

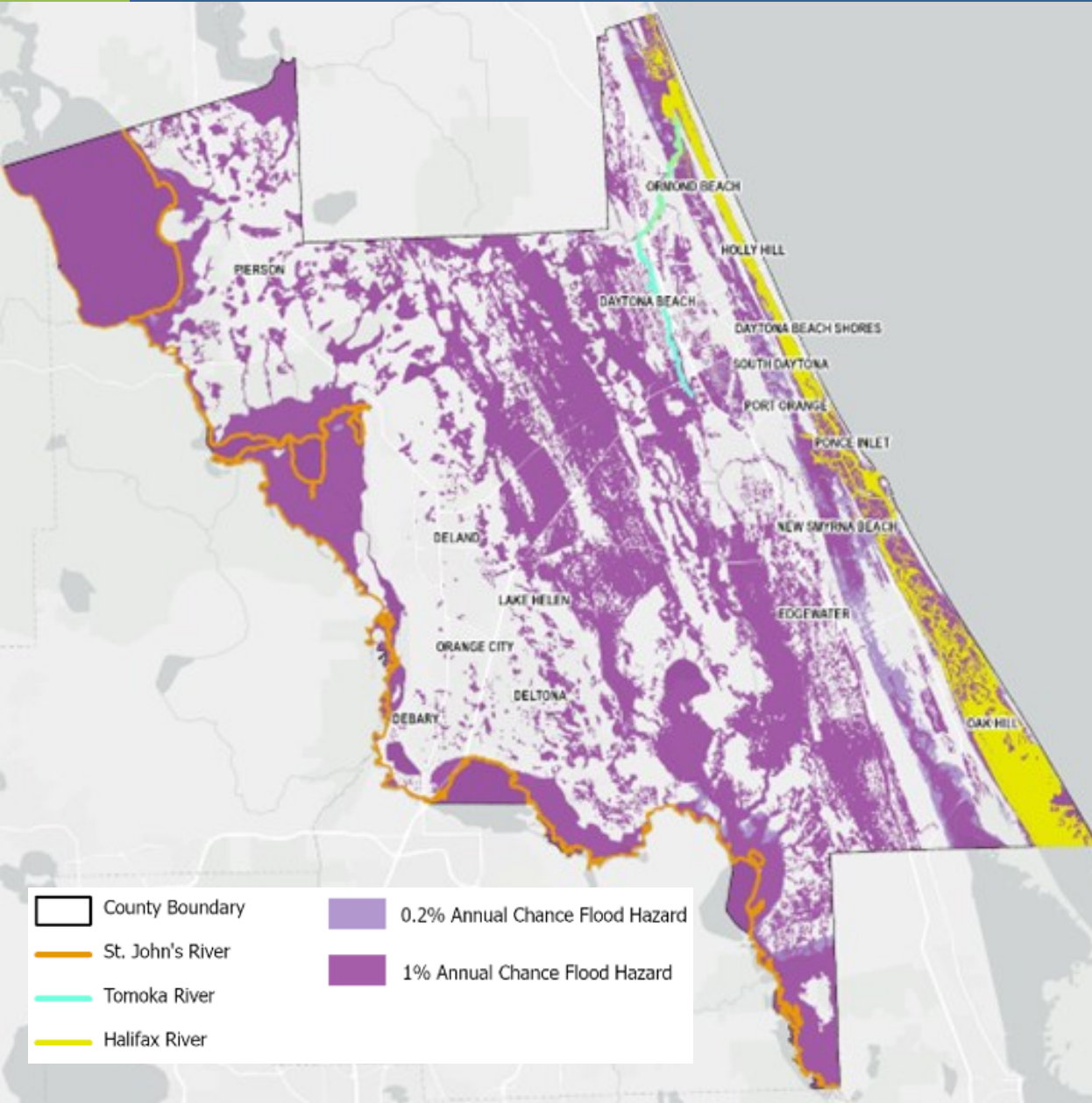
Volusia County Flood Mitigation & Recovery Efforts

