified. A sample sub-basin has been provided showing areas highlighted in green, yellow, and red denoting flooded areas given that specific design storm event – see **Figure 1-1**.

With the hydraulic and hydrologic modeling completed and the result data compiled, the City's delineated sub-basins were then analyzed and ranked using a modified version of the scoring methodology used by Miami-Dade County's Department of Regulatory and Economic Resources (DRER, formerly DERM/PERA) as part of their stormwater master planning activities. This scoring methodology was used to identify the most critical sub-basins within the City and to establish the flood protection levels of service for each sub-basin. The resulting scores were then used to rank and prioritize the City's sub-basins in terms of highest risk of flooding - **Figure 1-2**.

With regard to the analysis scope of this SWMP, it should be noted that the City of Doral is unique in that the City has a number of large areas that are considered private. These include areas such as the numerous residential and commercial subdivisions which are each responsible for the upkeep and maintenance of their respective roadways and drainage infrastructure. With that stated, the following items should be noted due to this condition:

- For flood plain mapping - all areas were considered regardless of private or public jurisdiction.
- For the scoring and ranking of the City sub-basins – all areas were scored and ranked, although the final rank excluded private areas and most public areas outside of the City's jurisdiction.
- For developing future stormwater improvement projects – projects were only proposed in public right-of-ways under the jurisdiction of the City.
- For the Capital Improvement Plan – the CIP plan was only developed for public roads under the jurisdiction of the City.

After identifying the most flood prone sub-basins, the project team proceeded to propose and evaluate up to 30 stormwater management projects and prepare conceptual designs to address the top 30 ranked sub-basins, later reduced to 21 in coordination with the City due to planned, recent or ongoing project implementation within those sub-basins. The proposed projects consisted of typically implemented stormwater infrastructure components constructed and maintained by the City and took into account current stormwater regulations and criteria which will be applicable to all projects within the City. Planning-level sketches and cost estimates were developed for each project proposed.

