

Welcome!

We will begin shortly...

Virtual Meeting Schedule	
6:30 – 6:40	Welcome
6:40 – 7:20	Presentation
7:20 – 7:50	Presentation Q & A (General)
7:50 – 8:00	Wrap-Up



Warner Park & Cherokee Marsh Watershed Study Public Information Meeting #2

Brown and Caldwell with
City of Madison Engineering Division
October 21, 2024

CITY OF **MADISON**



Meeting Technical Housekeeping

- This meeting will be **recorded** and posted to the project page.
- All attendees should be **muted** to keep background noise to a minimum.
- Use the **“Chat”** button for technical issues with meeting to troubleshoot with staff to assist.
- Use the **“Chat”** button to type questions about presentation. Questions will be answered live after the presentation.
- Inappropriate questions may be dismissed.
- Use the **“raise your hand”** button to verbally ask your question. You will be prompted to unmute when it is your turn.

This meeting is being recorded.

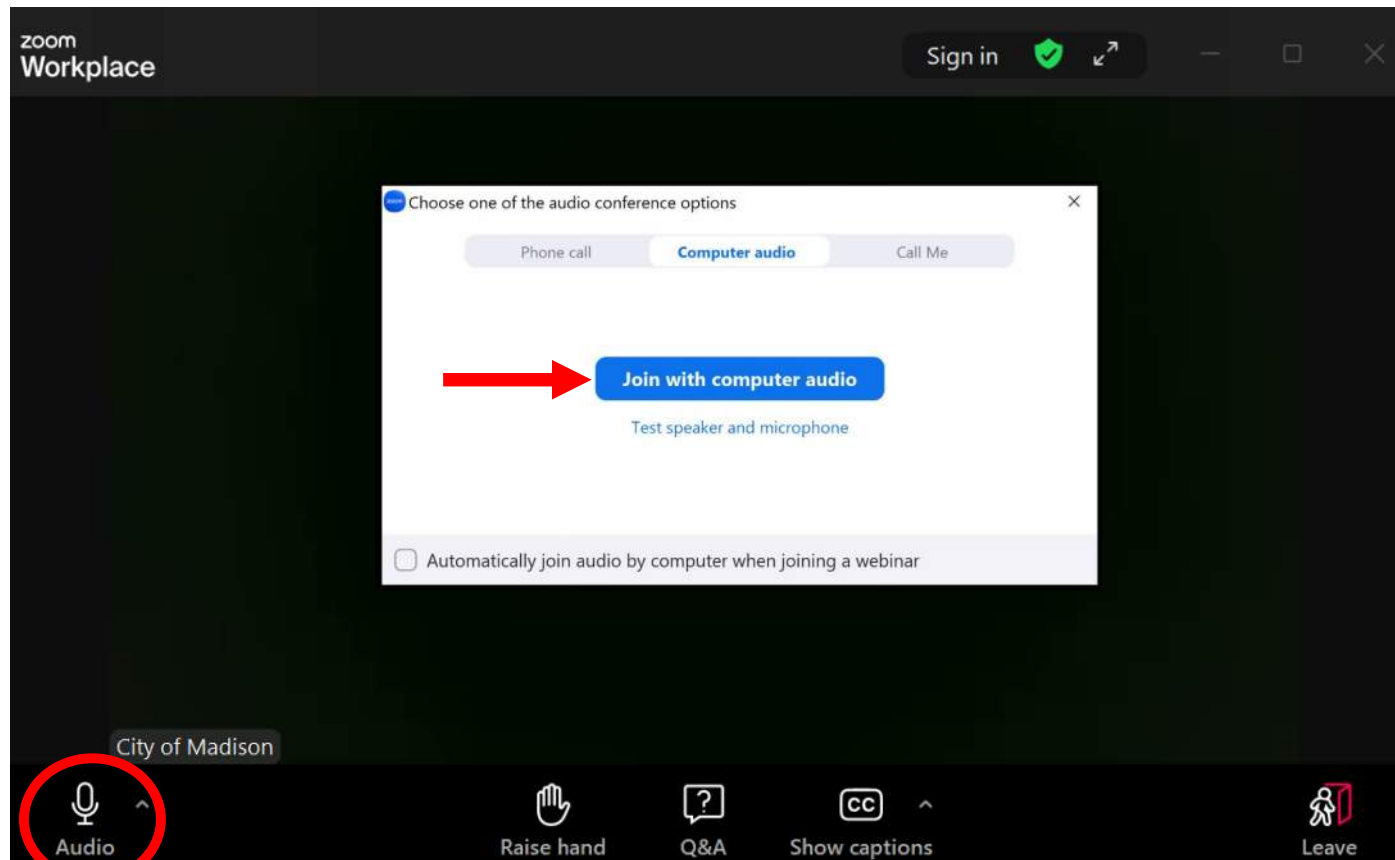
It is a public record subject to disclosure.

By continuing to be in the meeting, you are consenting to being recorded and consenting to this record being released to public record requestors.

