Welcome to the Meeting!
We will begin shortly…

Virtual Meeting Schedule	
6:00 – 6:15	Welcome
6:15 – 6:55	Presentation
6:55 – 7:10	Presentation Q & A (General)
7:10 – 7:45	Focus Group Discussions/Zoom Breakout Rooms
7:45 – 8:00	Come Back Together/Wrap-Up

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Wingra West Watershed Study Public Information Meeting No. 2

by City of Madison Engineering Division

July 23, 2020

Please Note: This meeting is being recorded. It is a public record subject to disclosure.
By continuing to be in the meeting, you are consenting to being recorded and consenting to this record being released to public record requestors.

DISCLAIMER

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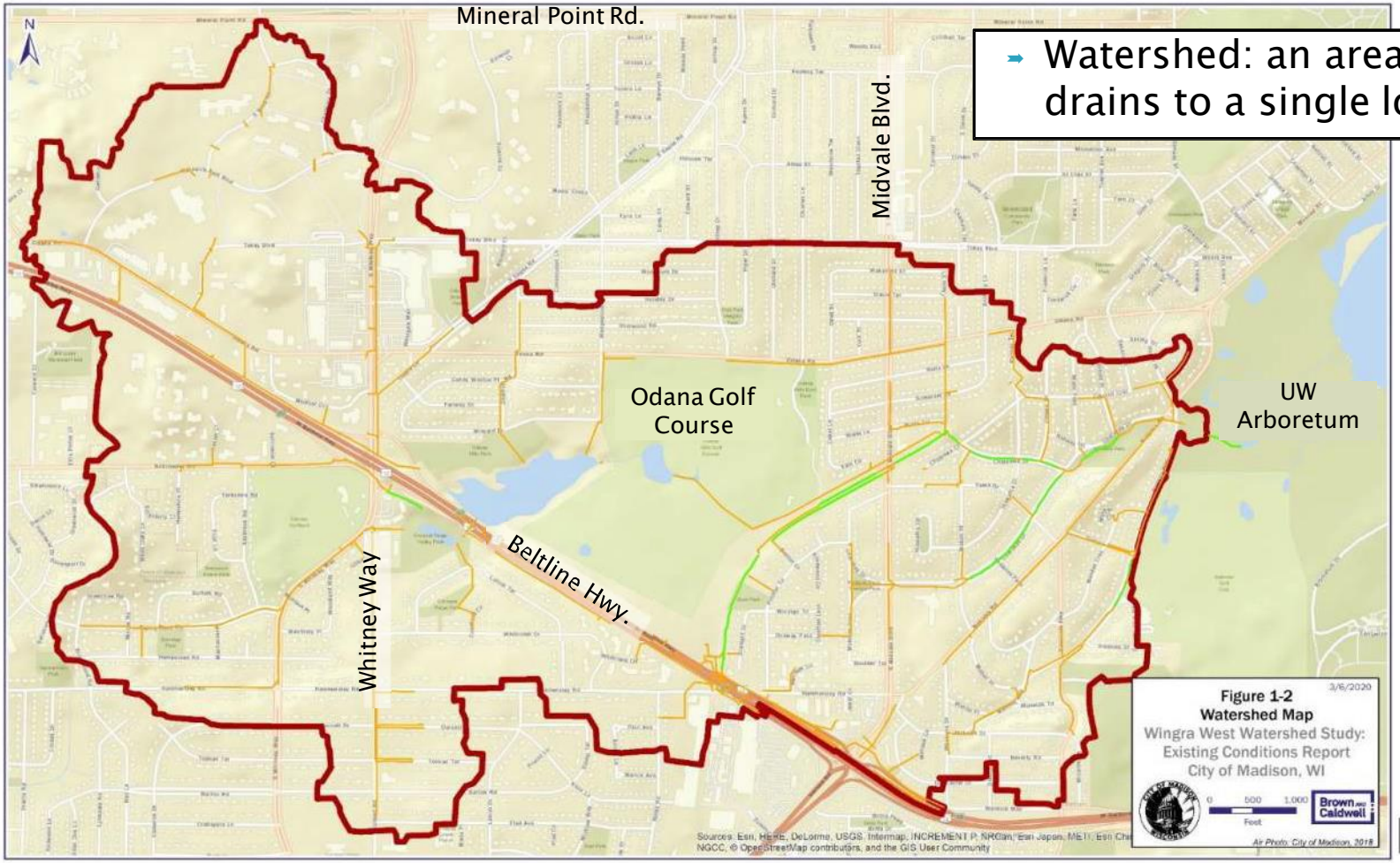
Evening Overview

- Welcome (Hannah Mohelnitzky, City of Madison)
- Presentation (Mike Wegner, Brown and Caldwell)
- Q&A (facilitated by Hannah Mohelnitzky, City of Madison)
  - Submit questions through Zoom Q&A
    - To find the Zoom Q&A Box, hover over the edge of your screen. A toolbar will appear and you can click on “Q&A”
  - Questions answered at the end of the Presentation
- Wrap Up (Hannah Mohelnitzky, City of Madison)
- Breakout to Focus Groups (City of Madison and Brown and Caldwell staff)
  - A link for the Focus Groups will be posted in the Zoom Group Chat box.

Presentation Overview

- Definitions of Terms
- Outreach to Date
- Project location
- Building the Stormwater Model
- Results of Existing Conditions Model
- Next steps
- Challenges to Implementation
- Break Out to Small Groups (Focus Groups)

Definitions: Watershed

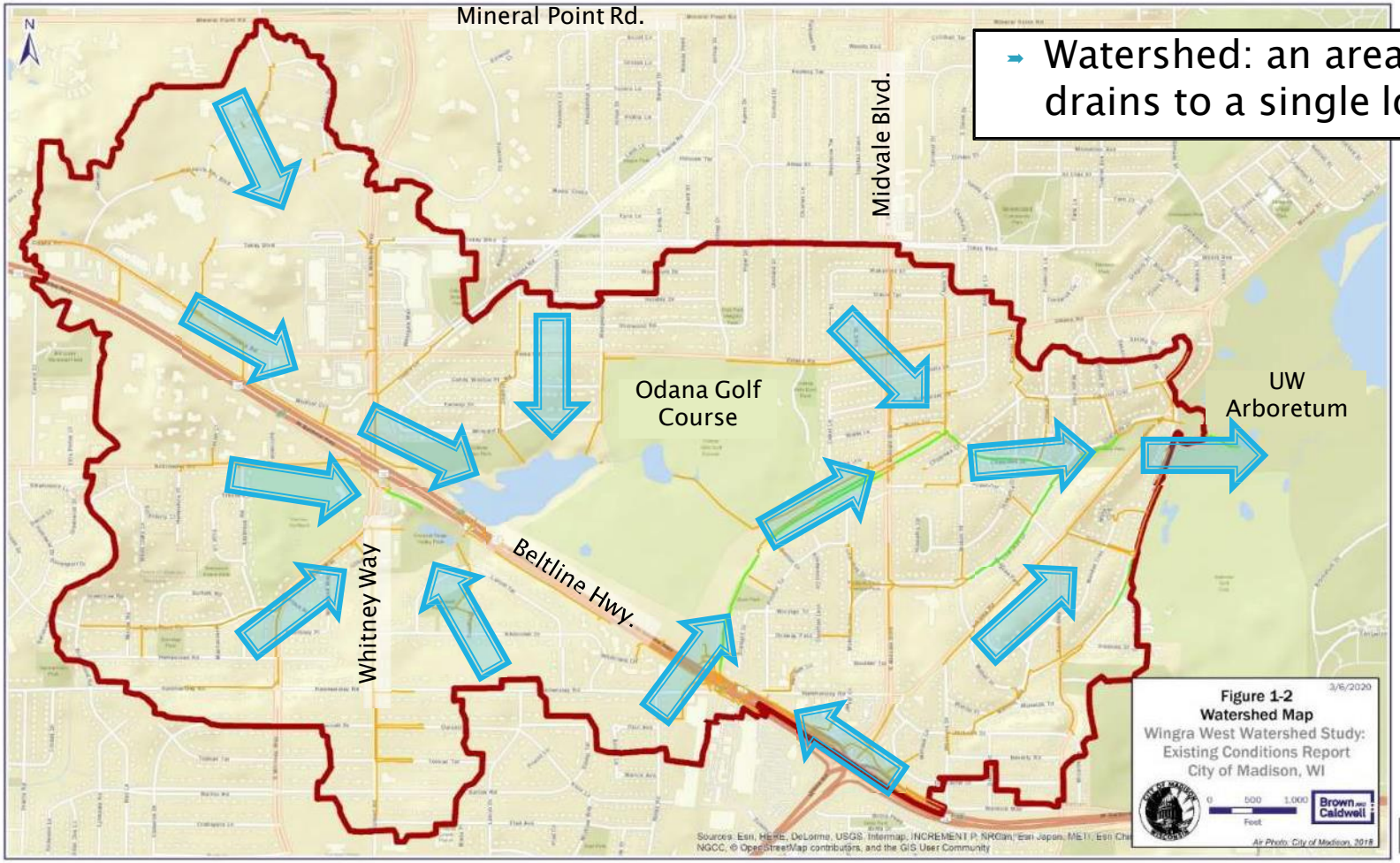


- Watershed: an area of land that drains to a single location

Wingra West Project Area

MADISON

Definitions: Watershed



- Watershed: an area of land that drains to a single location

Wingra West Project Area

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Definitions: Stormwater Runoff

