Welcome!
We will begin shortly…

Virtual Meeting Schedule	
6:30 – 6:40	Welcome
6:40 – 7:40	Presentation
7:40 – 8:00	Presentation Q & A (General)
8:00 – 8:30	Zoom Breakout Rooms
8:30	Come Back Together/Wrap-Up

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Warner Park & Cherokee Marsh Watershed Study Public Information Meeting No. 3

City of Madison Engineering Division
9/23/25

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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 **"Q and A"** button for technical issues with meeting to troubleshoot with staff to assist.
- Use the **"Q and A"** 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.

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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.

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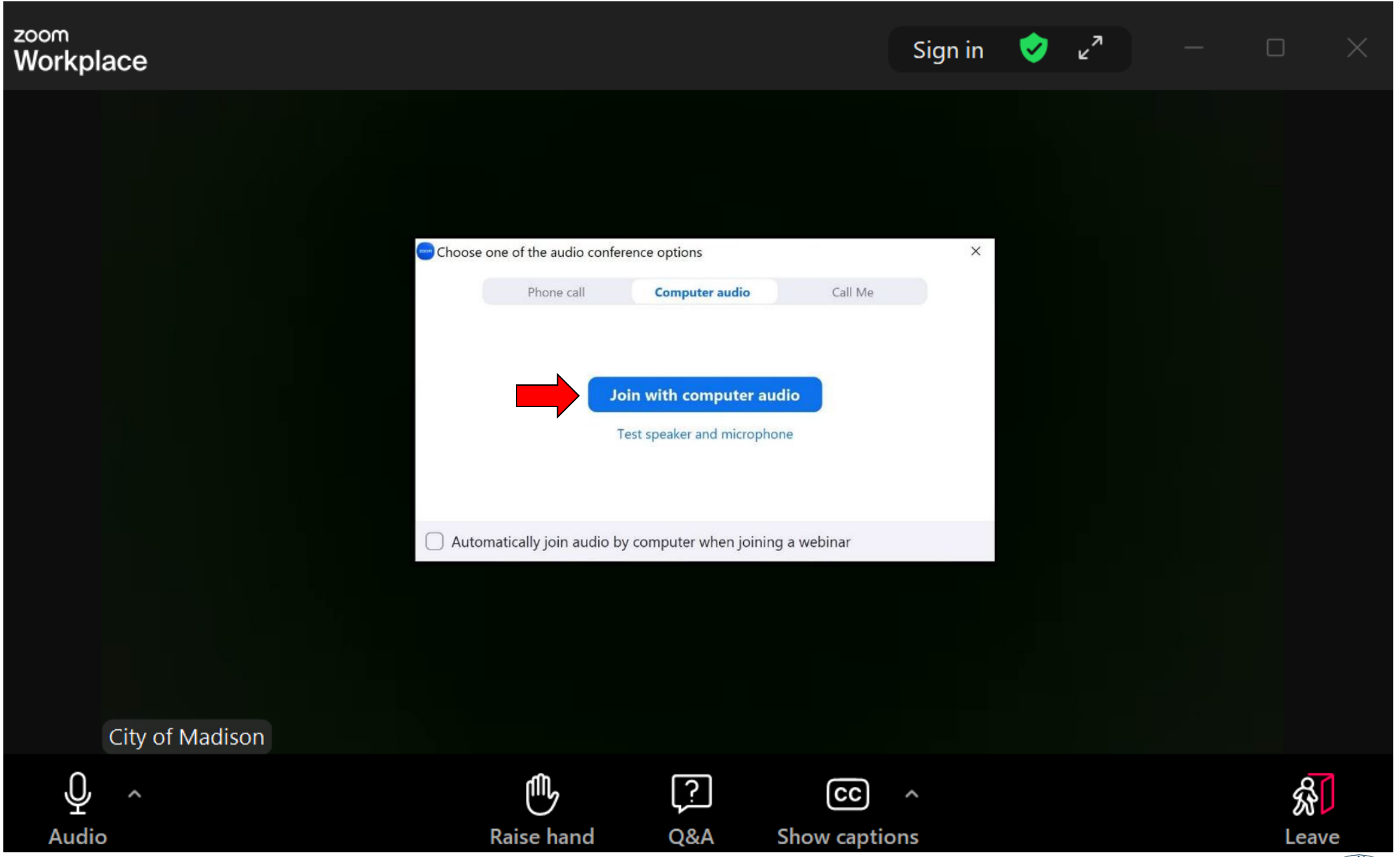
How to Participate



Make sure to join audio

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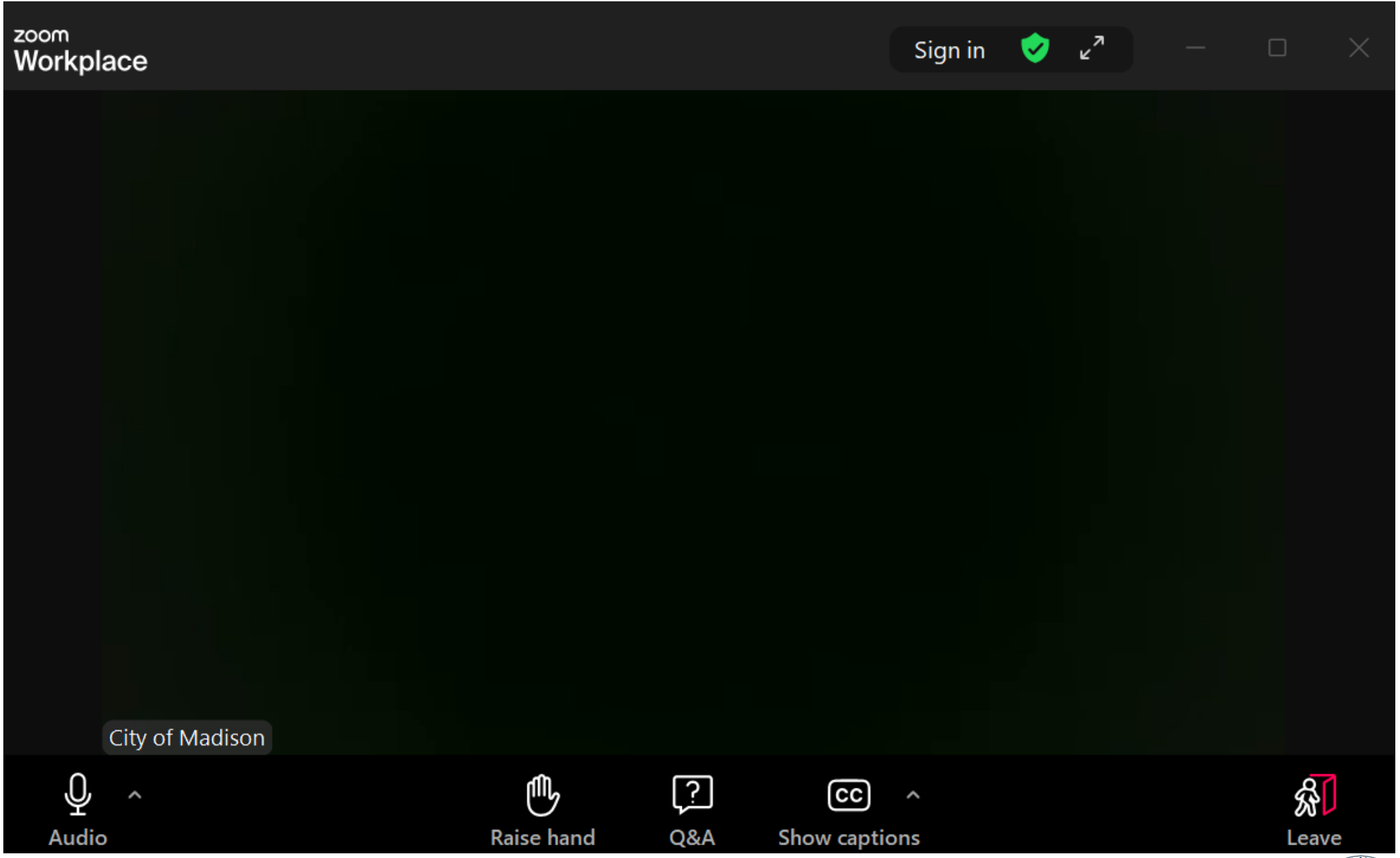
How to Participate



Raise your hand to be unmuted for comments or ask additional questions.

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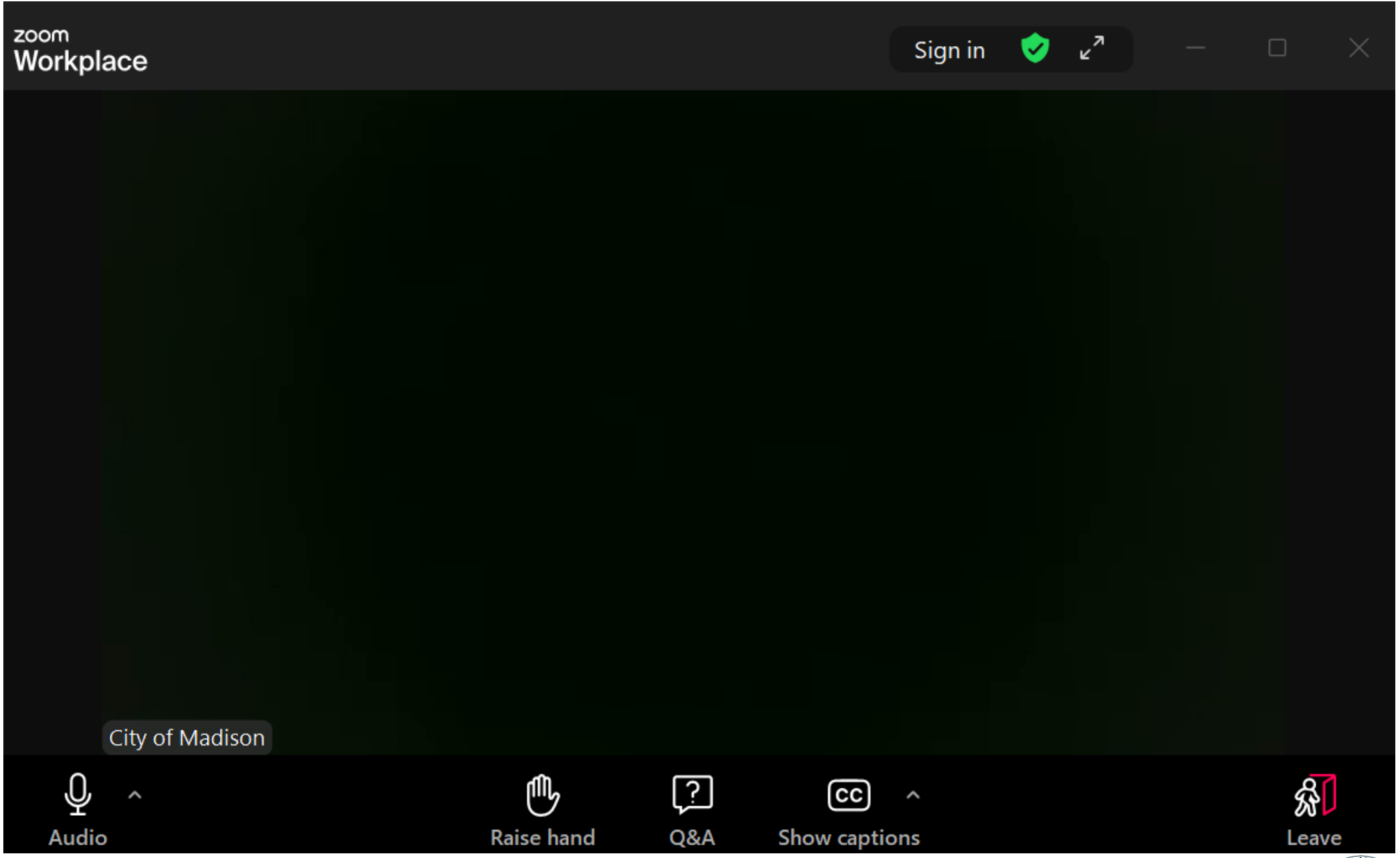
How to Participate



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

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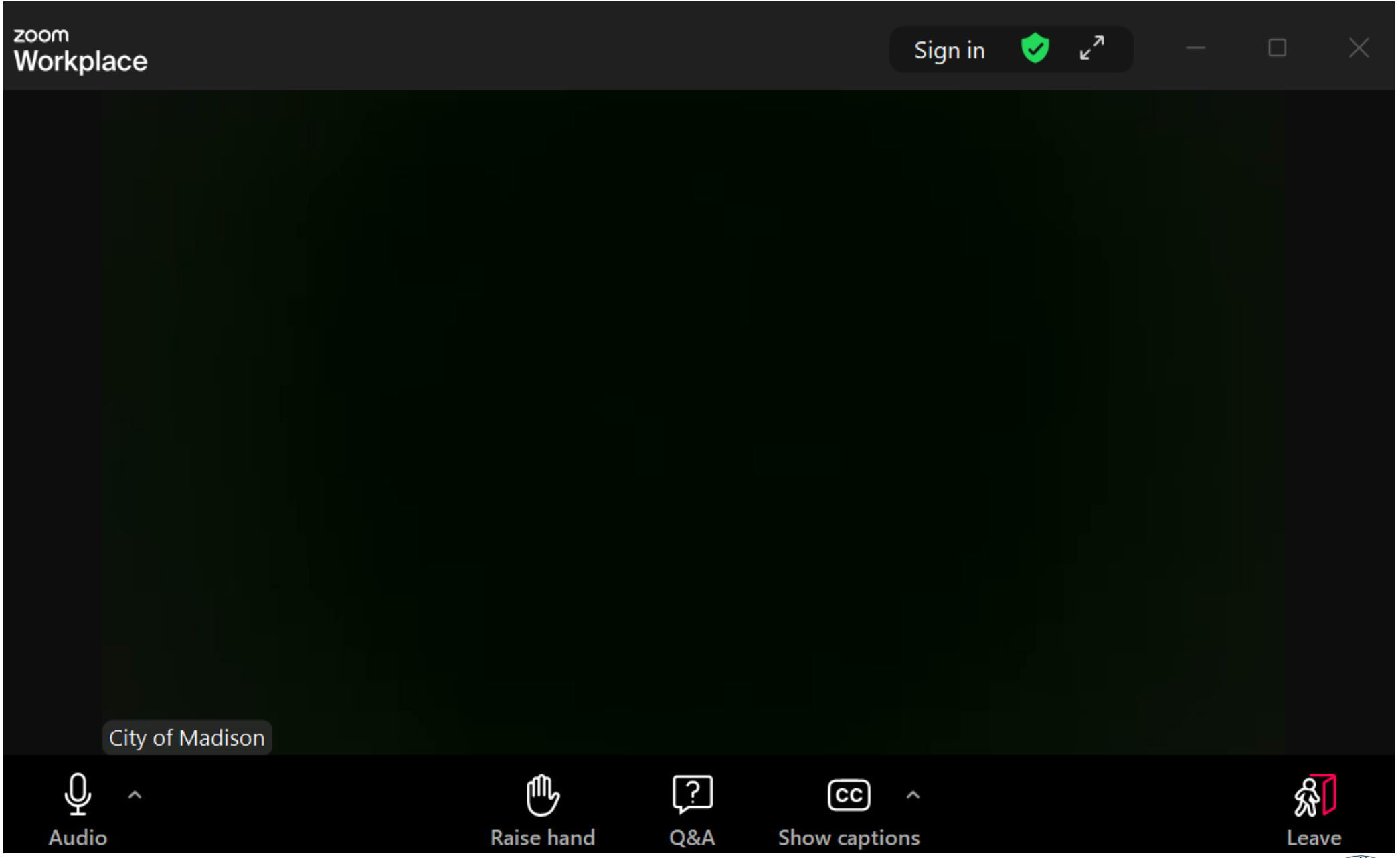
How to Participate