CITY OF **MADISON**



How to Participate

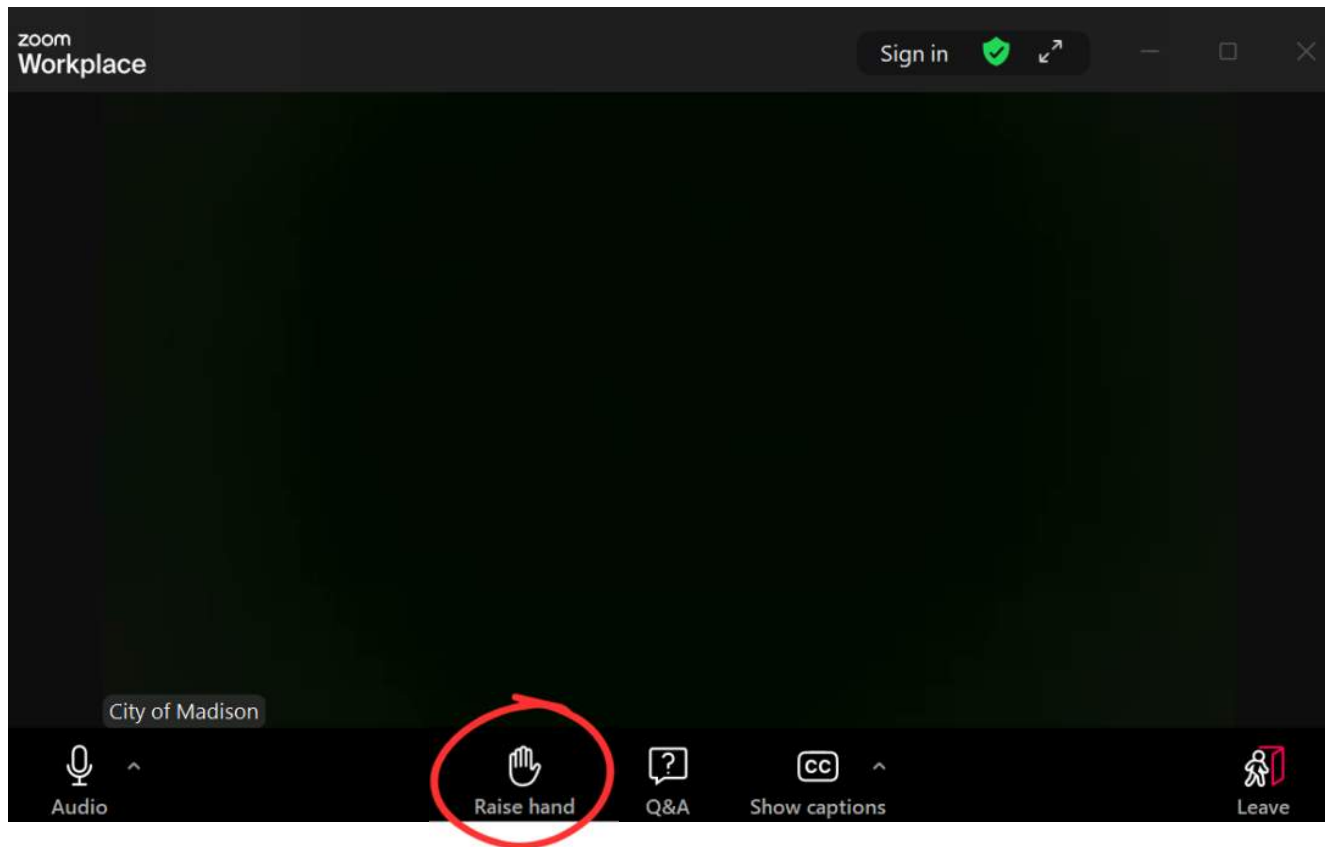


Make sure to join audio

CITY OF MADISON



How to Participate

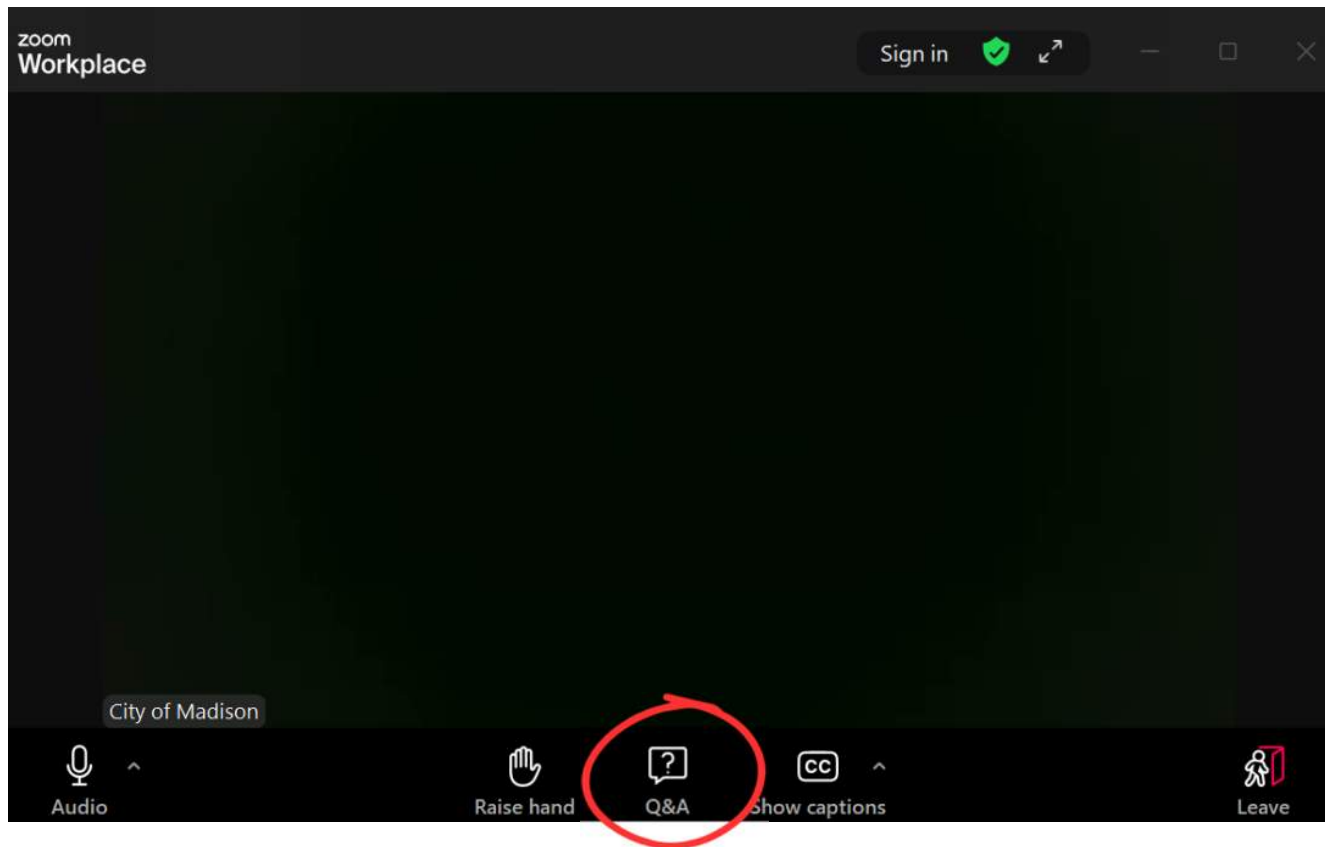


To raise your hand to be unmuted for comments or questions, click “Raise Hand”.

CITY OF **MADISON**



How to Participate

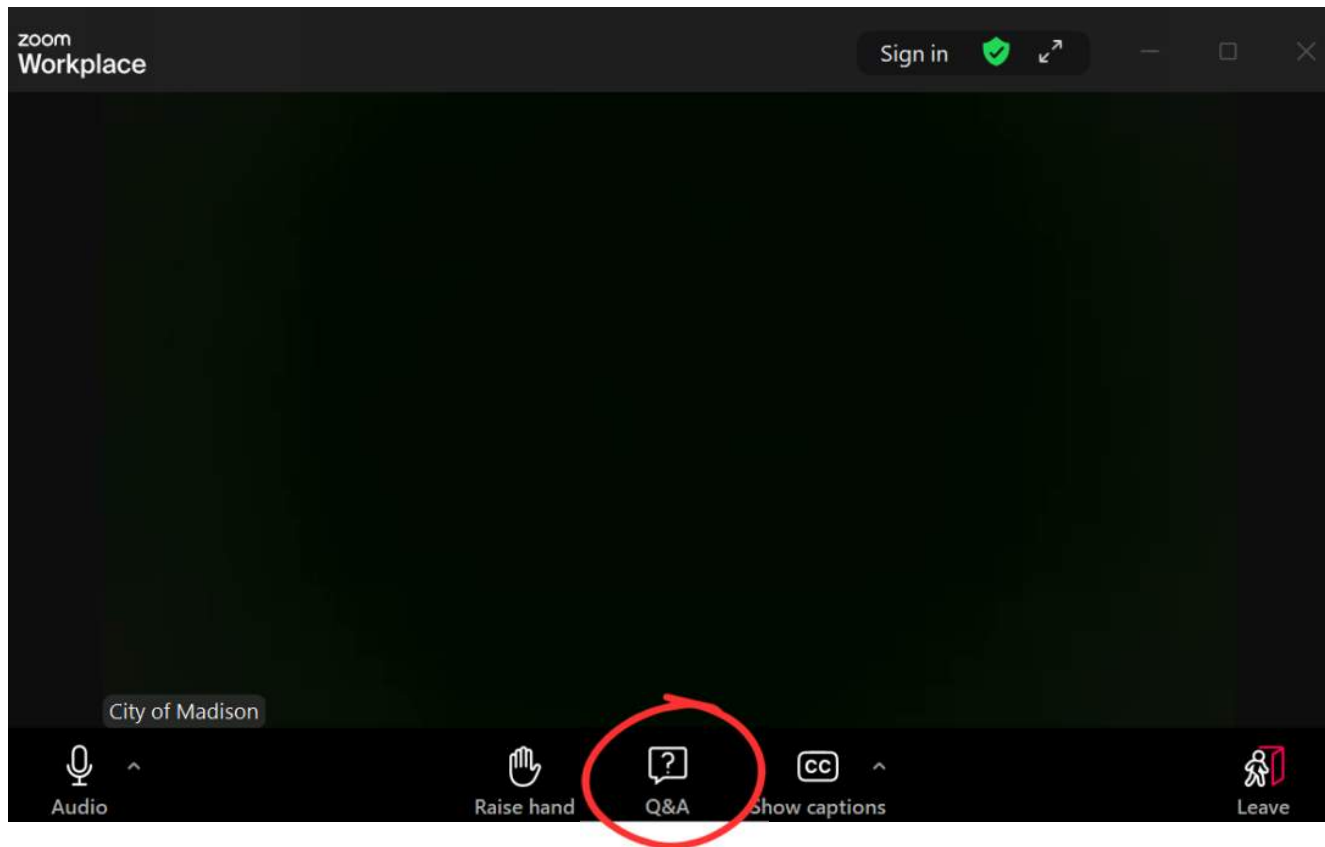


Use the Q&A button if you have technical issues or a question for the panelists.

