

PARK WEST DRAIN

GREEN INFRASTRUCTURE PROJECT



FISHBECK, THOMPSON, CARR, & HUBER INC.



Joe Bush

Ottawa County Resources Commissioner



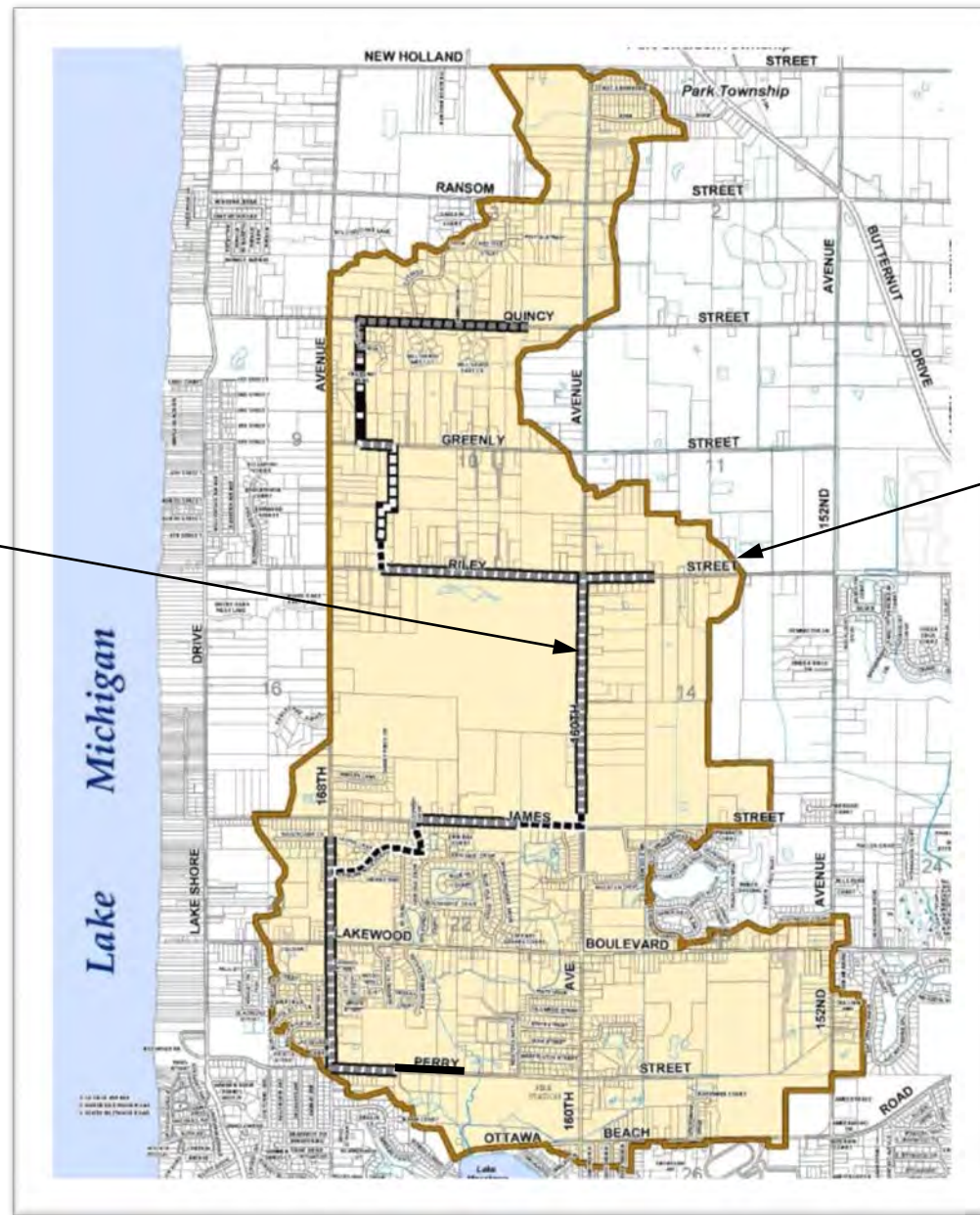
Presenters



Park West Drain



Park West Drainage District



Park Township, Michigan



Park West Drain