- Stormwater runoff: rainwater that does not soak into the ground
  . . . Too much, too fast causes flooding

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Definitions: Stormwater Inlet

- Stormwater inlets: grates in the ground that take in stormwater runoff; connected to underground pipes

. . . many shapes and sizes

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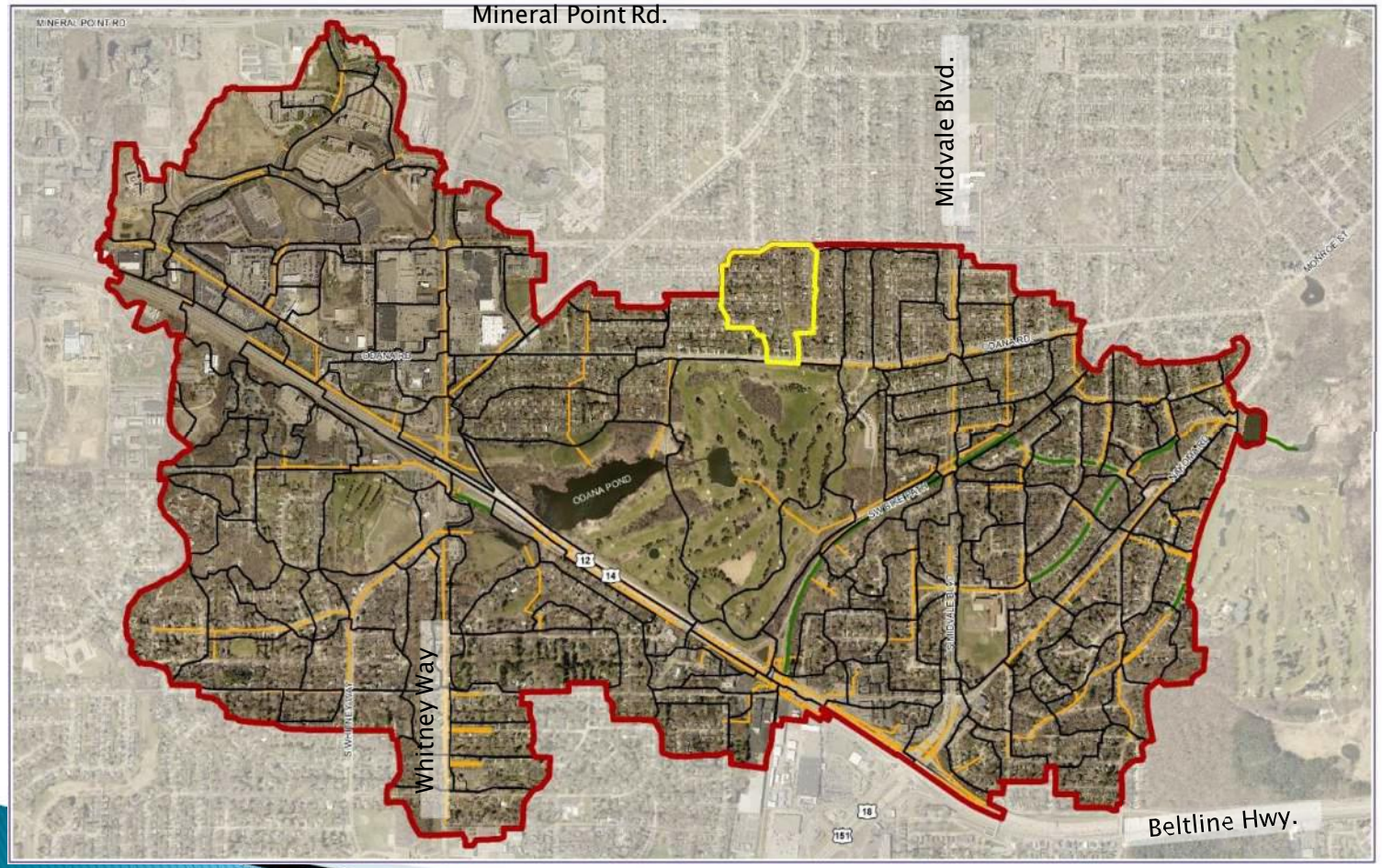
Definitions: Detention Ponds

- Detention ponds: constructed ponds designed to hold stormwater runoff to improve water quality and/or help prevent flooding

Secret Pond
(east of Manitou Way)

UW Research Park – Southwest
(north of Tokay Blvd)

Definitions: Subcatchments or Subwatersheds



- Subcatchments or Subwatersheds: smaller drainage areas within a watershed

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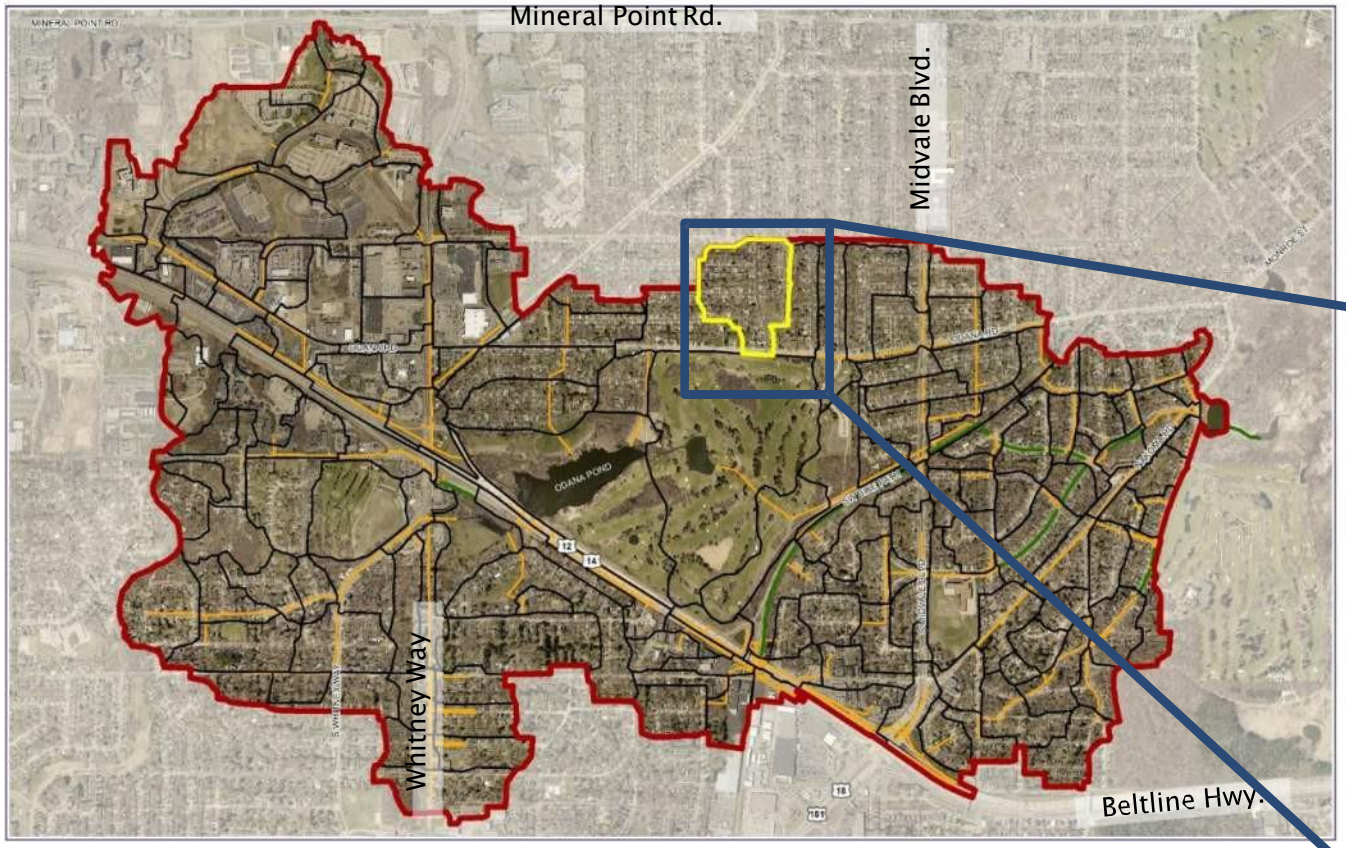
Definitions: Subcatchments or Subwatersheds



