



Case Study: Sunnyland Subdivision Drainage Improvement Project 2013 IAFSM Presentation



Presented by V3 Companies
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Presentation Agenda

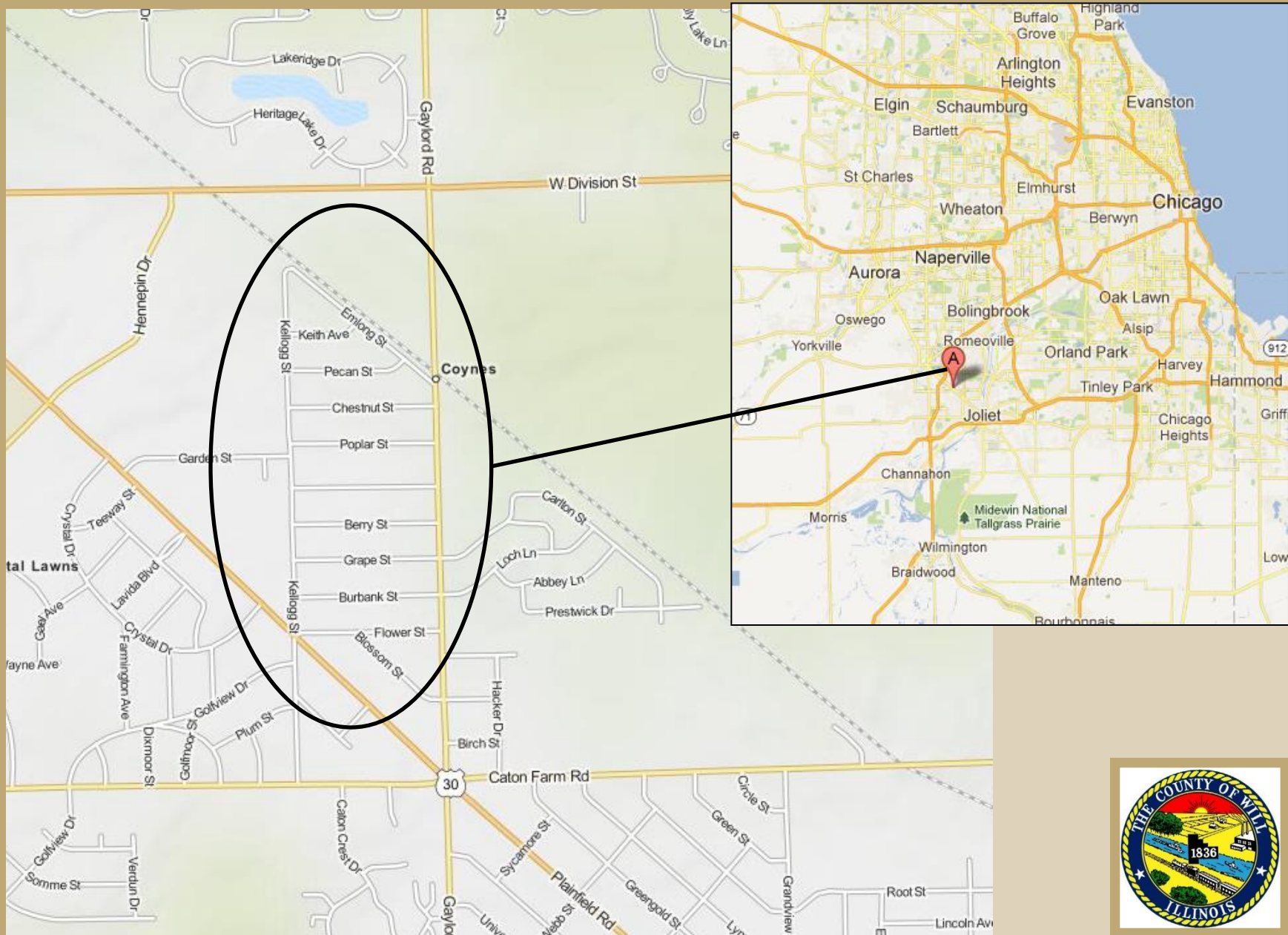
- Project Overview and Goals
- Engineering Evaluation
- Recommended Projects
- Funding
- Construction Packaging / Sequencing
- Construction Challenges
- Questions?





Project Overview and Goals

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Project Overview and Goals

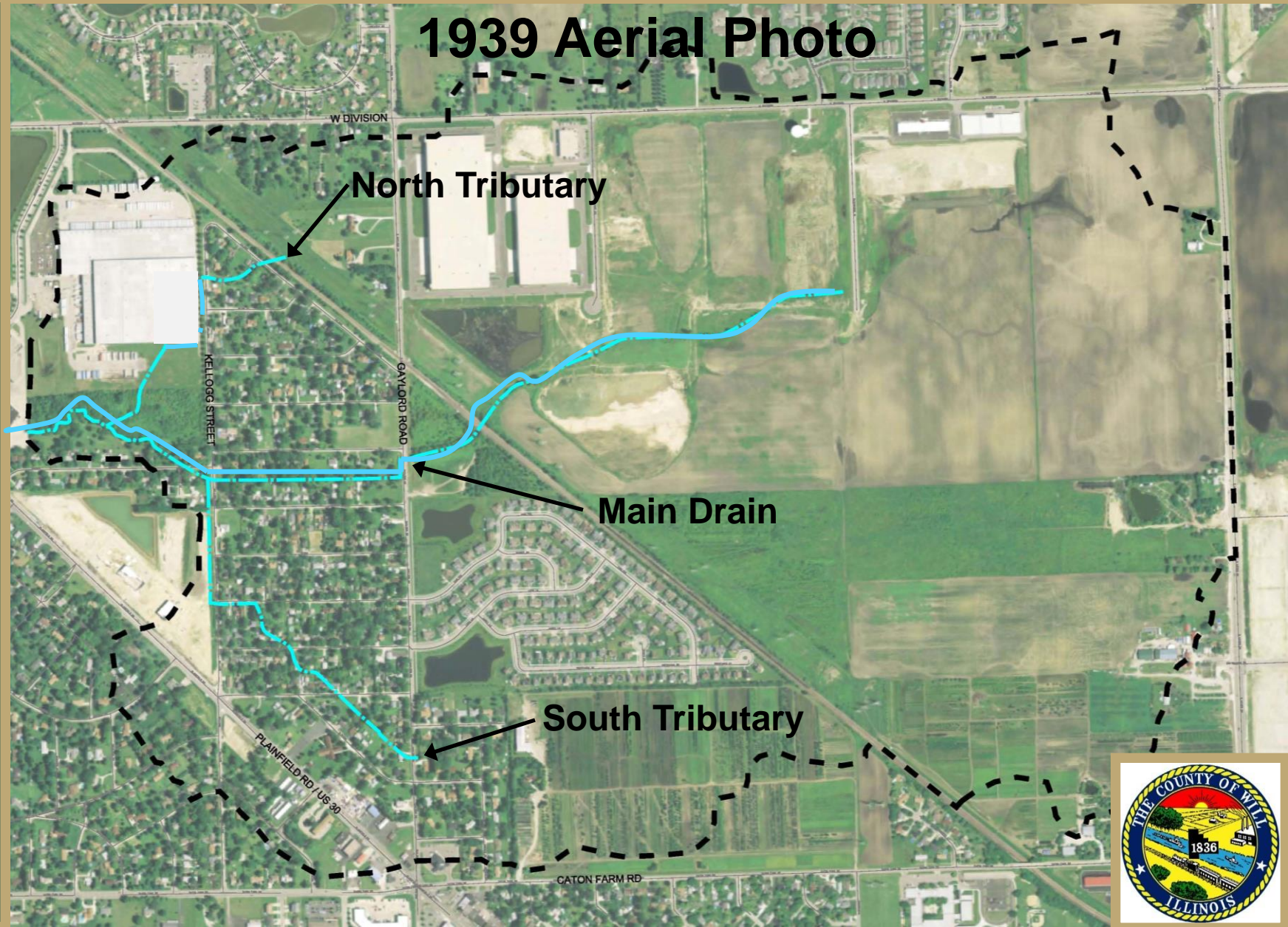
- Reduce Flooding and Drainage Problems in Sunnyland Neighborhood
 - ~ 200 Residential Structures
 - Structural, Yard, Street Flooding
 - Identify Problem and Develop Project Alternatives to Reduce Depth and/or Duration of Flooding
- Project Followed Traditional Project Path
 - Data Collection
 - Analysis
 - Develop Alternatives
 - Recommend Projects





