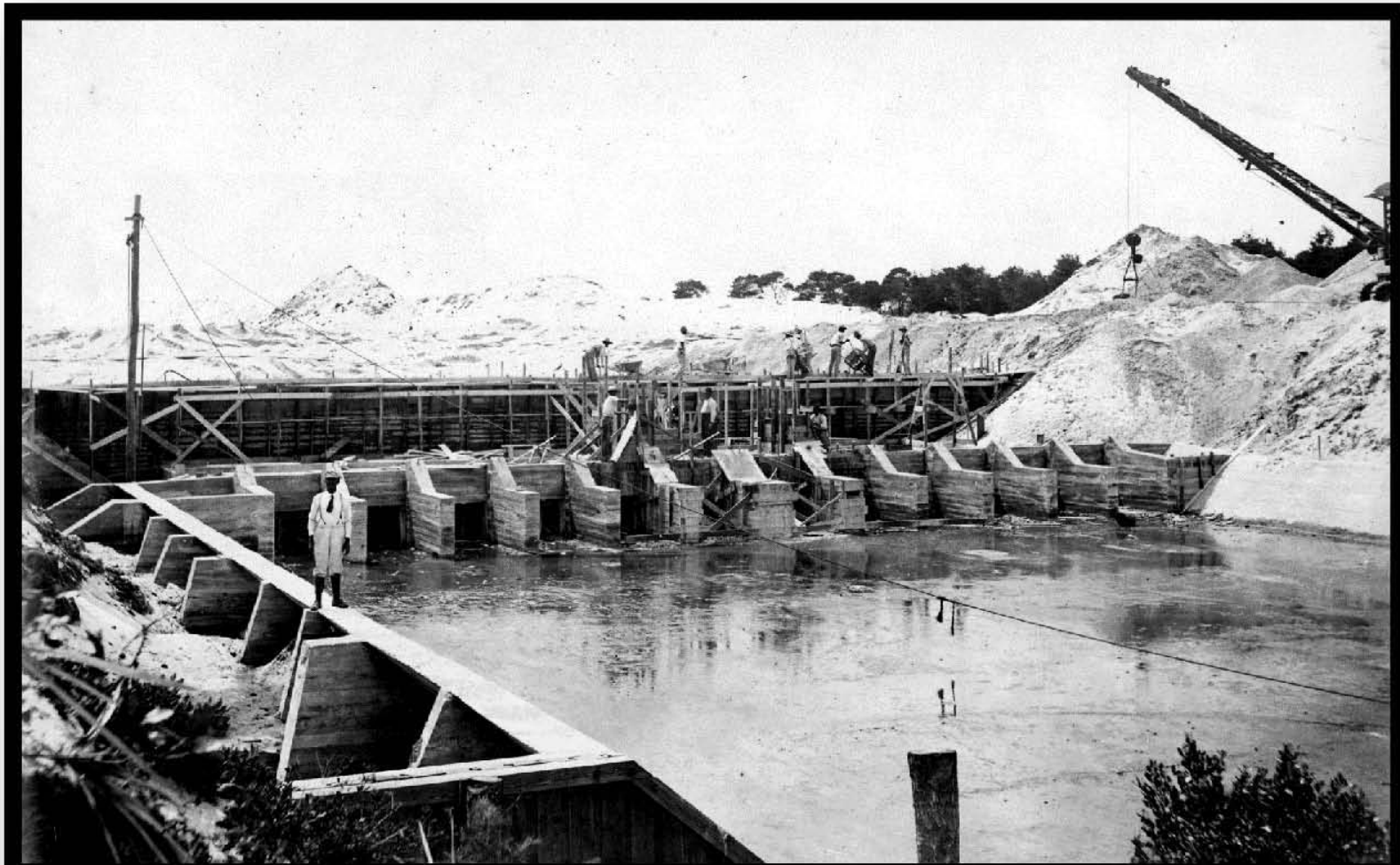


# Palm Beach County Water Resources Task Force Meeting

Robert M. Brown, Executive Director  
Tommy B. Strowd, P.E., Director of O&M  
October 15, 2015



# Lake Worth Drainage District – 100 Years



W.C. #10. View taken from canal bank near S.E. corner of structure looking N.W. May 7, 1919.

