VILLAGE OF DEER PARK
ESTABLISHED 1957


May 18, 2017

Stormwater Master Plan

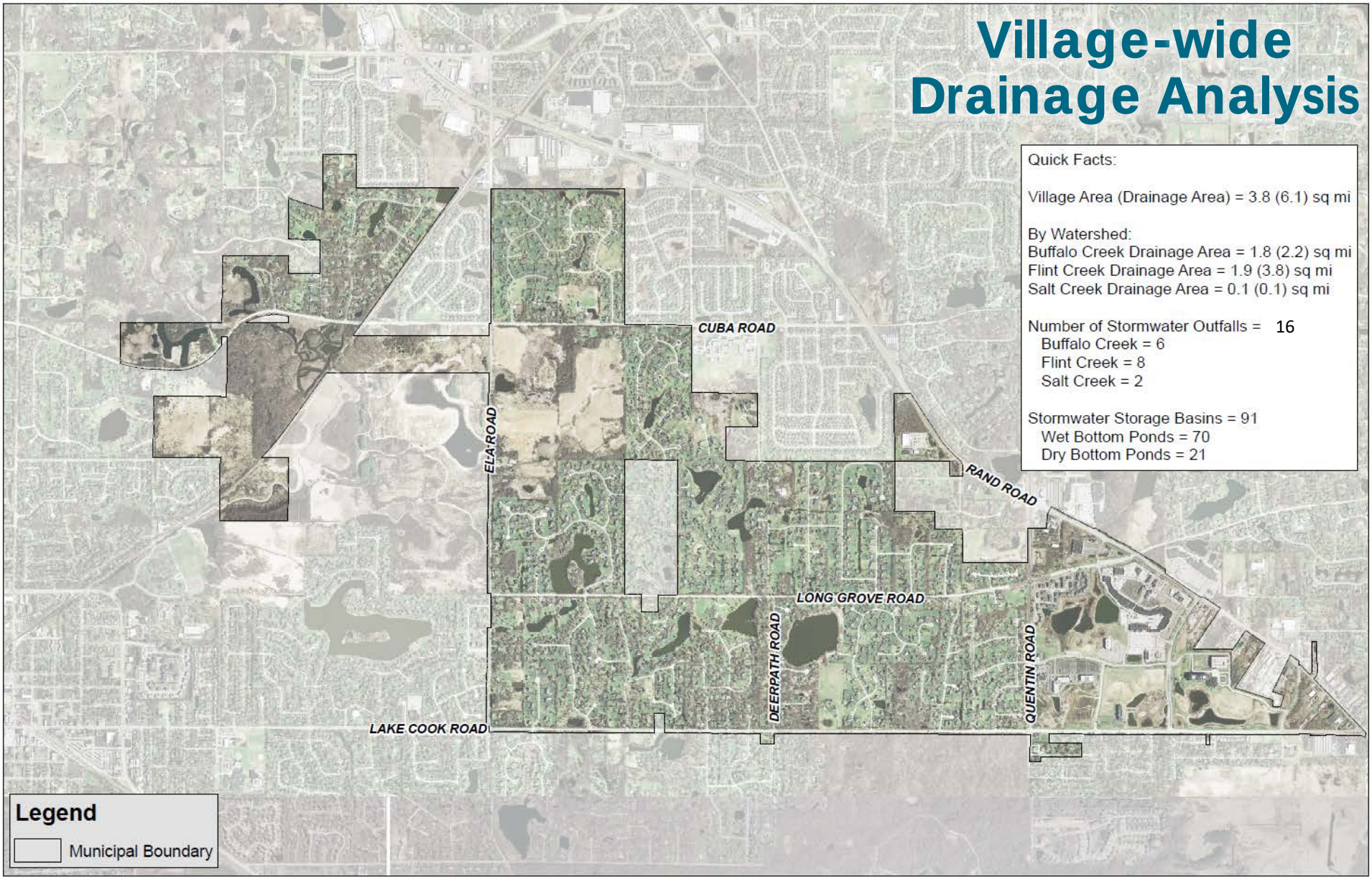
Village Board Presentation

CBB

Presentation Overview

- Village-wide drainage analysis
- Drainage problem categories
- Identified drainage problems
- Preliminary drainage improvement plans
- Project Schedule
- Homeowner drainage improvement projects

Village-wide Drainage Analysis



Quick Facts:

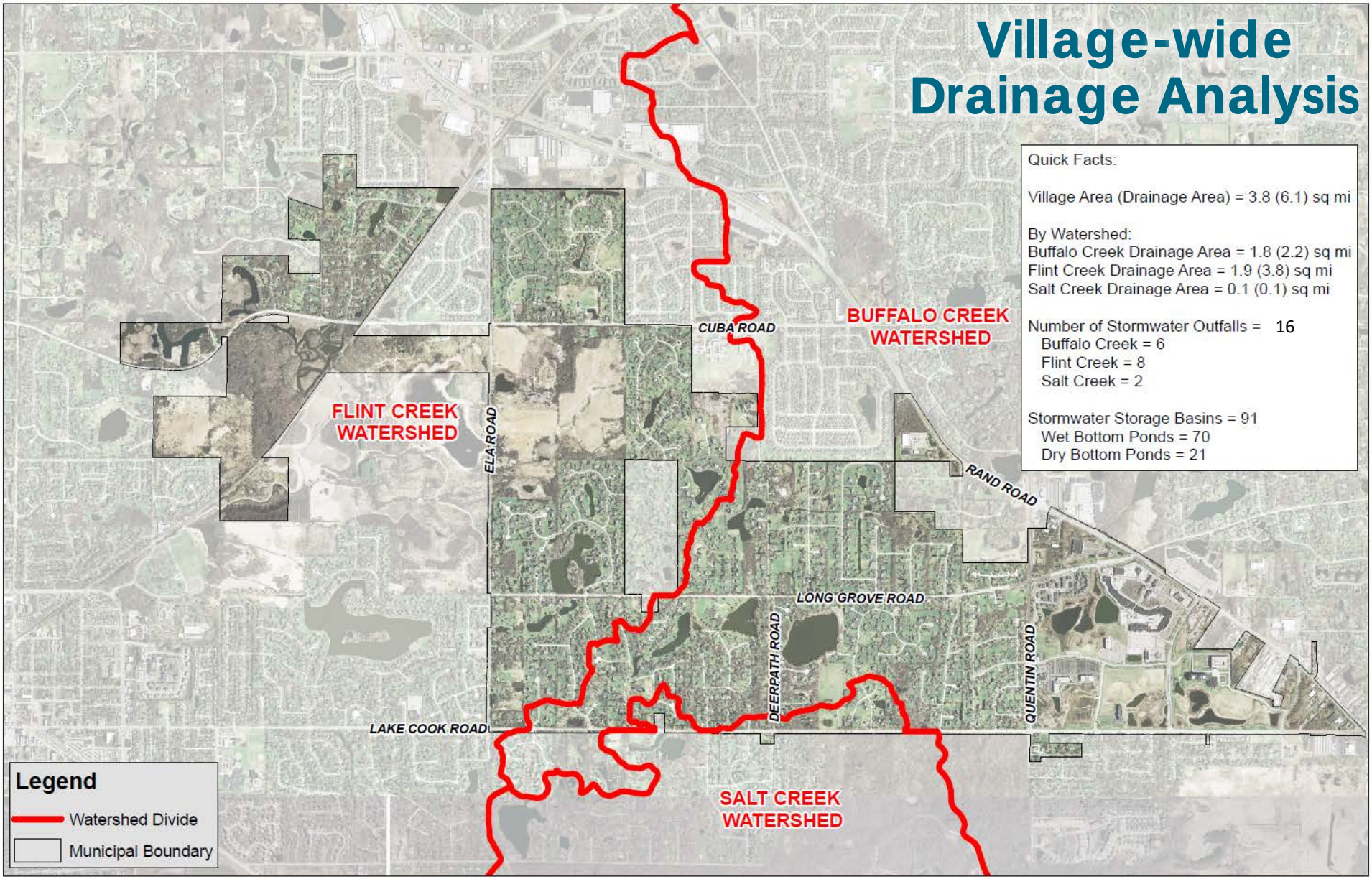
Village Area (Drainage Area) = 3.8 (6.1) sq mi

By Watershed:
Buffalo Creek Drainage Area = 1.8 (2.2) sq mi
Flint Creek Drainage Area = 1.9 (3.8) sq mi
Salt Creek Drainage Area = 0.1 (0.1) sq mi

Number of Stormwater Outfalls = 16
- Buffalo Creek = 6
- Flint Creek = 8
- Salt Creek = 2

Stormwater Storage Basins = 91
- Wet Bottom Ponds = 70
- Dry Bottom Ponds = 21

Village-wide Drainage Analysis



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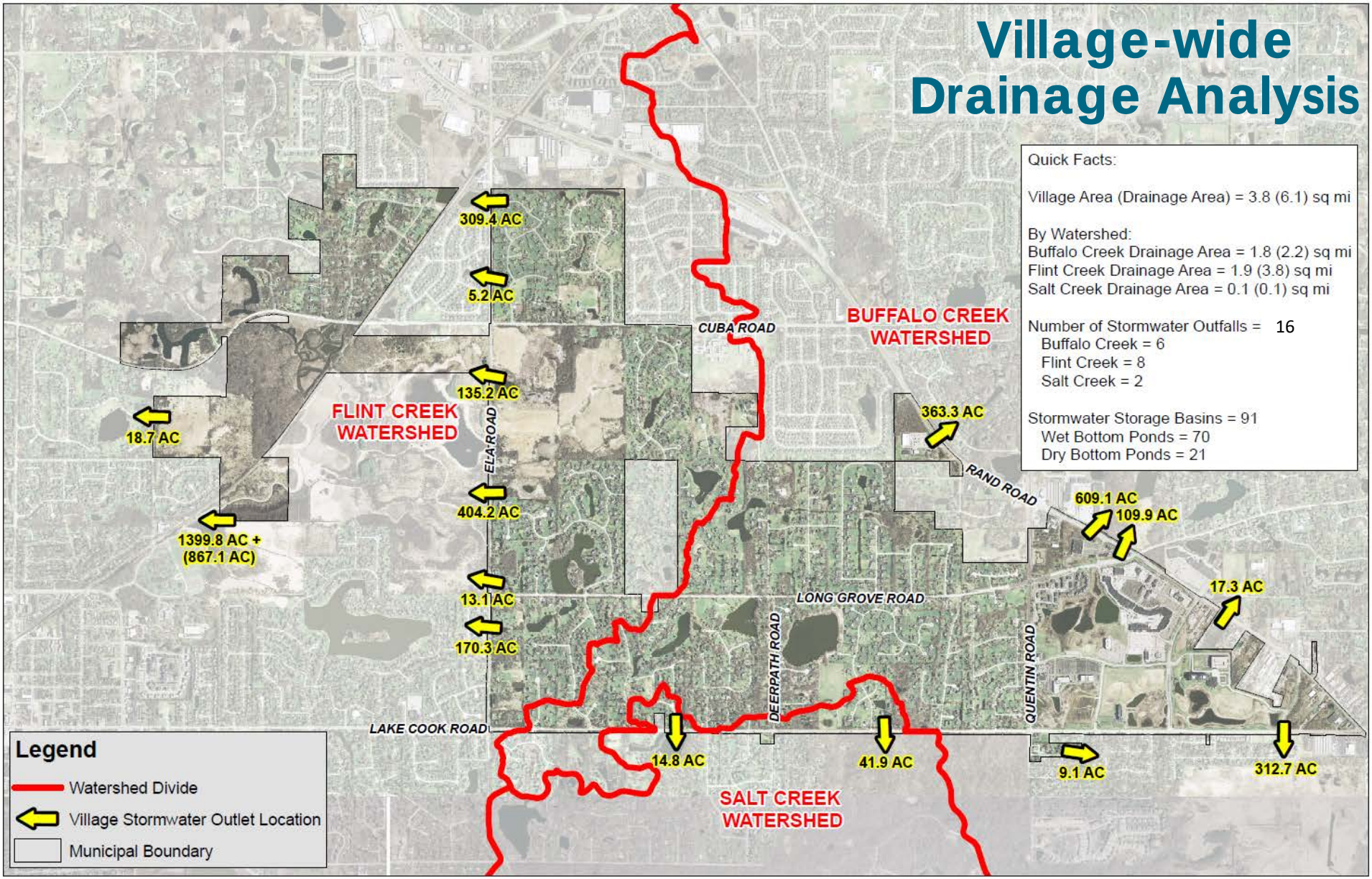