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

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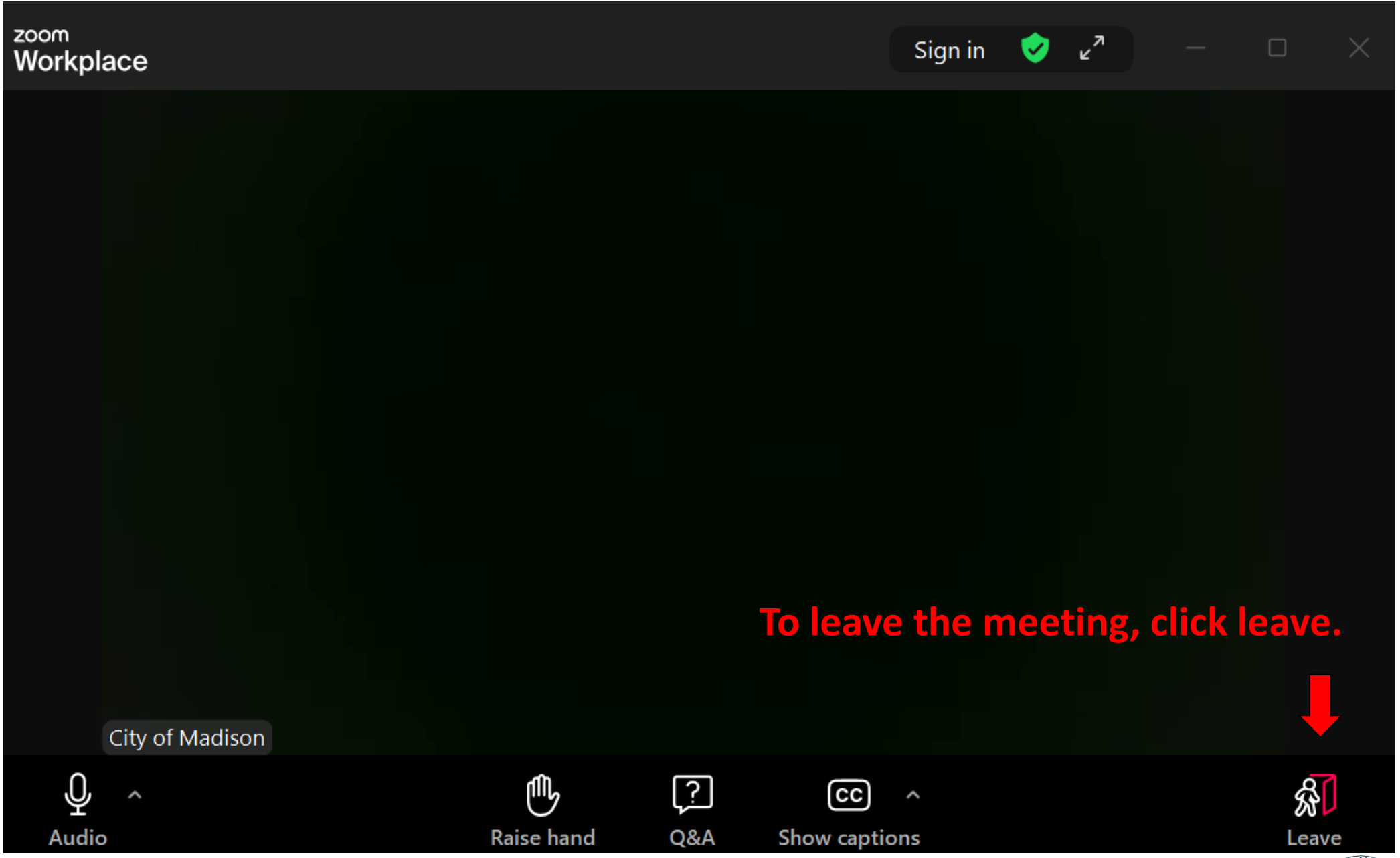
How to Participate



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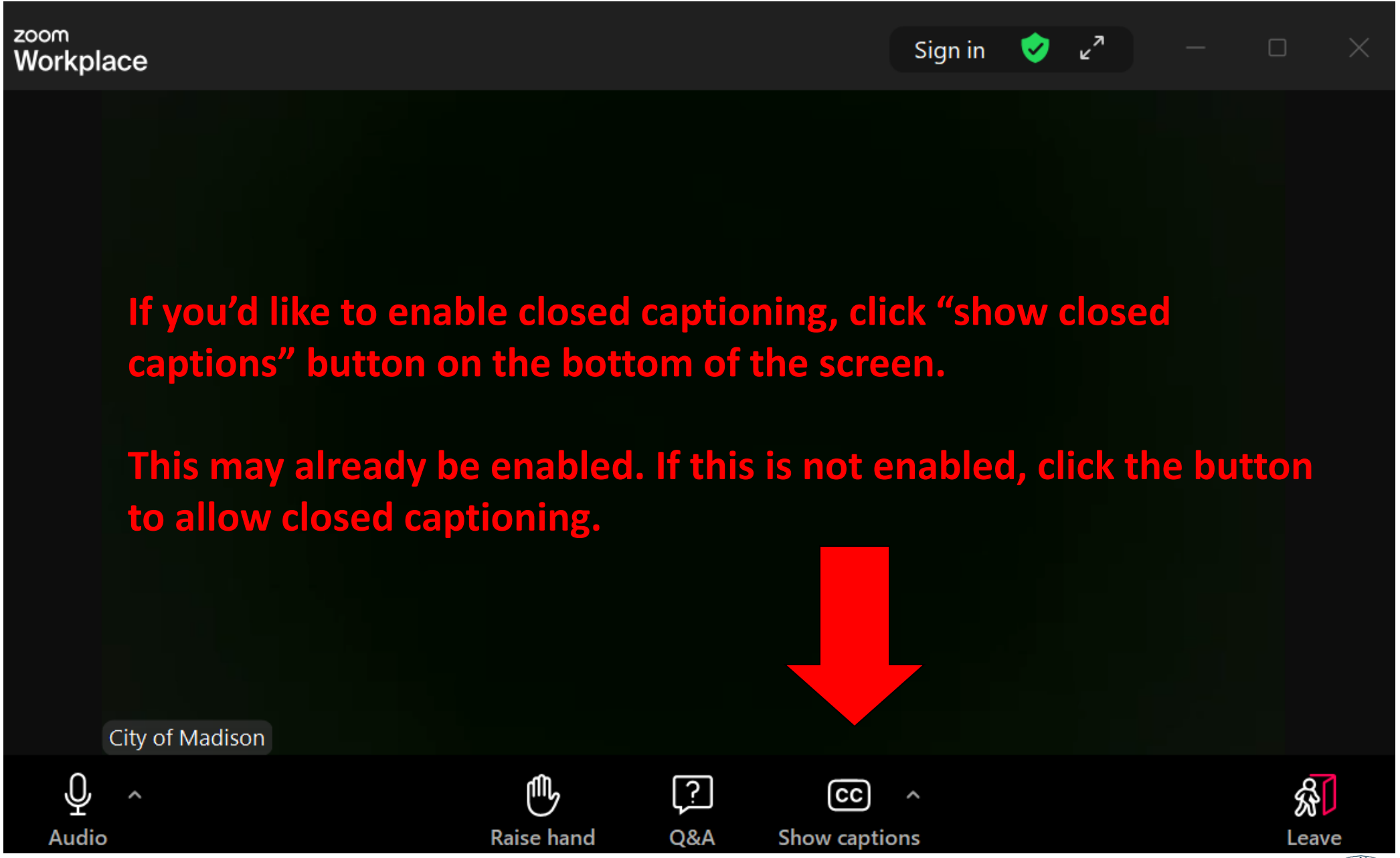
How to Participate



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Project Contact Introductions

- Project Manager: Ryan Stenjem, City of Madison, Stormwater Engineer
- Brown and Caldwell Staff
  - Mike Wegner – Project Manager
- Other City Staff:
  - Hannah Mohelnitzky, Public Information Officer
  - Janet Schmidt, Stormwater Section Manager
  - Greg Fries, Deputy City Engineer – Sanitary, Storm and Landfill
  - Alaina Baker, Stormwater Engineer
- Alder Information
  - District 12 – Alder Julia Matthews
  - District 18 – Alder Carmella Glenn

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)
- Breakout Groups (Brown and Caldwell and City of Madison staff)
  - An option to join breakout groups will appear on your screen

Presentation Outline

1. Definitions of commonly used terms
2. Project locations
3. Watershed study schedule
4. Flood mitigation targets
5. Inundation mapping
6. Proposed solutions development process
7. Proposed solutions
   a. Standalone projects
   b. Local storm sewer
8. Implementation and cost
9. Why aren’t all flood targets met?
10. Next steps

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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
- Not all problems can be solved
- Repairs are not always easy, popular, or inexpensive
- Best engineering solution may not be the one chosen
- Property owners will need to create solutions too
- Solutions will need broad community cooperation
- Groundwater problems not easily addressed by infrastructure

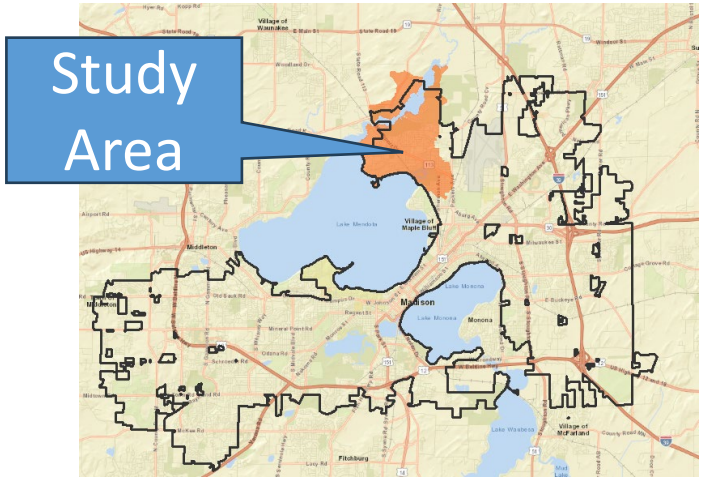
Definitions of commonly used terms

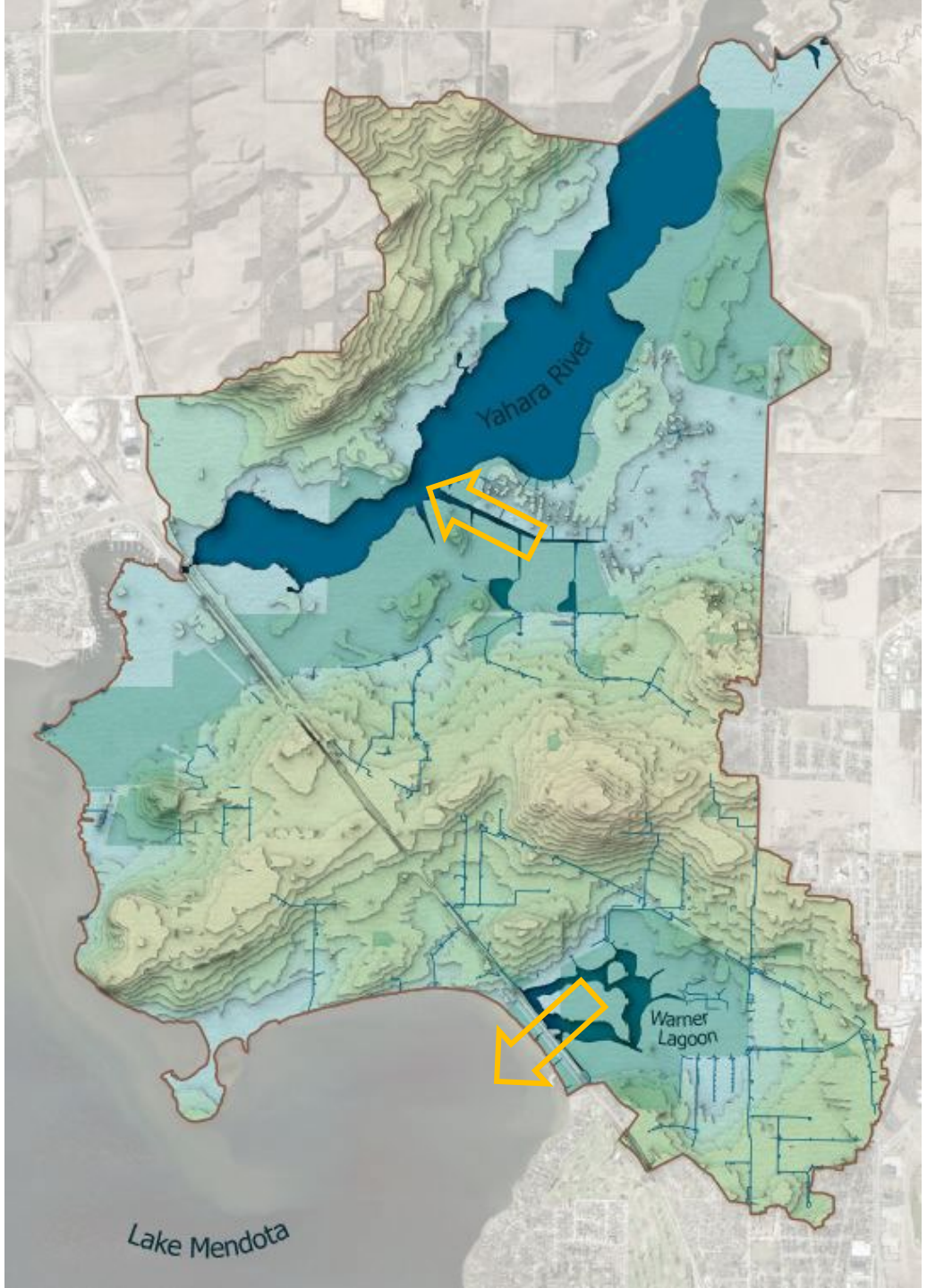
- **Stormwater**: rainwater produced from a rain event
- **Stormwater runoff**: the portion of the rainwater that does not soak into the ground
- **Stormwater inlets**: grates in the ground that take in stormwater runoff; connected to the stormwater conveyance system
- **Detention ponds**: ponds designed to hold stormwater runoff to improve water quality and/or help prevent flooding
- **Greenway:** drainage-way designed to convey stormwater runoff
- **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

Project Location

A watershed is an area of land that drains to a single location.

This is the Warner Park & Cherokee Marsh Watershed in the City of Madison.





