

March 7, 2019

# Wisconsin EITM Zone Upper Des Plaines River Impact Analysis – Opening of Public Comment



*Stormwater*  
MANAGEMENT COMMISSION  
LAKE COUNTY, IL



# PRESENTATION OUTLINE

- Summary of Material Reviewed
- Description of EITM Zone and Des Plaines River Watershed
- Existing Site Conditions and Depressional Storage
- Stormwater Detention Analysis
- Floodplain and SEWRPC Study Review
- Soil Erosion and Sediment Control
- Wetlands and Waters
- Recommendations

# COMMONLY USED TERMS

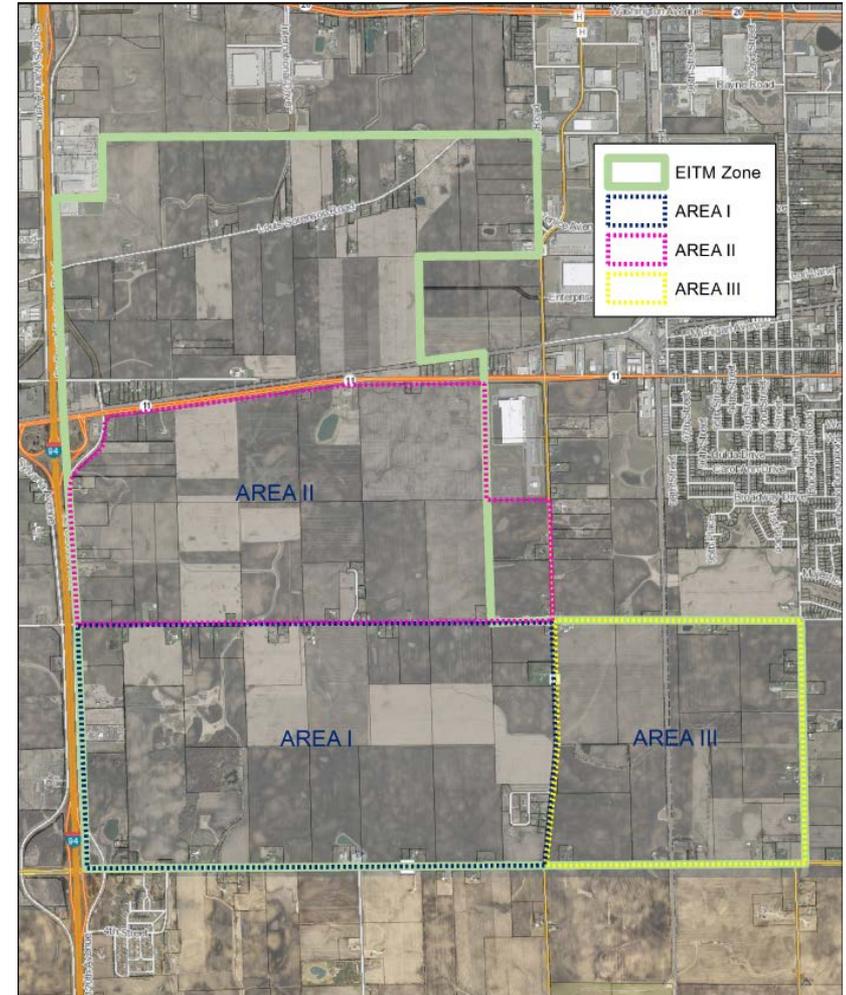
- Acre-ft: A measurement of water volume equivalent to 1 acre of land with 1 foot of water depth. 1 acre-foot = 326,000 gallons
- Cubic feet per Second (cfs): A volumetric flowrate measurement for water.
- 100-year storm event: A storm event with a 1% chance of occurring in any given year.
- SEWRPC: Southeastern Wisconsin Regional Planning Commission

# MATERIAL REVIEWED

- Stormwater Permit Application Material to Wisconsin DNR
  - Stormwater Modeling and Calculations
  - Engineering Plans
- Conference calls with Wisconsin DNR, SEWRPC, Mount Pleasant, WisDOT
- Site Inspections of Foxconn and Roadway Developments
- Mount Pleasant, Racine County and Kenosha County Landuse Plans
- Local, state and federal regulations for stormwater, floodplain and wetlands
- Racine and Kenosha County aerial topographic mapping
- Des Plaines River Watershed Floodplain Modeling and Mapping
- SEWRPC June 2018 Evaluation of Proposed Stormwater Quantity Management for the Des Plaines River Watershed Portion of the Proposed Foxconn Development
- WisDOT I-94 Roadway Widening Plans and Stormwater Calculations
- Local Road Widening Plans and Stormwater Calculations
- Wetland permitting information
  - EITM Zone Jurisdictional Determinations (partial)
  - EITM Zone wetland permitting and mitigation documents
  - I-94 Jurisdictional Determinations, mitigation documents and permits
  - Local Roads mitigation documents