October 23, 2025

Benjamin Bartlett
Public Works Director



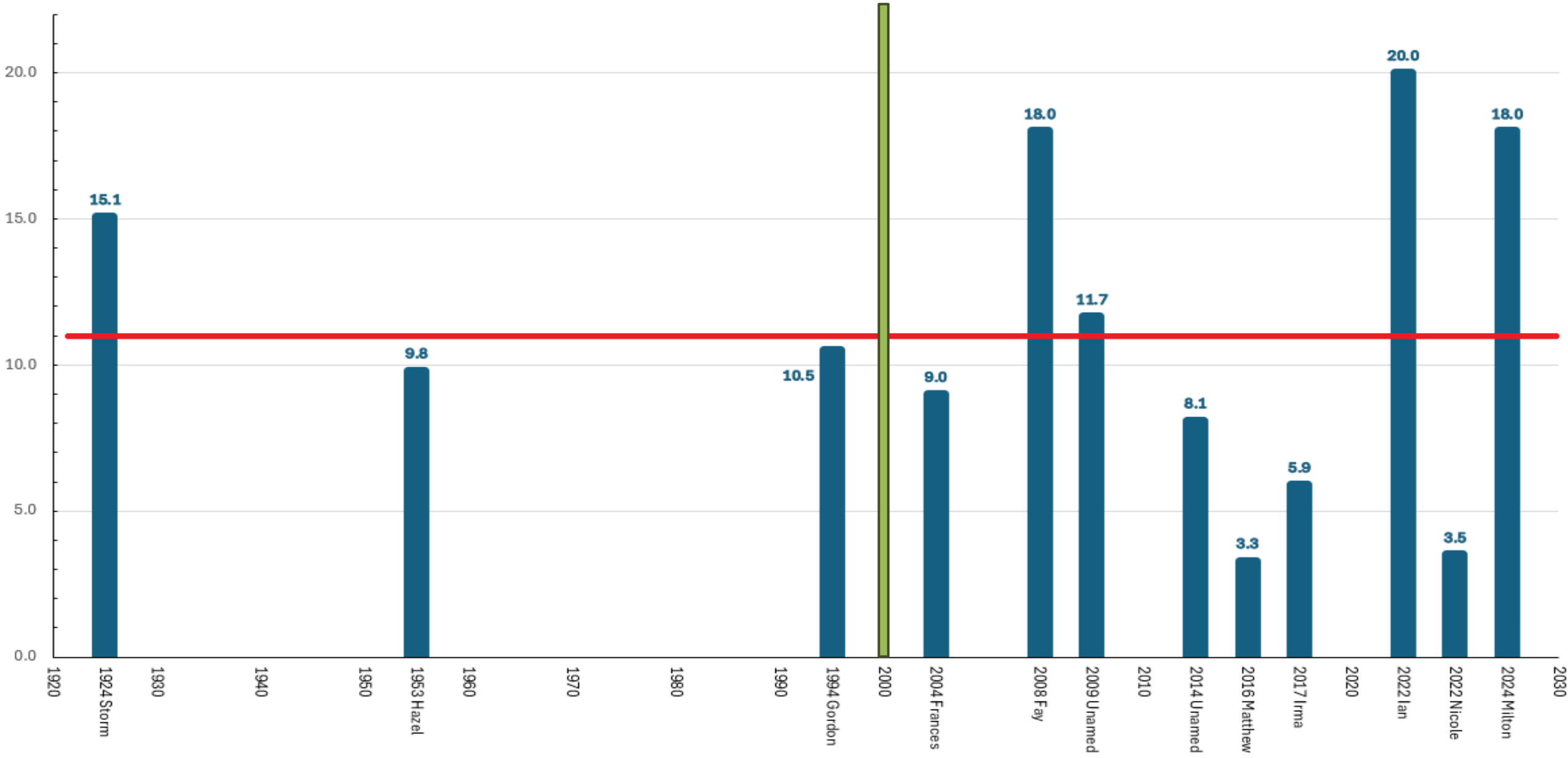
Volusia County-FEMA Flood Hazard Zones



- Volusia County Total Area: 1,210 Sq Miles
- Total County Area in FEMA Flood Zones:
 - 2007: 634.8 Sq Miles
 - 2017: 653.0 Sq Miles
 - 2024: 642.8 Sq Miles
- 75,943 individual parcels are in the floodplain. 58.6% of those parcels within the floodplain are in incorporated city limits.
- The total 2024 tax roll property value for Volusia County is \$104.6 billion. \$27.9 billion in property value (26.7%) is located within floodplain.



Large Volume Rain Events (1922 – 2024)



National Hurricane Reports

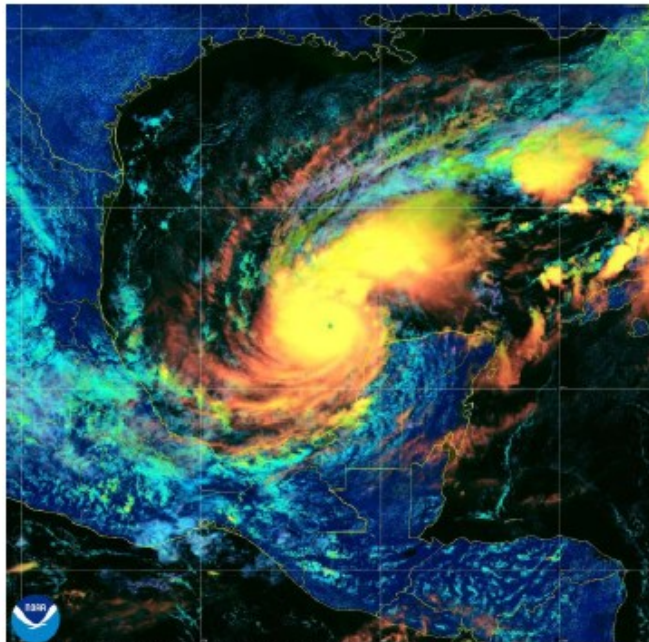


NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

HURRICANE MILTON (AL142024)

5–10 October 2024

John L. Beven II, Laura Alaka, and Cody Fritz
National Hurricane Center
31 March 2025



GOES-16 DAY CONVECTION IMAGE OF HURRICANE MILTON AT 1730 UTC 7 OCTOBER 2024.



NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

HURRICANE IAN (AL092022)

23–30 September 2022

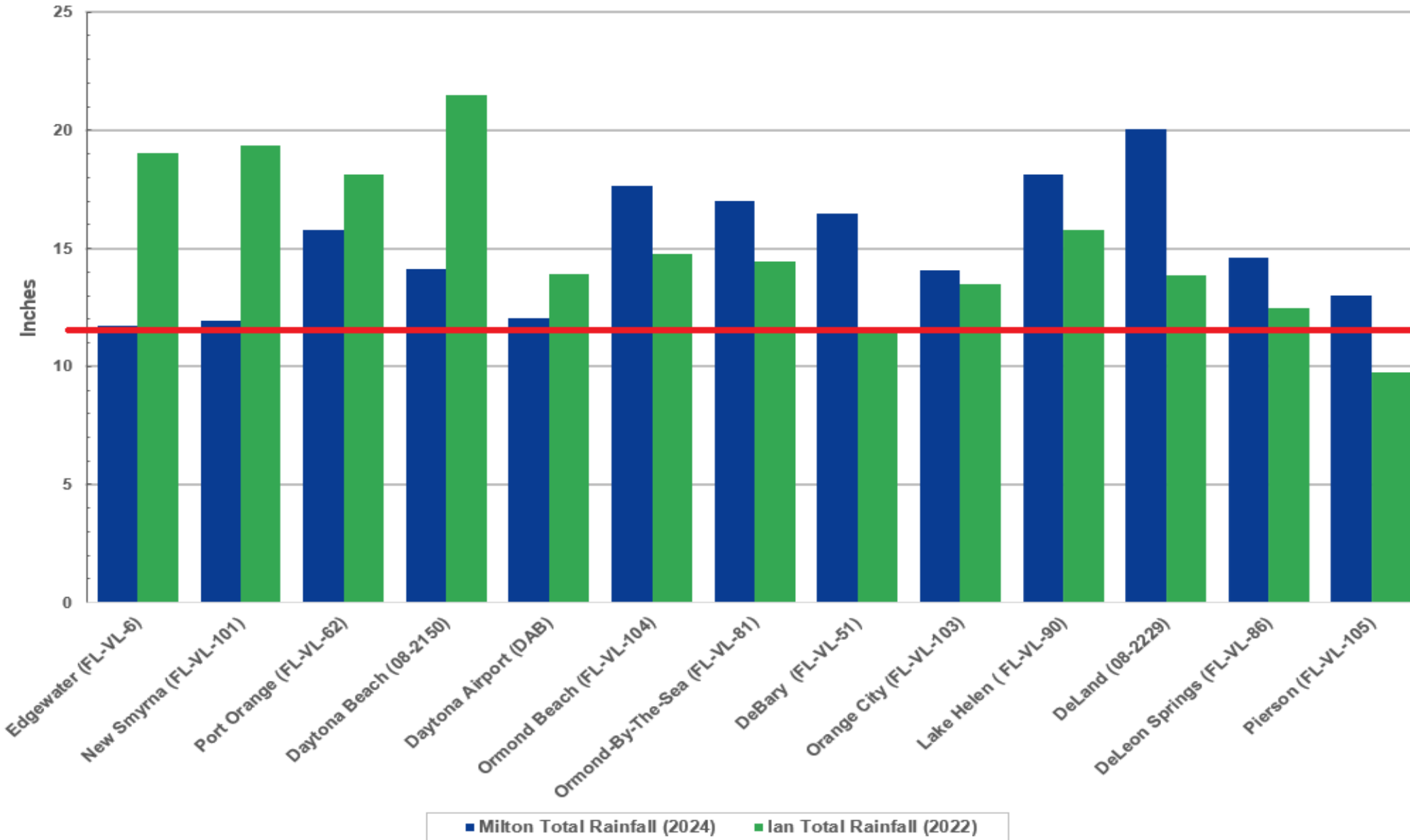
Lisa Bucci, Laura Alaka,
Andrew Hagen, Sandy Delgado, and Jack Beven
National Hurricane Center
3 April 2023



