



City of Doral

Flood Warning and Response Plan



Prepared by:
City of Doral Public Works Department – Stormwater Division

City of Doral – Flood Warning and Response Plan

Flood events tend to pose a variety of hazards to a community as they build, crest and subside. At different points in the life of flood, people are displaced, damage occurs and finally a cleanup is initiated by governmental agencies responsible for floodplain management. Disruption of normal public utilities and the presence of flood debris and damage can produce safety and health hazards. A comprehensive **Flood Warning and Response Plan (FWRP)** is one of the several tools available to local governments to coordinate and guide an effective response to a flood event. The City of Doral **FWRP** was developed to assist the community in dealing with local flood hazards as well as to reduce the risk of first responders by defining the how’s, what’s, when’s, and where’s of the operation. The City of Doral FWRP was prepared with the input of the Doral Public Works Department, Doral Police Department, Doral Building Department, Doral Code Compliance Department, Doral Public Affairs Division, and the Office of the City Manager.

The FWRP shall be reviewed on a yearly basis and shall be updated as new information and technologies are made available.

Adopted on:	
Latest review/revision:	

Goal

The goal of the City’s **Flood Warning and Response Plan** is to provide flooding information for the safety of residents, visitors, and business owners in the event adverse weather conditions create a flooding hazard.

Purpose

The purpose of the **Flood Warning and Response Plan** is to provide information for early flood recognition and warning dissemination, establish response and emergency response actions, establish post-flood recovery actions, and develop community awareness. Through the implementation of the FWRP the City’s main goal of minimizing public and private property losses, while protecting the public safety in an efficient and cost-effective manner is achieved. The FWRP does not prevent flood disasters, but enables public response actions to be timely and workable.

Planning and Coordination Factors

Serious flooding can occur as a result of heavy rains, tropical storms, and hurricanes. For this reason the City of Doral is ready to act on a 24-hour basis through the inter-agency cooperation of Miami-Dade County Emergency Management Division, Miami-Dade County Fire & Rescue, Miami-Dade County Police, Miami-Dade County Public Works Department, Doral Police Department, Doral Public Works Department, and Doral Building Department. City, County,

and private resources, separately or in combination, may be required to handle an emergency situation. A response to a major flooding event may require a high degree of interagency cooperation and communication.

The Federal Emergency Management Agency (FEMA) flood insurance rate maps (FIRMs) (*Attachment A – Impact Adjustment Map*) have been used to identify flood prone areas within the City. These maps delineate 100-year flood plains and boundaries. FIRMs are available through FEMA’s website www.msc.fema.gov or the City’s Building Department. Additional maps developed through the City’s 2013 Stormwater Master Plan Update are utilized to identify flood prone areas for a 5-Year, 10-Year, 25-Year, and 100-Year storm events (*Attachment B – City of Doral Flood Plain Map*). These maps are compared with historical data to confirm accuracy of flood prone areas identification.

Analysis (Stormwater Management)

The City of Doral is bounded by State Road (SR) 826 (Palmetto Expressway) to the east, Florida Turnpike to the west, State Road (SR) 836 (Dolphin Expressway) to the south, and NW 90 St. and NW 58 St. to the north. The City has within its jurisdiction three (3) secondary canals operated by Miami-Dade County. The Northline Canal is located along NW 25th St. from SR 826 to the Florida Turnpike, C-2 Extension Canal is located along NW 117th Ave. from NW 25th St. to NW 58th St., and the Dressels Canal traverses the City along NW 58th St., NW 52nd St., and NW 41 St., from the Florida Turnpike to SR 826 (*Attachment C – City Canals Map*). Proper operation of canals within the region by Miami-Dade County and South Florida Water Management District (SFWMD) is essential to avoid flooding. Miami-Dade County has an interconnected gridline of canals that extend from Lake Okeechobee all the way down to Homestead. Through this extensive gridline, stormwater is managed, distributed through the region, and discharged into the everglades and Biscayne Bay.

Heavy rainfall, tropical storms, and hurricanes are the main flooding threats in the City of Doral. Possible reasons for flooding within the City’s jurisdictional boundaries are deficiencies in maintenance, lack of drainage capacity, a storm event that exceeds design criteria, and although unlikely, riverine flooding by overtop of canal banks. Storm surge could also impact the City by impeding proper operation of canal flood gates and canal discharge into Biscayne Bay.

Flood Threat Recognition

The City’s main source for weather news updates is the National Weather Service (NWS) and Miami-Dade County Office of Emergency Management. The City also utilizes the National Oceanic and Atmospheric Administration (NOAA) radar (www.weather.gov), the Weather Underground “WunderMap” (www.wunderground.com/wundermap/), and Intellicast “interactive radar” (www.intellicast.com/Local/WxMap.aspx?location=USFL0316), to track and plan for storm events. Miami-Dade County rain and canal gauges installed within the City’s jurisdiction and within the surrounding communities (*Attachment D – WASD Rain Gauges*) are also an important tool on the City’s FWRP as they provide real time data through software

provided by the County. The City utilizes the Miami-Dade County VTScada software to access real time rain and canal staging data. The VTScada software allows first responders to track and monitor storm events as they cross through the region. The software provides the Type of Station, Name of the Station, Rain Rate, and the Daily Total. Circles are used to represent Canal Points, Triangles for Pump Stations, and squares for Rain Gauges. The station icons change colors as a result of the intensity of the event, allowing the user to track the storm event and identify and pinpoint potential flooding in the area (Figure 1 – Miami-Dade County VTScada Rain Gauges Software). Data from the United States Geological Service (USGS) (<http://waterwatch.usgs.gov/?m=real&r=fl>) can also be utilized to track canal staging levels in the region.