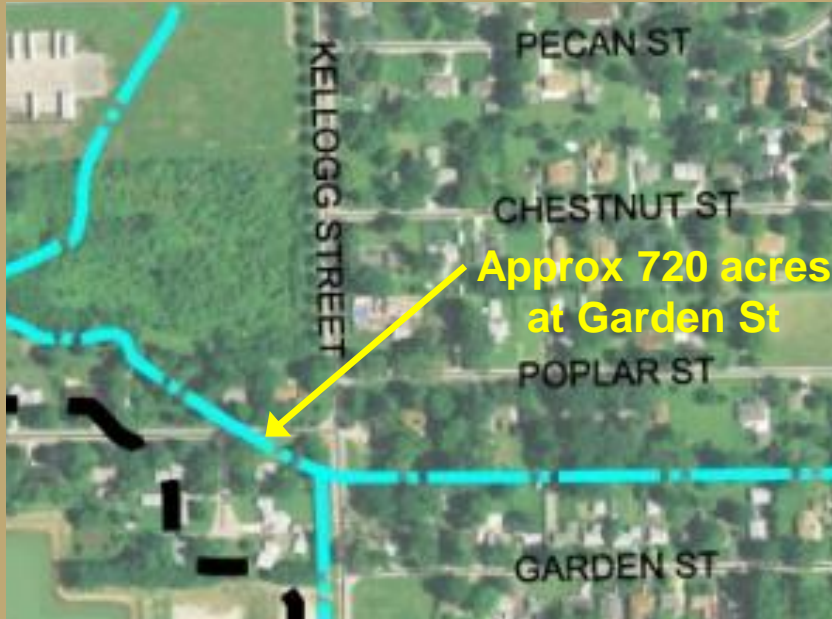
Engineering Evaluation

1939 Aerial Photo





Engineering Evaluation: Main Drain



- Large drainage area
- Mapped Floodplain
- Flows through backyards
- Overgrown with trees, shrubs
- Apparent limited channel capacity
- Apparent limited culvert capacity





Engineering Evaluation: South Trib

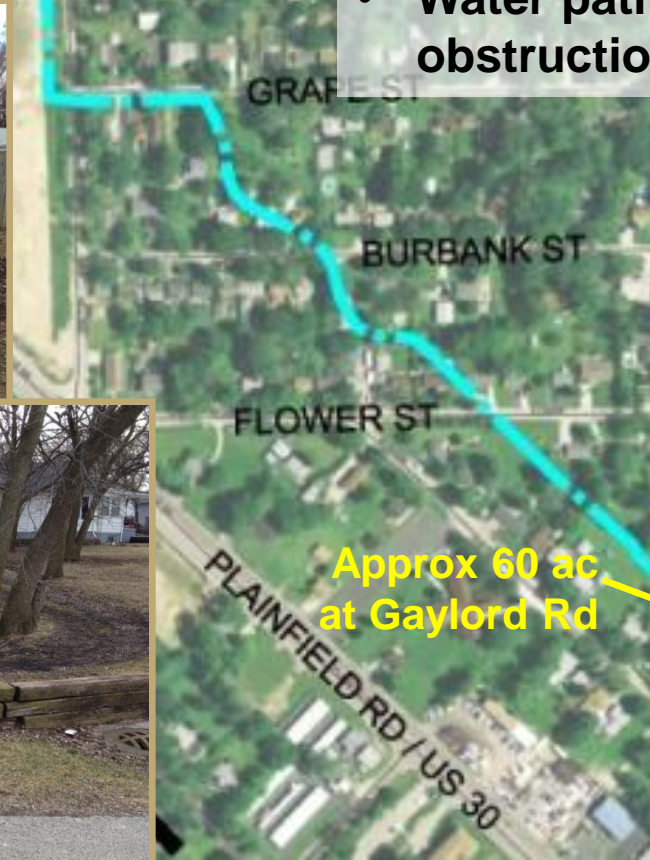
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- Approx. 60 acres at Gaylord
- Not Mapped Floodplain
- No / poorly defined channel or flow path downstream of Gaylord
- Water flows between homes, limited capacity to convey water
- Water path blocked by fences and obstructions





Engineering Evaluation: North Trib

- Smallest drainage area
- No Mapped Floodplain
- Channel between homes





Engineering Evaluation: Resident Input

- Importance of Data Collection from Residents
 - Questionnaire sent to residents
 - Two neighborhood meetings solicited information
 - Residents identified specific problems & challenges
 - Shaped direction of project





