



Door Creek Watershed Study Public Information Meeting #2

Public Information Meeting
City of Madison Engineering Division
August 16, 2023

Thank you for attending. We will begin shortly...



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 “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.

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.

How to Participate

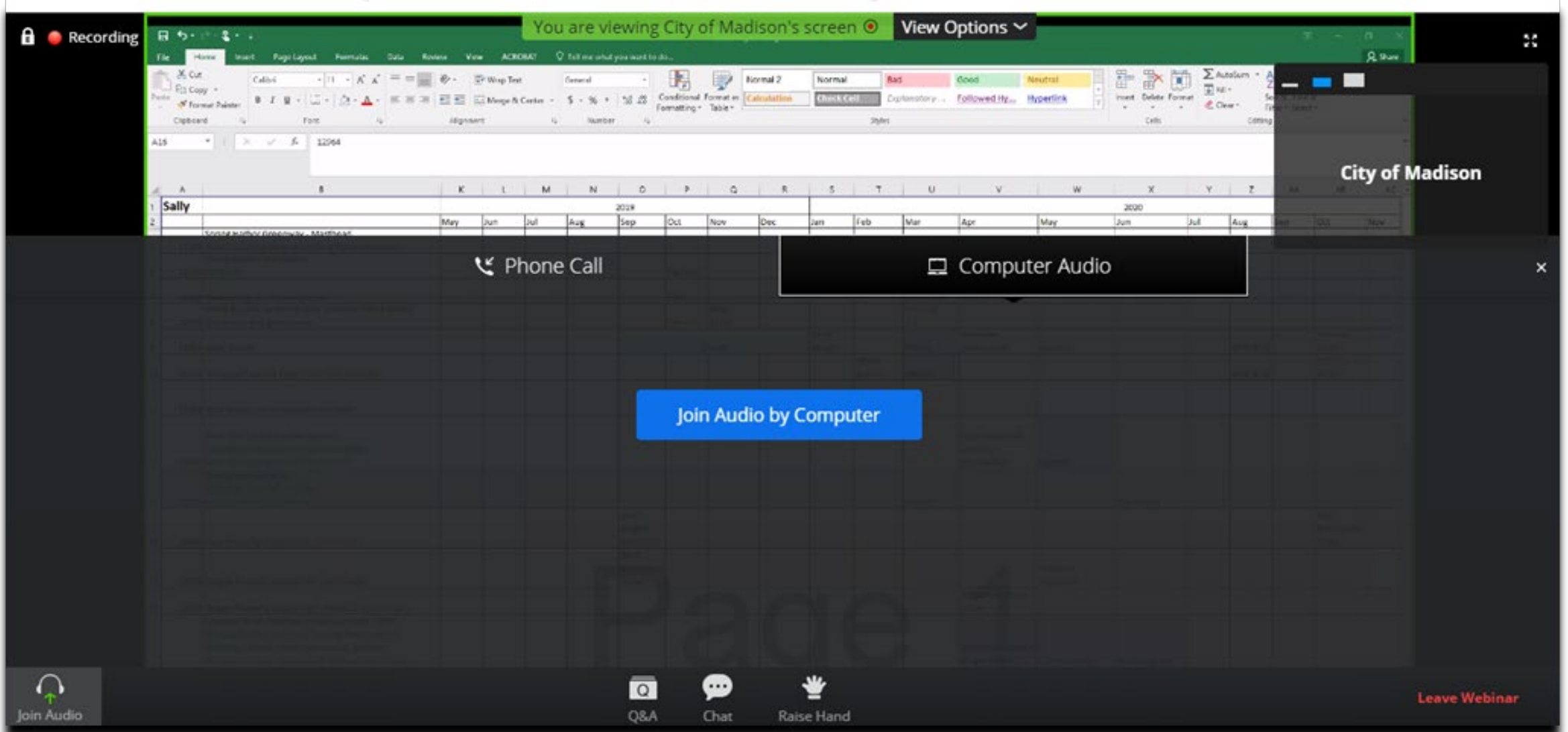
The screenshot displays a Zoom webinar interface. At the top, a green banner indicates "You are viewing City of Madison's screen" with a "View Options" dropdown. The main content is a shared Microsoft Excel spreadsheet showing a calendar for 2019 and 2020. The spreadsheet has columns for months and rows for years. A "City of Madison" logo is visible in the top right corner of the shared screen. Below the spreadsheet, there are two audio options: "Phone Call" and "Computer Audio". A blue button labeled "Join Audio by Computer" is positioned below these options, with a red arrow pointing to it. At the bottom of the Zoom interface, there is a "Join Audio" button with a headset icon, also indicated by a red arrow. Other bottom icons include "Q&A", "Chat", and "Raise Hand". A "Leave Webinar" button is in the bottom right corner.



Make sure to join audio



How to Participate



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



CITY OF MADISON



How to Participate

The screenshot displays a Zoom meeting interface. At the top, a green banner reads "You are viewing City of Madison's screen" with a "View Options" dropdown. The main content is a shared Microsoft Excel spreadsheet. The spreadsheet has a header row with columns labeled A through Z. Row 1 contains the name "Sally" in column A, followed by a calendar for the year 2019 (columns B through Q) and a calendar for the year 2020 (columns R through Z). Below the spreadsheet, there are two audio options: "Phone Call" and "Computer Audio". A prominent blue button in the center says "Join Audio by Computer". At the bottom of the Zoom window, there is a toolbar with icons for "Join Audio", "Q&A", "Chat", and "Raise Hand". A "Leave Webinar" button is located in the bottom right corner.

Use chat if you have technical issues or a question for the panelists



How to Participate

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Use Q/A if you have questions.
We will answer after the presentation



How to Participate

The screenshot displays a Zoom meeting interface. At the top, a green banner reads "You are viewing City of Madison's screen" with a "View Options" dropdown. Below this is a Microsoft Excel spreadsheet with a grid showing months from May 2019 to August 2020. The spreadsheet has columns labeled A through Z and rows numbered 1 and 2. The name "Sally" is visible in cell A1. A "City of Madison" logo is overlaid on the right side of the spreadsheet. In the center of the meeting window, there are two buttons: "Phone Call" and "Computer Audio". Below these is a large blue button that says "Join Audio by Computer". At the bottom of the meeting window, there is a toolbar with icons for "Join Audio", "Q&A", "Chat", and "Raise Hand". On the far right of the toolbar, the text "Leave Webinar" is visible in red. A red arrow points to this text.