- Subcatchments or Subwatersheds: smaller drainage areas within a watershed

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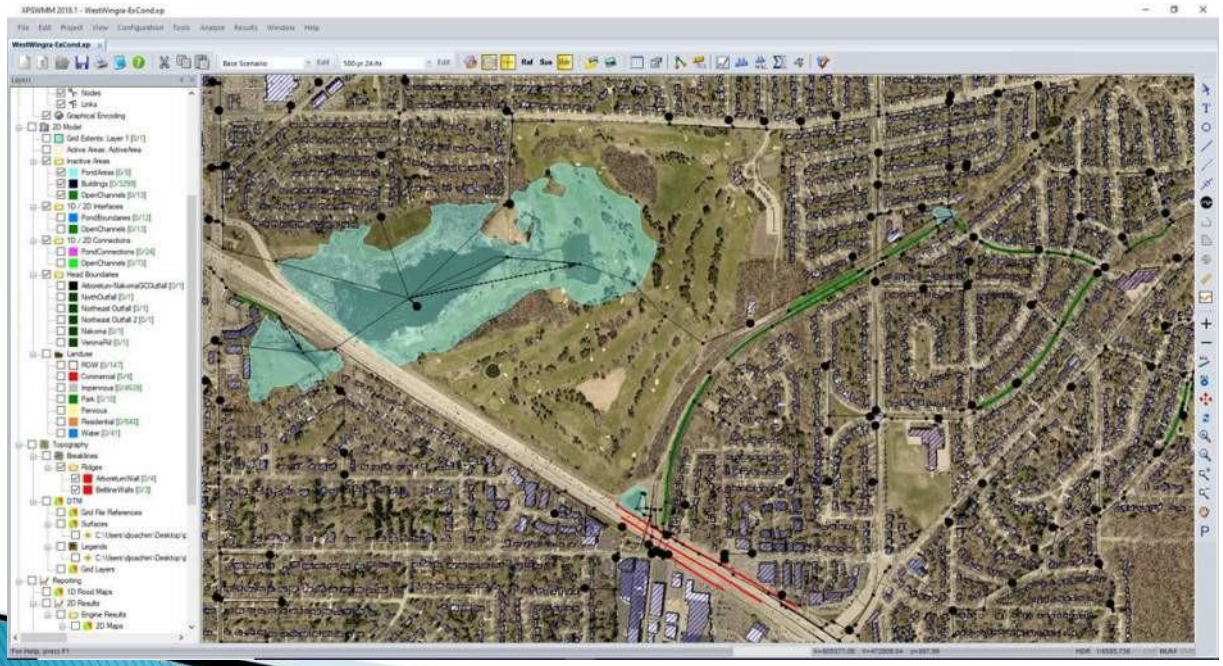
Definitions: Hydrology, Hydraulic, & Model

- Hydrology: runoff moving over the ground before reaching a channel or inlet
- Hydraulic: runoff moving in a channel or pipe
- Model: computer software that simulates rainfall, hydrology, and hydraulics.



Computer Model of an area of Wingra West Watershed

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Definitions: Data Logger

- Level loggers: monitoring equipment used to measure water level in a pond, channel, storm sewer, etc.

Courtesy www.trimblewater.com

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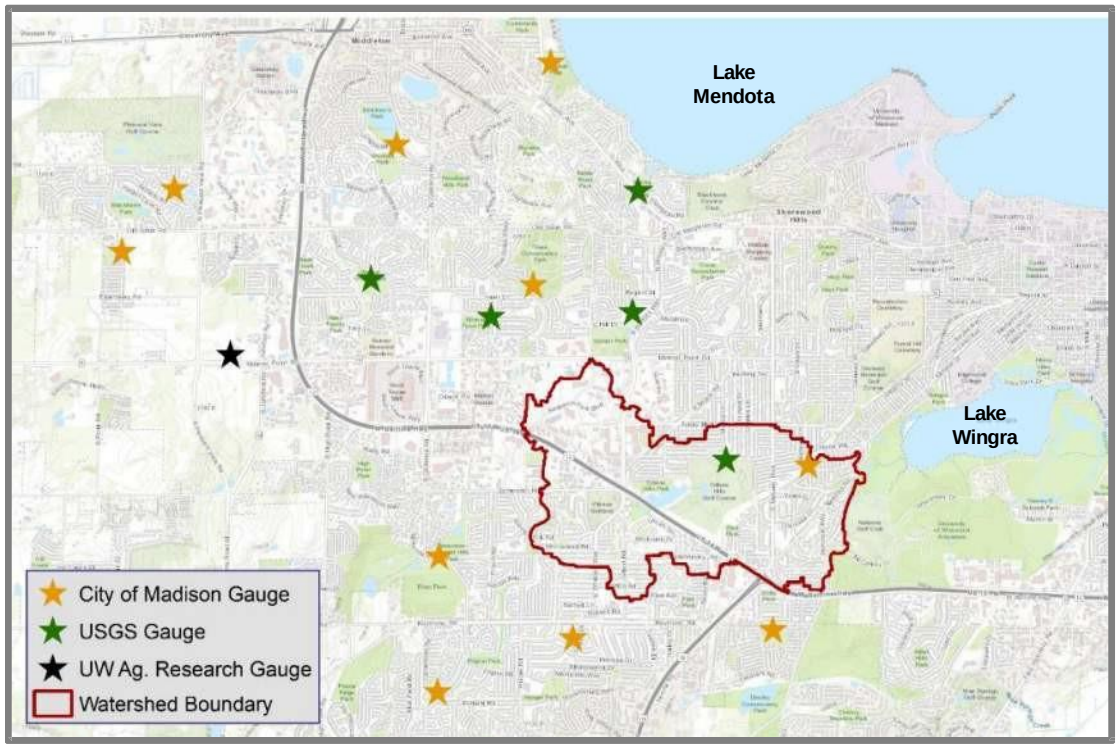
Definitions: Rain Gauge

- Rain gauges: measure depth and time of rain event



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Outreach To Date

- Public Information
  - Public Meeting #1: May, 2019

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Outreach To Date

- Public Information
  - Public Meeting #1: May, 2019
  - Focus Groups:
    - 5 Meetings: June – Sept. 2019