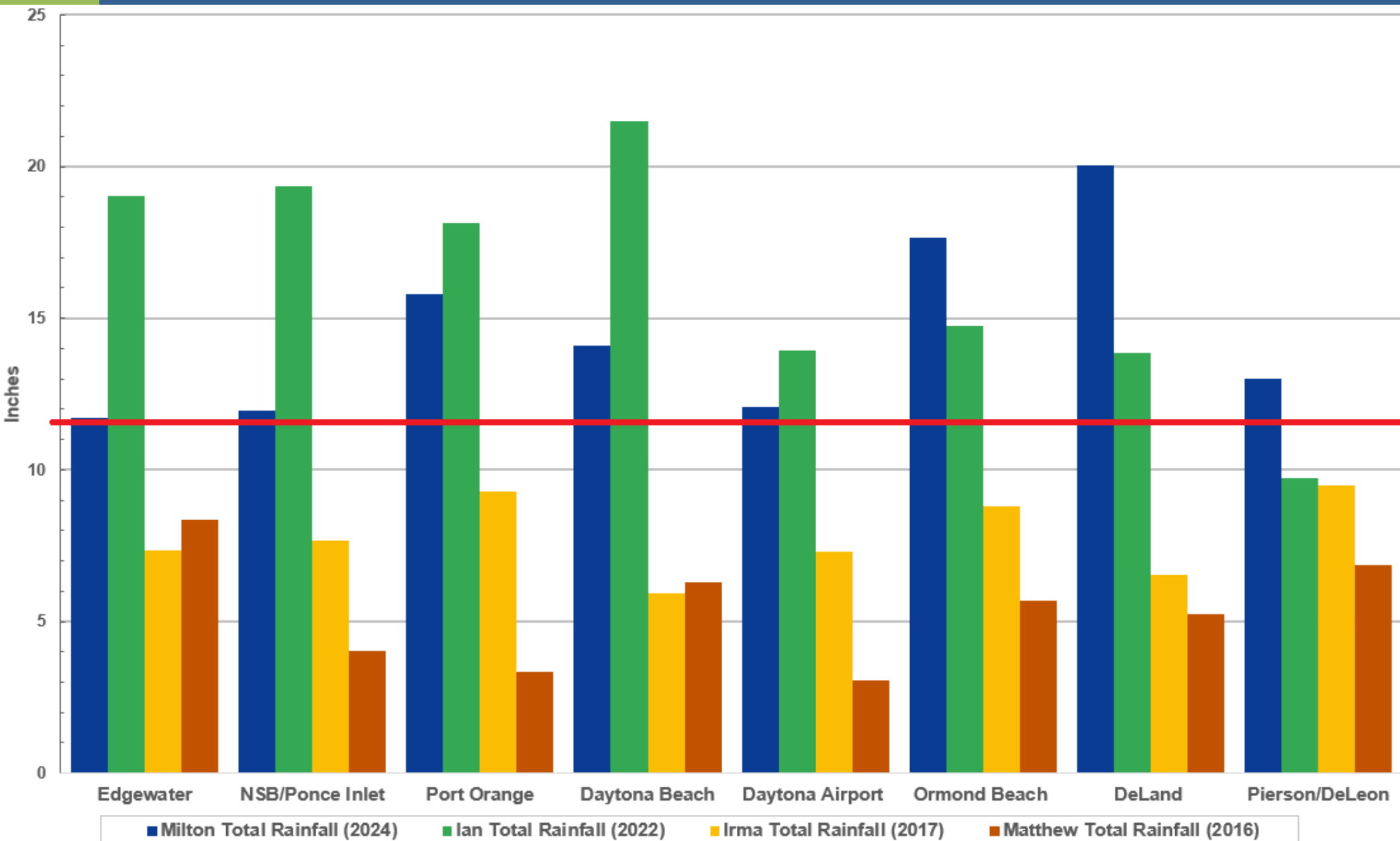
GOES-16 GEOCOLOR IMAGE FROM 28 SEPTEMBER 2022 AT 1910 UTC NEAR THE TIME OF IAN'S LANDFALL IN