Lake Michigan

Lake Macatawa

Google earth

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Image NOAA



Park Township, Michigan

Before

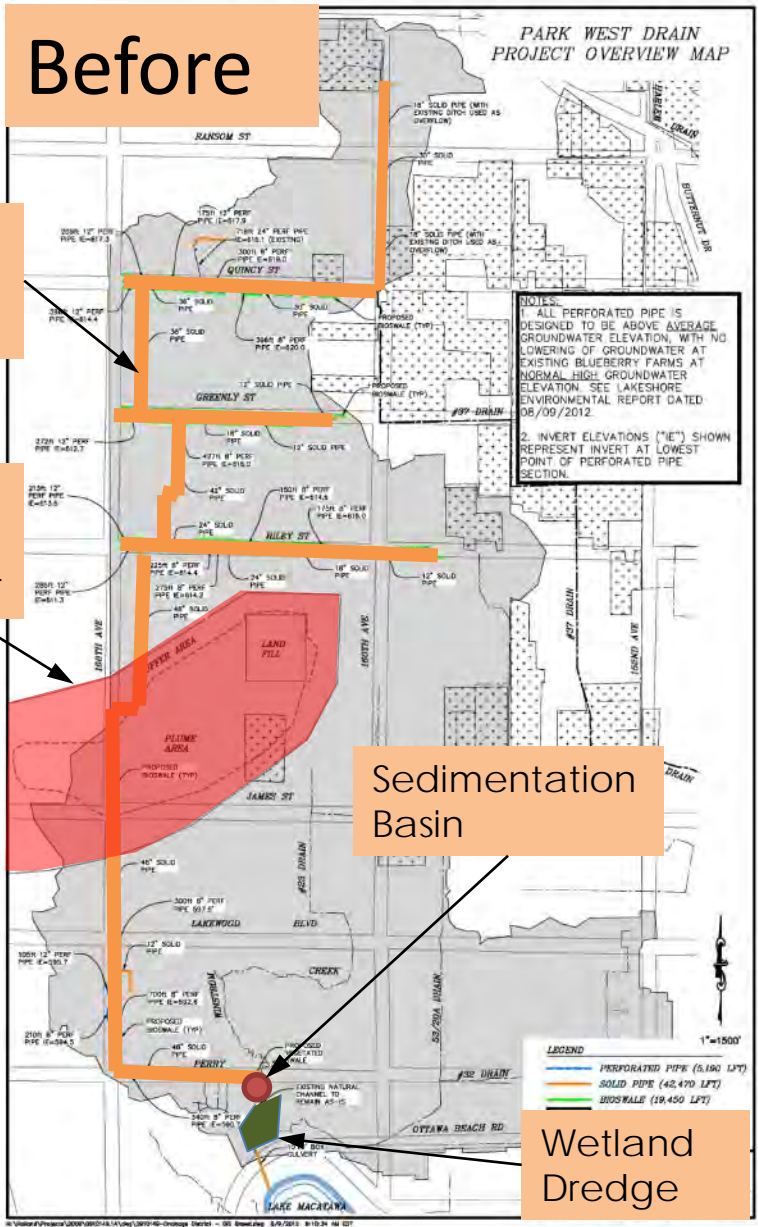
PARK WEST DRAIN PROJECT OVERVIEW MAP

Proposed Park West Drain

Landfill Plume and Buffer

Sedimentation Basin