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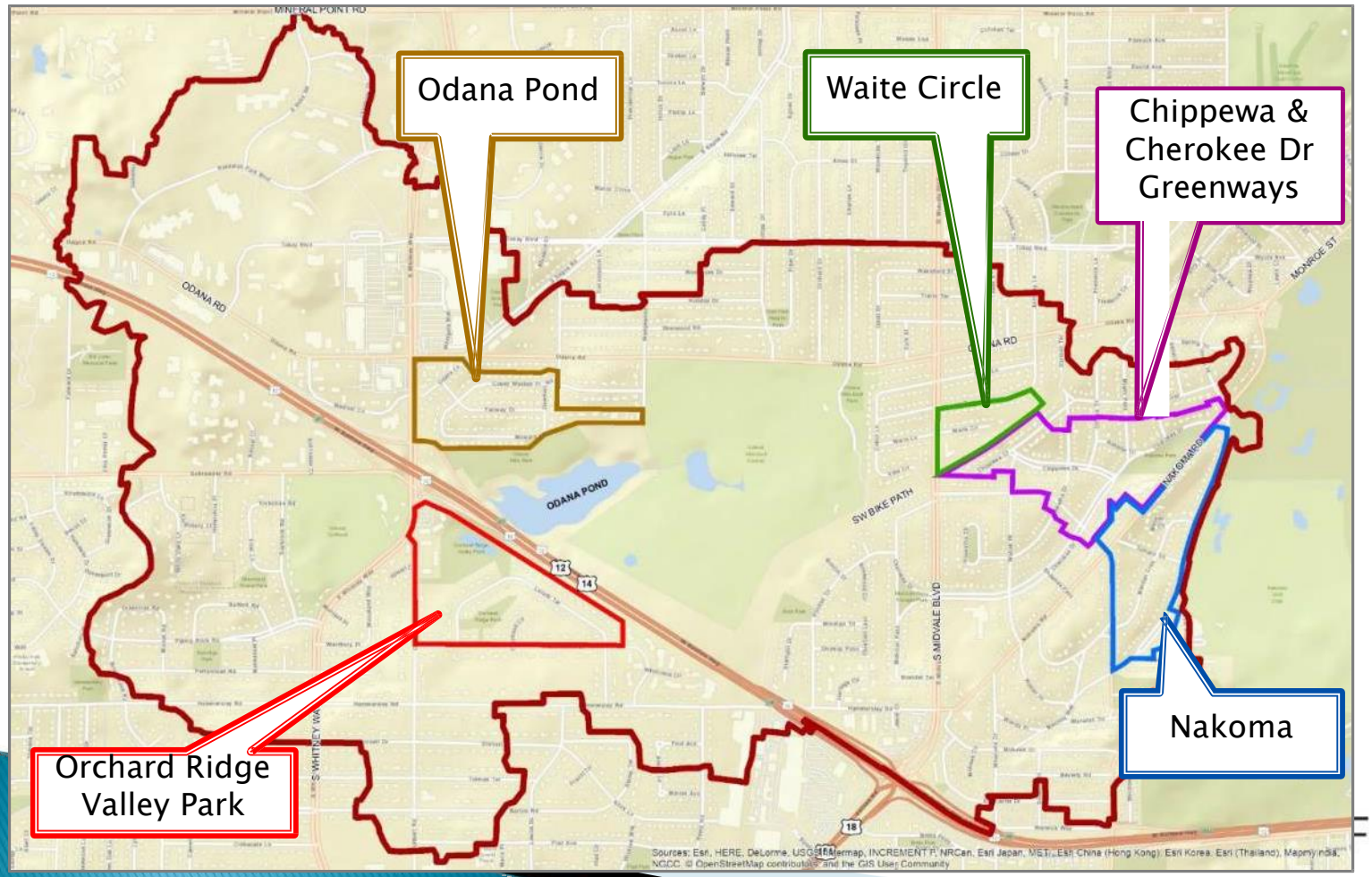
Outreach To Date (Focus Groups)



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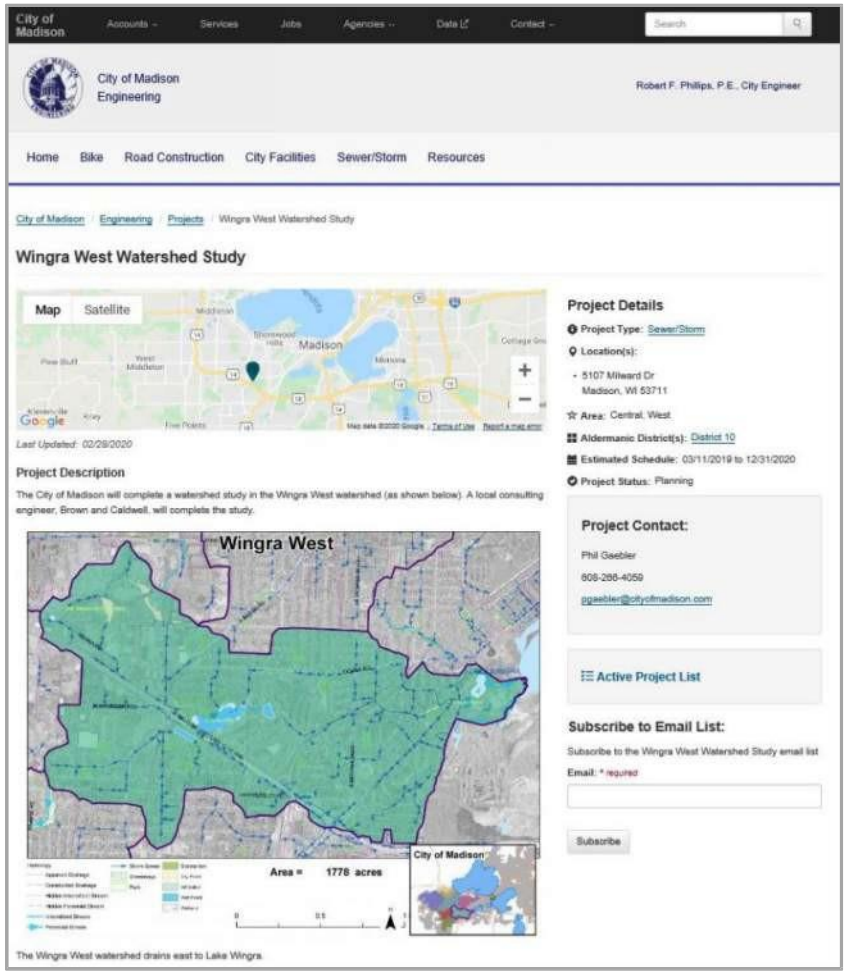
Outreach To Date

- Public Information
  - Public Meeting #1: April, 2019
  - Focus Groups:
    - 5 Meetings: Aug. – Sept. 2019
  - Project website / project updates