Figure 1 - Miami-Dade County Rain and Canal Gauges Software

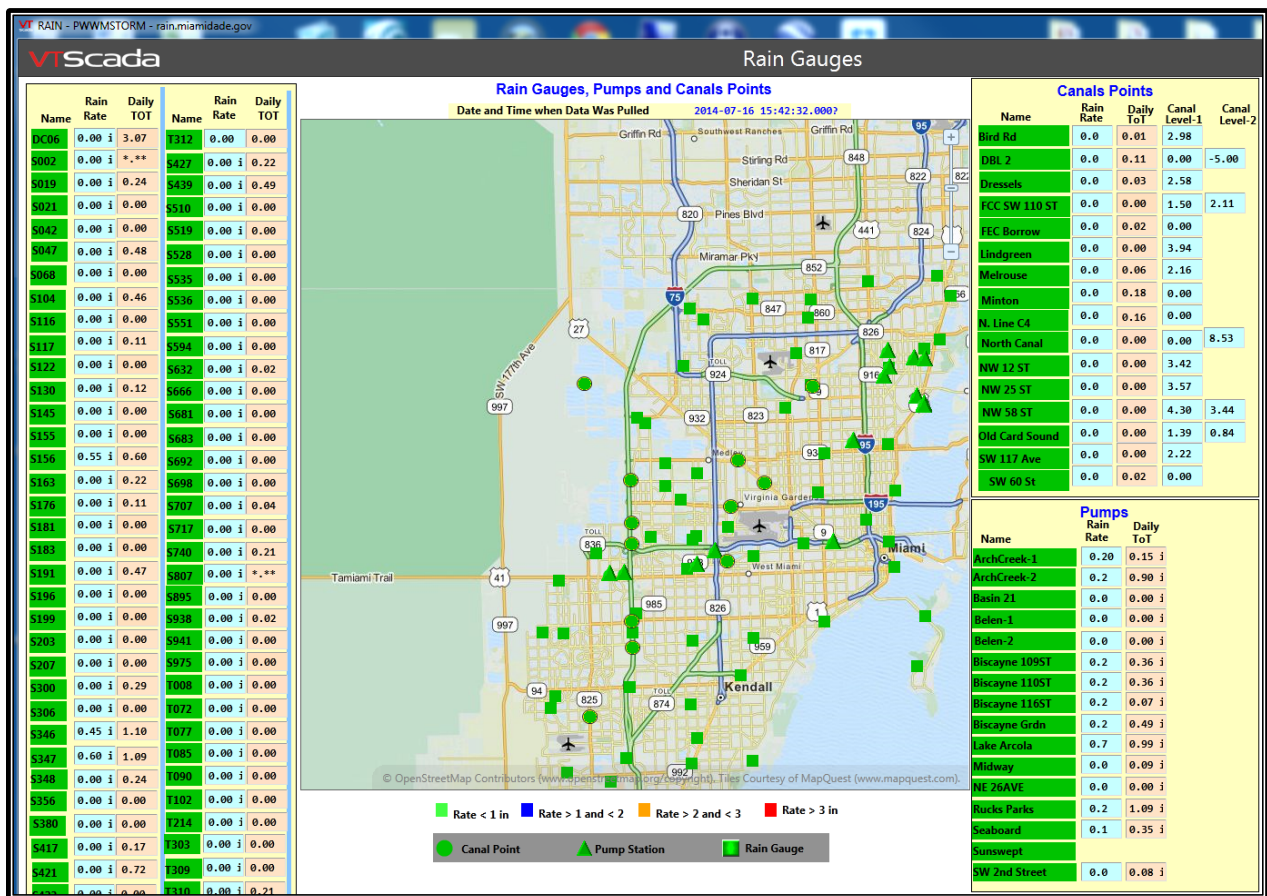


Table 1 - Station Color Code

Icon Color	Rain Rate
Green	< 1in
Blue	> 1in and < 2in
Orange	> 2in and < 3in
Red	> 3in

The City also possesses a Geographic Information Systems (GIS) mapping and database system where all flood prone areas are mapped. The database includes, wherever it's possible, the following:

1. Types of flooding at each location;
2. Causes of flooding (if known);
3. Sources of flooding (if known); and
4. Depths of flooding (if information available).

Warning Dissemination

The City receives weather information and advisories from the National Weather Service and Miami-Dade County Emergency Management via email or direct communication. The City also receives information and advisories via direct communication and email from the City of Hialeah, which serves as the satellite entity between the municipalities in the region and the Miami-Dade County Emergency Operations Center (EOC).

The City's department heads possess mobile phones with email capabilities that receive weather advisories as well as notifications from the City's Police Dept. and EOC on a 24hour/7days a week basis.

When the National Weather Service or Miami-Dade County Emergency Management issues a flood warning, flash flood watch, flash flood warning, or when flood is imminent, the City will provide pre-scripted notices to the community via the following methods:

1. City website, www.cityofdoral.com/severeweatheradvisory;
2. Social media (twitter, facebook, email);
3. Code Red calls;
4. 311 App. Push notifications;
5. Doral TV; and
6. If necessary, law enforcement will drive the affected areas to provide door-to-door public address warning notifications.

When tropical storm or hurricane watches and warnings are issued by the NWS, the City shall provide these to the general public through the means mentioned above, usually beginning 72 hours in advance of the event (when possible).

A copy of the City of Doral Flood Safety Measures (FSM) (*Attachment E – Flood Safety Measures*) can be found on the City's website: www.cityofdoral.com/severeweatheradvisory tab. The FSM shall be sent via the means mentioned above on a monthly basis during the hurricane season. The FSM shall also be published at the beginning of the hurricane season on the City's quarterly magazine, Doral Digest. This magazine is sent to all City residents.