Engineering Evaluation: Resident Input

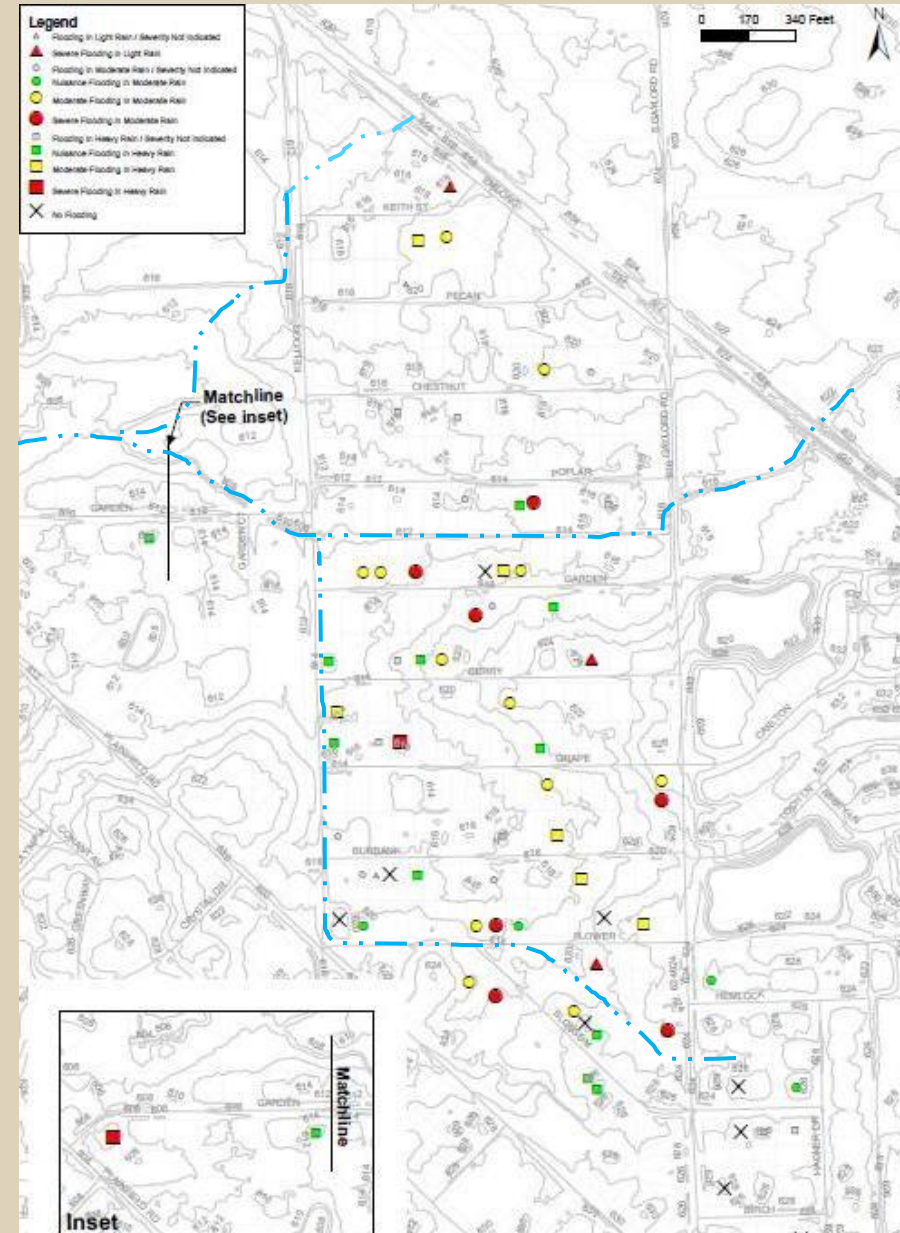
71 Responses

59 Indicated Flooding

- 15 Indicated First Floor House Flooding
- Remainder: Basement, Garage, Yard, Street

Flooding Occurs During:

- Small Storms = 5 responses, 7%
- Moderate Storms = 34 responses, 48%
- Large Storms = 59 responses, 83%





Engineering Evaluation: Resident Input

Reason for Flooding

- 69% = Insufficient or Clogged Ditches, Culverts
 - Includes All Residents with First Floor Structural Flooding
- 39% = Poor Grading of Lot
- 22% = Seepage through Walls/Floor
- 20% = Limited Storm Sewer Inlets
- 19% = Overland Flow
- < 10% = Other responses
 - Erosion
 - Sump Pump Failure
 - Sewer Backup





Engineering Evaluation

- Problems Scattered Throughout Sunnyland Subdivision
- No “Magic Bullet” Solution
- Engineering Alternatives Included:
 - Conveyance
 - Storage
 - Maintenance





Projects: South Tributary Sewer Improvements, Inlet Improvements, Ditch Reshaping West of Gaylord

Benefits: Homes Along South Tributary

9 properties reported flooding problems;
6 properties reported house flooding

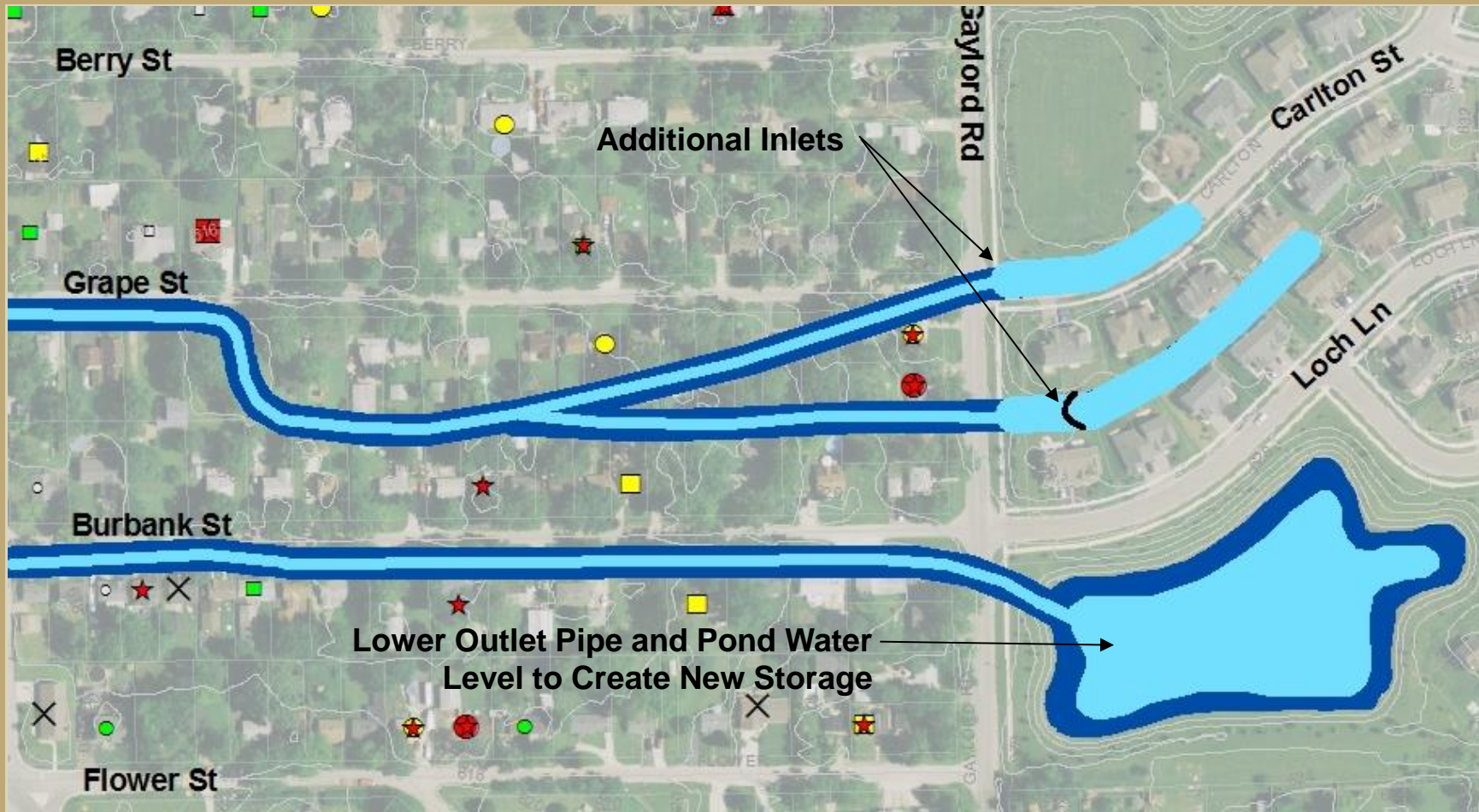
Provides infrastructure for Phase 2
Improvements to benefit additional homes

