



Central Isthmus Watershed Study Public Information Meeting

Public Information Meeting
City of Madison Engineering Division
[Date]

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

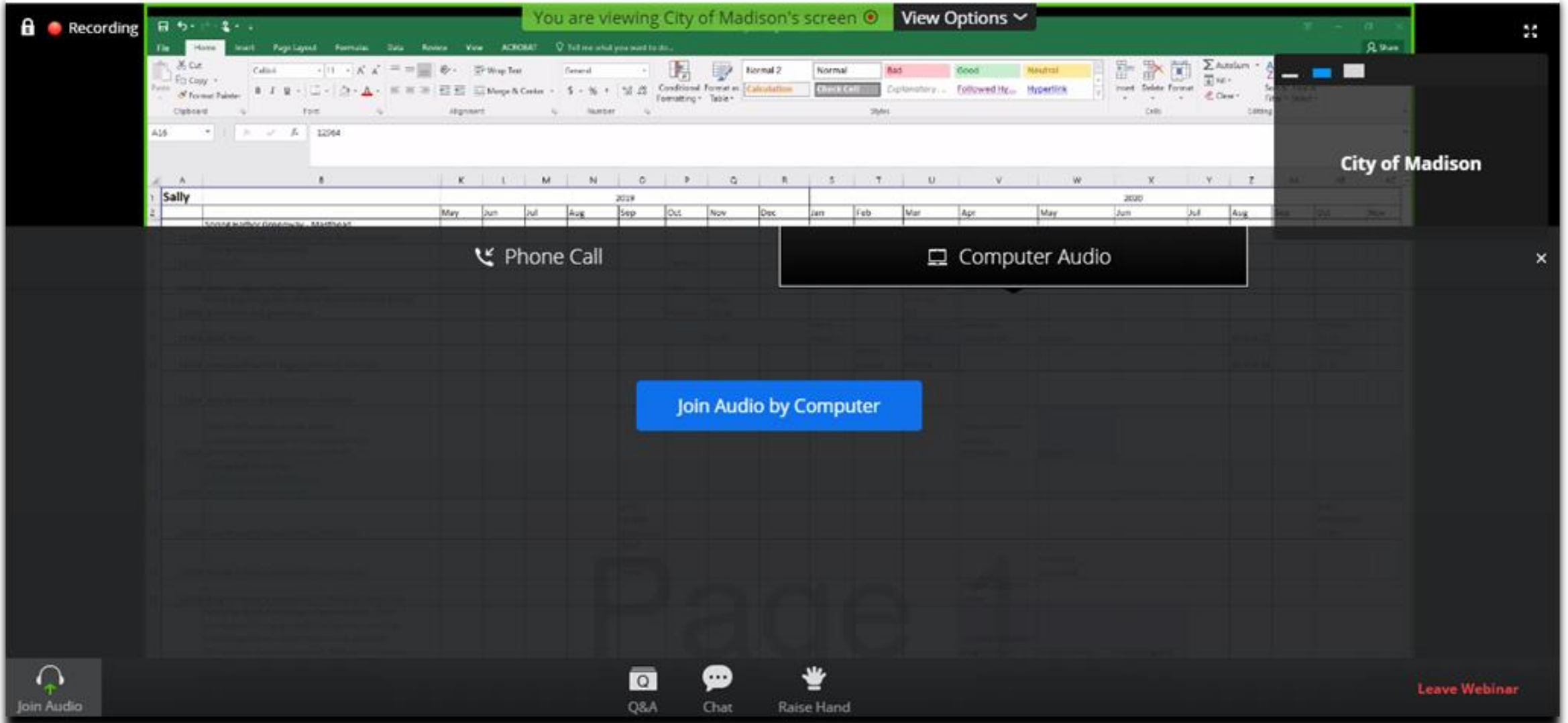
The screenshot displays a Zoom webinar interface. At the top, a green banner reads "You are viewing City of Madison's screen" with a "View Options" dropdown. The main content is a Microsoft Excel spreadsheet showing a calendar for 2019 and 2020. The spreadsheet has columns for months and rows for years. A name "Sally" is visible in the first row. Below the spreadsheet, there are two audio options: "Phone Call" and "Computer Audio". A blue button labeled "Join Audio by Computer" is centered on the screen, with a red arrow pointing up to it. At the bottom left, there is a "Join Audio" button with a red arrow pointing up to it. The bottom right corner has a "Leave Webinar" button. The Zoom toolbar at the bottom includes icons for "Join Audio", "Q&A", "Chat", and "Raise Hand".



Make sure to join audio



How to Participate



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



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How to Participate

The screenshot displays a Zoom meeting in progress. 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. The spreadsheet's active cell is A16, containing the value "32094". The spreadsheet shows a calendar layout for 2019 and 2020, with the name "Sally" in cell A1. 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 prominent blue button in the center reads "Join Audio by Computer". At the bottom of the Zoom interface, 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



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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 shared Excel spreadsheet with a ribbon and data. A "City of Madison" watermark is visible on the right. In the center, there are two buttons: "Phone Call" and "Computer Audio". A large blue button labeled "Join Audio by Computer" is positioned below them. At the bottom, a toolbar contains icons for "Join Audio", "Q&A", "Chat", and "Raise Hand". A red arrow points to the "Q&A" icon. The text "Leave Webinar" is in the bottom right corner.