https://www.cityofmadison.com/engineering/projects/wingra-west-watershed-study



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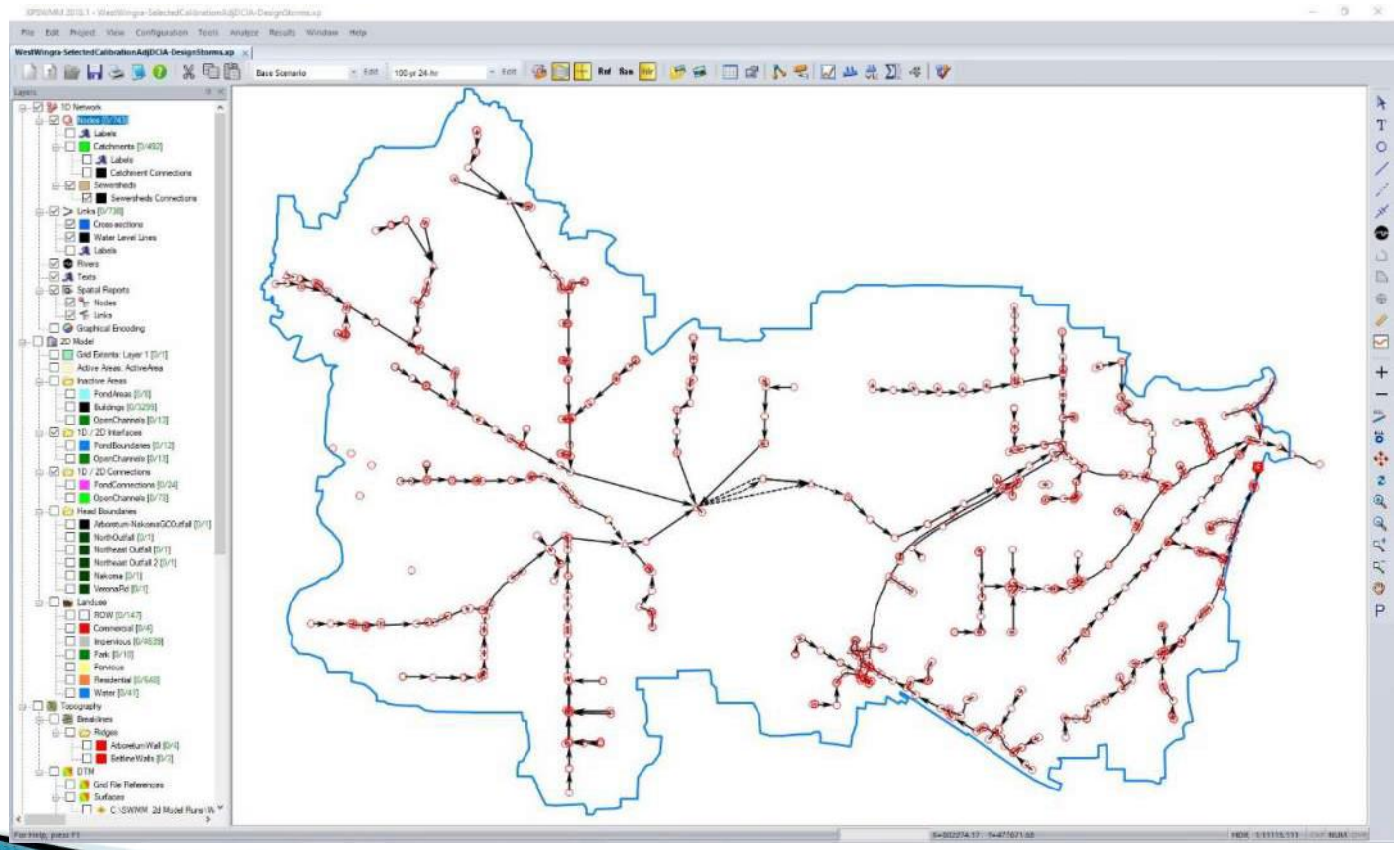
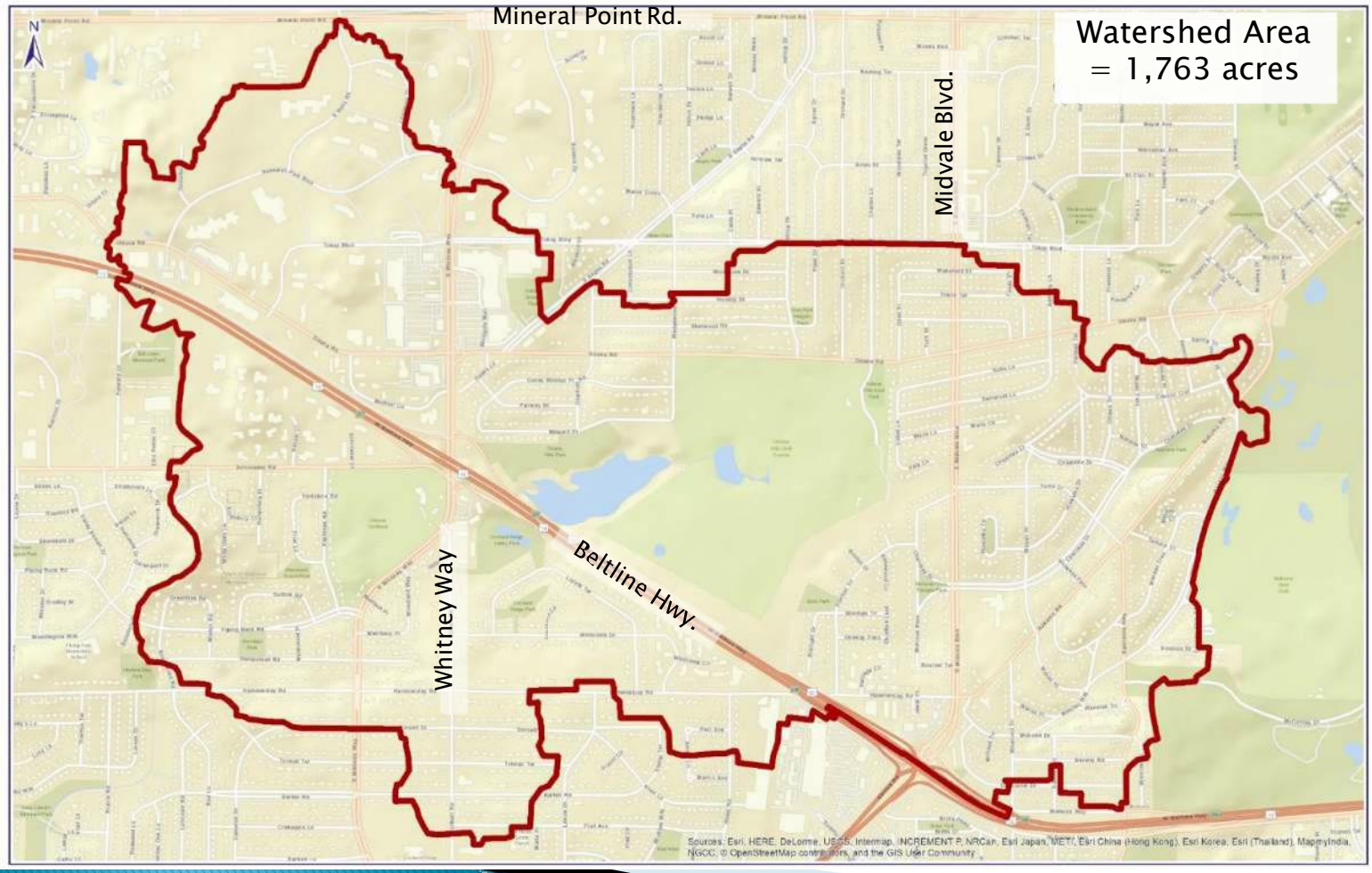
Outreach To Date

- Media – television, radio, Facebook, Twitter, Podcast
  - Coverage about Watershed studies on local TV, State Journal, and Cap Times
  - Flooding awareness, education posts, photos and videos from focus groups on social media
  - Two podcast episodes on Everyday Engineering: Historic Flooding, Watershed studies

Existing Conditions Model Construction



Building the Model: Data Collection



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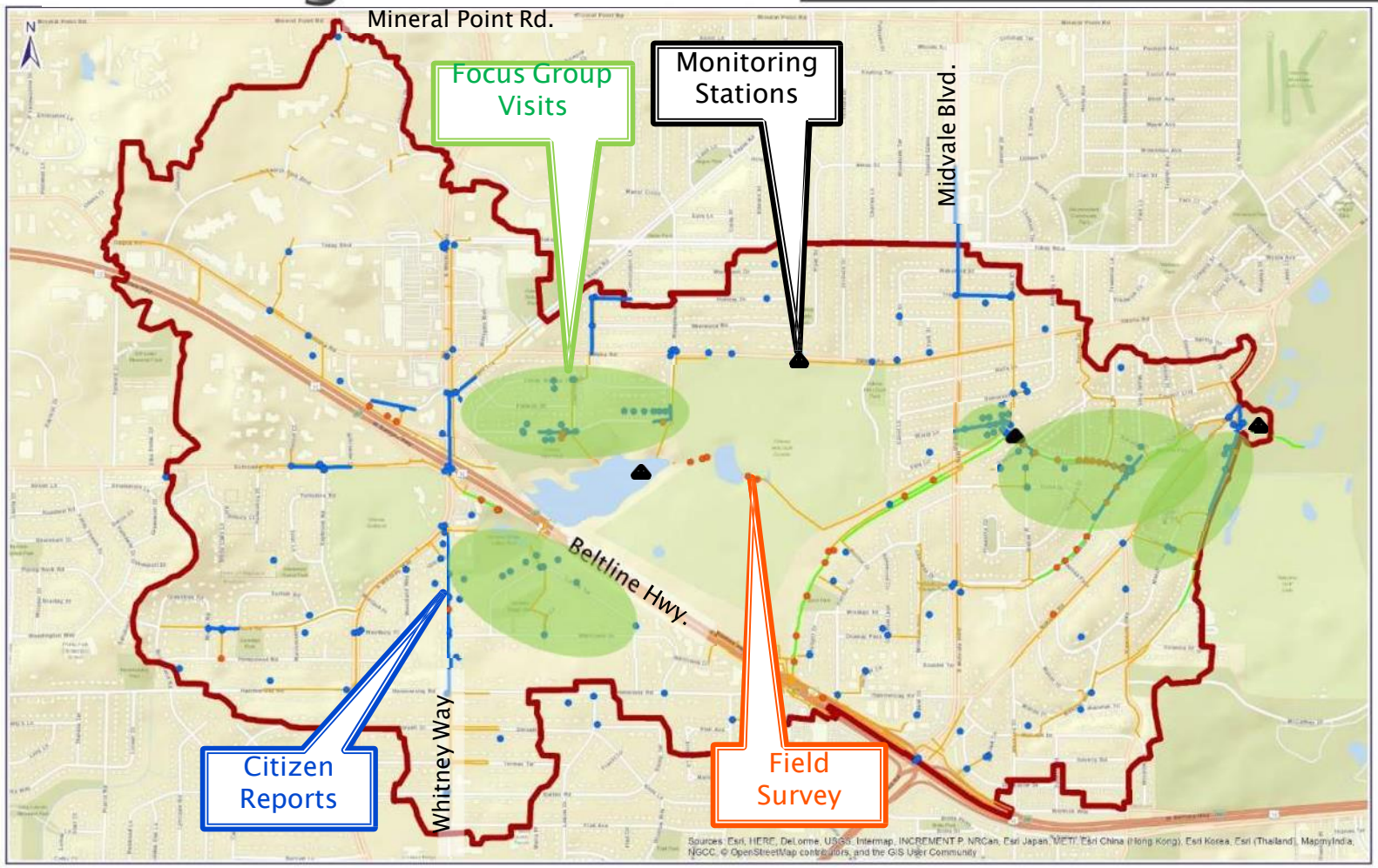
Building the Model: Data Collection