# ELECTRONICS AND INFORMATION TECHNOLOGY MANUFACTURING (EITM) ZONE

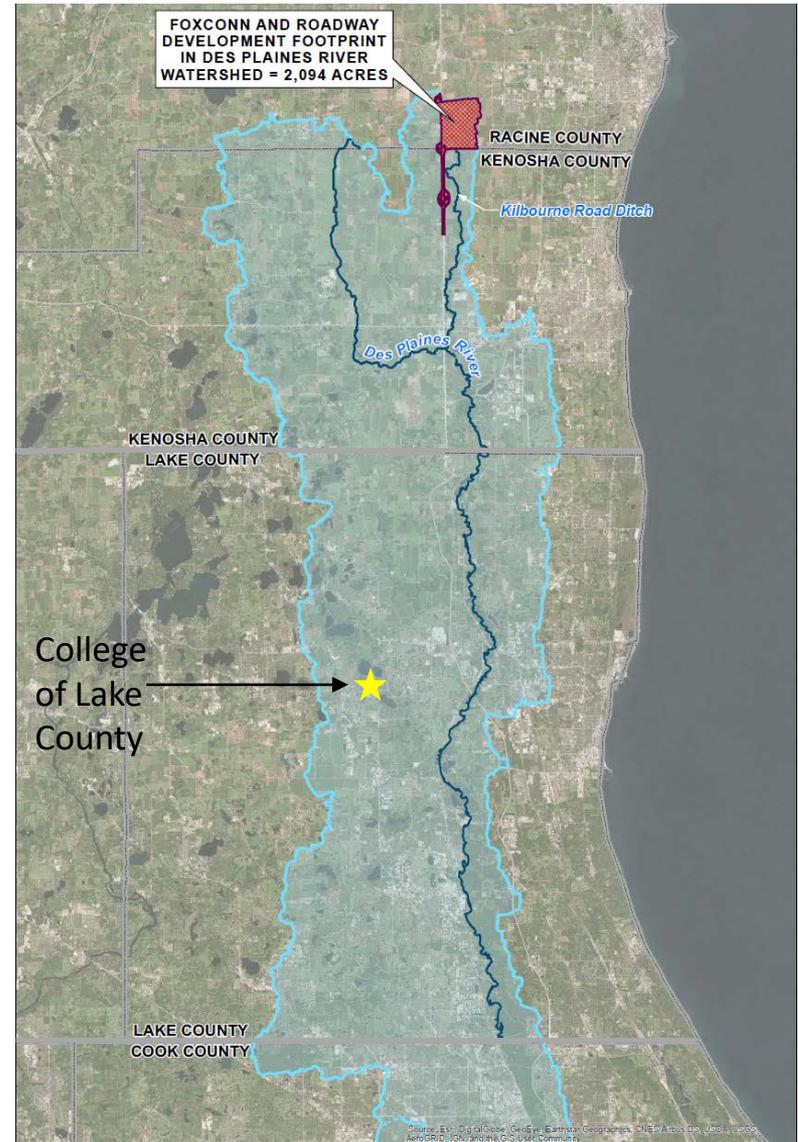
- 2017 Wisconsin Act 58 Exemptions Include:
  - State Environmental Impact Statement (EIS)
  - Department of Natural Resources (DNR) Wetland Permitting
    - Allows for fill of wetlands in EITM Zone
    - 2:1 fee-in-lieu mitigation required
    - Water Quality Certification waived
  - DNR Permitting for Stream Activities
    - Construction of Bridges and Culverts
    - Waived Restrictions for Placement of Fill in Navigable Streams
    - Enlargement of Waterways and Bank Protection
    - Straightening of Waterways



Wisconsin DNR EITM Zone Exhibit  
Total EITM Zone Size = 4,088 acres

# LOCATION OF EITM ZONE & DES PLAINES RIVER WATERSHED

- EITM Zone and Related Development within Des Plaines River Watershed = 3.3 mi<sup>2</sup> (2,094 acres)
- Kilbourn Road Ditch Subwatershed ≈ 24 mi<sup>2</sup> (15,360 acres)
- Des Plaines River Watershed in Wisconsin ≈ 125 mi<sup>2</sup> (80,000 acres)
- Des Plaines River Watershed in Lake County ≈ 200 mi<sup>2</sup> (128,000 acres)



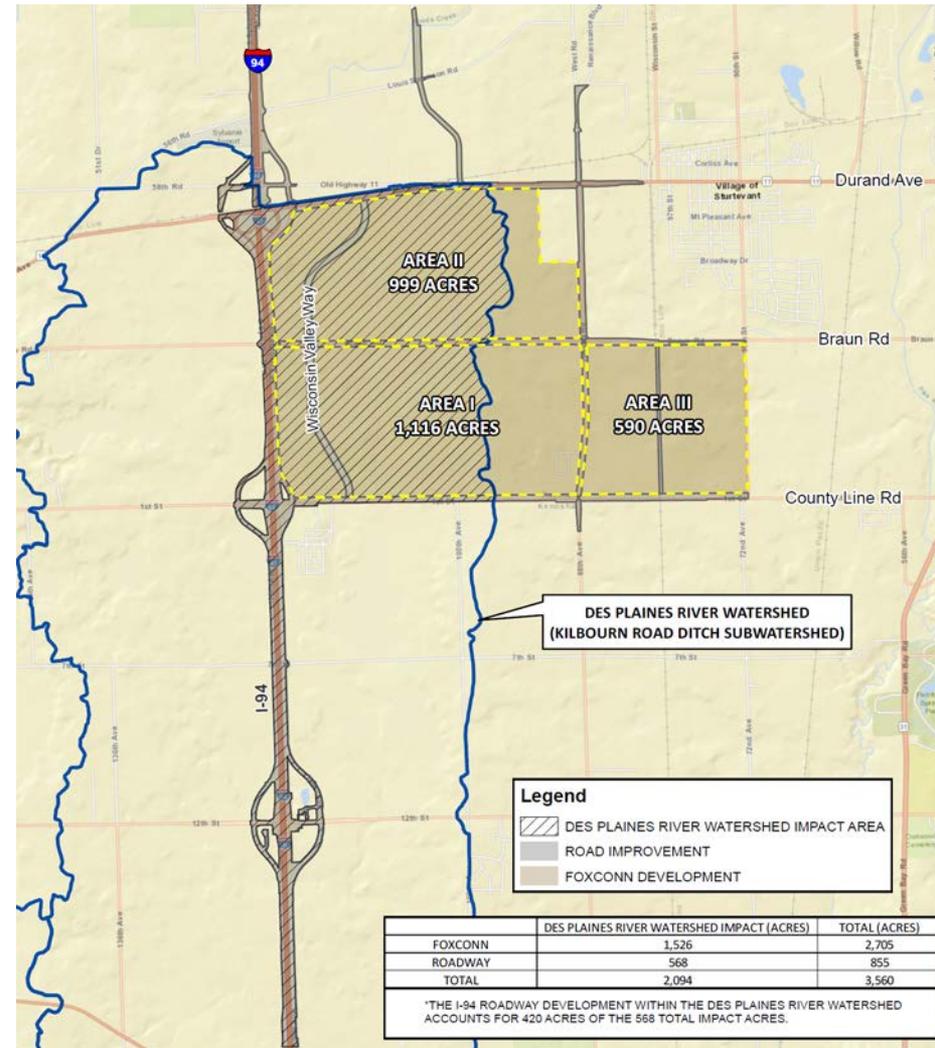
# DES PLAINES RIVER WATERSHED

- Watersheds and water flow do not conform to political boundaries
- Downstream Counties:
  - Lake County
  - Cook County
  - DuPage County
  - Will County
- Total Drainage Area at Confluence with Kankakee River = 2,111 mi<sup>2</sup> (1,351,000 acres)



