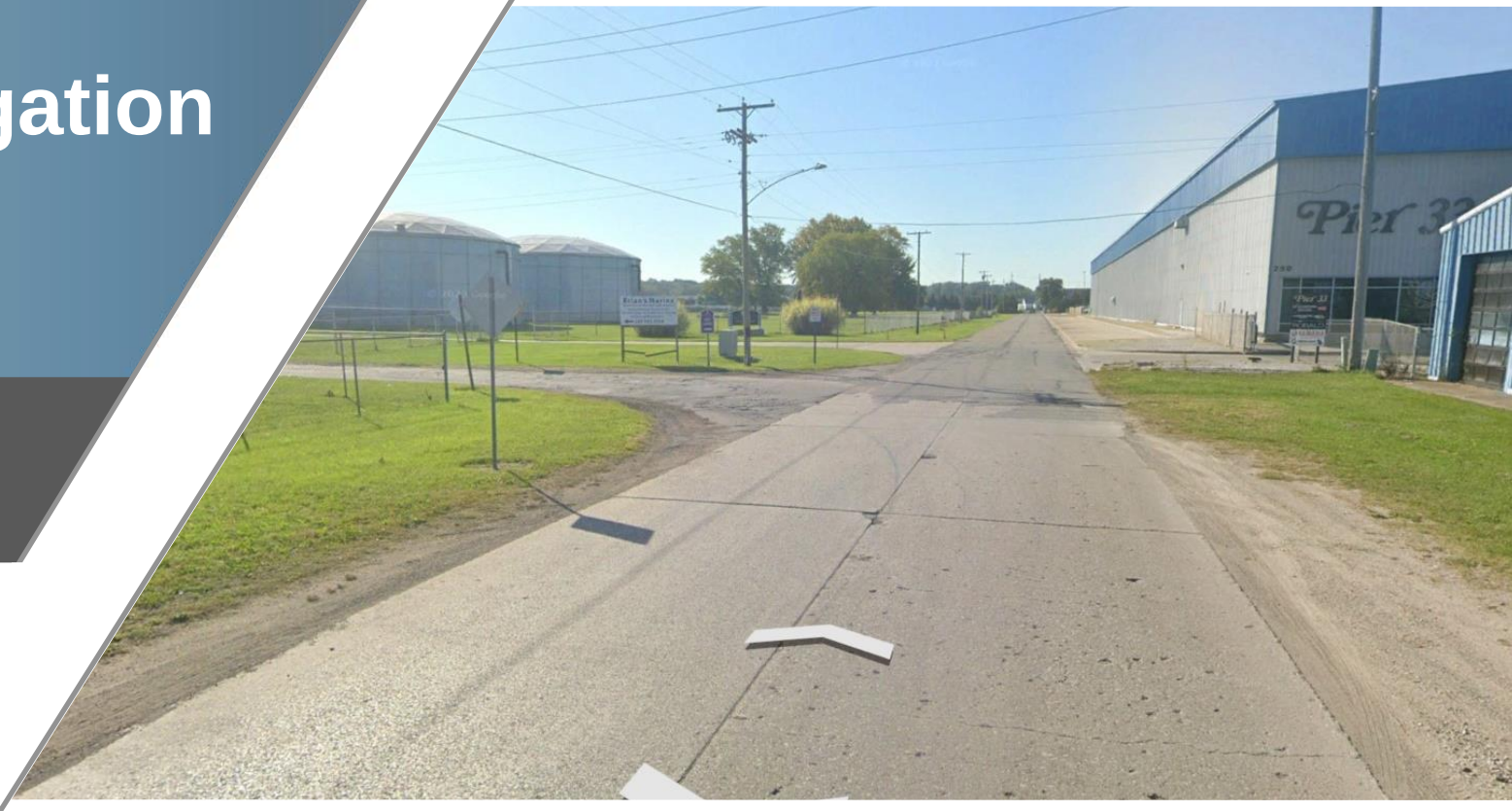
St. Joseph Anchors Way High Water Flood Mitigation Public Meeting (DRAFT)

July 31, 2024



AGENDA

- Project Area
- Overview
- Analysis
- Alternatives
- Questions/Comments

Project Area

- Anchors Way from N Wayne Street to Island Pointe Marina
  - Approximately 0.5 Miles
- Only access road to:
  - Several marinas/boat storage
  - Some residential
  - Waste water treatment plant