Estimated Cost
Opinion: \$526,500





Projects: Additional Inlets and Storage within Adjacent Subdivision



Benefits: Homes on Grape, Burbank, & Gaylord
5 properties reported flooding problems;
3 properties reported house flooding

Estimated Cost Opinion: \$39,000



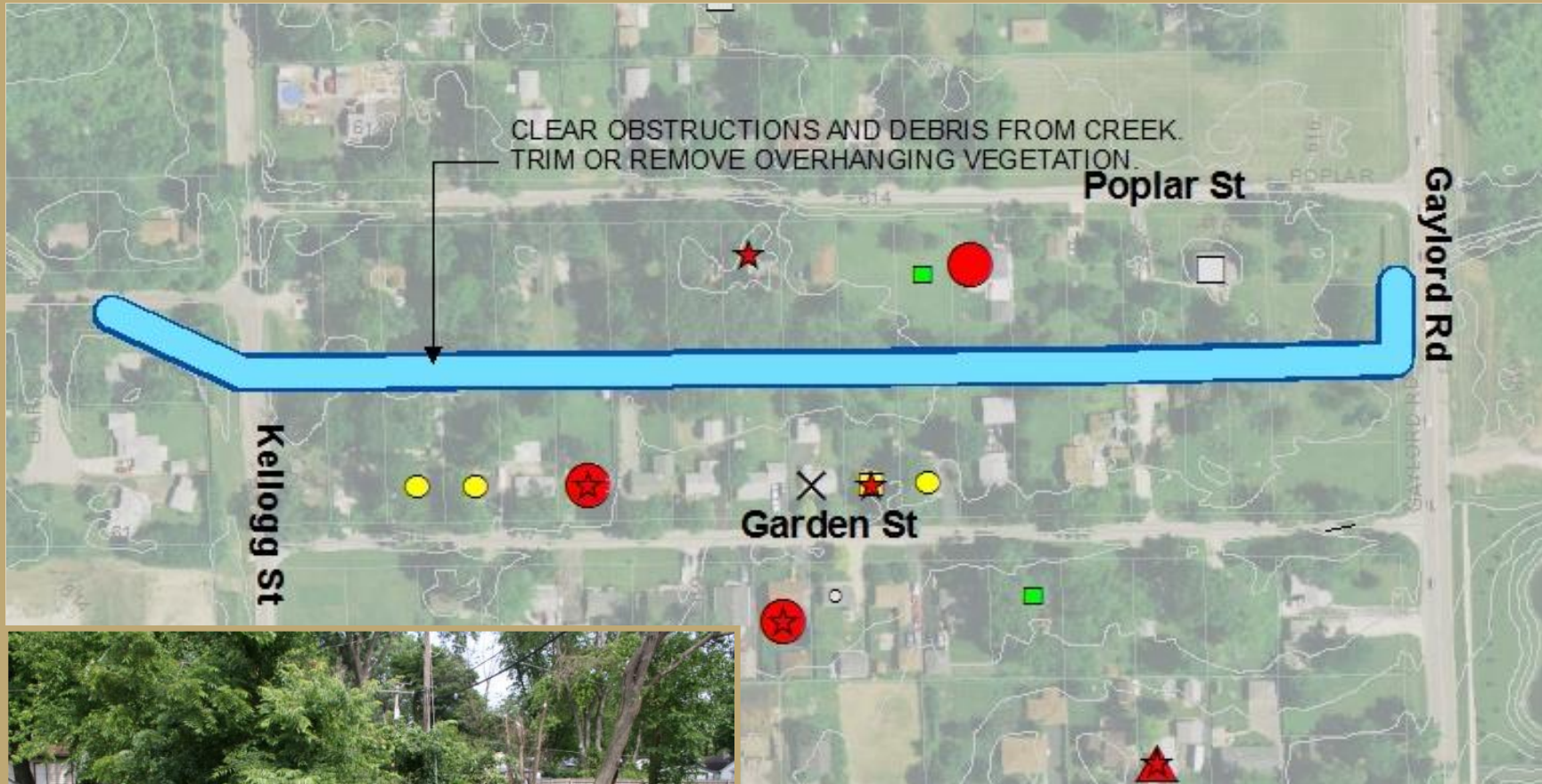


Projects: Main Drain Improvements: Clear Debris, Clear / Trim Landscaping

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Preventative Maintenance, Minimal
Reduction in Flood Levels

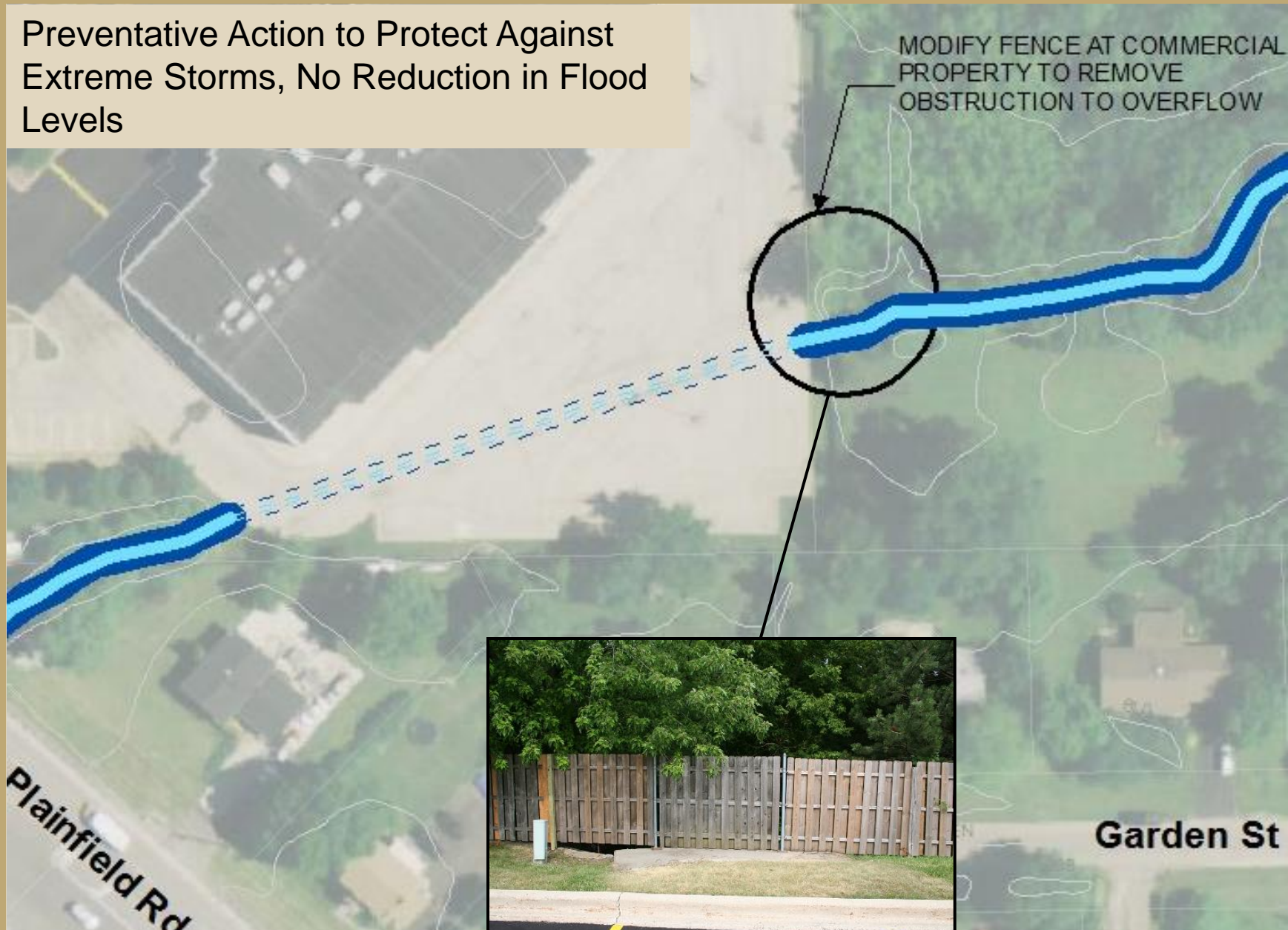
Benefits: Homes on Poplar & Garden
8 properties reported flooding problems;
3 properties reported house flooding