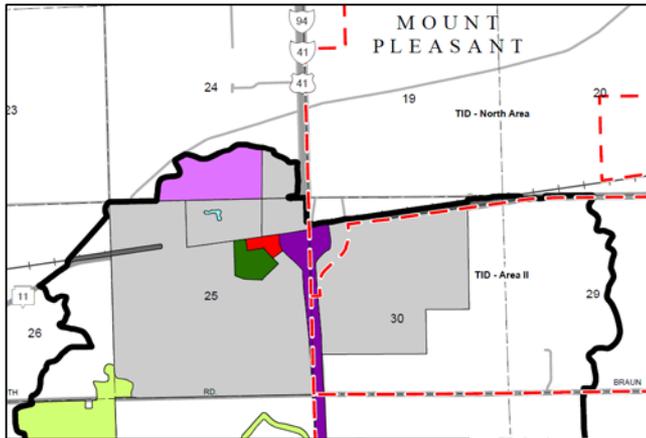
# EITM ZONE AND SUPPORTING DEVELOPMENT

- EITM Zone and Supporting Development within Des Plaines River Watershed = 2,094 acres (3.3 mi<sup>2</sup>)
  - EITM Zone Areas I and II (1,526 acres)
  - Local Roadway Improvements (148 acres)
    - Temporary WisDOT Jurisdiction
    - Right of Ways ≥ 200 ft wide
    - Expansion to 6 vehicle lane roadways
      - County Highway 11 (Durand)
      - Braun Road
      - County Highway KR (County Line Rd)
    - New Roadways – 4 vehicle lanes
      - Wisconsin Valley Way
  - I-94 Improvements (420 acres)
    - Addition of lanes
    - Frontage Road expansions
    - Bridge expansions
    - 6.7 linear miles of improvements

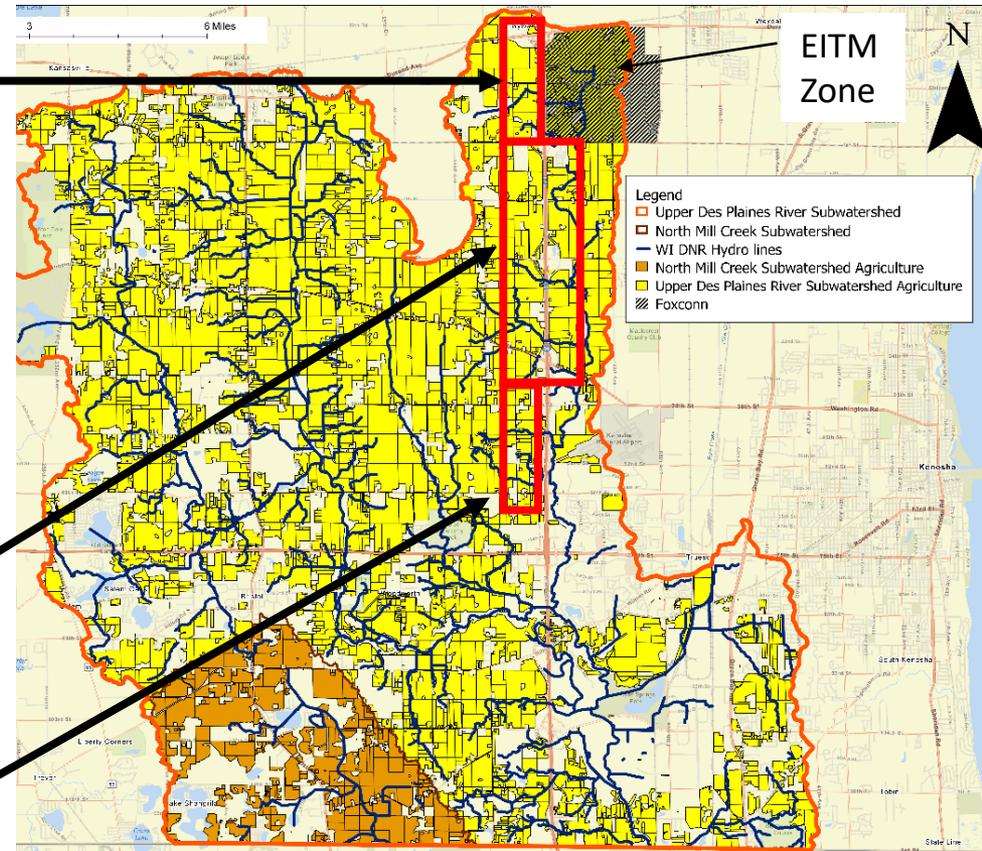


# POTENTIAL DEVELOPMENT CORRIDOR

Des Plaines River Watershed = 57% agricultural (44,873 acres)  
 Kilbourn Road Ditch Subwatershed = 63% agricultural (9,537 acres)



SEWRPC Buildout Land Use



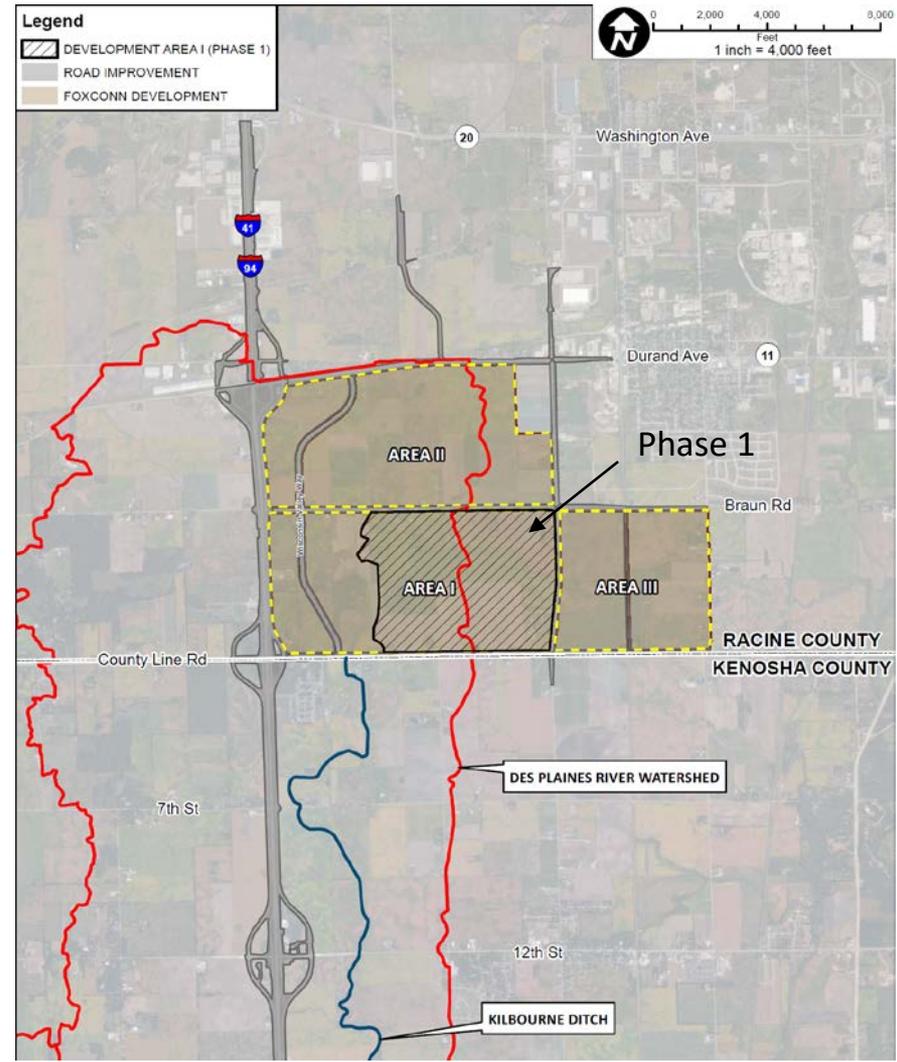
Total additional development potential within ½ mile of I-94 ≈ 5.5 mi<sup>2</sup> (3,520 acres)