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



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To leave the meeting
click here

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Evening Overview

- Welcome – Hannah Mohelnitzky, City of Madison
- Presentation – Tetra Tech
- Q&A – facilitated by Hannah Mohelnitzky, City of Madison
 - Submit questions through Zoom Q&A
- Wrap Up – Hannah Mohelnitzky, City of Madison





Presentation Overview

- Definition of commonly used terms
- Why are we here
- Project location
- Flood mitigation targets
- Inundation mapping
- Proposed solutions development process
- Proposed solutions
- Why aren't all flood targets met
- Next steps

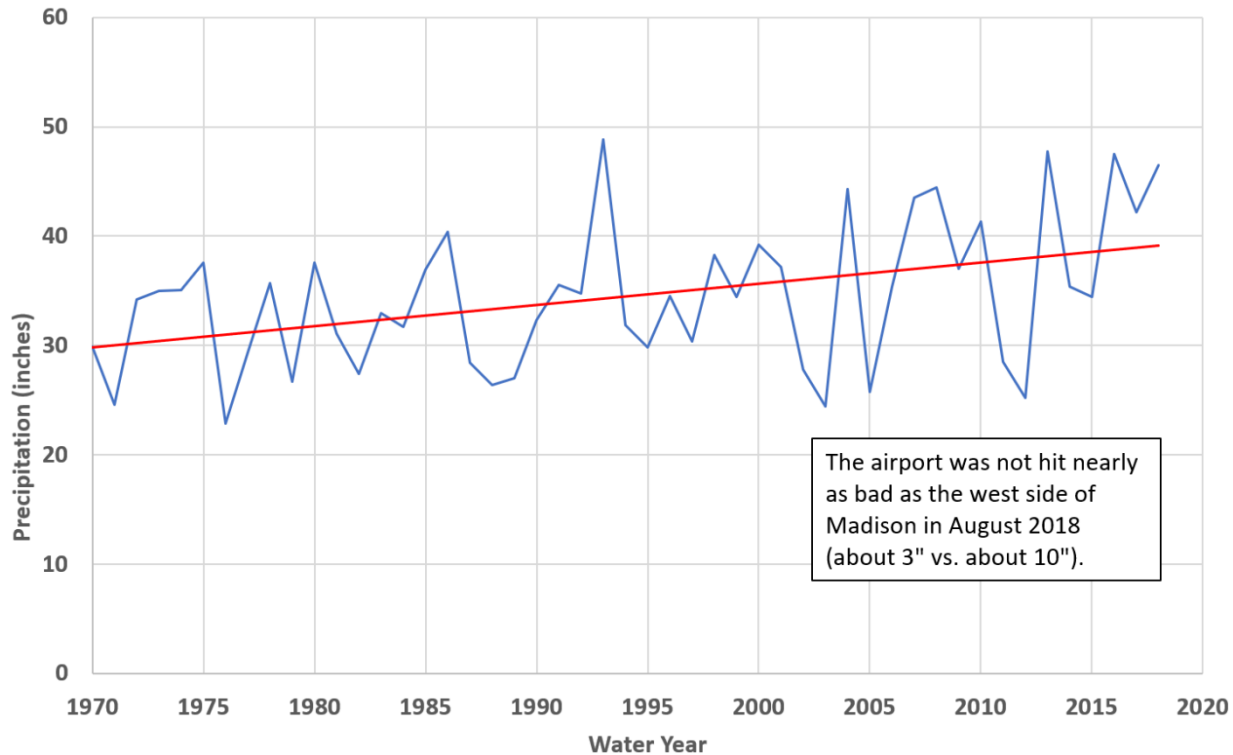
Definitions of commonly used terms

- **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

Why We Are Here: Historic Events

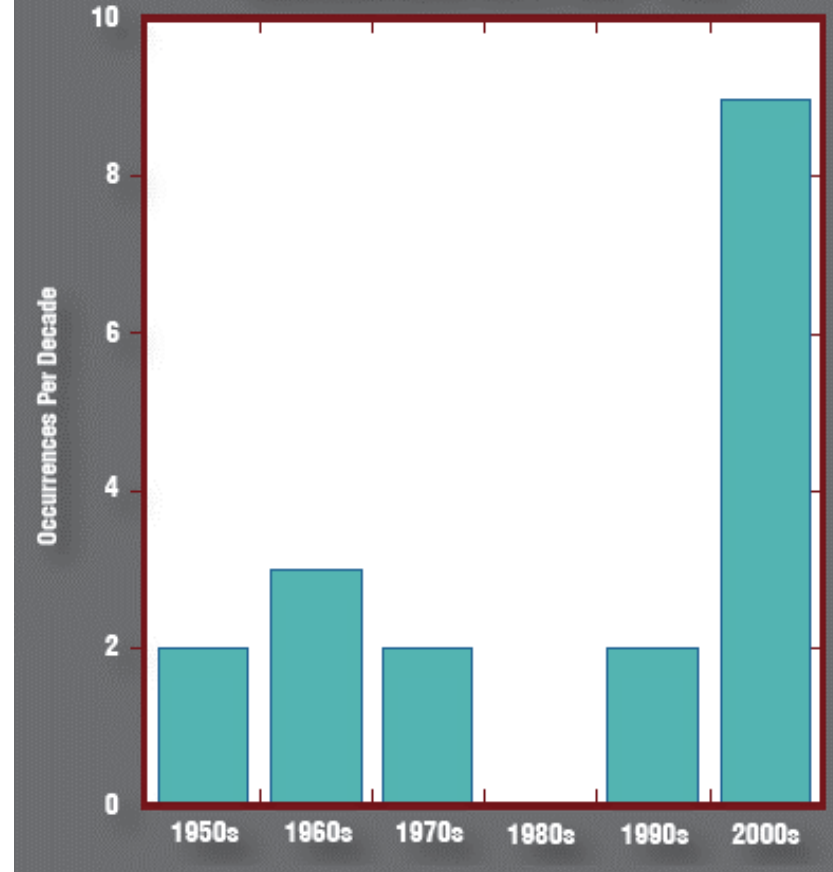
- More rain
- More rain events greater than 3"

Annual Precipitation
Dane County Regional Airport
1970 Through 2018



The airport was not hit nearly as bad as the west side of Madison in August 2018 (about 3" vs. about 10").