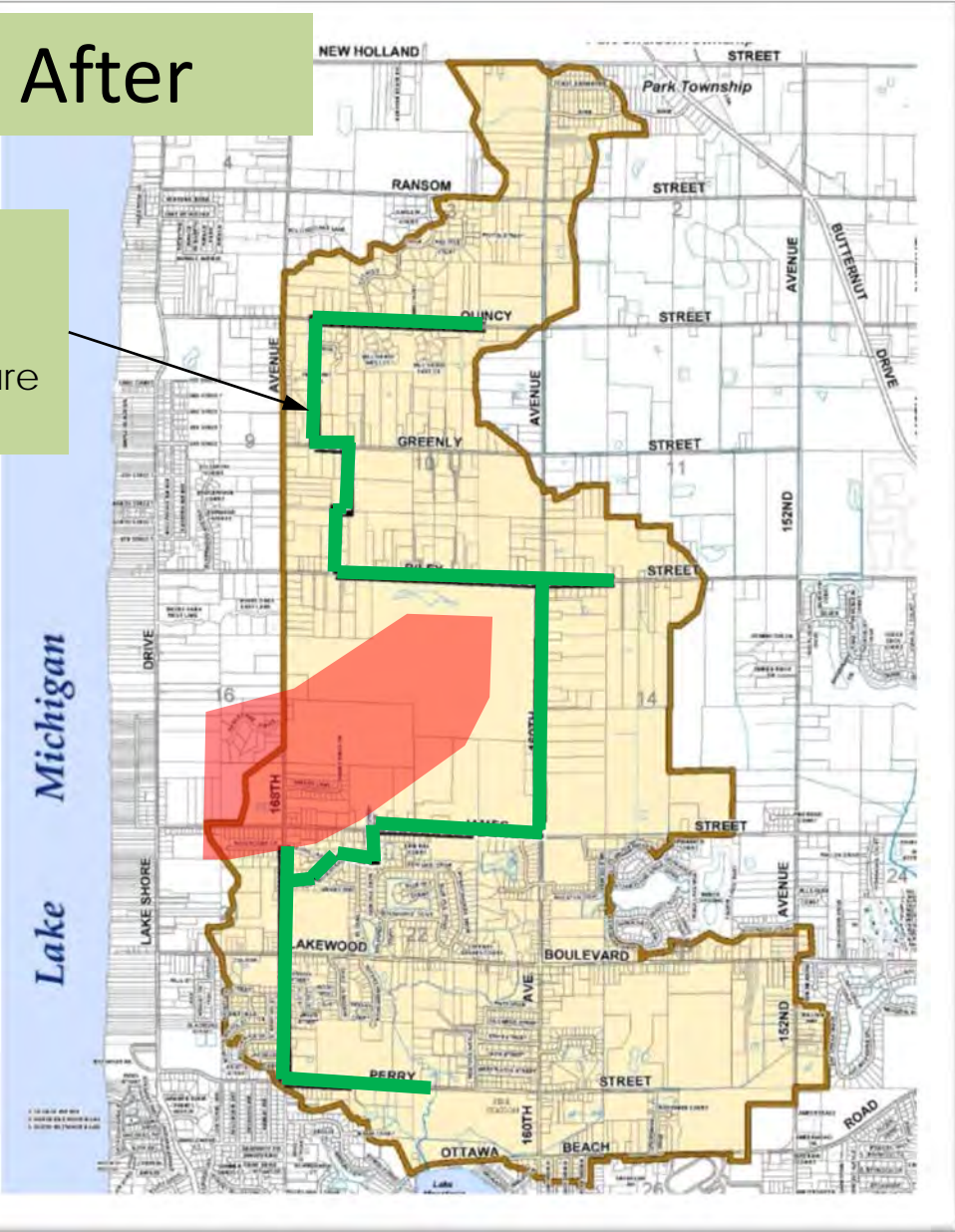
Wetland Dredge



After

Proposed Park West Green Infrastructure Drain

Lake Michigan



- High groundwater
- Flooding
- Recirculating sump pumps
- Township petition

- Traditional drain concept
- Green infrastructure drain concept
- Community concerns
- SAW grant