CITY OF **MADISON**



How to Participate

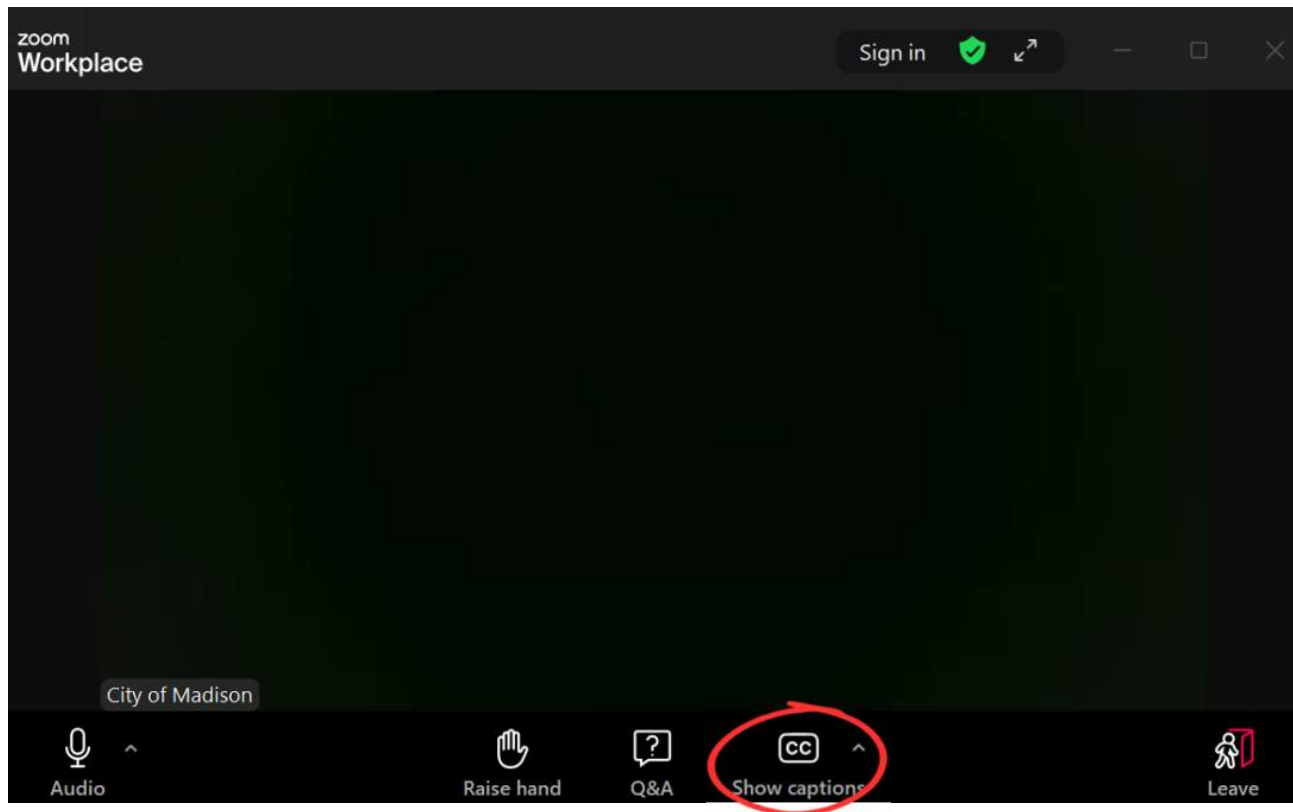


Use the **Q&A button for all other questions.**
We will answer after the presentation.

CITY OF MADISON



How to Participate

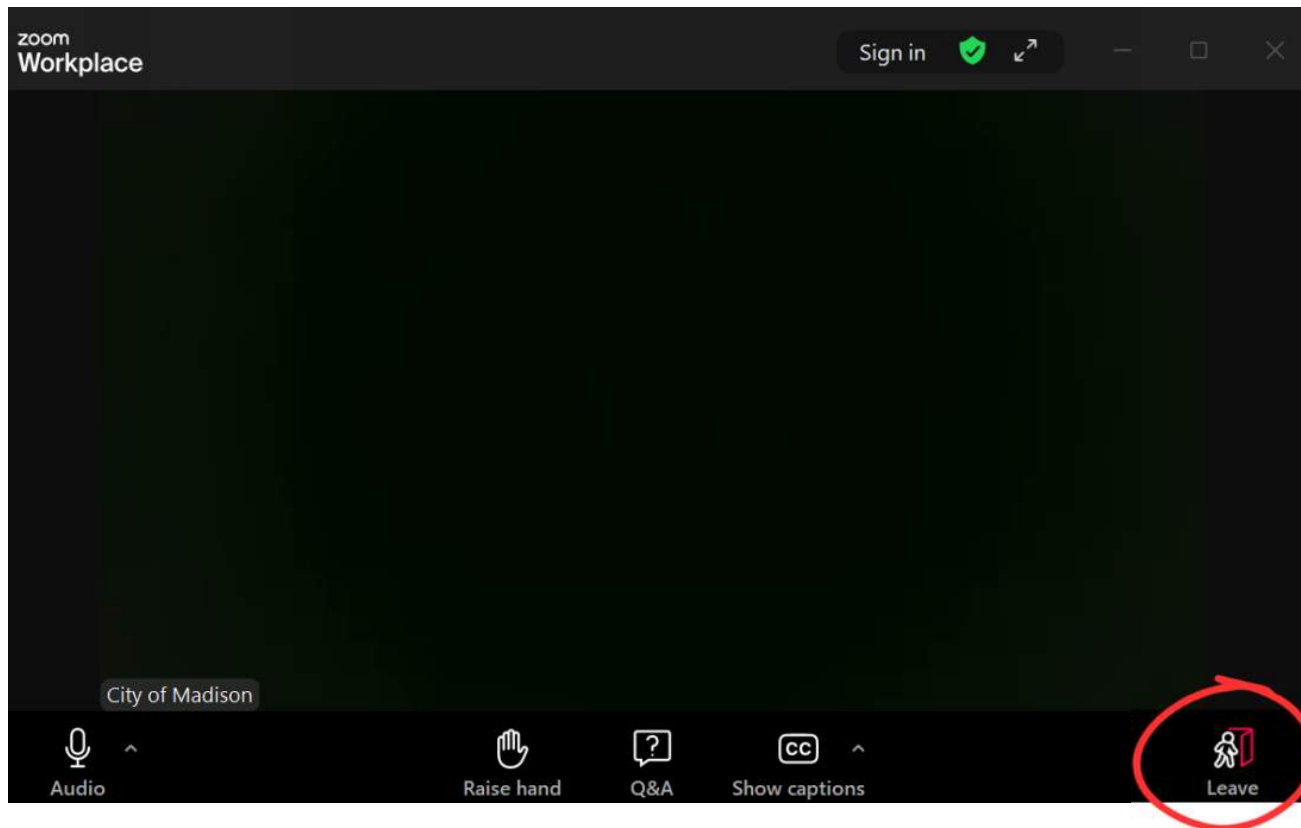


If you'd like to enable closed captioning, click "show captions" button on the bottom of the screen. This may already be enabled.

CITY OF **MADISON**



How to Participate



To leave the meeting click “Leave”

CITY OF **MADISON**



Project Contact Introductions

➤ Brown and Caldwell Information

- Mike Wegner – Project Manager
- Cara Hiler – Project Engineer

➤ City Staff Information

- Jojo O'Brien – Project Manager
- Janet Schmidt – Principal Engineer
- Greg Fries – Deputy City Engineer
- Ryan Stenjem – Watershed Study Program Manager
- Alaina Baker – Stormwater Modeler

➤ Alder Information

- Alder Myadze (District 18)
- Alder Latimer Burris (District 12)

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 and A”
 - Questions answered at the end of the Presentation
- Wrap Up (Hannah Mohelnitzky, City of Madison)

Presentation Outline

1. Definitions of commonly used terms
2. Why are we here
3. Project location
4. Progress to date
5. Inundation mapping
6. Flood mitigation targets
7. Next steps
8. Watershed study limitations

Definitions of commonly used terms

- **Stormwater:** rainwater produced from a rain event
- **Stormwater runoff:** the portion of the rainwater that does not soak into the ground
- **Stormwater inlets:** grates in the ground that take in stormwater runoff; connected to the stormwater conveyance system
- **Detention ponds:** ponds designed to hold stormwater runoff to improve water quality and/or help prevent flooding
- **Model:** computer software that is used to evaluate the stormwater conveyance system
- **Local Sewer Projects:** storm sewer that is reconstructed with another already-scheduled project – typically street reconstruction
- **Stand-alone Projects:** flood mitigation projects that will be constructed on their own – not tied to another already-scheduled project