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Anchors Way - Road Flooding Concerns

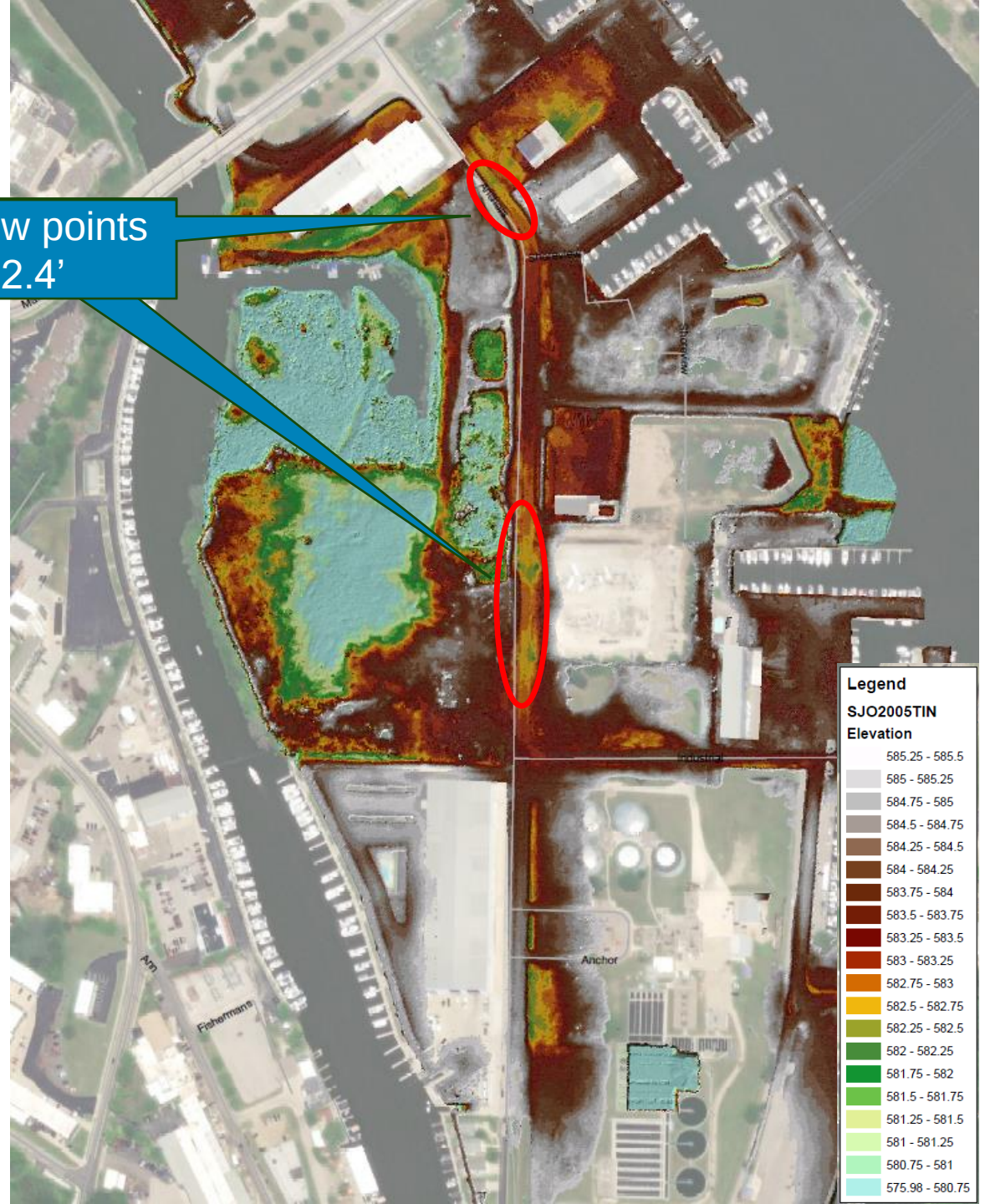
- Road flooding limits access
  - Emergency vehicles
  - Treatment plant staff
  - Residents and business owners