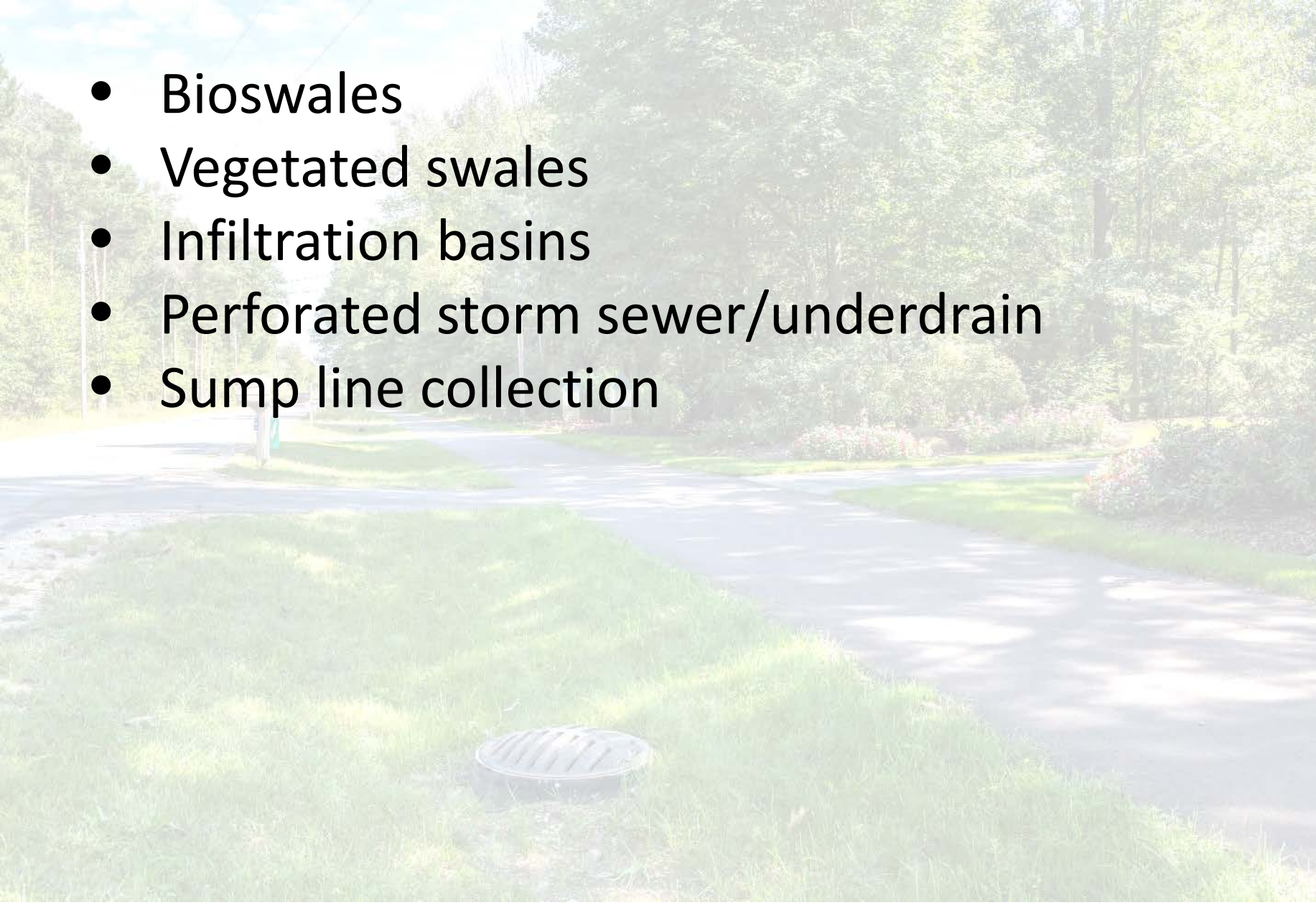
- SAW grant received from MDEQ
 - Testing and demonstration of innovative technology (only one awarded in the state)
 - 1.7 million dollars
 - Low interest loan to finance remainder



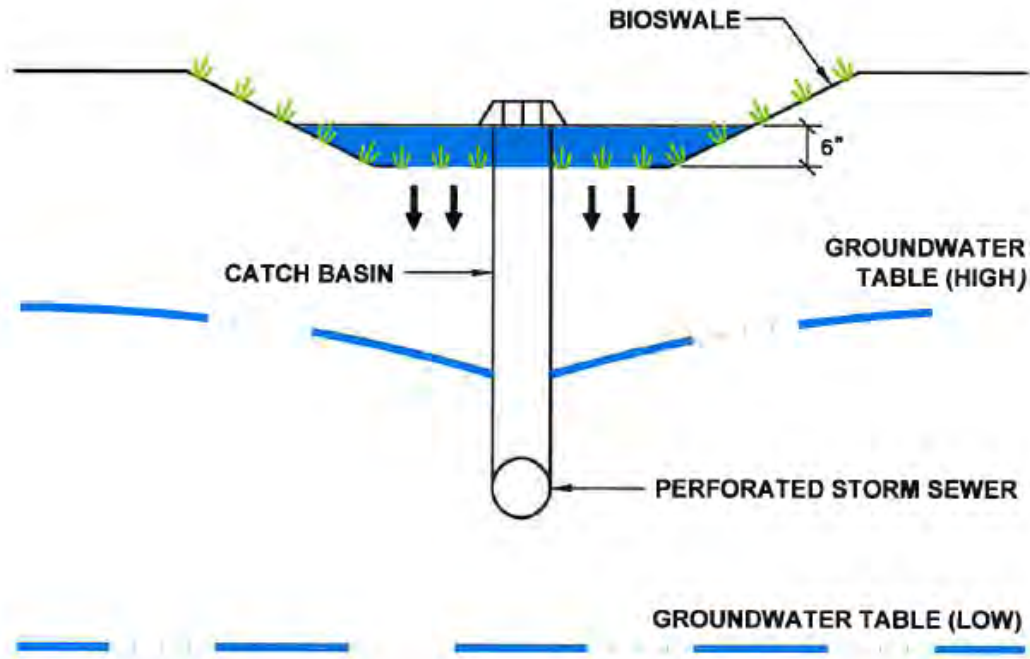
- Utilize infiltration soil capacity
- Sewer size reduction
- No need for expensive basins
 - Water quality
 - Flood control
- Half cost of traditional design