Kenosha County 2035 Land Use Plan Map

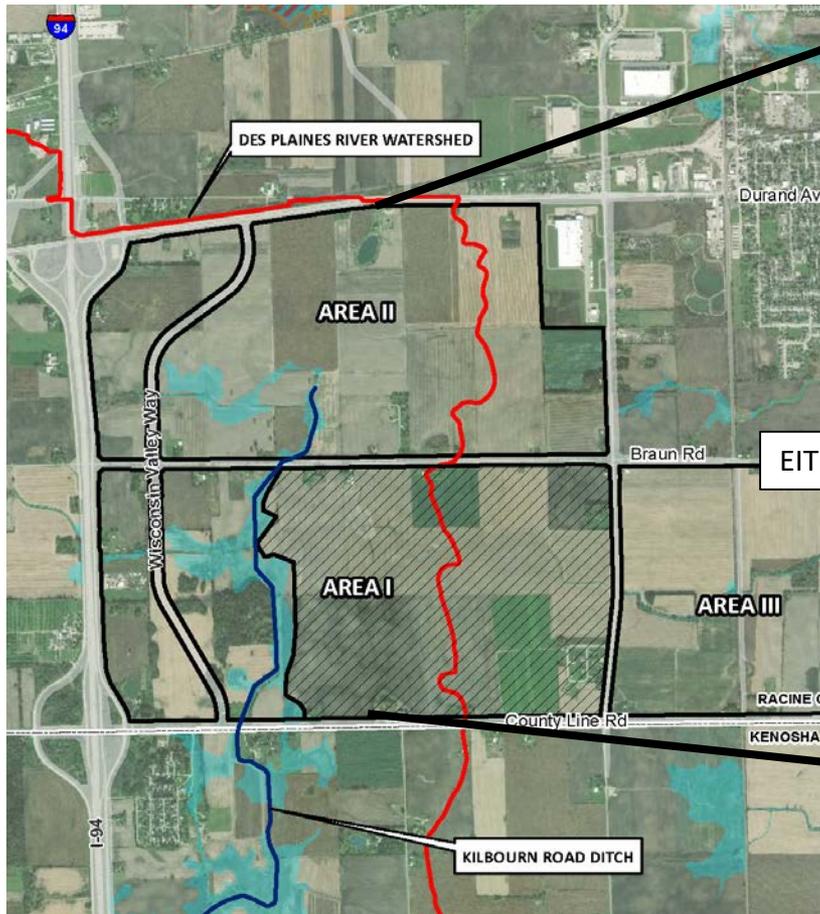
# REVIEW OF FOXCONN DEVELOPMENT MATERIAL

- Areas currently under construction
- Phase 1 within Area I
  - Size = 816 acres
    - Lake Michigan Watershed = 421 acres
    - Des Plaines Watershed = 395 acres
      - 2 Proposed detention basins
      - Avoids floodplain
      - 13.17 acres of wetland impact
- Local Roadway Improvements
  - Des Plaines River Watershed = 148 acres
    - Multiple detention basins
    - Kilbourn Road Ditch – 3 waterway crossings
    - 4.30 acres of wetland/waters impact
- I-94 Improvements
  - Des Plaines River Watershed = 420 acres
    - Multiple detention basins
    - 21.34 acres wetlands/waters impacts