Flood Threat Response

In order to prevent flooding, the City implements a maintenance program during the year where its entire stormwater drainage infrastructure, which includes canals, inlets, manholes, outfalls, and drainage pipes (exfiltration pipe and solid pipe), are serviced. Canals are maintained via a contract with Miami-Dade County. Their services include:

- Culvert cleaning above and below water
- Mechanical harvesting
- Chemical treatment
- Obstruction removal
- Mowing of slopes and flat areas

Maintenance of inlets, manholes, and pipes is done on a yearly basis by a City vendor. Drainage infrastructure is inspected and serviced on the same date and recorded on the Drainage Structure Information Shell Form ([Attachment F – Drainage Structure Info Shell](#))

The City's flood threat response and any weather related emergency response work in the following way:

1. The City receives notification from NWS or the County EOC of potential threats to the area.
2. Information provided to the City is disseminated to the public.
3. If and when event reaches the City, City personnel shall survey the City by concentrating its efforts on known flood prone areas.
4. When the City Government Center or Police dispatch center receive flooding reports, or any other reports related to the weather event, the City Manager and/or Doral Police shall notify appropriate department heads to coordinate and begin the required response.

Response Actions

The City Manager and the Chief of Police are responsible for the activation of the City's EOC and for the coordination and magnitude of the emergency response. Each City department has a specific responsibility.

- City Manager's Office (CM)
The City Manager is responsible for the management of the emergency operation until the responsibility is transferred to the Chief of Police, Public Works Director or the Incident Commander.
- Doral Police Department (PD)
The Doral Police Department shall be responsible for the security of City personnel as well as the public. The Doral PD shall protect public and private property. Doral PD along with Miami-Dade Emergency Management shall be responsible for any evacuation.
- Doral Public Affairs Division (PA)

The Public Affairs Division (PA) shall be responsible for disseminating all weather advisories as well as the City’s current conditions. The PA shall also be responsible for coordinating with the Information Technology (IT) Department for the dissemination of the information.

- The Public Works Department (PWD)

The Public Works (PW) Director shall be responsible for all decisions within the public right-of-way which includes City operated roadways, canals, and City facilities such as the Government Center and the Doral Police/Public Works Facility. The PWD shall also be responsible for the management of the City’s emergency debris removal contractors and the emergency debris monitoring firm. The PWD along with the Parks & Recreation Department are responsible for providing sandbags to City residents and business owners. The PWD is also responsible for the deployment of the City vendor that manages and operates stormwater drainage maintenance vack-trucks.

Although there are a number of critical facilities within the City owned and operated by Miami-Dade, the only critical facilities owned and operated by the City of Doral are the City Government Center and the Doral Police/Public Works Facilities. These facilities are not subject to flooding but loss of access could cause a critical situation in an emergency response. Critical facilities owned and operated by Miami-Dade County, within and around the City’s jurisdiction, have their own operational plan and are independent from the City operation. The list of facilities includes:

Miami-Dade Public Works Road & Bridges Division	8795 NW 58 St. Miami, FL 33178
Miami-Dade County Fire & Rescue Headquarters (County’s EOC)	9300 NW 41 St. Doral, FL 33178
Miami-Dade County Police Headquarters	9101 NW 25 St. Doral, FL 33172
Doral North Fire Rescue Station	11151 NW 74 St. Doral, FL 33178
NW 58 St. & 97 Ave. Fire Station	9710 NW 58 St. Doral, FL 33178
NW 18 Ter & 88 Ct. Fire Station	8825 NW 18 Ter Doral, FL 33172
Evacuation Center – Ronald Reagan Senior School	8600 NW 107 Ave. Doral, FL 33178

All these facilities are located within Miami-Dade County owned and operated right-of-way. Miami-Dade has its own operation, maintenance, and emergency procedures. These facilities do not need special warning from the City as they receive information directly from Miami-Dade.

The City will always promote and provide the public with safety recommendations and strategies throughout the year. Some public protection strategies are:

- Sandbagging property
- Flood proofing property
- Property evacuation
- Shelter in Place

Emergency Response Actions

Before a rain event with flooding potential reaches the City, the City Manager shall decide if and when sandbags will be provided to City residents and business owners. Sand bags shall be provided at the City’s distribution point, located on the southern area of the JC Bermudez Park (JCB Park) (3000 NW 87th Ave.). The PA shall advise residents and business owners of the availability of sand bags through the outreach channels.

The first emergency responder at each scene is responsible for evaluating and reporting the situation to the City Government Center and/or Doral Police dispatch center. The first actions at the scene should be to protect others from being exposed to flood waters. If necessary and when possible the PWD shall barricade flooded roads to prevent traffic flow. If necessary and after approval from the Incident Commander, a command post shall be established. If necessary PWD shall deploy stormwater vack-trucks to residential or commercial areas. Any necessary evacuations shall be managed by Miami-Dade Emergency Management and/or Doral Police. The PA shall be designated at the command post to provide updates and information to the residents, business owners, and the media.

Important emergency contacts:

(For emergencies contact 911)

Doral Public Works Department:	(305) 593-6740
Doral Police Department:	(305) 593-6699
Miami-Dade County Emergency Management:	(305) 468-5400
Miami-Dade County Public Works Department:	(305) 592-3116
Miami-Dade County Fire & Rescue:	(786) 331-5000

Post-Flood Recovery

Once flood waters have receded the PWD shall evaluate the stormwater drainage infrastructure and shall compare the findings with maintenance records to decide if the system is in need of maintenance, improvements, or if the system was overwhelmed by rains.

Flooded areas shall also be evaluated by the PWD to decide if the emergency debris removal contractor and debris monitoring firm need to be activated. If activated, the emergency debris removal contractor and debris monitoring firm shall be on the scene after being activated. The PWD along with the Parks & Recreation Department shall decide if it is necessary to activate and prepare the City’s debris staging and reduction site, JC Bermudez Park (JCB Park). When activated the emergency debris removal shall establish posts on the JCB Park as established in the City’s Hurricane Plan. The debris monitoring firm shall process and record all debris removal operation for any State of Federal reimbursement request (if applicable).