Anchors Way – Flooding Causes

1. Limited existing storm sewer
2. Entirely within floodplain
3. High groundwater table
4. High Great Lakes levels
5. Wind induced lake level increase

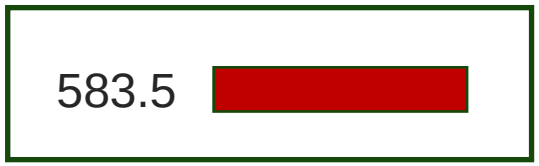
Elevation Map

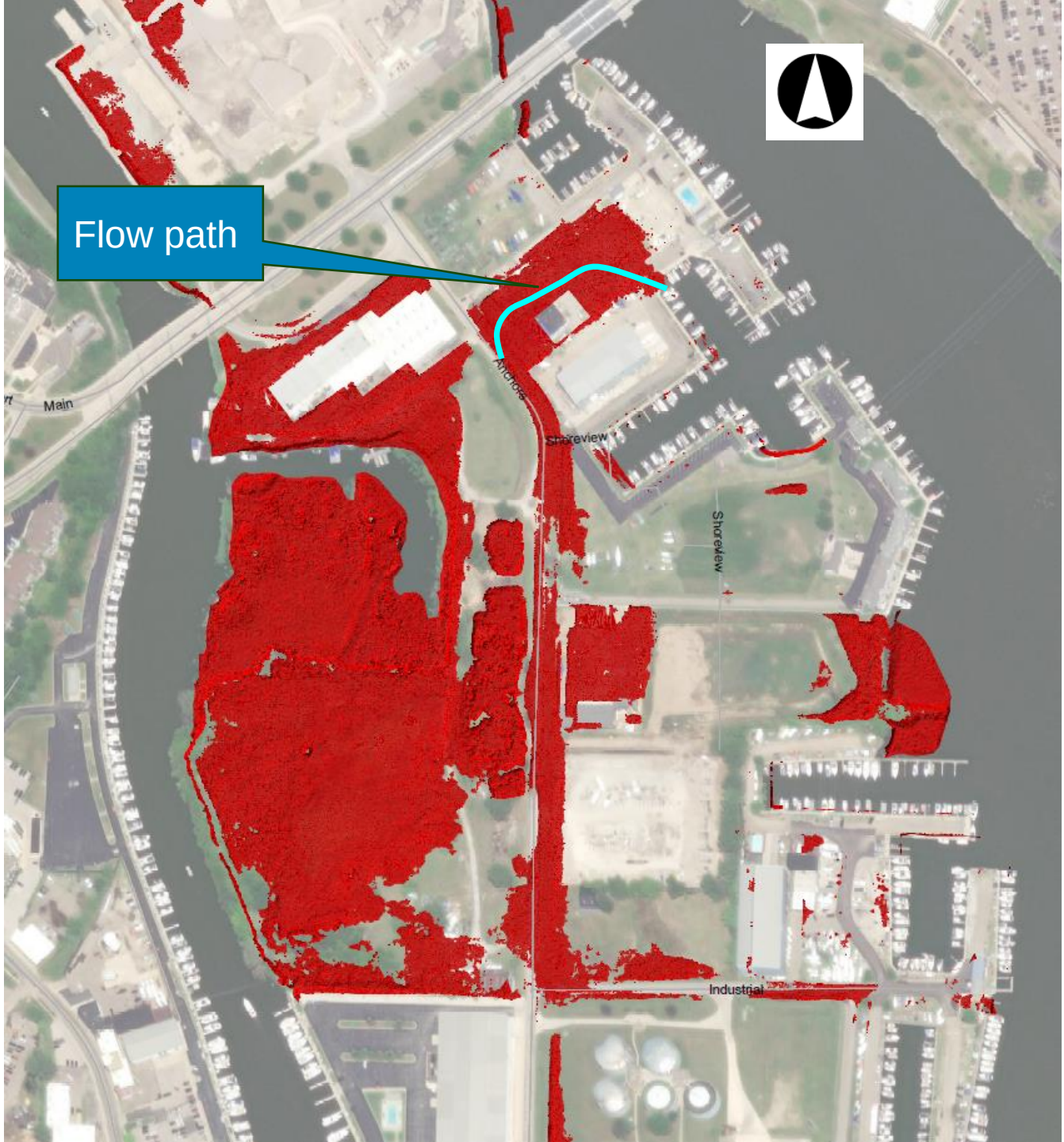
- The entire island is relatively low relative to surrounding water levels
- There are two notable low areas on Anchors Way
- Road low areas are below high Great Lake levels



