

# Multnomah County & Sauvie Island Drainage Improvement Company

Interior Drainage Analysis and  
Flood Hazard Mapping Revision  
In Support of Levee Certification

# Background

Sauvie Island Drainage Improvement District (SIDIC) contracted with WEST to conduct an Interior Drainage Analysis (IDA). This is one of several requirements for levee certification.

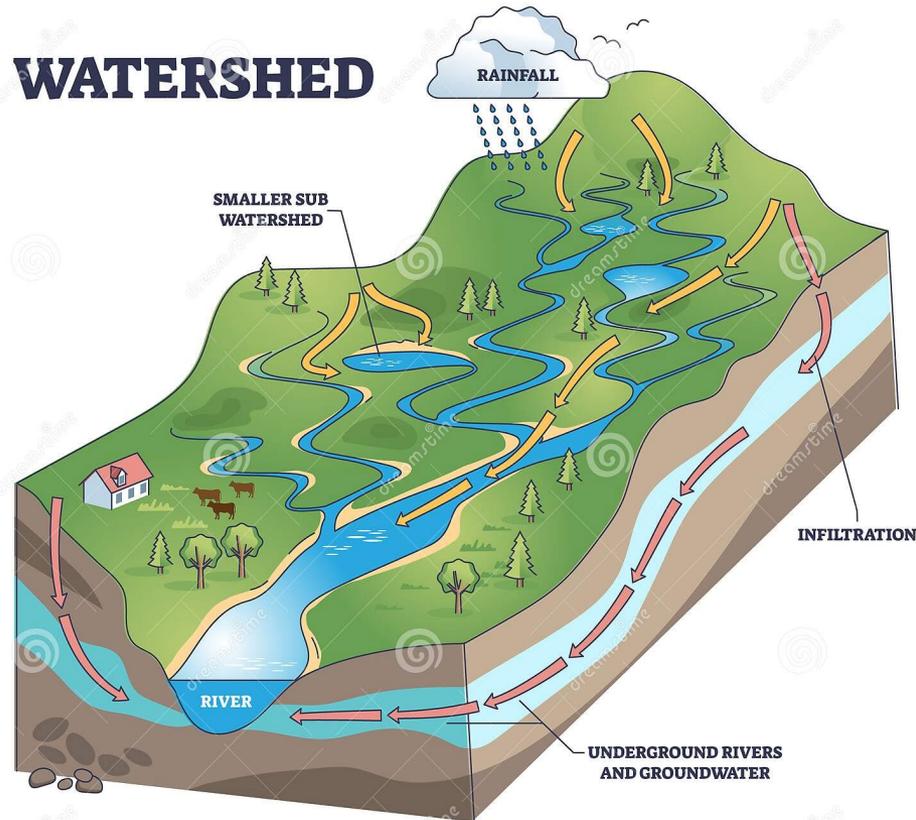
WEST was then retained by Multnomah County to conduct a Letter of Map Revision (LOMR) to update the flood hazard mapping with results from the IDA.

# Methodology

Interior Drainage Analysis (IDA) consists of modeling of the base (100-year) flood and determining the depths and extents of the resulting inundation within the levee-protected area.

- Data Collection
- Channel Survey
- Rainfall-Runoff Modeling
- Flood Inundation Mapping