The Building Department (BD) will send crews of building inspectors, along with members of the Code Compliance Department, to assigned zones and perform damage assessment, and generate reports for Miami-Dade County. Miami-Dade County then sends these reports to

FEMA. The BD will also establish an emergency permit center to make feasible the emergency repair permits process to residents and business owners. This process will ensure that all work performed during this period is performed by licensed contractors, is performed correctly, and properly inspected.

Continued Plan Management

The City will test and update the flood response and warning plan as well as the hurricane plan on a yearly basis. Reviews and updates can be done on a yearly basis as new information and technologies become available but revisions should be completed at the beginning of the hurricane season.

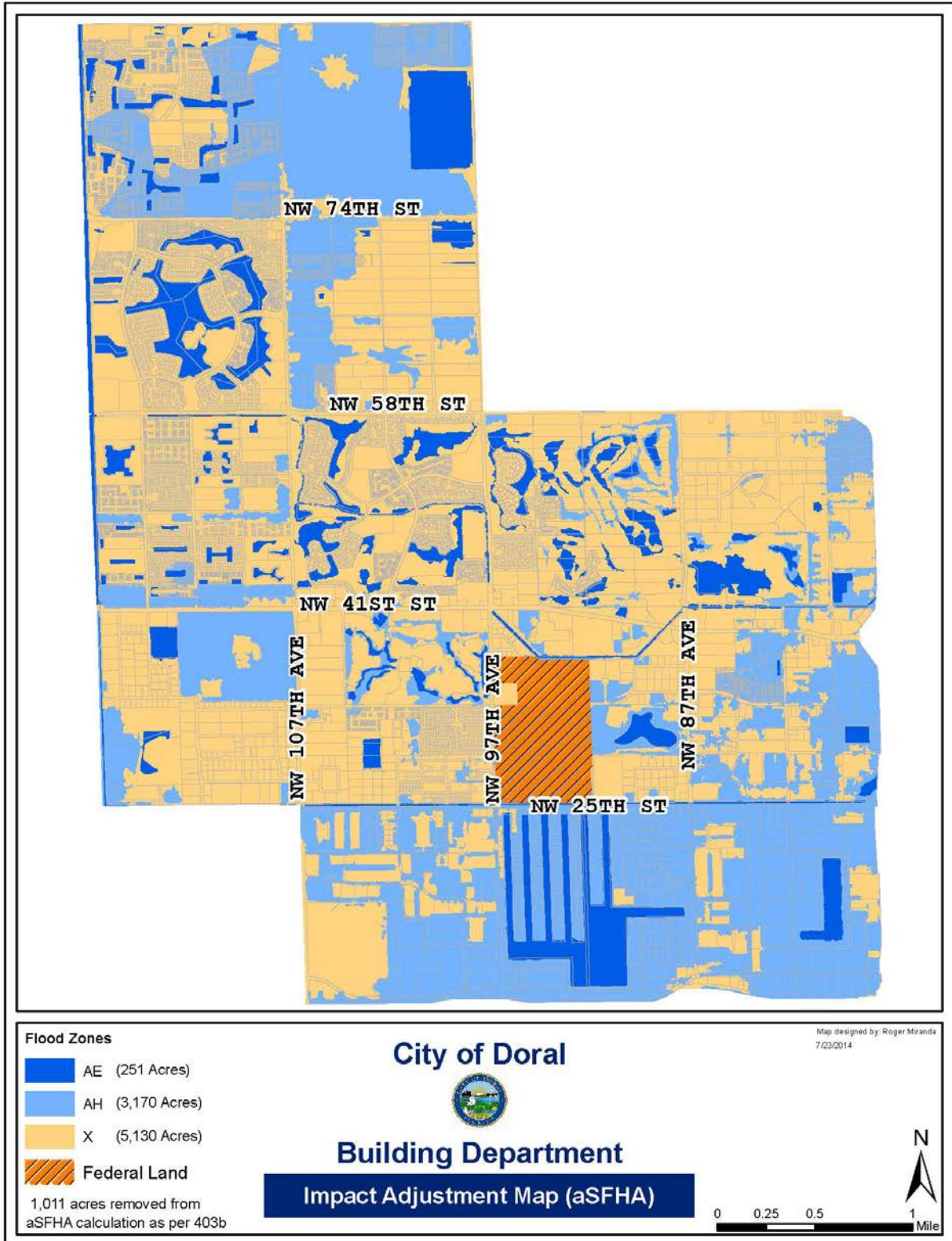
An annual table top exercise shall be conducted to test the plan and train personnel on the use of the response plan. For the table top exercise all department heads and personnel that department heads consider essential, as well as a representative from the City's emergency debris monitoring firm shall be present. After the exercise is completed the City shall record the following information:

- List of participants;
- Lessons learned; and
- Recommendations or changes to the plan.