# About LWDD



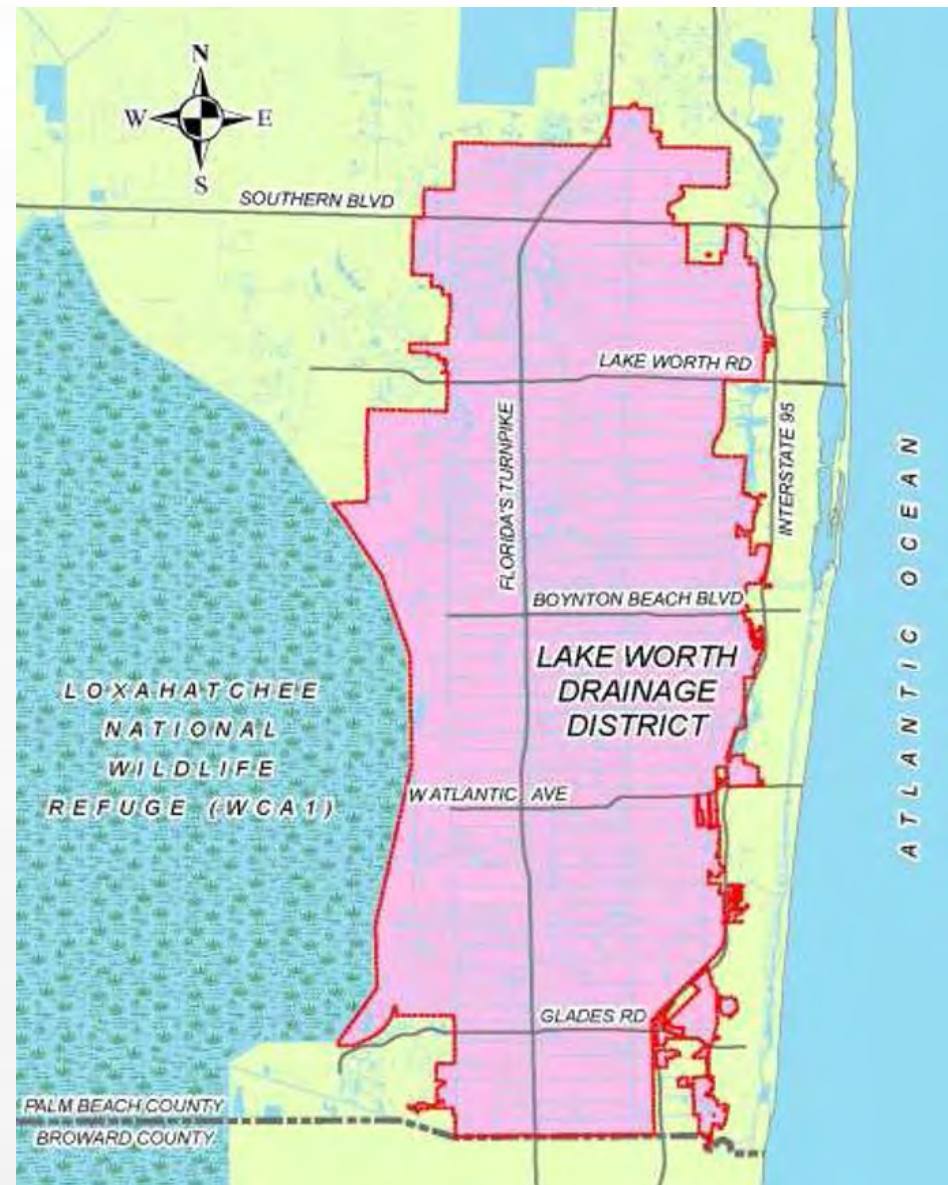
- An independent special taxing district established in 1915 by the Florida legislature
- Created for the purposes of:
  - Reclaiming, draining, and irrigating the lands within its boundary
  - Providing water control and water supply
  - Protecting the lands within its boundary from the effects of water by means of the construction and maintenance of canals, ditches, levees, dikes, pumping stations and other works
  - Providing improvements for the purpose of making the area habitable for both settlement and agriculture