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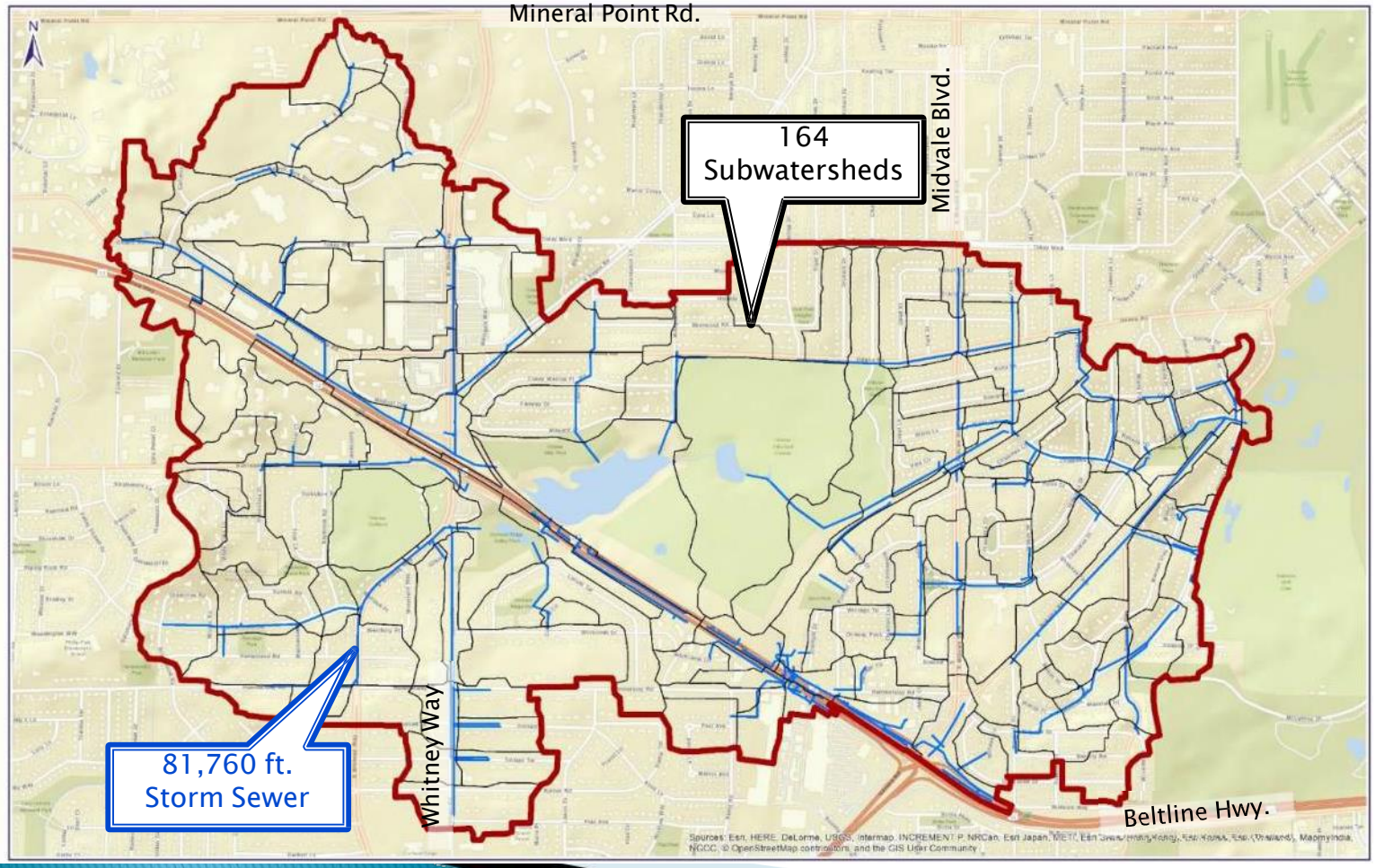

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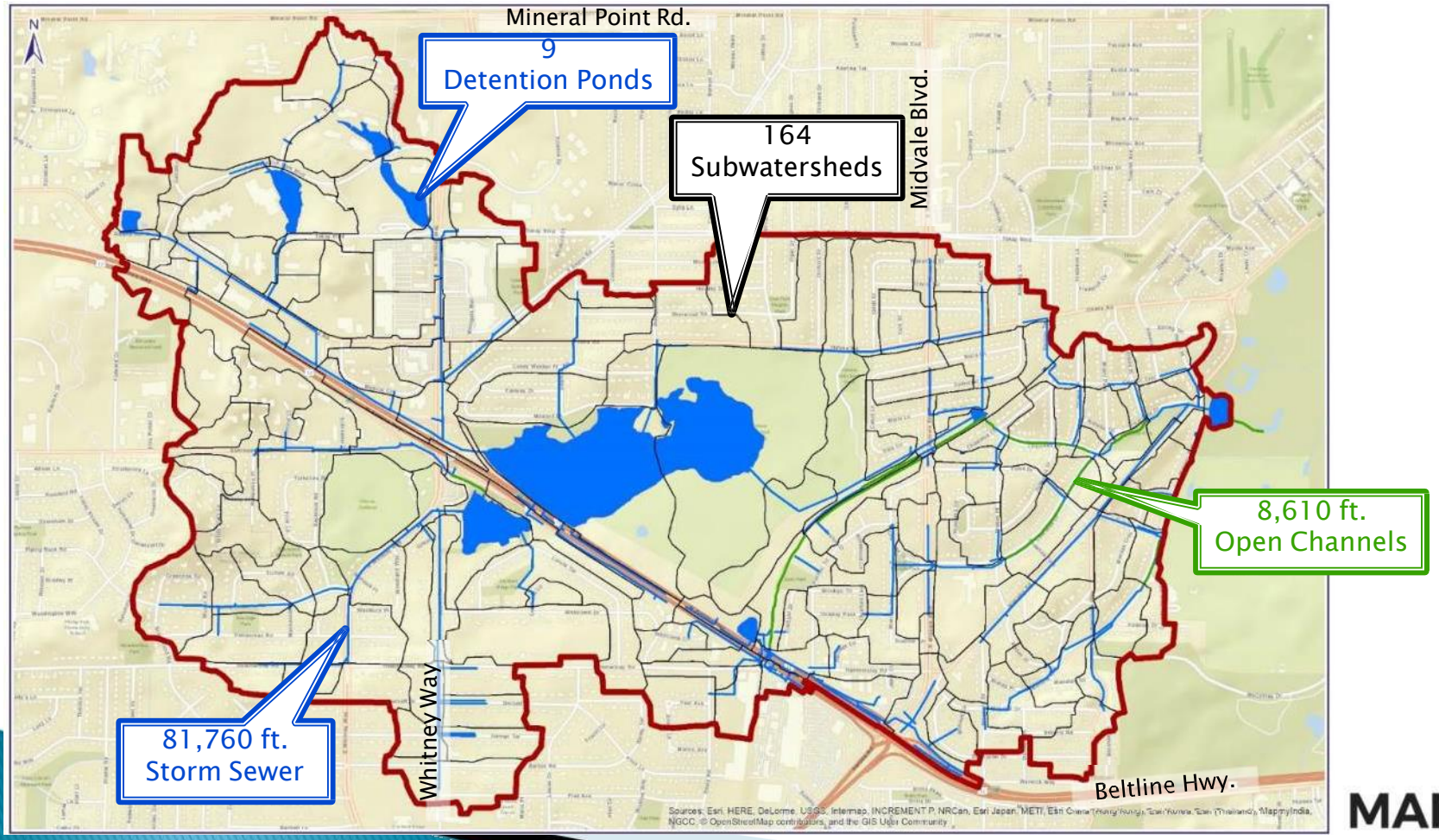
Building the Model: Data Collection