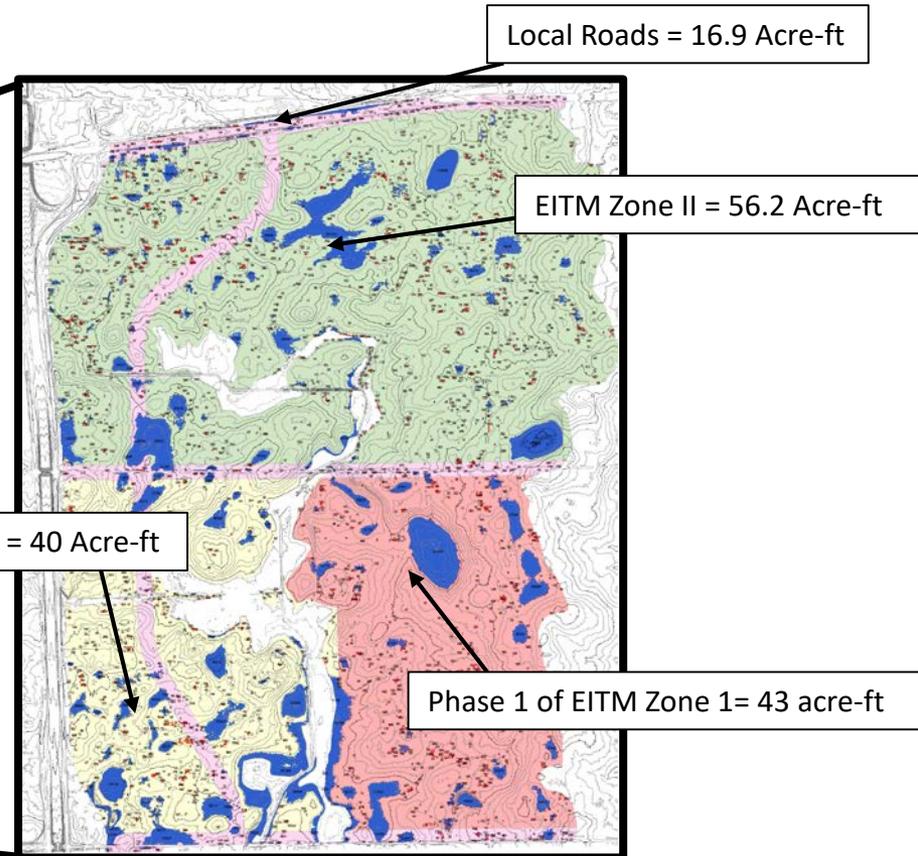


# EXISTING DEPRESSIONAL STORAGE AREAS

Undulating Glacial Topography



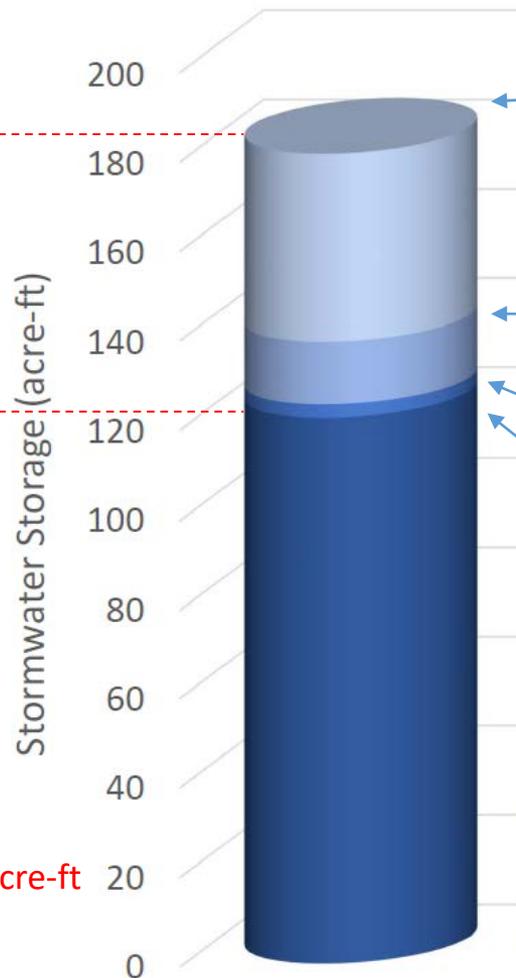
Existing aerial with floodplain in blue



Total Existing Depressional Storage = 156.1 acre-ft  
Phase 1 and Local Roads = 59.9 acre-ft

# STORMWATER DETENTION AND DEPRESSIONAL STORAGE ANALYSIS

Foxconn Phase 1 Area in Des Plaines Watershed (395 acres)



## Lake County SMC Total Storage Requirement

- Existing Depressional Storage (approximately 43 acre feet)
- Base Flood Elevation and Storage dependent on existing drain tiles
- **Total Volume = 182 acre-ft**

## Lake County SMC 100-Year Detention Volume Requirement

- ISWS Bulletin 70 Lake County Rainfall = 6.50 inches
- Release Rate = 0.15 cfs/acre
- Curve Number reflects structurally compacted mass grading
- **Minimum Volume = 139 acre-ft**

## Foxconn Phase 1 Stormwater Detention Design

- Atlas 14 Rainfall = 5.84 inches
- **100-Year Design Volume = 125 acre-ft**

## SEWRPC 100-Year Detention Volume Requirement

- Atlas 14 Rainfall = 5.84 inches
- Release Rate = 0.3 cfs/acre
- **Minimum Volume = 122 acre-ft**

# STORMWATER DETENTION AND DEPRESSIONAL STORAGE ANALYSIS

Foxconn Phase 1 Area and Local Roads in Des Plaines River Watershed

Development Phase	Stormwater Detention Deficit <sup>1</sup> (acre-ft)	Depressional Storage Deficit <sup>2</sup> (acre-ft)	Total Stormwater Detention and Depressional Storage Deficit (acre-ft)
Foxconn Phase 1 (395 acres)	17	43	60
Local Roads (148 acres)	3.4	16.9	20.3
<b>TOTAL</b>	<b>20.4</b>	<b>59.9</b>	<b>80.3</b>

<sup>1</sup> Difference in Mount Pleasant/SEWRPC detention requirements and Lake County requirements

<sup>2</sup> Quantification and compensation for Depressional Storage not required in Wisconsin

# REVIEW OF DES PLAINES RIVER FLOODPLAIN IN WISCONSIN

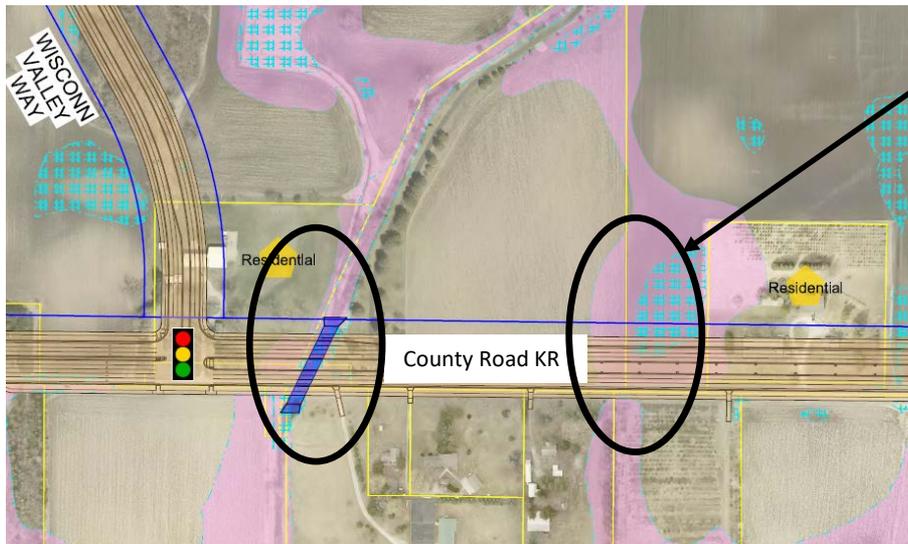
- FEMA published flood flows based on 2003 SEWRPC *“Comprehensive Plan for the Des Plaines River Watershed”*
- HSPF Hydrologic Model utilized Historical Rainfall data from 1940 – 1994
  - Largest rainfall event in series (August 1978) adjusted down
  - 3 of 5 largest 48-hour rainfall events occurred after 1994
  - Largest 10-day rainfall event in May 2004
- 5 largest measured floods at state line occurred after 1994
  - May 2004 = 3,500 cfs
  - July 2017 = 2,830 cfs
- Discrepancy in FEMA flood flows at State Line
  - Wisconsin 100-year flowrate = 2,600 cfs
  - Illinois 100-year flowrate = 3,773 cfs
- U.S. Geological Survey Published Statistical Flowrate = 4,290 cfs
- FEMA flood flows and flood elevations in Wisconsin are underestimated for Des Plaines River
  - Flood map in Wisconsin does not represent actual 100-year floodplain based on recent rainfall
  - Difficult to assess downstream impacts from development for large storm events
  - Floodplain fill from development will be underestimated
  - Flood risk for structures near floodplain in Wisconsin is underestimated