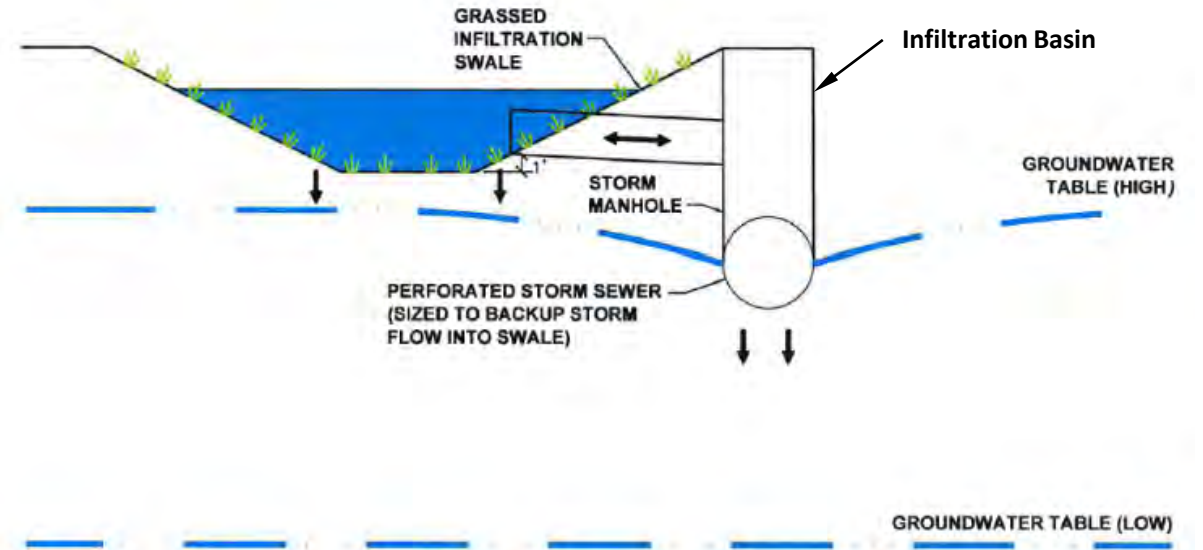
- Bioswales
- Vegetated swales
- Infiltration basins
- Perforated storm sewer/underdrain
- Sump line collection



Typical Bioswale Design



Infiltration Swale Design



- Volume reduction
- Water quality
- Cost
- Constructability
- O&M

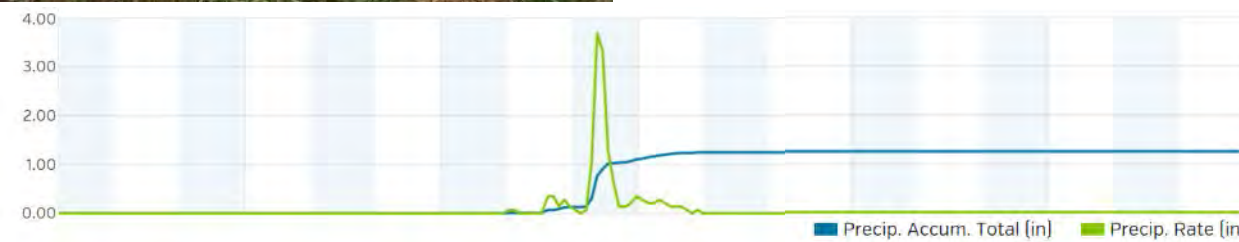


- Lake Macatawa
 - Phosphorus TMDL
 - 173.9 acres removed from Drain No. 23
- Annual load reductions to Lake Macatawa
 - Phosphorous
 - TSS
 - Nitrogen
- Groundwater for blueberry farms
- Floodplain protection
- Wetland recharge
- Avoid landfill contaminated plume





- 10-year, 24-hour design capacity
- 100-year, 24-hour partial capacity
- Discharge volume reduction
- Water quality