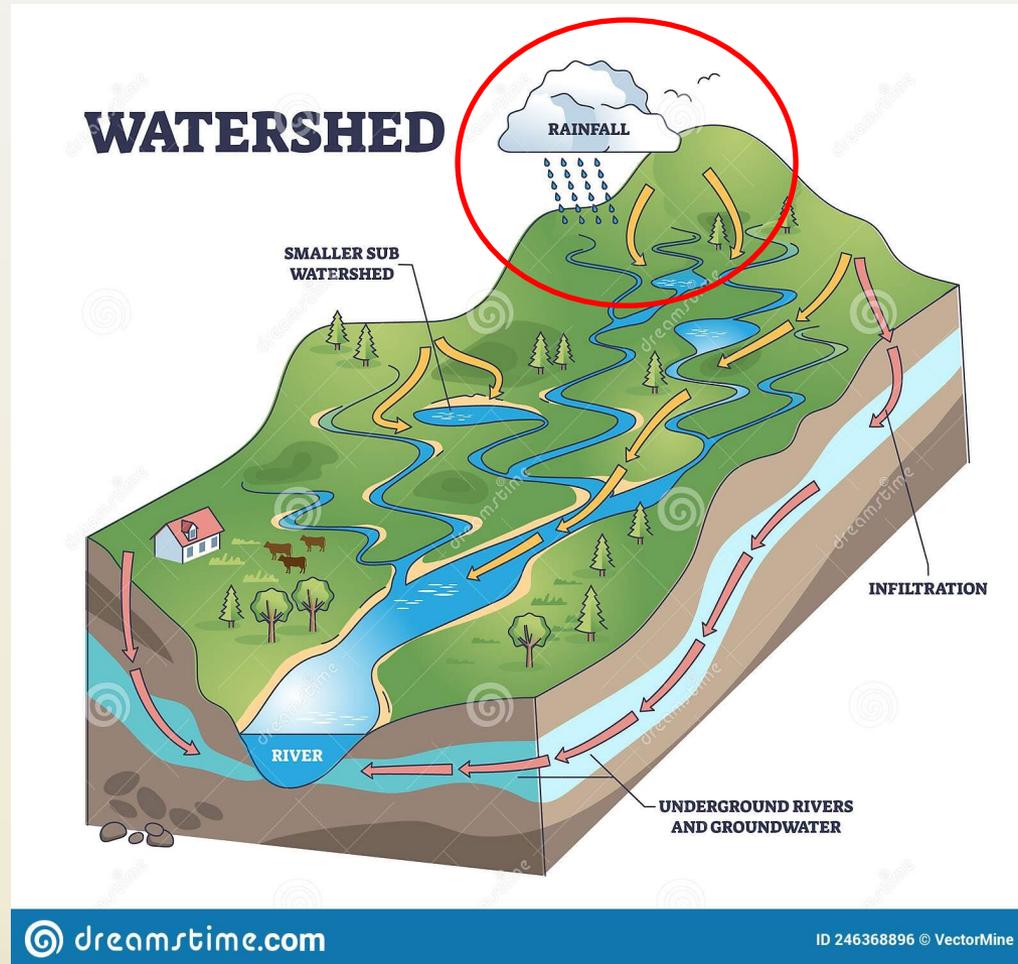
# Modeling Flood Hazards



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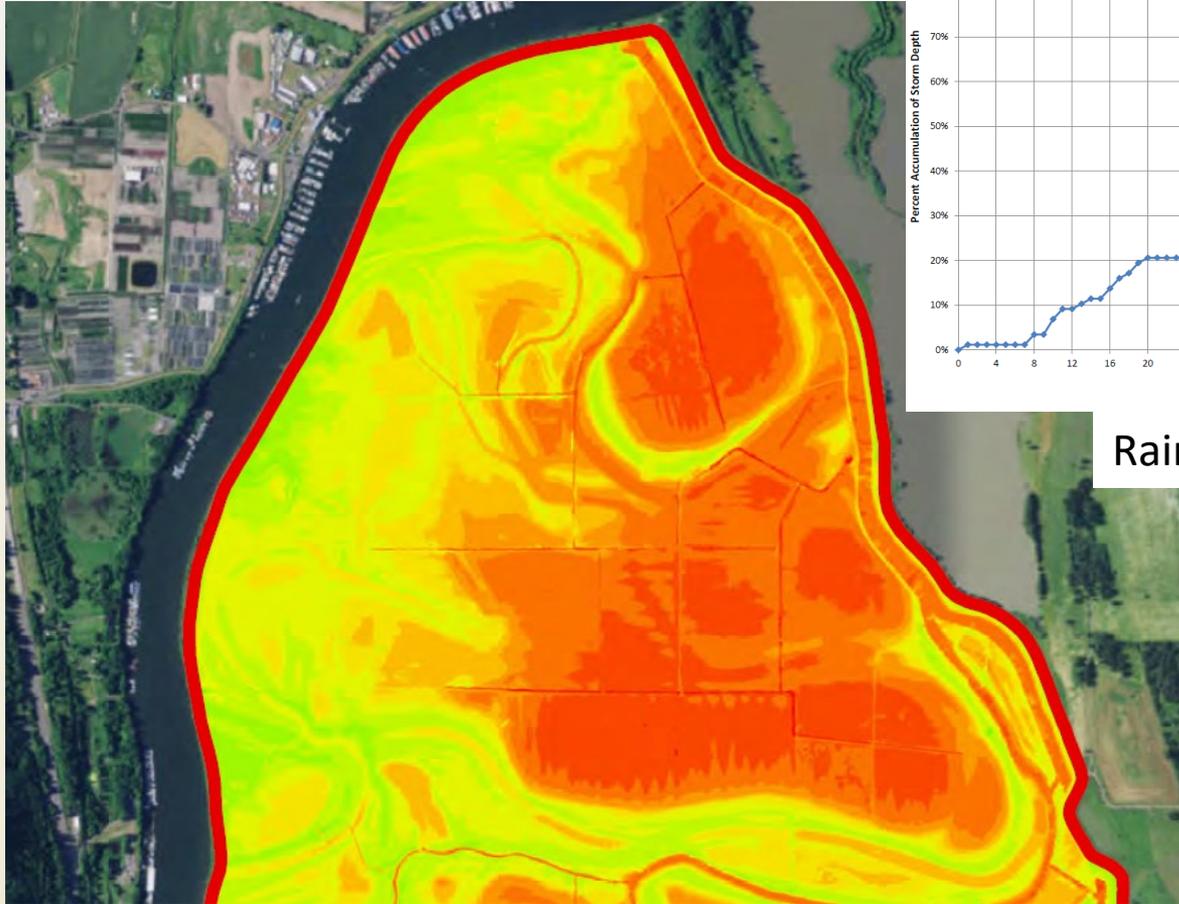
# Modeling Flood Hazards



