East Badger Mill Creek Watershed Study Solutions

City of Madison Engineering Division
Board of Park Commissioners Meeting
April 19, 2023

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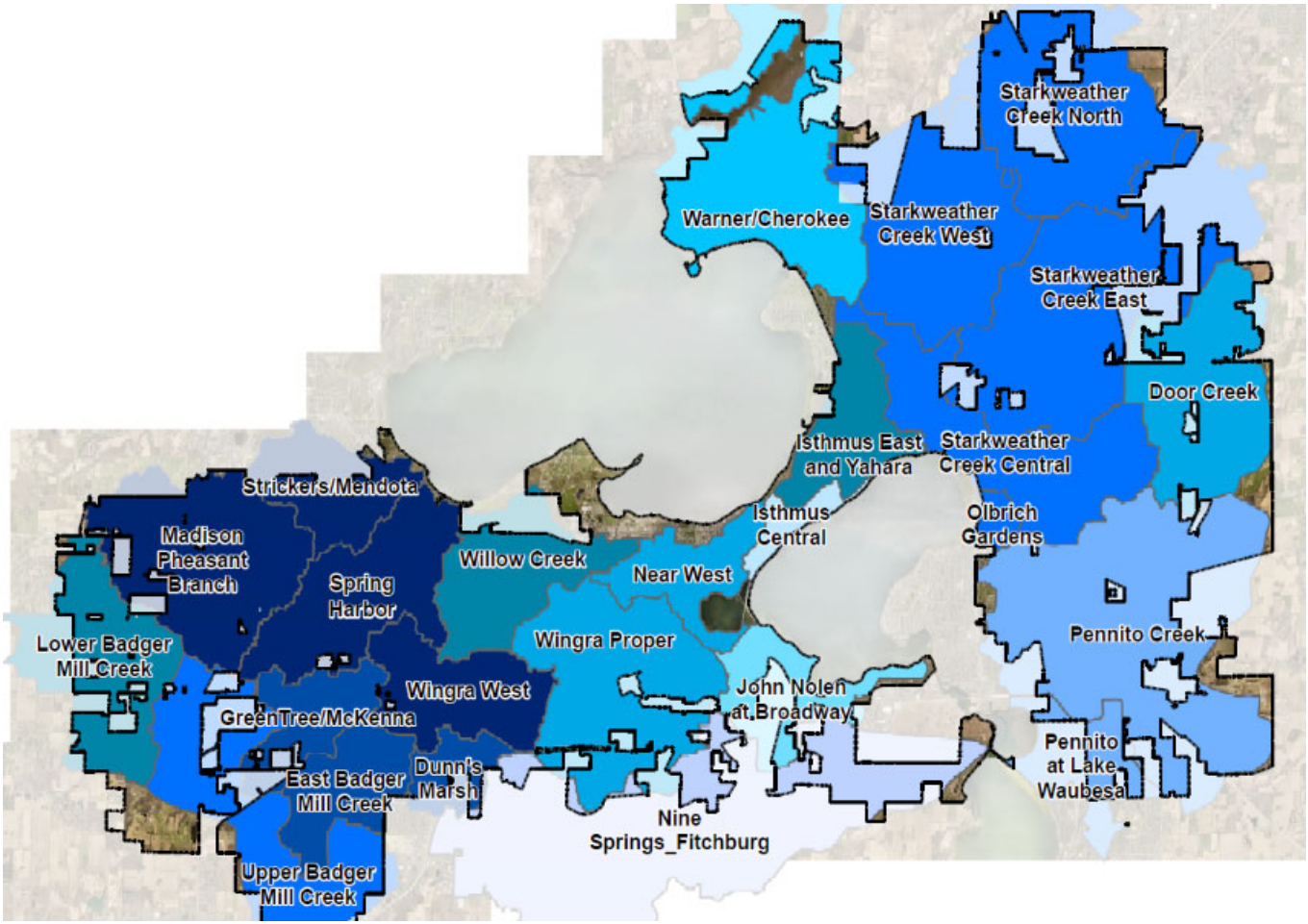
Watershed Study Phasing