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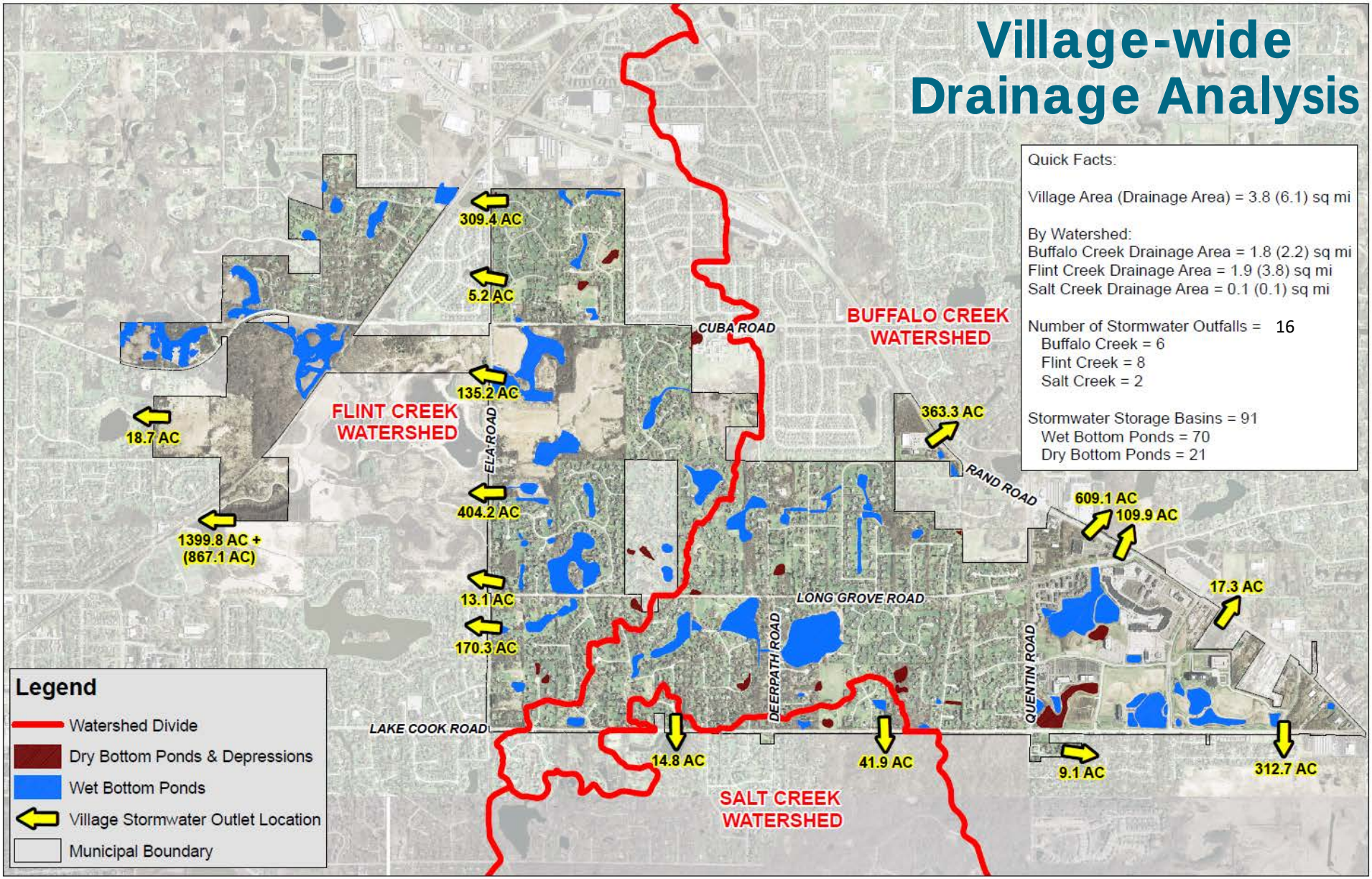

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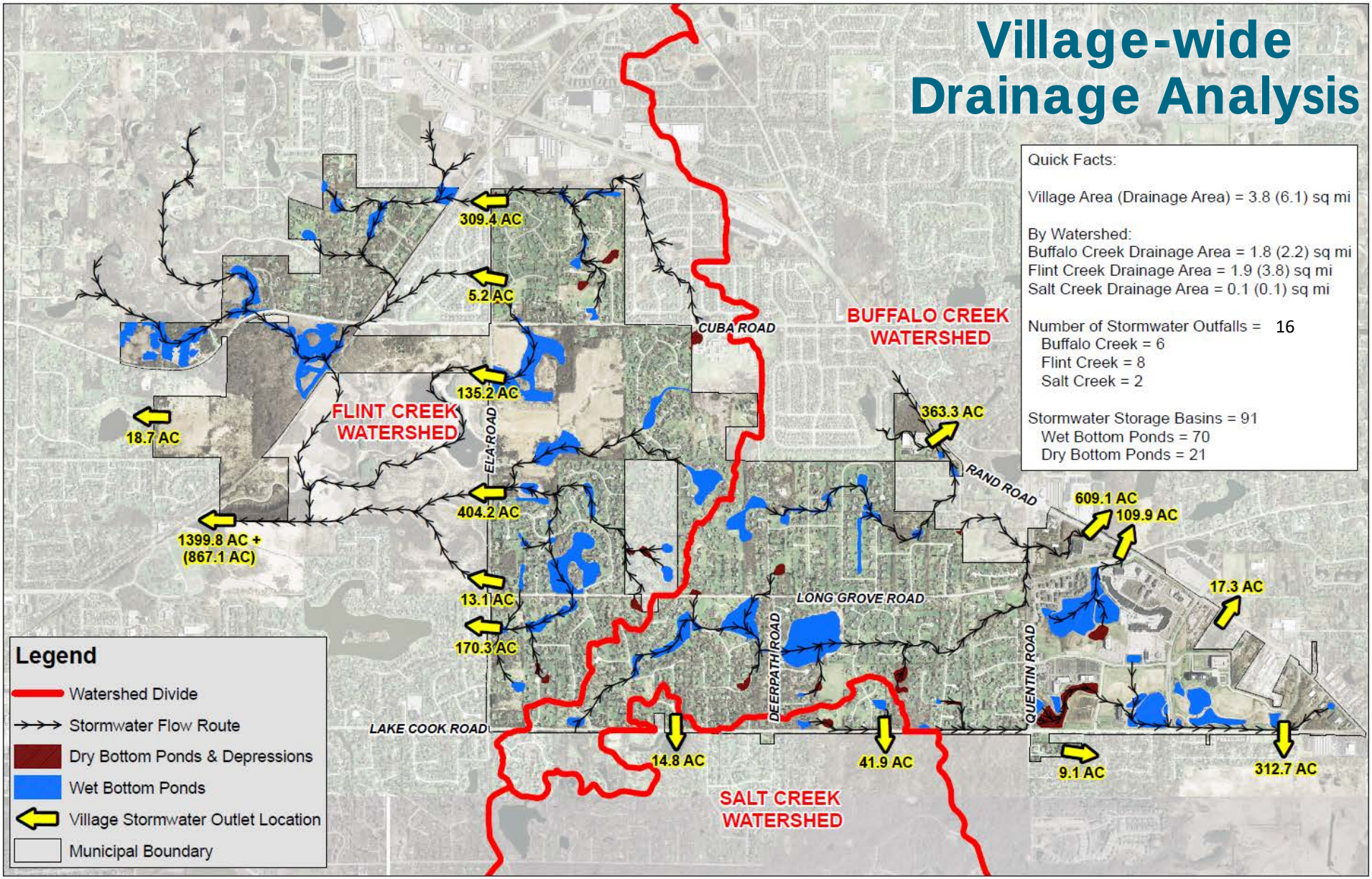

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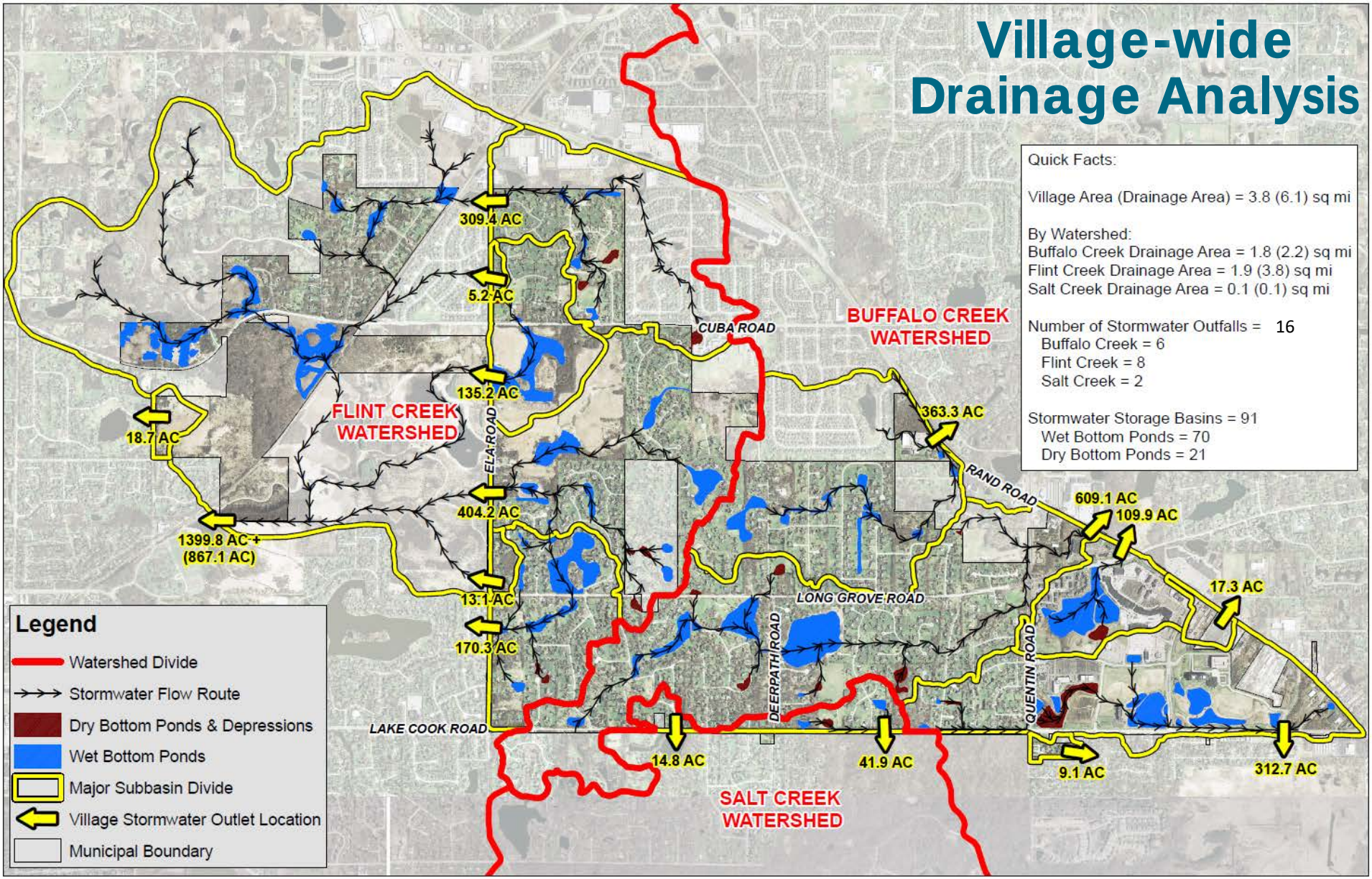