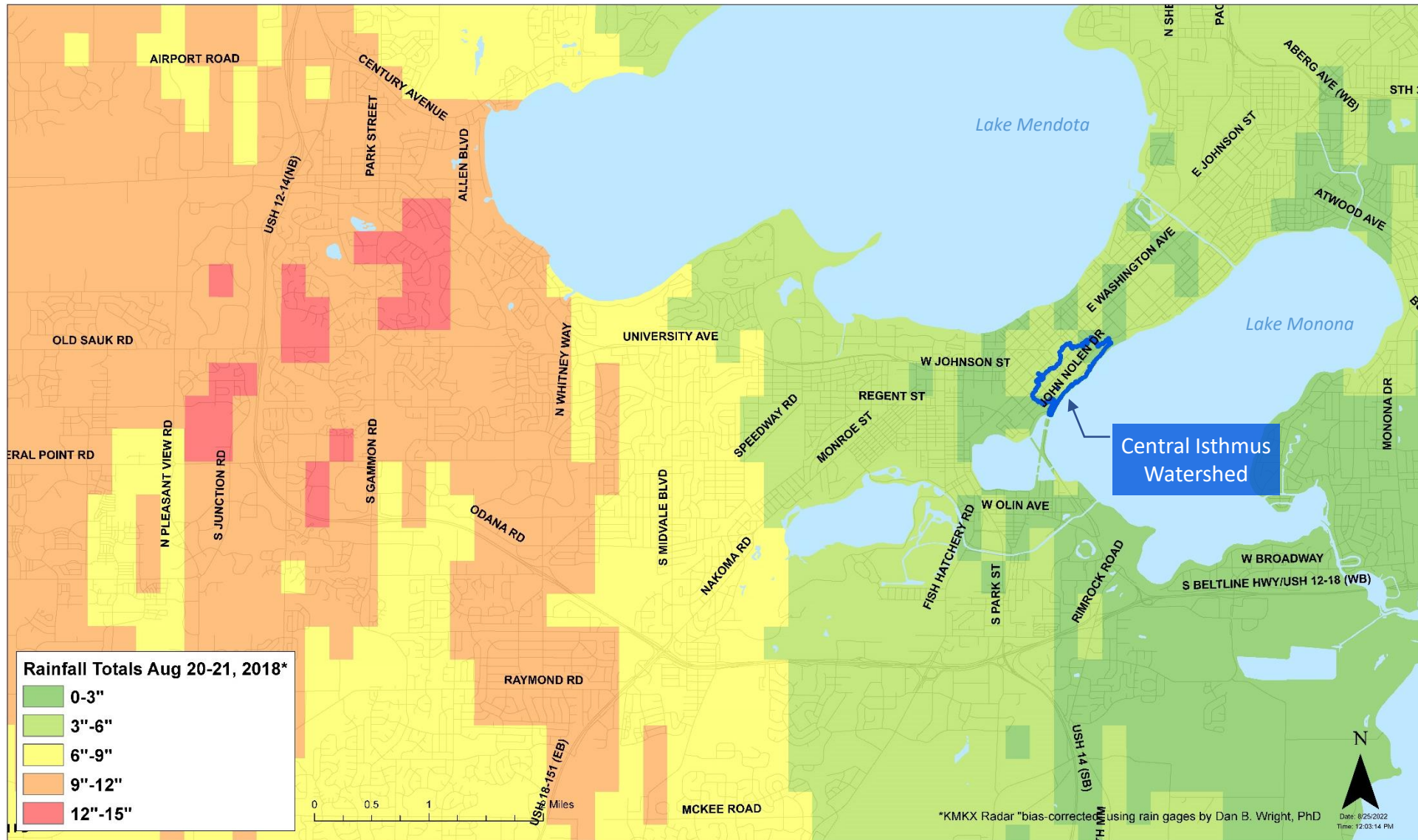
OCCURRENCES OF 3"+ DAILY PRECIPITATION
MADISON (AIRPORT) 1950 - 2009



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

100-Year Storm Definition

- The “100-Year” Storm
- Annual exceedance probability (AEP): chance that a rainfall event will occur in one year.
- 100-yr storm = 1/100 (1%) AEP
 - 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.