# About LWDD

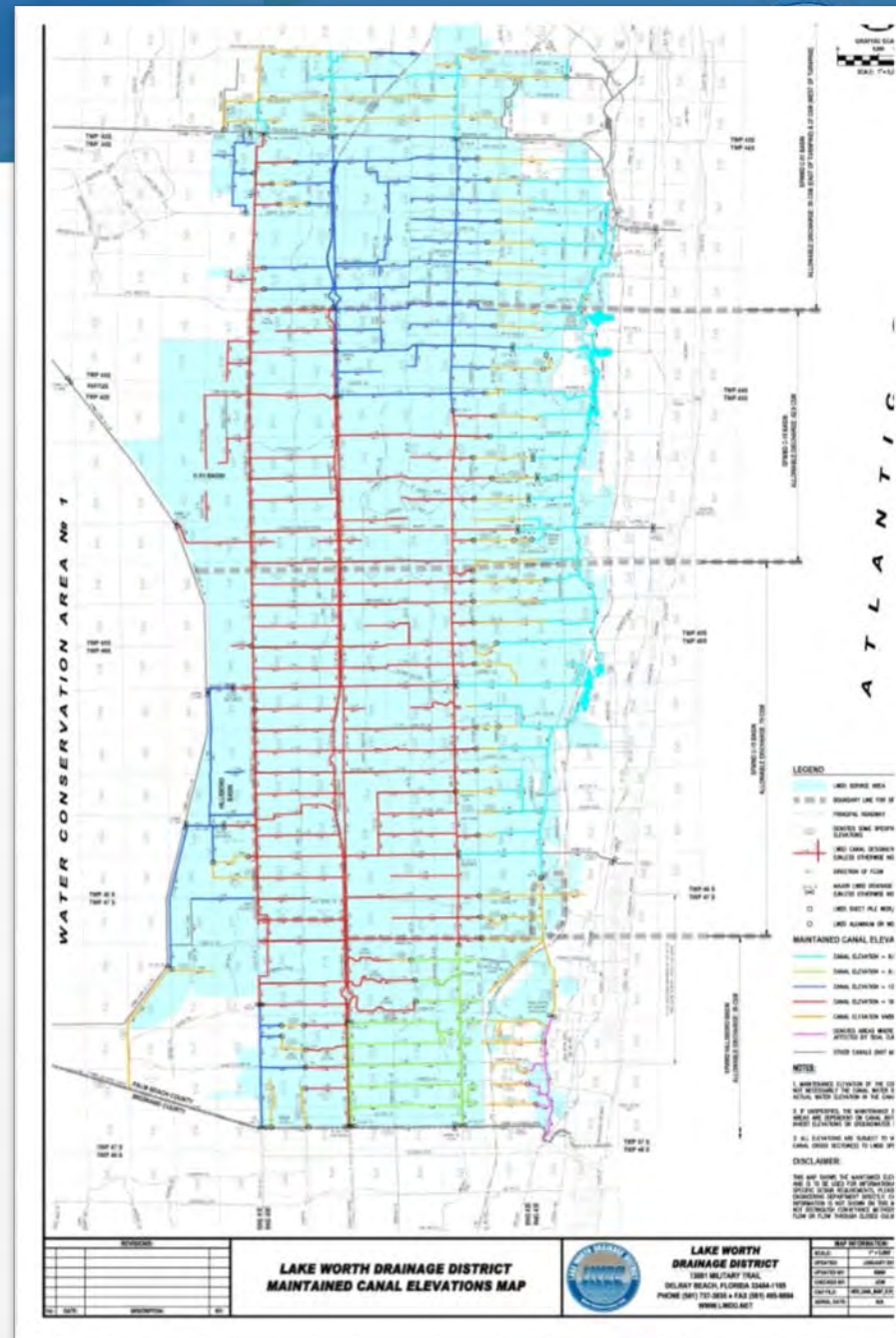


- Encompasses approximately 200 square miles in southeastern Palm Beach County; all or part of 13 municipalities
- A team of approximately 90 employees working to provide flood protection and water supply to over 700,000 residents
- An integral piece of the water management system in southeastern Palm Beach County