To leave the meeting
click here

CITY OF MADISON



Presentation Overview

- Welcome – Jojo O’Brien, City of Madison
- Presentation – Mike Wegner, Brown and Caldwell
 - Definition of commonly used terms
 - Why are we here
 - Project location
 - Progress to date
 - Inundation mapping
 - Flood mitigation targets
 - Next steps
 - Watershed study limitations
- Q&A – facilitated by Hannah Mohelnitzky, City of Madison
 - Submit questions through Zoom Q&A
- Flood map feedback—facilitated by Jojo O’Brien
- Wrap Up – Jojo O’Brien, City of Madison



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

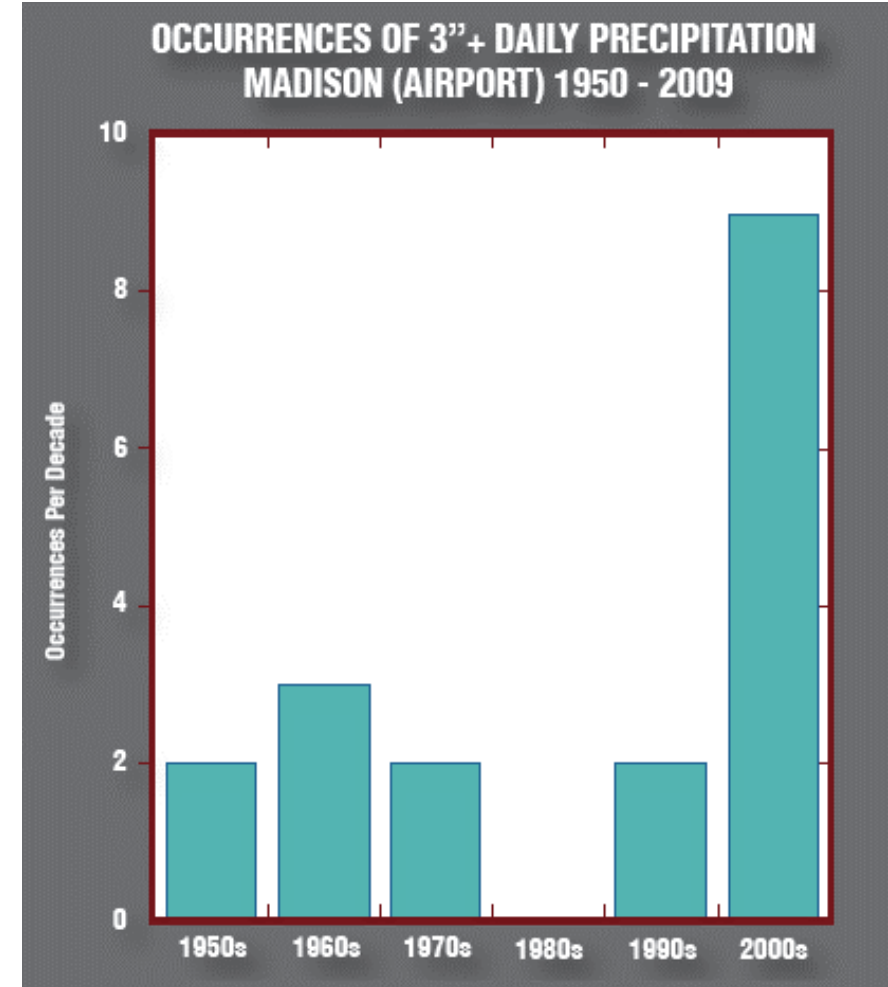
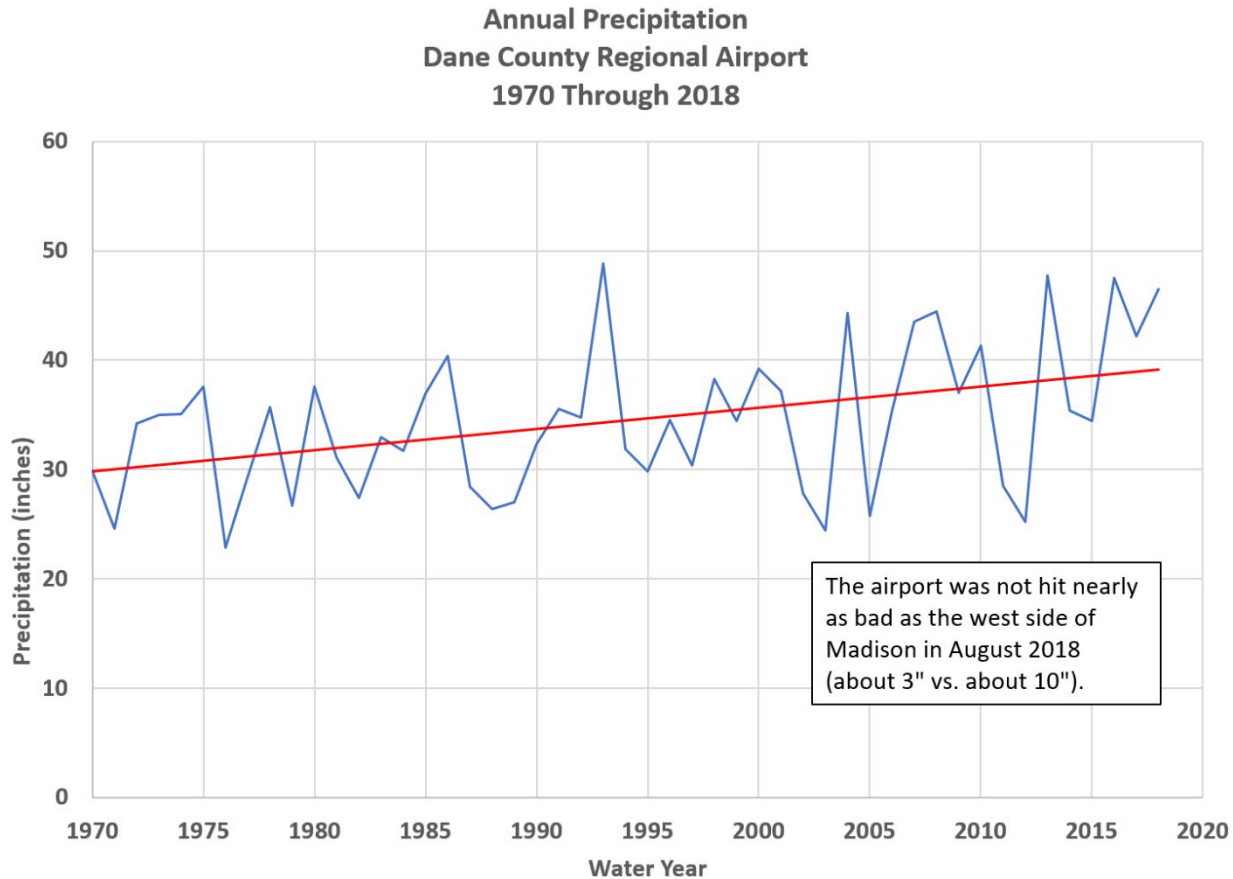
- % Chance Storm Definition: chance that a rainfall event will occur each year
- 1% chance storm is also known as the 100-yr storm
 - 6.66-inches of rain in 24-hours
 - Does NOT mean that a storm will only occur once in 100 years.
 - During a 30-year mortgage, there's a 26% chance of experiencing a 100-year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



