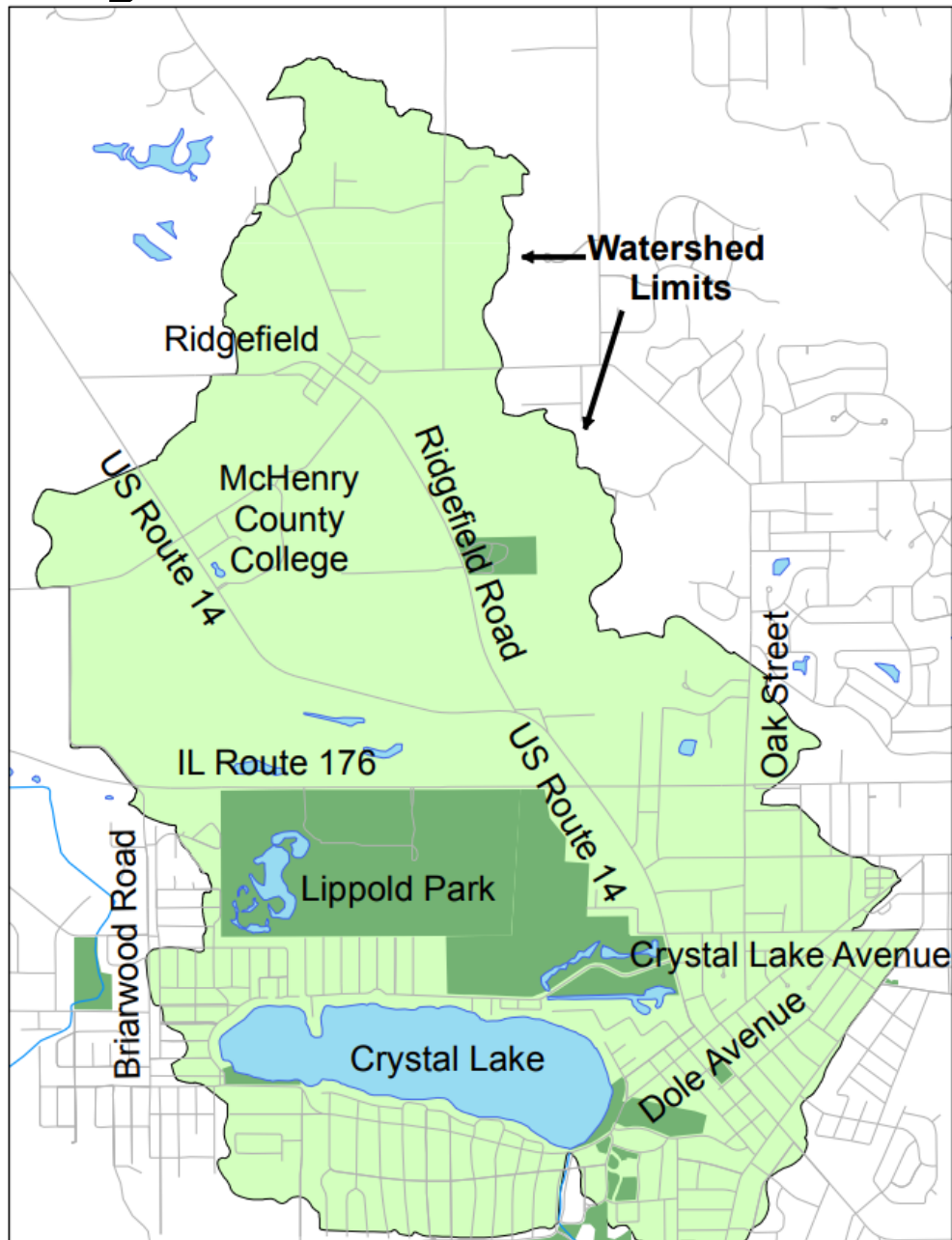




# **City of Crystal Lake**

## **Ordinance Amendment Chapter 630: Watershed**

# Crystal Lake Watershed



Area around Crystal Lake that drains to the Lake through groundwater.

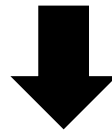
It's the primary source of water into the Lake.