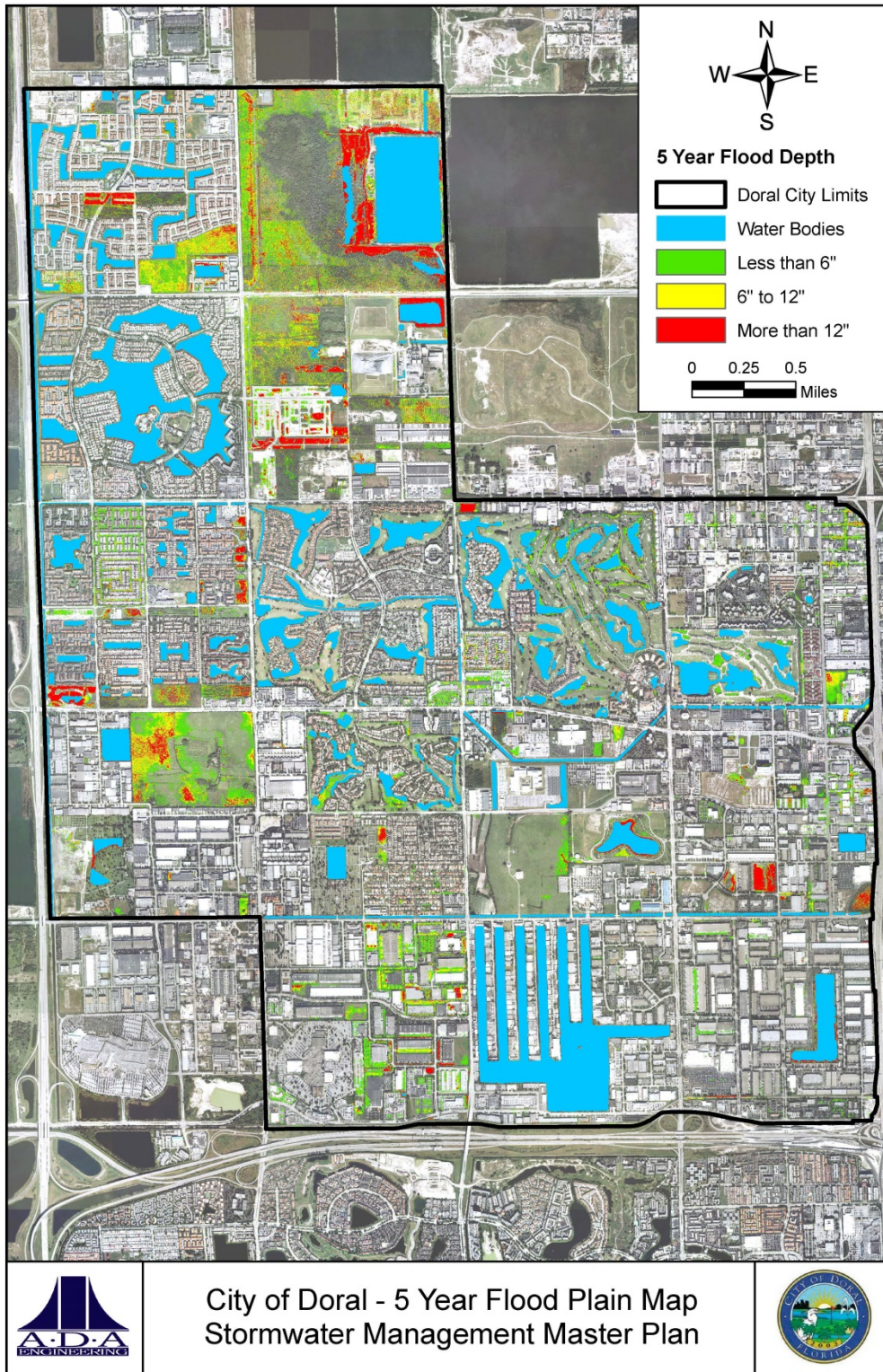
The plan may be revised based on the recommendations or after a real event.

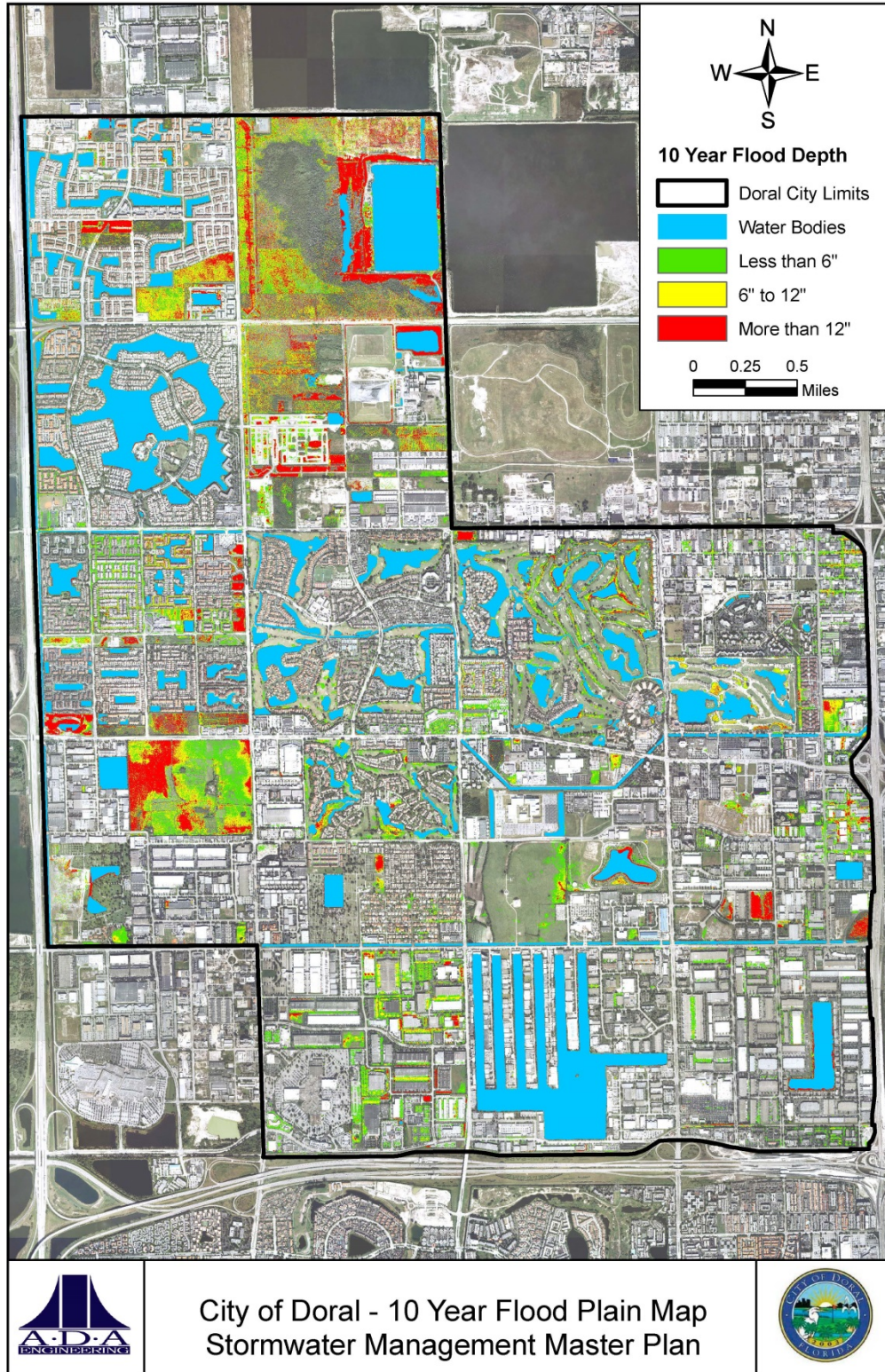
Revised pages shall be provided to department heads. It is the responsibility of the plan holder to keep all copies of the current plan.