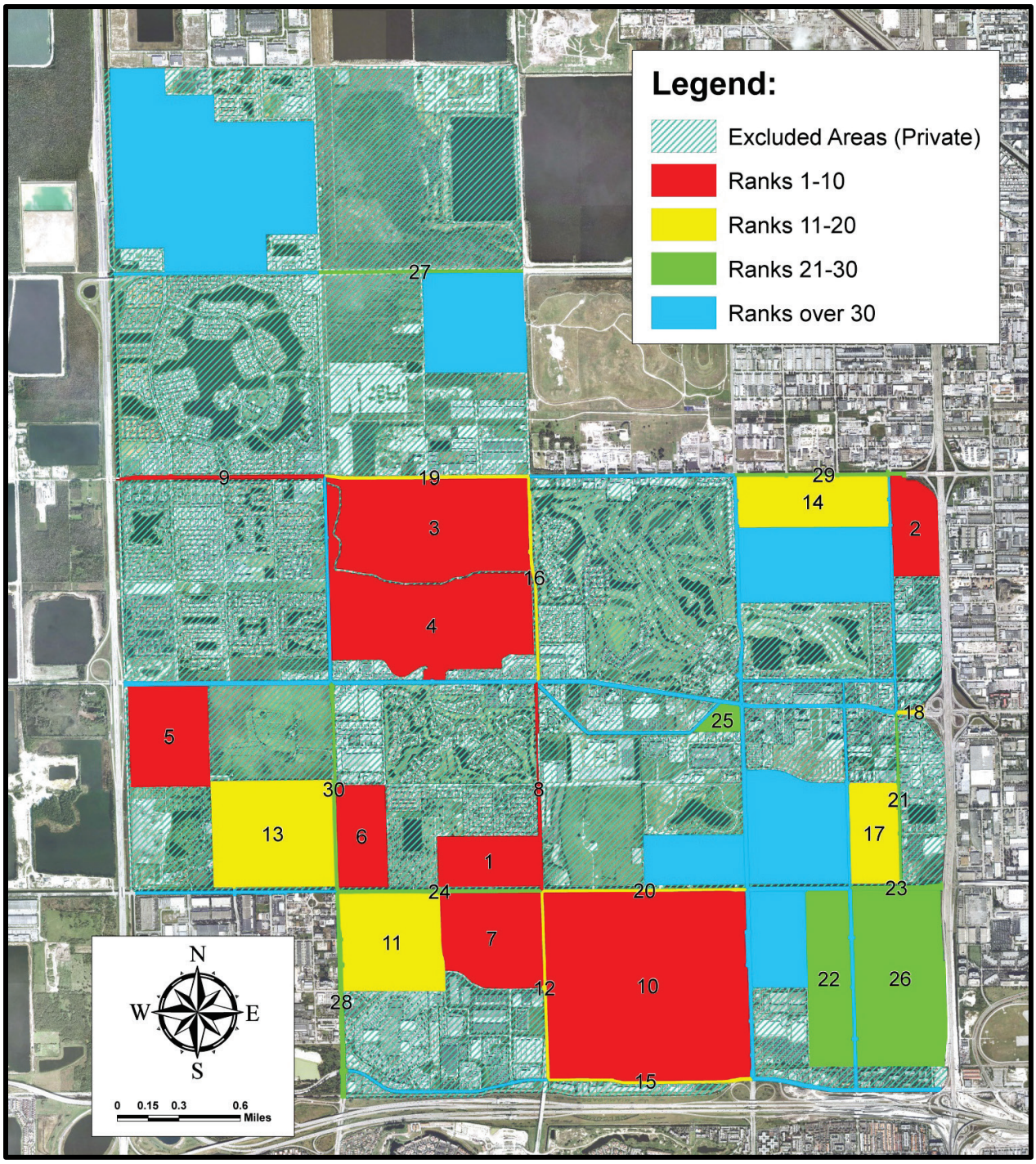


Figure 1-2 – Prioritized Sub-basins

In addition to the capital improvement planning of future projects, the Baseline Scenario model was also used to calculate pollutant loading to receiving water bodies using the same procedures and parameters included in the Miami-Dade County C-4 and C-6 Basin Stormwater Management Master Plans. The loading for the following National Pollutant Discharge Elimination System (NPDES) permit pollutants were calculated:

1. 5-day Biochemical Oxygen Demand (BOD)
2. Chemical Oxygen Demand (COD)
3. Total Suspended Solids (TSS)
4. Total Dissolved Solids (TDS)
5. Total Kjeldahl Nitrogen (TKN) (total ammonia + organic nitrogen)
6. Total Nitrogen (TN)
7. Total Phosphorus (TP)
8. Dissolved Phosphorus (DP)
9. Total Cadmium (Cd)
10. Total Copper (Cu)
11. Total Lead (Pb)
12. Total Zinc (Zn)

The proposed sub-basin wide projects were also evaluated for their pollutant load removal effectiveness. Each sub-basin wide system was correlated with contributing areas relative to the total sub-basin area and finally correlated with a potential removal factor for that sub-basin. This removal factor was applied to the Baseline Scenario model pollutant loads.

Once sub-basin-wide projects were developed, the project team, in combination with the City, proceeded to further prioritize the project areas within each sub-basin, splitting the proposed systems and identifying Priority Level 1 and Priority Level 2 project limits – see **Figure 1-3** for a sample area. Priority Level 1 areas are those areas where the SWMP's empirical data and the City's and Public's observed conditions corroborate areas of severe flooding. Priority Level 2 areas are those areas where the SWMP's empirical data and the City's and Public's observed conditions corroborate areas of moderate to severe flooding. This prioritization was based on the City's proactive program of performing site visits during and after rainfall events and public input, which helped to document the location and extent of flooding throughout the City of Doral. This program has resulted in extensive field visits performed during the last five years and helped to corroborate the findings within this SWMP. These high priority areas within the ranked sub-basins were delineated and planning-level costs for the high priority areas were established – see **Table 1-1**. The resulting prioritized areas were then used to finalize a Capital Improvement Plan.

The final ranking, planning-level construction costs, and an assumed yearly allocation of approximately $1.0 to $1.2 million was then used to develop the final Capital Improvement Plan shown in **Table 1-2**. This prioritized list is intended to serve the City as a guidance tool to further refine and prioritize future projects based on the findings of this Stormwater Master Plan, any additional observed deficiencies discovered by the City, and any changes in funding allocations for stormwater improvement projects.