# What is not Changing:

- Requirements for New Developments
- Requirements for Commercial Developments
- Philosophy on Infiltration

# Crystal Lake Watershed - History

**1975**  
First Watershed Ordinance



**2007 (November)**

Crystal Lake Stormwater Management Design Manual adopted.

- Guidance for design of stormwater management systems
- Protect Quality and Quantity of Water Reaching Lake

Focused on new development and expansion of existing commercial development.

Did not address development in existing developed neighborhoods around the lake that were platted decades ago.

# Existing Residential Areas

General policy for existing homes in the watershed was developed:

- Required infiltration trenches installation for any new impervious over 300 square feet.
- Generally been working but enhancements have been identified.

# Existing Residential Areas

- During various stormwater public meetings in 2017 and 2018, recurring comment was to improve how City addresses improvements in existing residential areas.
- Issues Identified:
  - Percentage of impervious (an additional 300 square feet added to a small lot can have a big impact compared to a large lot).
  - Changes in vegetation can increase runoff (removal of trees and bushes compared to manicured grass lawn).
  - Trench drains in wet areas provide no storage (always full).
  - Maintenance of trench drains in the future (2<sup>nd</sup> homeowner).

# Proposed Enhancements – Who Does This Impact?

Existing residential homes in the watershed:

- Any improvement BEFORE January 1, 2020 will not be affected by these new requirements.
- It is only for projects who submit for a building permit AFTER January 1, 2020

# Proposed Enhancements

What was utilized?

- Field review of existing trench drains in different areas
- Practices by other communities
- Feedback from local contractors and homebuilders
- Technical expertise (consultant review of proposed procedure)

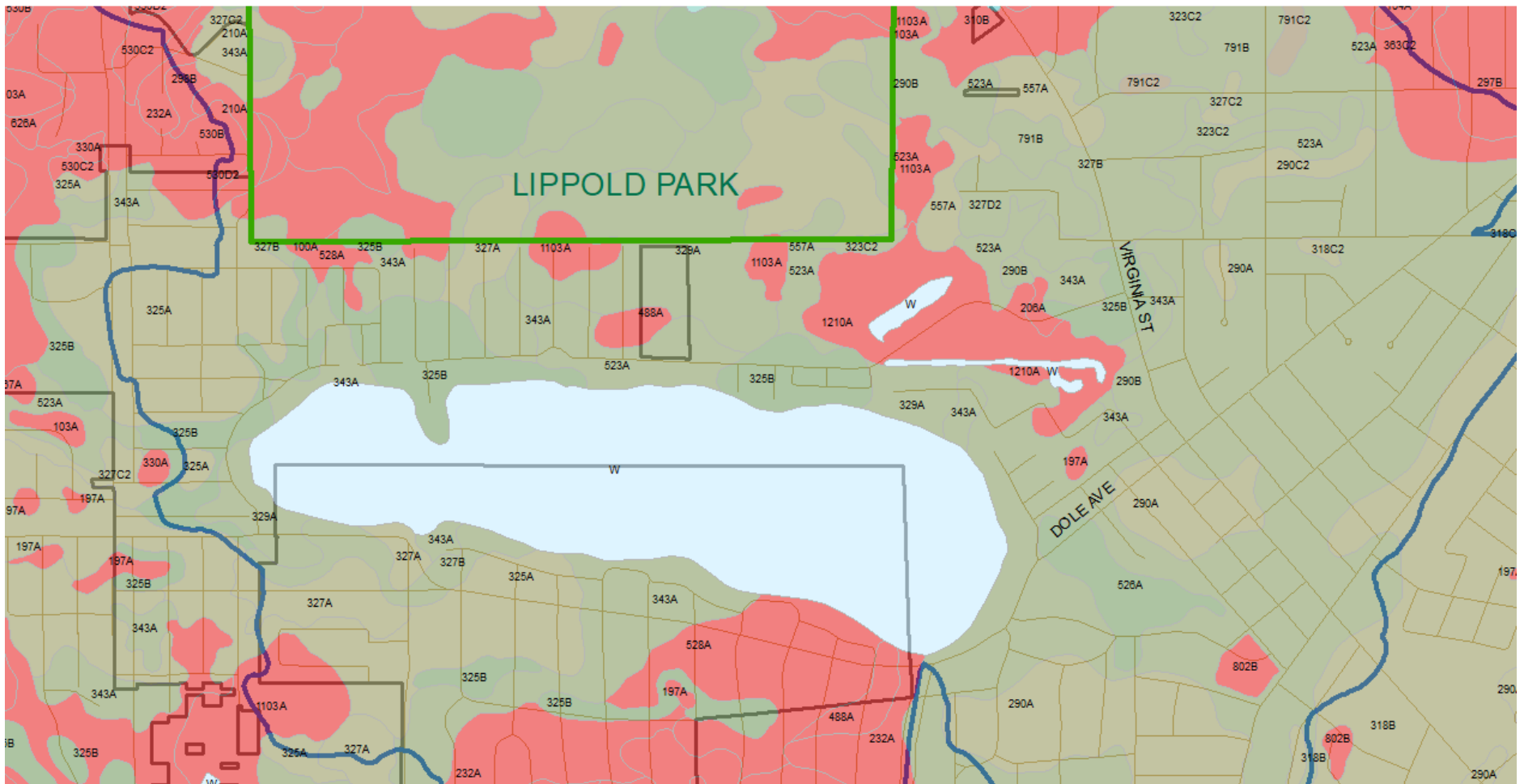
Options Explored:

- Long-term maintenance concerns
- Enforcement
- Financial hardships



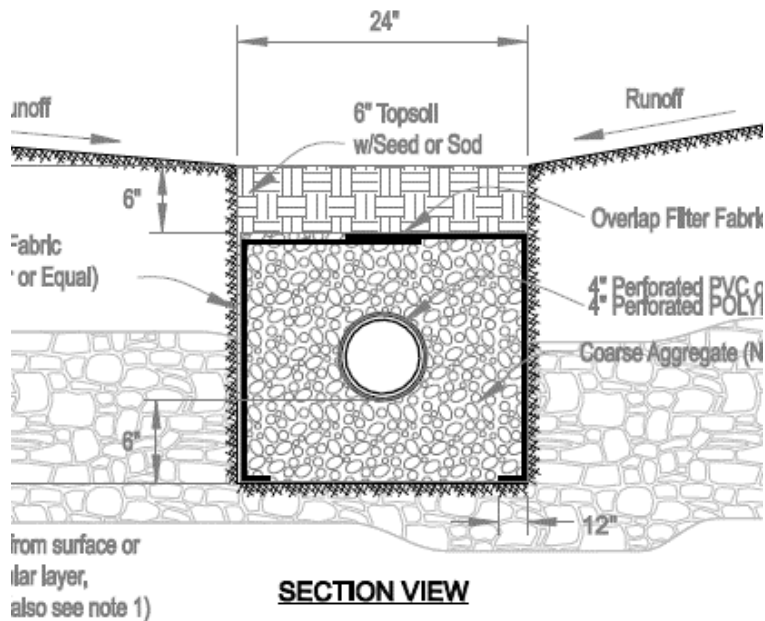
# Proposed Enhancements – Soil Types

Using the US Department of Agriculture Soil Mapping to determine if soil will drain into the ground within 72 hours to minimize standing water, provide storage between storms and minimize mosquitos.