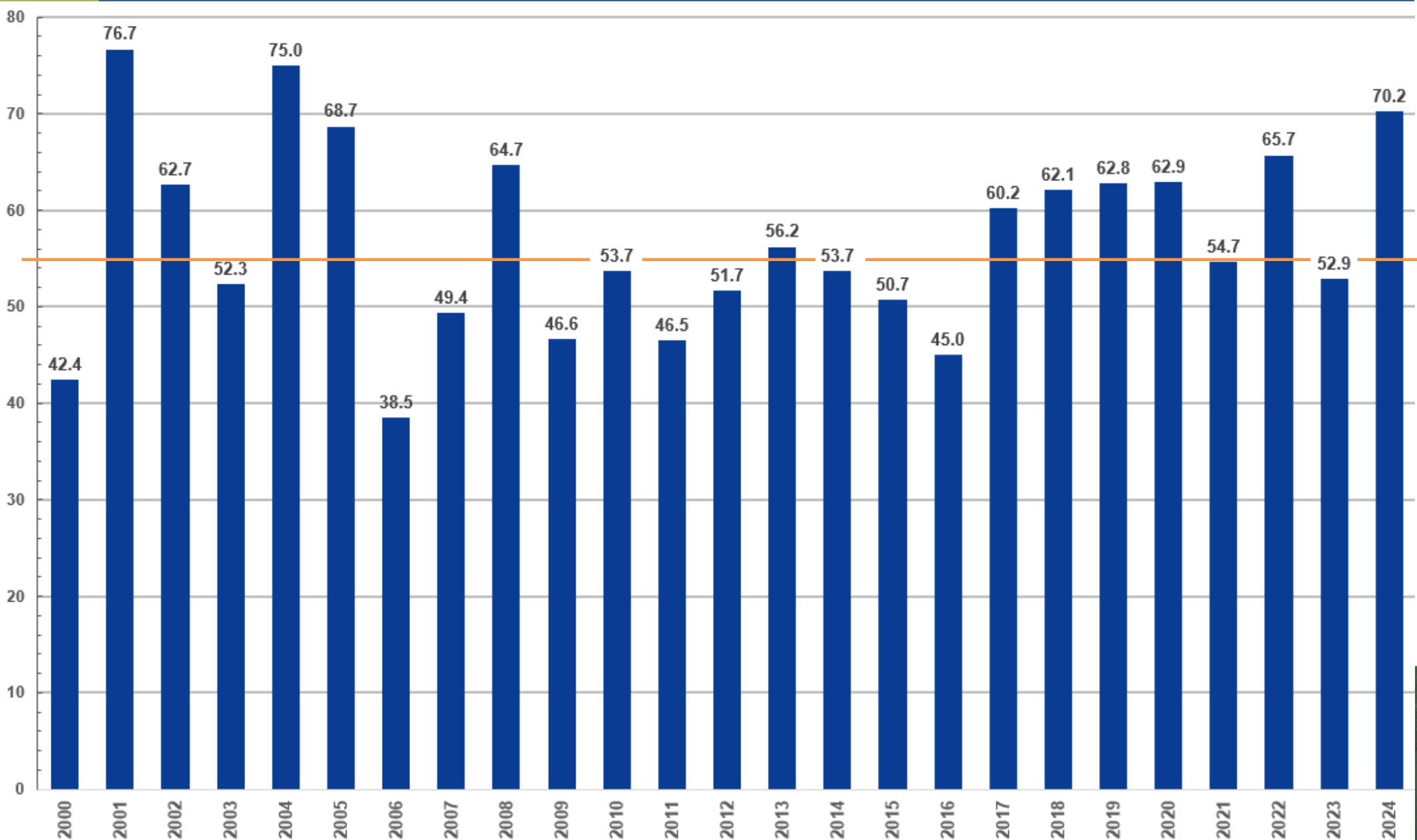
Volusia Rain Totals (Ian & Milton)



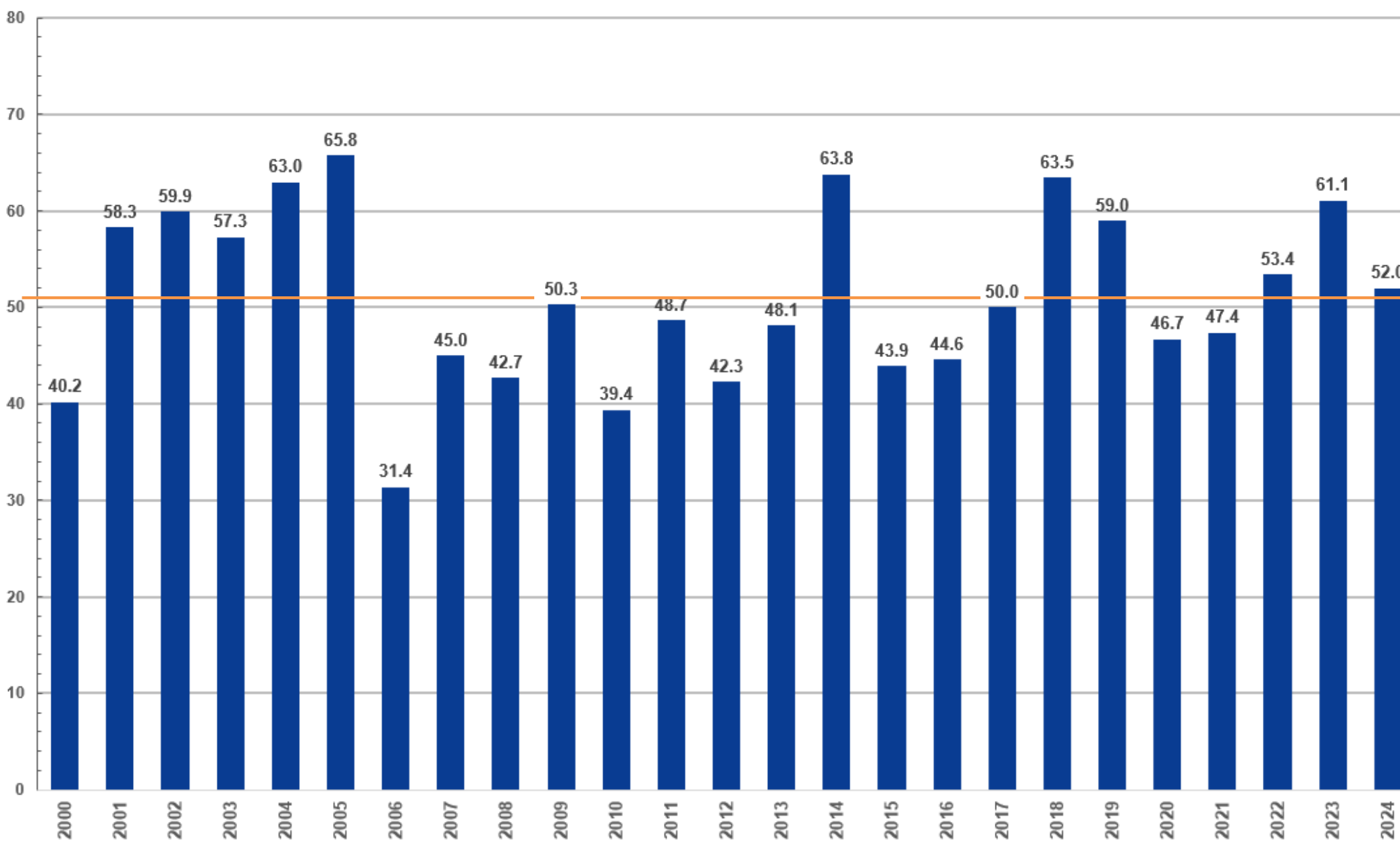
Volusia Totals (Ian, Milton, Irma & Matthew)