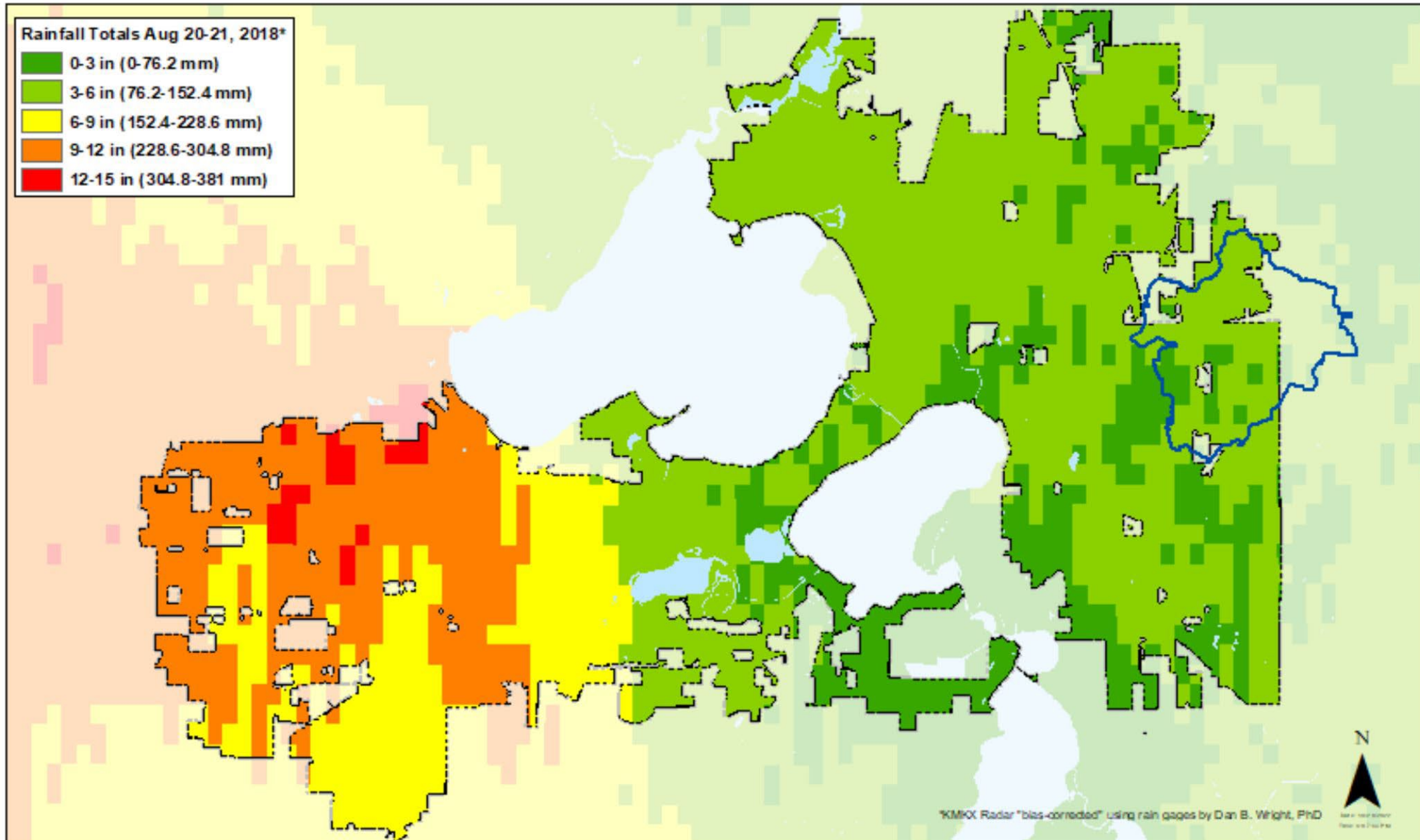
Why We Are Here: Historic Events

- 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.

Rainfall Totals August 20-21, 2018



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

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

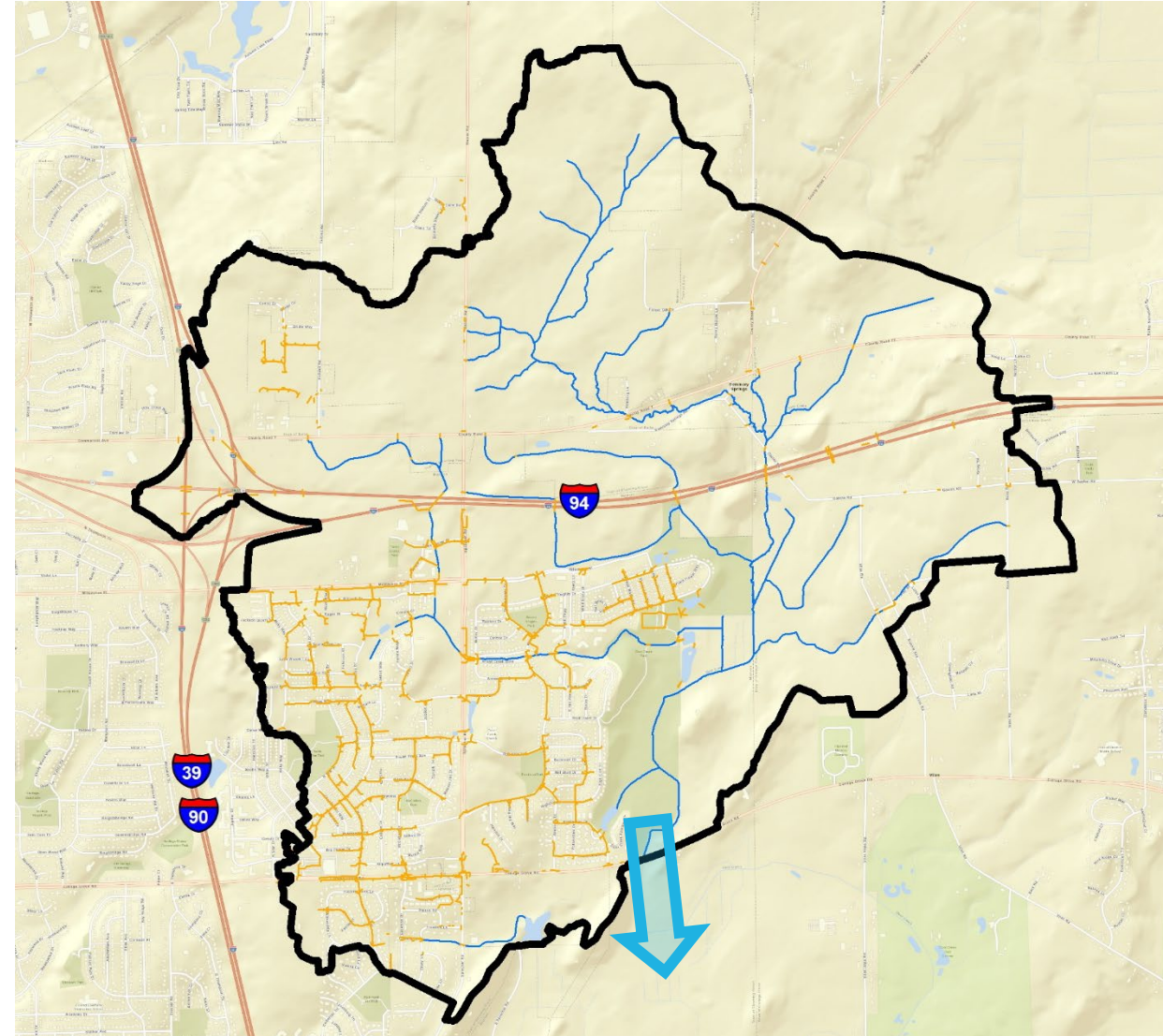


Deming Way, Madison, WI

Where the Water Goes

What's a watershed?