Legend

Municipal Boundary

Watershed Study Areas
Start Year and Month

- 2019 March
- 2019 July
- 2020 March
- 2021 March
- 2022 March
- 2023 March
- 2024 March
- 2025 March
- 2026 March
- 2027 March

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Schedule

Spring–Summer 2020

Create and Calibrate Model

Fall 2020

Identify Flood Impacts

Winter 2021

*2nd Public Meeting**

Summer 2021 – Summer 2022

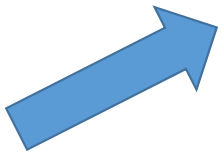
Evaluate Solutions

Winter 2022

3rd Public Meeting

Spring 2023

Finalize Study



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**Presentations from PIM1 (Fall 2019) and PIM 2 can be found on the Watershed Study Website*

Watershed Study Milestones

- PIM 1: 10/29/19
- PIM 2: 1/14/21
- Public Works Improvements: 12/8/22
- PIM 3: 12/13/22
- Report Final Draft Finished: 3/13/23
- Report Public Comment Period: 3/17/23 – 4/15/23
- BPC: 4/19/23
- BPW: 5/3/23
- FINAL REPORT:

https://www.cityofmadison.com/engineering/documents/projects/East_Badger_Mill_Creek_Watershed_Study_Draft_Final_Report.pdf

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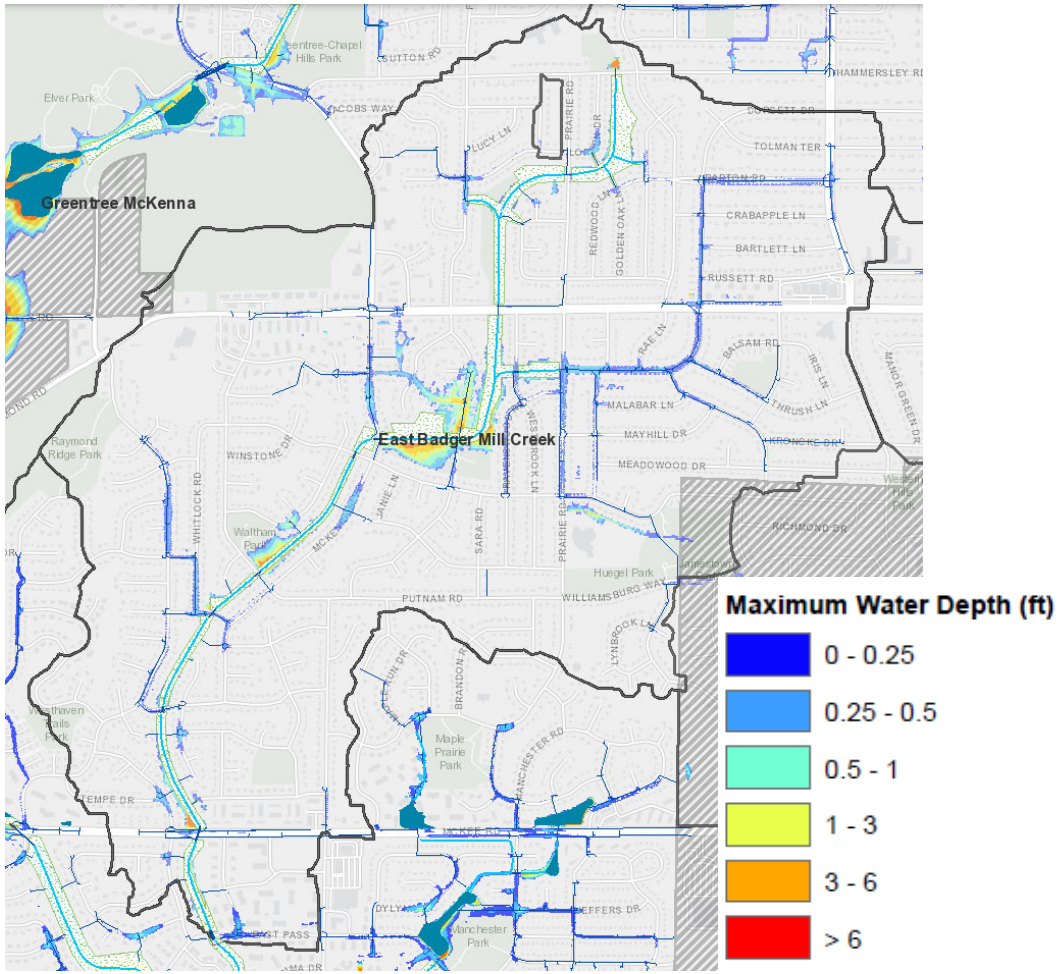
Existing Conditions 1% Chance Event Inundation Mapping