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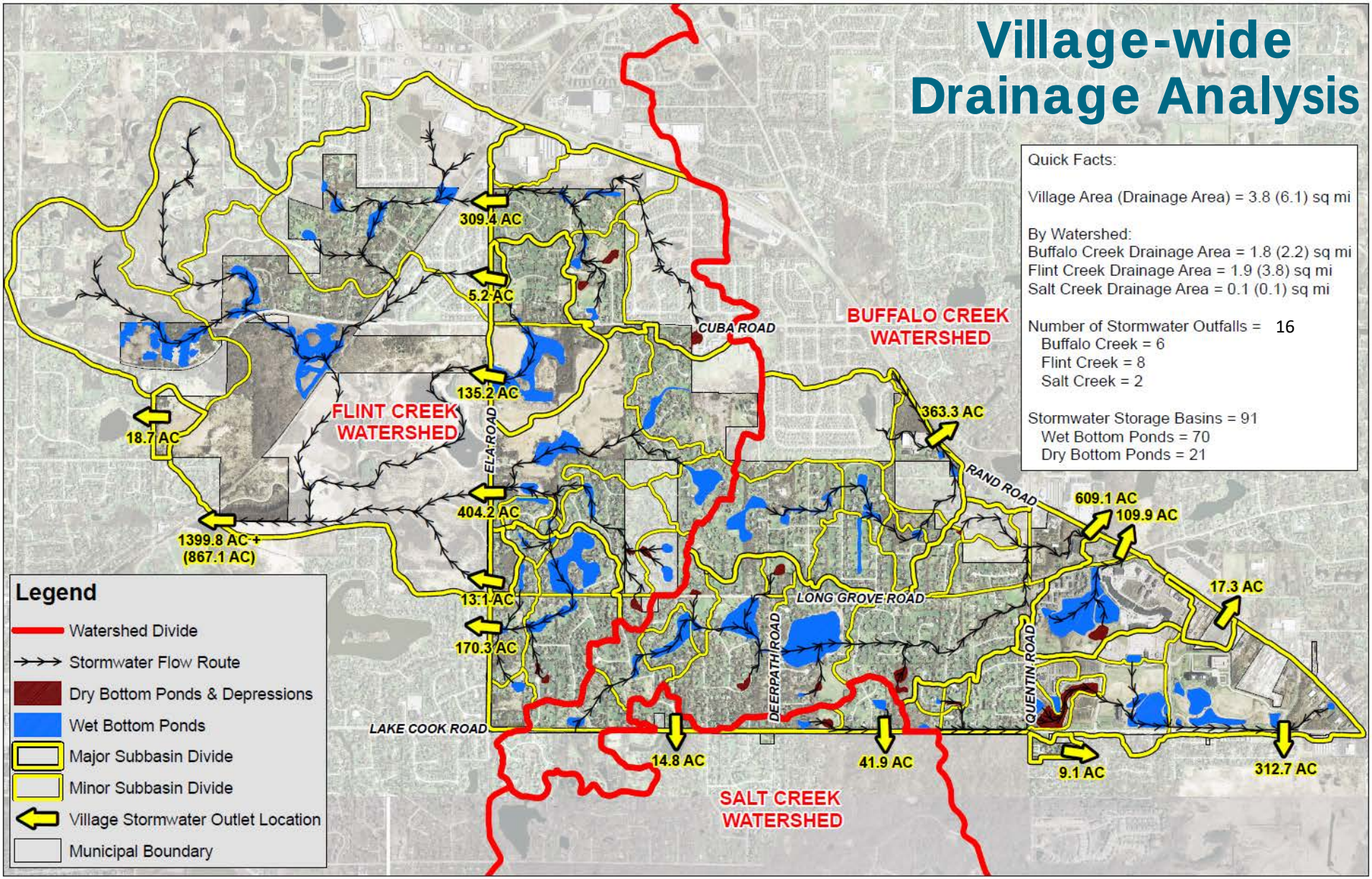


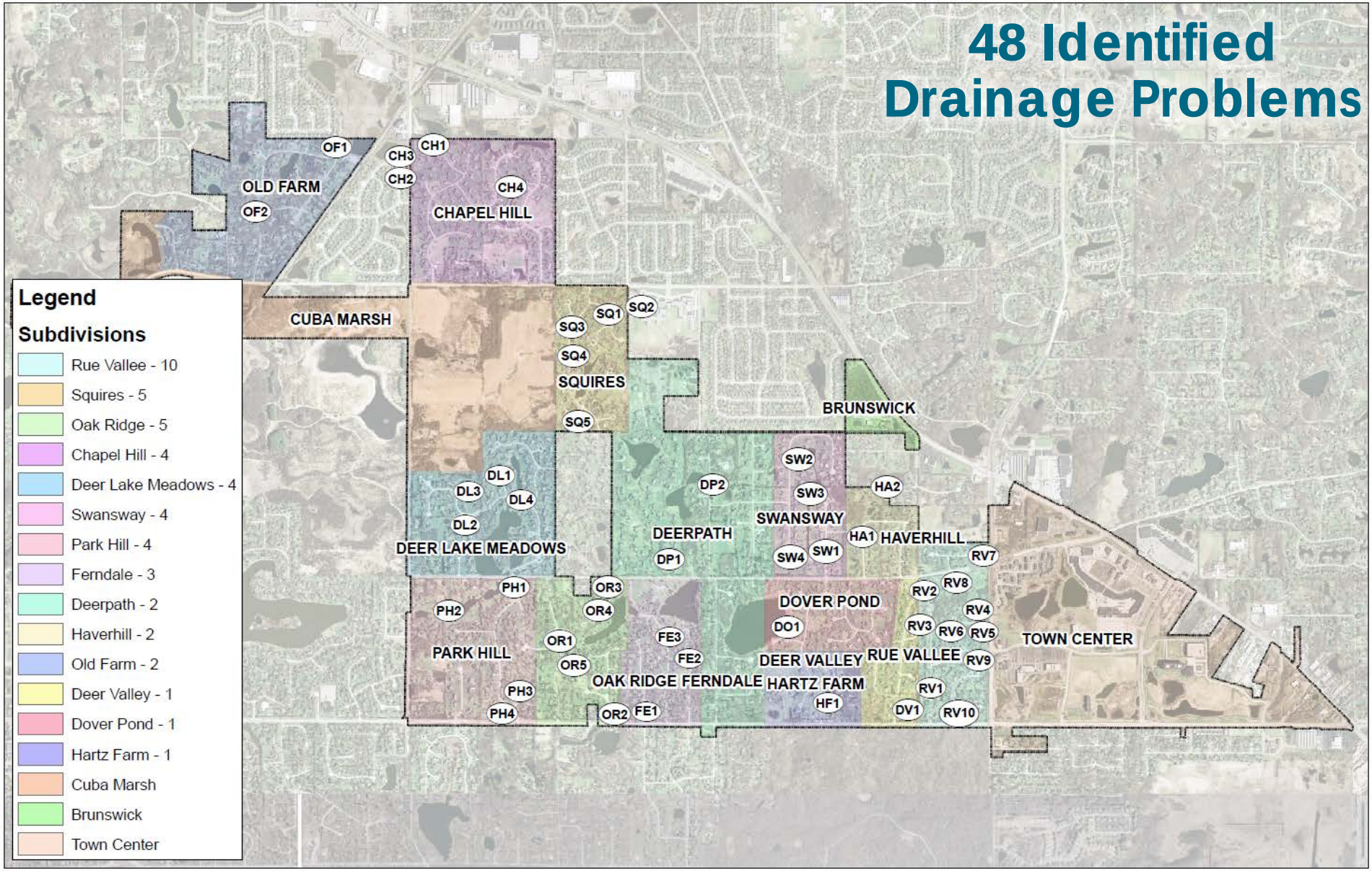
Existing Drainage Problems

- 48 drainage problems identified from the following sources:
  - Residential drainage complaints
  - Ela Township Highway Department list of known water spots
  - CBBEL observations during and after storm events
  - Discussions with Village Staff
- Drainage problems range in severity from potential overland flooding of homes to poor roadside ditch drainage
- Drainage problems broken into 6 categories based on severity

Existing Drainage Problem Categories

1. Overland flooding of a structure
2. Flooding over roadway
3. Flow exceeds sewer and ditch capacity
4. Poorly drained areas (> 48 to 72 hrs)
5. Recurring maintenance issue
6. Project already completed

48 Identified Drainage Problems



48 Identified Drainage Problems

3 – Drainage problems already addressed

1 – Problem area addressed during Road Program

3 – Problem areas can be addressed with maintenance performed by Ela Township

4 – Minor drainage problems should be addressed by property owners

7 – Drainage problems addressed in the 5 initial projects to be presented

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30 – Remaining drainage problems to be addressed in future phases of stormwater plan

Selection Criteria for SWMP Initial Phase Projects

A. Category 1 through 3 problems given prioritization

B. Drainage projects for category 4 drainage issues to be selected based on the following criteria:

   I. Corrections to previous projects that unexpectedly impacted adjacent areas

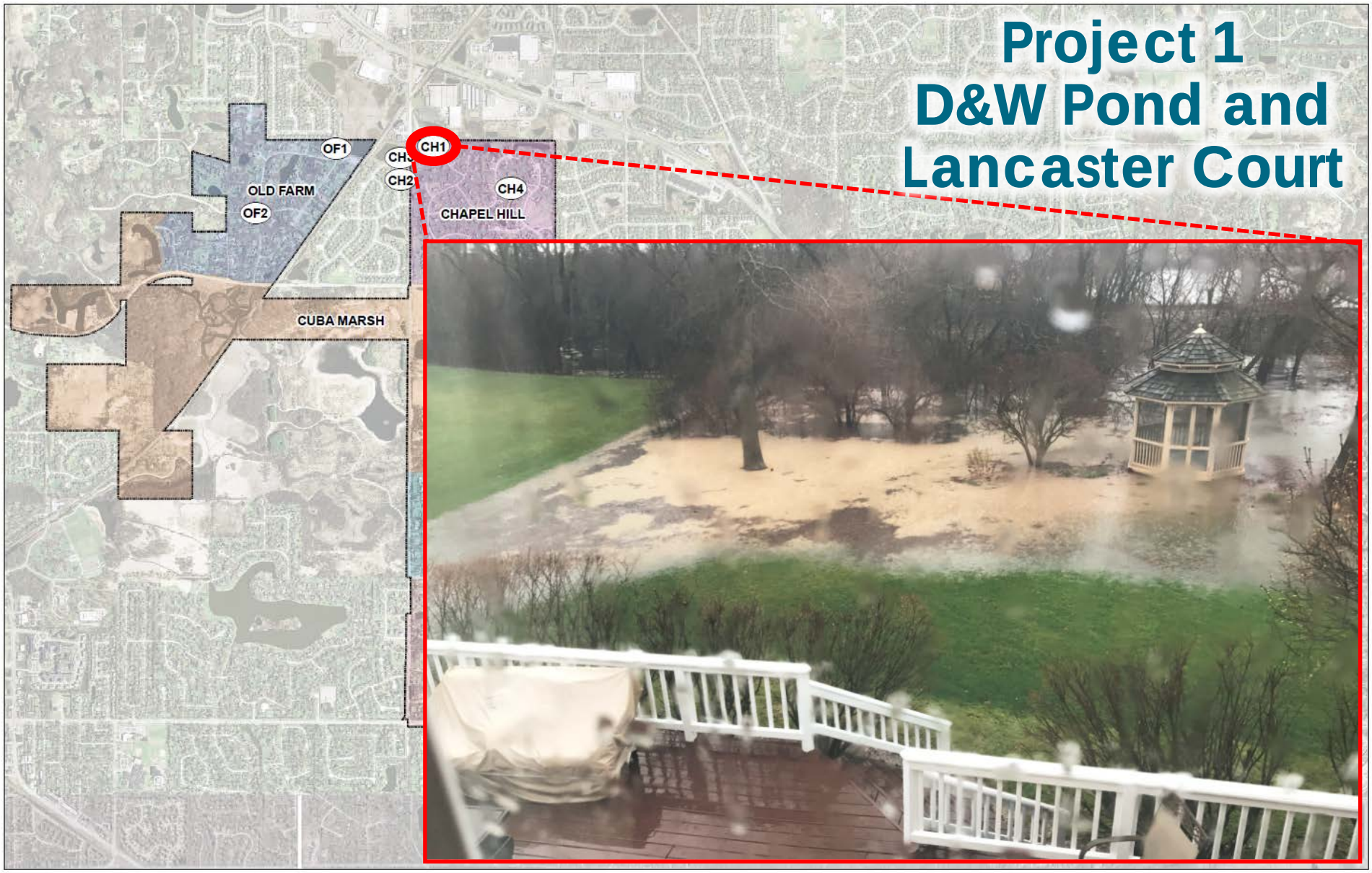
   II. Number of properties affected in problem area