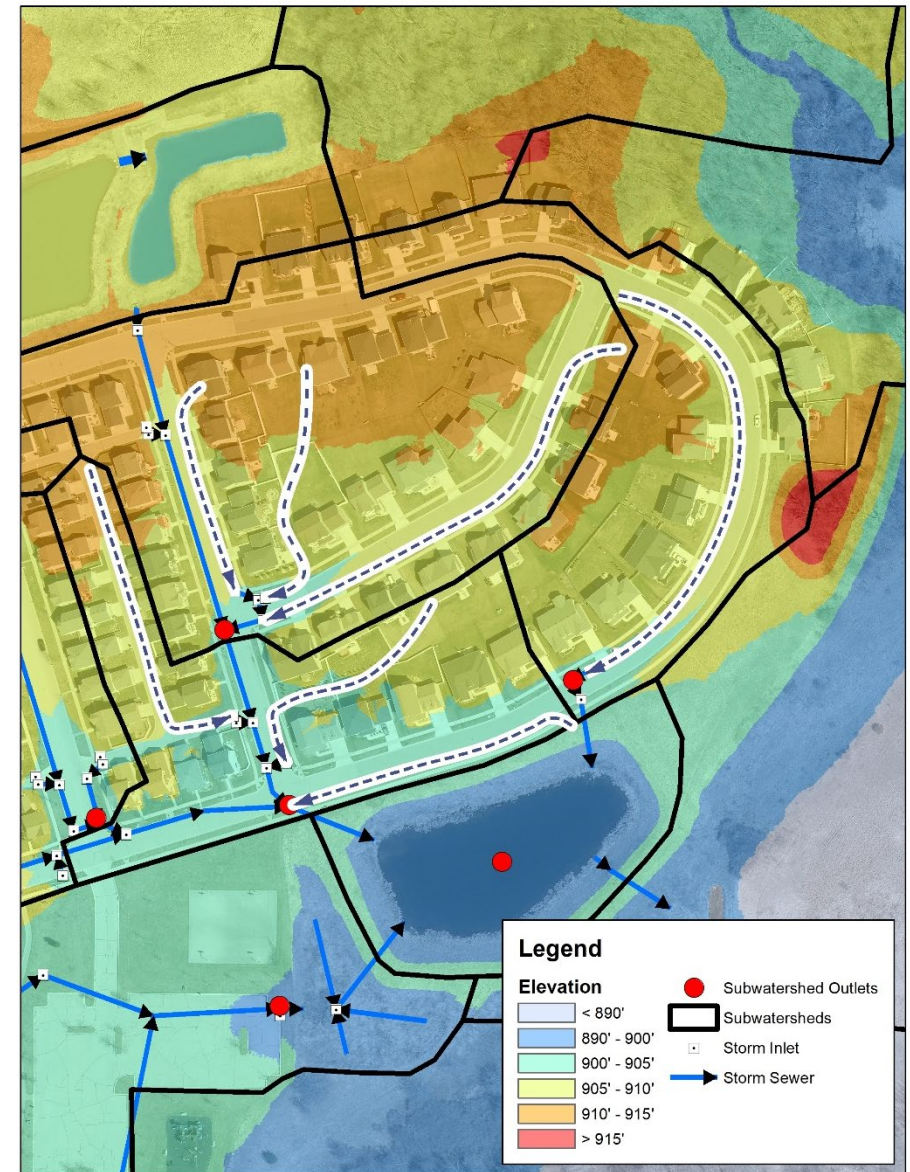
- A watershed is the area of land that drains precipitation (rain, snow, etc.) to a common low point, such as an inlet, stream, or lake.
- Determined by surface terrain and underground pipe system.



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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>



Reasons for Flooding Issues

Flash Flooding

Beltline, looking west from Park Street, WisDOT

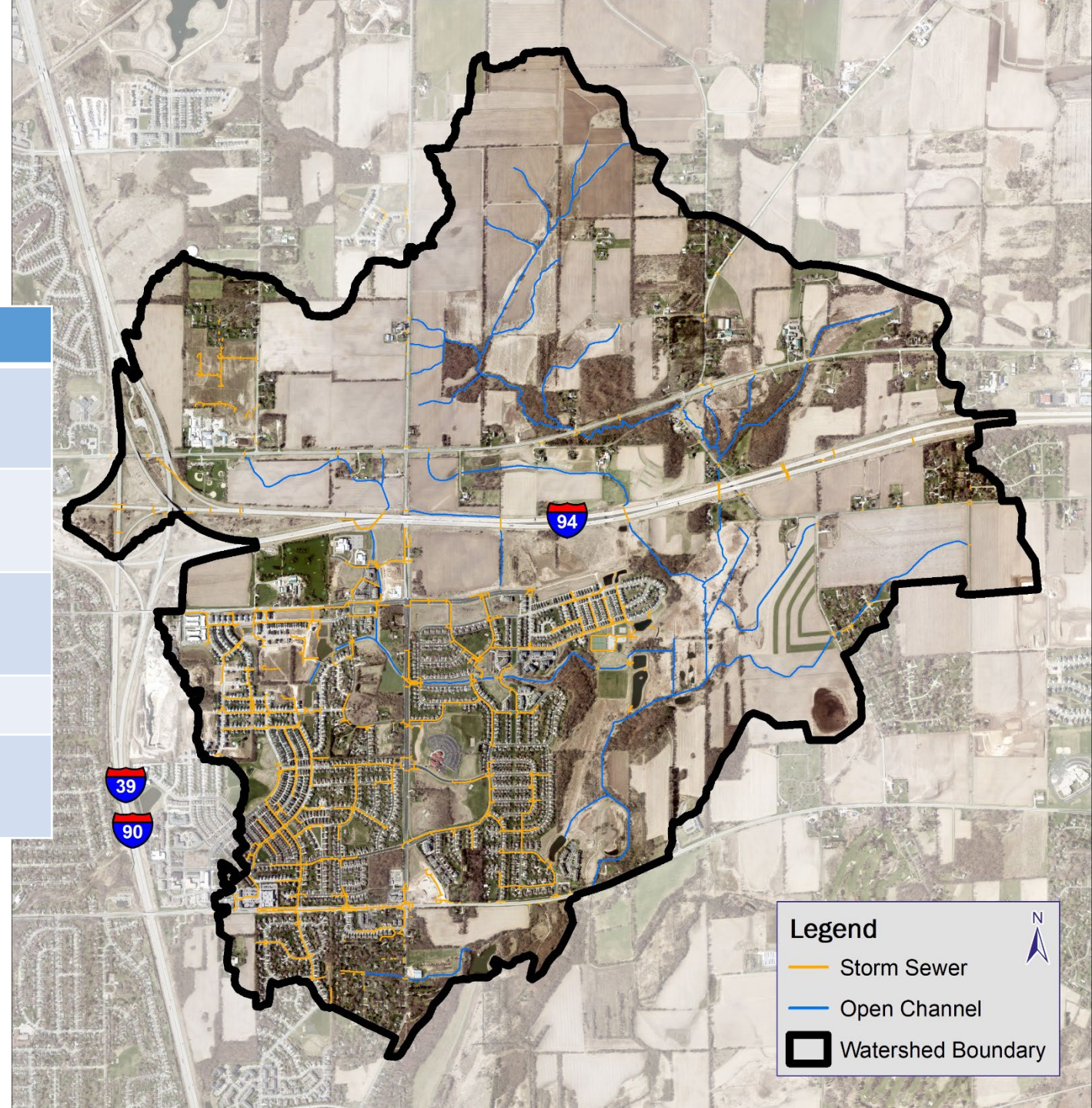
- Flash flooding: when storm sewer system cannot handle high amounts of rain
- Comparative example: a traffic jam
 - Too many cars on the Beltline during rush hour → backups happen
- During a storm, more water tries to move through the storm sewer system → backups happen