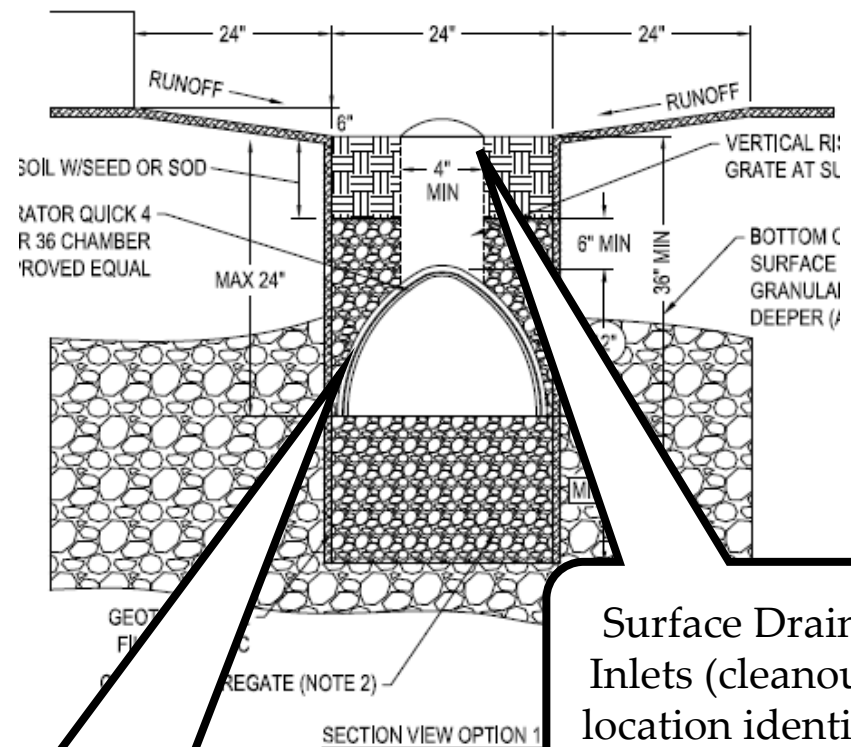


# Proposed Trench Drain Enhancements

## OLD



## NEW



Underground Chamber  
(stormwater storage  
above water table)

Surface Drainage  
Inlets (cleanouts &  
location identifiers)

# Proposed Trench Drain Enhancements

Quick4® Series

**Quick4 Equalizer 36  
with MultiPort EndCap**



The Quick4® Equalizer 36 Chamber fits in a 24" wide trench and is ideal for curved or straight systems. It features the patent-pending Contour Swivel Connection™ which permits turns up to 15°, right or left. The MultiPort™ endcap allows multiple piping options and eliminates pipe fittings. The chamber's four-foot length provides optimal installation flexibility.



# Proposed Enhancements – Lot Size



Larger lots could be allowed more impervious surface coverage before triggering requirements.

Impacts to surrounding properties is less

# Proposed Enhancements – Trench

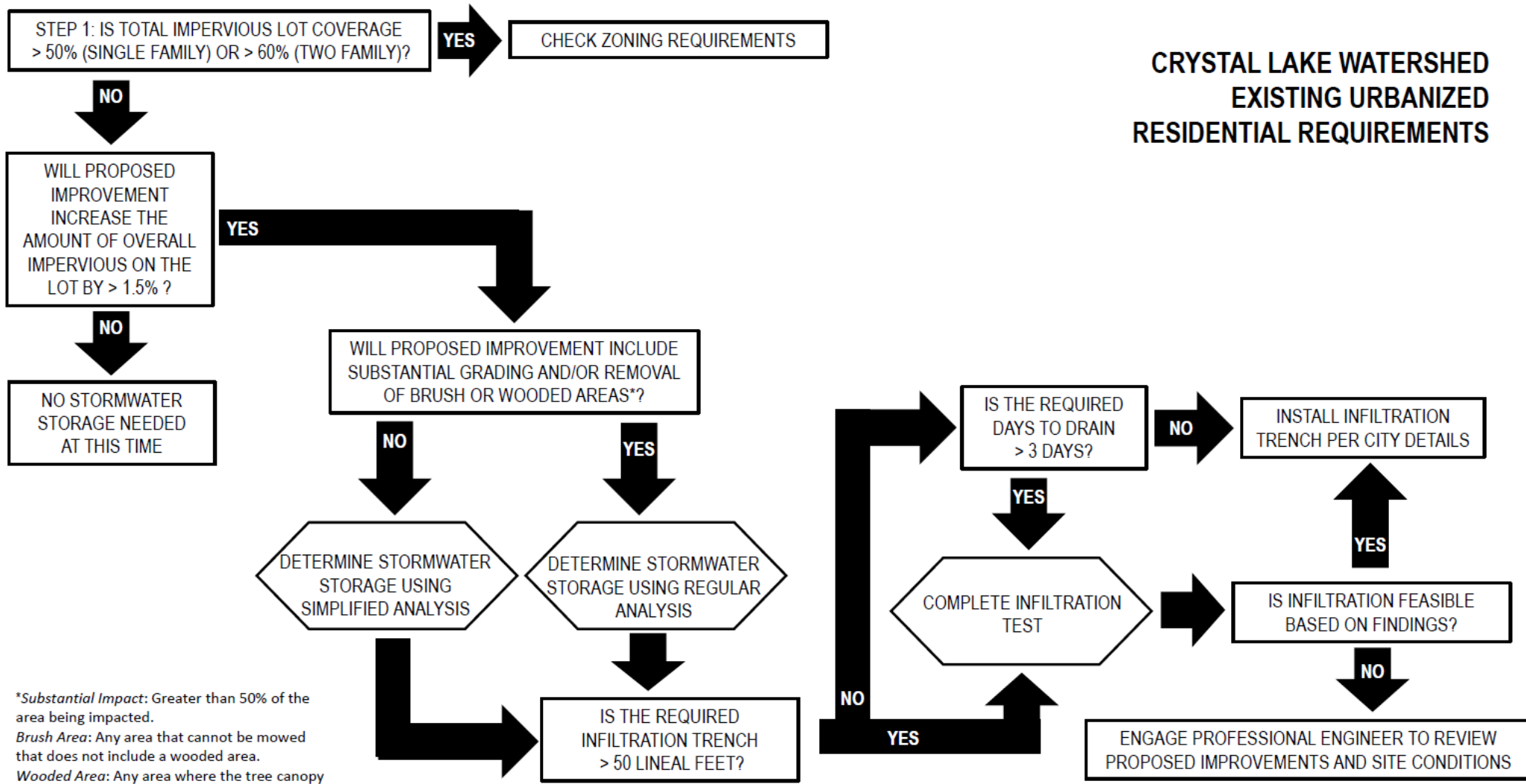
Infiltration trench length determined by size of project and soil type (make sure site drains into ground).

