



# CITY OF WINTER PARK

## \*INTERIM PLAN\*

# ADAPTIVE FLOOD MANAGEMENT GUIDE

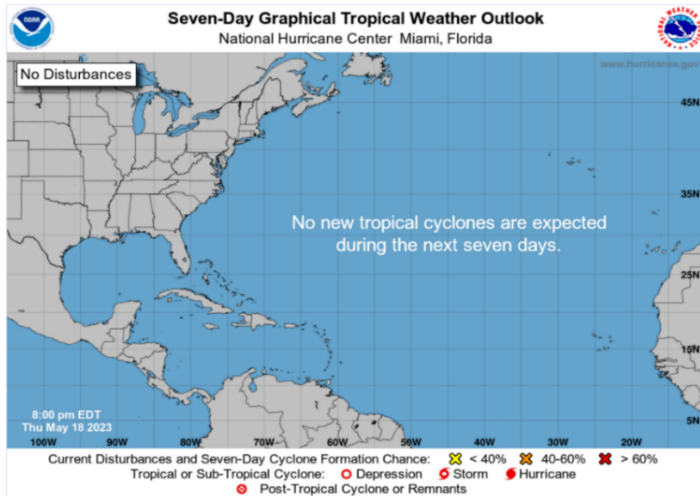
OCTOBER 2023

In May of 2023, the National Hurricane Center (NHC) changed its Tropical Weather Outlook notification from five-days to seven-days. The NHC extended the outlook due to technological advancements with satellites and modeling stating that seven-day forecasts are just as reliable as the five-day forecasts.

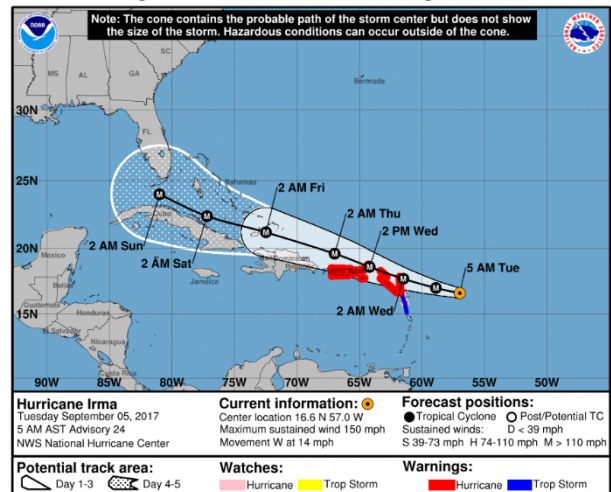
With this technological development, daily active management of lake levels within the City of Winter Park will occur upon issuance by the National Hurricane Center (NHC) that tropical activity has been identified for the new Seven-Day Outlook. Protocols and procedures will further be enacted when the NHC’s projected cone touches the Central Florida Region as defined below, whereby the active management of lowering lake levels will occur according to the specifies found within this guide. In addition, annual notification to the Florida Department of Environmental Protection (FDEP), in writing, is required for implementing drain well activities. City Manager has the authority to override flood management policy if circumstances dictate doing so. Any such override, including the reasoning, shall be documented in writing.

This guide was developed in collaboration with the Lakes & Waterways and Lake Killarney Advisory Boards to empower the City’s professional staff on adaptive lake management decisions.

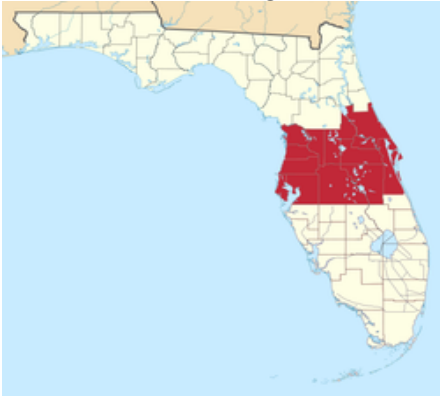
### Seven-Day Outlook:



### Example of Storm Cone, Containing Path Activating Central Florida Region:



## Central Florida Region Defined:



The Central Florida Region includes the Orlando metropolitan area (Orange, Lake, Osceola, and Seminole Counties), and Sumter, Polk counties in the interior, Citrus, Hernando, Hillsborough, Pasco, and Pinellas counties on the west coast and Volusia and Brevard Counties on the east coast.