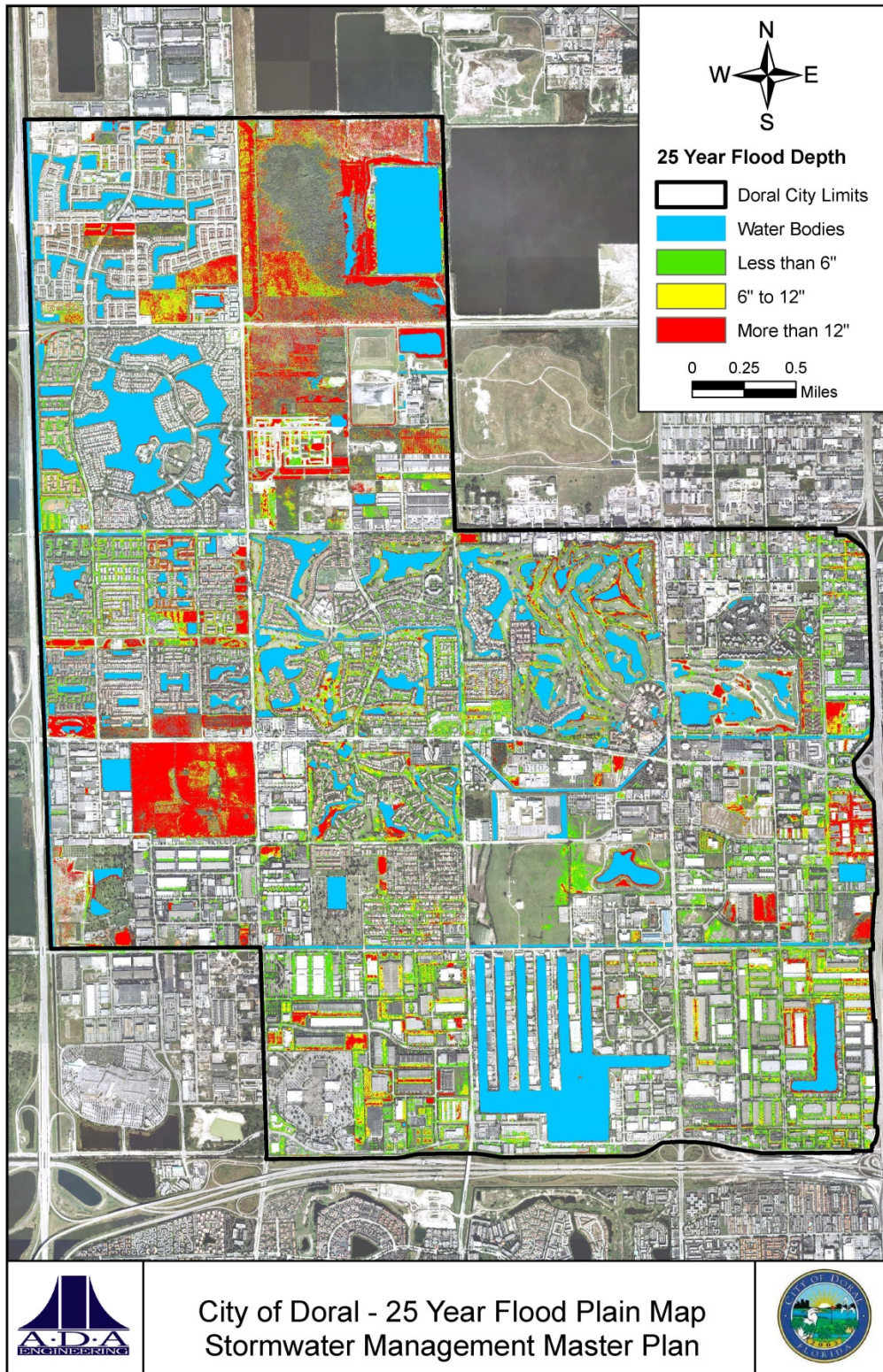
Attachment A – Impact Adjustment Map (FIRM)