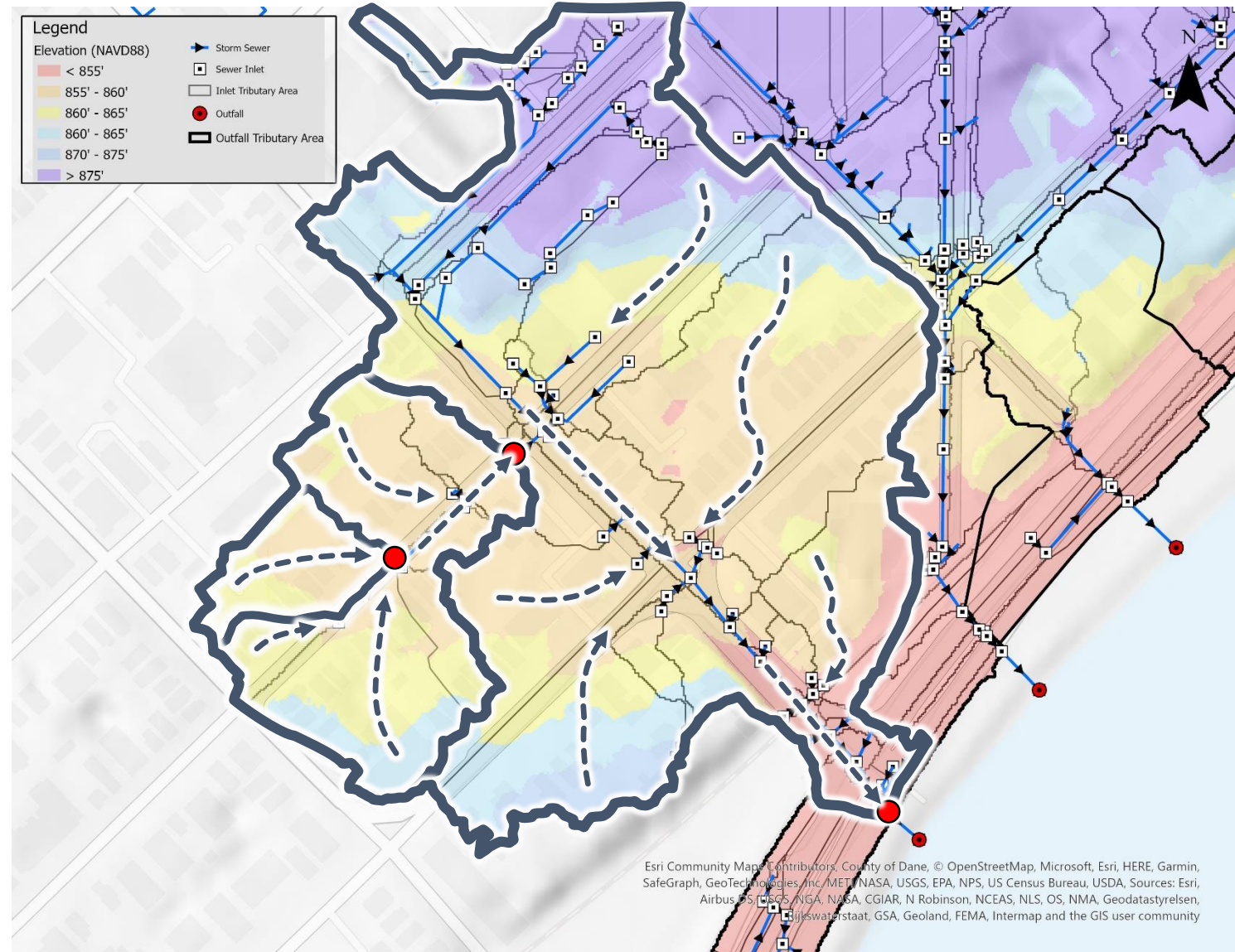
| Annual Exceedance Probability (AEP) | Chance of occurring in 1 Year | Return Period or Average Recurrence Interval (ARI) |
|-------------------------------------|-------------------------------|--|
| 100% | 1 in 1 | 1-year |
| 50% | 1 in 2 | 2-year |
| 10% | 1 in 10 | 10-year |
| 4% | 1 in 25 | 25-year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