   III. Slope of the existing drainage ditch

   IV. Availability of a suitable lower elevation outlet location to tie-in an improved ditch, sewer, or drain tile.

C. Drainage project feasible for construction within 2 years and within budget guidance

Project 1
D&W Pond and Lancaster Court



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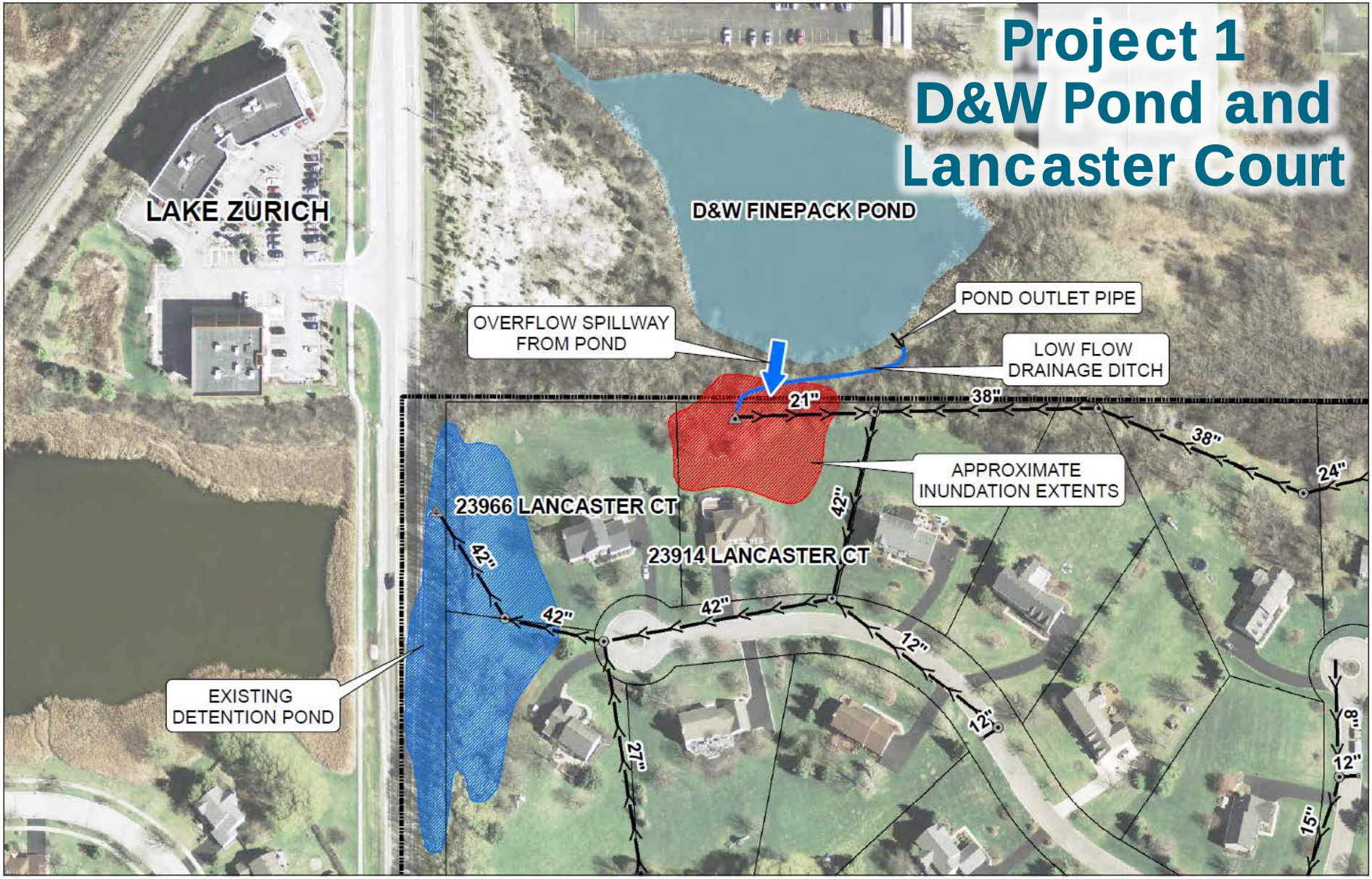
D&W Pond and Lancaster Court



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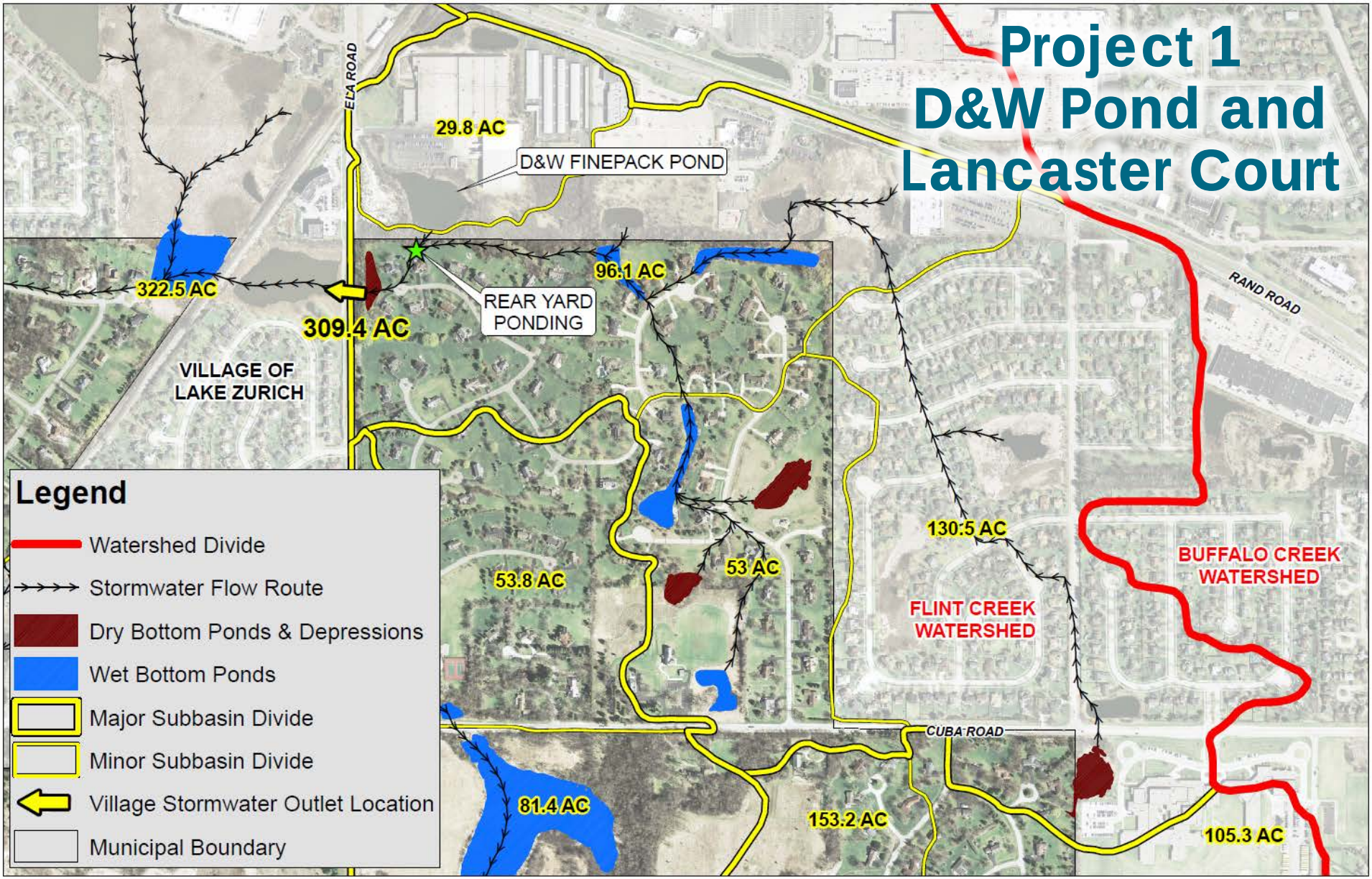
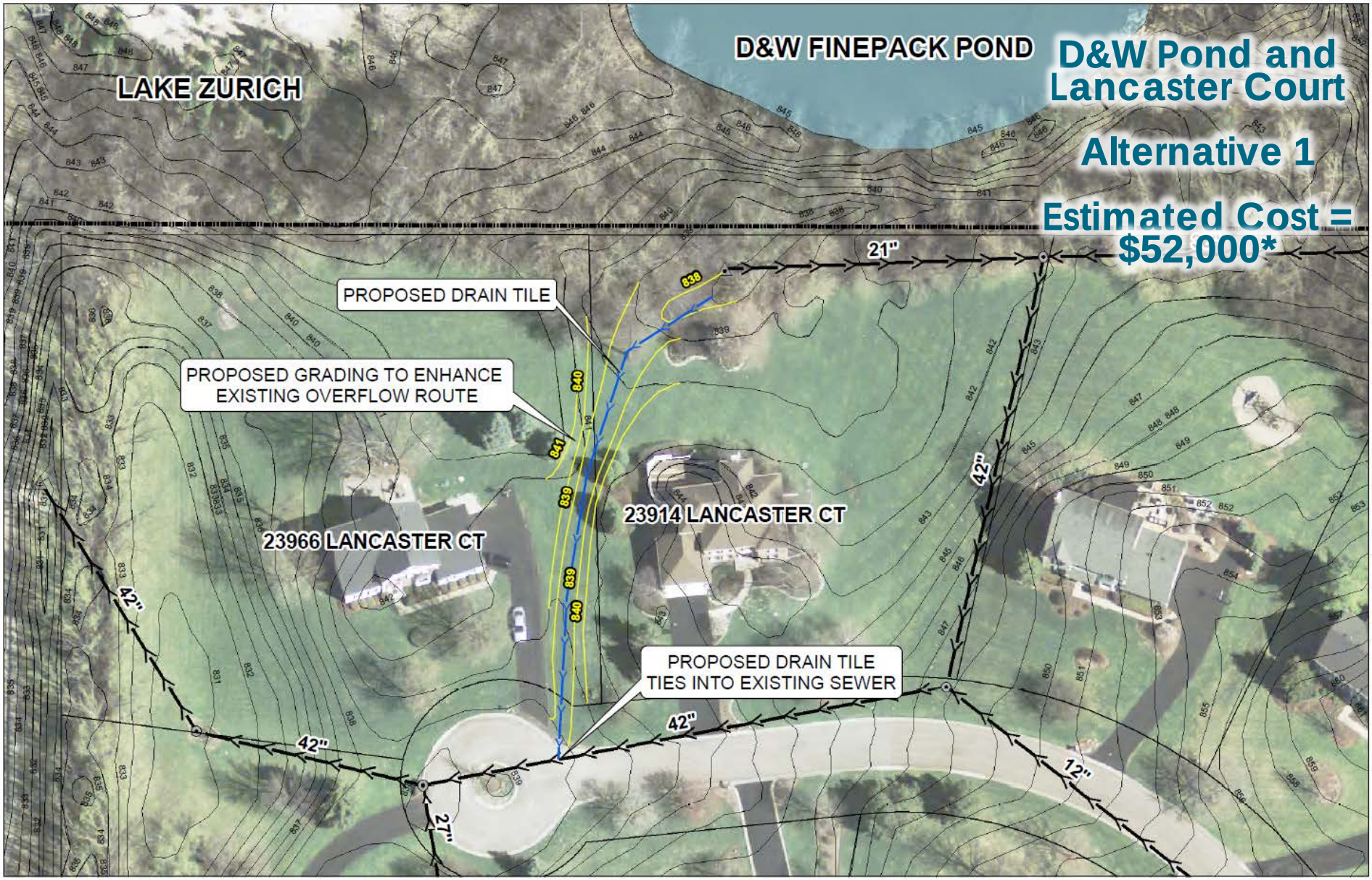
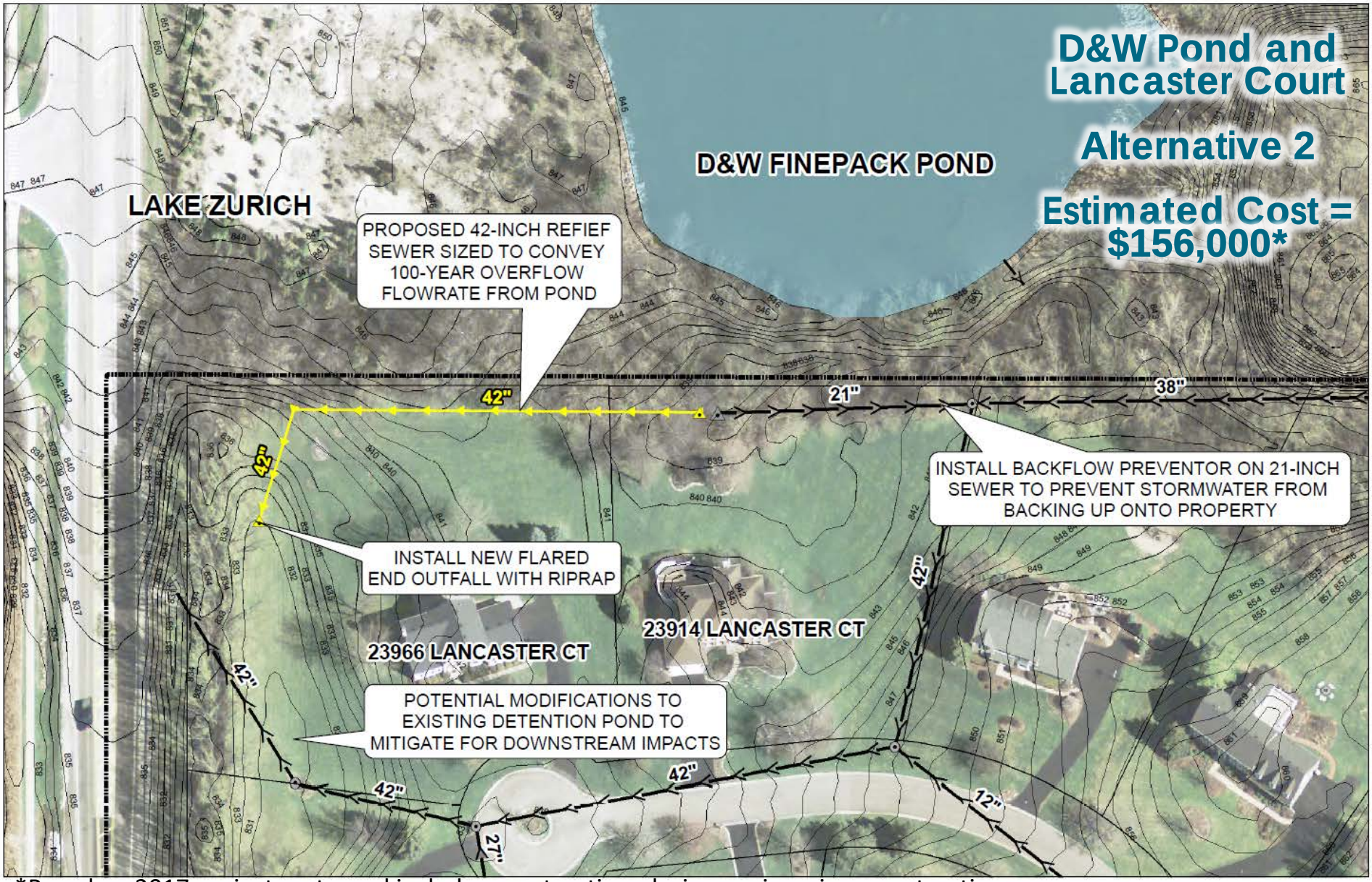