# About LWDD

- Operate and maintain approximately 500 miles of canals and rights-of-way
  - 50 Lateral canals run west to east every half mile
  - 5 Equalizer canals run north to south along SR-7, FL Turnpike, West of Military Trail and East of Congress Avenue
  - 20 major control structures and numerous minor structures
- Review and permit construction projects within the service area ensuring strict drainage guidelines and right-of-way requirements are met



# Governance



- Originally created under Chapter 6458, Laws of Florida
- Currently operates under Chapter 2009-298, Laws of Florida and amendments thereto
- Governed by a five-member board of supervisors elected by the landowners
- Fiscal year begins October 1<sup>st</sup> with an annual budget of \$14.5 million
- Supported by an annual non ad-valorem assessment, \$45 per acre or portion thereof



# Flood Protection in South Florida A Shared Responsibility



- Flood protection is a three-tiered system consisting of:
  - South Florida Water Management District (SFWMD)
  - Lake Worth Drainage District (LWDD)
  - Residential Communities
- LWDD works closely with SFWMD monitoring canal elevations and discharge rates
- LWDD control structures are used to hold or release water depending on need and weather conditions
- Residential communities are responsible for the maintenance and operation of their internal system and discharge into LWDD canals



Residential Internal System

Control Structure 11 L-30 @ E-3 Delray/Boynton

# Celebrating 100 Years!





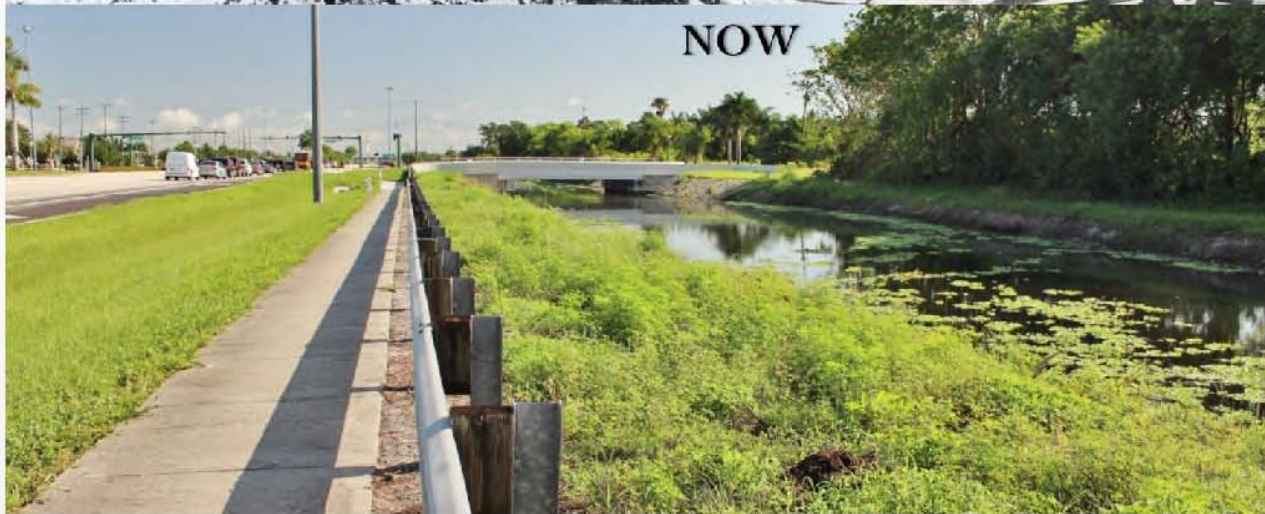
# THE ROLE OF LWDD



# Then & Now



# Then & Now: E-1 and L-5 Canals



# Then & Now: Military Trail Bridge Over L-14



**THEN**



**NOW**



# Then & Now: Equipment



# Then & Now: Boynton Beach Boulevard



# Current Challenges



# Operation of a control structure



## Video: Control Structure 8

- One of two gates opened 100% within 2 minutes
- Demonstrates the volume of water that can be moved throughout the canal system
- During a major storm event all structures may be open 100%