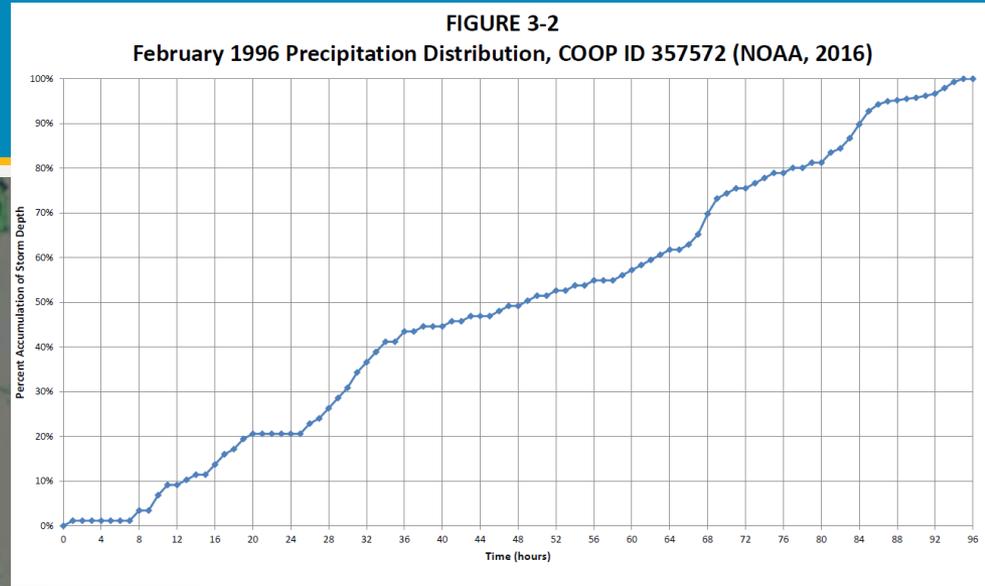
# Modeling Flood Hazards



# Model Data

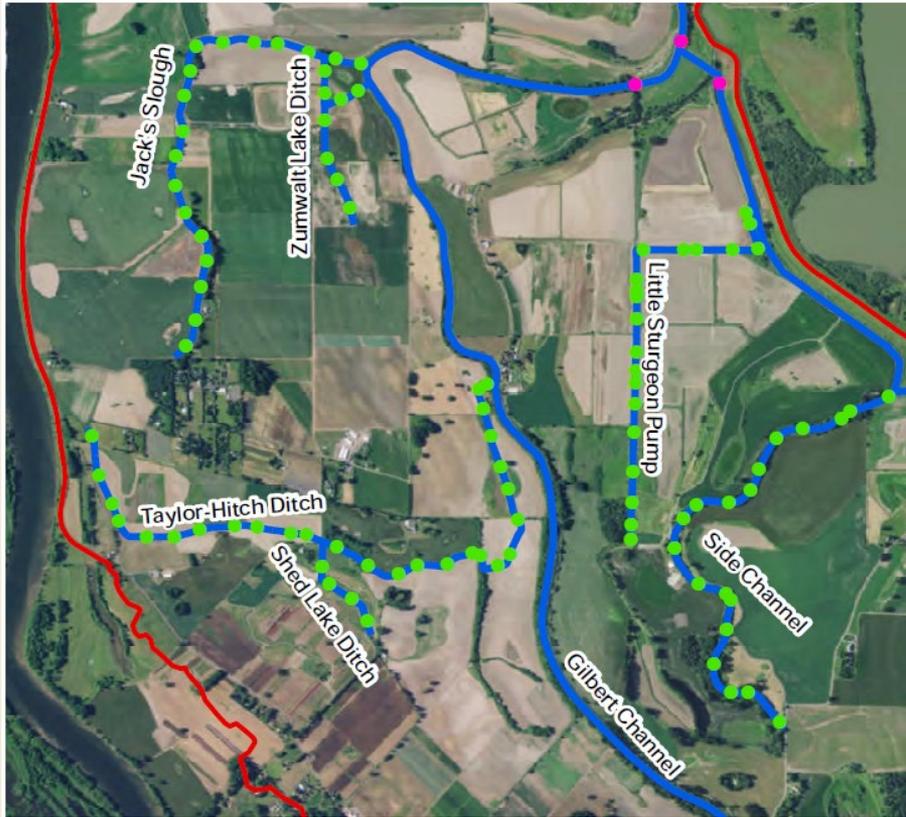


Terrain Data from LiDAR (2016)