Watershed Study Process

Model Existing Conditions & Predict Future Flood Risk

Analyze Solutions on Watershed Scale, Rank & Budget

Create Watershed Model

Identify Flooding Impacts

Develop Engineering Solutions

Prioritize & Budget

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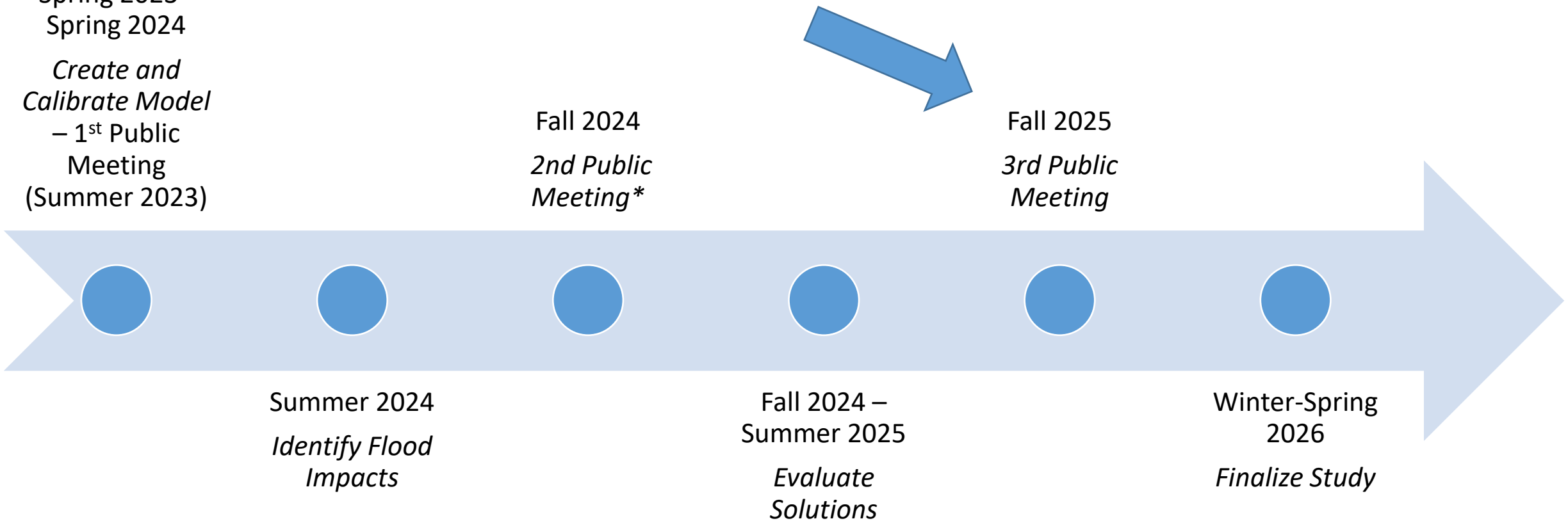
Schedule



*Presentations from PIM1 and PIM 2 can be found on the Watershed Study Website

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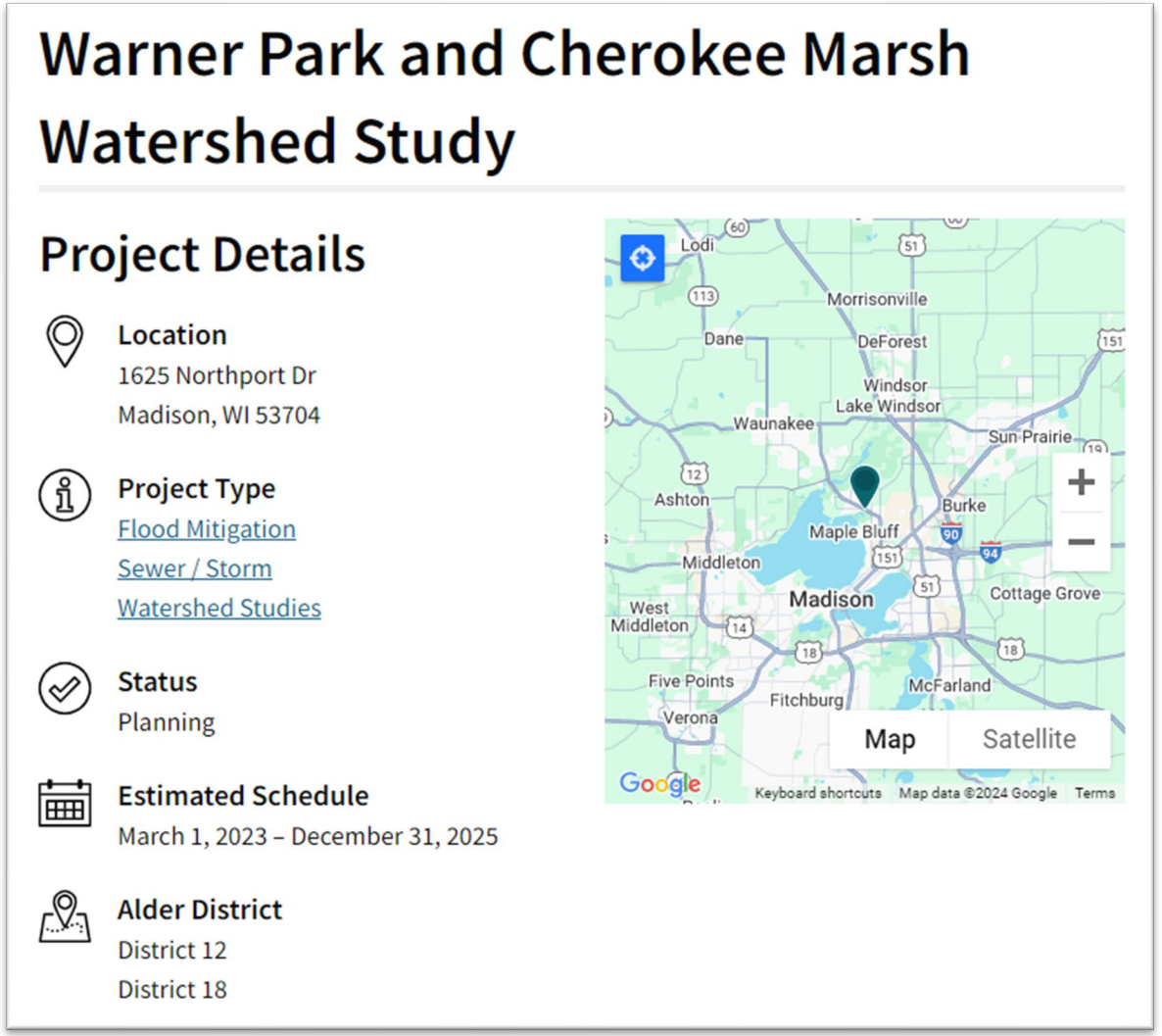
Progress To Date

PUBLIC INFORMATION

- Public Input Meeting #1 – July 20, 2023
- Public Input Meeting #2 – October 21, 2024
- Flood Risk Maps at library & community center
- Outreach at farmers market, Parks Alive, Troy Farm Community Gardens
- Project website



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

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1% Annual Chance Event

- The “100-Year” Storm
- 1/100 or 1% Annual Chance Event
  - 6.7 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% chance) event.

% Annual Chance	Chance of occurring in 1 Year	Return Period or Average Recurrence Interval
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

Flood Mitigation Targets

10% Chance Event

- No surcharging of storm sewer onto roadway (storm sewer pipes are sized to carry storm)

4% Chance Event

- 0.2’ at Centerline of Road (roads passable for emergency vehicles)

1% Chance Event

- No structure (home/building) flooding
- No greenway crossing overflow (stormwater does not come out of greenway and flow over the road)

0.2% Chance Event

- Safe conveyance of overflow

Flood Mapping Disclaimer

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

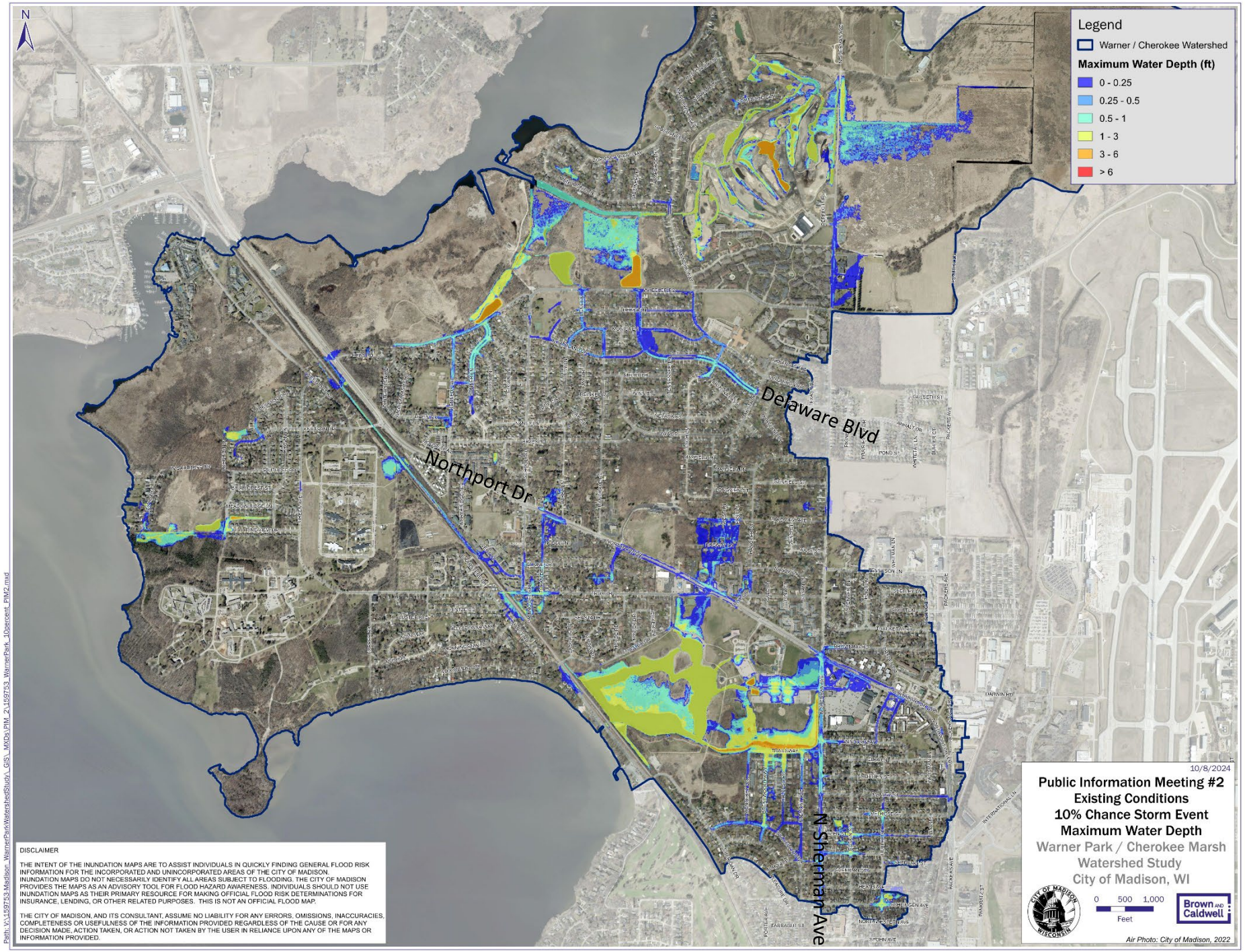
Do not use these maps to make official flood risk determinations for insurance, lending, or other purposes. These are not official FEMA federal Flood Insurance Rate Map or the state or local equivalent.

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 these maps.

10% Chance (10-year) Existing Inundation Mapping

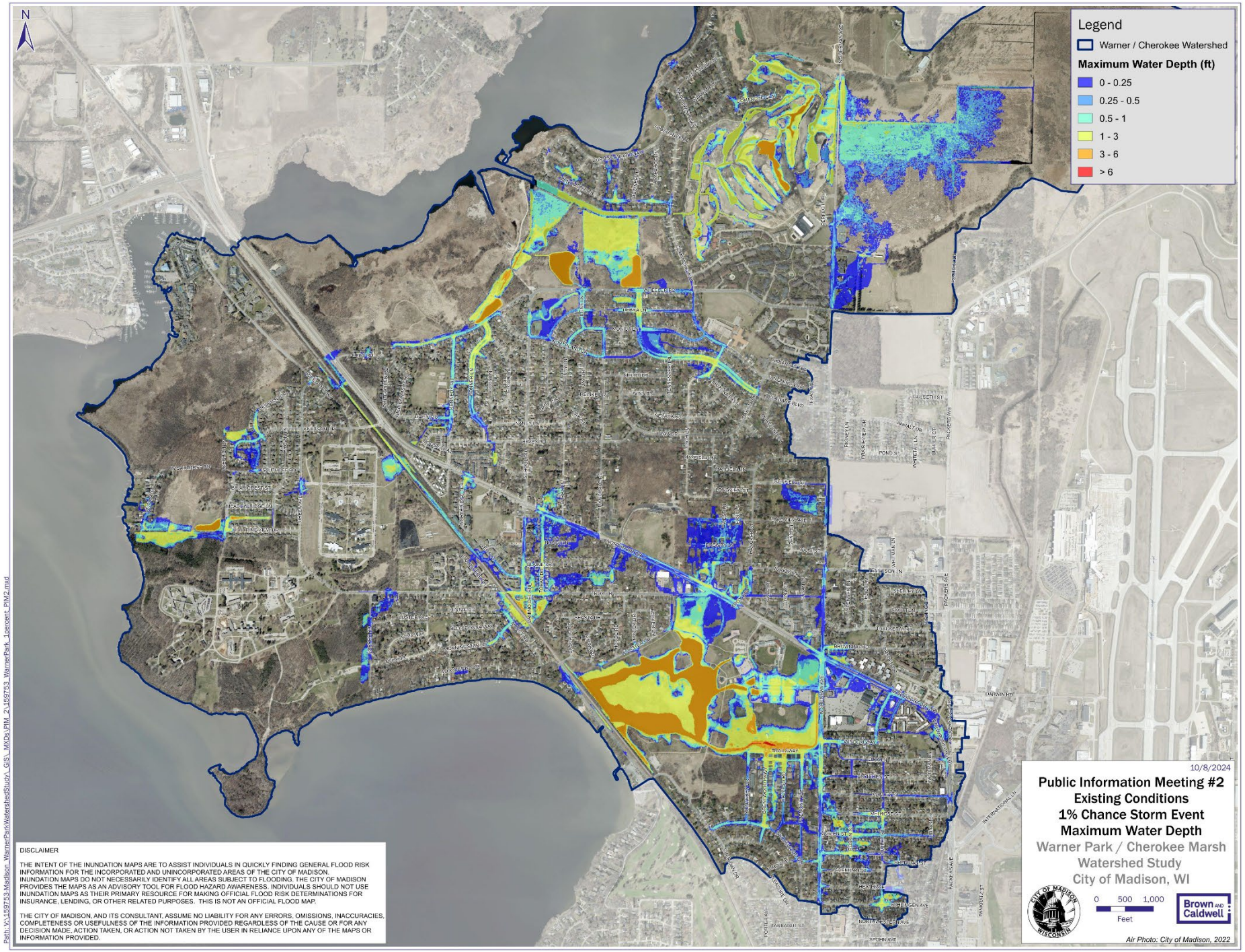
10% Chance Event (4.09 inches in 24 hours)

*Similar intensity to storm that occurred on July 10th



1% Chance (100-year) Existing Inundation Mapping

1% Chance Event
(6.66 inches in 24 hours)