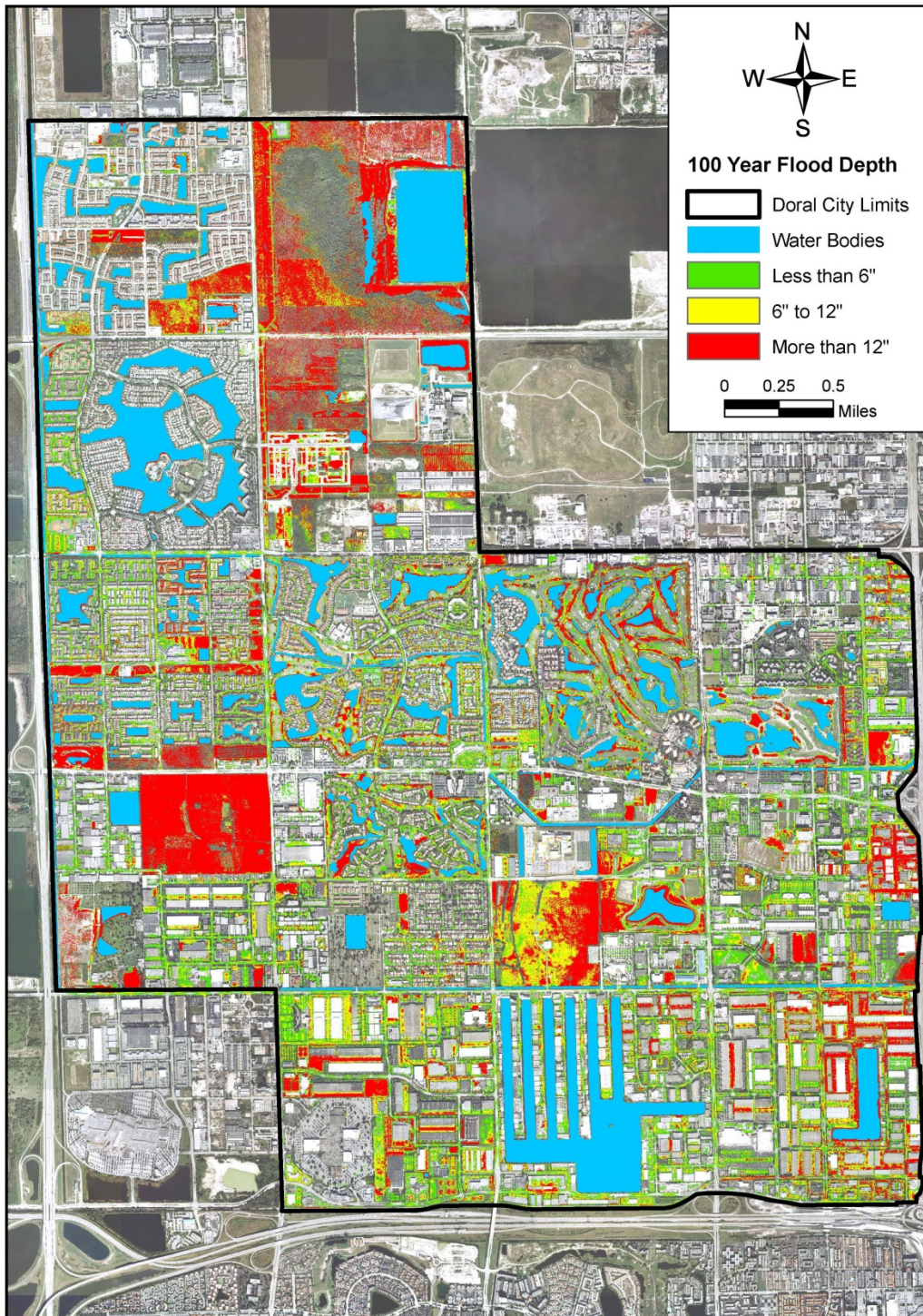


Attachment B – Flood Plan Map





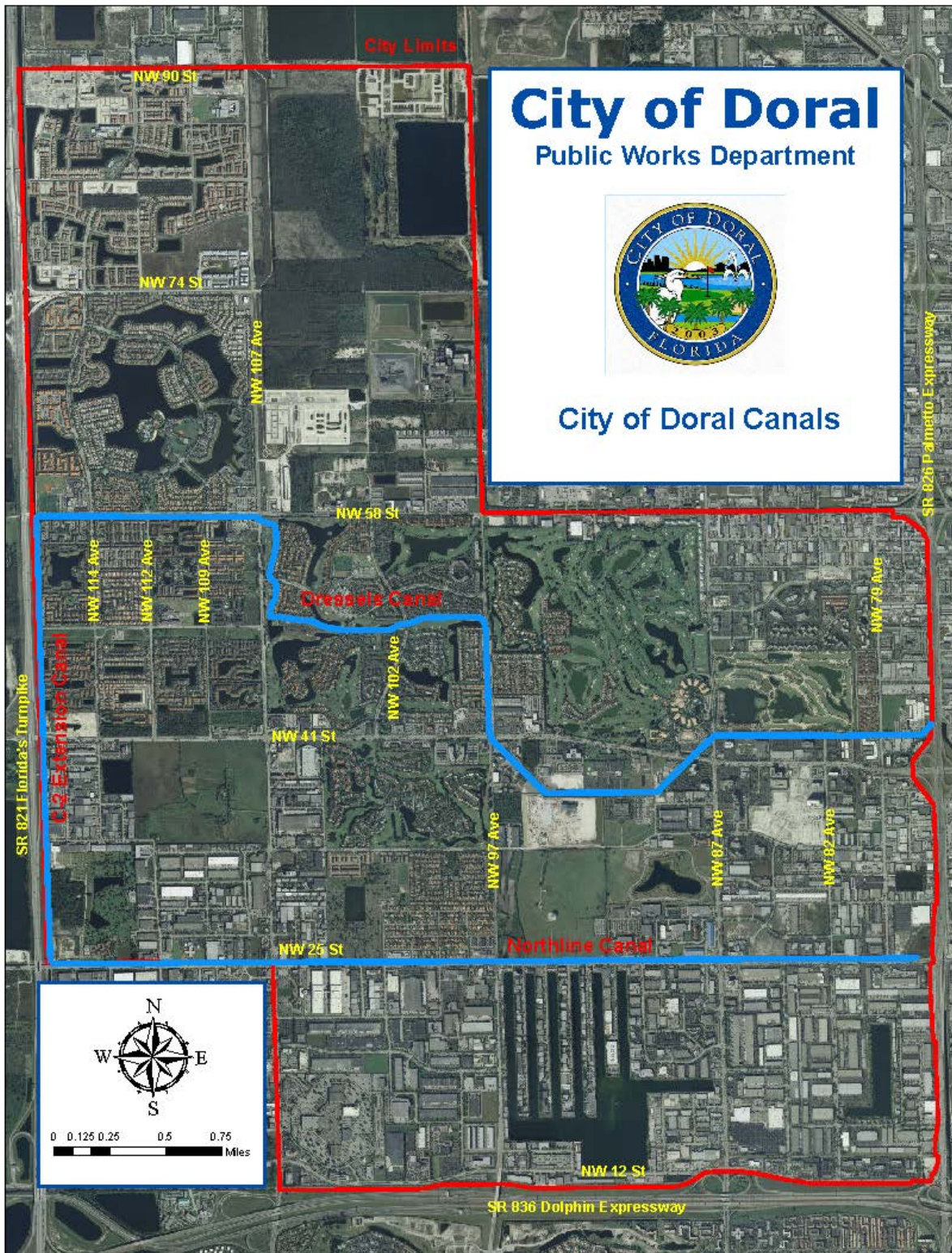




City of Doral - 100 Year Flood Plain Map
Stormwater Management Master Plan



Attachment C – City of Doral Canals



Attachment E – Flood Safety Measures

City of Doral - Flood Safety Measures

During of the hurricane season (June 1st – November 30th) the City will advertise the City of Doral Flood Safety Measure (FSM) on a monthly basis via social media and email blast to advise residents and business owners of procedures and measures that should be taken before, during, and after a flood event. The FSM will also be advertised at the beginning of the hurricane season on the City's official magazine the Doral Digest. Additionally the FSM shall be available via the City's web page, www.cityofdoral.com, under the tab "Severe Weather Advisory".

Before a Flood:

- Determine if your property is in a flood zone. For a flood zone determination call the Building Department at (305) 593-6700.
- Purchase flood insurance. If you already have flood insurance, review your policy coverage.
- Monitor your surroundings and report any clogged or damaged storm drains to the appropriate authority.
- Monitor the National Oceanic and Atmospheric Administration (NOAA) Weather Radio, National Weather Service (NWS), local television, radio stations, and/or internet weather station such as www.weather.gov and the City's webpage www.cityofdoral.com.
- Know the difference between a **flood watch** and a **flood warning**. A watch means flooding is possible. A warning means flooding is occurring or will occur soon.

When a Flood is Imminent

- When flood is imminent, the City will provide notices received from the National Weather Service (NWS) and Miami-Dade County Emergency Management via the City's website (under "Severe Weather Advisory" tab), social media, email blast, Code Red calls, and push notifications through the City's 311 App.
- Notices usually provide a description of the event and impacts on the region.
- If a tropical event is imminent, the City shall provide watch, warning and safety information to the City's webpage.
- If event merits, and upon approval by the City Manager, the City will provide sand bags to its residents and business owners at the JC Bermudez Park.
- Record existing conditions (Ex. Pictures).
- Be prepared to evacuate: identify places to go, identify alternative travel routes not prone to flooding, and plan what to do with your pets.
- Pack a bag with important items in case you need to evacuate. Don't forget to include needed medications.