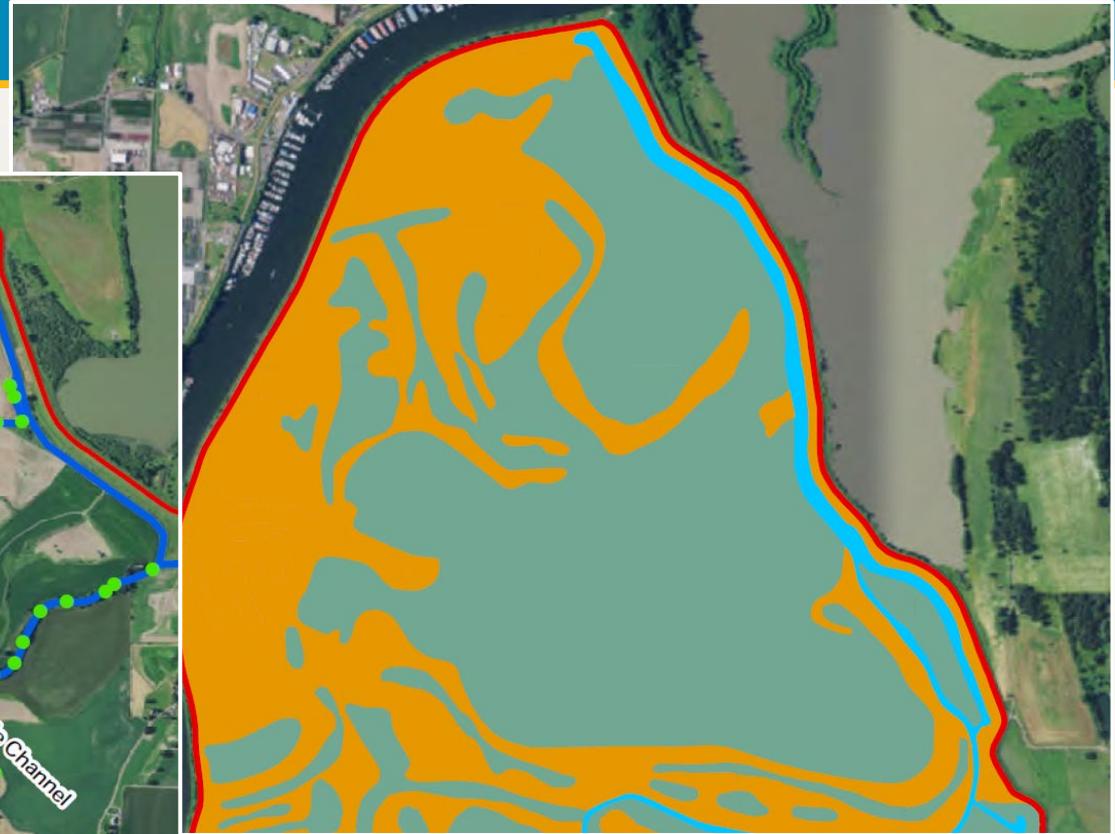


Rainfall Data (1996 Flood)