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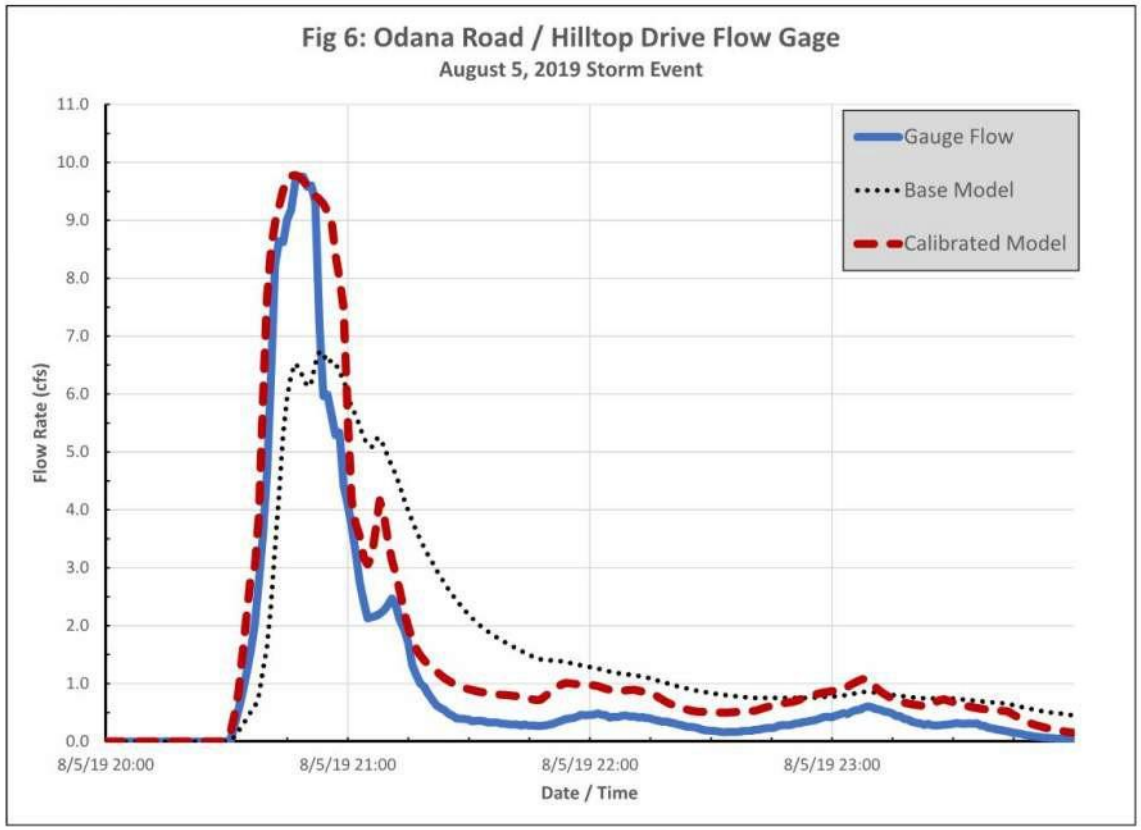
Building the Model: Stormwater System

Item	Quantity
Watershed Area	1,763 acres
Number of Subwatersheds	164
Storm sewer pipes in Model	81,760 ft.
Open channels in Model	8,610 ft.
Detention Ponds in Model (#)	9

Building the Model: Groundwater Considerations

- Ample evidence that groundwater levels have increased and cause basement / sump pump problems.
- Model accounts for several surface water/groundwater interactions
  - Type of soil (sandy, silty, clayey, wetland, etc.)
  - Soil wetness before storms (antecedent moisture conditions)
  - Depressions / ponding areas
  - Surface infiltration
- Groundwater does not appear to have substantial effect on large flooding events
  - On a watershed scale, groundwater flow appears minimal during non-runoff periods.
  - Sump pump flows are small compared to storm sewer pipe capacity.
  - High groundwater levels result from long term rain, not single large storms.
  - The City's efforts for this project are on large storm flood mitigation.
  - Model will not resolve sump pump problems.

Model Results: Calibration



Calibration compares model results to monitored results and adjusting model parameters

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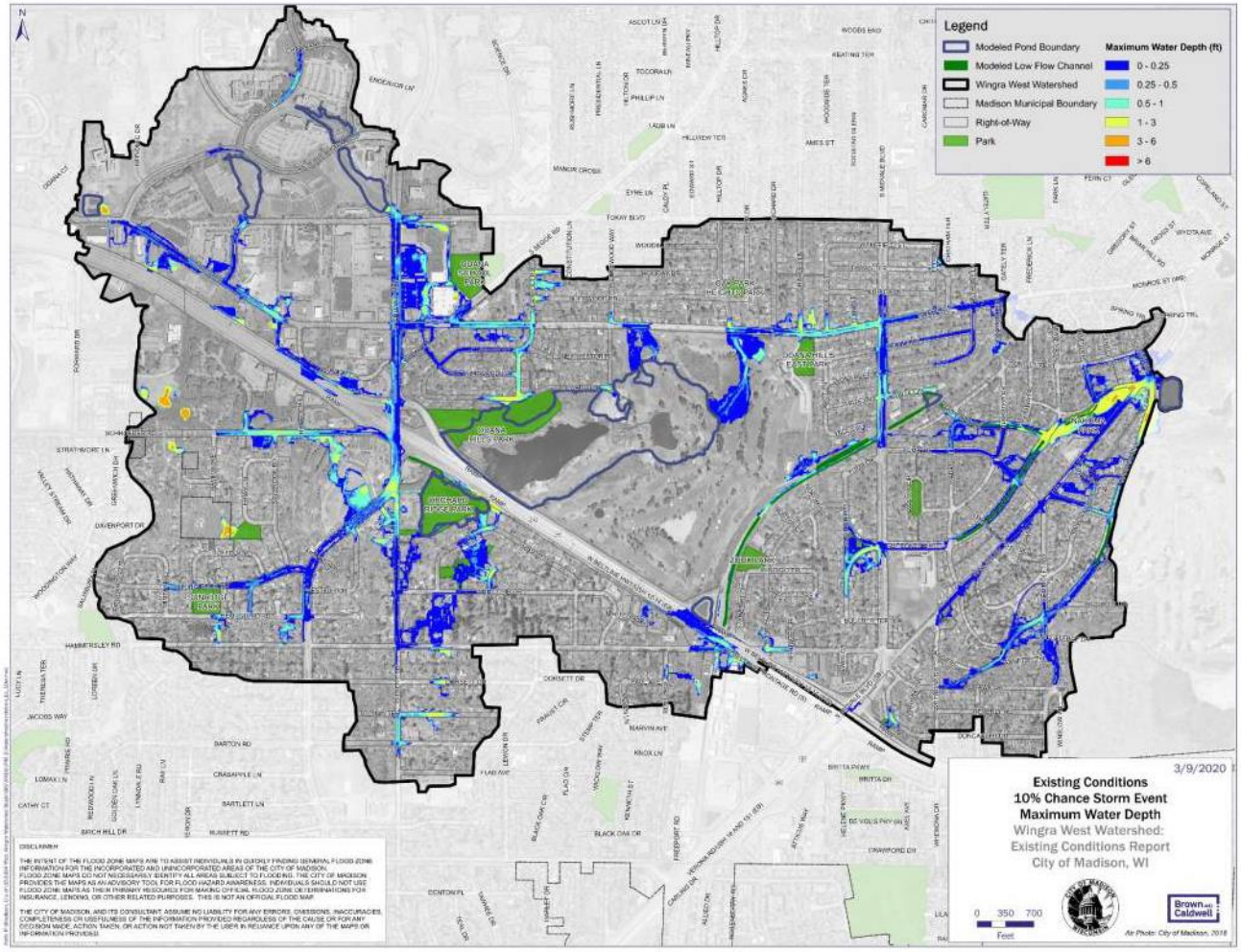
Model Results: Flood Maps



Flood Inundation Mapping

10% Chance Storm (4.1” over 24 hrs.)