Lake Inundation Analysis

- St. Joseph River levels are tied directly to Lake Michigan
- Map shows flooded areas below elevation 583.5
- There is no positive drainage for roadway low points during high lake levels



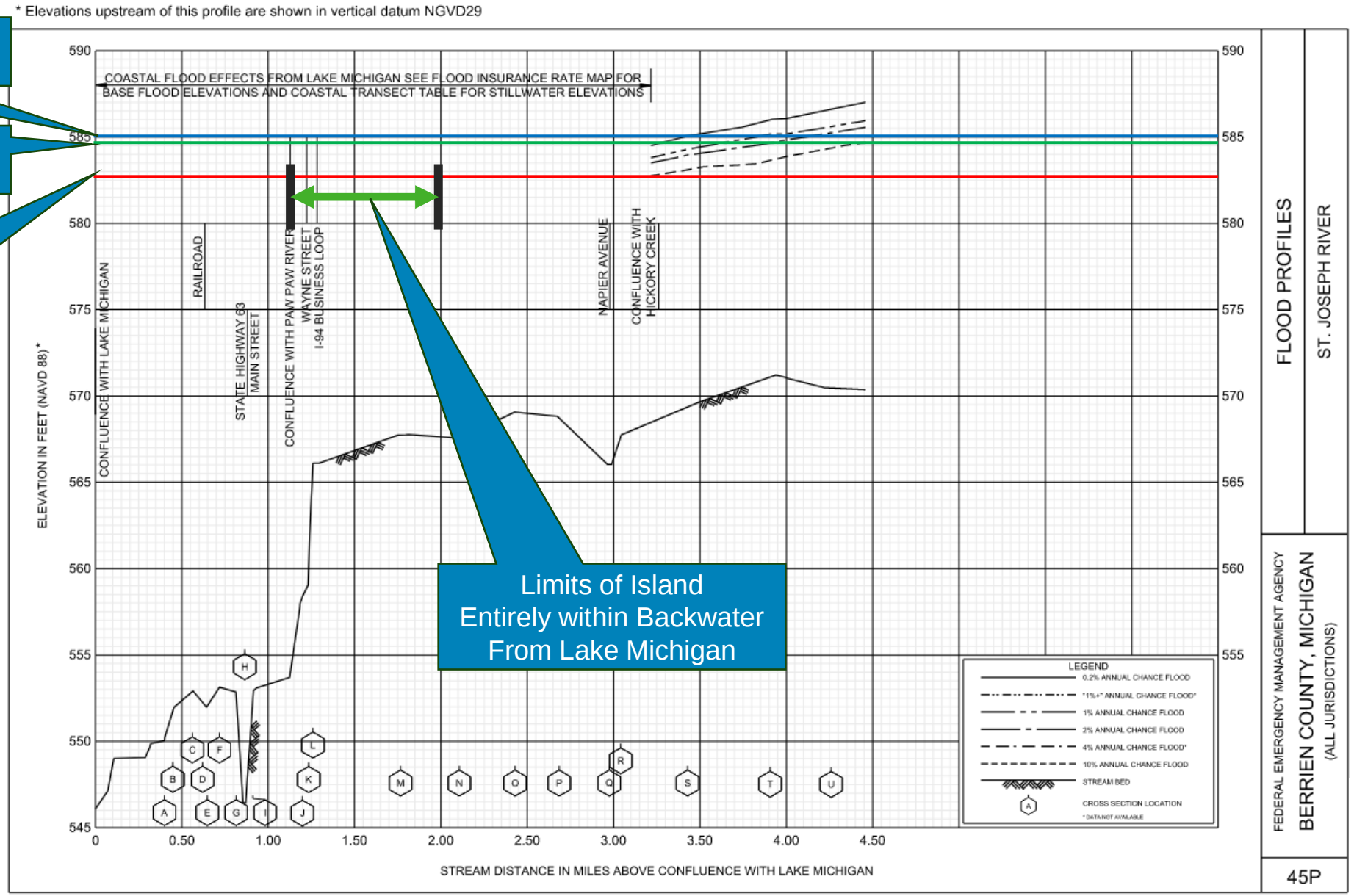


Lake Michigan 100-Year Level Compared to FIS