# Model Data



Channel Survey



Soil Types

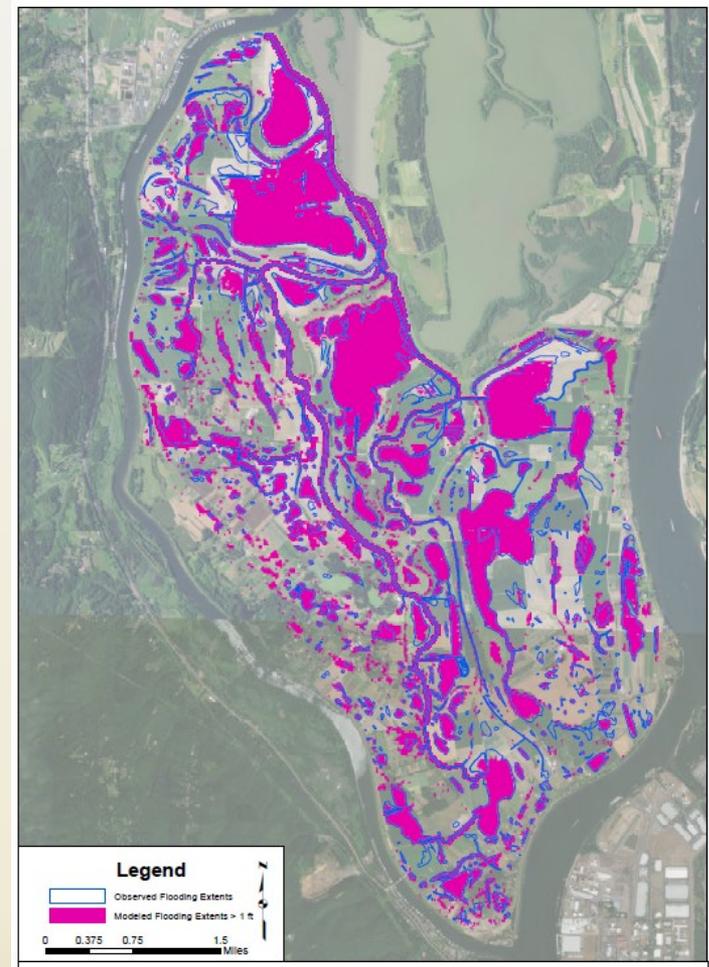
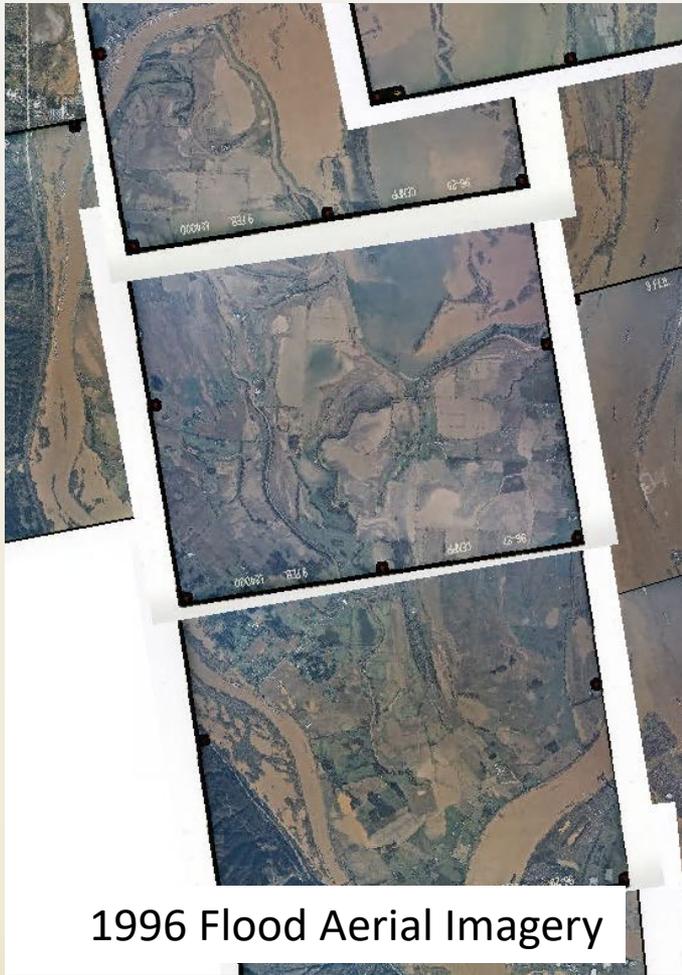
# Rainfall-Runoff Model