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Next Steps

Spring-
Summer 2019:

Create and Calibrate Model

Summer – Fall 2019:

Identify Flood Impacts

Fall- Winter 2019/2020:

2nd Public Meeting

Winter – Spring 2020:

Evaluate Solutions

Spring – Summer 2020:

3rd Public Meeting

Summer- Fall 2020: Complete Watershed Study

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Next Steps

- Evaluate Proposed Solutions
  - Green Infrastructure
  - Grey Infrastructure
  - Combination
- Public Information Meeting #3
- Final Report
- Begin Implementing Solutions

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Watershed Study Limitations

- Computer models have limitations, require assumptions, and represent one specific set of circumstances
- Retrofitting infrastructure takes time and money
- Not all problems can be solved
- Repairs not always easy or popular
- Best engineering solution may not be selected
- Property owners are part of the solution
- Solutions will need broad community cooperation
- Groundwater problems not easily addressed by infrastructure

One Last Discussion on Rain Storms

- Rain storms classified by “chance of occurring in a year”.
- Probabilities are calculated for rain depth and duration.
- Example Recent Rain Events*
  - July 21, 2016: 2.41” in 2 hours (10% chance event)
  - June 16, 2018: 1.54” in 2 hours (75% chance event)
  - August 20 – 21, 2018: 6.72” in 14 hours (Less than 1.0% chance event)

** Measured at Weather Underground Camelot Dr station (KWIMADIS87) in Madison, WI.*

One Last Discussion on Rain Storms

- Rain storms classified by “chance of occurring in a year”.
- Probabilities are calculated for rain depth and duration.
- Tonight’s Maps
  - 10% Chance, 24-hour Storm Event
    - 4.1” in 24-hours
  - 1% Chance, 24-hour Storm Event
    - 6.6” in 24-hours
  - August 20 – 21, 2018
    - 7.7” to 10.4” in 15-hours

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Contact Information & Resources

- Project Manager: Phil Gaebler, PGaebler@cityofmadison.com, 608-266-4059
- Project Website:
  - https://www.cityofmadison.com/engineering/projects/wingra-west-watershed-study
  - Sign-up for project email updates on the website
  - Report flooding, past or current on the Report Flooding form
- New Flooding Website: www.cityofmadison.com/flooding
- Everyday Engineering Podcast
- Facebook – City of Madison Engineering
- Twitter – @MadisonEngr

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Welcome to the Focus Group Session!
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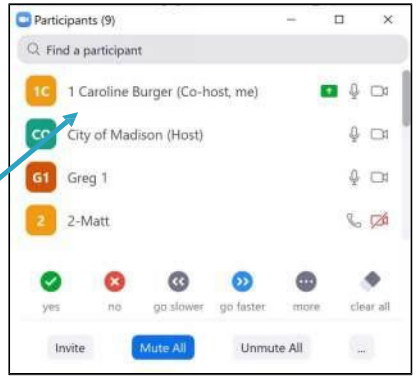
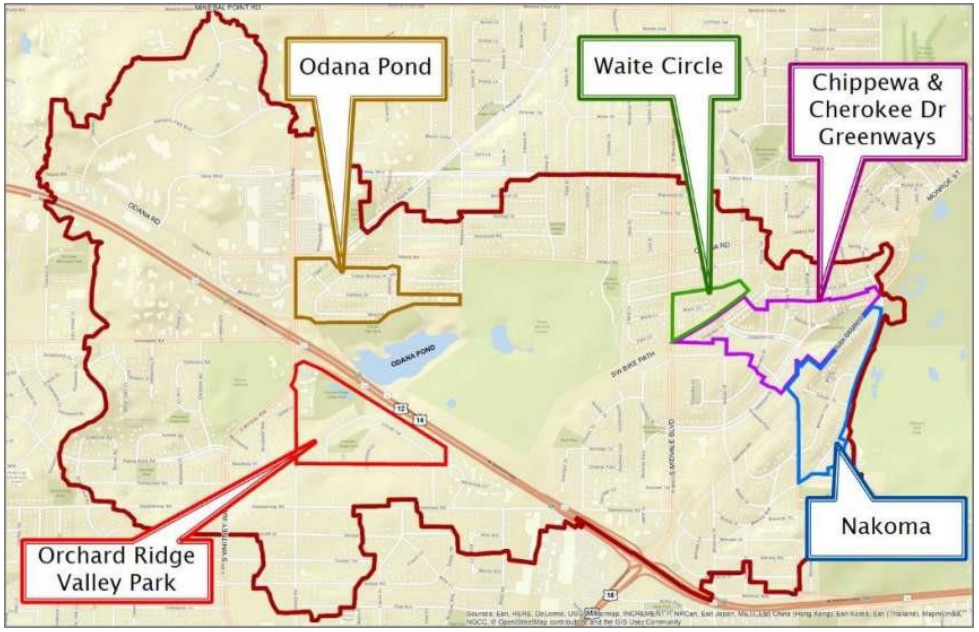
Focus Groups/Zoom Breakout Sessions

- Join your Zoom Breakout Room
  - Rename Zoom Name to begin with # of Focus Group and then your First Name
  - To Rename:
    - Go to the Participants Window
    - Click on your name
    - Select "…" or "More" next to "Mute", then "Rename"
    - Enter [Focus Group #] [First Name]





1. Odana Pond
2. Orchard Ridge Valley Park
3. Waite Circle
4. Chippewa & Cherokee DR
5. Nakoma
6. Overall Watershed

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Focus Groups/Zoom Breakout Sessions

1. Odana Pond
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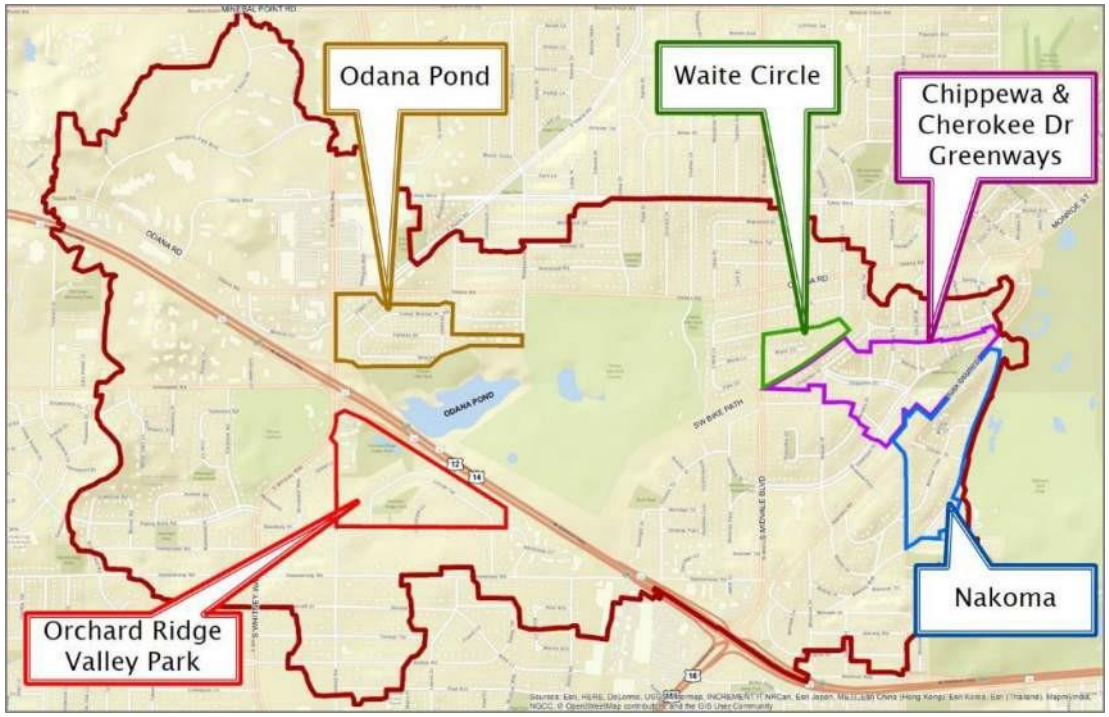

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