FEMA 100yr Level 585.0

Log Pierson Type III 584.73

Minimum Existing Road Elevation 582.75



High Great Lake Level Effects

High Lake Level

High Lake Level With Wind

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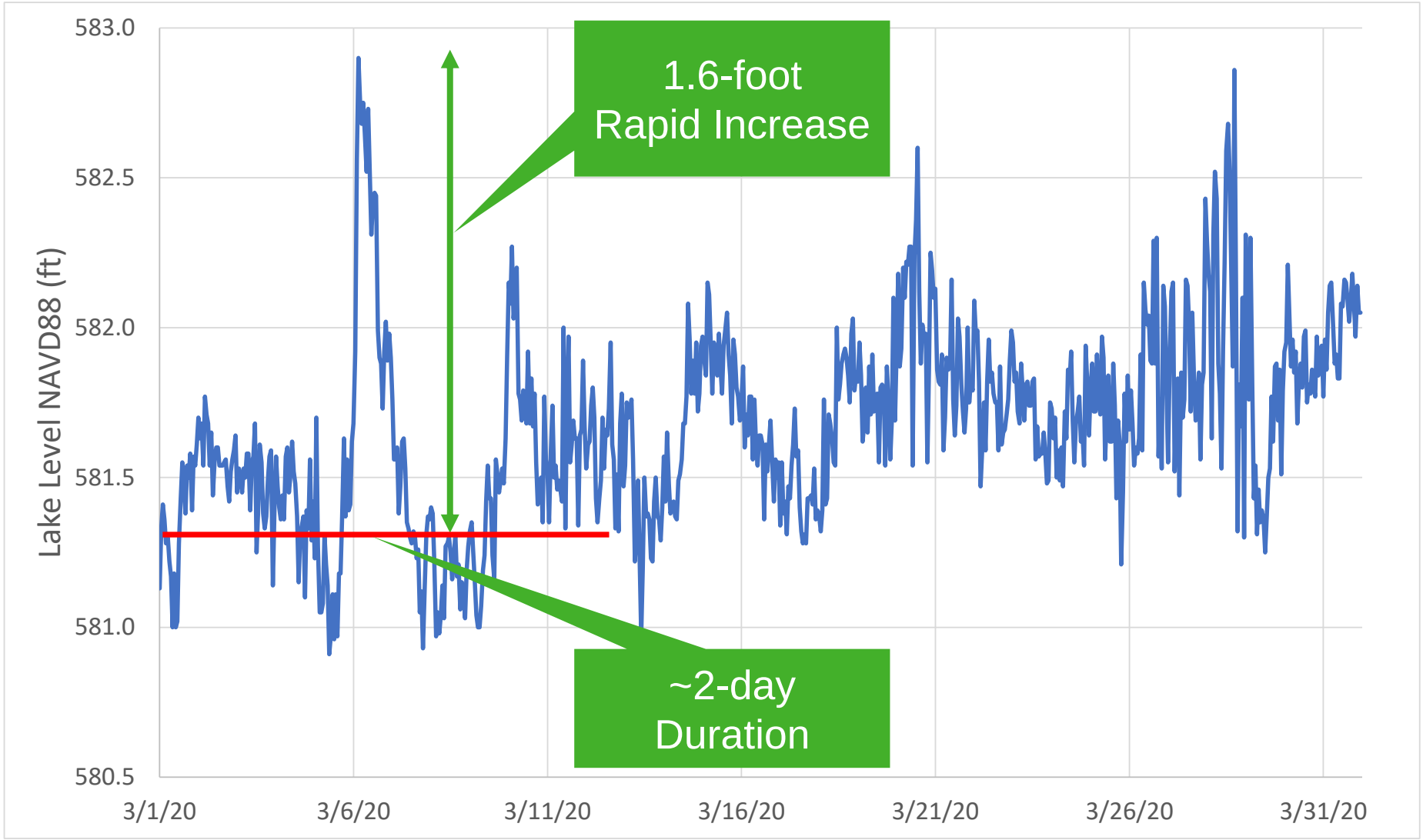
Wind Impacts – March 6, 2020 Event