2D Model Domain

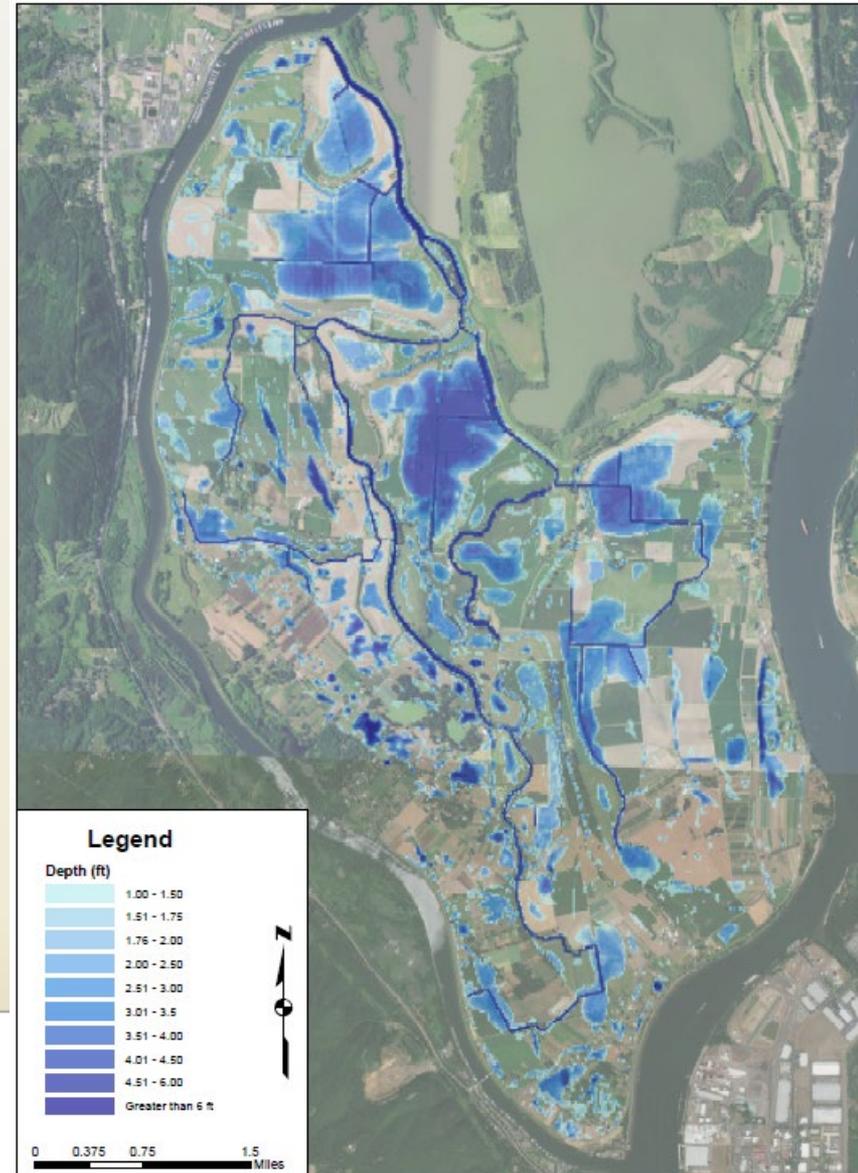


# Calibration

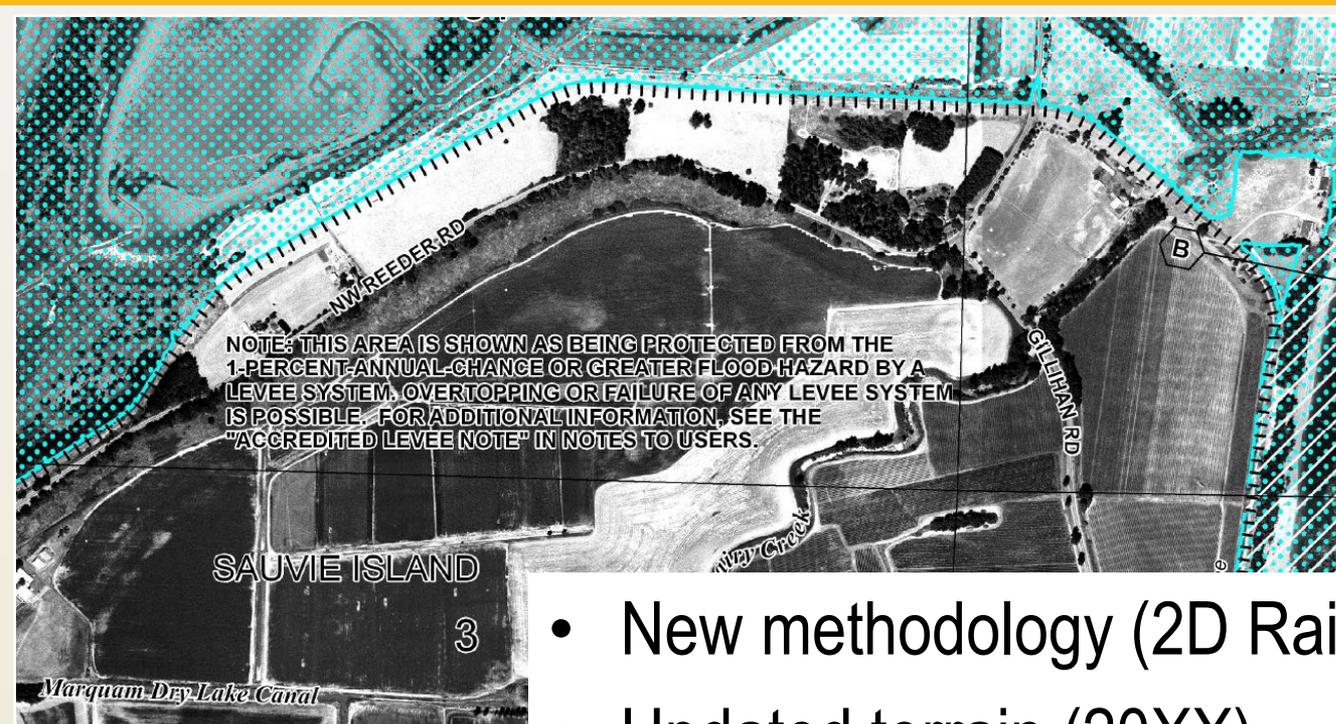


# 100-year IDA Results

- 96-hour event
- 4,400 acres flooded, compared to 3,600 acres in 1996
- 13% more rainfall
- 19% more flooded area