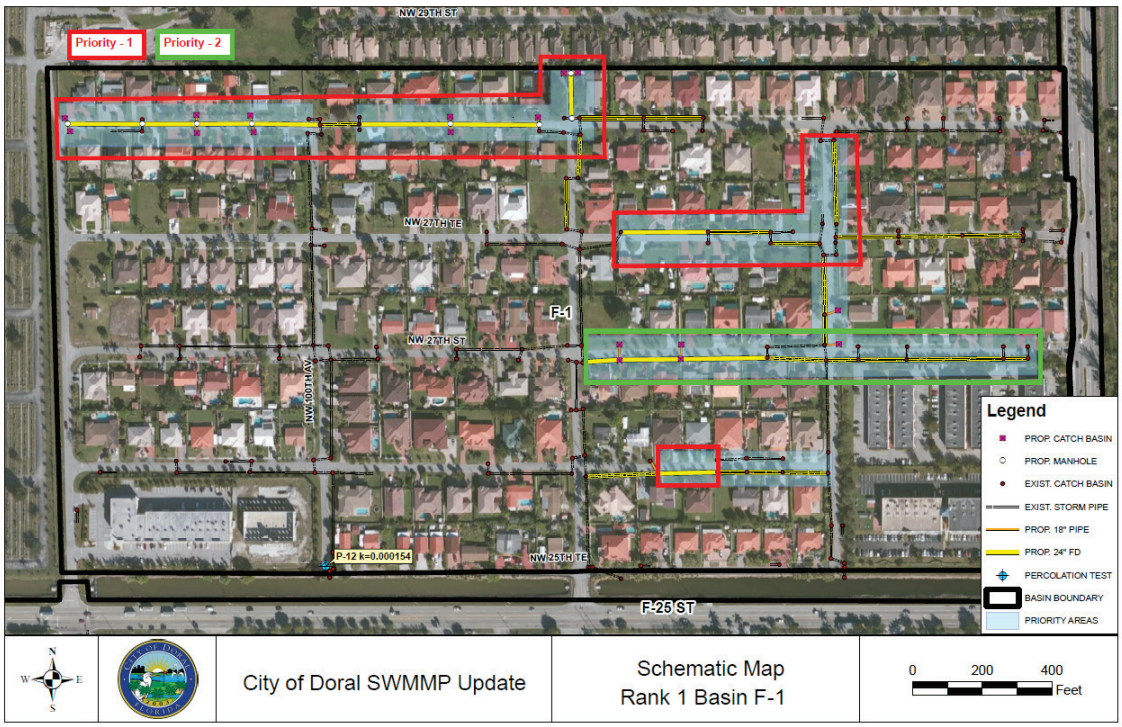


Figure 1-3 – Prioritized Proposed Projects

Table 1-1 – Prioritized Sub-basin Project Costs - Level 1 & 2

| Sub-basin Rank* | Sub-Basin Name | Priority Level 1 Estimated Project Costs | Priority Level 2 Estimated Project Costs | Sub-Basin Estimated Priority Projects Cost Total |
|---|---|---|---|---|
| 1 | F-1 | $738,388 | $369,194 | **$1,107,583** |
| 2 | H-5 | $476,652 | $305,058 | **$781,710** |
| 3 | J-1 | $671,623 | $122,113 | **$793,736** |
| 4 | J-2 | $106,268 | $0 | **$106,268** |
| 6 | F-5 | $140,430 | $0 | **$140,430** |
| 7 | C-6 | $98,829 | $0 | **$98,829** |
| 10 | B-2 | $0 | $285,909 | **$285,909** |
| 11 | C-7 | $404,989 | $0 | **$404,989** |
| 13 | G-1 | $0 | $138,292 | **$138,292** |
| 14 | H-8 | $860,760 | $339,774 | **$1,200,533** |
| 17 | D-3 | $238,229 | $173,257 | **$411,486** |
| 21 | D-79 AVE | $510,401 | $0 | **$510,401** |
| 22 | A-4 | $1,398,536 | $0 | **$1,398,536** |
| 26 | A-2 | $299,064 | $0 | **$299,064** |
| **Totals** | | **$5,944,169** | **$1,733,597** | **$7,677,767** |

*Sub-basins ranked 9, 12, 20, 23-25, 27-28, and 30 were excluded due to planned, recent or ongoing project implementation. Sub-basins 5, 8, 15, 16, 18, 19, and 29 were excluded from this list because these sub-basins did not contain Priority Level 1 and 2 areas.