Watershed Study Recommendations

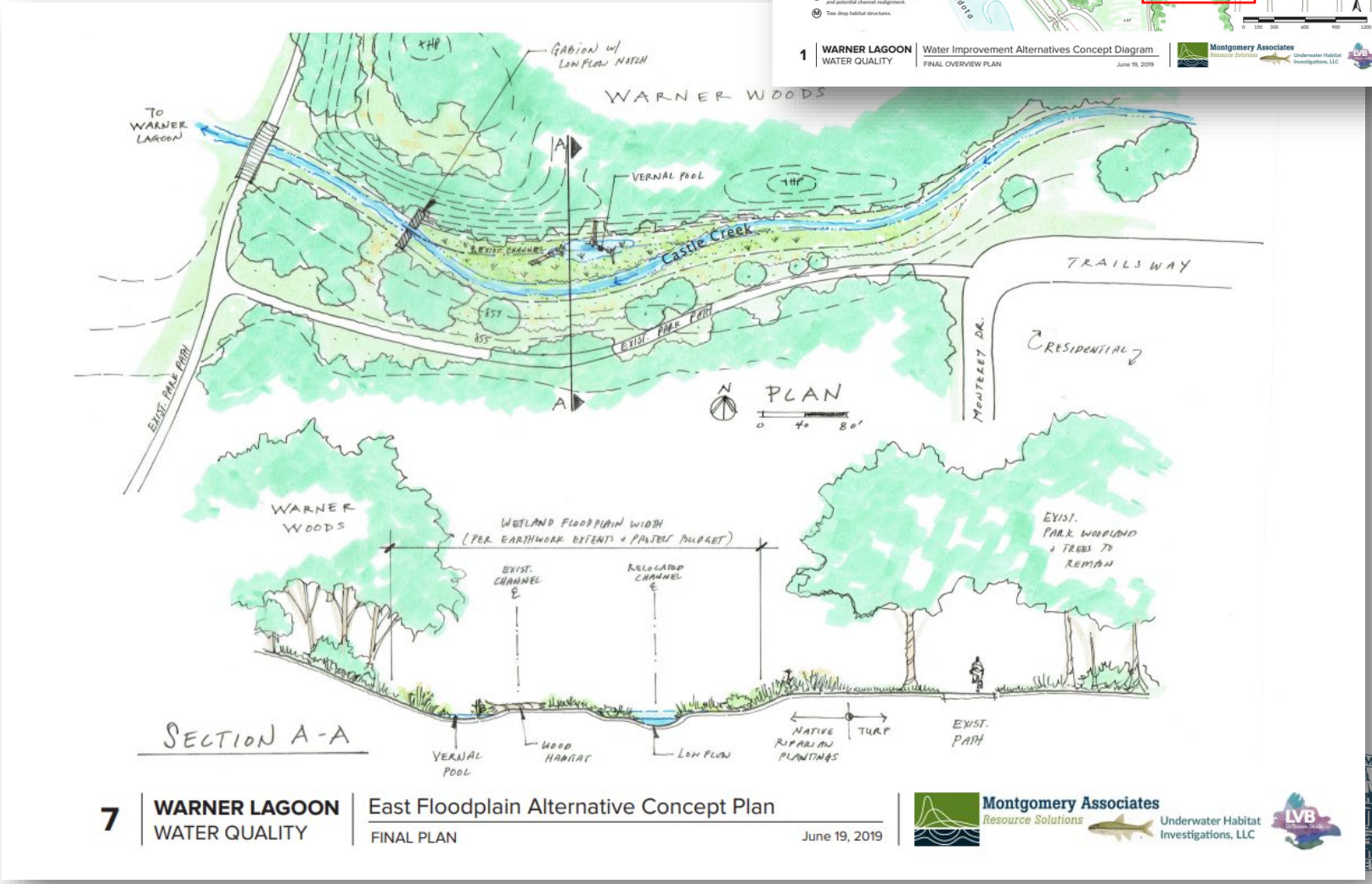
- Iterative process to develop conceptual solutions
  - Evaluated for:
    - Constructability
    - Permitting difficulty
    - Identify utility conflicts
    - Costs
- Final suite of recommendations
  - Implementation of each project will include full detailed design and public engagement efforts
- Cost Estimates
  - Planning level
    - 25% Contingency
    - 10% Design
  - Project Types
    - “Stand Alone” Mitigation
      - Initiated by SWU
    - Local Sewer Upgrades
      - Likely timed with Street Reconstructions

Warner Lagoon Water Quality Plan (2016-2021)

Objectives:

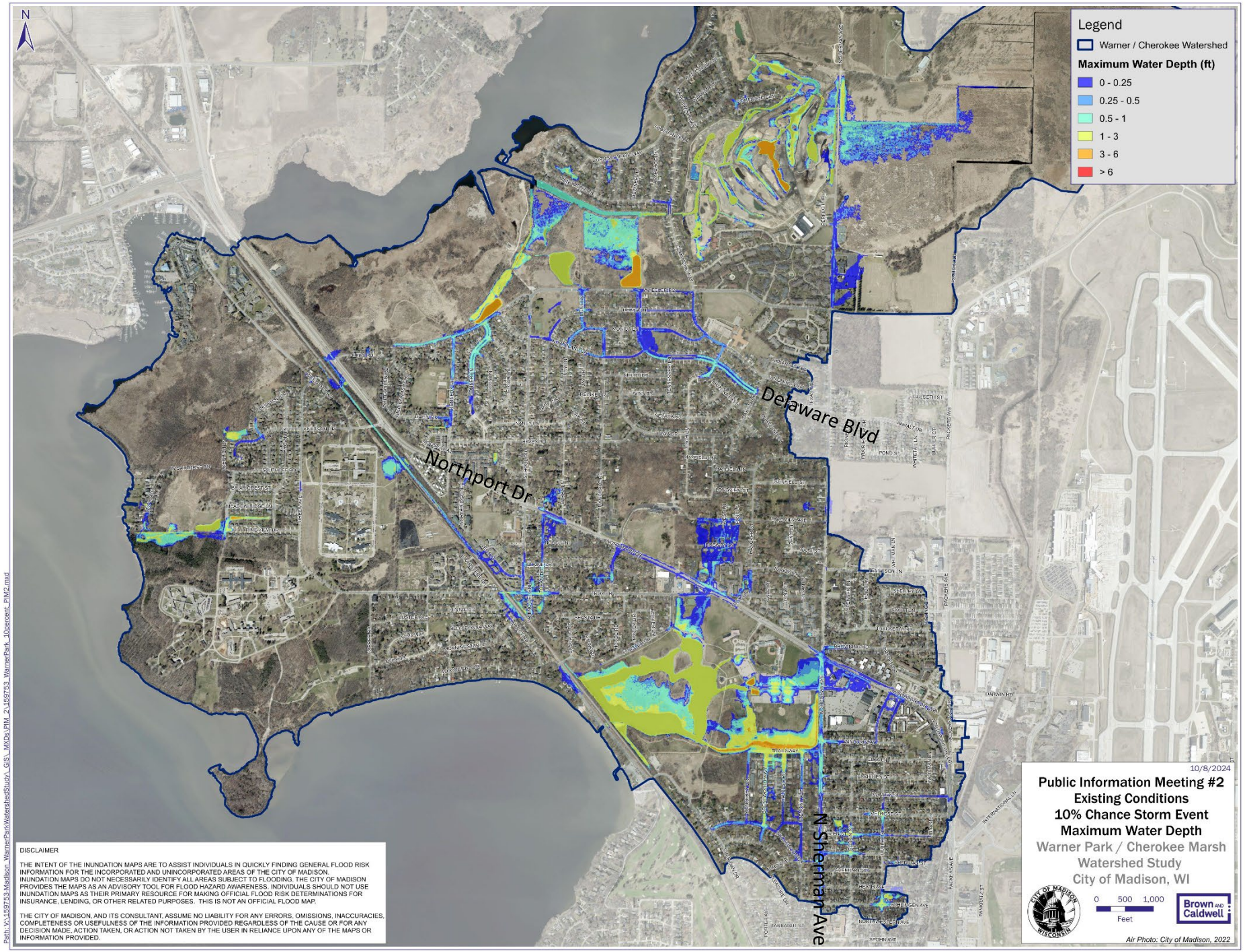
- Maintain or Improve Recreational Access
- Improve Water Quality
- Habitat Maintenance and Improvement
- Increase Educational Opportunities

The current study focuses on flood mitigation. Projects will be evaluated during design to incorporate water quality measures.



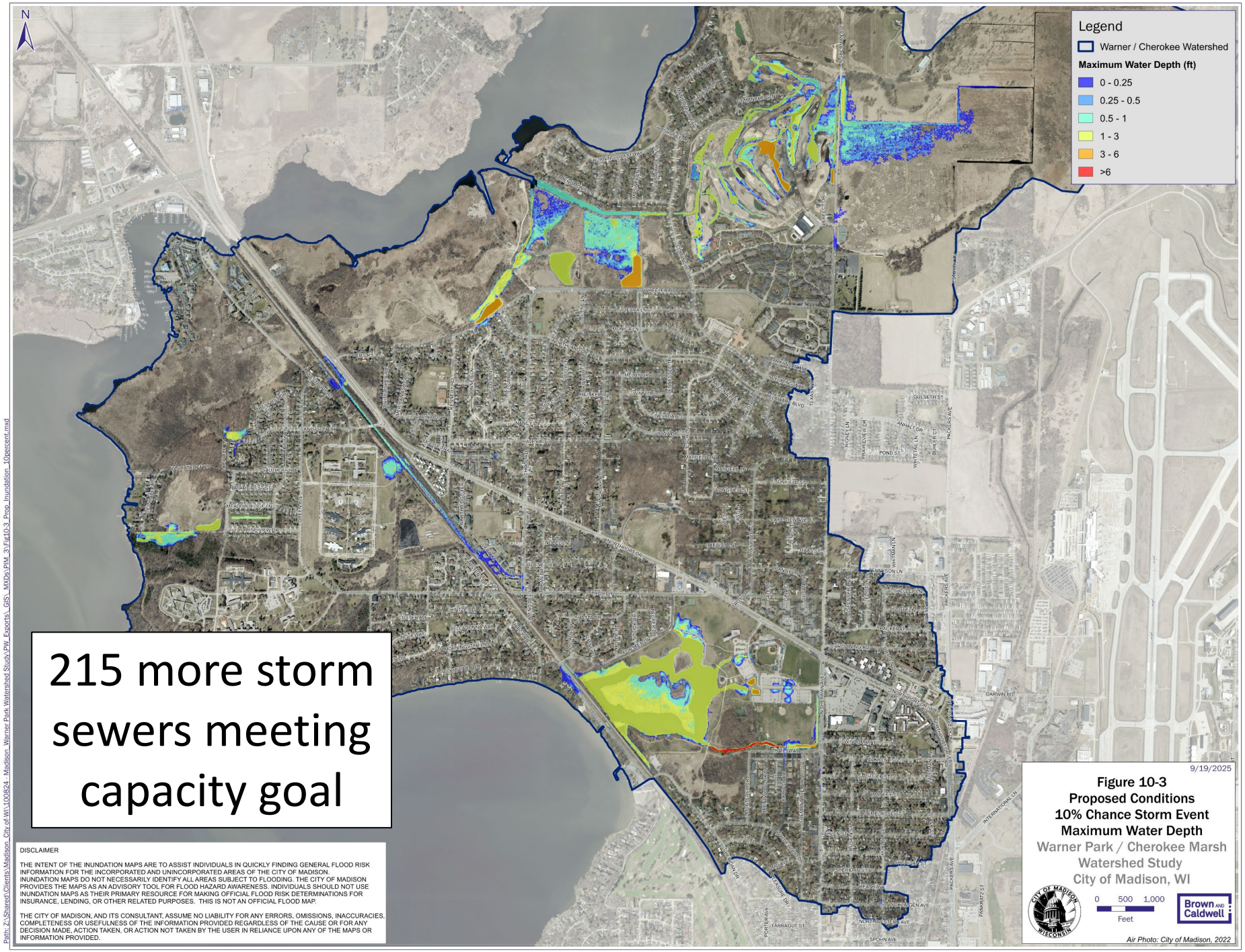
10% Chance (10-year) Existing Inundation Mapping

10% Chance Event
(4.09 inches in 24 hours)



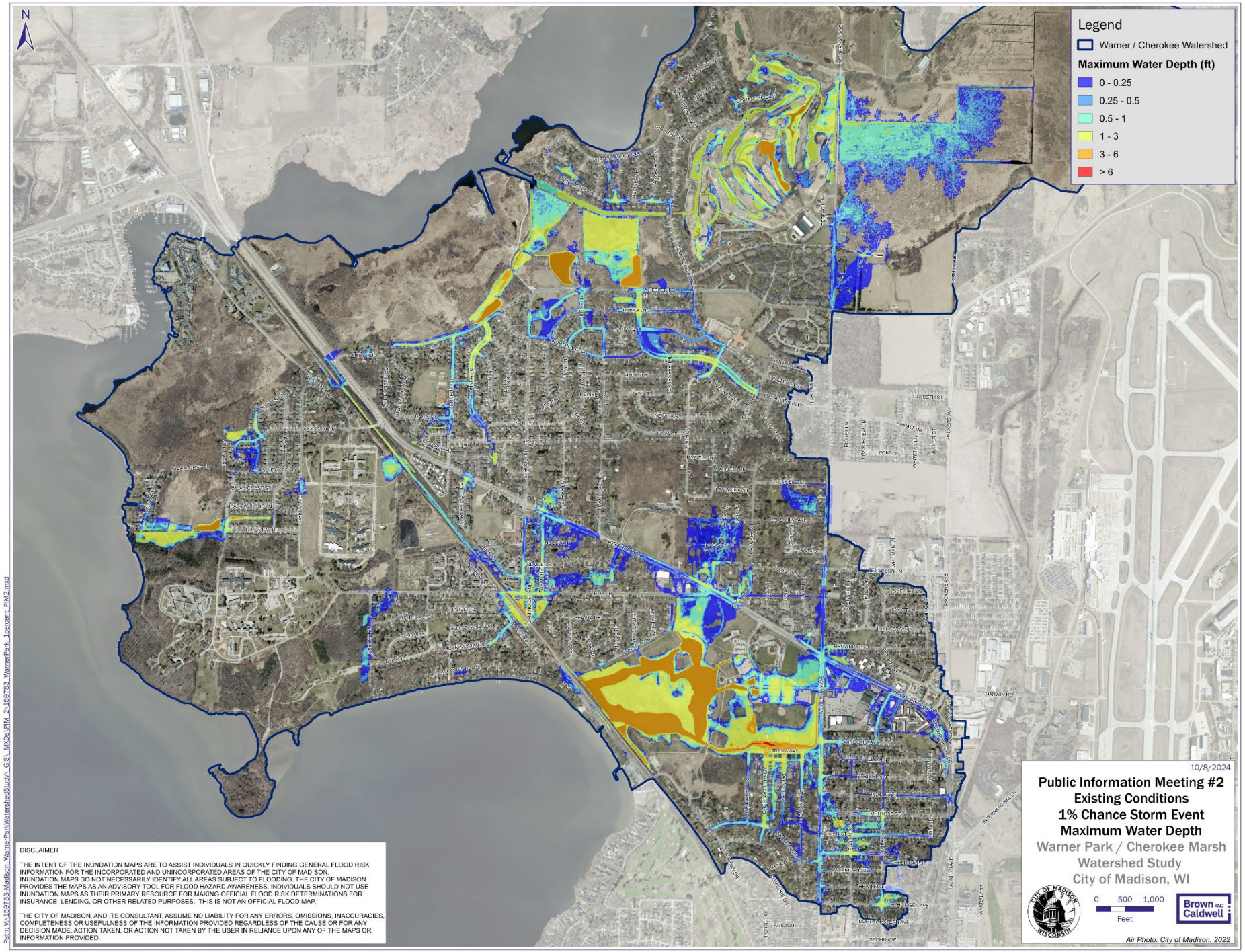
10% Chance (10-year) Proposed Inundation Mapping

10% Chance Event
(4.09 inches in 24 hours)



1% Chance (100-year) Existing Inundation Mapping

1% Chance Event
(6.66 inches in 24 hours)