Graphical Representation of Des Plaines River at State Line

# FLOODPLAIN ENCROACHMENTS

- Chicago Collar Counties require compensatory storage for placement of fill in the floodplain
- In Wisconsin, compensatory storage is only required in a “Flood Storage District” – Des Plaines River is not a designated Flood Storage District
  - Floodplain mapping technical analysis meets requirement for Flood Storage District
  - 2003 SEWRPC Study completed prior to Flood Storage District designations
- Local Road Improvements require fill in Kilbourn Road Ditch Floodplain
  - New/Widened Culverts at Braun Road, County Highway KR, Wisconsin Valley Way
  - Total Floodplain Fill = 10.7 acre-ft without compensatory storage
  - Fill volume at the 100-year flood elevation is larger due to underestimated floodplain

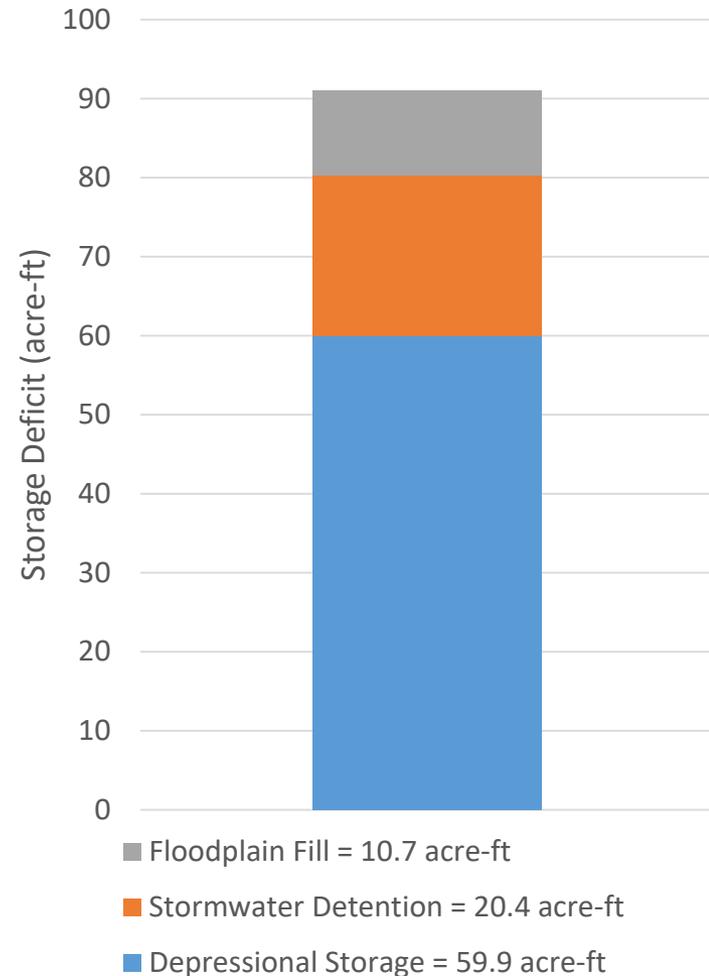


Floodplain Fill at County Highway KR  
due to roadway widening

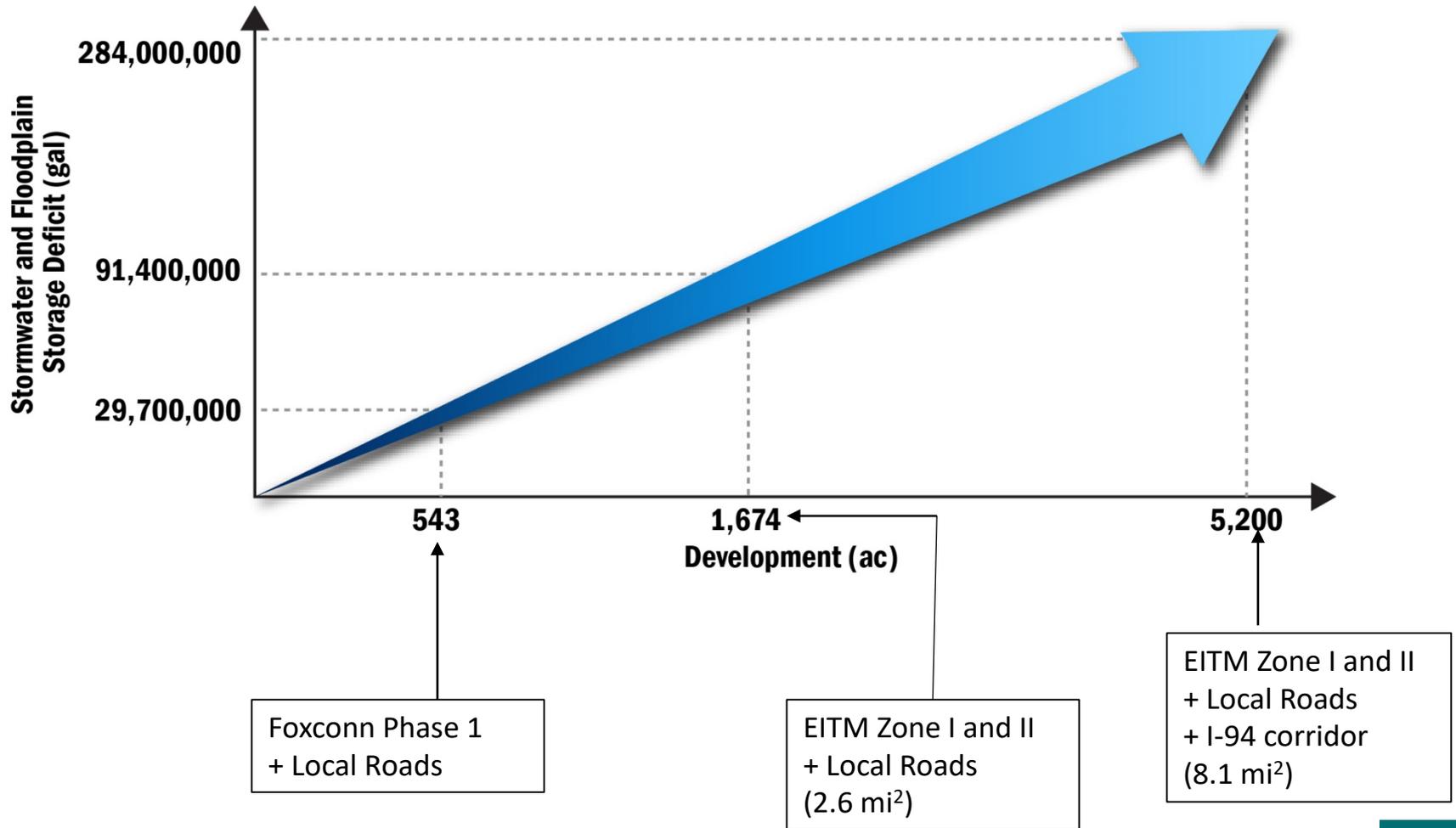
Exhibit of County KR Expansion with Kilbourn  
Road Ditch Floodplain shown in pink