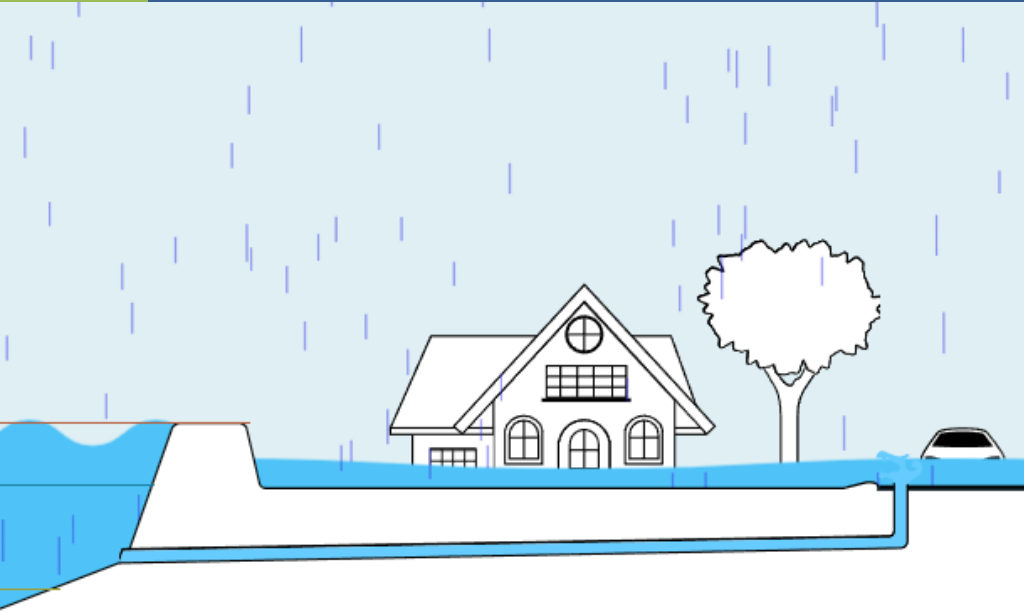
DeLand Rainfall Totals (2000 – 2024)



Daytona Rainfall Totals (2000 – 2024)