*Based on 2017 project costs, and includes construction, design engineering, construction engineering, and permitting. Does not include ROW acquisition, easements, or utility relocates



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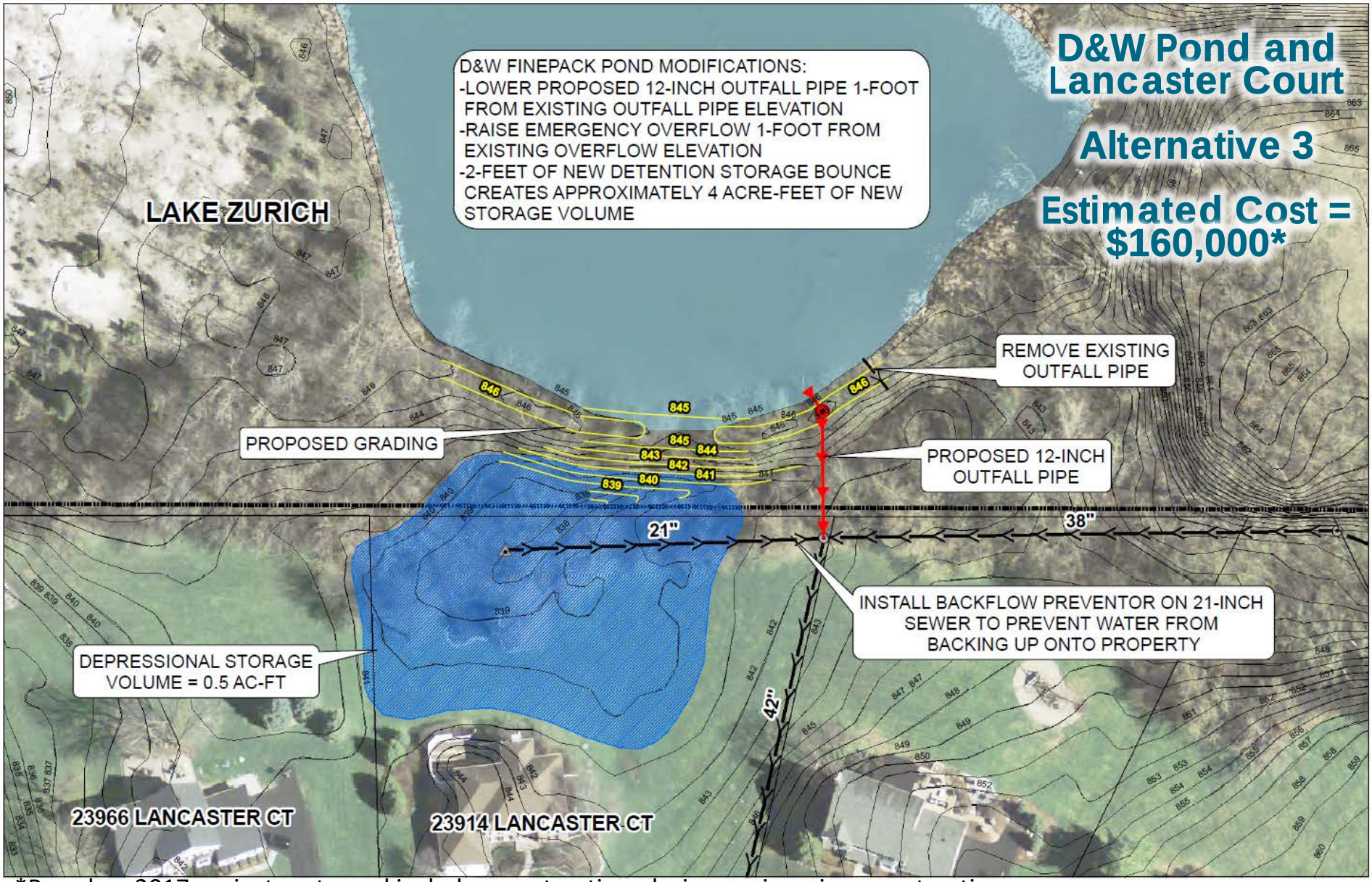
D&W Pond and Lancaster Court

Alternative 3

Estimated Cost = $160,000*



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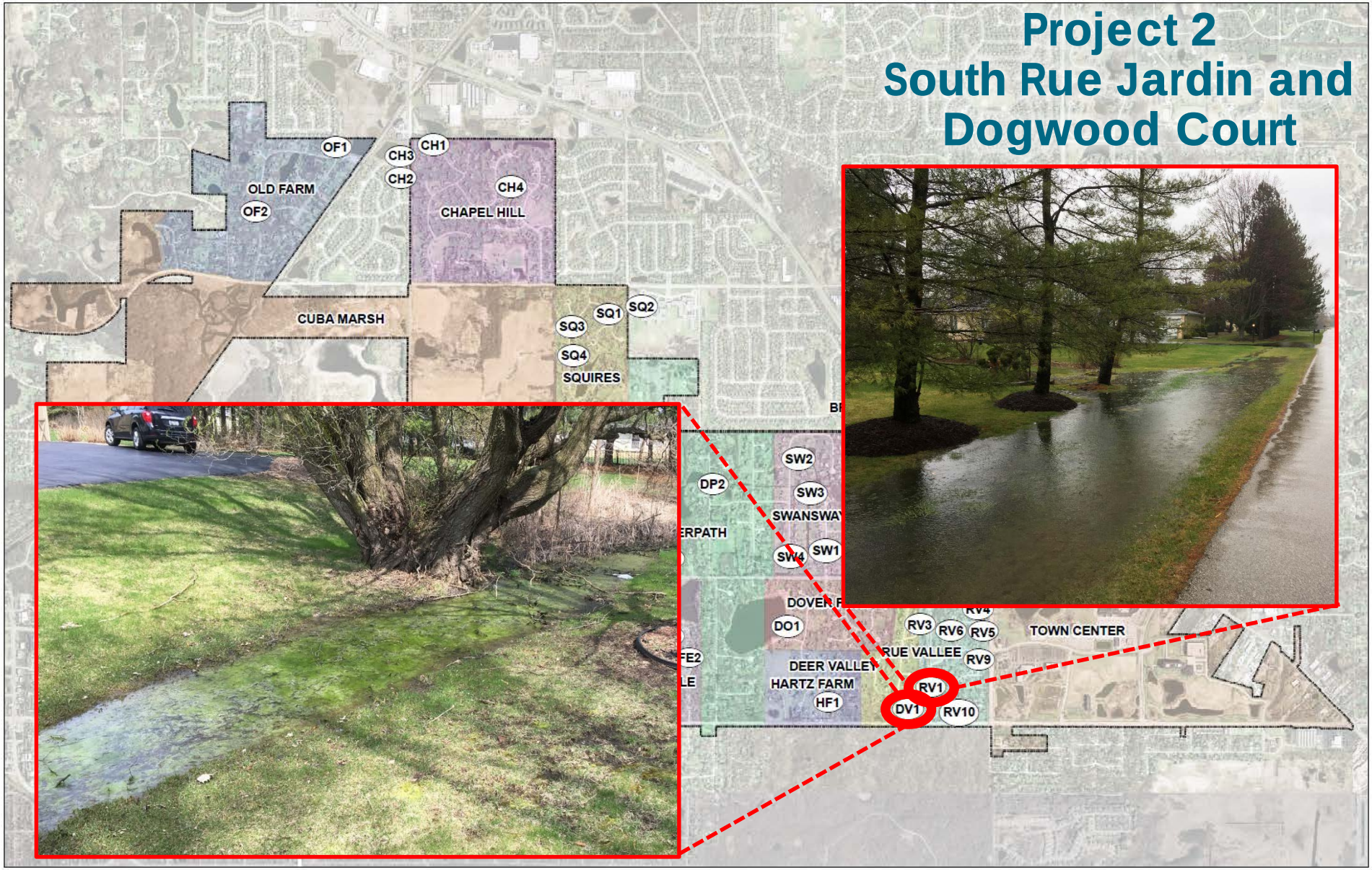
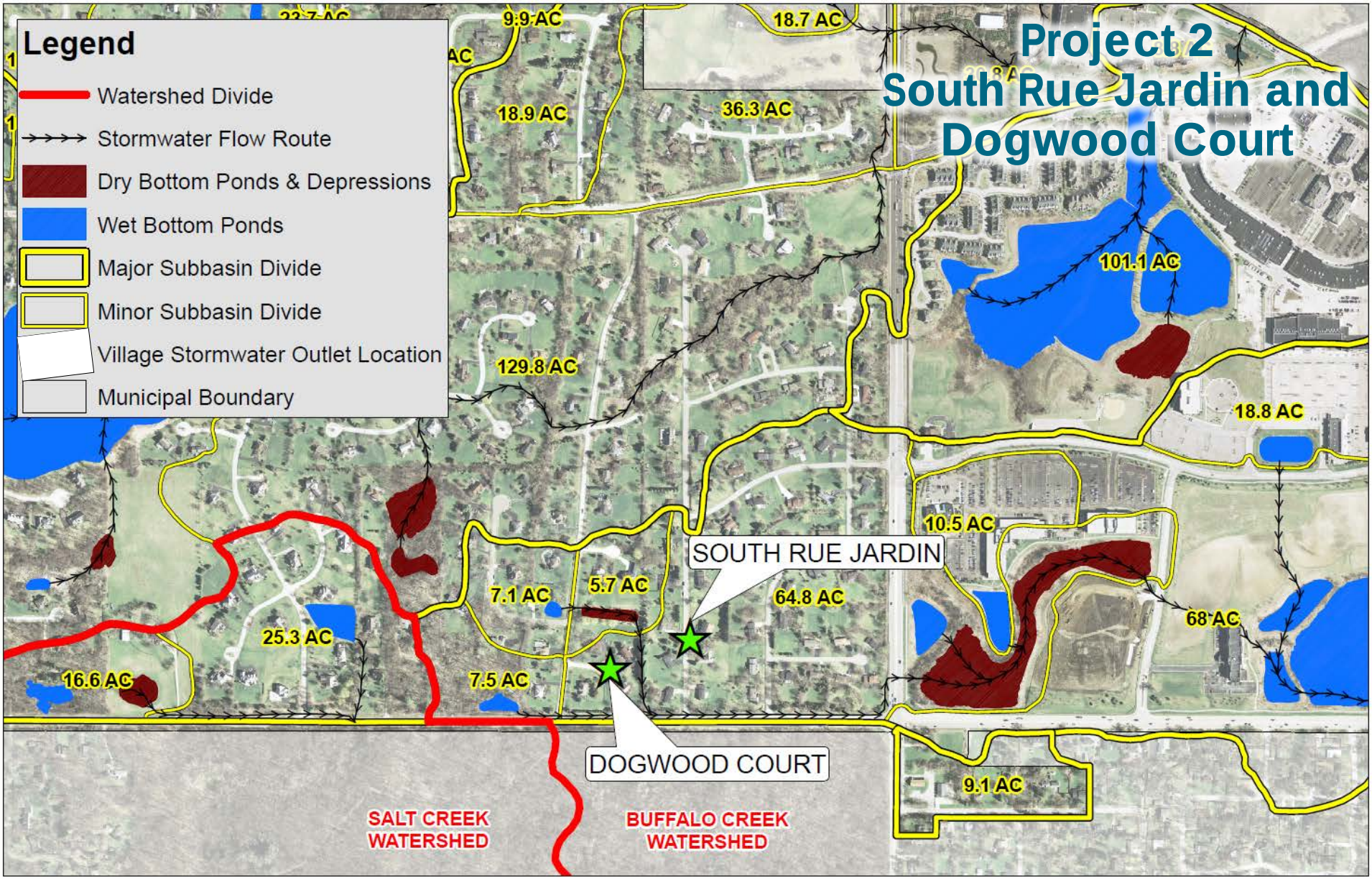
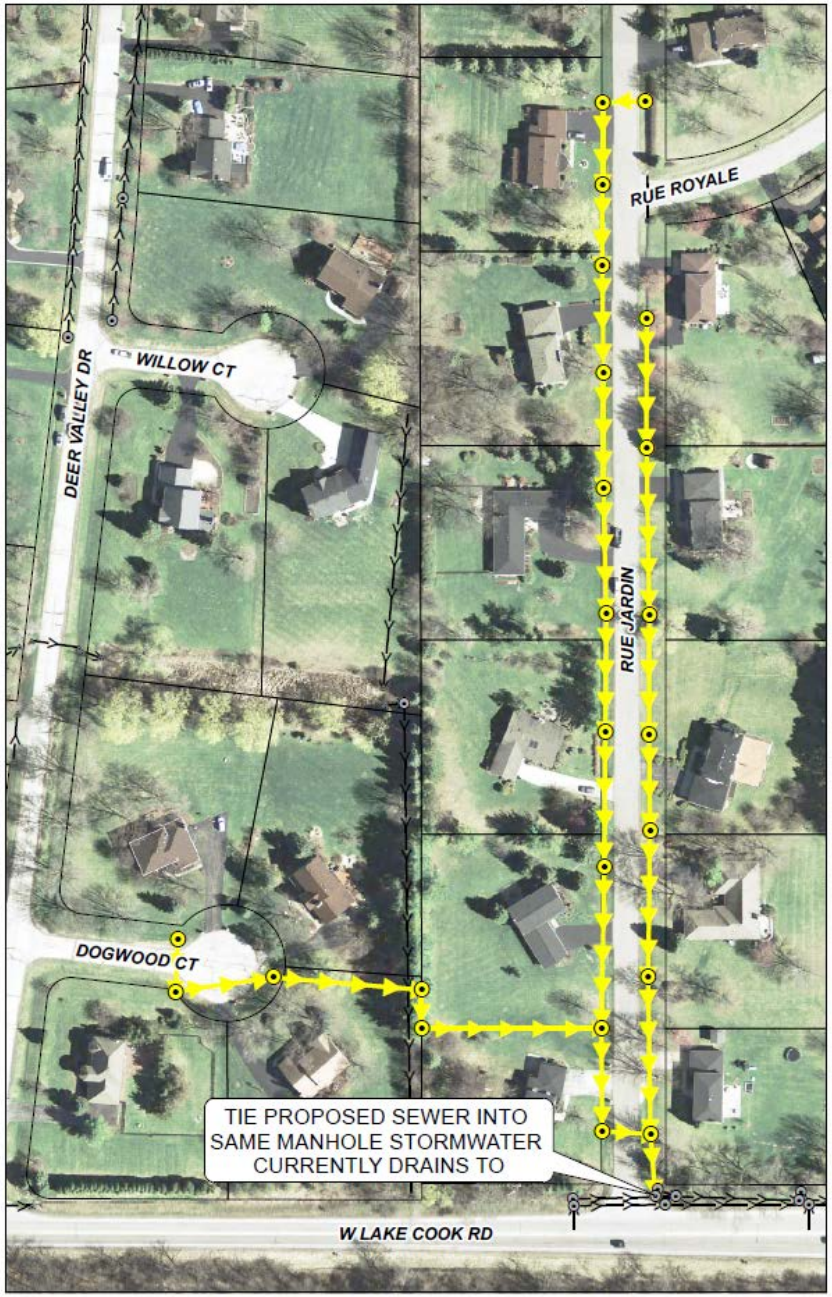
Project 2
South Rue Jardin and Dogwood Court