# TOTAL STORMWATER AND FLOODPLAIN STORAGE DEFECIT

- Deficit compares estimate of what would be required in Lake County, IL vs. Wisconsin requirements
- Summation of:
  - Stormwater detention deficit
  - Depressional storage deficit
  - Floodplain fill deficit
- Deficit = 91 acre-ft for 543 acres of Foxconn Phase 1 and Local Road Development
- Equates to 54,600 gallon deficit for every acre of land developed



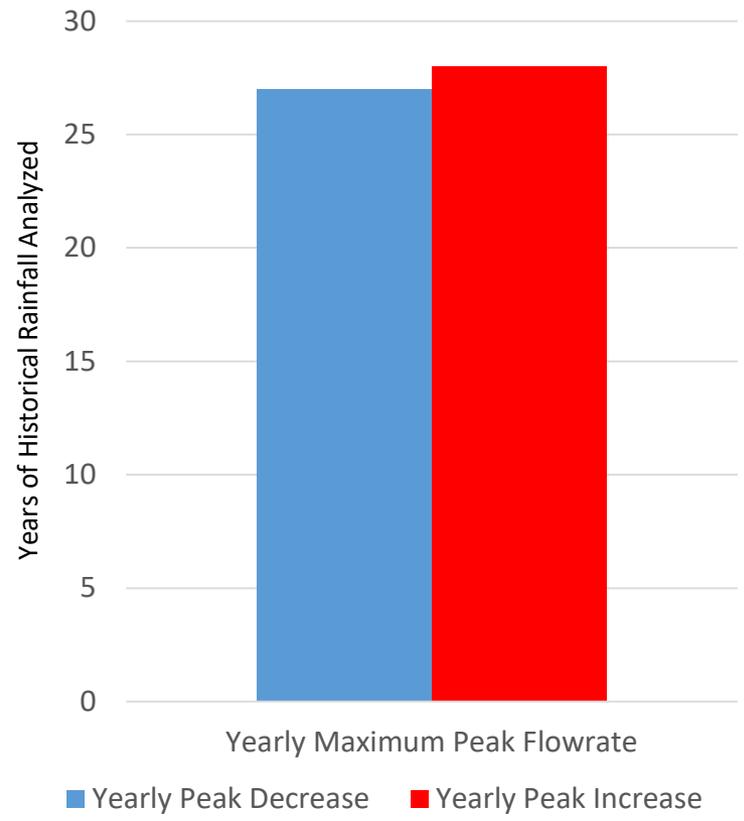
# PROJECTING THE DEFICIT FORWARD



# 2017 SEWRPC EVALUATION OF EITM ZONE DEVELOPMENT

- 2018 SEWRPC Study evaluated EITM Zone effect on Kilbourn Road Ditch flood flows
  - Utilized HSPF Hydrologic Model from 2003 Watershed Study
  - Analyzed impacts to Kilbourn Road Ditch from development using 1940-1994 historic rainfall
  - Peak flowrate for each of 55 years statistically analyzed 2-year and 100-year return interval flood flows in headwaters of Kilbourn Road Ditch
- CBBEL review of SEWRPC Analysis:
  - No large storm events analyzed
  - Volume of floodwater increases from development
  - Model output at downstream reach shows that yearly maximum peak flowrate would have increased in 28 of the 55 years analyzed (>50%)

Kilbourn Road Ditch Hydrologic Model Results at Confluence with Des Plaines River



# SOIL EROSION AND SEDIMENT CONTROL

According to the Illinois Environmental Protection Agency (IEPA), the Des Plaines River in Illinois south of the state line is impaired for “Sedimentation/Siltation, Total Suspended Solids (TSS)” with a potential source listed as “Site Clearance (Land Development or Redevelopment)”



Foxconn Phase 1 Construction Site – September 6, 2018



Confluence of Kilbourn Road Ditch and Des Plaines River - September 6, 2018

# SOIL EROSION AND SEDIMENT CONTROL

- Challenges
  - Large land area under construction
  - Linear roadways with waterway crossings
- Deficiencies
  - Site stabilization
  - Construction sequencing
  - Sediment basins
- WDNR Citation Issued September 14, 2018
  - Failure “to implement or maintain erosion control ...during the period of permit coverage”

## Natural Resources Citation State of Wisconsin

Form 4100-070E, Rev. 11-12  
Section 23.54, Wis. Stats.