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Proposed Solutions

1. McKenna Blvd. and Raymond Rd. Reconstruction
2. Riva Rd. Reconstruction
3. Raymond Rd., Cameron Dr., Barton Rd., and Whitney Way Reconstruction
4. East Pass Relief Box Culvert
5. McKee Road Relief Box Culvert
6. Carnwood Road Box Culvert Replacement
7. Lancaster Lane Box Culvert Replacement
8. Canterbury Road Box Culvert Replacement*
9. McKenna Boulevard-Pilgrim Road Box Culvert Replacement*
10. Westbrook Lane Box Culvert Replacement
11. Lucy Lincoln Hiestand Park Box Culvert and Frisch Road Storm Sewer*
12. Prairie Road Box Culvert and Theresa Terrace Storm Sewer*
13. Local Sewer Improvements*

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Results

- **10% Chance Storm Event – Target: Eliminate storm sewer surcharge**
  - Existing: 6.6 out of 35.9 street miles do not meet the target
  - Proposed: 0.7 out of 35.9 street miles do not meet the target
- **4% Chance Storm Event – Target: Maintain drivability of city streets**
  - Existing: 2.5 out of 35.9 street miles do not meet the target
  - Proposed: 0.6 out of 35.9 street miles do not meet the target
- **1% Chance Storm Event – Target: No structure flooding**
  - Existing: 70 out of 3,089 buildings do not meet the target
  - Proposed: 29 out of 3,089 buildings do not meet the target
- **1% Chance Storm Event – Target: Pass flow through greenway crossings**
  - Existing: 3 out of 10 greenway crossings do not meet the target
  - Proposed: all greenway crossings DO meet the target