Estimated Cost Opinion: \$15,600



Projects: Main Drain Improvements: Downstream Fence Modification

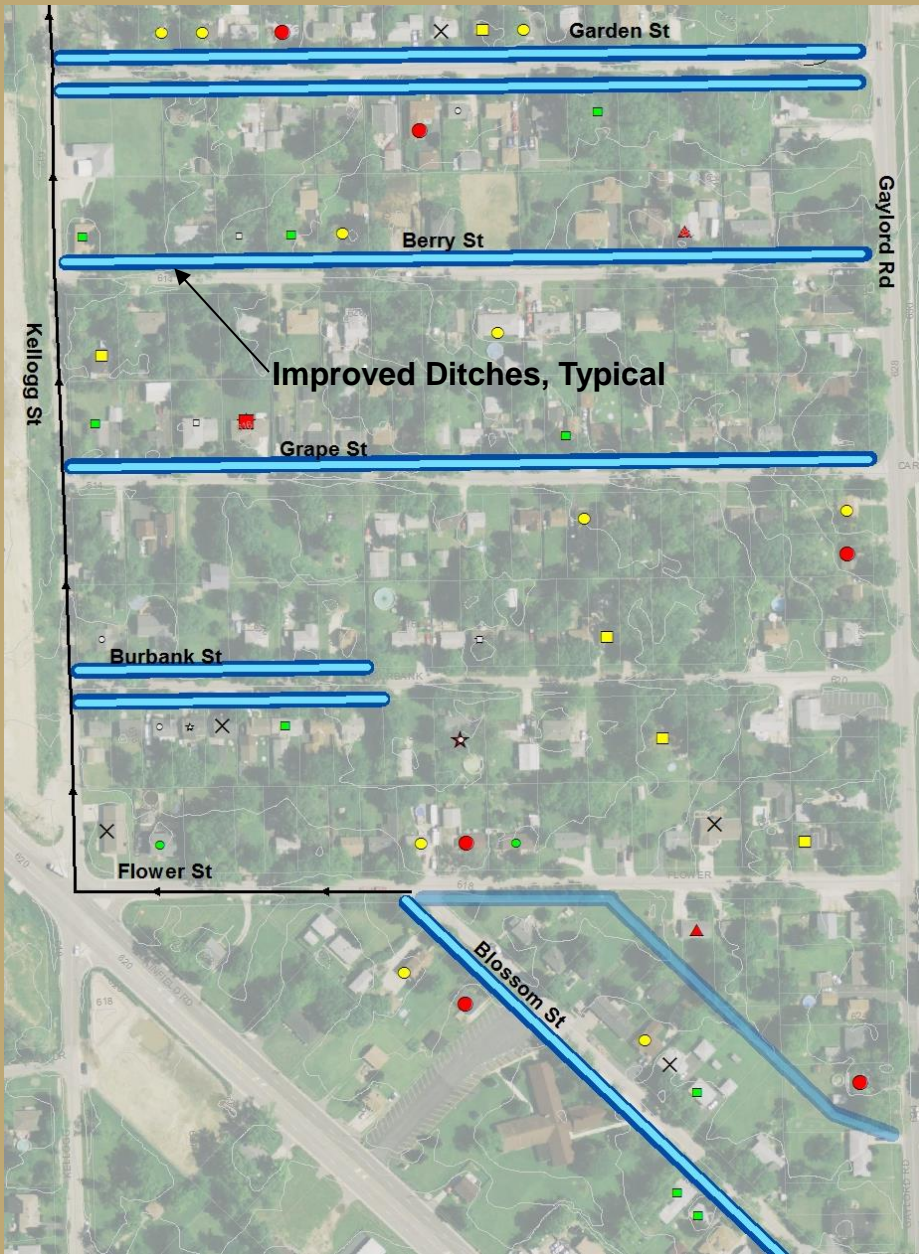
Preventative Action to Protect Against
Extreme Storms, No Reduction in Flood
Levels





Projects: Ditch Improvements - Step 1 - South

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Benefits: Homes on Garden, Berry, Grape, Burbank, Blossom

(Garden & N. side Grape included in Phase 1 as Bid Alternates)

26 properties reported flooding problems (9 of these properties benefit from Phase 1 improvements);