<b>EXHIBIT C - SIMPLIFIED ANALYSIS</b>			
ENTER VALUES IN THE YELLOW FIELDS ONLY			
<b>Step 1: Determine Total Impervious Lot Coverage</b>			
Enter Total Lot Area in Square Feet	5500		
Existing Impervious Area in Square Feet	2000		
Proposed Impervious Area Added in Square Feet	640		
<b>Total Impervious Surface</b> (maximum 50%)	48.0%	OK	
<b>Increase in Impervious Surface</b> (maximum 1.5%)	11.6%	Continue to Step 2	
<b>Step 2: Determine Length of Infiltration Trench Required</b>			
Unified Soil Classification System (USCS) Symbol	290b		
<b>Total Length of Infiltration Trench Required</b> (maximum 50 feet)	5 feet	OK	
<b>Total Number of Days to Drain</b> (maximum 3 days)	1 days	OK	

Trenches located within a recorded easement area – identify location and details perpetual maintenance responsibilities.

# Existing Residential Permits in Watershed

## CRYSTAL LAKE WATERSHED EXISTING URBANIZED RESIDENTIAL REQUIREMENTS



\*Substantial Impact: Greater than 50% of the area being impacted.  
 Brush Area: Any area that cannot be mowed that does not include a wooded area.  
 Wooded Area: Any area where the tree canopy is interlocking.

# Potential Impacts

Year	Total Building Permits Issued Each Year	Total Building Permits Issued in Watershed That Added Impervious	Requirements With New Enhanced Policy		
			Same	Reduced	Additional
2016	2,714	1.4%	48.6%	21.7%	29.7%
2017	3,132	1.2%	55.3%	15.8%	28.9%
2018	2,844	0.8%	54.2%	16.7%	29.1%