Project 2
South Rue Jardin and
Dogwood Court
Legend
Watershed Divide
Stormwater Flow Route
Dry Bottom Ponds & Depressions
Wet Bottom Ponds
Major Subbasin Divide
Minor Subbasin Divide
Village Stormwater Outlet Location
Municipal Boundary
9.9 AC
18.7 AC
18.9 AC
36.3 AC
101.1 AC
129.8 AC
18.8 AC
10.5 AC
SOUTH RUE JARDIN
7.1 AC
5.7 AC
64.8 AC
68 AC
25.3 AC
16.6 AC
7.5 AC
DOGWOOD COURT
9.1 AC
SALT CREEK
WATERSHED
BUFFALO CREEK
WATERSHED

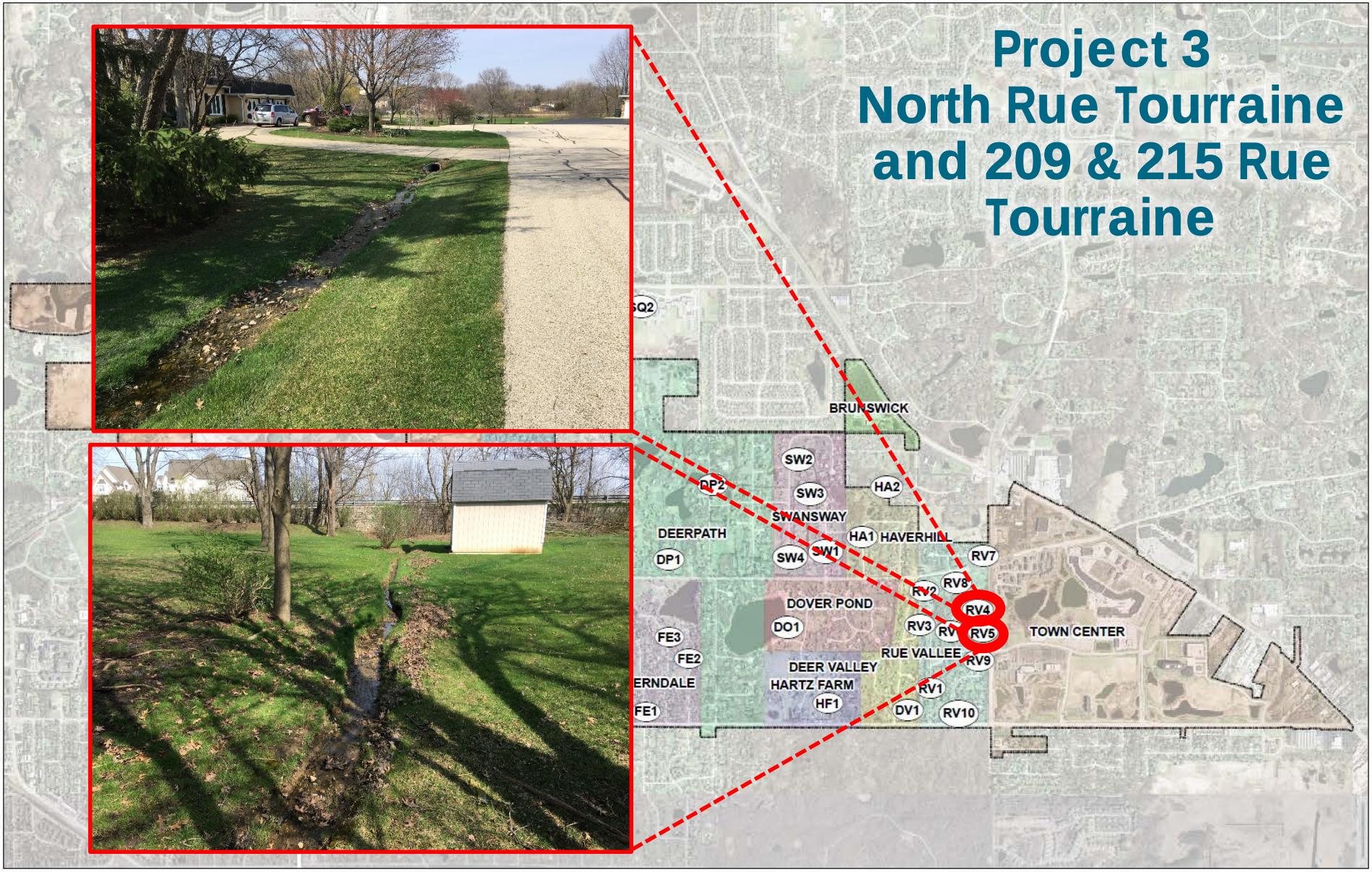


Project 2
South Rue Jardin and Dogwood Court

- Existing average ditch slope:
  - South Rue Jardin = 0.3%
  - Dogwood Court = 0.6%
- Proposed storm sewer system recommended due to inadequate ditch slopes
- Sewers to be installed below existing ditch lines
- Ditches to be regraded to direct water to proposed inlets
- Replacement of 11 driveway culverts
- Benefits 16 properties
- Estimated cost = $578,000*

*Based on 2017 project costs, and includes construction, design engineering, construction engineering, and permitting. Does not include ROW acquisition, easements, or utility relocates

Project 3
North Rue Tourraine and 209 & 215 Rue Tourraine



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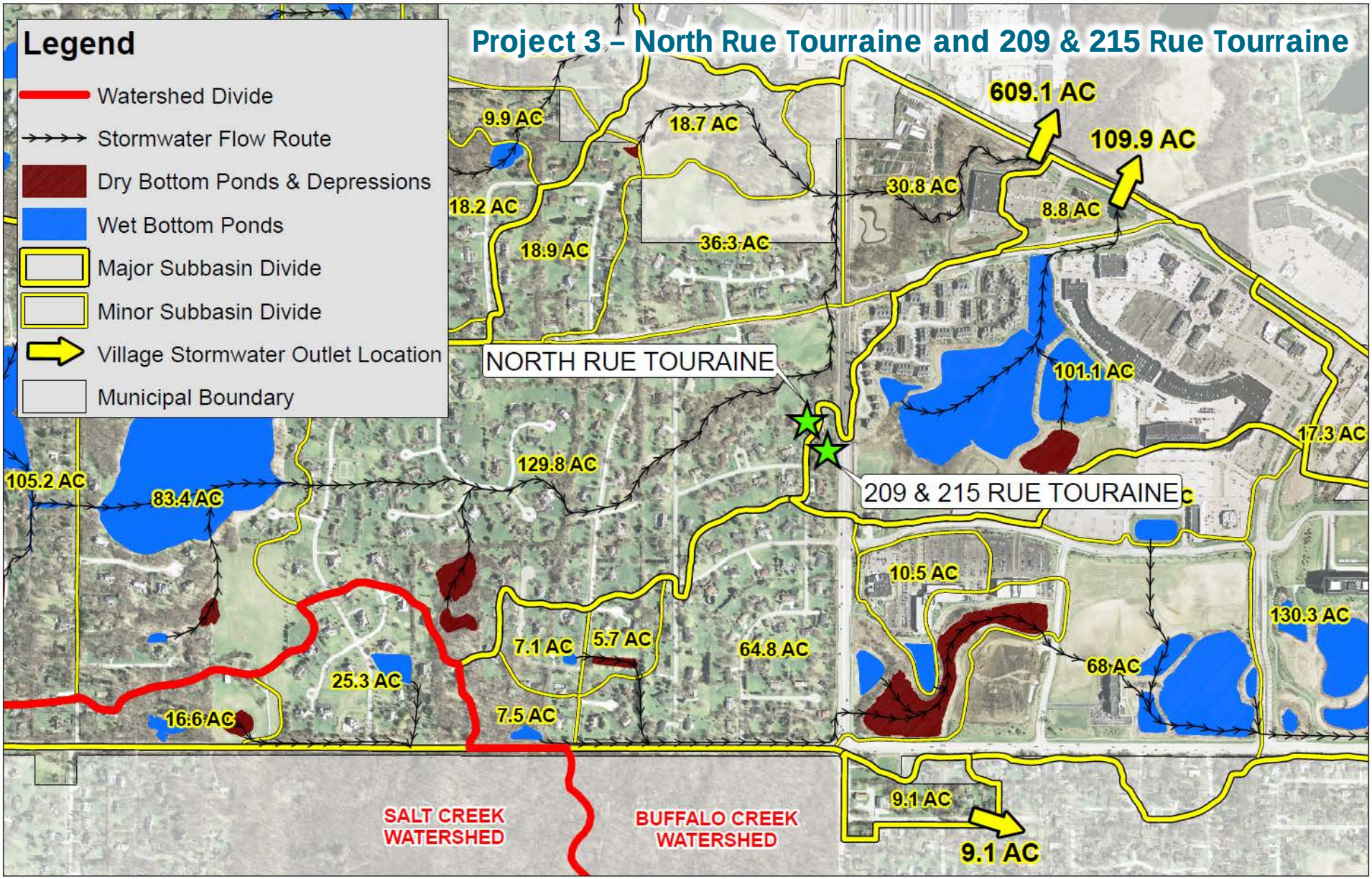