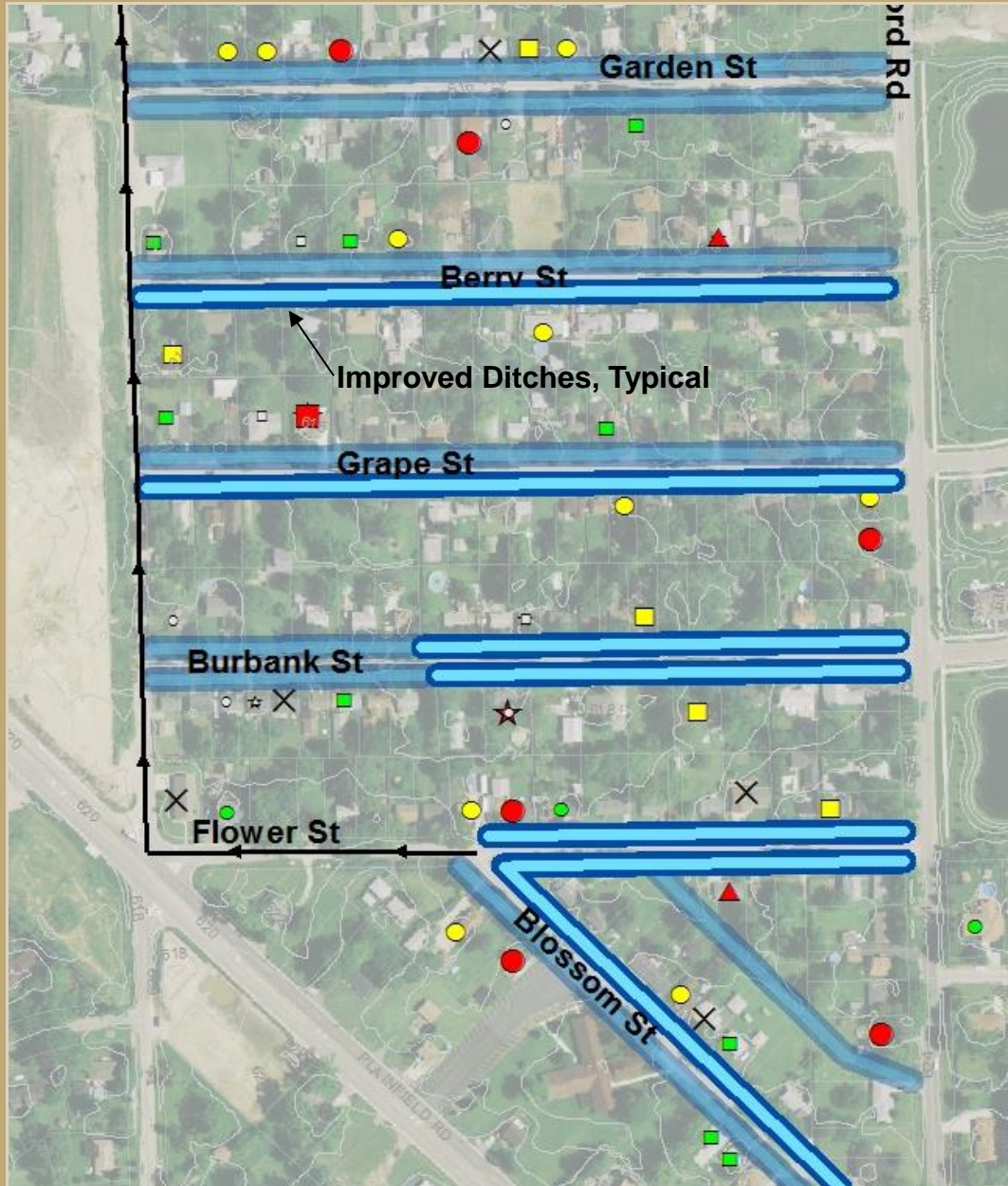
8 properties reported house flooding (6 of these houses benefit from Phase 1 improvements)

Estimated Cost Opinion:
\$445,000





Projects: Ditch Improvements - Step 2 - South



Benefits: Homes on Berry, Grape, Burbank, Flower, Blossom

Provides improved ditch conveyance for remainder of subdivision, south of Sunnyland Drain

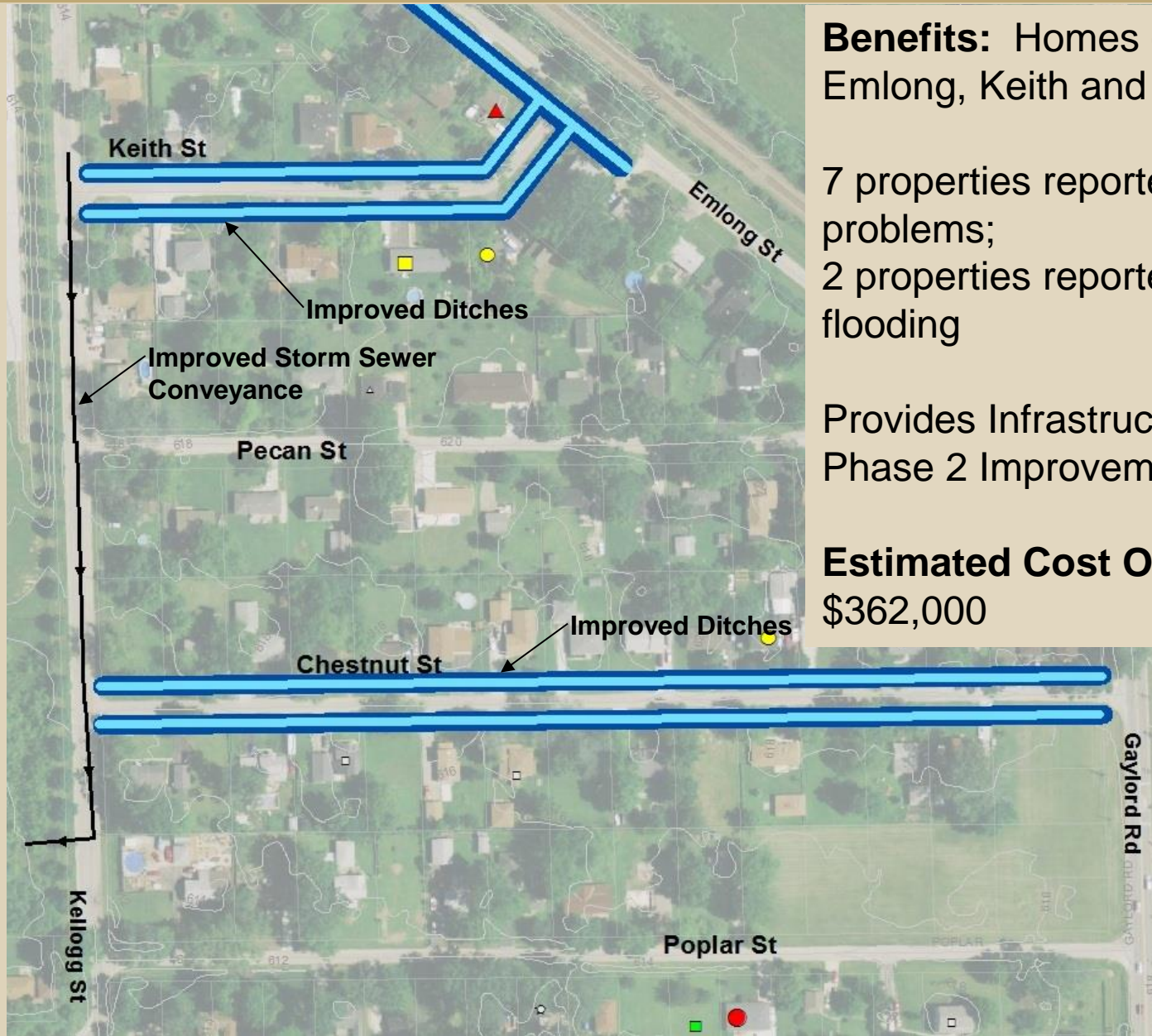
Estimated Cost Opinion:
\$678,000 (includes Step 2 – North, on next slide)