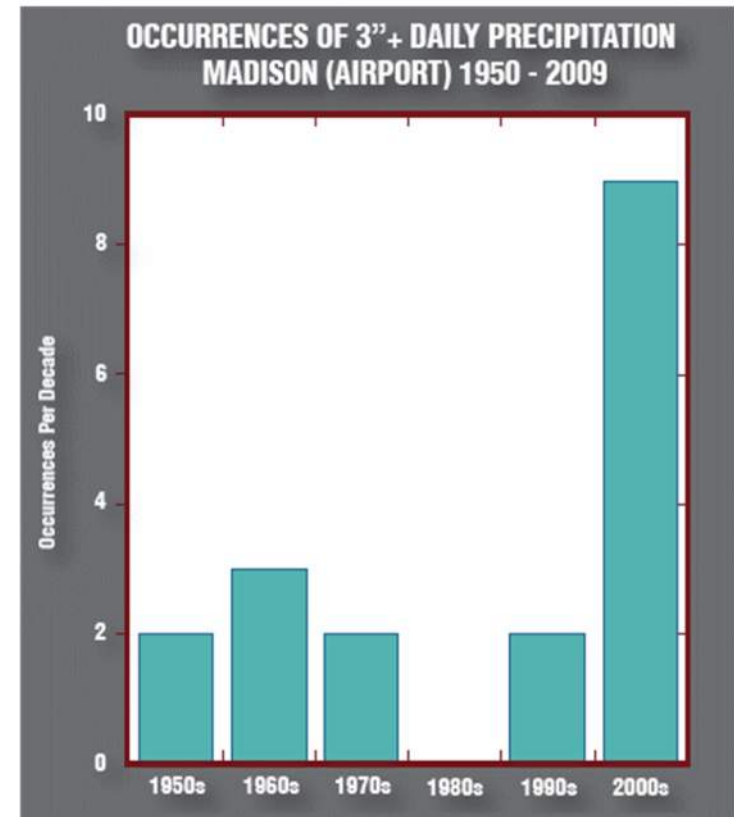
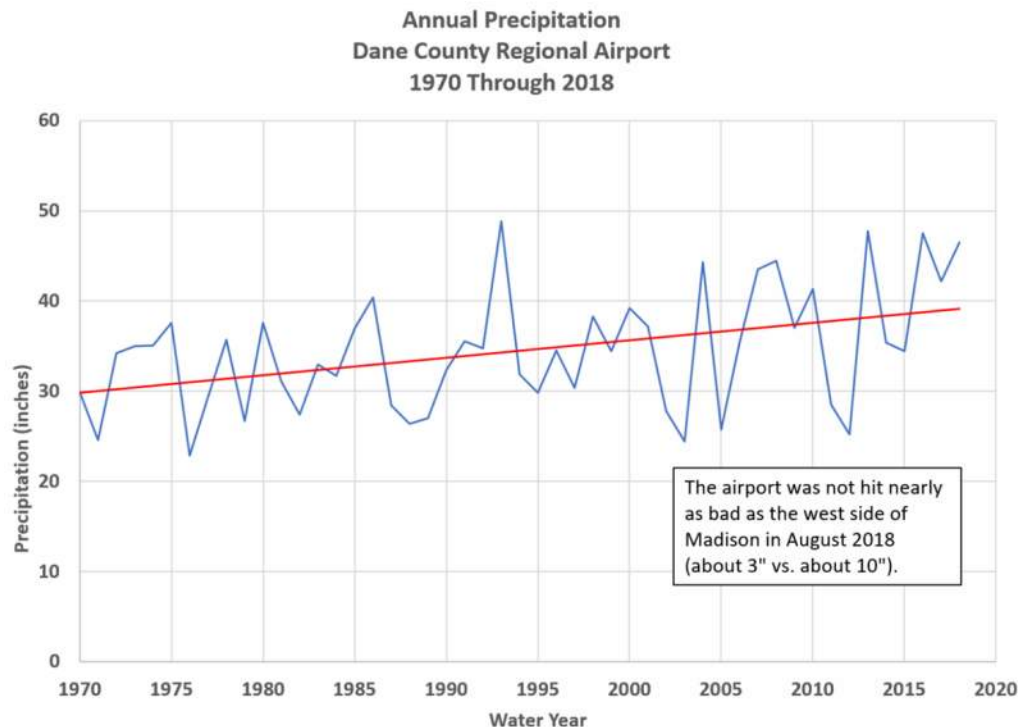
1% Chance Storm Definition

- % Chance Storm Definition: chance that a rainfall event will occur each year
- 1% chance storm is also known as the 100-yr storm
 - 6.66-inches of rain in 24-hours
 - Does NOT mean that a storm will only occur once in 100 years.
 - During a 30-year mortgage, there's a 26% chance of experiencing a 100-year (1%) event
- Also referred to as the “Annual Exceedance Probability” (AEP)

% Chance Storm	Chance of occurring in 1 Year	Return Period or Average Recurrence Interval (ARI)
100%	1 in 1	1-year
50%	1 in 2	2-year
10%	1 in 10	10-year
4%	1 in 25	25-year
1%	1 in 100	100-year
0.10%	1 in 1000	1000-year

Why We Are Here: Historic Events

- More rain
- More rain events greater than 3"

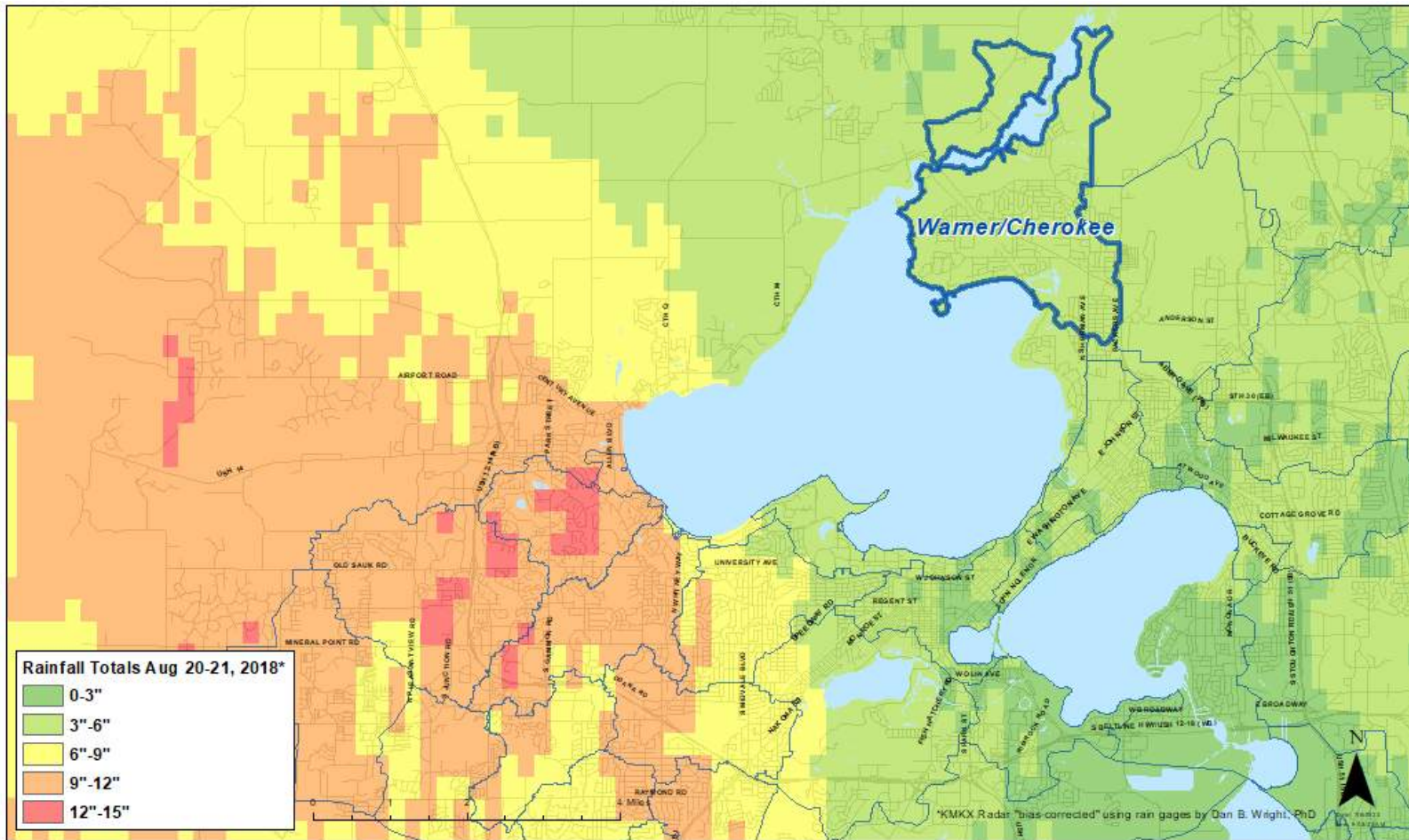


Wisconsin's Changing Climate: Impacts and Adaptation. 2011. Wisconsin Initiative on Climate Change Impacts. Nelson Institute for Environmental Studies, University of Wisconsin-Madison and the Wisconsin Department of Natural Resources, Madison, Wisconsin.