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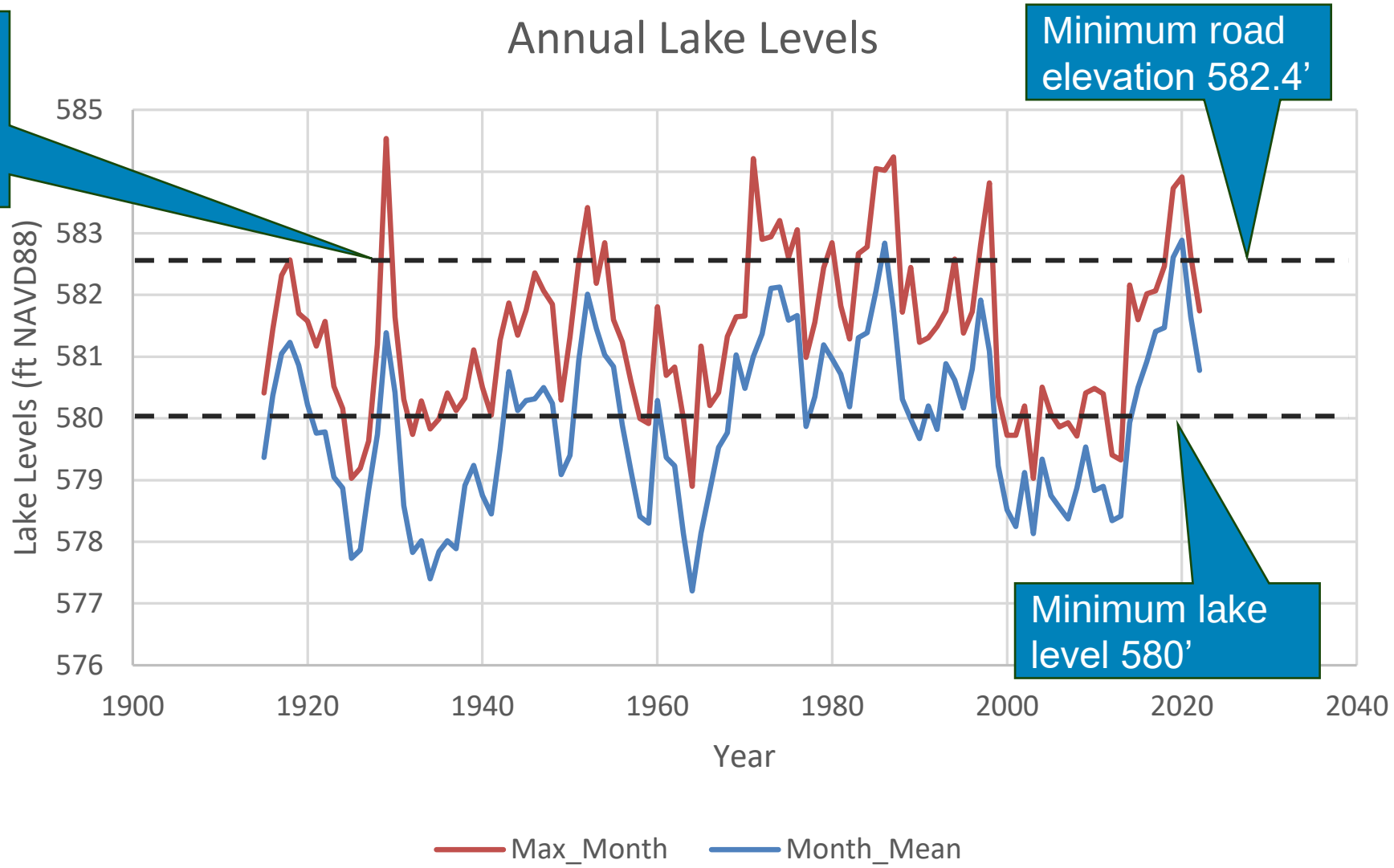
Lake Level Analysis