Projects: Ditch Improvements - Step 1 - North

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Benefits: Homes on Emlong, Keith and Chestnut

7 properties reported flooding problems;
2 properties reported house flooding

Provides Infrastructure for Phase 2 Improvements

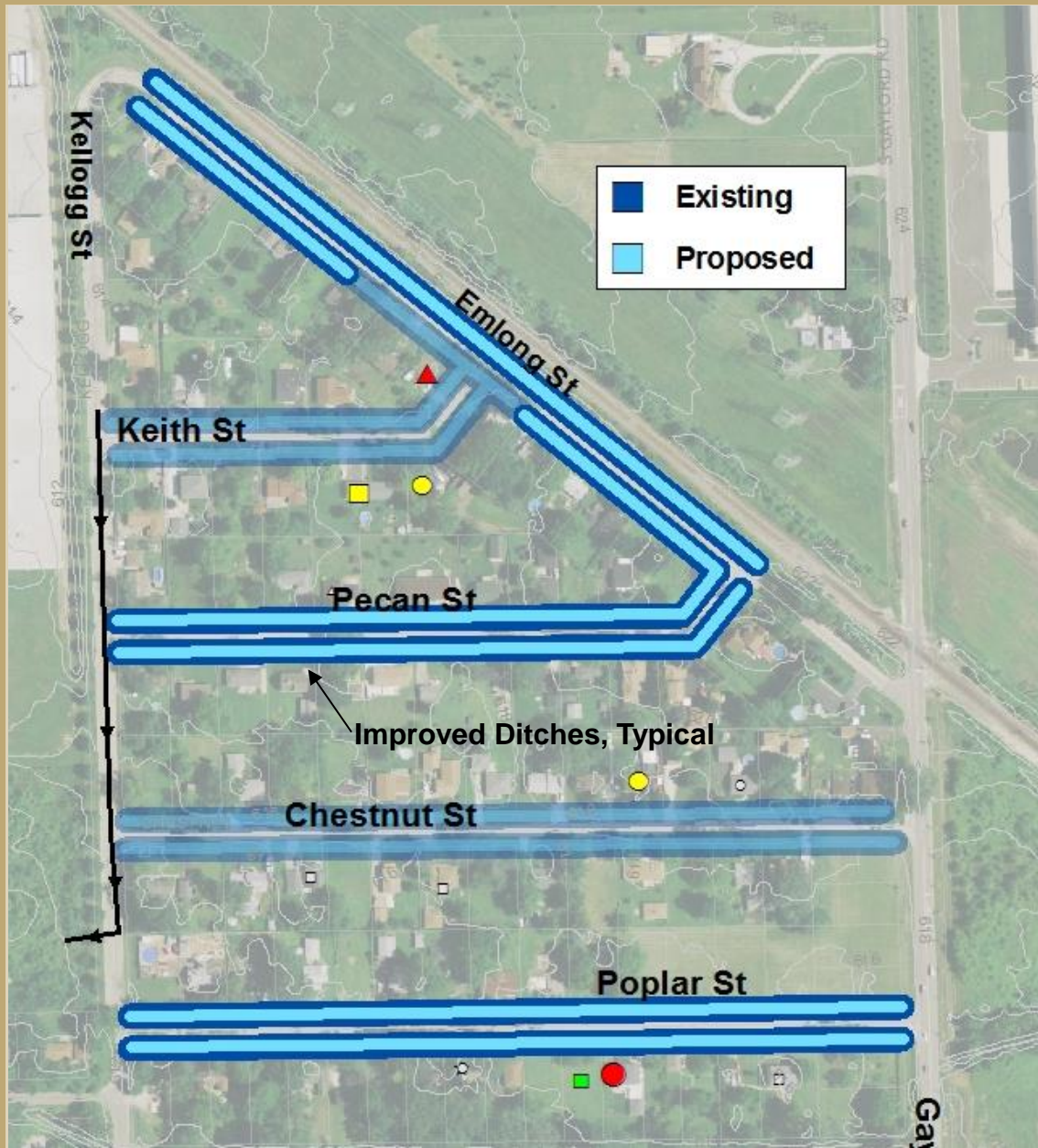
Estimated Cost Opinion:
\$362,000





Projects: Ditch Improvements - Step 2 - North

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Benefits: Homes on Emlong, Pecan, Poplar

Provides improved ditch conveyance for remainder of subdivision, south of Sunnyland Drain

Estimated Cost

Opinion: \$678,000
(includes Step 2 - South, on previous slide)





Engineering Evaluation

- Limited Funding = Project Prioritization
- Phase 1 Projects
 - Focuses on Areas with First Floor Flooding
 - Benefits 87% of homes with first floor flooding
 - Benefits 45% of properties with reported flooding
- Phase 2 Projects
 - Remainder of Subdivision





Projects: Maintenance

Ongoing Maintenance Recommended Upon Completion of Phase 1

Within Sunnyland Subdivision

- Ditches
- Storm Sewer System
(Inlet Grates & Catch Basins)
- Main Sunnyland Drain

Adjacent to Subdivision

- Detention Ponds
- Stormwater Management Systems





Funding

- **IKE Disaster Recovery Program Grant**
 - Will County Received \$750,000 for Sunnyland Subdivision
 - Grant Deadline is October 31, 2013
 - Grant dedicated to stormwater improvements
- **Community Block Development Grant (CDBG)**
 - Plainfield Township received \$300,000 from Will County
 - Grant Deadline is March 15, 2014
 - Grant dedicated to Sunnyland Subdivision improvements
- **Plainfield Township Construction**
 - Plainfield Township is dedicating labor and equipment
 - Construction to include ditch excavation