CITY OF **MADISON**



Rainfall Totals August 20-21, 2018



KMKX Radar that was "bias corrected" using rain gauges by UW Professor Dan Wright

CITY OF MADISON



Why We Are Here: Historic Rain Events

- Recent storms have
 - amplified known inadequacies
 - revealed new storm sewer deficiencies
- Result: flood damage

August 20, 2018, event: substantial damage

- Public infrastructure: \$4 million
 - Private property: reported \$17.5 million, estimated \$30 million
- City's plan
 - Complete watershed studies of impacted areas
 - Develop solutions from watershed studies

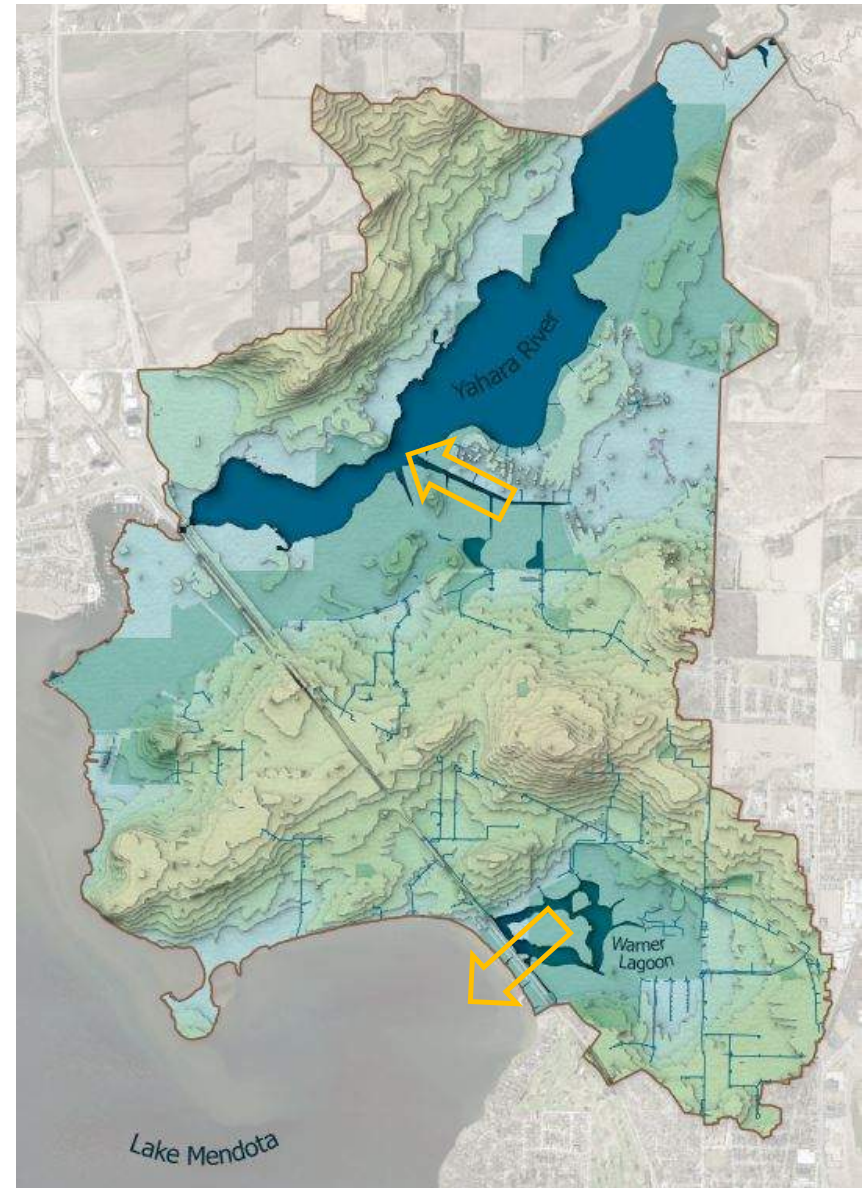


Deming Way, Madison, WI

Where the Water Goes

What's a watershed?

- A watershed is the area of land that drains precipitation (rain, snow, etc.) to a common low point, such as an inlet, stream, or lake.
- Determined by surface terrain and underground pipe system.



Where the Water Goes: Sewer Systems

- Madison has separate storm and sanitary sewers
- Storm sewer system is NOT the same as the sanitary sewer system



<https://www.azstorm.org/stormwater-101/storm-vs-sanitary-sewer>

CITY OF **MADISON**



Where the Water Goes: Sanitary Sewer

- Sanitary sewer drains residential (toilets, showers, kitchen sinks, etc.), commercial and industrial wastewater streams
- Sanitary sewer transports wastewater to Madison Metropolitan Sewerage District (MMSD) treatment plant
- Sanitary infrastructure includes:
 - Manholes
 - Household lateral pipes
 - Main collector pipes

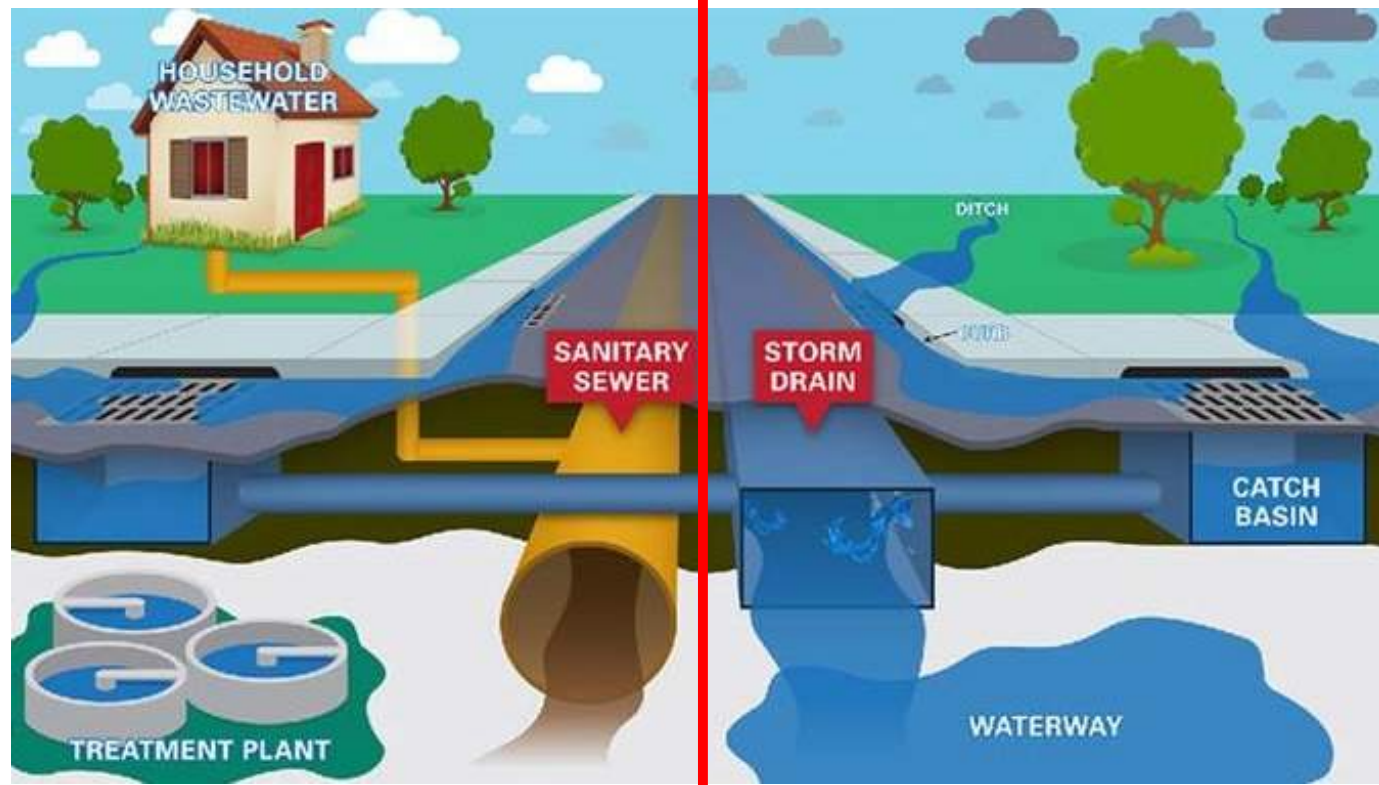


CITY OF **MADISON**



Where the Water Goes: Storm System

- Our stormwater drains to local surface waters
- We try to treat for nutrients and sediment
- Storm infrastructure includes:
 - Curbs and gutters
 - Inlets
 - Pipes
 - Channels (greenways)
 - Ponds