# THE ROLE OF RESIDENTIAL DRAINAGE



Residential Internal System

Control Structure 11 L-30 @ E-3 Delray/Boynton

# Types of residential control structures



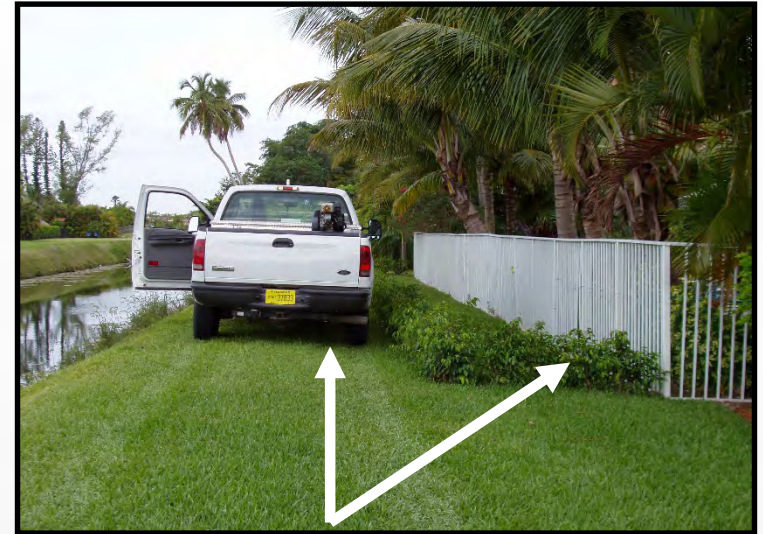
Regardless of the type of control structure, it is vital to flood protection and the responsibility of the community to keep the structures in good working order and free of debris or other obstructions



# Operational Challenges



- Providing safe and well-operated drainage system by maintaining clear access to canal rights-of-way
- Property enhancements such as trees, boat docks, fences, sheds, pools and decks can seriously hinder the District's ability to provide a safe and well- operating drainage system
- One homeowner's landscape enhancement can endanger the welfare of many



# Example:

## Vegetation Encroachments

- During Hurricane Frances/Jeanne
- Lateral Canal 27 East At SE 11<sup>th</sup> Street In Boynton Beach
- This Single Tree Clean-up Cost to Taxpayers \$20,500.00



# Example: Structural Encroachments

Wood and chain link fencing along with vegetation encroachments block access to canal and right-of-way



Construction trash and storage of equipment including shed making it near impossible to maneuver emergency equipment