Project Location

DOOR CREEK WATERSHED

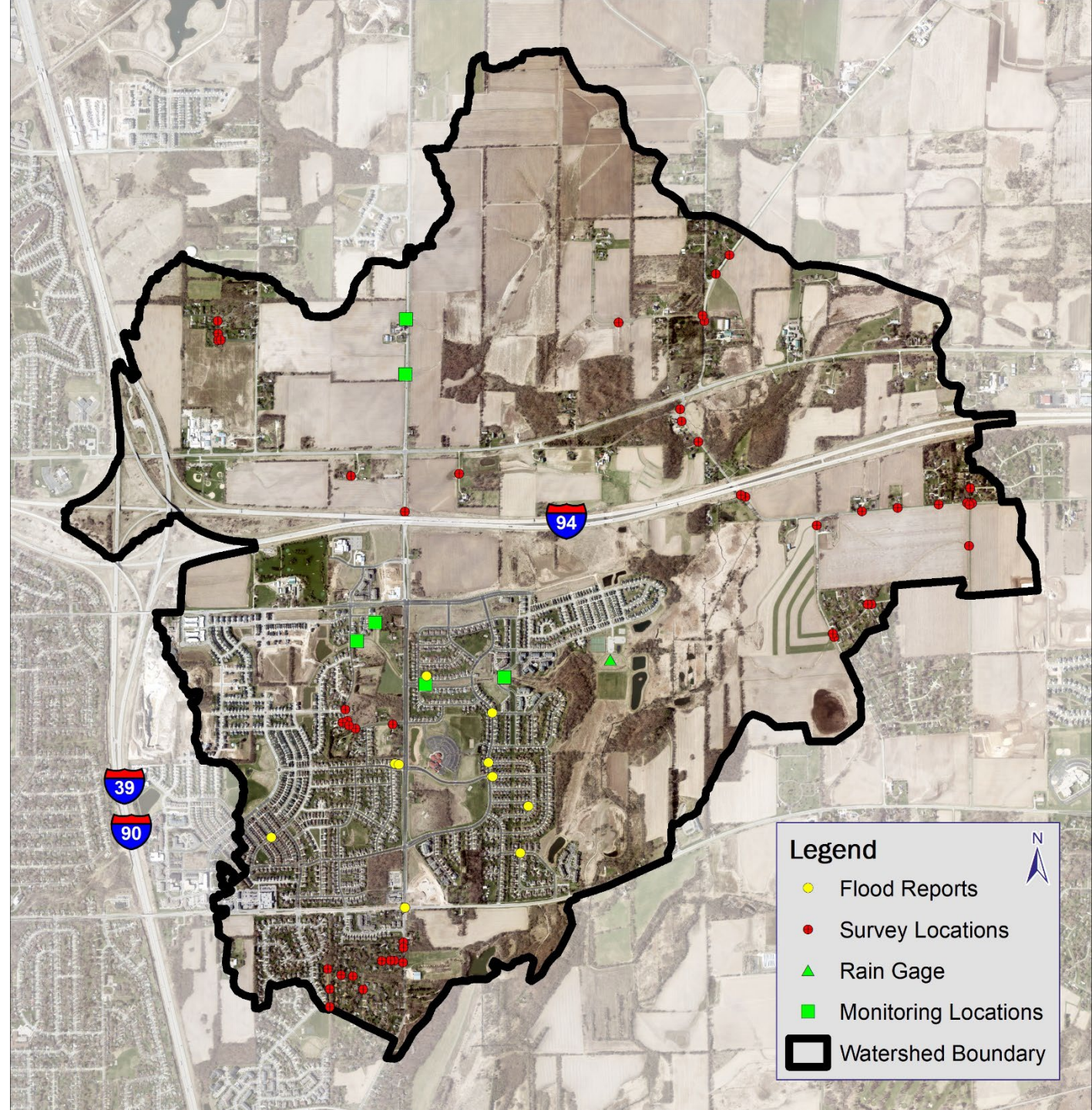
Item	Quantity
Watershed Area	3,675 acres
Public Stormwater Inlets and Access Structures	1,347
Storm Sewer Pipes & Culverts	1,572 segments 21.8 miles
Open channels	1.5 miles of greenways
Streams	13.5 miles (Door Cr & Tributaries)



Progress To Date

DATA COLLECTION

- Ground/storm sewer survey
- Monitoring
 - 2 years (2021-2022)
 - Rainfall
 - Open Channel Depth
 - Culvert Flow Depth
- Flood reports

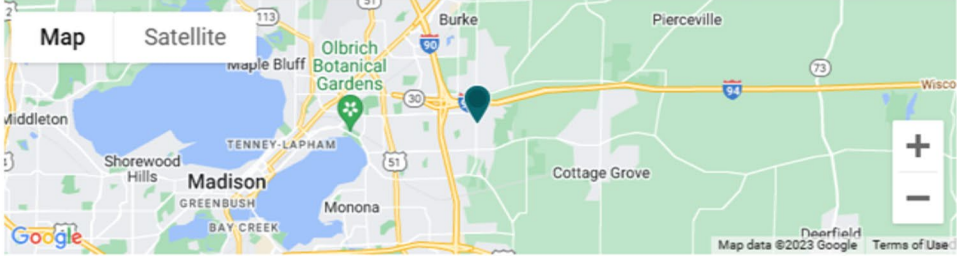


Progress To Date

PUBLIC INFORMATION

- Public Input Meeting #1
– November 7, 2022
- Project website

Door Creek Watershed Study



Last Updated: 07/11/2023

Latest Update

07/11/2023 Update:
A public information meeting is scheduled for 6:30 p.m., Aug. 16, 2023, via Zoom. Registration prior is required.
[Aug. 16, 2023 Public Information Meeting Registration](#)

Project Overview

The City of Madison is completing a watershed study in the Door Creek watershed (as shown below). The City of Madison contracted with an engineering consulting firm to complete the study. The watershed study will identify causes of existing flooding and then look at potential solutions to try to reduce flooding. The study will use computer models to assist with the evaluations.
For more information please see the [Flash Flooding Story Map](#). *Note: Please view the story map using Firefox or Google Chrome browsers. Story maps are not viewable with Internet Explorer.

Project Details

- Project Type**
[Flood Mitigation](#), [Sewer/Storm](#), [Watershed Studies](#)
- Location**
6606 Hopewell Drive
madison, WI 53718
- Alder District**
[District 3](#), [District 16](#)
- Estimated Schedule**
04/06/2022 to 12/31/2024
- Status**
Planning