<https://www.azstorm.org/stormwater-101/storm-vs-sanitary-sewer>

CITY OF **MADISON**



Reasons for Flooding Issues

Flash Flooding

- Flash flooding: when storm sewer system cannot handle high amounts of rain
- Comparative example: a traffic jam
 - Too many cars on the Beltline during rush hour → backups happen
- During a storm, more water tries to move through the storm sewer system → backups happen

Beltline, looking west from Park Street, WisDOT



Project Location

WARNER PARK & CHEROKEE MARSH WATERSHED

Item	Quantity
Watershed Area	4,620 acres
Public Stormwater Inlets and Access Structures	1,266
Storm Sewer Pipes & Culverts	1,377 segments 21.3 miles
Open channels	1.8 miles of greenways



Progress To Date

DATA COLLECTION

- Ground/storm sewer survey
- Monitoring
 - 2 years (2022-2023)
 - Rainfall
 - Storm Sewer Depth & Flow
 - Lagoon Water Level
 - Pond Water Level
- Flood reports




Progress To Date

PUBLIC INFORMATION

- Public Input Meeting #1
– July 20, 2023
- Project website

Warner Park and Cherokee Marsh Watershed Study

Project Details

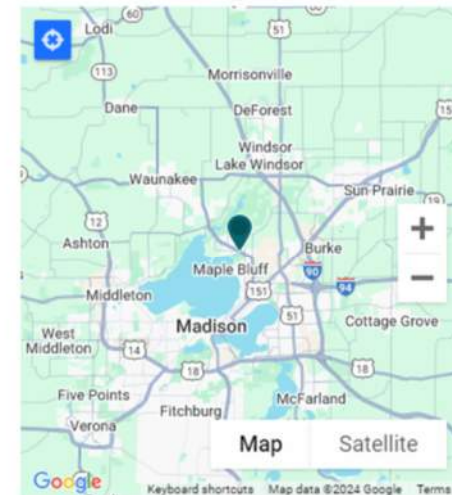
 **Location**
1625 Northport Dr
Madison, WI 53704

 **Project Type**
[Flood Mitigation](#)
[Sewer / Storm](#)
[Watershed Studies](#)

 **Status**
Planning

 **Estimated Schedule**
March 1, 2023 – December 31, 2025

 **Alder District**
District 12
District 18



<https://www.cityofmadison.com/engineering/projects/warner-park-and-cherokee-marsh-watershed-study>

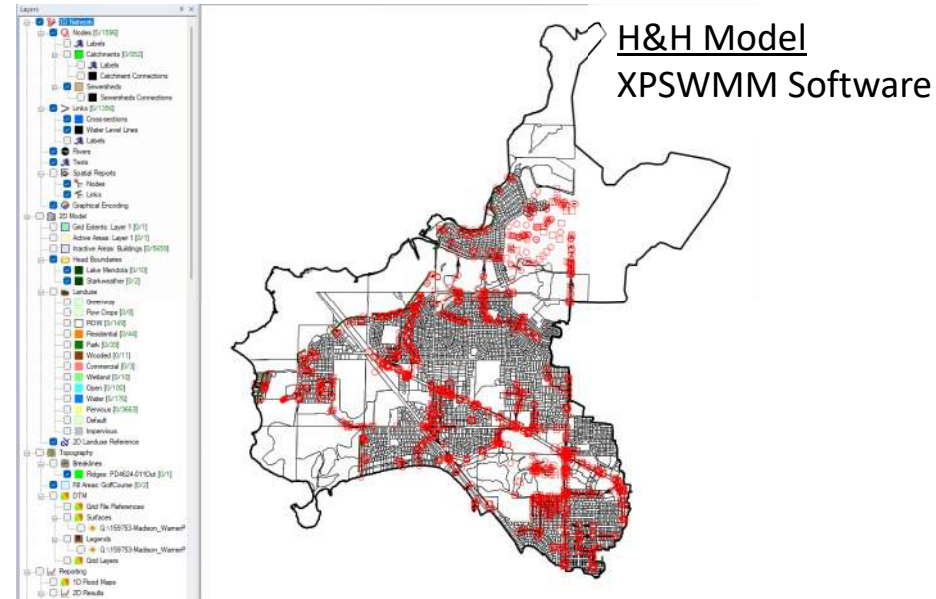
CITY OF **MADISON**



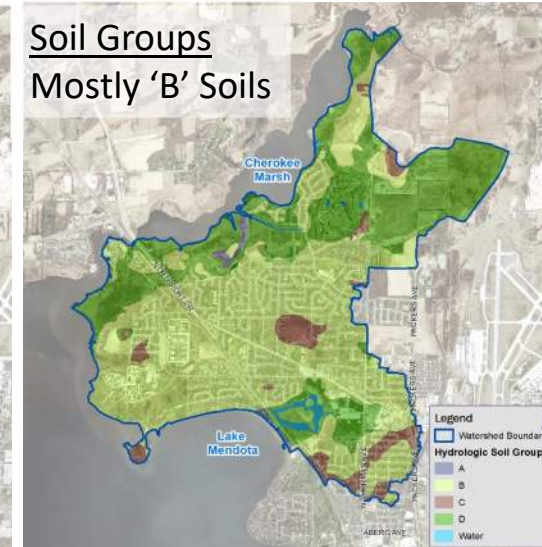
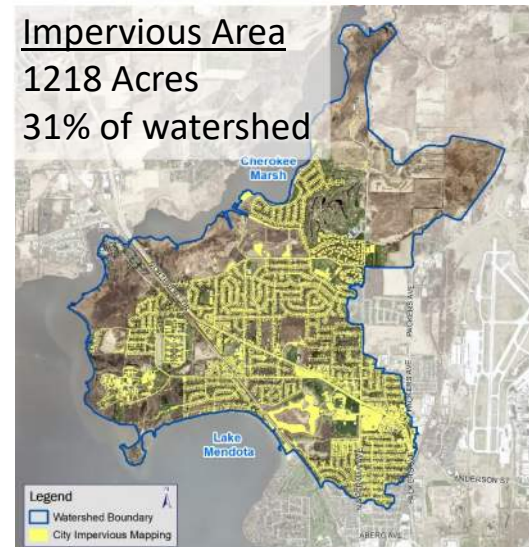
Progress To Date

MODEL DEVELOPMENT

- Hydrologic and Hydraulic Computer Model (XPSWMM)
- Existing Conditions Model Construction



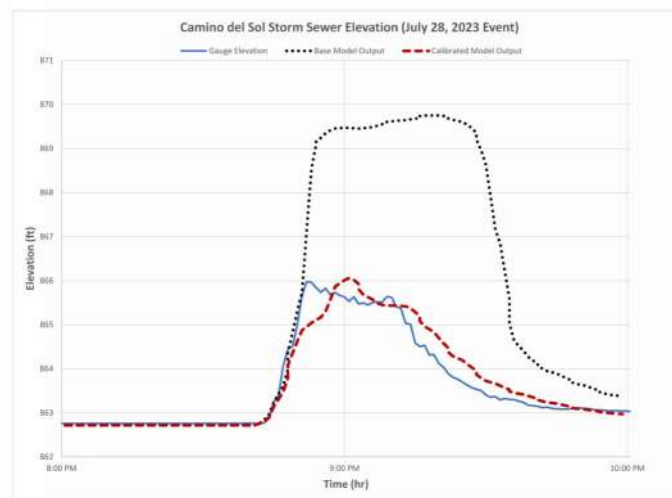
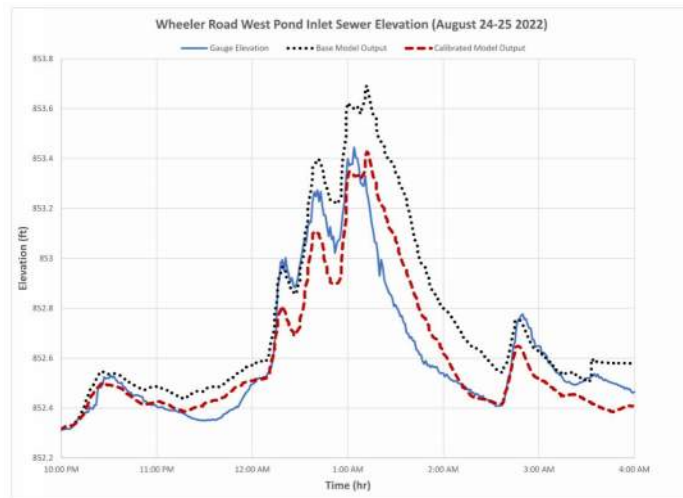
Item	Quantity
Watershed Area (acres)	4,620
Number of Subcatchments (discrete drainage areas in the model)	281
Storm sewer pipes in model	21.3 miles
Detention ponds in model	6



Progress To Date

MODEL CALIBRATION

- Existing Conditions Model Calibration
 - Calibration is a process of comparing the model results to monitored results and making changes so the model matches more closely*
- Level loggers and rain gauges
- Reported flooding locations



MADISON



Flood Mapping Disclaimer

This map exists to help you quickly get information about general flood risks. This map does not identify all areas that may flood or predict future flooding.