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>



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Reasons for Flooding Issues

Flash Flooding

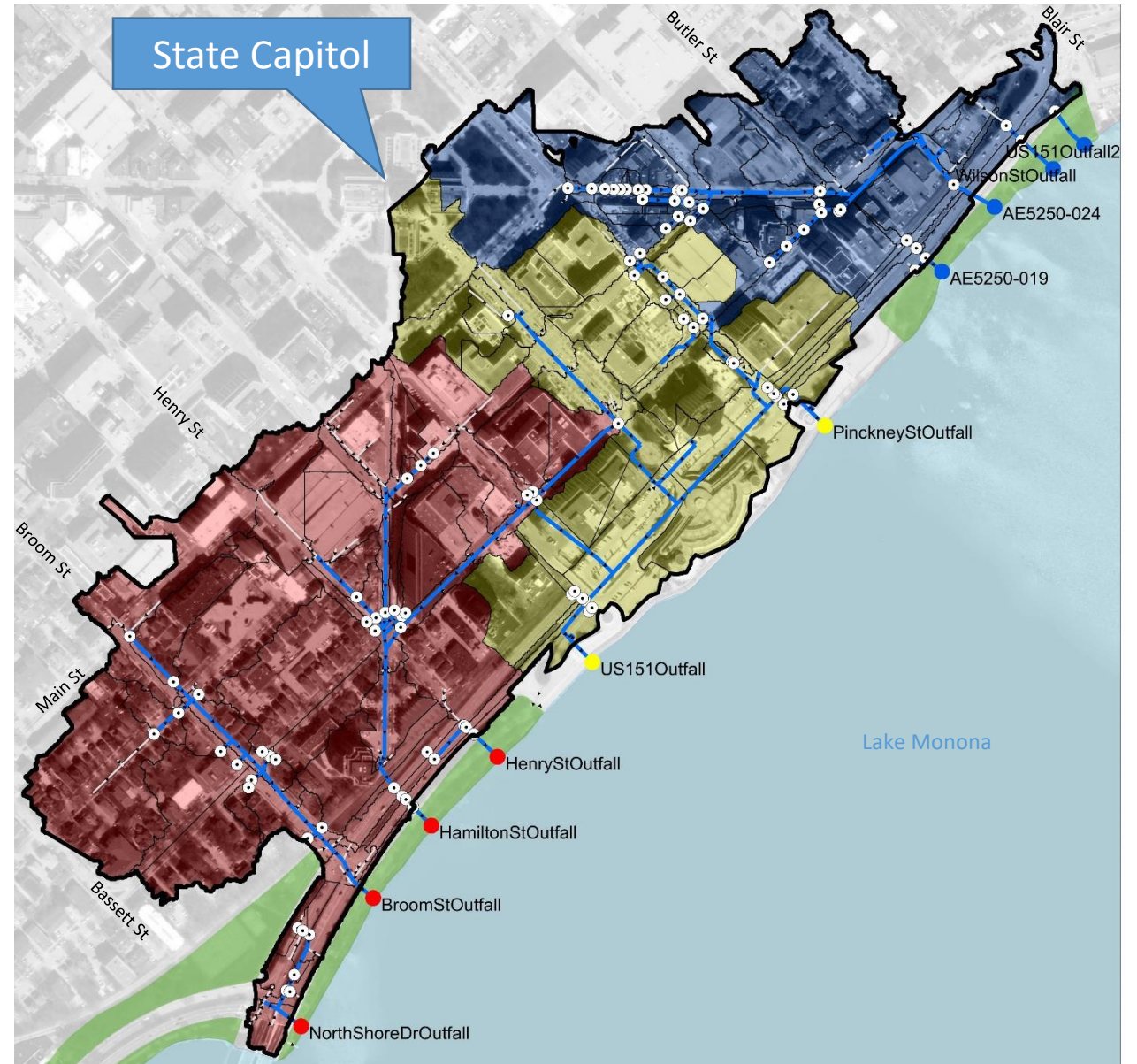
Beltline, looking west from Park Street, WisDOT

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



Project Location

- This is the Central Isthmus Watershed
- Drainage area is 107 acres



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



Flood Mitigation Targets

Not all targets may be met for all areas of the watershed

- Problems are complex – mitigating factors discussed later in the presentation
- For the Central Isthmus watershed with the proposed solutions, targets were met in the watershed

Flood Mapping Disclaimer

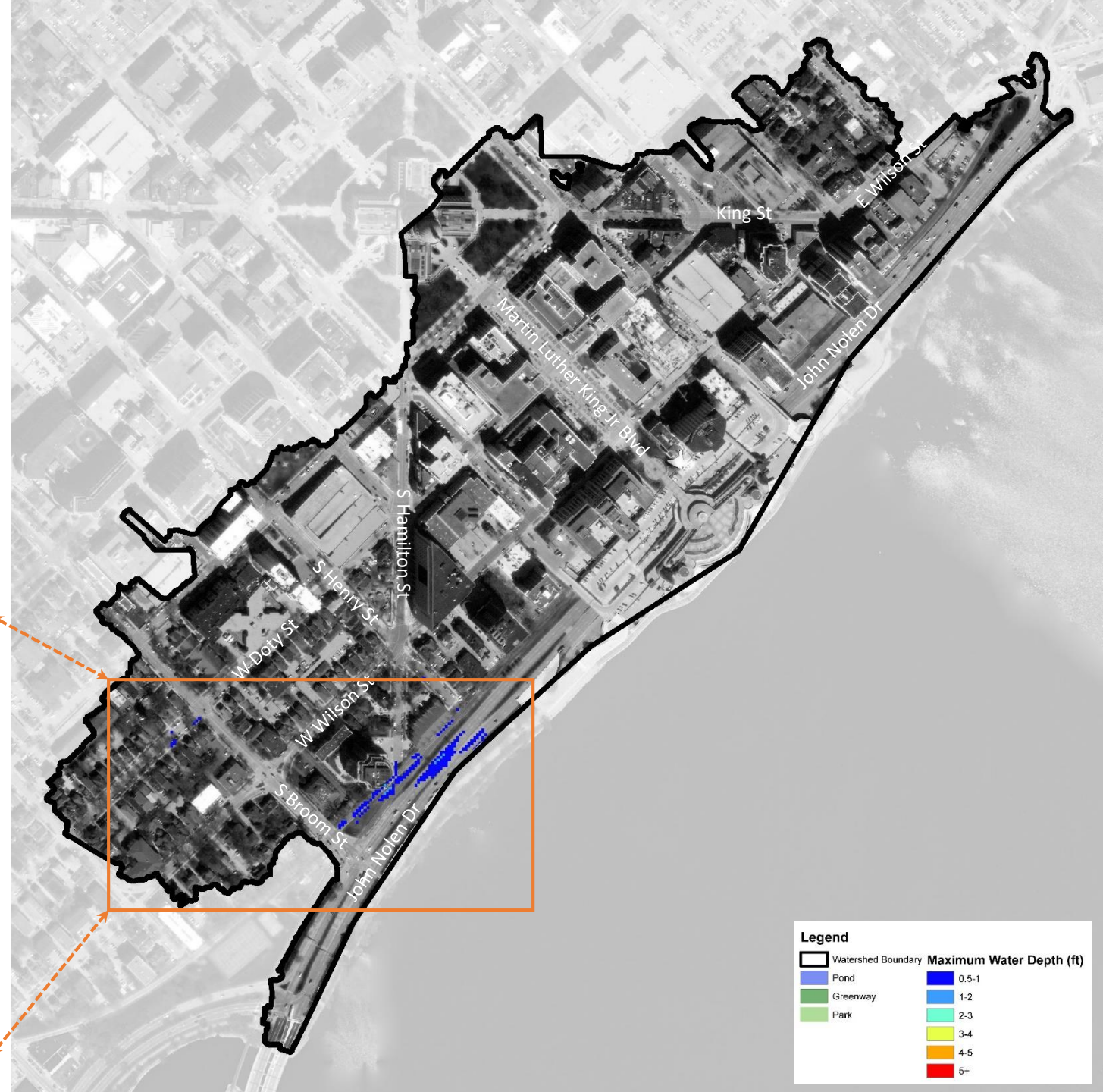
This map exists to help you quickly get information about general flood risks. This map doesn't identify all areas that may flood or predict future flooding.