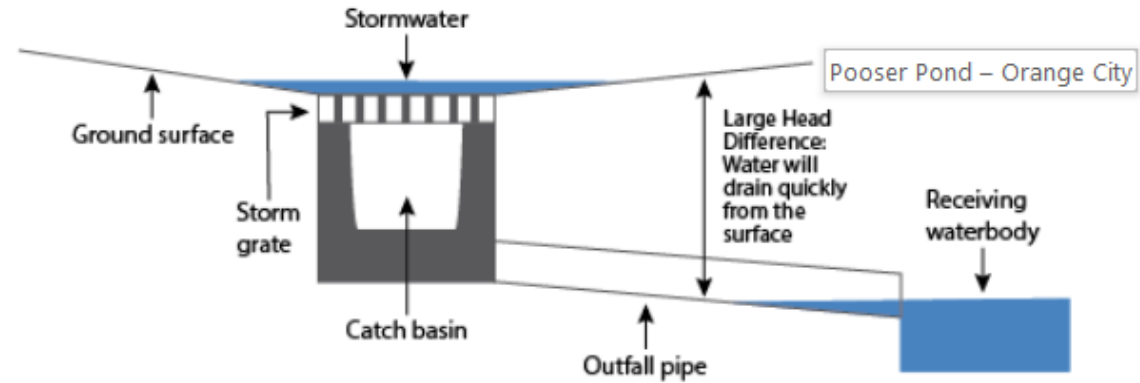


Tailwater – Tidal Impacts

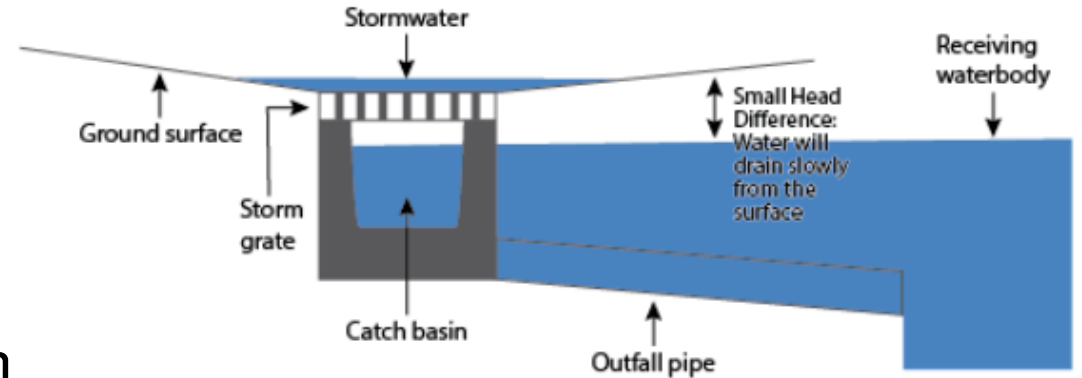


- Stormwater runoff drains slowly
- Creates temporary closed basins
- Backflow can cause flooding without rain

LOW TIDE SCENARIO



HIGH TIDE SCENARIO



Topography – Closed Basins



Topography – Closed Basins



Topography – Closed Basins



Stormwater & Flooding Regulations

■ Federal

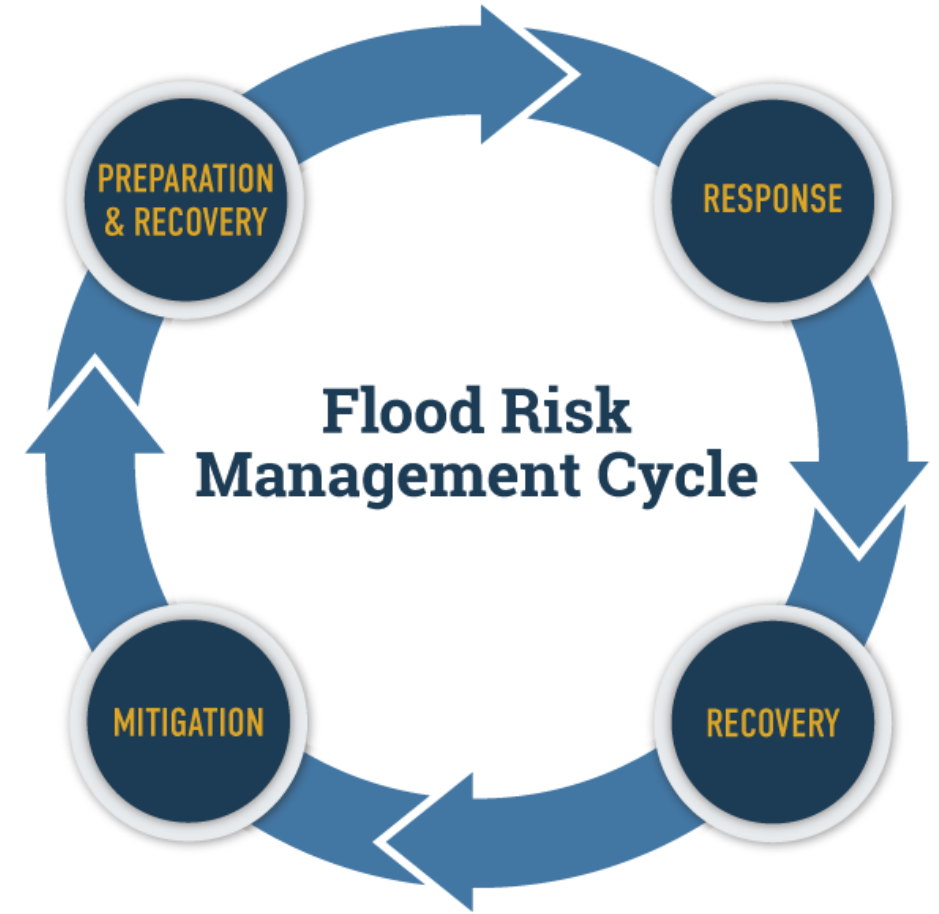
- Clean Water Act
- National Flood Insurance Program (NFIP)