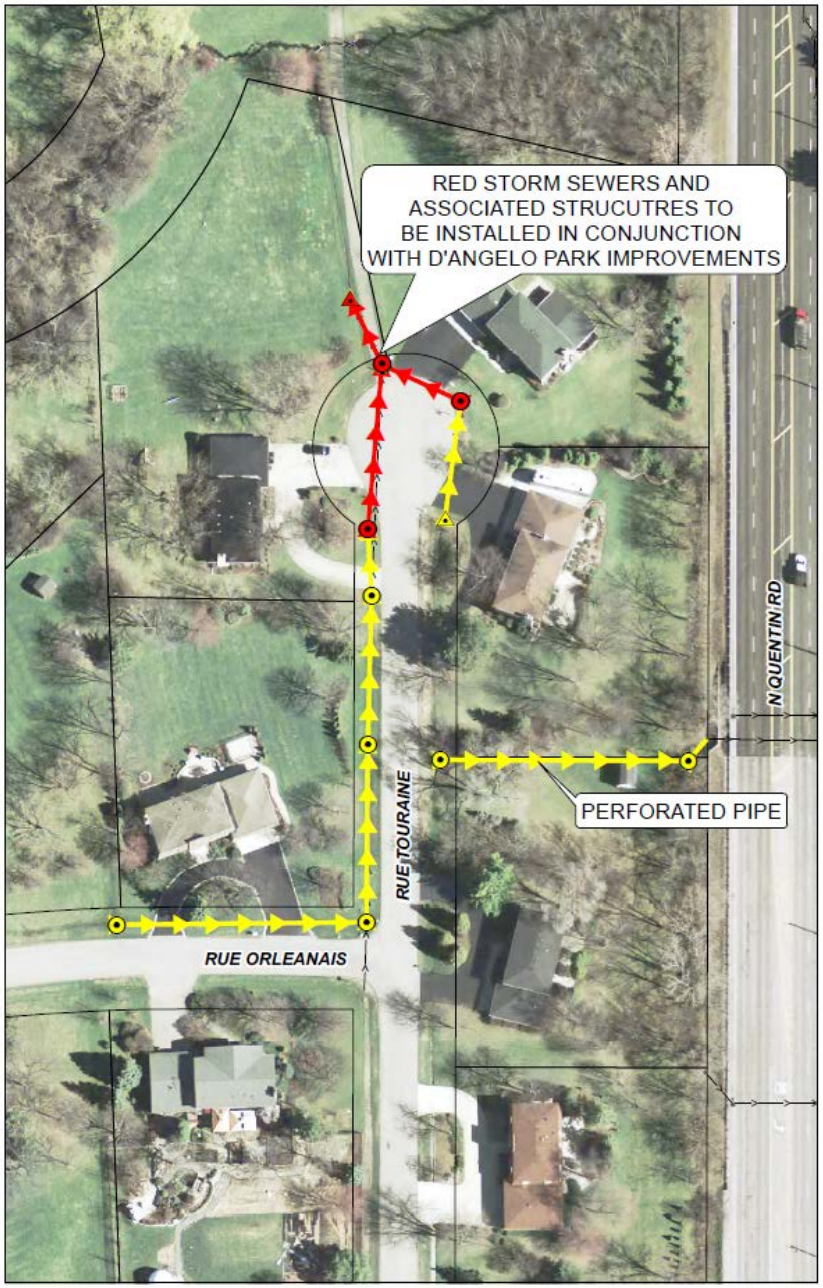

Project 3
North Rue Tourraine and 209 & 215 Rue Tourraine

- Existing average ditch slope = 0.6%
- Proposed storm sewer system recommended due to failing existing sewers and inadequate ditch slopes
- Sewers to be installed below existing ditch lines
- Ditches to be regraded to direct water to proposed inlets
- Benefits 6 properties
- Estimated cost = $212,000*

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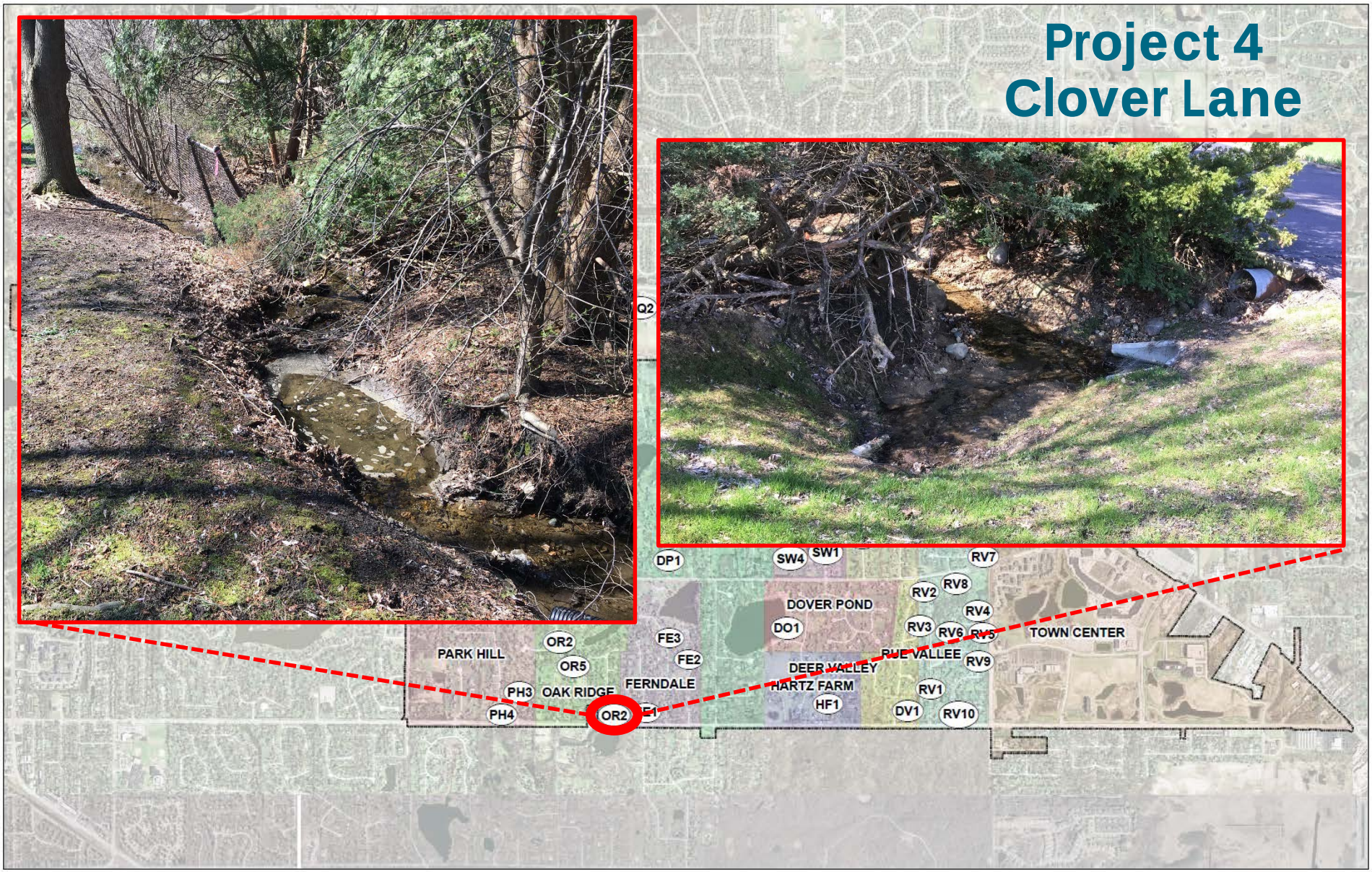
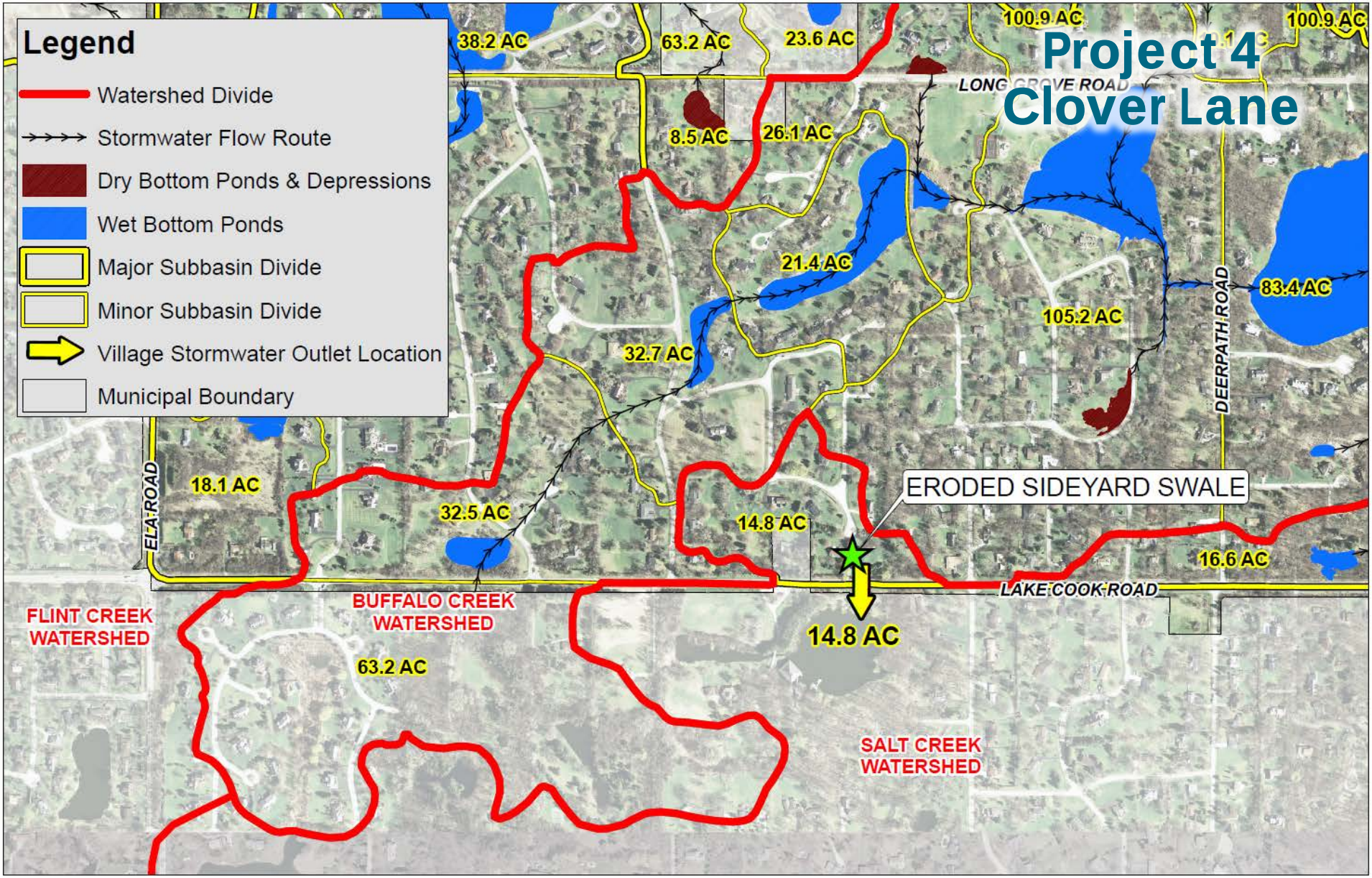
Project 4
Clover Lane

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LONG GROVE ROAD
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26.1 AC
21.4 AC
83.4 AC
105.2 AC
DEERPATH ROAD
32.7 AC
ELA ROAD
18.1 AC
32.5 AC
14.8 AC
ERODED SIDEYARD SWALE
16.6 AC
LAKE COOK ROAD
FLINT CREEK WATERSHED
BUFFALO CREEK WATERSHED
14.8 AC
63.2 AC
SALT CREEK WATERSHED

Project 4
Clover Lane

- Previous drainage improvement project eroded sideyard drainage at cul-de-sac
- Proposed drainage improvement project addresses eroded ditch
- Benefits 2 properties
- Estimated cost = $87,000*