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

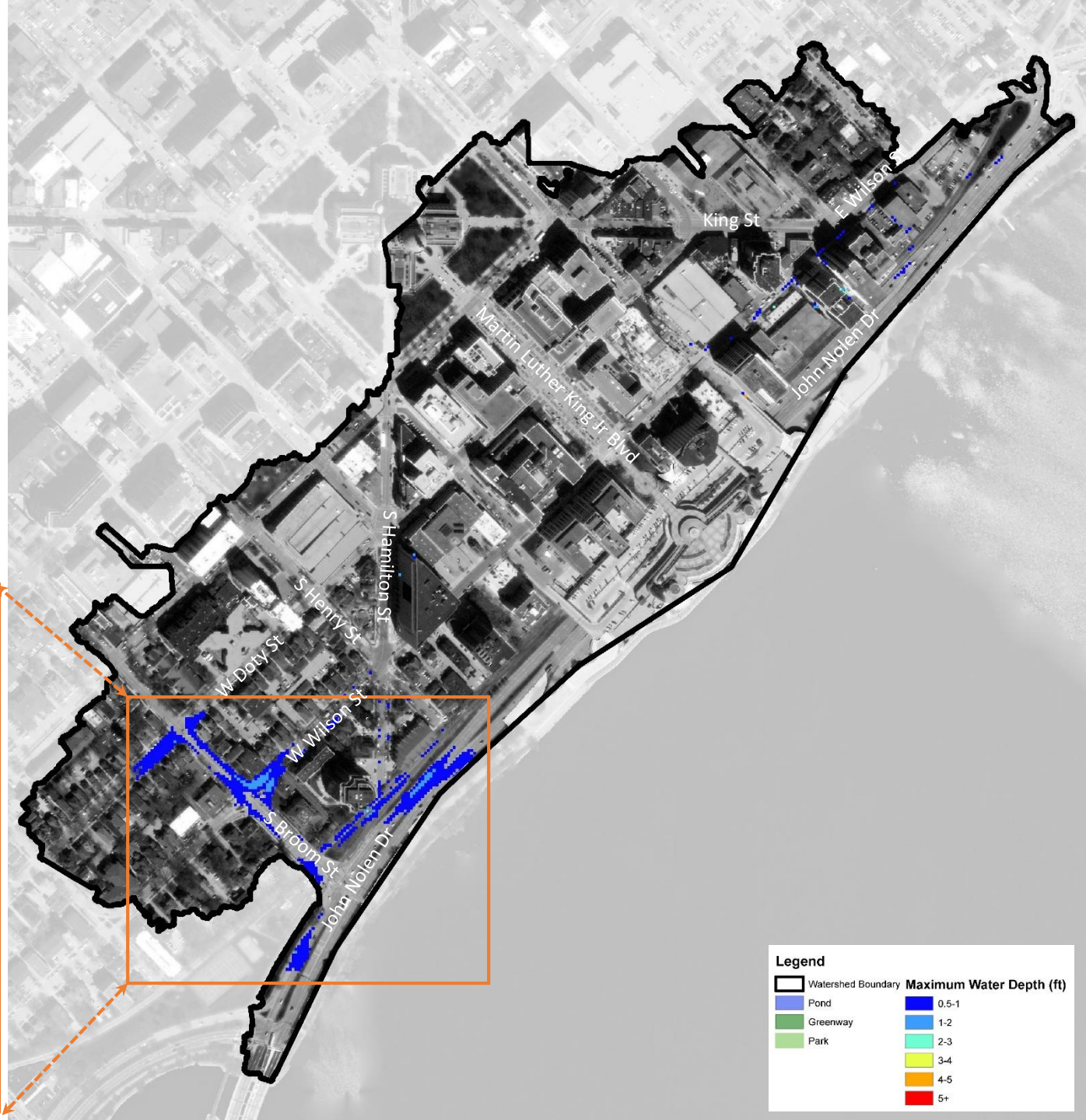
10% Chance Event
(4.09 inches in 24 hours)



| Legend | |
|--------------------|--------------------------------|
| Watershed Boundary | Maximum Water Depth (ft) 0.5-1 |
| Pond | 1-2 |
| Greenway | 2-3 |
| Park | 3-4 |
| | 4-5 |
| | 5+ |