■ State

- Environmental Resource Permitting (ERP)
- Water Quality Standards

■ Local

- Chapter 50: Minimum Environmental Standards
- Chapter 72: County Land Development Code
- Environment/Natural Resources Advisory Committee



Stormwater Rule Modifications

- **Stormwater System Observed Issues**

- Pond Failures
- Seasonal High Groundwater Elevation
- Tailwater Elevations
- Events that exceed the design storm
- Soils Conditions
- Discharge Structure Design

- **Chapter 72 Stormwater Ordinance Revisions**

- **SB 180 Preemption by State**



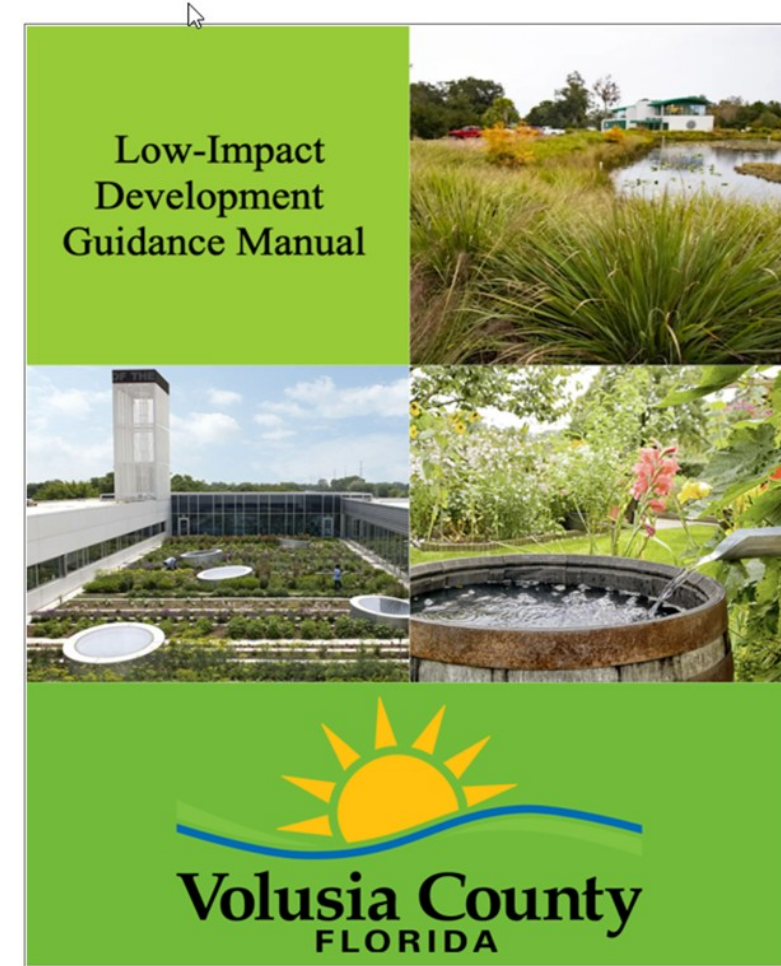
Low Impact Development (LID)

A voluntary, incentive-based program to encourage low-impact development within the un-incorporated county.

- Comprehensive Plan changes to encourage LID practices
- Zoning Ordinance and Land Development Code changes to set the standards
- Development of a LID Guidance Manual with the details on best management practices (BMPs), incentives, and maintenance requirements
- A matrix of the BMP's and incentives



- Education + Development Standards + Incentives
- Menu approach, developer picks a minimum of 6 BMPs
- 15 Site Design BMPs
- 9 Stormwater Storage, Treatment, and Conveyance BMPs
- 15 Incentives



County Canal Maintenance Program

- Canal Maintenance
 - Annual Work Plan
 - \$800k annual budget (15.9% increase)
 - 22.9 miles of canals mechanically cleaned annually
 - Inspection frequency
 - Vegetative Maintenance
 - Pre/Post storm inspections



Moving Forward – Flood Mitigation

- Watershed Basin Analyses
 - Central Repository for Data
 - Stormwater Master Plan Standards
 - Transfer386 Studies
 - 32 total (28 City, 4 County)
- Capital Projects
 - Transform 386 funded projects
 - 28 total (26 City, 2 County)
 - 2nd Transform386 Application Window Complete



Solutions – Traditional Stormwater Systems

- **Stormwater Pond for Volume**
- **Gravity Conveyance System**
- **Positive Outfall**



Solutions – Pump Stations

- **Increased Maintenance**
- **Limited Capacity**
- **Allows for pre-storm pumping to increase storage capacity**



Solutions – Acquisition

- **Last Resort**
- **Willing Seller**
- **Clustering Acquisitions**



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