Table 1-2 – Final Capital Improvement Plan - Proposed Project Order

| Fiscal Year | Sub-basin Rank* | Sub-Basin Name | Priority Level 1 Estimated Project Costs | Total Fiscal Year Project Costs |
|---|---|---|---|---|
| Year 1 | 1 | F-1 | $738,388 | $1,215,040 |
| | 2 | H-5 | $476,652 | |
| Year 2 | 3 | J-1 | $671,623 | $1,017,150 |
| | 4 | J-2 | $106,268 | |
| | 6 | F-5 | $140,430 | |
| | 7 | C-6 | $98,829 | |
| Year 3 | 11 | C-7 | $404,989 | $1,265,749 |
| | 14 | H-8 | $860,760 | |
| Year 4 | 17 | D-3 | $238,229 | $1,047,694 |
| | 21 | D-79 AVE | $510,401 | |
| | 26 | A-2 | $299,064 | |
| Year 5 | 22 | A-4 | $1,398,536 | $1,398,536 |
| **Total** | | | **$5,944,169** | |

It should be noted that the rankings and Capital Improvement Plan developed for this SWMP are intended to help guide the City in prioritizing the location where stormwater improvement projects would immediately address current and observed areas of known flooding in a cost-effective manner. It should also be noted that this ranking does not require the City to design and construct projects in this order. This list is also not a commitment by the City to allocate or expend the estimated amounts within the 5-year period. This list and SWMP serves to guide the City in locating potential projects and correlating these projects with simulated real world events. Further detailed analysis will be required to refine the information presented in this SWMP. Additionally, Priority Level 2 projects may be added to the 5-year CIP plan if more funding is allocated to these types of projects or if these projects can be combined with other types of Capital Improvement projects.

The City and the Project Team also implemented a pro-active Public Involvement and Outreach program to educate the public in the activities that were being performed to complete this SWMP and obtain feedback from the residents. The first series of Open House events, which occurred during the early stages of the SWMP development process, were to educate the public on what is involved in the analysis performed for the SWMP, what the SWMP represents to the City, and to garner feedback from residents about their experiences with flooding throughout the City. The second Open House event was conducted in the latter stages of the SWMP development process in order to inform the public about the planning-level projects developed and being proposed under this SWMP's five-year Capital Improvement Plan.

The City, through the assistance of the Project Team, notified landowners and businesses in advance of the Open House events. Email blasts, direct mailings, and newspaper advertisements were used to inform the public of all Open House events, in order maximize the exposure and attendance from the City residents and business owners. All items that were presented at the open house events were uploaded to the City's website at the completion of the Open House events.

Some of the objectives of the community workshops included:

- Foster understanding of the City of Doral's responsibility with its Stormwater Master plan now and into the future;
- Minimize impact on businesses and stakeholder opposition to the future proposed projects;
- Communicate to stakeholders the need for the SWMP, how it benefits the community, and explain the engineering process; and
- Engage the community in an open, healthy dialogue about the project, understanding that the City of Doral bases the final decision on several criteria, and that community input is important an important part of that criteria.

This SWMP will also serve as a tool to help the City secure grants by documenting the need to improve the flood protection level of service within the City and the quality of stormwater discharges to receiving water bodies from the City's systems. If grants can be secured, additional projects can be implemented, including the Priority Level 2 projects identified in **Table 1-1**. In addition, the SWMP will help the City maintain or improve the Federal Emergency Management Agency (FEMA) Community Rating System (CRS) score, which helps reduce the flood insurance rates for City residents located within flood plains. In order to continue serving the City as a vital stormwater management tool, this SWMP should be updated in regular intervals – FEMA requires that SWMPs should be updated every five years, at a minimum.