Existing Conditions Inundation Mapping

1% Chance Event
(6.66 inches in 24 hours)



Proposed Solutions Process

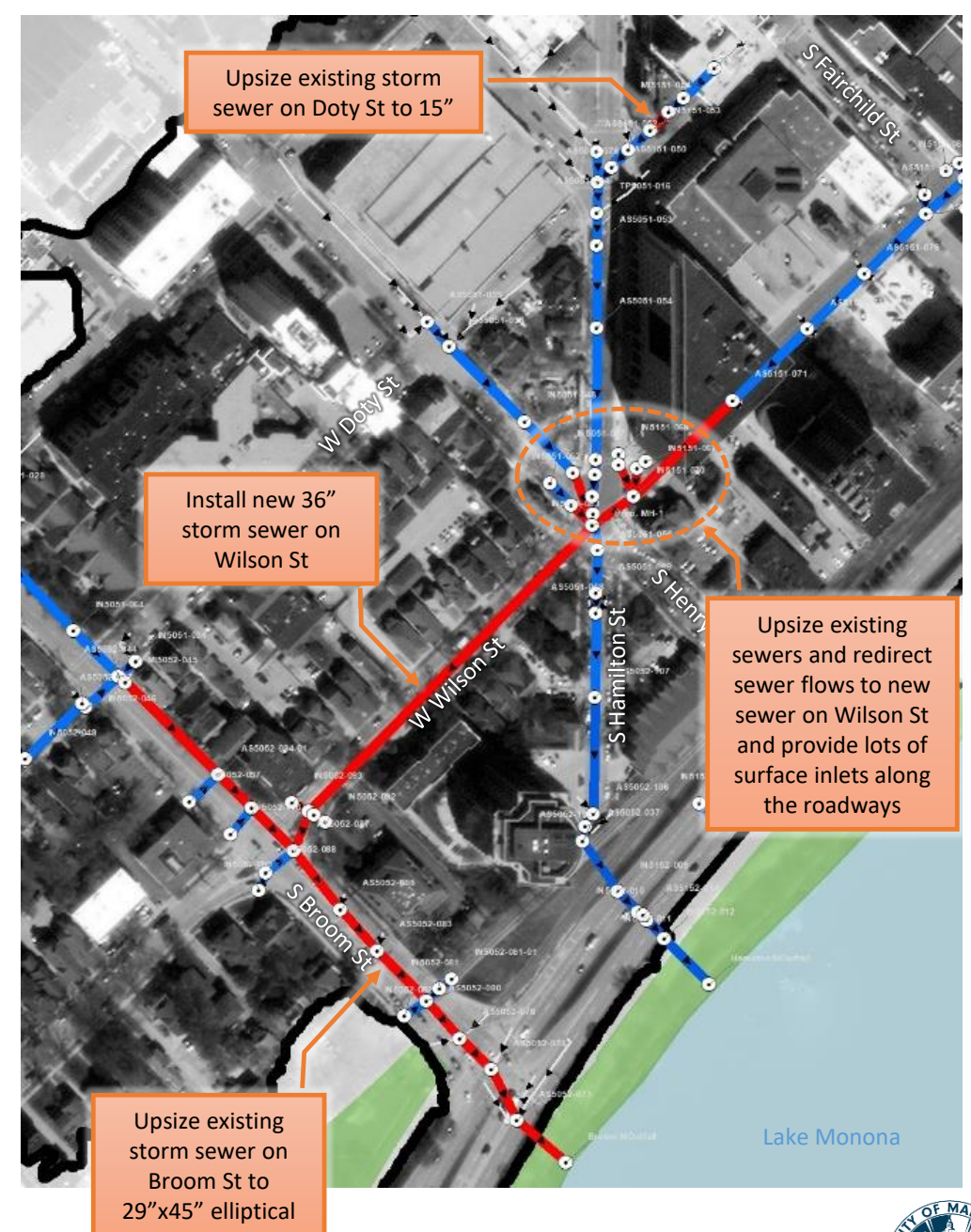
- Iterative process
 - Brainstormed solutions
 - Consultant analyzed ideas and provided results
 - Some solutions not found to be viable for various reasons
 - Several meetings to develop the “suite of solutions”
- Met with City Agencies for feedback on
 - Impacts to Agency’s infrastructure/property
 - Additional solutions
 - Places for cooperation/win-win solution
- Revised solutions based on agency feedback
- Meeting with you tonight