# Formal Mapping Revision



Effective Mapping

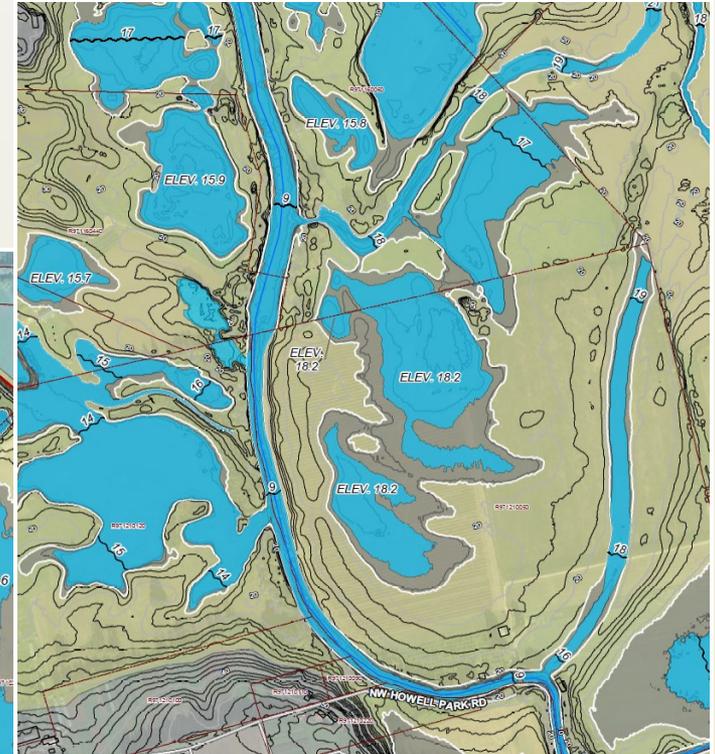
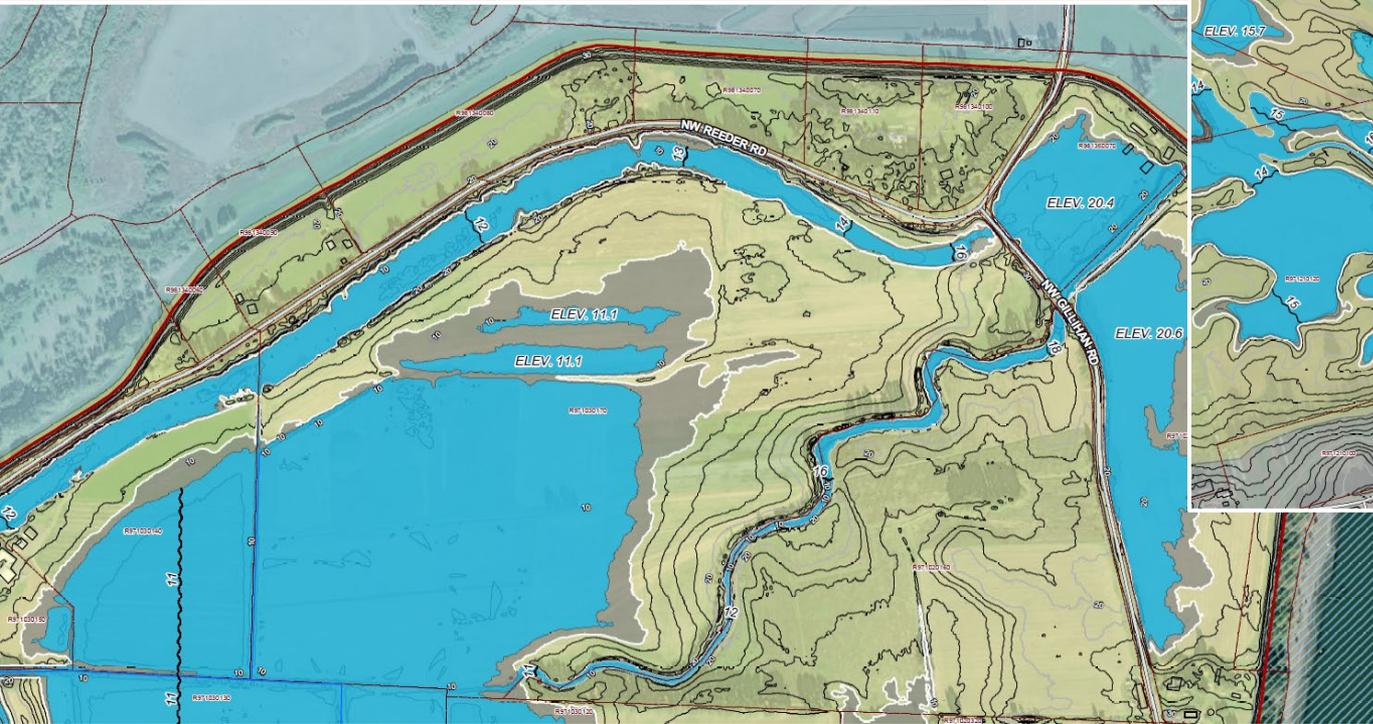
- New methodology (2D Rainfall-Runoff)
- Updated terrain (20XX)
- Consulted with FEMA, both regionally and at the federal level, to discuss mapping approach