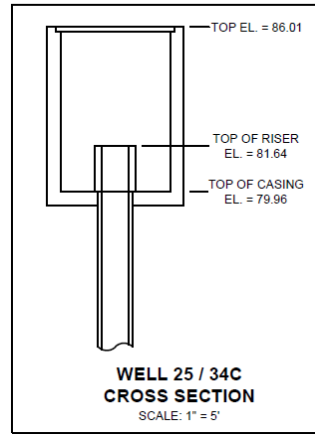
### **Active Lake Level Alteration Activities- City Wide Specifics**

- Remove the six risers from the drain wells on Lake Killarney
- Open valve to the MLK Pond drain well
- Remove top weir board on Lake Bell
- Open gate on the Winter Park Racquet Club Pond outfall
- Check valves (2) are operational at WP18 golf course
- Remove all retractable grass carp fence barriers
- Inspect all drain well intakes maintaining free and clear of debris
- Issue lake closure protocol for the Chain of Lakes at elevation of 66.1 ft.

### **Active and Adaptive Management of Lake Levels- Lakes Killarney and Lake Bell Interim Plan (Until the West Basin Study is Complete)**

1. City will monitor lake elevation levels on Lake Killarney and Lake Bell on a daily basis, during hurricane season, June 1<sup>st</sup> to November 30<sup>th</sup>, via Smart Technology utilizing telemetry elevation gauges. These gauges can be accessed remotely and provide an alert notification should the elevation stage higher than desired due to an intermittent storm. Staff will not solely rely on the device but will routinely inspect and log field data.
2. During hurricane season, June 1<sup>st</sup> to November 30<sup>th</sup>, the top weir board for Lake Bell will be removed and be replaced after hurricane season. Desired lake elevation management requires analysis through a basin drainage study.
3. Removal of the six drain well risers will be enacted when the NHC projected storm cone touches the Central Florida Region (defined above). If the approaching storm turns, the risers will be reinstalled as soon as the storm threat is over.
4. City will maintain and clean drain well intakes, collection boxes and traps, and manage street cleaning services especially during hurricane season.
5. A secured email will be provided to the Lake Killarney Board to report **non-emergency** related activities. Otherwise, follow standard emergency response by dialing 911.

## Lake Killarney Drain Well Specifications:



- Without risers on the drain wells, Lake Killarney lowers 0.1-0.2 ft per day.
- The top of each riser is on average 81.66 ft, the top of each drain well casing is on average 80.0 ft, the weir to Lake Gem discharges at 82.7 ft.



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# NATURAL RESOURCES & SUSTAINABILITY DEPARTMENT CHECKLIST

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During National Hurricane Season, June 1<sup>st</sup> to November 30<sup>th</sup>, the Lake Bell top weir board will be removed.

## 168 hours (7 days) prior to storm at any time of the year

- Monitor storm models via National Hurricane Center's (NHC) Seven-Day Tropical Weather Outlook.
- Refer to established protocol under City of Winter Park's Flood Management Guide.
  - Lower lake elevations, where permissible.
  - Lake Killarney's six drain well risers and Lake Bell top weir board will all be removed in advance whereby the track issued by the National Hurricane Center cone touches the Central Florida region and replace when storm is no longer a threat.

## 120 hours (5 days) prior to storm

- Monitor storm models.
- Provide staff with tracking sheets for manpower hours and equipment usage for Federal Emergency Management Agency (FEMA) records.
- Notify laboratory of potential lake sample submittals. Coordinate with water & wastewater laboratory manager.
- Inspect control and outflow structures located on the lakes, including leaf trap devices; maintain free and clear of debris.

## 72 hours (3 days) prior to storm

- Inspect all weirs and grass carp barriers including the ones located downstream of lakes Bell, Killarney, Berry and Maitland; maintain free and clear of debris.
- Inspect culvert box under bridges at Temple, Sterling and Pennsylvania to ensure free and clear of debris.
- Inspect drain well intake structures on Lake Killarney and all land locked lakes (Knowles, Spier, Forest, Midget, as well as the Seminole County drain well on N. Lakemont Avenue); maintain free and clear of debris.
- Inspect canals within the Chain of Lakes and Howell Creek, upstream of Lake Virginia, and downstream of the Howell Branch weir.
- Coordinate solid waste services messaging with Communications Department and Assistant City Manager.
- Coordinate with Urban Forestry on contracted vendor for felled tree services in creeks/conveyances.

## 48 hours (2 days) prior to storm

- Meet with staff to go over responsibilities and verify contact information.
- Prioritize every day departmental functions.
- Remove MLK, Jr. Park drain well and Winter Park Racquet Club pond outfall board.
- Prepare and secure equipment and PPE:
  - All boats, vehicles, and gas cans filled
  - Clean and remove all debris from work vehicles
  - Clamshell ready and operational
  - Secure barges at Kraft Gardens
  - Move all Lakes Division supplies into boathouse or break room area (buoys, etc.)
  - Test all chainsaws and make sure that PPE is in good condition
  - Each driver with PPE in work vehicle

## 24 hours (1 day) prior to storm

- Remove retractable grass carp barriers at lakes Bell and Berry.
- Meet with staff to go over final details data assessment.
- Prioritize every day departmental functions.