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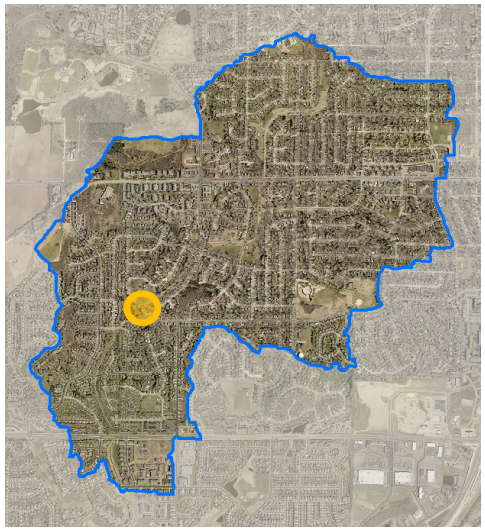
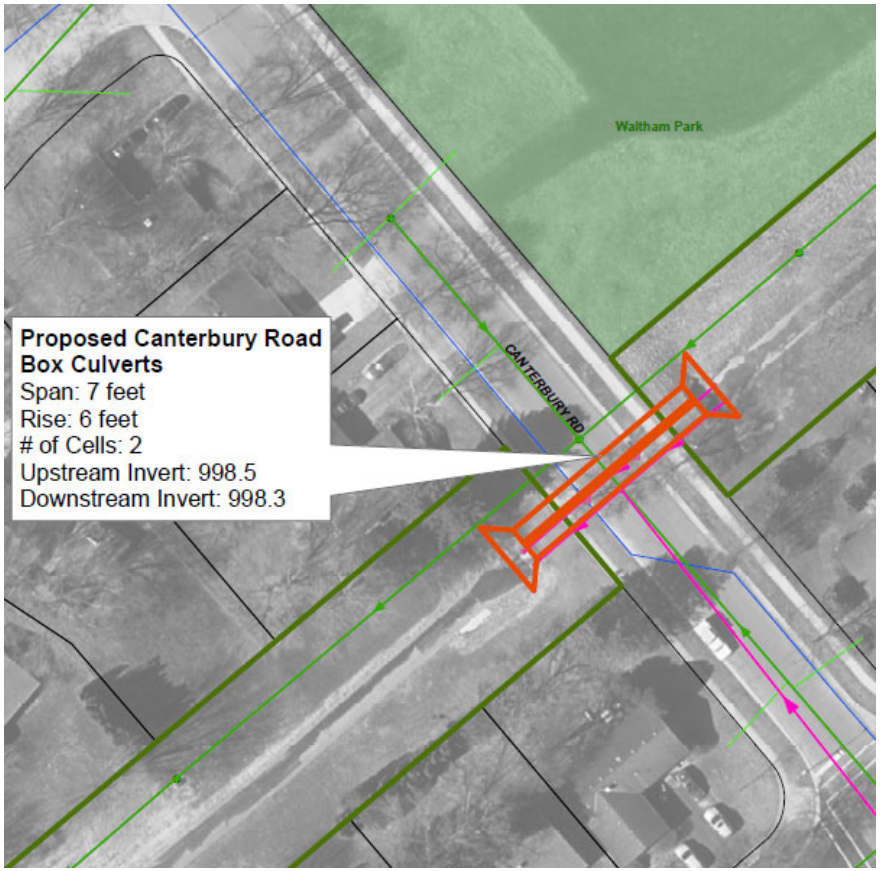
8. Canterbury Road Box Culvert Replacement





- **Goal: Convey 1% chance event**
- Replace existing pipe culverts with box culverts
- Facilitates upstream improvements without road overtopping or new structure inundation
- Cost estimate = $610,000
- 10- and 25-year high water increase of 0.4-0.6 ft with 20-30 ft added lateral spread NW of greenway, short duration

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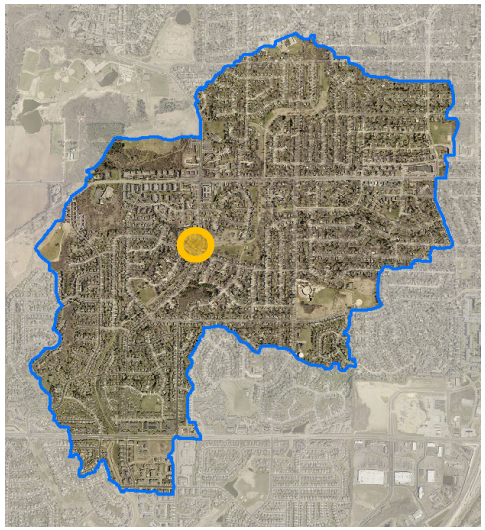
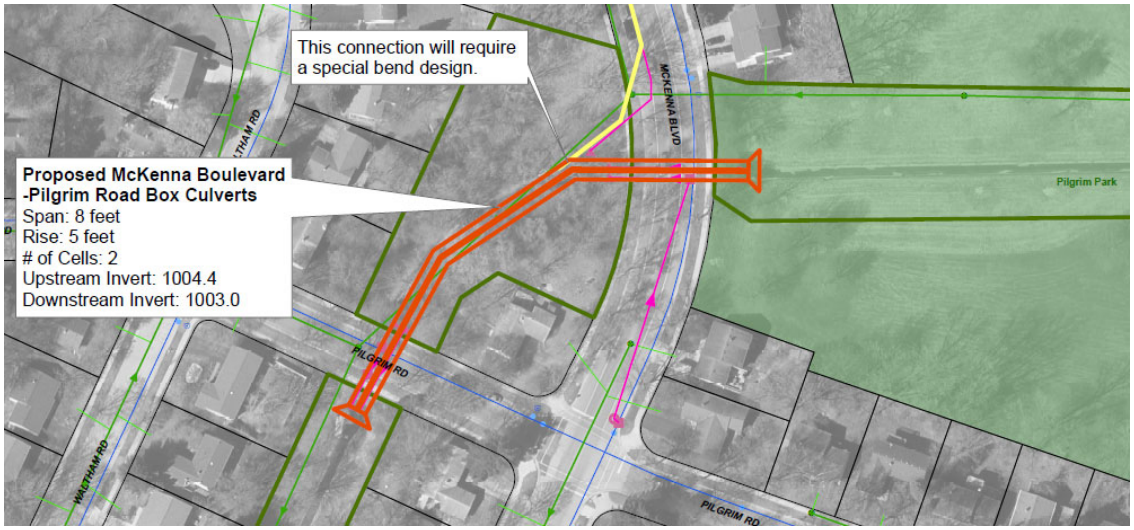
9. McKenna Blvd.-Pilgrim Road Box Culvert Replacement