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1% Chance Event
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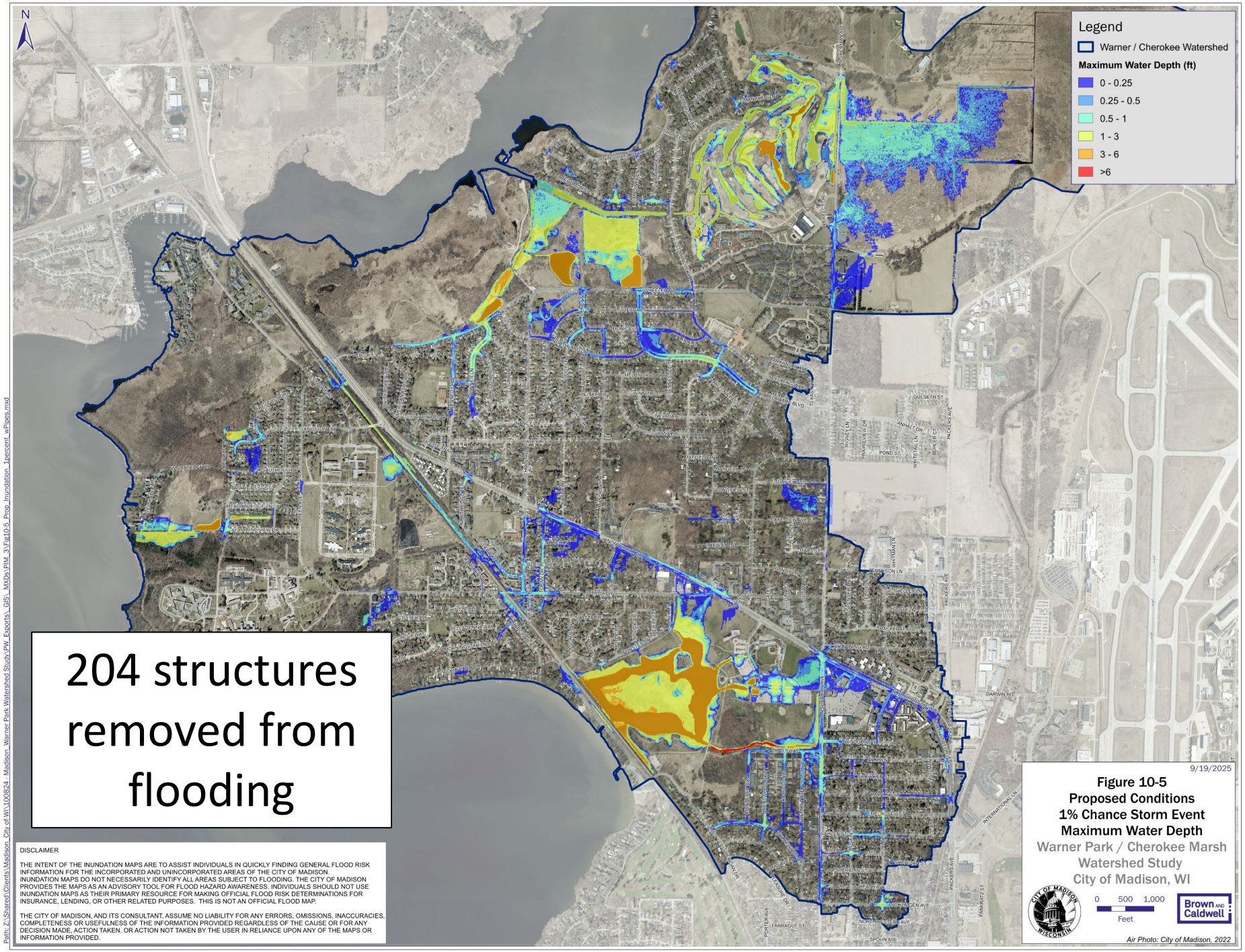

Proposed Solutions

- Local storm sewer improvements
- Castle Creek Greenway Improvements
- Warner Park Relief Sewer
- Camino Del Sol Relief Sewer
- Lake View & Drewery Diversion Sewers

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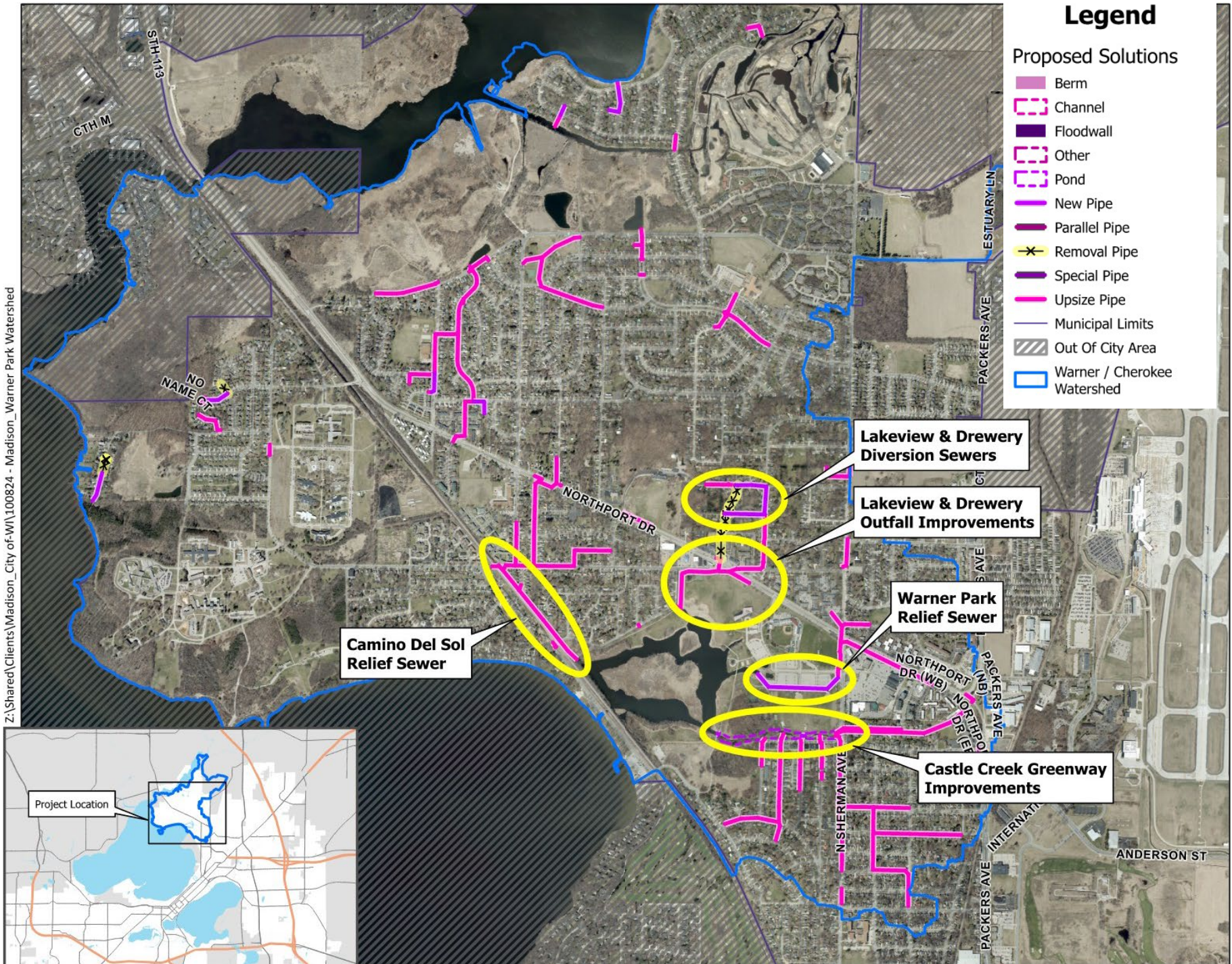
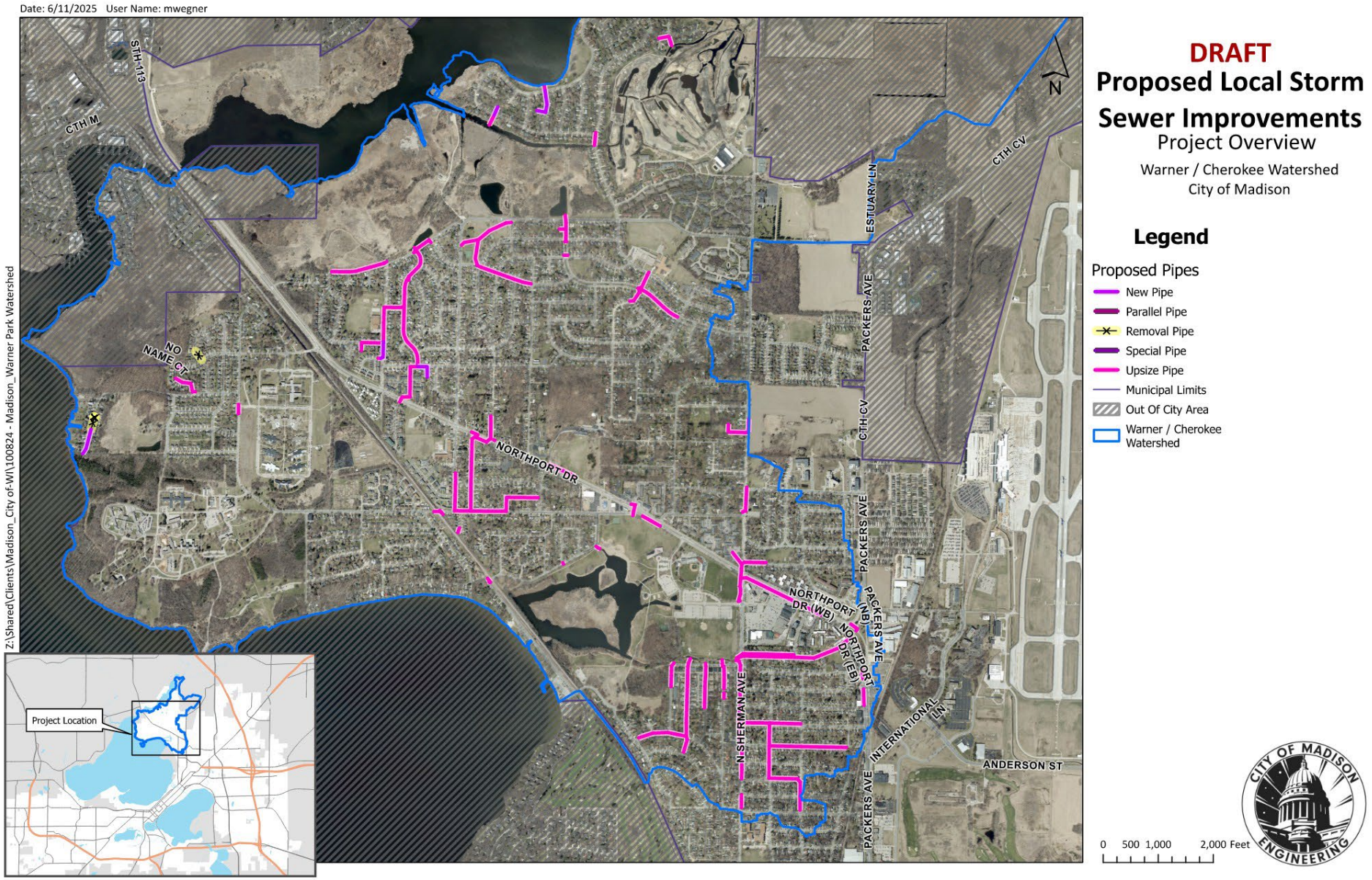


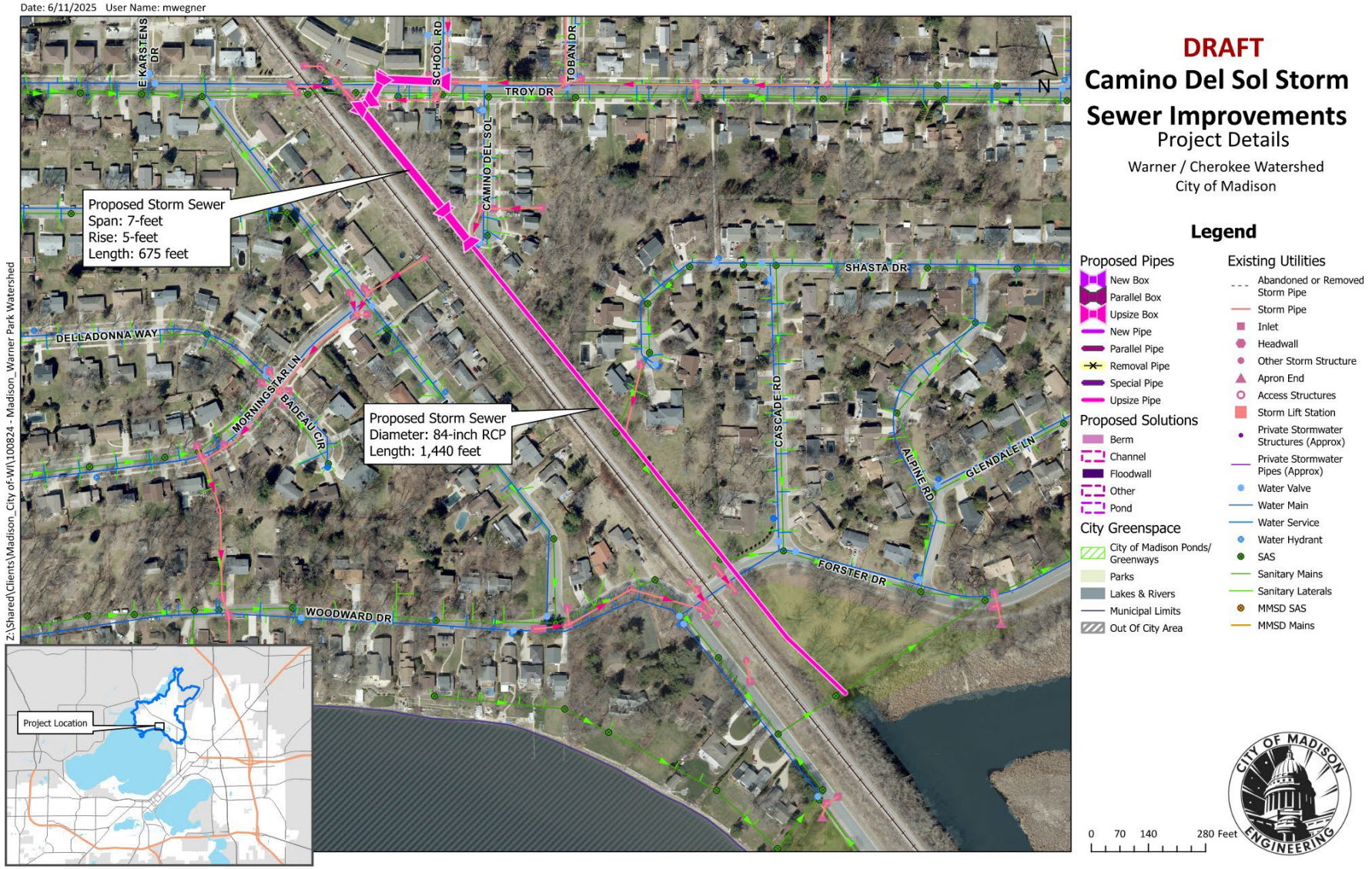
Local Storm Sewer Improvements

- Various improvements throughout developed areas
- Will primarily be implemented as part of street reconstruction projects