- SAW grant requirement
- Paired watershed approach (Pine Creek is a similar tributary to Lake Macatawa)
- Monitoring hydrologic differences between the two drainage systems may be the best indicator of water quality
- This data will provide both stormwater volume and peak flow per acre for at least 3 rainfall events

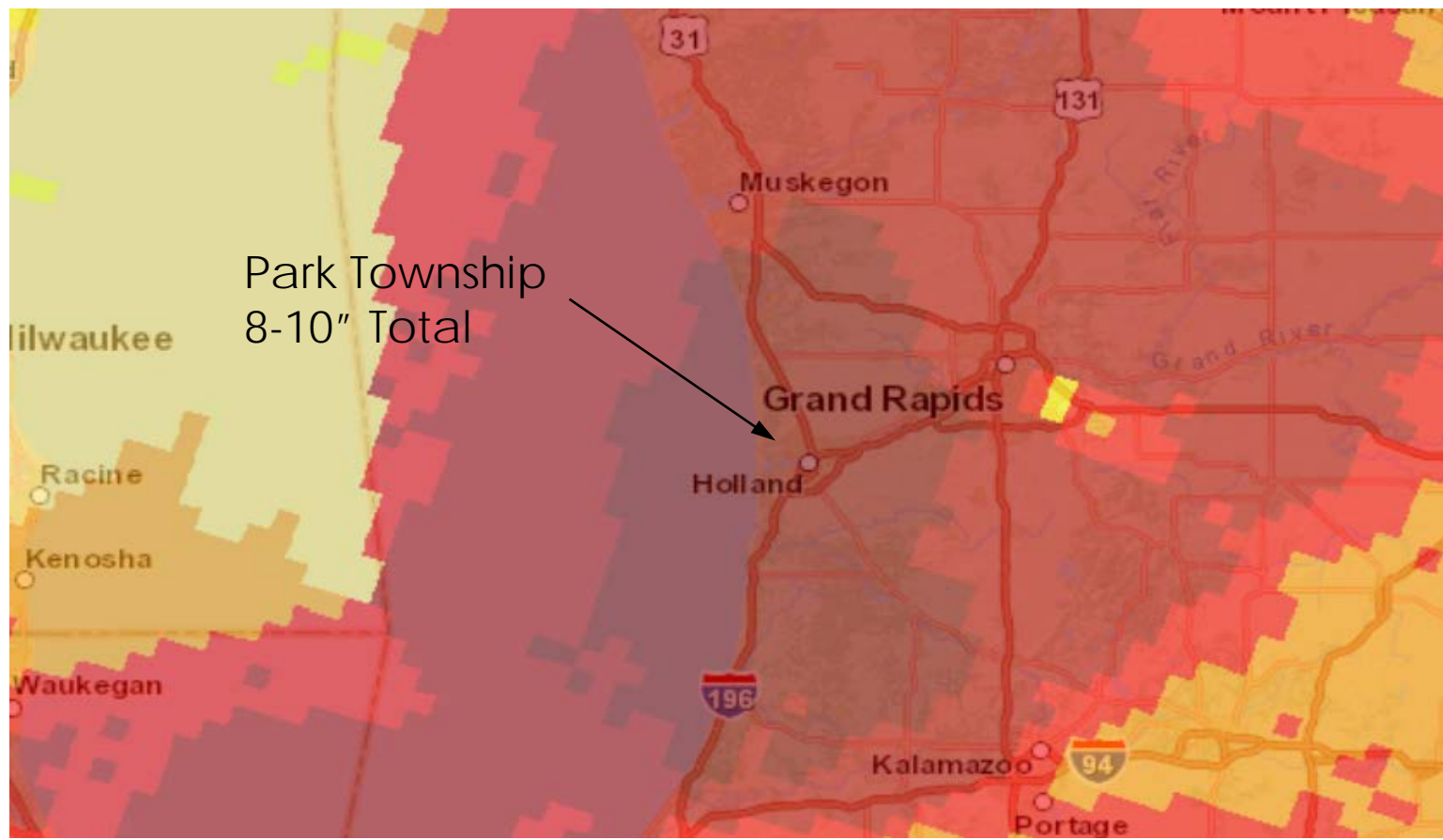
NOAA Monthly Total, December 2008



Photo: Jeremy Gonsior/The Holland Sentinel



Photo: wn.com



Park Township
8-10" Total











Questions?