- **Goal: Reduce upstream structure flooding for 4% and 1% chance events**
- Replace existing pipe culverts with box culverts
- Removes 10 structures from flooding for 1% chance event
- Removes 14 structures from flooding for 4% chance event
- Cost estimate = $1.9 million
- Depends on installation of all downstream culverts = $4.96 million
- 10- and 25-year high water decrease of 1.5-1.7 ft with 50-100 ft less lateral spread

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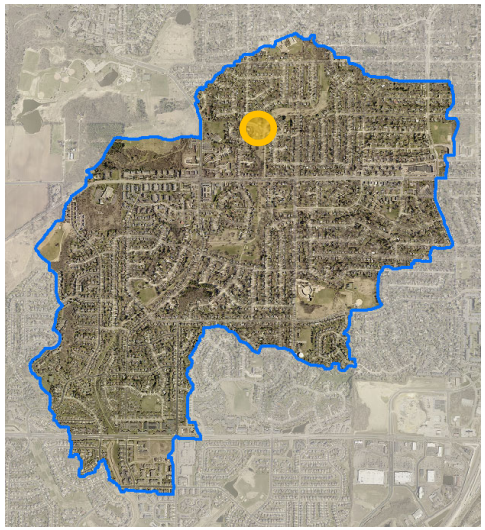
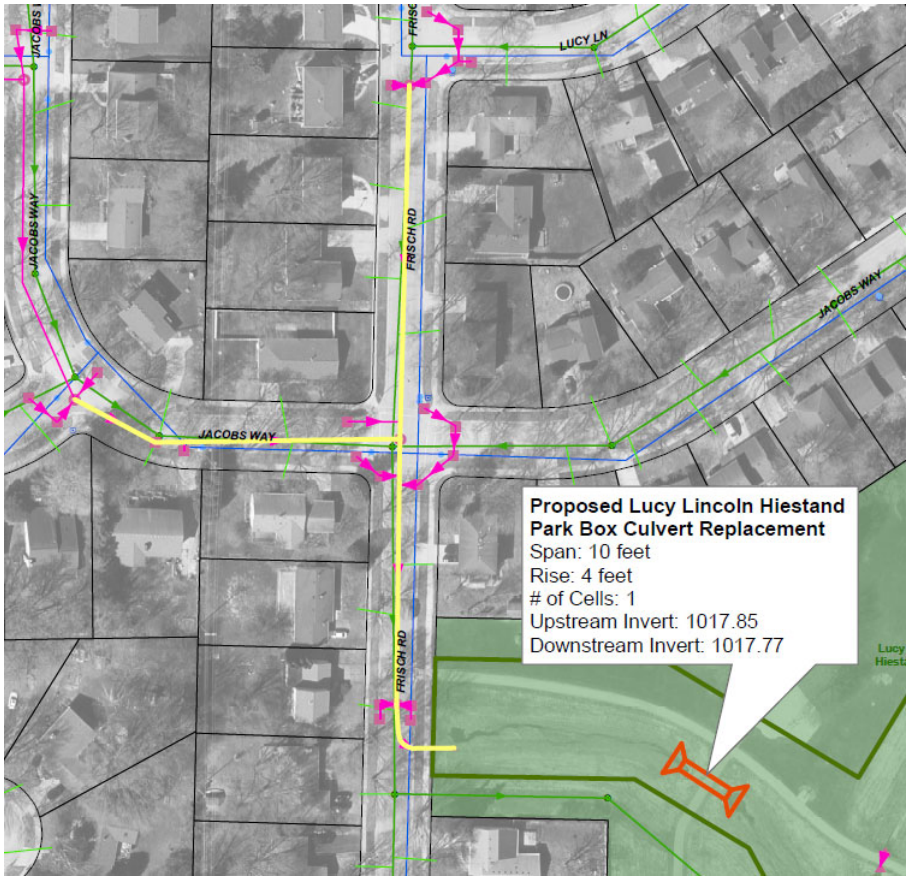
11. Lucy Lincoln Hiestand Park Box Culvert & Frisch Rd. Storm