Project Contact

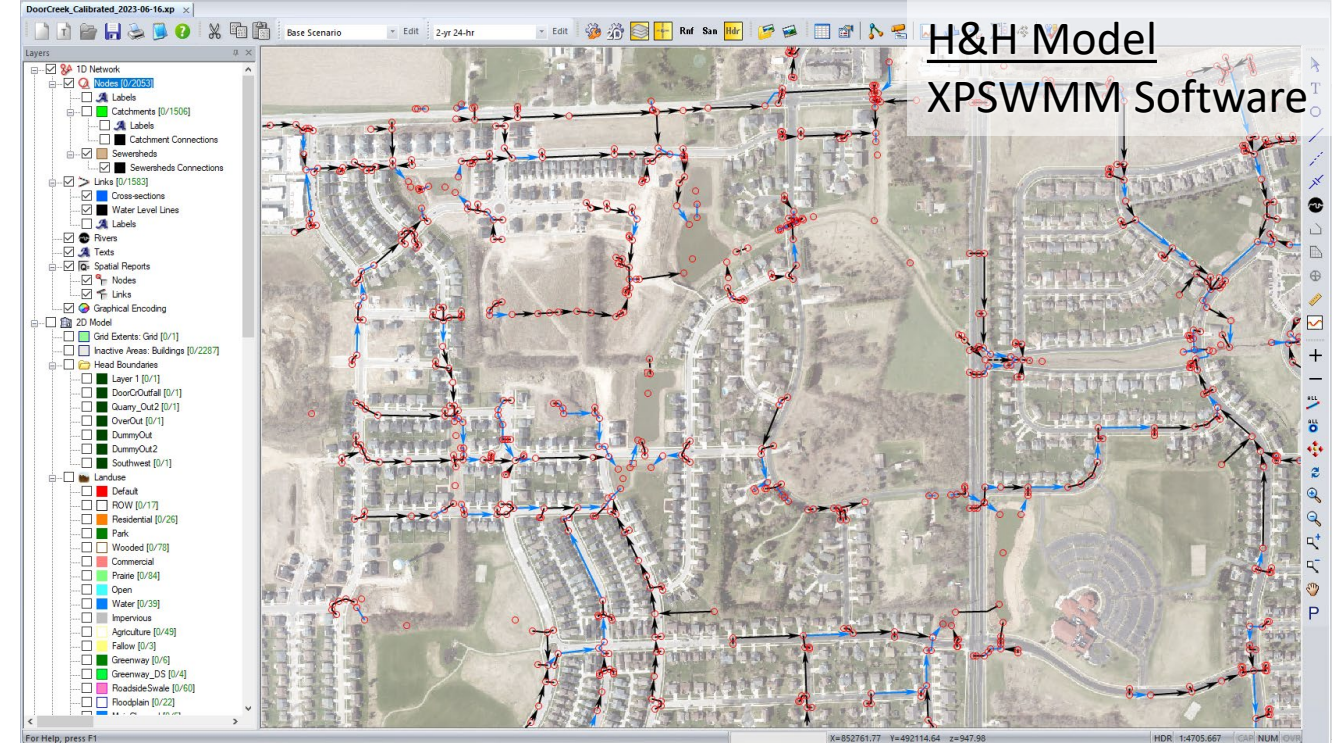
Jojo O'Brien, City of Madison Engineering Division
608-266-9721
jobrien@cityofmadison.com

<http://www.cityofmadison.com/DoorCreekWatershed>

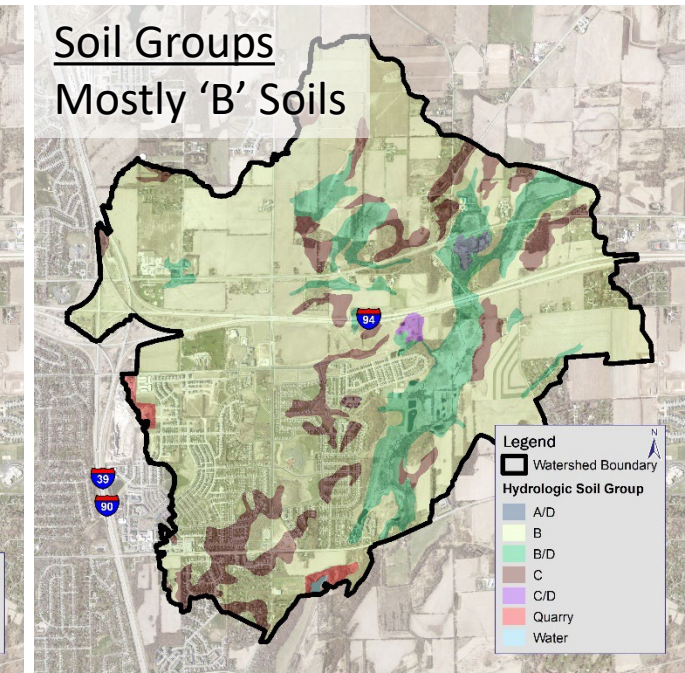
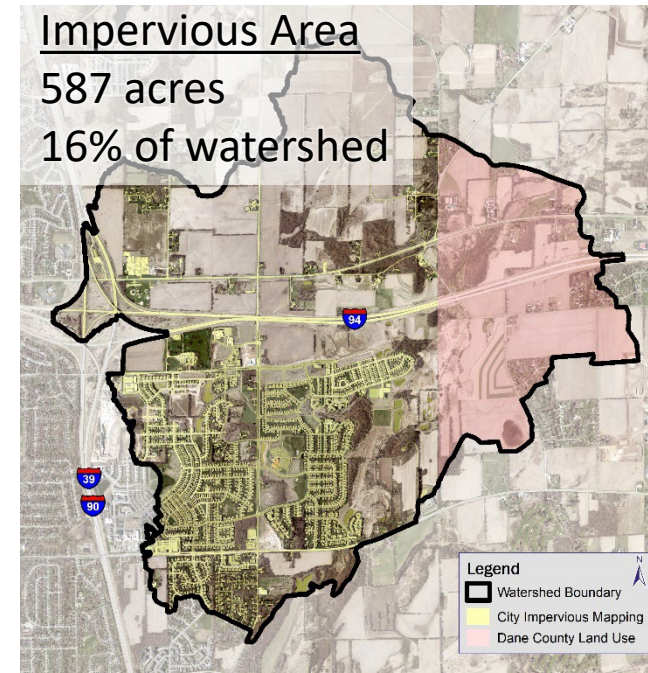
Progress To Date

MODEL DEVELOPMENT

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



Item	Quantity
Watershed Area (acres)	3,675
Number of Subcatchments <i>(discrete drainage areas in the model)</i>	491
Storm sewer pipes in model	21.8 miles
Detention ponds in model	14