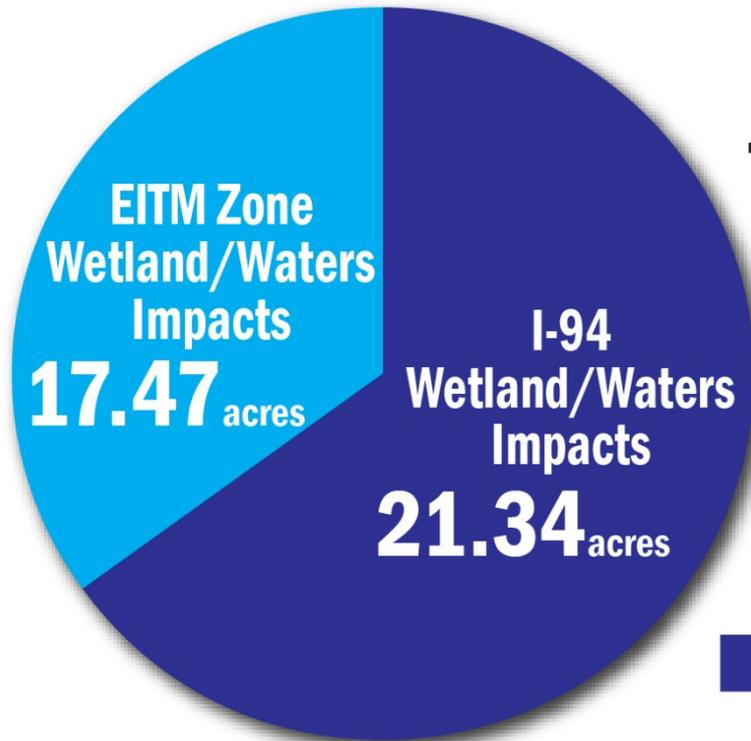
<b>Defendant:</b> Customer ID _____ Telephone Number _____ Birth Date _____ Sex _____ Race _____ Height _____ Weight _____ Hair _____ Eye _____ Driver License Number _____ State of Issuance _____  <b>FEWI DEVELOPMENT CORPORATION</b> 611 EAST WISCONSIN AVE MILWAUKEE, WI 53202		Citation No. <b>D650C713PN</b> Deposit Permitted: <b>\$1,159.50</b> Date of Violation <b>09/14/2018</b> Day of Week <b>8 - FRIDAY</b> Time of Violation <b>12:00 PM</b> County of Violation <b>RACINE - 52</b> Town-City-Village <b>MOUNT PLEASANT -60, VILLAGE</b>
In violation of _____ Section <b>NR216.46(1)</b> Ordinance _____		Violation: <b>FAIL TO IMPLEMENT OR MAINTAIN EROSION CONTROL BMPs DURING THE PERIOD OF PERMIT COVERAGE</b> Offense Code <b>E13</b>
On the Above Stated Time, Date and Location, the Defendant: <b>WAS OBSERVED BY PETE WOOD, DNR STORM WATER ENGINEER, DURING AN EROSION CONTROL INSPECTION AT WISCONN VALLEY SCIENCE TECHNOLOGY PARK PHASE 1 CONSTRUCTION SITE, CTH H, MOUNT PLEASANT WI, ON 9/14/2018. DURING THIS INSPECTION IT WAS DETERMINED THAT THE CONSTRUCTION OF POND C WAS NOT COMPLETED PRIOR TO GRADING THE SURROUNDING DRAINAGE AREA AS REQUIRED BY THE EROSION CONTROL PLAN.</b>		
Officer Name <b>WARD B. LATZA</b>	Officer ID Number <b>000800273</b>	Officer Department <b>NATURAL RESOURCES</b>
You are notified to Appear Date <b>11/15/2018</b> Time <b>02:00 PM</b>		Maximum Penalty for this Violation <b>\$14,737.50</b>
Court Name / Address <b>RACINE COUNTY CIRCUIT COURT</b> <b>717 WISCONSIN AVE</b> <b>RACINE, WI 53403</b>		The court may also revoke approvals, confiscate evidence and require restitution or restoration of any environmental damage.
Appearance Required <b>N</b> (Read Instruction Sheet for Details)		
<b>Stipulation</b> I, the undersigned, am the defendant named on this citation, and do stipulate no contest to the offense and waive my rights to a trial. I understand that if the court accepts this stipulation, it may find me guilty and impose the "Deposit Permitted" amount indicated on the citation. I further understand that any equipment, wild animal or objects seized as evidence may be confiscated by the court. I have read and understand these instructions.		
_____ Signature of Defendant		_____ Date Signed
To Mail a Deposit A deposit of <b>\$1,159.50</b> may be made by mailing a check or money order to the Court listed above.		



# SUMMARY OF WETLAND IMPACTS AND MITIGATION

- Foxconn - Phase 1 and Local Roads Isolated Wetland impacts
  - **17.47 acres of impact within the Des Plaines River Watershed**
    - Phase 1 = 13.17 acres of impacts
    - Local Roads = 4.30 acres of impacts
- All wetlands within EITM site to be compensated via “fee in lieu” credit purchase at a 2:1 replacement ratio
  - Phase 1 wetland mitigation in Des Plaines River Watershed
    - 13.17 acres x 2 = 26.34 acres of mitigation purchased at a cost of **\$61,000** per credit. Total cost approximately **\$1,606,740**
  - Local Road wetland mitigation in Des Plaines River Watershed
    - Mitigation to be provided at 2:1 ratio
    - Mitigation sites are not yet determined
    - Two RFPs have been issued to create mitigation site(s)
    - Mitigation must be within state of Wisconsin per statute
    - No suitable sites submitted to date
- Phase 1 Mitigation cost following WDO standard fee amount
  - If purchased via LC standard, the total cost equals **\$2,631,366**
    - **Difference of \$1,024,626**
  - **Concern noted to WNDR: rising land value in DP Corridor may hinder mitigation locally.**
- I-94 Wetland/Waters Impacts (WisDOT)
  - 21.336 acres of impact (USACE and Isolated)
  - 21.575 acres of mitigation provided in WisDOT wetland mitigation banks (**all being mitigated out of Des Plaines River Watershed**)

# WETLAND IMPACT OVERVIEW



**Total Impacts to Date =  
38.81 acres**

 To be mitigaged at 2:1 ratio in Upper Illinois Basin - Fox or Des Plaines River Watershed.

 To be mitigaged out of Des Plaines River Watershed.

# RECOMMENDATIONS

1. Complete comprehensive hydrologic and hydraulic re-study of Des Plaines River Watershed that spans the Illinois-Wisconsin border.
  - a) The study should be completed with the most current data and state-of-the-art modeling software and calibrated to recent large storm events.
  - b) This process should be led by each state's FEMA Cooperating Technical Partner (CTP) with extensive stakeholder involvement – Illinois State Water Survey and Wisconsin Department of Natural Resources.
  
2. The Des Plaines River should immediately be made a Flood Storage District in Wisconsin.
  - a) Hydraulically equivalent compensatory storage should be required for fill in the floodplain.
  - b) The compensatory storage requirement should apply to all projects where floodplain fill occurs, including all roadway projects (local and WisDOT).
  
3. The existing depressional storage on each site should be quantified and compensated for as part of the site development stormwater management plan.

# RECOMMENDATIONS

4. Future development within the Des Plaines River Watershed should be required to provide stormwater detention to meet a 0.15 cfs/acre release rate to be consistent with Lake County regulations.
5. Mitigation for fill of wetlands and Waters of the U.S. in the Des Plaines River Watershed should be provided within the Watershed.
  - a) No net loss of wetland/waters in the Des Plaines River Watershed.
  - b) Includes WisDOT projects and the WWCT ILF mitigation for impacts in the EITM Zone.
  - c) The cost per credit for ILF mitigation should be re-evaluated to ensure that the fee is appropriate to fund land cost, maintenance, monitoring and long-term stewardship.
6. To prevent further water quality degradation of the Des Plaines River from construction activities:
  - a) Require comprehensive soil erosion and sediment controls on all construction sites
  - b) Implement rigorous enforcement inspections to verify compliance
  - c) Issue violations and utilize available legal and financial tools as necessary to achieve compliance
  - d) These controls should apply to all public and private developments as well as linear projects such as roadways

LAKE COUNTY STORMWATER MANAGEMENT  
COMMISSION UPPER DES PLAINES RIVER WATERSHED  
IMPACT STUDY Report, Executive Summary and  
PowerPoint can be viewed and downloaded at:

[https://www.lakecountyiil.gov/553/Stormwater-  
Management-Commission](https://www.lakecountyiil.gov/553/Stormwater-Management-Commission)

PUBLIC COMMENT PERIOD IS OPEN UNTIL APRIL 8TH,  
2019. PLEASE SEND YOUR COMMENTS TO:  
stormwater@lakecountyiil.gov