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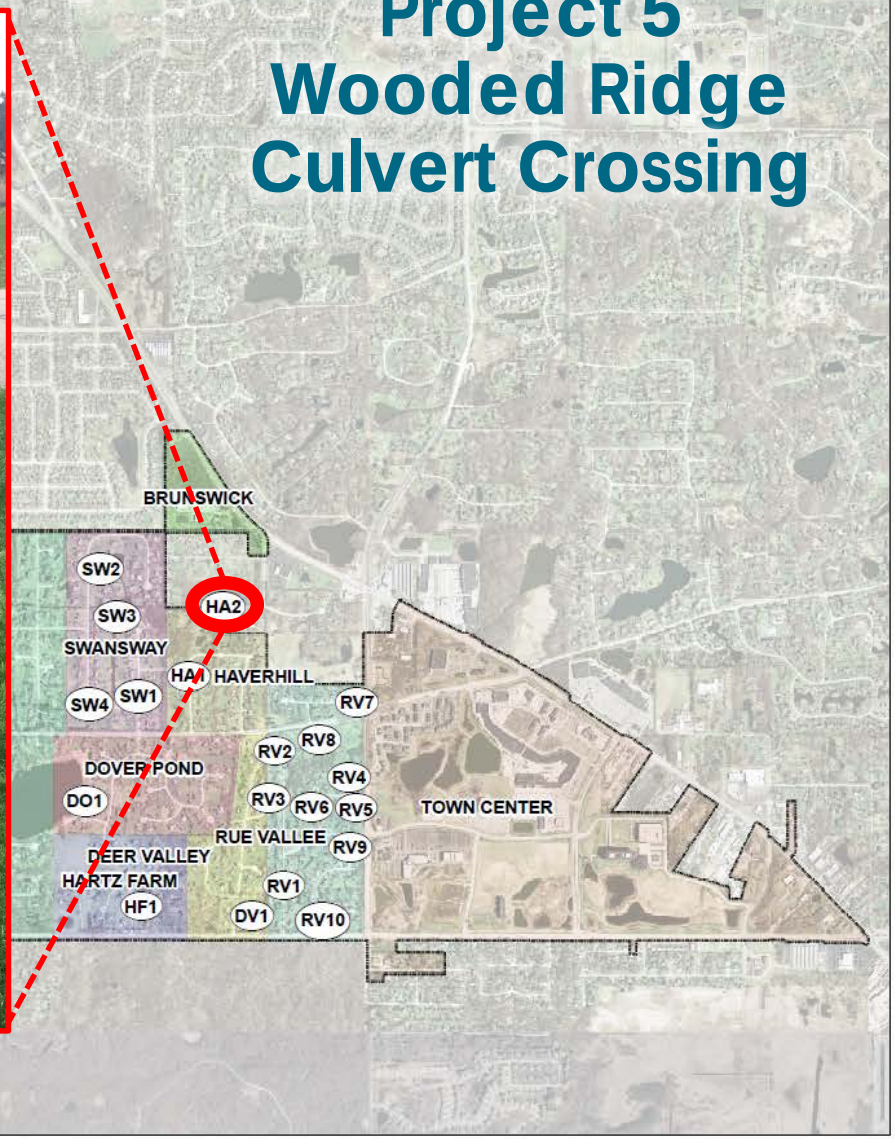
Project 5
Wooded Ridge
Culvert Crossing



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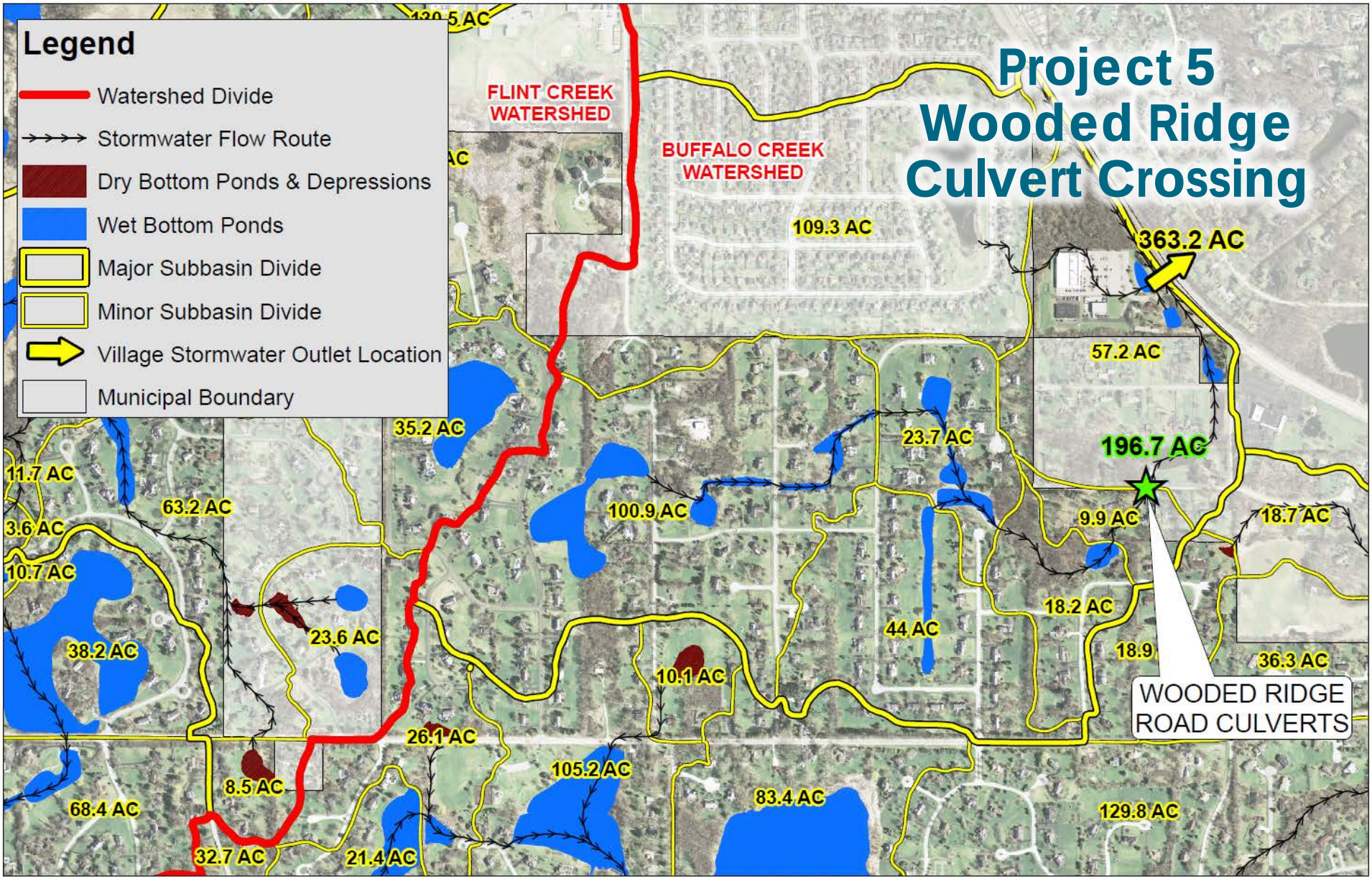

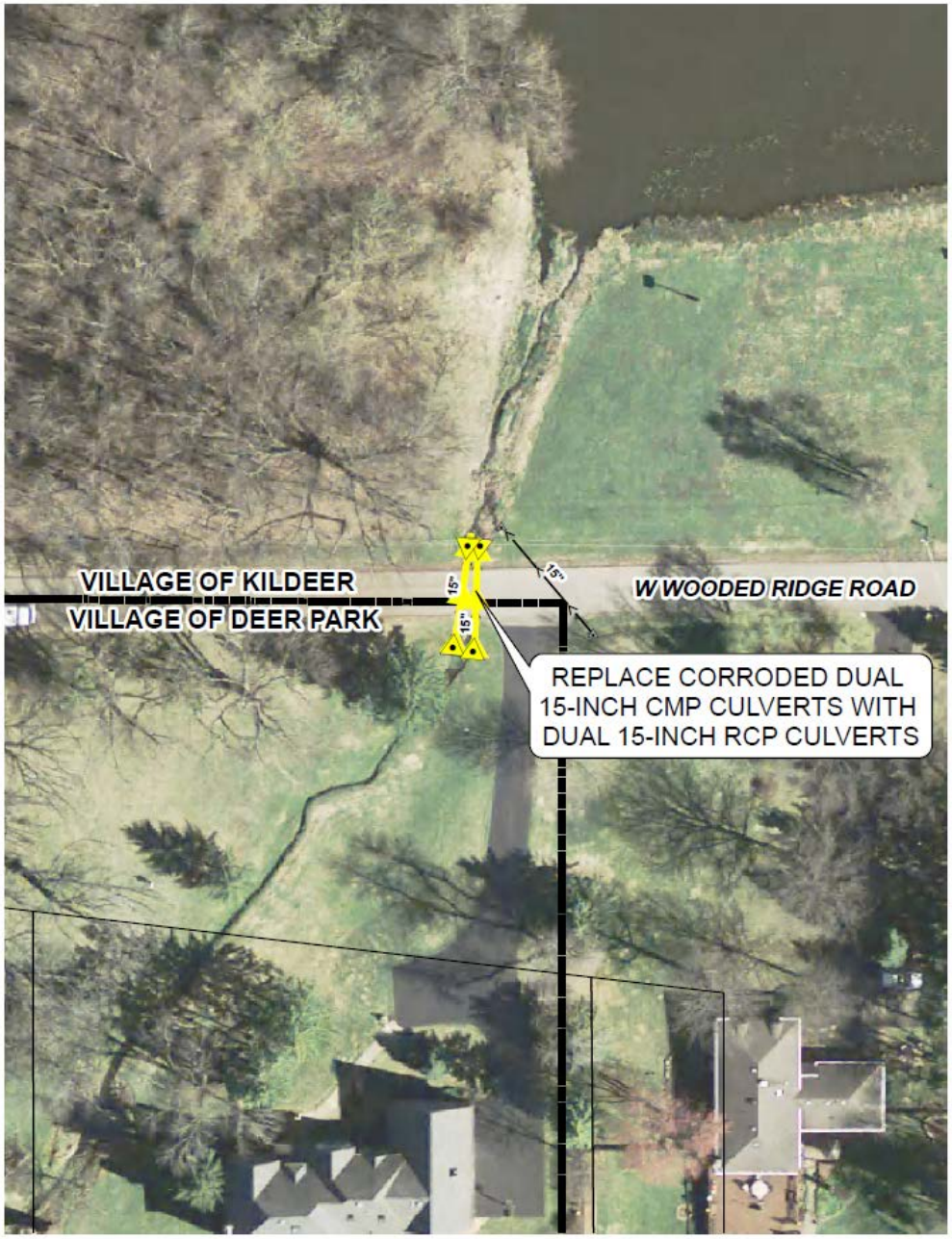

Project 5
Wooded Ridge Culvert Crossing

- Culvert crossing consists of 2 deteriorated 15-inch CMP pipes
- During large storms flared end bottom plates will flip up and block culvert faces
- Upstream drainage area = 200 acres
- Estimated cost = $53,000*
- Potential cost share with Kildeer

*Based on 2017 project costs, and includes construction, design engineering, construction engineering, and permitting. Does not include ROW acquisition, easements, or utility relocates

Drainage Improvement Project Summary

Project Number	Drainage Improvement Project	Drainage Severity Category	Number of Properties Benefitted	Estimated Cost*
1	D&W Pond and Lancaster Court – Alternative 3	1 – Potential for overland flooding	2	$52,000
2	South Rue Jardin and Dogwood Court	3 – Flow exceeds ditch capacity	16	$578,000
3	North Rue Touraine and 209 & 215 Rue Touraine	3 – Flow exceeds sewer and ditch capacity	6	$212,000
4	Clover Lane	4 – Previous village project resulted in adverse impacts	2	$87,000
5	Wooded Ridge Road Culvert Crossing	2 – Flooding over roadway due to deteriorated culvert pipes	2	$53,000
			Total	$982,000

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Project Schedule

- Fiscal Year 2018 (Prior to May 1, 2018)
  - Engineering plans & permitting for 5 projects - $101,000*
  - Project 2 construction (S Rue Jardin & Dogwood) - $529,000*
  - **Total for FY2018 - $630,000***
- Fiscal Year 2019 (Prior to May 1, 2019)
  - Project 1 construction (D&W and Lancaster) - $42,000*
  - Project 3 construction (North Rue Toraine) - $192,000*
  - Project 4 construction (Clover Lane) - $75,000*
  - Project 5 construction (Wooded Ridge Road) - $43,000*
  - **Total for FY2019 - $352,000***
- **Total Estimated Project Cost - $982,000***

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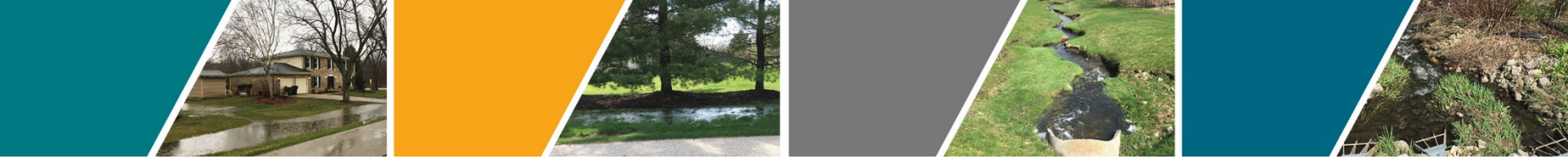
Homeowner Drainage Improvement Projects

- For saturated drainage ditch, possible improvements include:
  - Ditch re-grading
  - Perforated pipe installation
  - Infiltration trench
- For low-lying depressional area, possible improvements include:
  - Dry basin
  - Relief drain pipe
  - Rain garden



Questions?