## During the storm

- Natural Resources & Sustainability is not classified as a first responder and does not have a role at EOC. Staff to remain in a safe location.
- All Lakes Division staff and department director will commence damage assessment when deemed safe. Office staff to service phone lines and emails. Sustainability Division staff to service phone lines and emails, assisting in solid waste communications or be assigned as required.
- Establish communication with damage assessment team with deployment time and locations.

## Immediately after the storm when conditions are safe

- Damage assessment team deployed to inspect all conveyances, outfalls, weirs, drain wells and high-risk areas (i.e. Special Flood Hazard Area- SFHA). Clear immediate hazards.
- Collector app utilized to document environmental damages. Include photos.
- Track manpower hours and equipment usage for FEMA records.
- Implement lake closures: Chain of Lake elevation closure at >66.1 ft (NAVD 88).
- Monitor and record lake elevations. Report anomalies to Public Works Department.

## Days/weeks after the storm

- Post-storm environmental/water quality monitoring including environmental assets.
- Report damage assessment for state assistance and grant submittals; such as Natural Resources Conservation Service (NRCS).
- Grass carp barriers re-installed when conditions are favorable.
- Coordinate teams with Urban Forestry to recover fallen trees in waterways noted in damage assessments.
- Perform continual monitoring and messaging related to lake hazards:

- Recreational use of lakes will be allowed once it is determined that safe boating activities can resume without potential damage to private property or the danger of colliding with submerged storm debris.
- Effective communications with lake patrons, both residential and commercial, related to lake closures; dock safety warnings with submerged electrical components; submerged hazards warning; and lake contamination warnings.
- Perform continual monitoring and messaging related to lake elevations-reinstate drain wells and weir closures, when appropriate.
- Refer to established policy: Flood Management Guide.



# PUBLIC WORKS DEPARTMENT STREETS DIVISION CHECKLIST

## Off season preparations

- Conduct quarterly meetings with directors, supervisors, crew chiefs, and all staff to review the following:
  - Written hurricane preparedness procedures and where to locate the document.
  - Team members list including updated phone numbers to be activated during Emergency Operations Center (EOC) operations. There must be two separate teams listed for relief following the initial 24-hour period.
  - Equipment list to be used during EOC operation. Equipment list to include but limited to trucks, loaders, generators, barricades and sand bagger.
  - Coordinate with the city's procurement division to secure vendors for additional bypass pumps, vacuum trucks, loaders and generators on an as-needed basis.
- Be sure to have all proper and updated forms for reporting staff's storm response activities.
  - All streets infrastructure to be inspected and maintained on predetermined schedules. The following items must be maintained year-round in proper functioning condition.
    - Storm sewer inlets, pipes, treatment structures, and outfalls
    - Traffic signals and signs
    - Street sweeping

## 168 hours (7 days) prior to storm

- Monitor storm models via National Hurricane Center's (NHC) Seven-Day Tropical Weather Outlook.
- Refer to established protocol under City of Winter Park's Flood Management Guide.
  - Lower lake elevations, where permissible.
  - Lake Killarney drain well riser and Lake Bell top weir board will be removed in advance whereby the track issued by the National Hurricane Center cone touches the Central Florida region and replace when storm is no longer a threat.

## 72 hours to 48 hours (3-2 days) prior to storm

- Test all equipment for proper working order.
  - Make sure all equipment gas tanks are filled and batteries are charged.
  - Generators used for supplying power to traffic signals to be tested and filled with gas.
  - Have additional gas cans filled.
- Prepare sandbagging operations site.
  - Decide with city management on an appropriate location and coordinate with the Communication Department to prepare a map, distribution schedules and notifications.
  - Mobilize sand, bags and equipment to the location.
  - Each household will be provided eight bags with proper proof of residency unless otherwise directed by city management.
  - Prepare coordination with the police department for ID verification and traffic control.

- Increase levels of storm sewer cleaning and street sweeping operations.
- Verify schedules for both teams to begin the overnight and relief shifts.
- Hold a procedure and general safety meeting with both teams before the EOC activation.

## 24 hours (1 day) prior to storm

- Stop all city and private construction activities and secure sites from any potential erosion and/or wind damage.
- Mobilize and stage all heavy equipment to strategic location to be used throughout the city.
  - NW Area - Public Safety Facility (500 N. Virginia Ave.)
  - SE Area - Fire Station #62 (300 S. Lakemont Ave.)
  - SW Area - City Lot (1210 Palmetto Ave.)
  - NE Area - City Operations Center (1409 Howell Branch Road)
- Share both teams' member's names and contact numbers with the Public Works Director and Assistant Director.
- Prepare sleeping arrangements and purchase food for the overnight shift team.
- Verify all equipment is ready in place with full tanks of gas.
- Load and secure barricades on trucks to be dispatched.