Do not use this map to make official flood risk determinations for insurance, lending, or other purposes. This is not an official FEMA federal Flood Insurance Rate Map or the state or local equivalent.

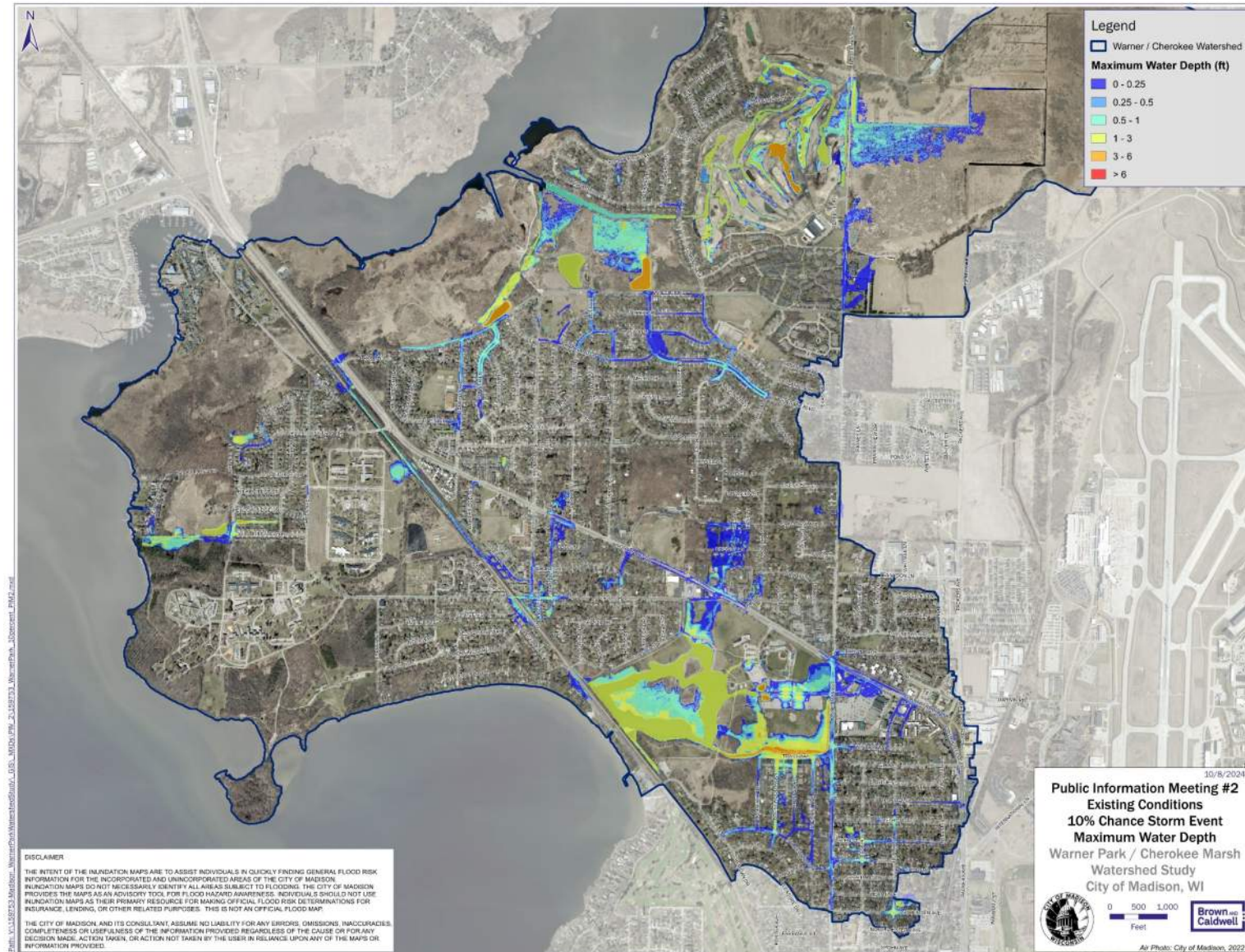
The City of Madison assumes no liability for any errors, omissions, or inaccuracies. The City also assumes no liability for any decisions or actions a user might take based on this map.

CITY OF **MADISON**

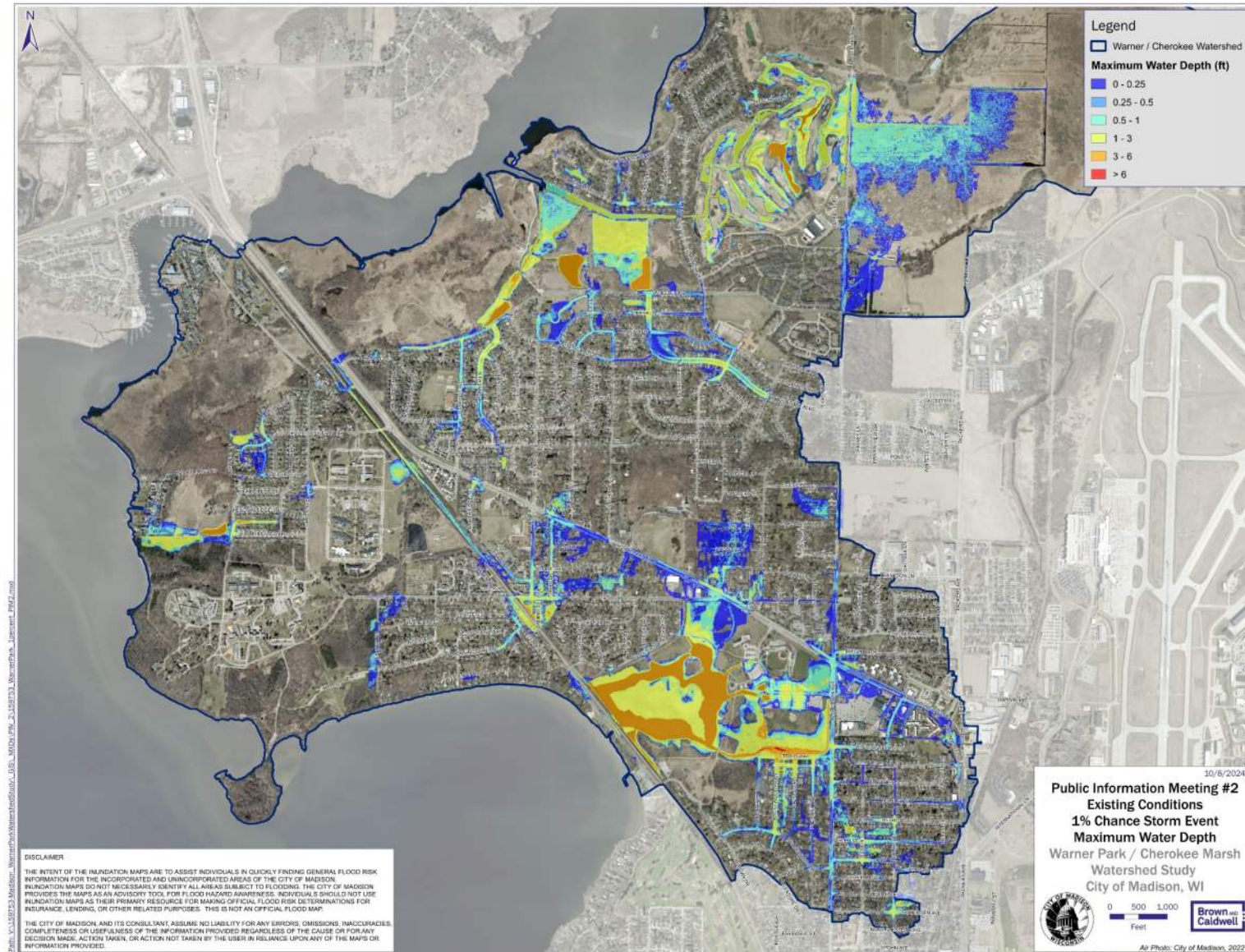


Existing Conditions Inundation Mapping

10% Chance Event
(4.09 inches in 24 hours)