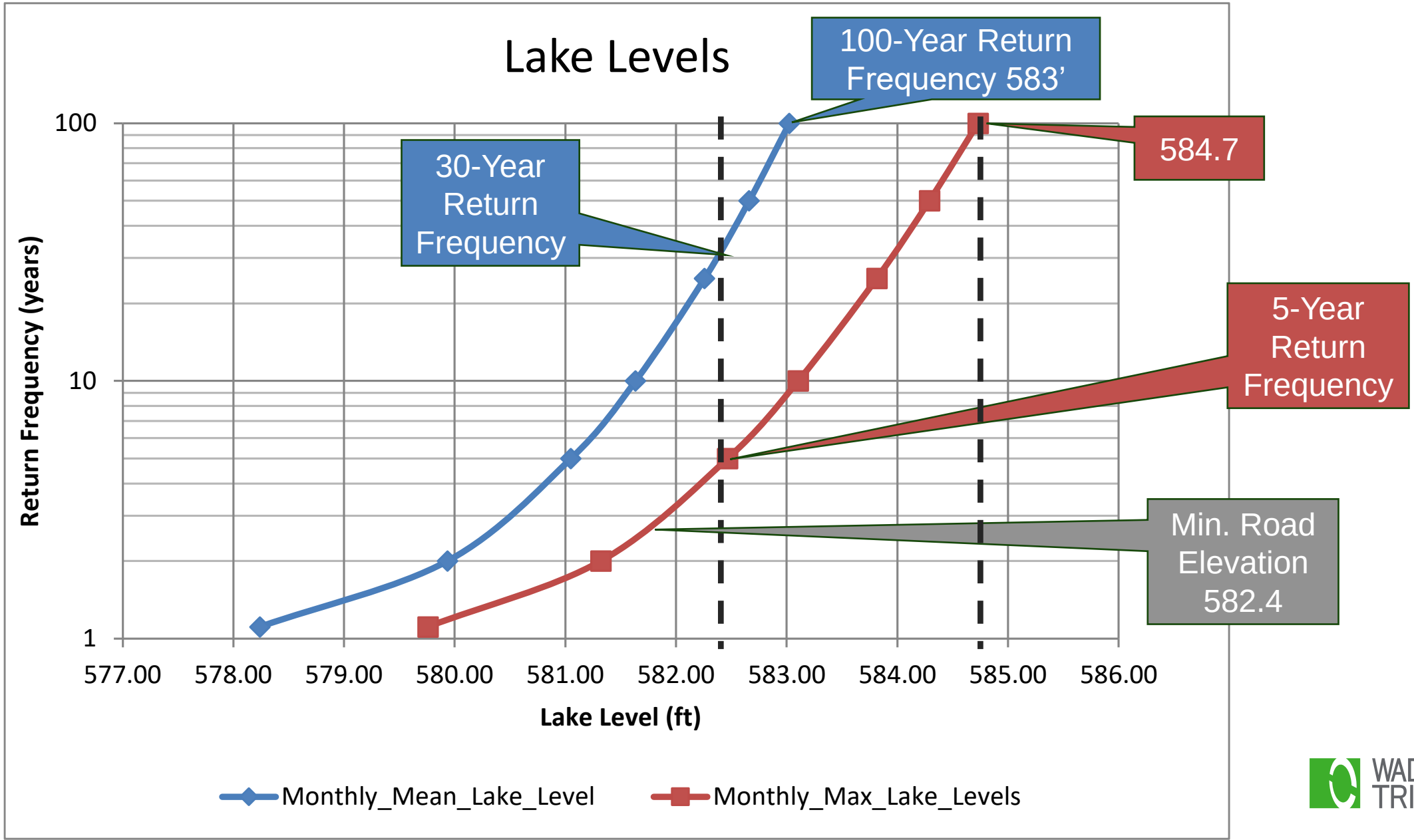
1929 Example
Max Month 584.54’
Max Mean Month 581.39’
Delta = 3.15’

Maximum month levels assumed to be associated with temporary wind induced increases in lake level



Source: NOAA Tides & Currents – Calumet Gauge

Lake Level Analysis (Log Pierson Type III)