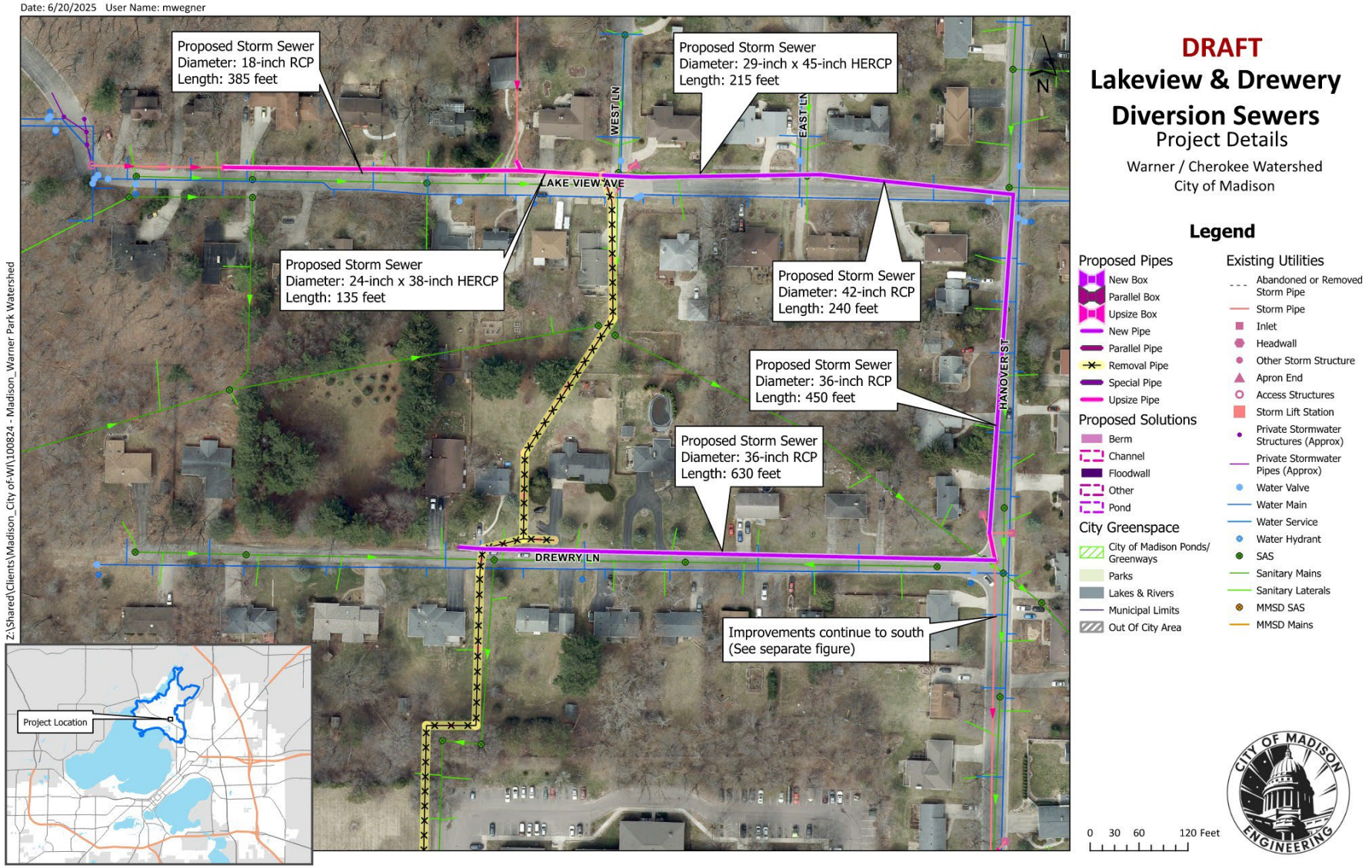
Camino Del Sol Relief Sewer

- Enlarge existing storm sewer from Troy Drive to Warner Lagoon
- Reduce flooding in Camino Del Sol cul-de-sac, Troy Dr, & surrounding streets



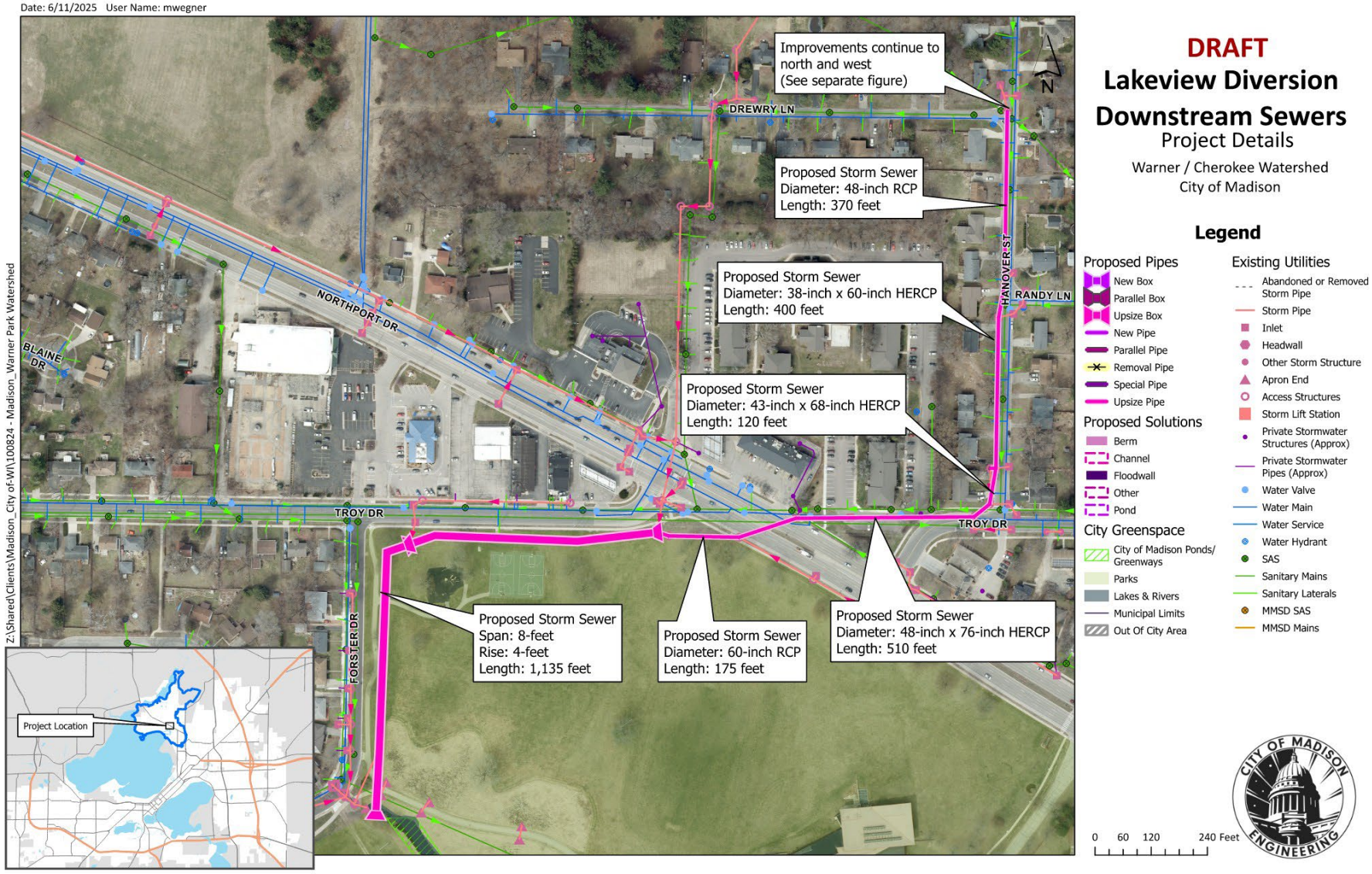
Lake View & Drewery Diversion Sewers

- Divert runoff to east along Lake View Ave & Drewery Ln
- In conjunction with road urbanization
- Coordination with other utilities
- Investigate abandonment of storm sewer outside ROW

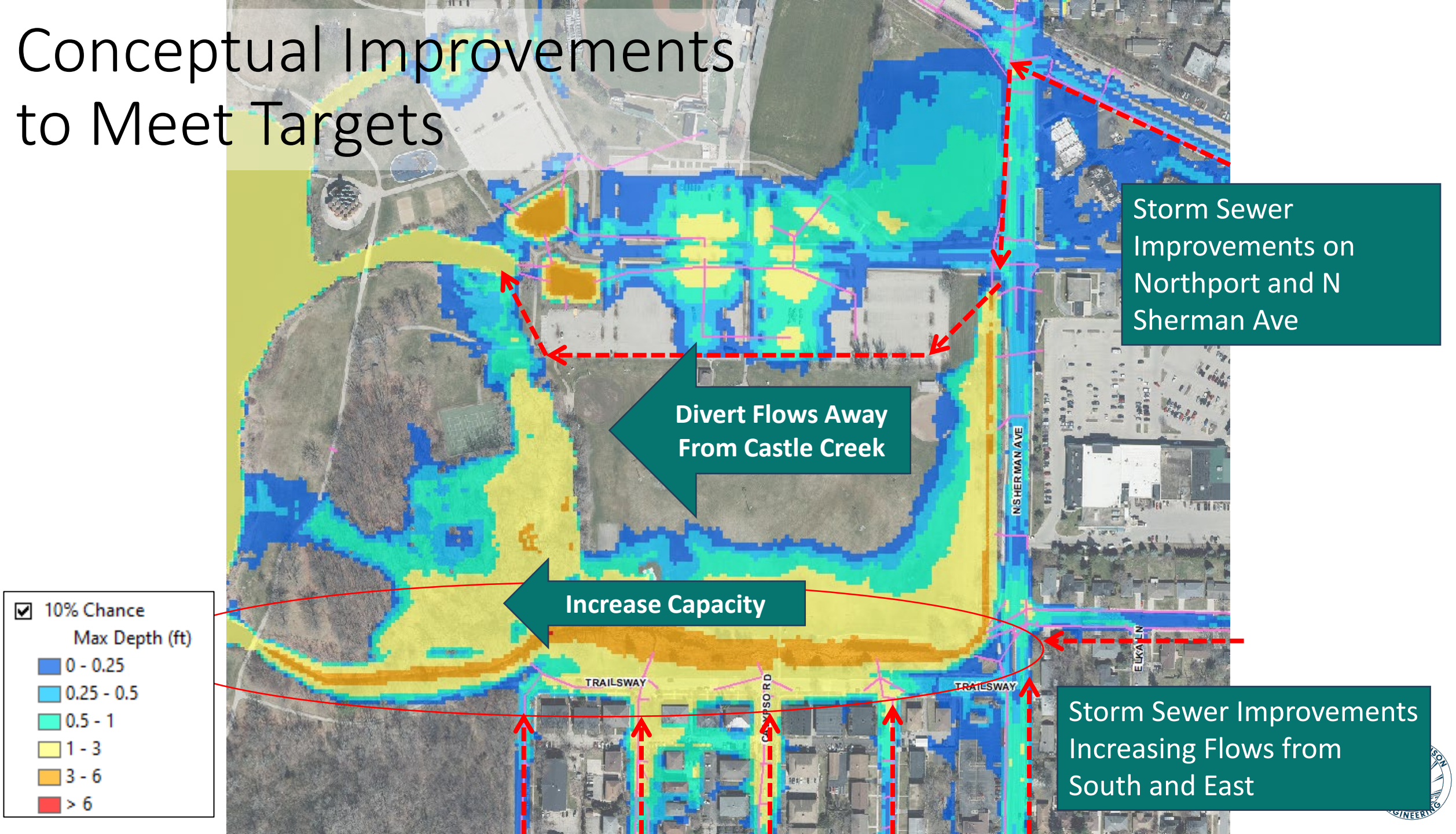


Lakeview & Drewery Downstream Sewer

- Continue improvements downstream
- Convey added flow & mitigate existing flooding