- **Goal: Convey 1% chance event and reduce flooding during 10%, 4%, and 1% chance events**
- Replace existing pipe culvert with box culvert
- Increase storm sewer size
- Removes 2 structures from flooding
- Meets 10% and 4% chance event targets
- Cost estimate = $1.1-1.5 million

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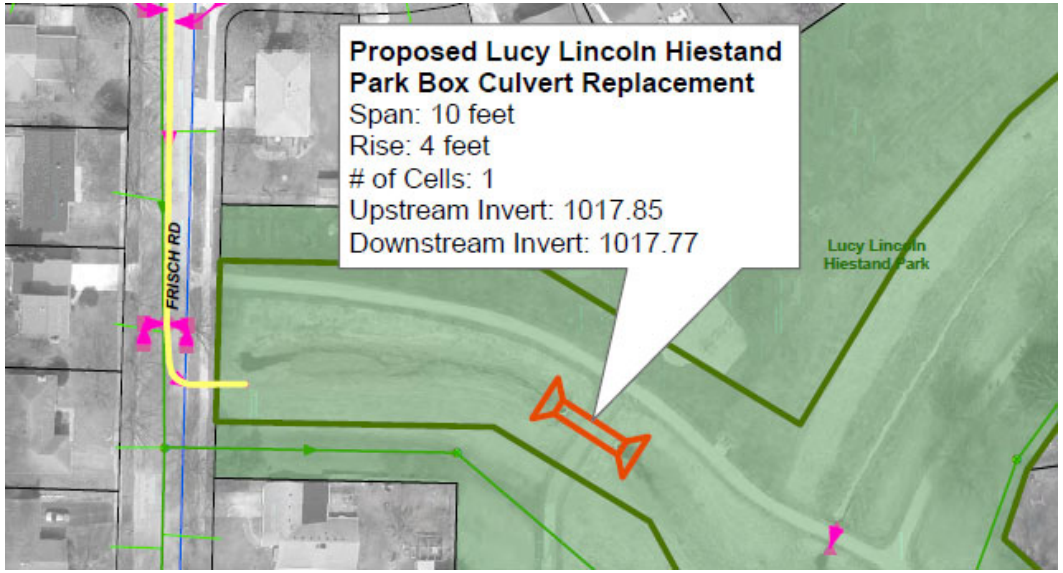
11. Lucy Lincoln Hiestand Park Box Culvert & Frisch Rd. Storm

- Install larger culvert under park path
- Replace path and restore grass areas
- No tree impacts