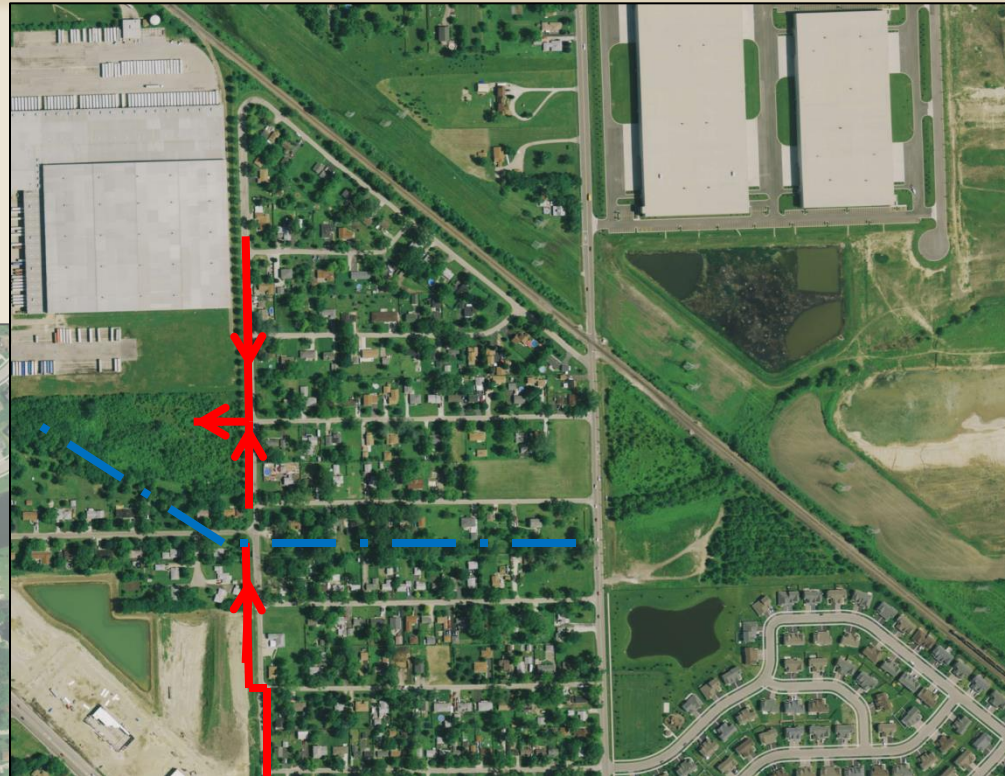




Construction Packaging and Sequencing

- Construction Packaging
 - Priority 1 – Storm Sewer in Kellogg Street

South Area



North Area

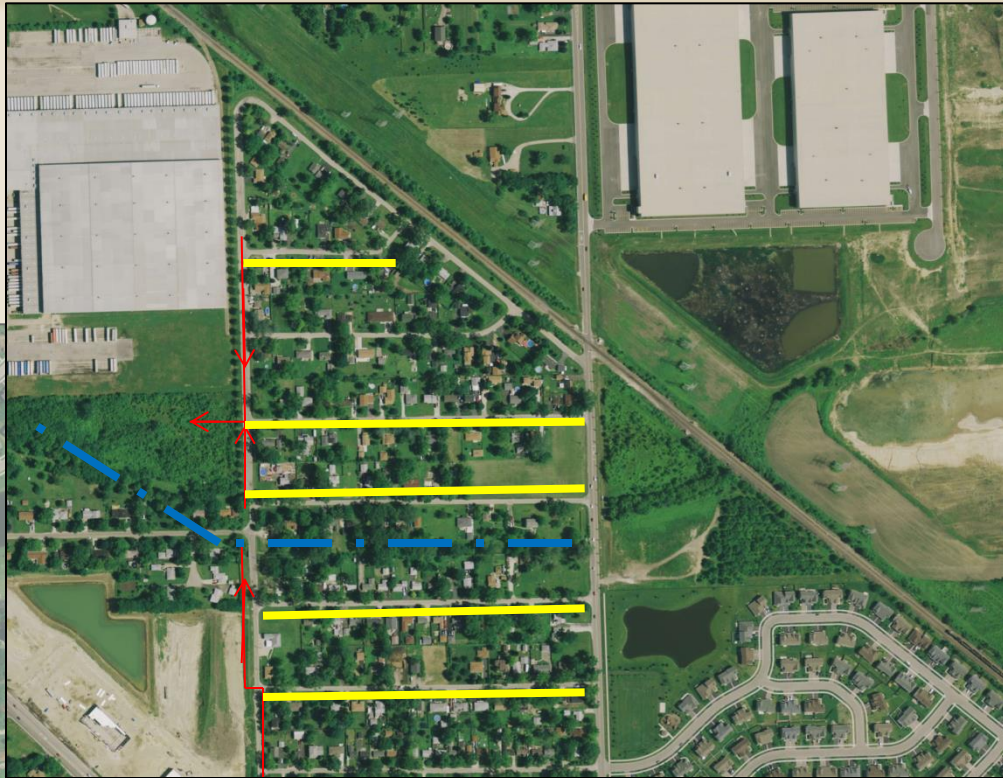
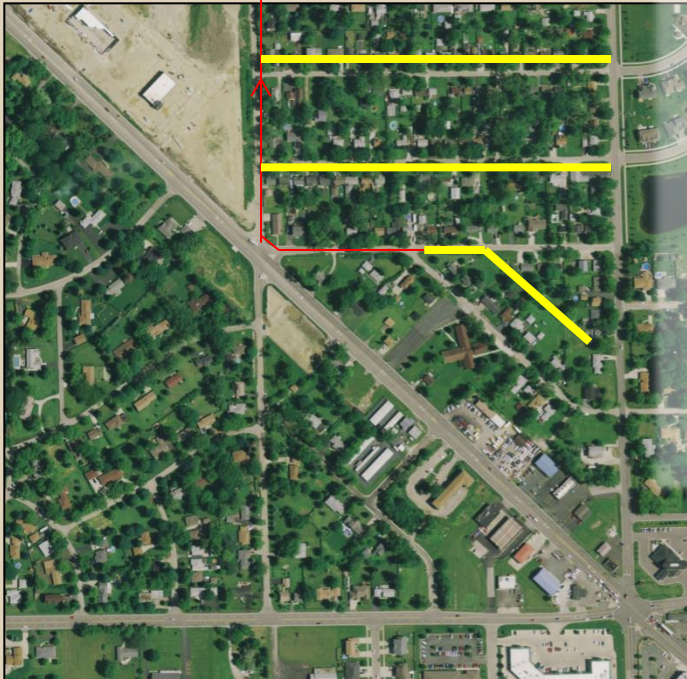




Construction Packaging and Sequencing

- Construction Packaging
 - Priority 2 – Primary Ditches (10 cfs or more in 10-Yr)

South Area



North Area





Construction Challenges

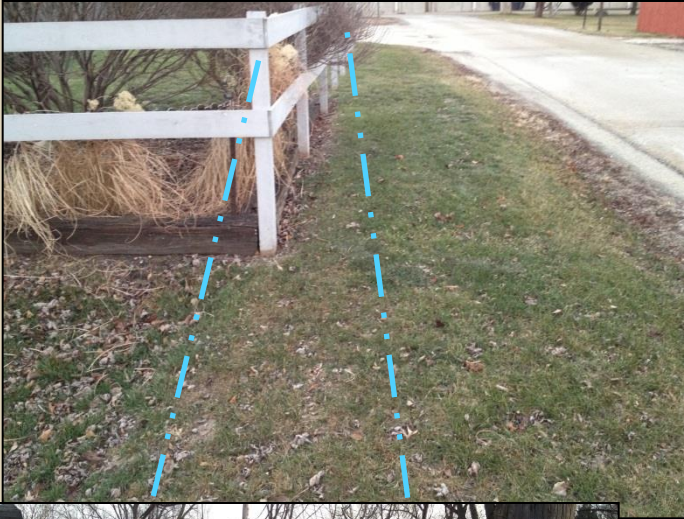
- Utility Conflicts
 - Nicor Gas
 - Two Private Water Distribution Companies





Construction Challenges

- Tree & Landscape Conflicts





Questions?

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