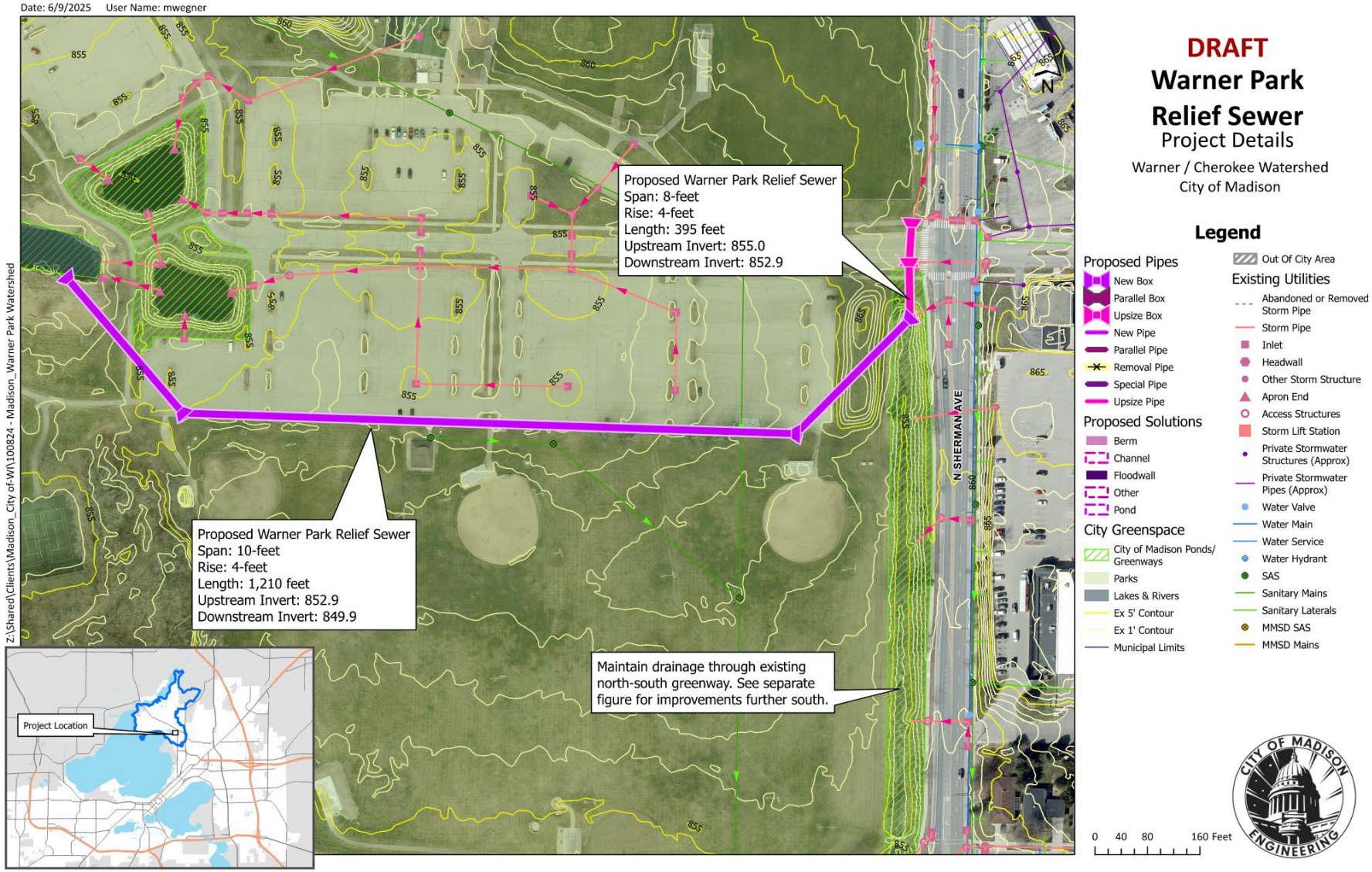


Conceptual Improvements to Meet Targets



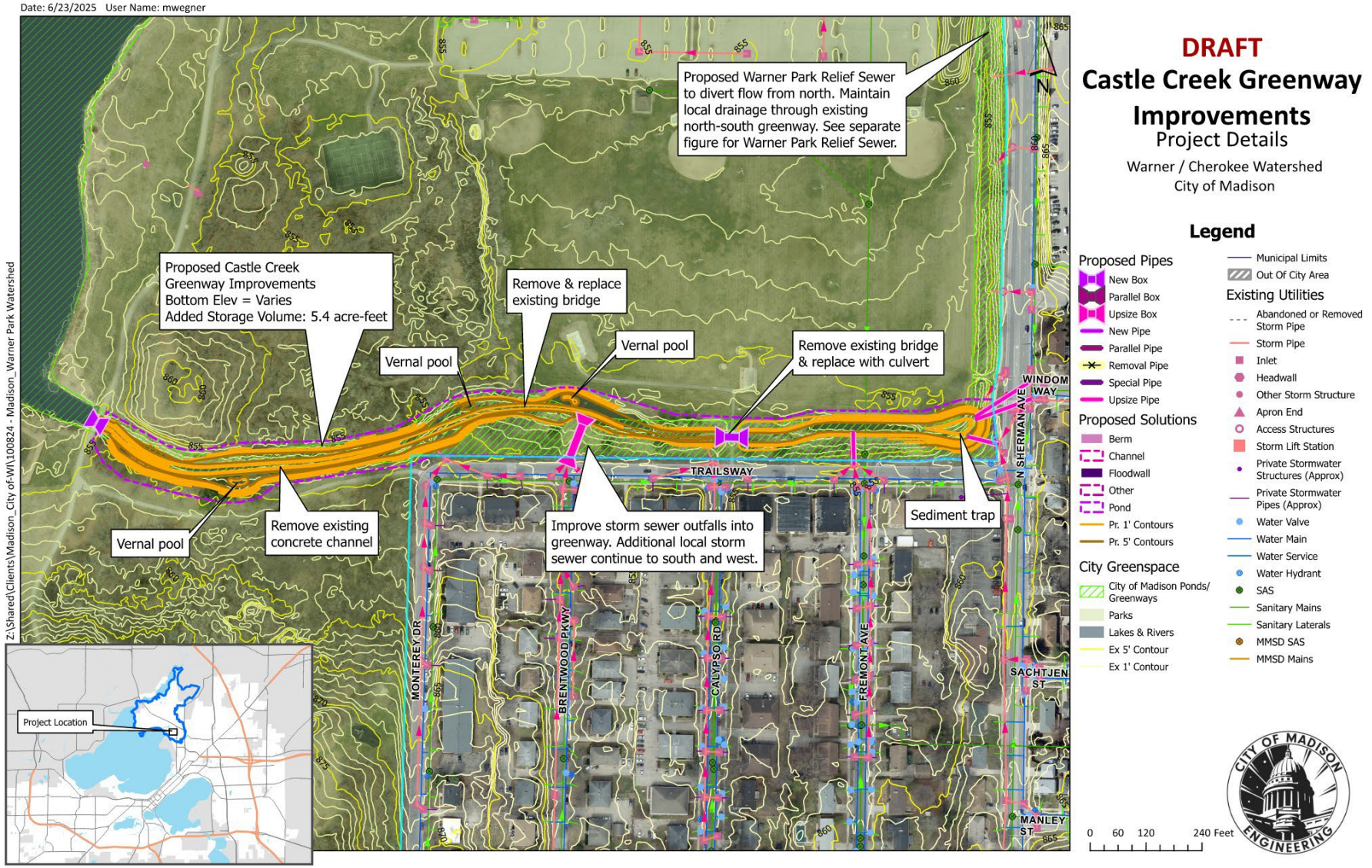
Warner Park Relief Sewer

- Divert runoff from north of park entrance into new relief sewer into Warner Lagoon
- Reduce flow reaching Castle Creek Greenway (to south)



Castle Creek Greenway Improvements

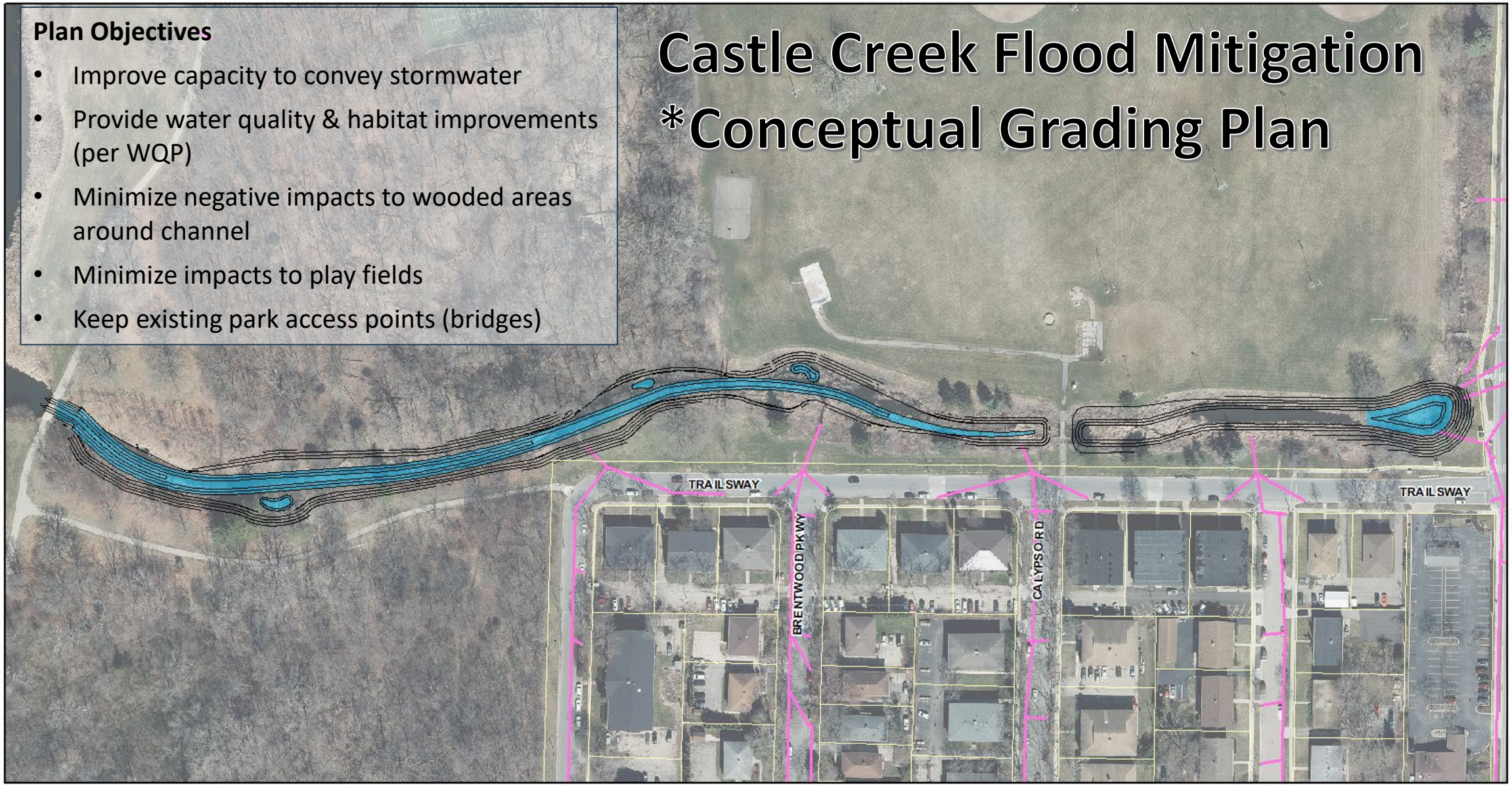
- Re-grade greenway to create deeper channel within existing corridor
  - Add floodplain and vernal pools for improved habitat
- Replace existing bridges
- Reduce flooding along Trailsway and adjacent streets
- Incorporates concepts from the approved Warner Lagoon Water Quality Plan (2021)



Castle Creek Flood Mitigation
*Conceptual Grading Plan

Plan Objectives

- Improve capacity to convey stormwater
- Provide water quality & habitat improvements (per WQP)
- Minimize negative impacts to wooded areas around channel
- Minimize impacts to play fields
- Keep existing park access points (bridges)



0 75 150 300 Feet

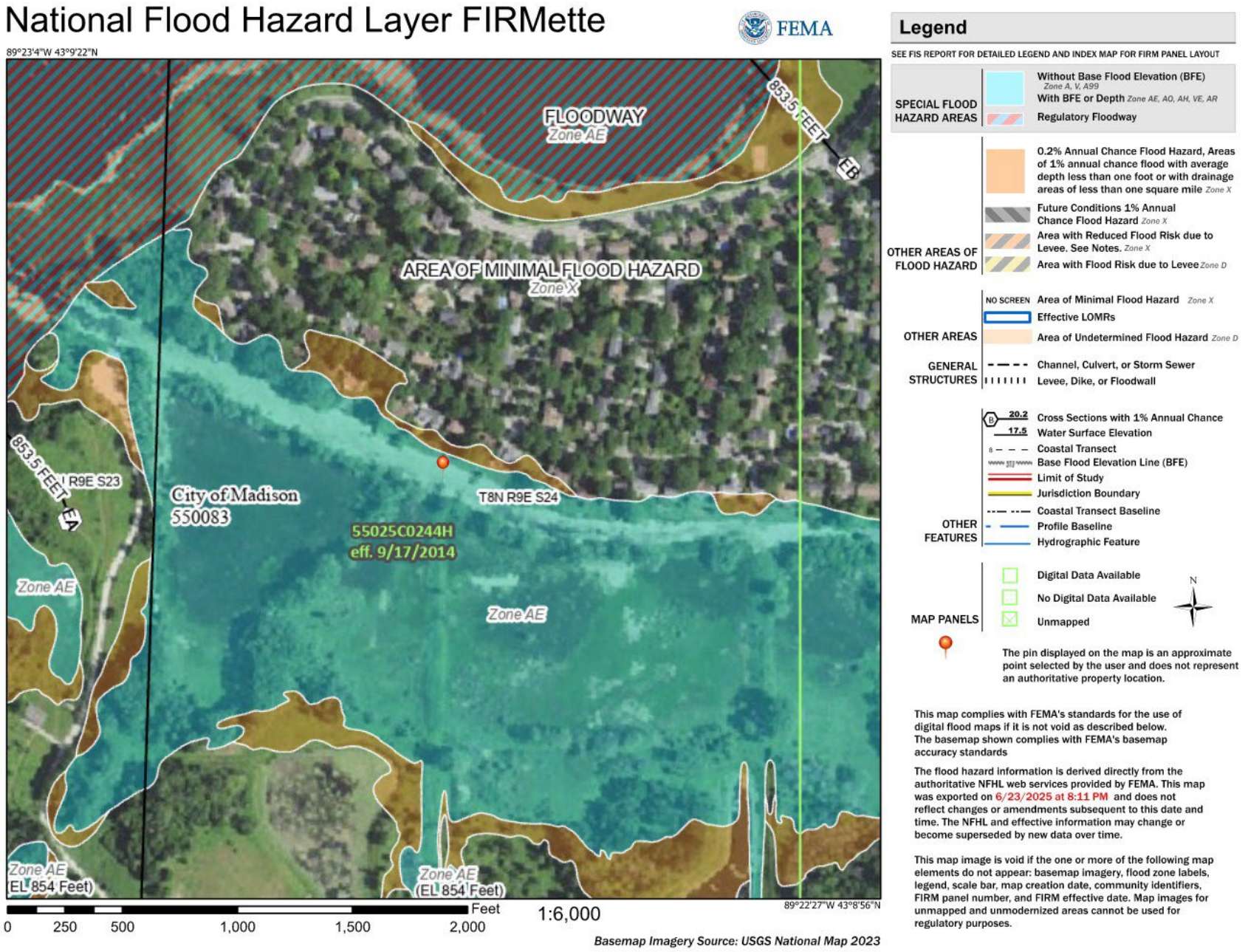
N

*Preliminary/conceptual design completed to establish flood mitigation needs and compatibility with Warner Lagoon Water Quality Plan, but full detailed design will not take place until project is programmed.

Parcels
Storm Sewers
Conceptual Proposed Contours
Water Level (Typ)

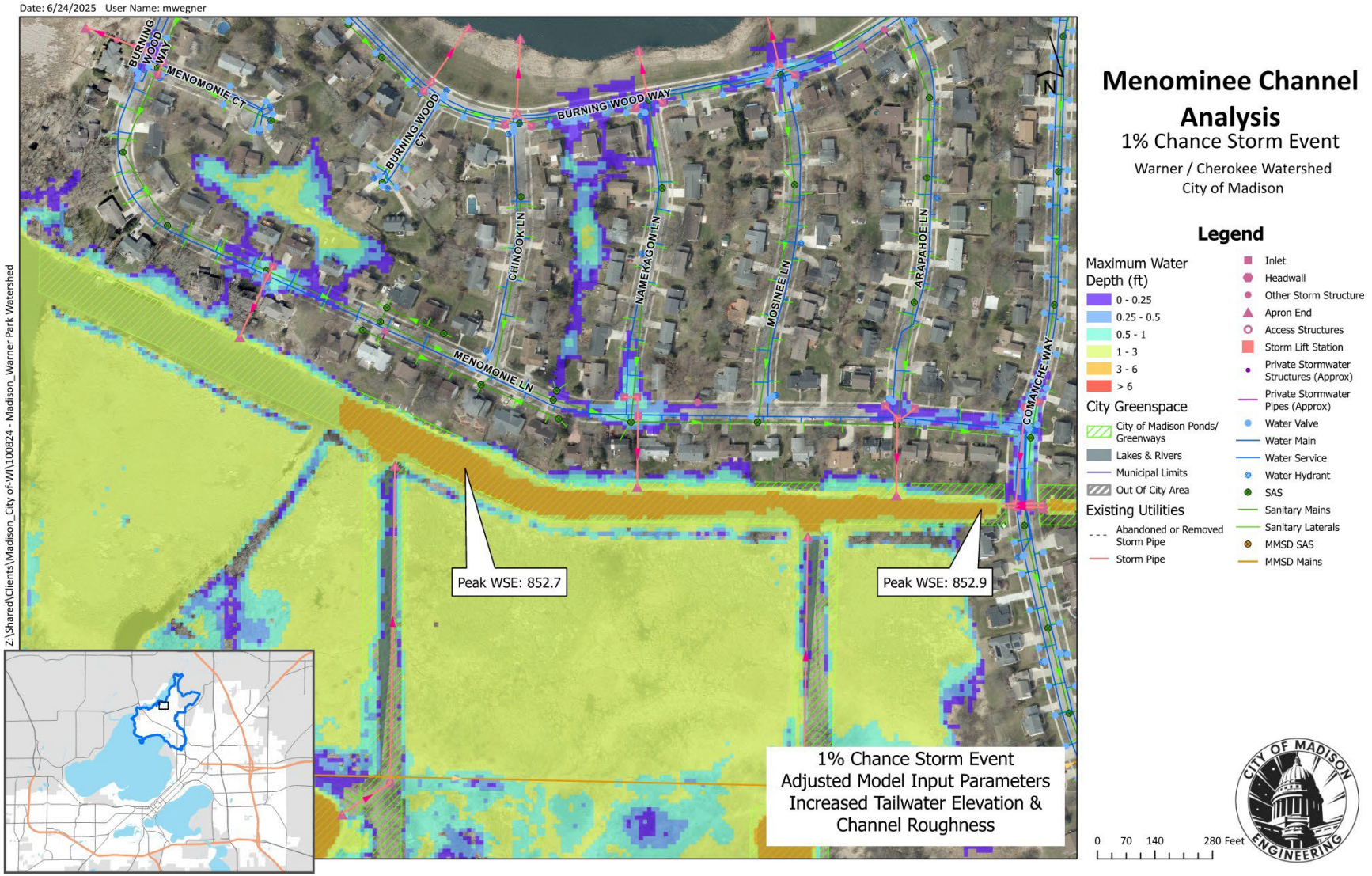
Menomonie Channel

- During second public meeting, a variety of homeowners along Menomonie Channel expressed concerns about their access to the Menomonie Channel
- Background: area within FEMA Floodplain
  - Flood Elevation = 853.5



Menomonie Channel

- Additional analysis completed as part of study at residents' request
- Peak Water Surface Elevation (WSE) from study is lower than FEMA floodplain mapping
  - From a stormwater conveyance perspective, dredging isn't necessary at this time
  - Not considered a recommended standalone project for flood mitigation, but eventually will be done as maintenance