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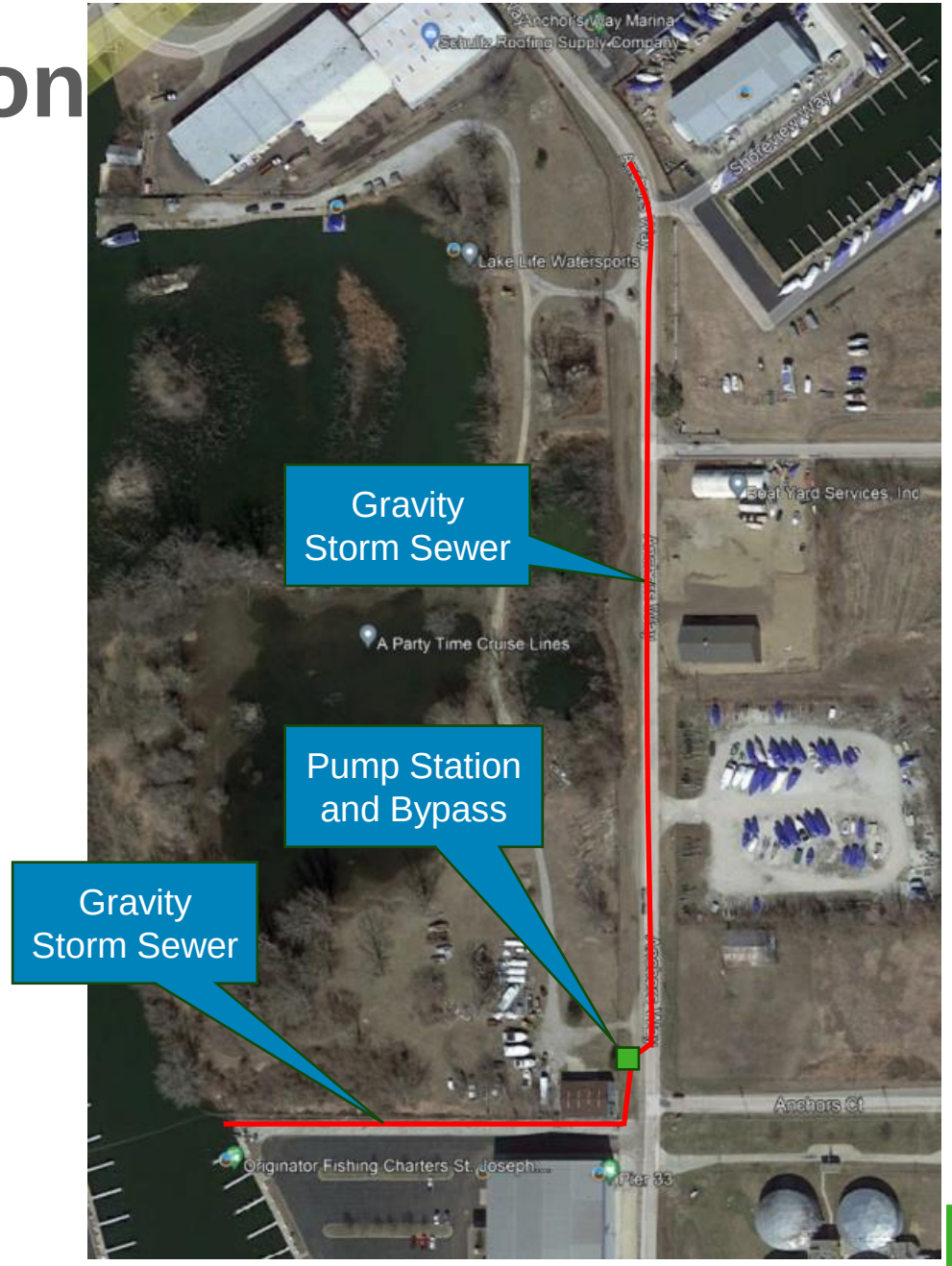
Alternative 1: Pump Station

- Estimate: $1,420,000
- All flow is conveyed to a south pump station/diversion chamber
- Under low lake level conditions, the pump stations is bypassed, and flow is diverted to Morrison Channel (gravity)
- Under high lake level, the pump station is activated (pumped)
- The entire system remains surcharged under most lake levels
- Surface ditches can act as storage buffers during peak of extreme events



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Alternative 2: Raise Roadway

- Estimate: $1,568,000
- Increase elevation of roadway above 584 to 585 feet
- Areas around roadway will remain flooded and saturated during high lake levels
- New stormwater conveyance system
- Small diversion chamber/stormwater pump station
- Ditches east and west of Anchors Way for storage/conveyance

Questions/Comments