# Mapping Methodology

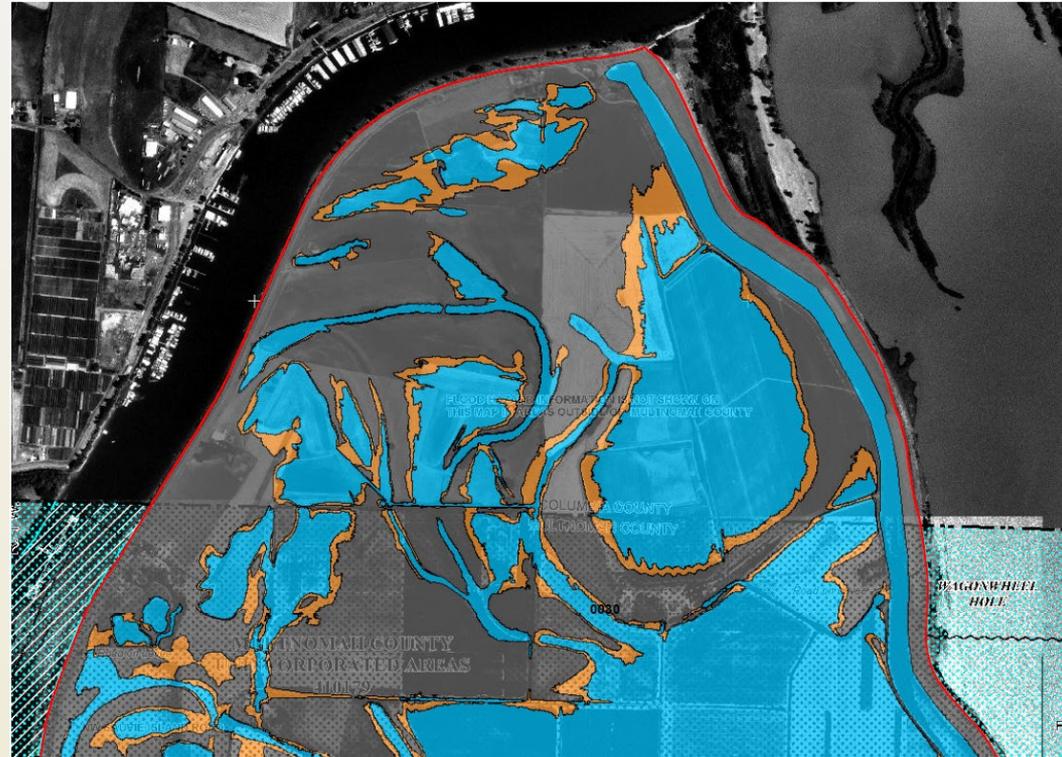
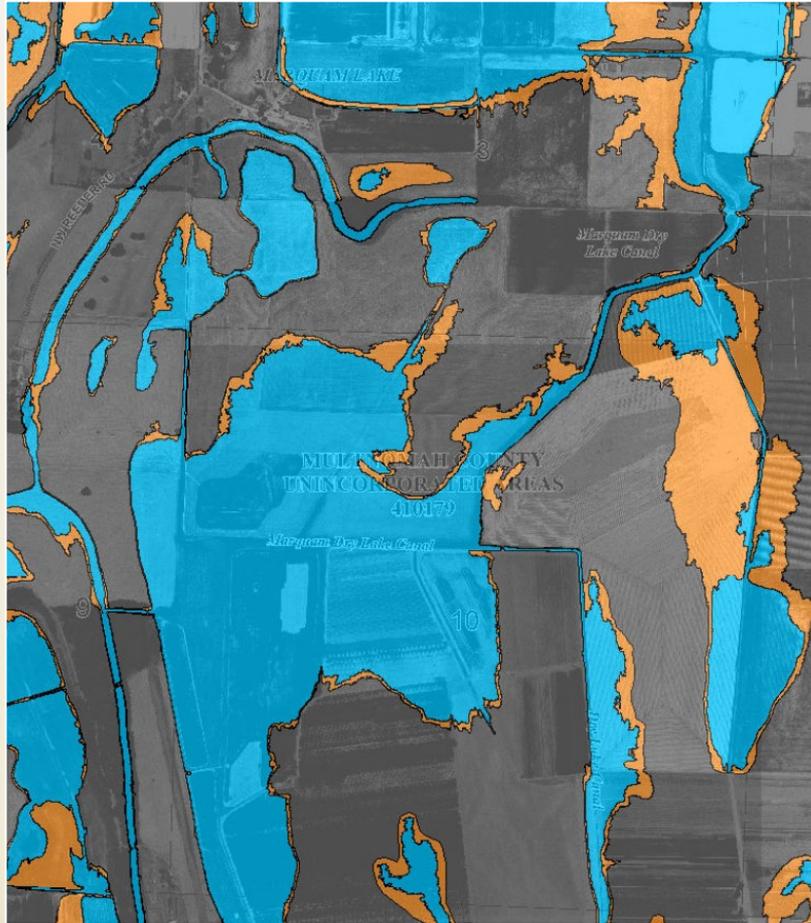
- Determined inundation area by comparing where the water surface elevation from the modeling intersects the ground.
- Identified areas with depths shallower than one foot
- Filtered out isolated ponding with areas less than 10,000 square feet (roughly 100' x 100')

# Revised Mapping

## Detailed Workmaps



# Revised Mapping



Annotated FIRM Panels