- If advised to evacuate your home, do so quickly.
- If there is any possibility of a flash flood, move immediately to higher ground.
- Protect your property by moving valuables and furniture to higher levels, and by bringing outside possessions indoor.
- Remember to turn off utilities at the main switches and/or disconnect electrical appliances.

During a Flood

- The City will provide notices of flooded areas via the City's website, social media and email blast.
- If required, the City will provide barricades to prevent traffic and pedestrians from going into flooded areas.
- Avoid disaster areas!
- Do not walk through moving water. Water 6 inches deep can knock you off your feet.
- If you have to walk in water, walk where the water is not moving. If possible use a stick to check the firmness of the ground in front of you.
- Do not drive into flooded areas. Follow recommended routes. **DO NOT** sightsee.
- If floodwaters rise around your car, abandon the car and move to higher ground if you can do so safely.
- Do not touch electrical equipment if you are wet or standing in water.
- NEVER allow children to play around high water, storm drains, and canals.

After a Flood

- Do not return to flooded areas until authorities indicate it is safe to do so.
- Do not visit disaster areas following a flood. Your presence could hamper urgent emergency and rescue operations.
- Travel with care. Watch for damaged roads, downed trees or power lines. Stay away from downed power lines and report to the power company.
- Report broken utility lines to appropriate authorities.
- Do not enter a building if it is still flooded or surrounded by floodwater.
- Do not enter a building that has flooded until local building officials have inspected it for safety.
- Check the property for structural damage. Examine walls, floors, doors, windows, and ceilings for risk of collapsing.
- Check for fire hazards.
- Check for gas leaks. Let building air out to remove foul odors or escaping gas.
- Have an electrician check the electrical system and appliances prior to turning the power on.
- Listen for news reports to learn whether water supply is safe to drink.
- Service damaged septic tanks as soon as possible. Damaged sewer systems can cause serious health hazards.
- Clean and disinfect everything that got wet. Residue from floodwater can contain contaminants, sewage and chemicals.
- Take pictures of the damage. **DOCUMENT** both the building and its contents for insurance claims.

When making repairs always follow local building codes and regulations. Elevate electrical components and utilities installed above potential flood height.