# Example: Canal Rehabilitation

## L-34 at Sherwood Park

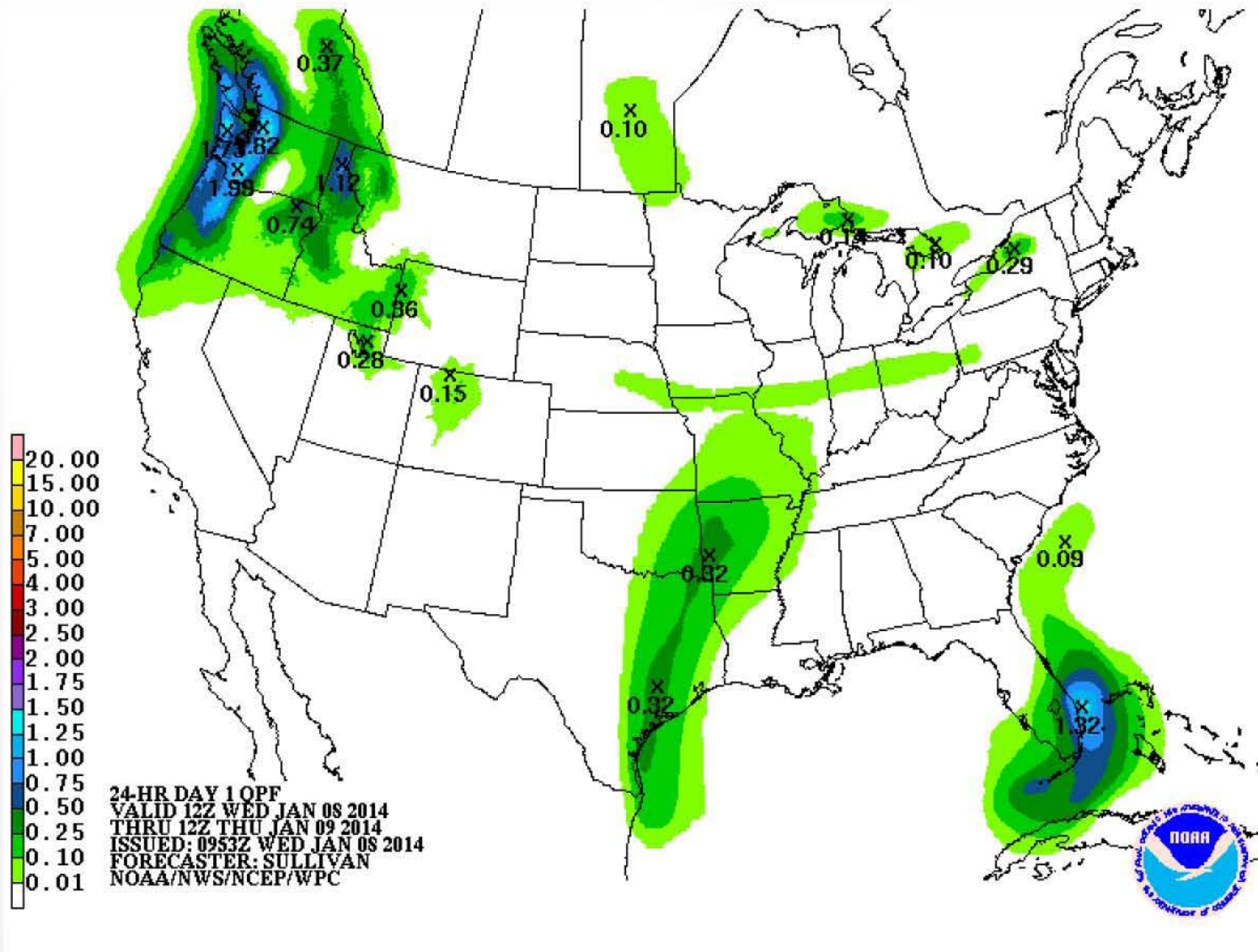


Before – 5/28/14



After – 7/8/14

# Weather Extremes January 9 & 10 Rainfall Event Forecast



# Weather Extremes January 9 & 10 Rainfall Event

Data Resolution

15min

Start Time

01 09 2014

22 45 EST

End Time

01 10 2014

02 15 EST

GET DATA

District

County ON

Basin ON

District ON

Rain Area OFF

Raingages OFF

Pixels

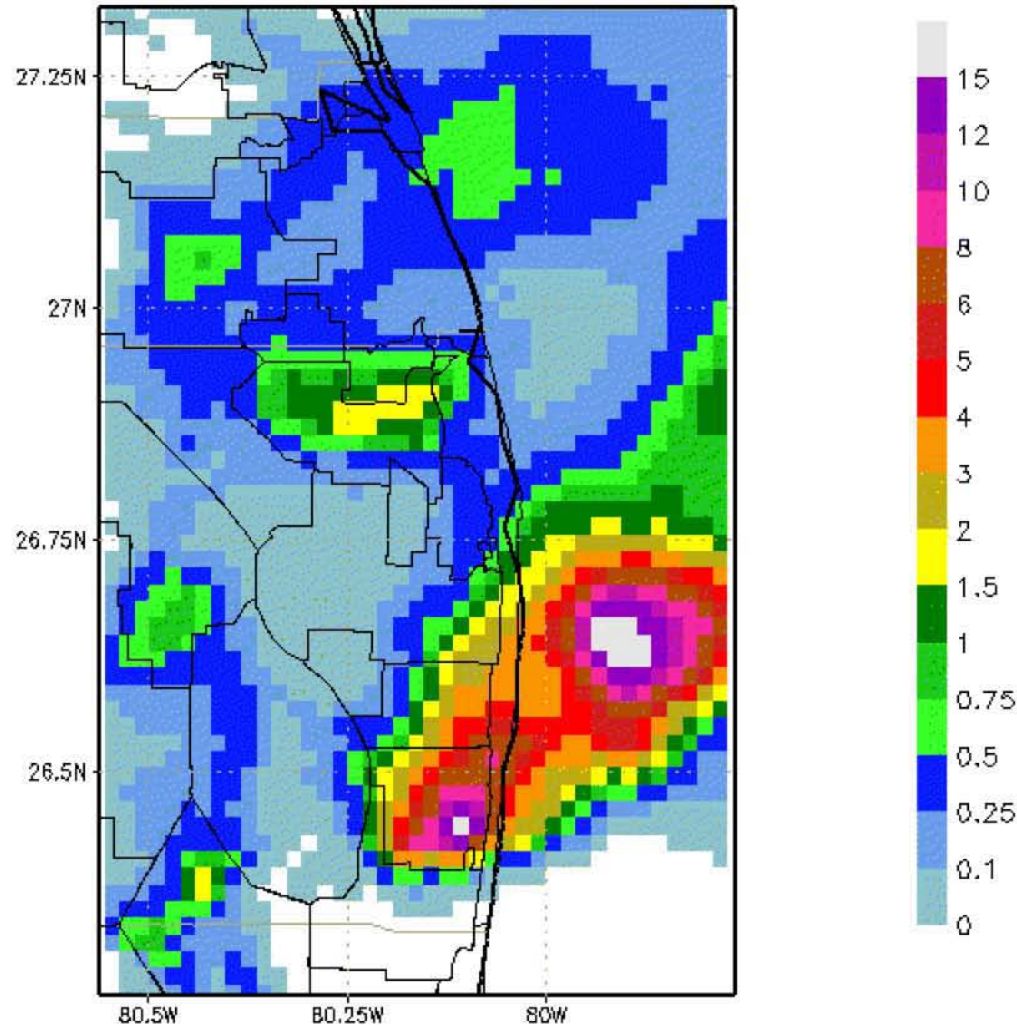
Pixel ID/Rain

Tall Box

Print

QUIT

DISTRICT-WIDE RAINFALL ESTIMATE: 0.104"



PIXEL ESTIMATE: 15.09" (Pixel 058265 centered at 26.4401, -80.1052)



# January 9 & 10 Rainfall Event

- Extreme volume of rain in a very brief period of time
- Rainfall exceeded system design for older communities constructed prior to current regulations



# Looking Ahead



# C-51 Reservoir



- Located in western Palm Beach County
- 75,000 ac/ft of storage
- Capture and store excess surface water from C-51 basin
- Increased water storage and delivery to help benefit South Florida's regional water supplies