Cost of Standalone Projects

Project	Estimated Cost
Castle Creek Greenway Improvements	$2.35 million
Warner Park Relief Sewer	$3.87 million
Camino Del Sol Relief Sewer	$3.90 million
Lake View & Drewery Diversion Sewers	$1.81 million
Lake View Diversion Downstream Sewer	$4.43 million

Total = $16.36M

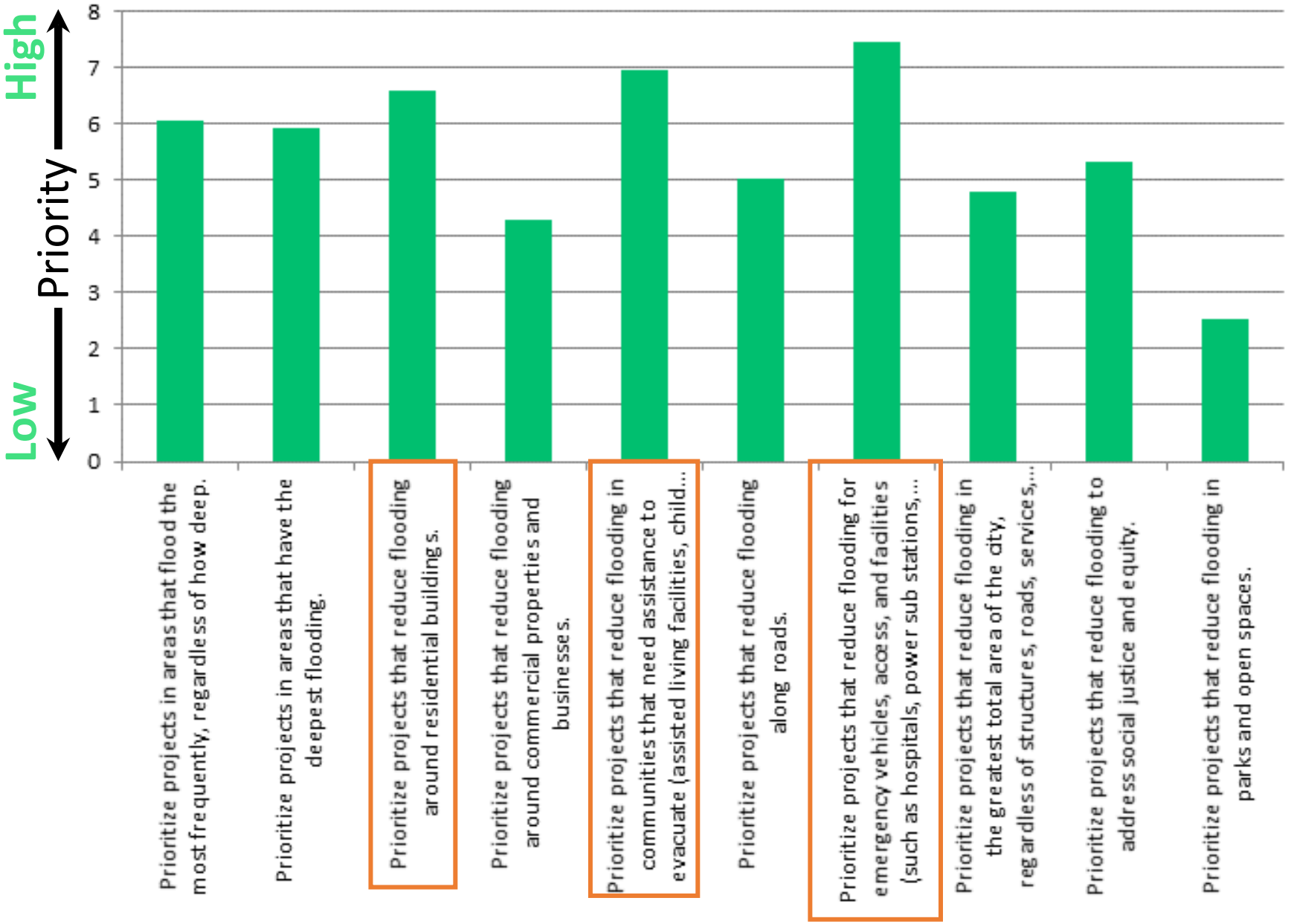
Budgeting Considerations

- Not all projects are yet identified
  - Currently 75 stand-alone projects in 12 study areas (22 watersheds will be studied)
  - $354 M (2025 dollars) + $16.4 M for Warner/Cherokee projects
- Stormwater Utility fees fund projects
  - Frequent double digit rate increases – not sustainable
  - Without additional funding, only 1-2 medium/large projects completed each year
- Additional funding mechanisms
  - Grants, appropriations, earmark funds
- Most projects take 1 ½ - 2 years to design & permit before construction

Citywide Prioritization Tool

- City creating prioritization tool to prioritize when solutions will be constructed
  - Will include all flood mitigation solutions in the City (22 watersheds)
  - Currently revisited annually as more studies are completed and solutions are added.
- Solutions prioritized based on:
  - Flood reduction abilities
  - Vulnerability
    - Income
    - Evacuation
  - Ability to improve emergency service access
  - Cost
  - Water quality benefits
- Surveys completed to provide input on how solutions are prioritized

Prioritization Survey Results



Effort to collect resident input citywide on what type projects should be prioritized (2021-2024).

Results were used to develop scoring system for prioritization tool, along with other factors previously shown

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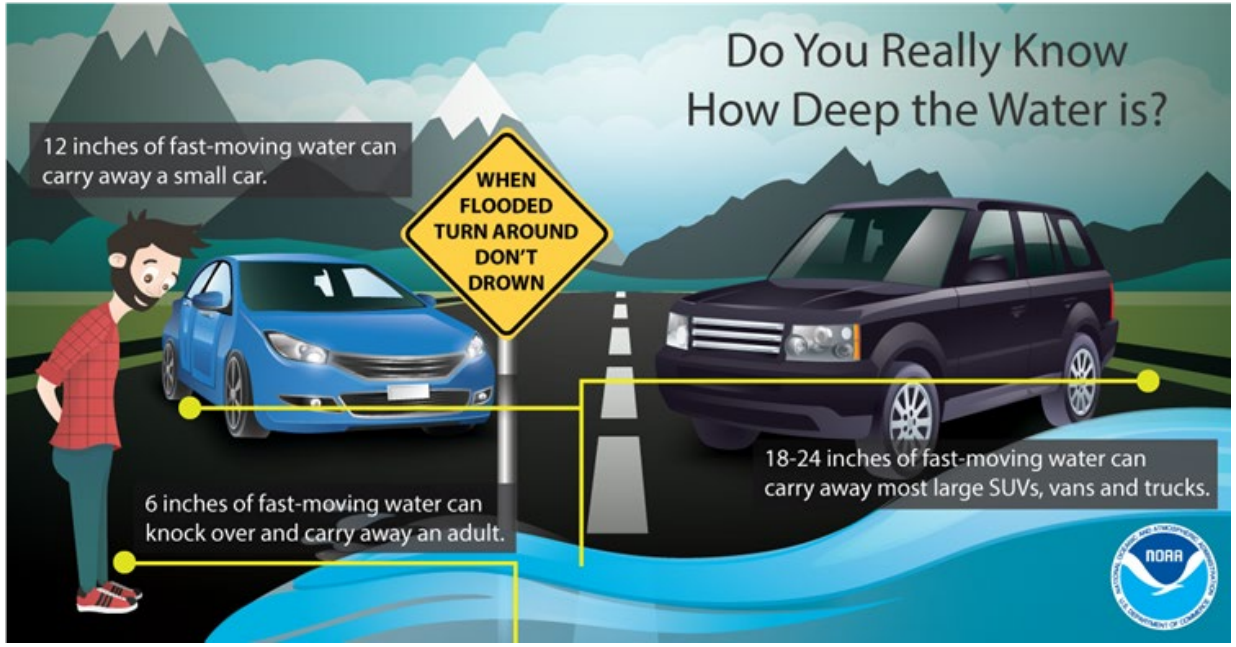
Why Aren’t all Targets Met for the Watershed?

- Space constraints
- Conflict with other major utilities (drinking water wells, large gas mains, etc)
- Property ownership
- Cost impacts
- When lake levels are high, stormwater has nowhere to go — drains can back up, and flooding worsens

Flood Safety

- **Turn Around, Don't Drown!**
  - Just **six inches** of moving water can knock you down and **one foot** can sweep a vehicle away!



- If caught in floodwaters, act quickly. Save yourself, not your belongings.

- **Do Not Enter Flood Waters!**
  - Water can be deeper than it appears, and can hide hazards such as contamination, downed powerlines, sharp debris, and access structures, for underground utilities, with missing lids.

- Treat flooding and stormwater features with respect; keep a safe distance and teach children to do the same.

- Find additional information on the City's webpage: https://www.cityofmadison.com/flooding/during-a-flood

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Flood preparedness

- Understand flood risks:
  - City of Madison Flood Risk Map
  - City of Madison Historical Street Flooding Map
  - Visit the watershed study project webpage

- If you live or work in a flood prone area, avoid storing valuable or important items on the floor of your basement or first floor.

- When traveling through flood-prone areas. Avoid walking or driving through floodwaters.
  - Plan alternate routes and allow additional time

- Avoid parking on streets or in parking lots at risk of flooding when a storms are forecasted.

- Avoid parking in underground parking structures of buildings that are at risk of flooding when a large storm is forecasted.

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What is Green Infrastructure (GI)

- GI is smaller infrastructure that **filters and absorbs stormwater where it falls**.
- GI uses plant or soil systems, permeable pavement or other permeable surfaces to **store, infiltrate, or evapotranspirate stormwater** and **reduce flows** to sewer systems or to surface waters.
- The City encourages GI use through the stormwater ordinance, the rain garden program, and a GI Pilot Study.

A rain garden on private property treats and infiltrates stormwater on-site and provides wildlife habitat

Terrace Rain Garden

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What The City is Doing

Green Infrastructure (GI) Successes in The City

- GI Effectiveness Analysis – modeled the impact of using widespread GI for flood mitigation
- Westmorland GI Pilot Study – Paired with the USGS (federal research agency) to study the impacts of implementing significant amounts of GI
    - Installed rain gardens, pervious pavement, pervious sidewalk and driveway impervious treatment
- Roger Bannerman Rain Garden Initiative (Terrace Rain Garden Program)
    - The City is well on its way to the 1000 Rain Garden Goal! As of 2025, there are 749 private and public rain gardens!
- Stormwater Ordinance Revision – resulted in an increase in GI with private development. >24 green roofs have been built since the ordinance revision in 2020.
- Provides online Educational Resources
- Partners with Dane County to host an annual 1 on 1 rain garden workshop in Feb.
    - https://www.ripple-effects.com/

Permeable Pavement installed with GI Study

Rain Garden installed at O'Keefe Middle School

Green Roof on Regent Street - Photo Credit: CRG, Chapter at Madison

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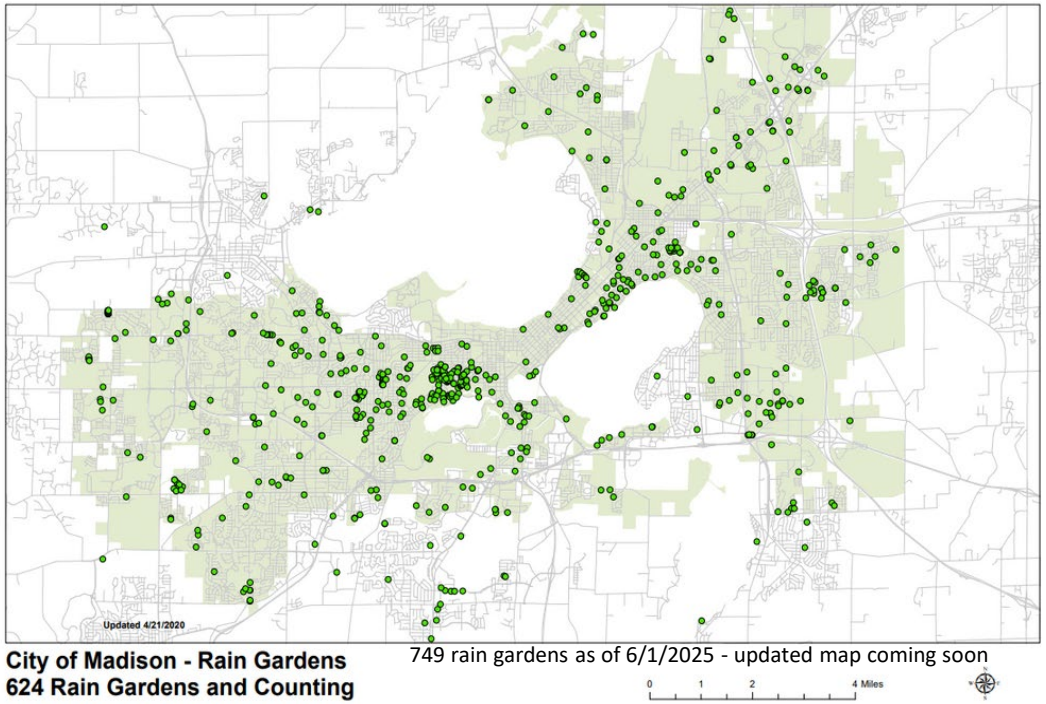
What Residents Can Do

- Be a Watershed Steward

- Talk about impacts of stormwater runoff with neighbors
- Reduce the stormwater leaving your property
  - Install a rain barrel
  - Direct roof drains to your grass or garden
  - Install a private rain garden & get credit on your stormwater bill
    - If you have a rain garden that isn't on the map, let us know!



749 rain gardens as of 6/1/2025 - updated map coming soon

- If you're impacted by road reconstruction, you may qualify for the City's terrace rain garden program
- Modify your leaf management techniques by removing leaves from the street and using them in your yard
- Learn about Ripple Effects, Madison Area Stormwater Partnership
  - Adopt A Storm Drain
- See Illegal Dumping to Storm Drains or Waterways – Report it!

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What Interested Residents Can Do

To Reduce Runoff

- Rain Barrels
  - Captures a small amount of water for reuse in a garden or lawn
  - Can purchase at a reduced price from Ripple Effects

- Rain Gardens
  - Reduce stormwater entering our stormwater system
  - Find resources here: Roger Bannerman Rain Garden Initiative | Engineering | City of Madison, WI

- Direct roof drains to grass
  - Directing your roof drain away from an impervious surface decreases the runoff leaving your property
  - Find more information at: Ripple Effects – Downspout Gardens

Native plantings at downspout
Photo Credit: Ripple Effects

Next Steps

- Finalize Report
  - Public Comment
    - 30 days to comment on report that will be posted on the project webpage
  - Board of Public Works approval
- Implement solutions as part of Capital Improvement Plan Budgeting Process

Contact Information & Resources

- Project Manager: Ryan Stenjem, rstenjem@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

- New Flooding Website: www.cityofmadison.com/flooding
- Everyday Engineering Podcast
- Instagram: @MadisonEngr
- Facebook – City of Madison Engineering
- X – @MadisonEngr

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Questions?

- 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
- Following Q&A we will host breakout groups where you can ask questions specific to your property

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Zoom Breakout Rooms

- Join a Zoom Breakout Room Session
  - Window will pop up where you can select which group you'd like to join
  - If a window doesn't pop up, look for a button on the bottom that says "Breakout Rooms." Click the button and room options will appear.

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Breakout Groups

1. Menomonie Channel
2. Castle Creek
3. Local Sewer that drain to Cherokee Marsh / Lake Mendota
4. Improvements that drain to Warner Park