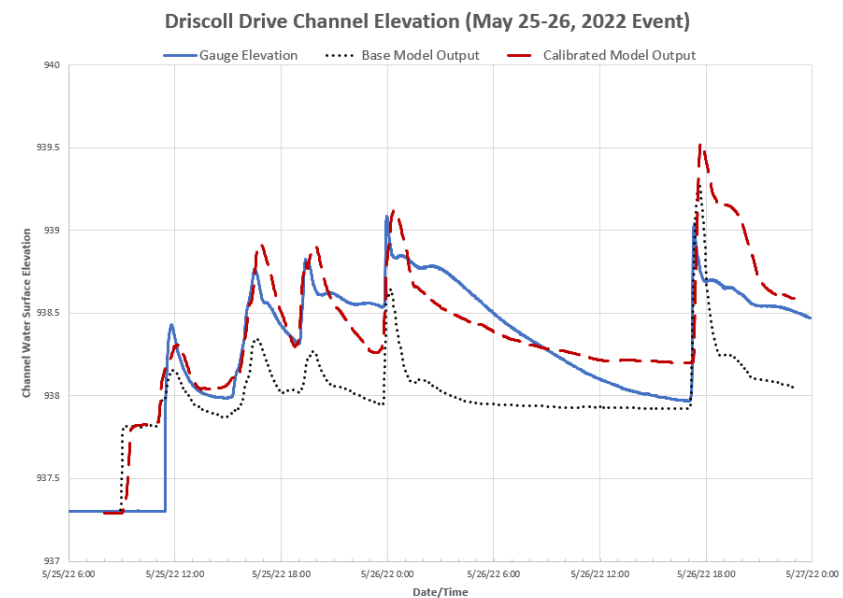
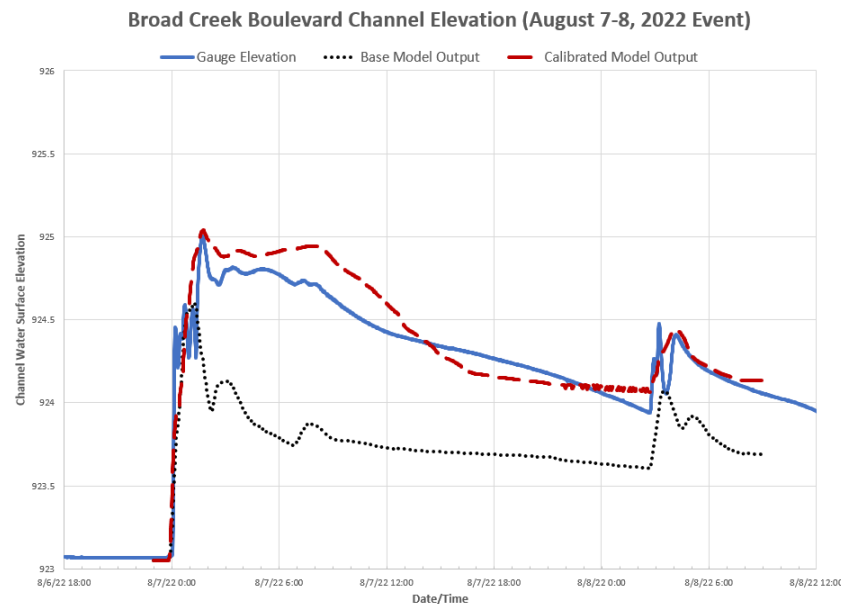
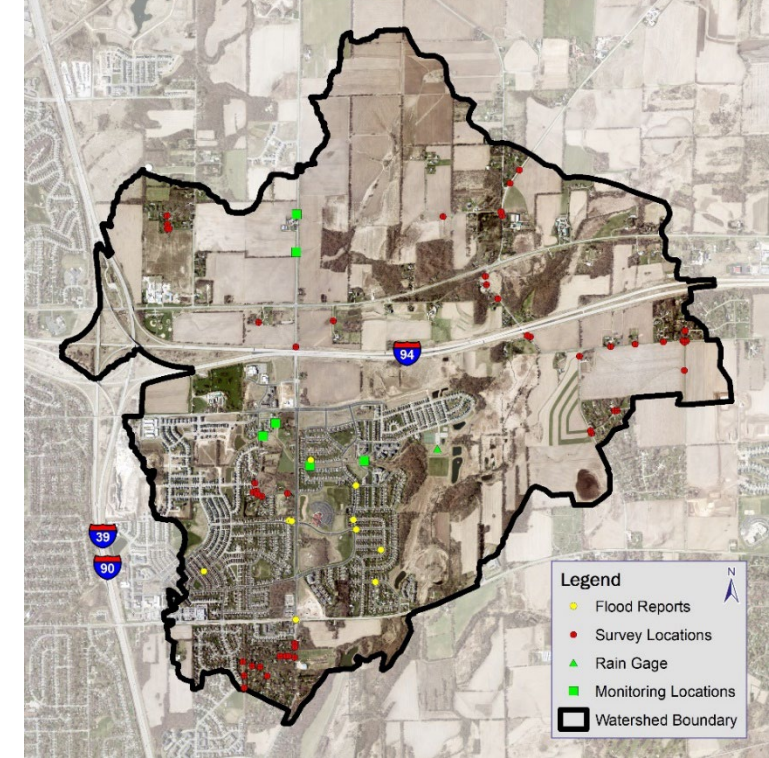
Progress To Date

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



Flood Mapping Disclaimer

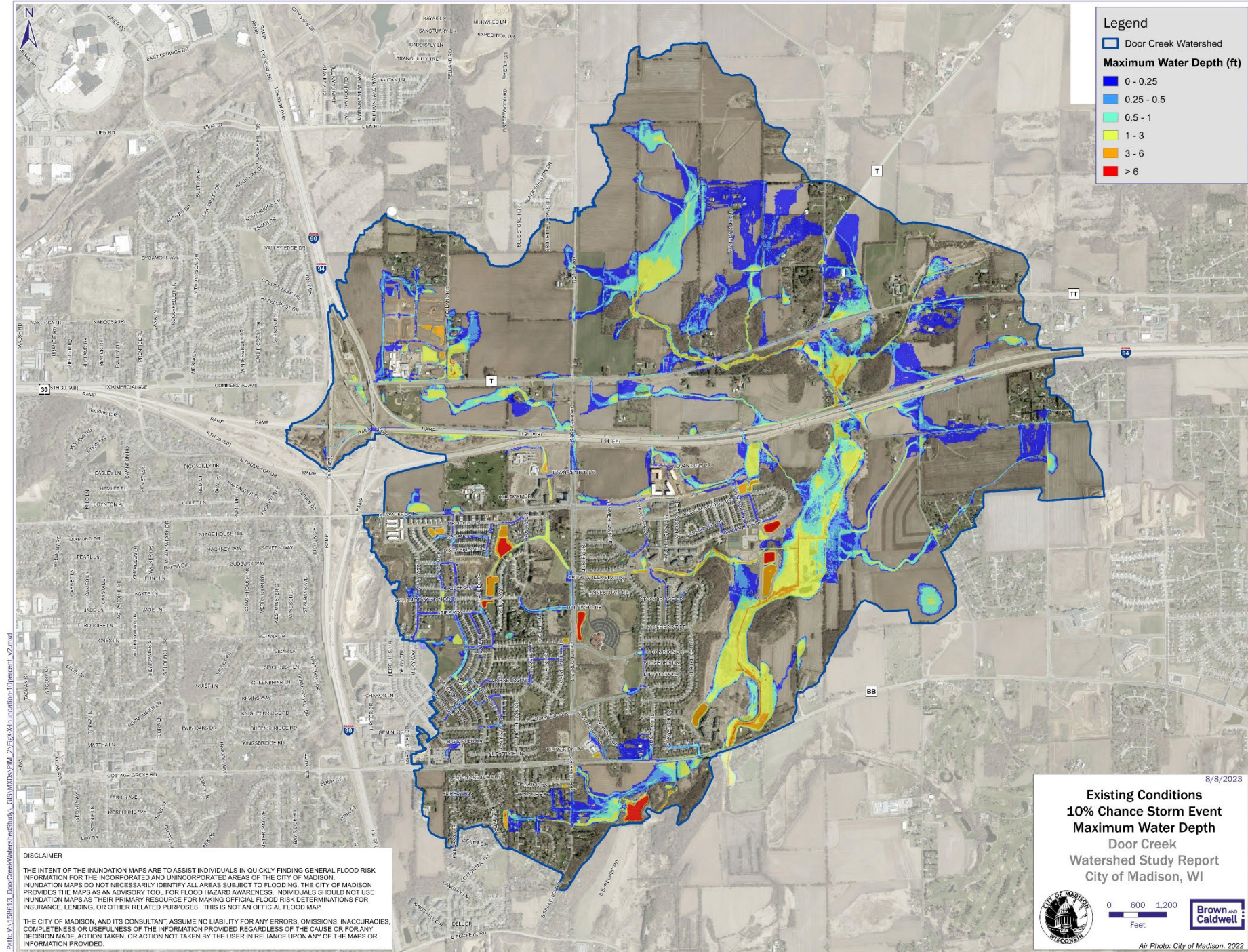
This map exists to help you quickly get information about general flood risks. This map does not identify all areas that may flood or predict future flooding.

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.