# C-51 Reservoir Conveyance



# Aging Infrastructure Control Structure 12



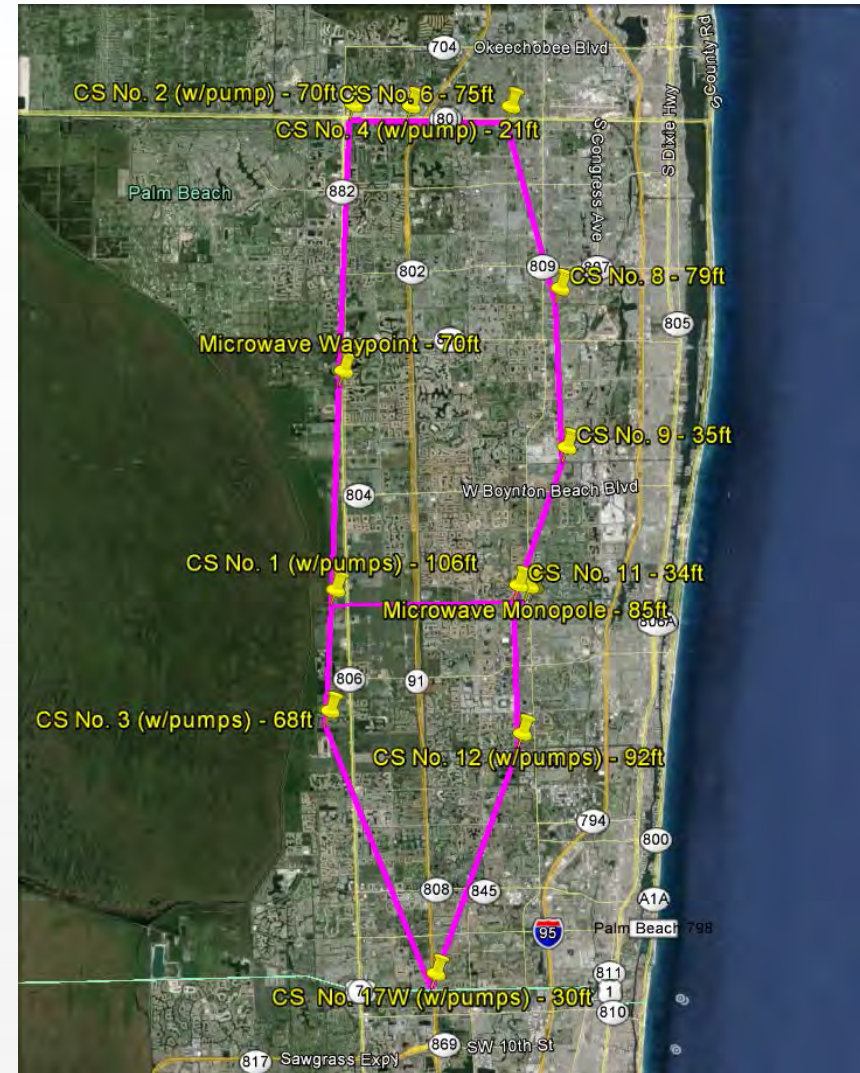
# Capital Improvement Plan

- Initiated development of a Capital Improvement Plan to facilitate the construction, maintenance, and renovation of the public infrastructure over the next 5 to 10 years
- Projects identified prioritized based on risk and cost-benefit ratio
- Board approved an assessment increase dedicated to capital improvement projects
- Next steps include project prioritization, development of multi-year funding analysis and construction timetables



# Telemetry / SCADA Project

- Began implementation of telemetry system
  - Allows remote access to operate 10 major water control structures
  - Provides real-time data on canal water levels to enhance immediate operational decision making
- Design underway
- Construction completed and operational in 2017



# Future Challenges



- Flood Control
  - Relocation of Control Structure 9
  - LiDar / FEMA
- Annexation of areas outside of District boundaries that currently receive services
- Use of District Rights-of-way
  - Reclaimed water
  - Recreation and bike paths
  - Road expansion

# Other Future Challenges

- Water Quality
  - State Requirements (TMDL/BMAP)
  - Federal Jurisdiction of Canals-'Waters of the United States'
- Sea Level Rise

# Contact Us

- Website: [www.lwdd.net](http://www.lwdd.net)
- Email: [info@lwdd.net](mailto:info@lwdd.net)
- Facebook
- Twitter: [@myLWDD](https://twitter.com/myLWDD)