Proposed Solutions

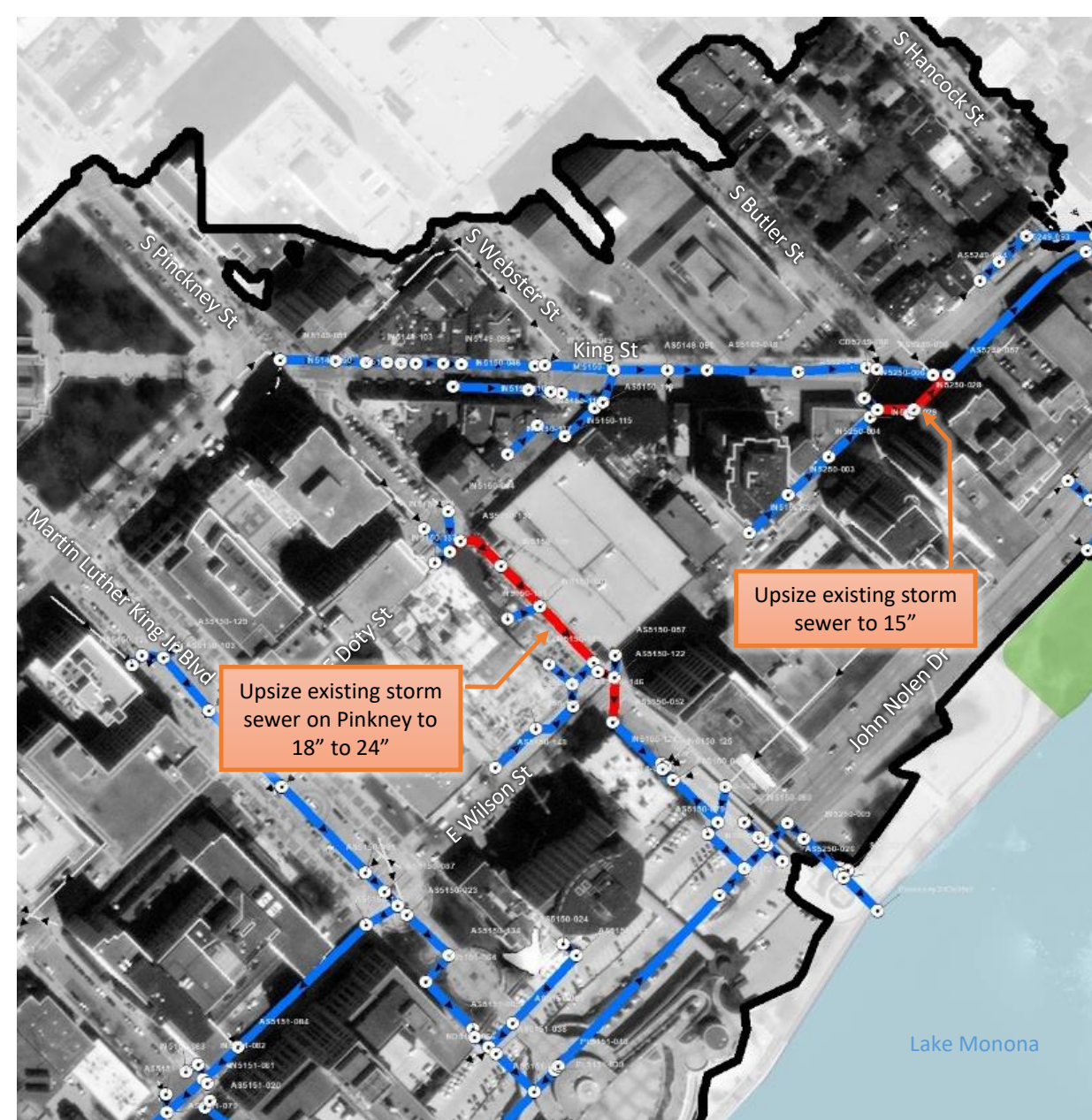
Broom + Wilson Storm Sewers

- Proposed local storm sewer improvements
- Removes 30 structures from 1% chance flood risk
- Improves street passability for 1,800 feet of streets
- Reduces flood risk of downstream properties
- Most of the pipe upsizing to be completed with Broom/Wilson project
- Section from railroad to lake isn't currently budgeted in a project
 - City is exploring options if this could be completed with Broom/Wilson project, or the John Nolen Drive project
 - Challenging coordination and design due to large quantities of utilities that need to be crossed



Proposed Solutions Pinckney + Wilson Storm Sewers

- Proposed local storm sewer improvements
- Removes 19 structures from 1% chance flood risk
- Reduces flood risk of downstream properties
- Implemented in conjunction with street reconstruction projects
- Section on Pinckney is in budget, designing this fall



Why Aren't all Targets Met in Watersheds?

- Space constraints
- Conflict with other major utilities
 - For example, pipe from Broom St to the lake will be challenging to construct—
 - Will need to close down the railroad
 - Pipe will need to cross lots of utilities that run parallel to the railroad
 - John Nolen Drive and Cap City Trail impacts
- Property ownership
- Cost impacts
- Adverse downstream impacts
- Neighborhood resistance
- *For the Central Isthmus Watershed - All targets were met (in comparison to other areas of City)*

Next Steps

- Finalize Draft Report
- Post Draft Final Report for 30-day Public Comment
- Finalize Report
- Budget for Projects
- Once becomes Budgeted Project, then start design and separate project-specific outreach
 - Note: Most pipe improvements in this watershed are already budgeted due to previously planned projects

Budgeting Considerations

- Not all projects are yet identified throughout the City
 - Currently identified approximately 65 projects in 7 watersheds totaling \$250,000,000 (22 watersheds will be studied citywide)
 - Must choose projects carefully
- Stormwater Utility fees fund projects
 - Double digit rate increases – not sustainable
 - Without additional funding sources, only 1-2 medium to large projects can be completed in a year
- Must identify additional funding mechanisms
 - Grants, appropriations, earmark funds
- Most projects take 1.5 – 2 years to design / permit before they can be constructed



Contact Information & Resources

- Engineering
 - Project Manager, Jojo O'Brien, 608-266-9721, jobrien@cityofmadison.com
- Project Website: www.cityofmadison.com/engineering/projects/central-isthmus-watershed-study
 - Sign-up for project email updates on the website
 - Updates on closures & work progress 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