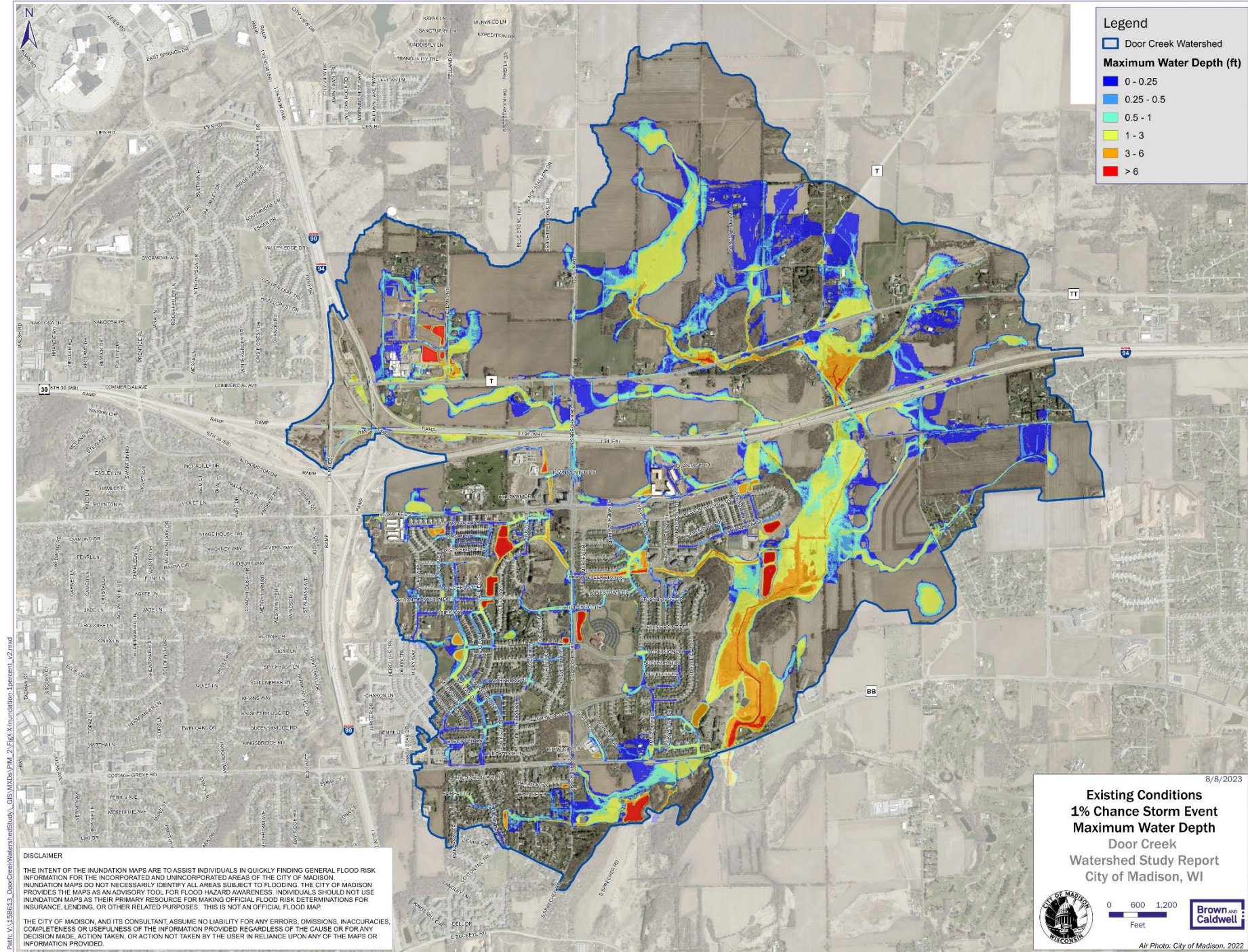
Existing Conditions Inundation Mapping

10% Chance Event
(4.09 inches in 24 hours)

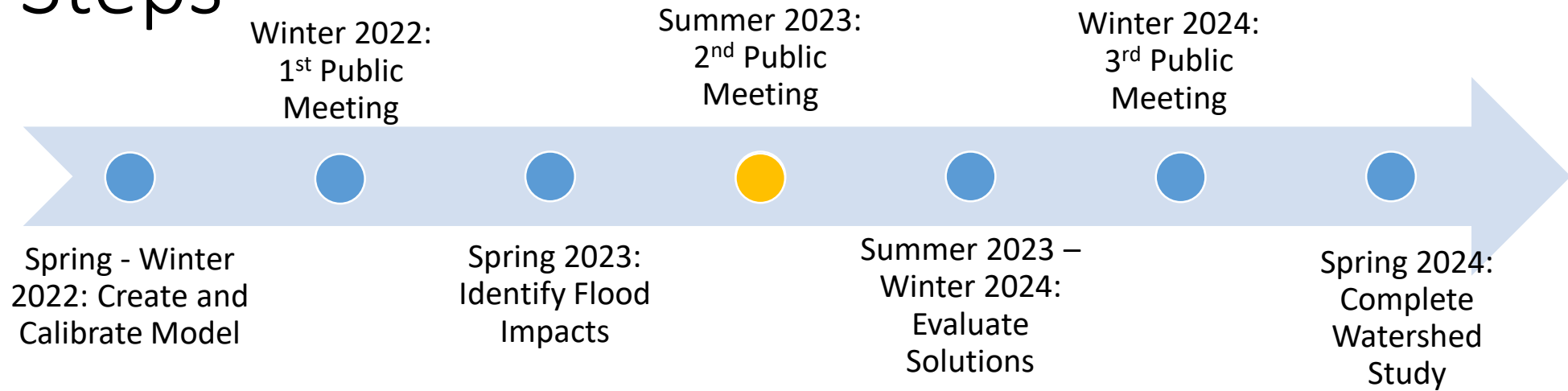


Existing Conditions Inundation Mapping

1% Chance Event
(6.66 inches in 24 hours)



Next Steps



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



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
- 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

Undeveloped Area / Future Development

- Flood mapping will be used to inform future development and assist in guiding that development. Including:
 - Applying the City's Stormwater Code
 - Identifying unintended detention volumes
 - Verifying pipe and culvert sizing
 - Model can be updated to understand how entire system functions.
- State, county, and town culverts are included in the analysis.
 - City does not have jurisdiction over these culverts
 - Need to consider unintended impacts to changes
- For more information:

<https://www.cityofmadison.com/flooding/city-initiatives/watershed-studies/watershed-study-learning-hub/undeveloped-areas-future-development>



Contact Information & Resources

- Engineering
 - Project Manager, Jojo O'Brien, jobrien@cityofmadison.com
 - Public Information Officer: Hannah Mohelnitzky, hmoelnitzky@cityofmadison.com
- Project Website: <http://www.cityofmadison.com/DoorCreekWatershed>
- Sign-up for project email updates on the website
 - Updates on study status will be posted to the project website
 - Recording for this meeting will be posted on project webpage
- Facebook – City of Madison Engineering 
- Twitter – @MadisonEngr 
- Engineering Podcast: Everyday Engineering on iTunes, GooglePlay



First: General Q&A

- Please type general questions in Q&A box or “raise hand”

Next: Specific feedback on flood maps

- Please save specific comments on flood maps for the end of the presentation. We will stay on and gather your feedback, but we’d like to address general questions with the whole group first.

Breakout Group Areas

- Southwest
- Southeast
- Northwest & Northeast