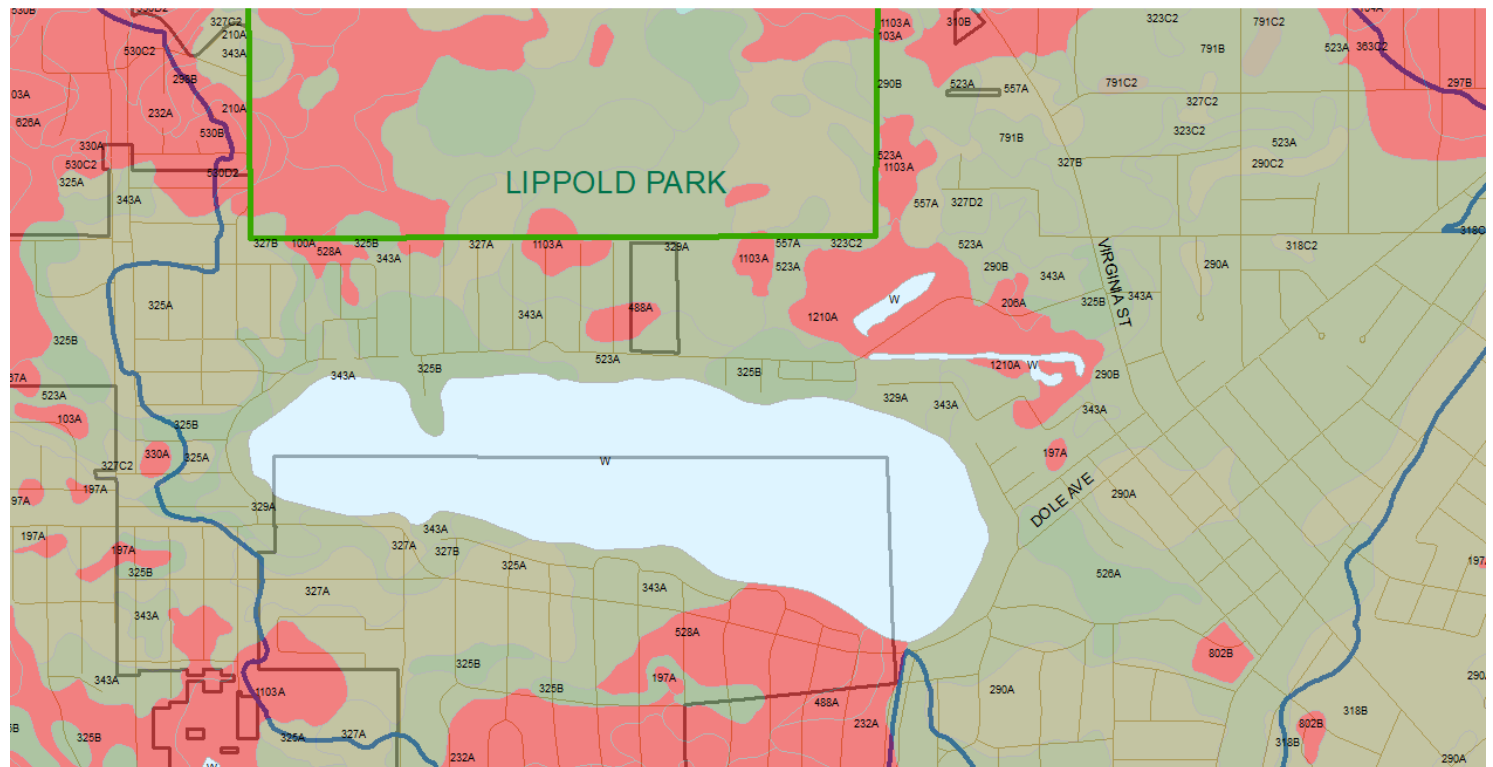
On average, homeowners would have seen:

- Reduction in requirements would save approximately \$200-\$250
- \$1,500 for a new trench drain needing to be installed

# Potential Impacts

Exceptions exist for properties located in areas where poor soils exist and water doesn't drain into the ground. Areas shown in red below.

These residents will need to work closely with City staff on case-by-case basis.





# Next Steps

## *Chapter 630 Code Changes*

- Removes redundant information that is covered in other sections of the City Code.
- References appropriate development standards that need to be followed.

## *Adoption*

- Address any City Council comments/concerns in the existing policy
- Host a public meeting
- Pending approvals and positive feedback, staff hopes enhanced policy and ordinance approval of Chapter 630 effective January 1, 2020.



# QUESTIONS