## During the storm

- Stay safe inside until EOC managers clear the city staff for response activities.

## Immediately after the storm when conditions are safe

- Assist police and fire departments to clear streets for emergency response.
- Assist the electric and water & wastewater departments clearing streets to perform their response and repair activities.
- Setup closures and barricade off flooded and obstructed streets and roadways.
- Inspect all signalized intersections for functionality and perform repairs as needed. Repairs requiring a bucket truck can only take place when winds diminish to 30mph or less.
- Clear all storm drains from obstructions to ensure proper drainage.
- Assist the city's Urban Forestry Division with downed tree removals.
- Begin assisting the Natural Resources & Sustainability Department with monitoring of the water levels in the city's lakes and ponds.
- Setup bypass pumping operations on lakes and/or ponds reaching higher levels which potentially could flood surrounding structures/homes.
- Barricade or cone off any potholes which could cause damage to vehicles.

## Days/weeks after the storm

- Continue streets clearing and debris removal and storm drain clearing for proper drainage.
- Assess any potholes locations for storm pipe failures and schedule necessary repairs.
- Continue monitoring water levels in lakes and ponds and add or relocate bypass pumping activities accordingly.





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# CIP PROJECT CONSIDERATIONS & STUDIES FOR STORM RESILIENCY

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The flood elevation in the Winter Park Chain of Lakes is control by a weir located on the north side of Lake Maitland at Howell Branch Road. The control elevation for the chain of lakes was studied for a Letter of Map Revision (LOMR) in 2009. The SJRWMD confirmed that the current control elevation of 66.18 ft was best for all communities upstream and downstream and it was not to be adjusted.

The following is a suggested list that should be updated regularly and as funding allows:

- Consider increasing the volume of the MLK Pond and lowering the surrounding neighborhood flood stage
  - a. A flood study was performed in 2020 for the Community Redevelopment Agency (CRA) watershed basin by Geosyntec. This study provided four alternatives for increasing volume in the MLK Pond
    - i. Alt 1 - Exfiltration Basin
      - 1. Decrease in peak stage: 0.26 ft
      - 2. Estimated cost: \$6,516,021
    - ii. Alt 2 - New interconnect to Lake Rose
      - 1. Decrease in peak stage: 0.05 ft
      - 2. Estimated cost: \$172,378
    - iii. Alt 3 - Exfiltration basin and interconnect to Lake Rose
      - 1. Decrease in peak stage: 0.2 ft
      - 2. Estimated cost: \$2,065,776
    - iv. Alt 4 - (COMPLETED) Relocating Killarney interconnect from Beachview Ave to intersection of Morse Blvd and Harper St
      - 1. Decrease in peak stage: 0.02 ft
      - 2. Estimated cost: \$35,830
  - b. Perform study to expand the overall footprint of the pond for more stormwater storage by strategically selecting park areas of lower usage
  - c. Consider partnering with private property owners near MLK to expand
- Develop 5-10 year CIPs for lake interconnections- perform hydraulic studies to determine feasibility and associated cost.
  - a. Lake Sylvan to Lake Mizell
  - b. Lake Grace to Lake Forest
  - c. Lake Chelton to Lake Sue
  - d. Lake Tuscany to Lake Temple to Howell Branch Pond
  - e. Lake Compton to Lake Spier
- Develop drainage study for Lake Killarney, Lake Bell and Lake Wilderness to address feasibility and cost for rerouting emergency stormwater overflow and evaluate weir elevations.

- Develop drainage study for Howell Creek Basin of Winter Park that includes the Chain of Lakes, Lake Sue, and Lake Berry.
- Develop drainage study for Little Econ Basin of Winter Park that includes Interlachen and WP18 (formally Winter Park Pines).
- Following FS 252.363 provision allowing to adjust/pump lake down during declared state of emergency, establish Memorandum of Understanding with SJRWMD for all potential drawdowns:

*Section 252.363 of the Florida Statutes provides that upon the declaration of a state of emergency, permits and other authorizations are tolled for the duration of the declaration, and that they may be extended automatically upon the exercise of the notice requirements of Section 252.363(1)(a) for an additional six months. The tolling and extension provisions apply to the expiration of:*

- a. Development orders issued by a local government*
- b. Building permits*
- c. Florida Department of Environmental Protection or water management district permits issued pursuant to Part IV of Chapter 373, Florida Statutes*

- Consider purchase of bypass pump(s) including floating intake attachment and suction and discharge hoses.
- Perform a survey to record lowest Finished Floor Elevation (FFE) for all City lakes.
- Consider installing auto-read lake level gauges with telemetry services for major City lakes.
- Consider installing additional weather stations with telemetry services within City limits.