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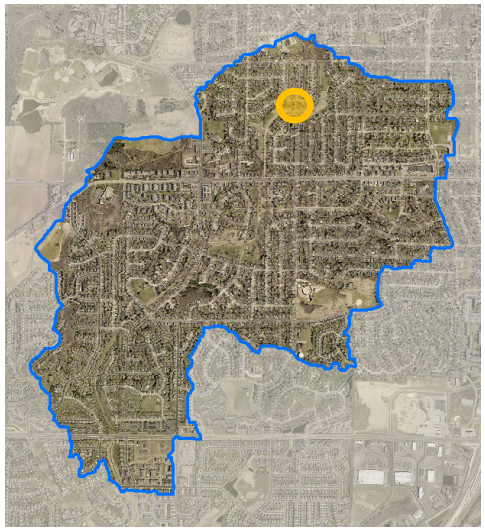
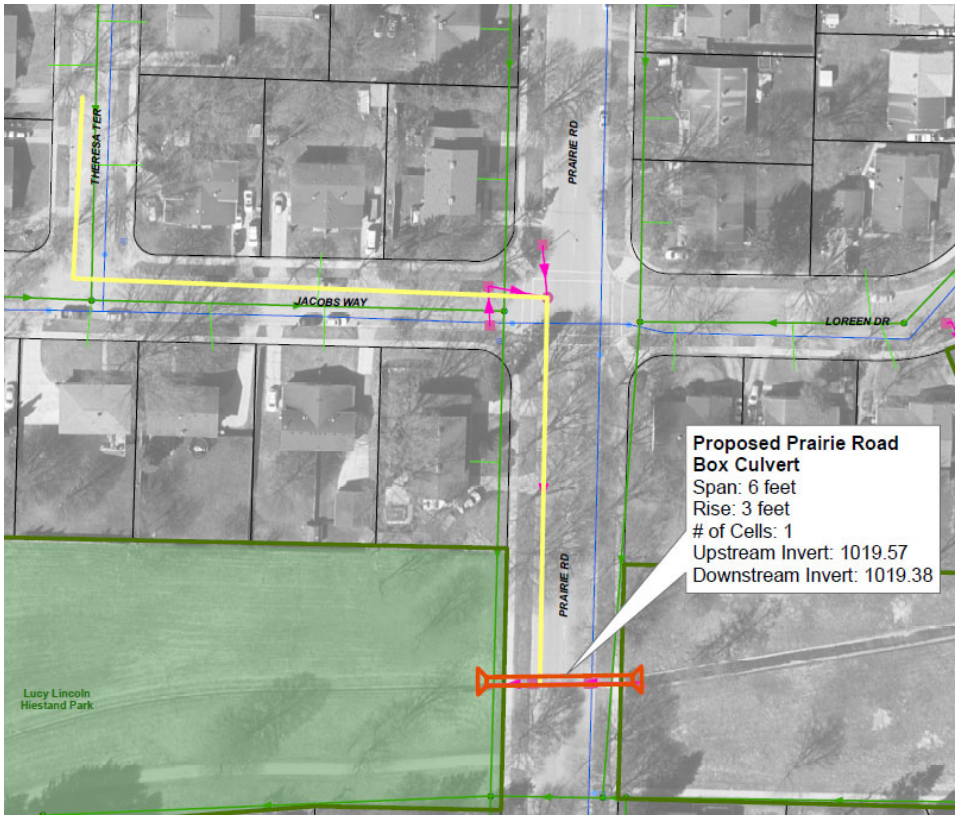
12. Prairie Road Box Culvert & Theresa Terrace Storm Sewer





- **Goal: Convey 1% chance event and reduce flooding during 10%, 4%, and 1% chance events**
- Replace existing pipe culvert with box culvert
- Extend storm sewer and increase pipe size
- Removes 2 structures from flooding
- Meets 10% and 4% chance event targets
- Cost estimate = $550,000

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13. Waltham Park Improvements

- Install new underground bypass pipe
- Temporary construction impacts
- Timing can be coordinated to reduce impacts to park users
- Minimal tree impacts

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13. Pilgrim Park Improvements

- Install larger underground pipe
- Temporary construction impacts
- Timing can be coordinated to reduce impacts to park users
- Minimal tree impacts

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13. Huegel Park Improvements

- Install larger underground pipe
- Temporary construction impacts
- Timing can be coordinated to reduce impacts to park users
- Minimal tree impacts

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