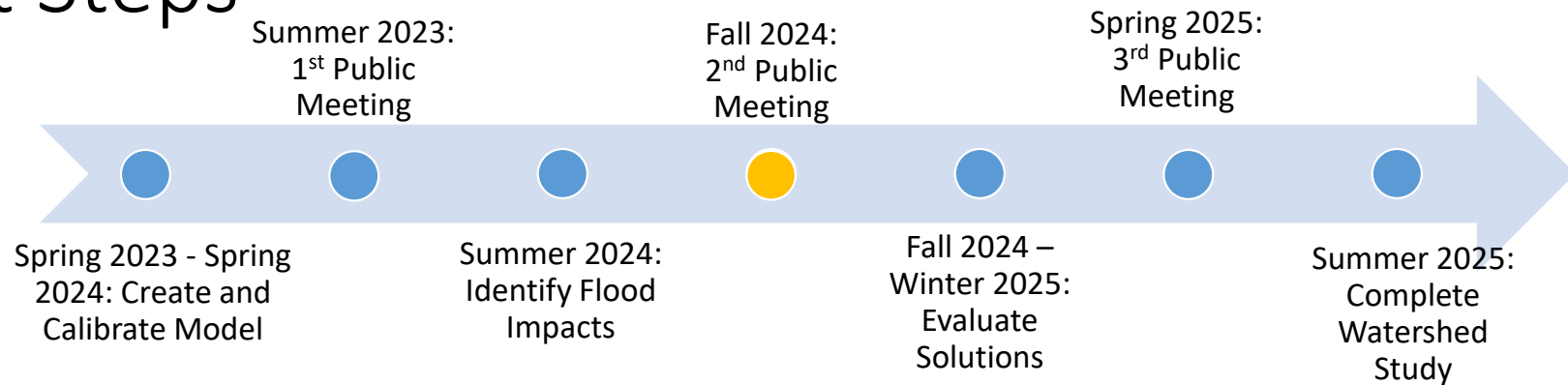
1% Chance Event (6.66 inches in 24 hours)



Flood Preparedness Reminders

- If you live or work in a flood prone area, avoid storing valuable items on the floor of your basement or first floor.
- **When traveling through flood-prone areas, remember the saying "Turn Around, Don't Drown"**
 - Avoid walking or driving through floodwaters.
 - Plan an alternate driving route for yourself for times when heavy rain is expected.
 - Remember, just six inches of moving water can knock you down, and one foot can sweep your vehicle away.
 - There may be hidden dangers under the water, such as missing sewer access lids.
- Avoid parking on streets or in parking lots at risk of flooding when a large storm is forecasted.
- Avoid parking in underground parking structures of buildings that are at risk of flooding when a large storm is forecasted.

Next Steps



- Identify Flooding Problem Areas
- Evaluate Solutions
- Public Meeting #3 to present solutions
- Final Report
- Begin Implementing Solutions



CITY OF **MADISON**



Next Steps

FLOOD MITIGATION TARGETS

- 10% Chance Event (4.09 inches in 24 hours)
 - No surcharging of storm sewer onto roadway
 - Storm sewer pipes are sized to carry storm
- 4% Chance Event (5.01 inches in 24 hours)
 - 0.2 feet at Centerline of Roads
 - Roads passable for emergency vehicles
- 1% Chance Event (6.66 inches in 24 hours)
 - No structure (home/building) flooding
 - No greenway crossing overflow (stormwater does not come out of greenway and flow over the road)
- 0.5% Chance Event (8.81 inches in 24 hours)
 - Safe conveyance of overflow



Watershed Study Limitations

- Utilizing computer models for analysis (computer models have inherent limitations, require assumptions, and are for one specific set of circumstances)
- Retrofitting infrastructure takes a lot of time and money
- Repairs are not always easy, popular, or inexpensive
- Solutions will need broad community cooperation
- Best engineering solution may not be the one chosen
- Not all problems can be solved
- Property owners will need to create solutions too
- Groundwater problems not easily addressed by infrastructure

Warner Park Lagoon Water Quality Plan

- Separate study/plan
- Developed 2018-2021 based on community input
- Recommends a series of water quality improvement concepts



1

WARNER LAGOON
WATER QUALITY

Water Improvement Alternatives Concept Diagram
FINAL OVERVIEW PLAN
June 19, 2019



Montgomery Associates
Resource Solutions



Underwater Habitat
Investigations, LLC



Warner Park Lagoon Water Quality Plan

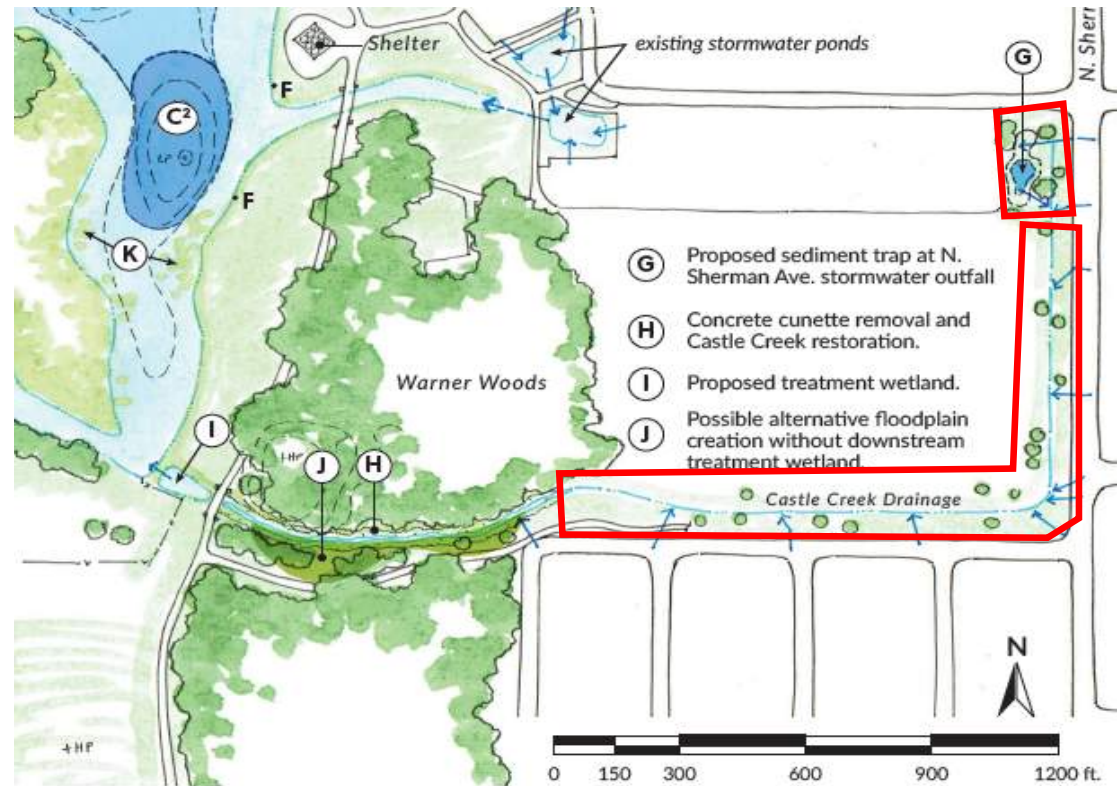
- Lagoon dredging currently programmed in 2027, funding dependent
- Budgeted for improvements in Castle Creek (2025/2026)
 - Lots of sediment in channel along N Sherman Ave and Trailway – need better way to remove from channel



Warner Park Lagoon Water Quality Plan



- Once scope is better defined, City will host separate public meeting on the Castle Creek improvements
 - Shifting focus in first phase from downstream to capture and remove sediment upstream



CITY OF MADISON



More info: www.cityofmadison.com/engineering/projects/warner-lagoon-water-quality-plan

Contact Information & Resources

- Project Manager: Jojo O'Brien, jobrien@cityofmadison.com
- Public Information Officer: Hannah Mohelnitzky, hmohelnitzky@cityofmadison.com
- Project Webpage: www.cityofmadison.com/WarnerCherokeeWatershed
 - Sign-up for project email updates on the website
 - Report flooding, past or current on the Report Flooding form
 - Learn ways to protect your property from flooding with on-site fixes
- Additional questions
 - Please take our survey: <https://www.surveymonkey.com/r/JGRDKWB>
- Flooding Website: www.cityofmadison.com/flooding
- Everyday Engineering Podcast
- Instagram: @MadisonEngr
- Facebook: City of Madison Engineering
- X: @MadisonEngr



CITY OF **MADISON**

