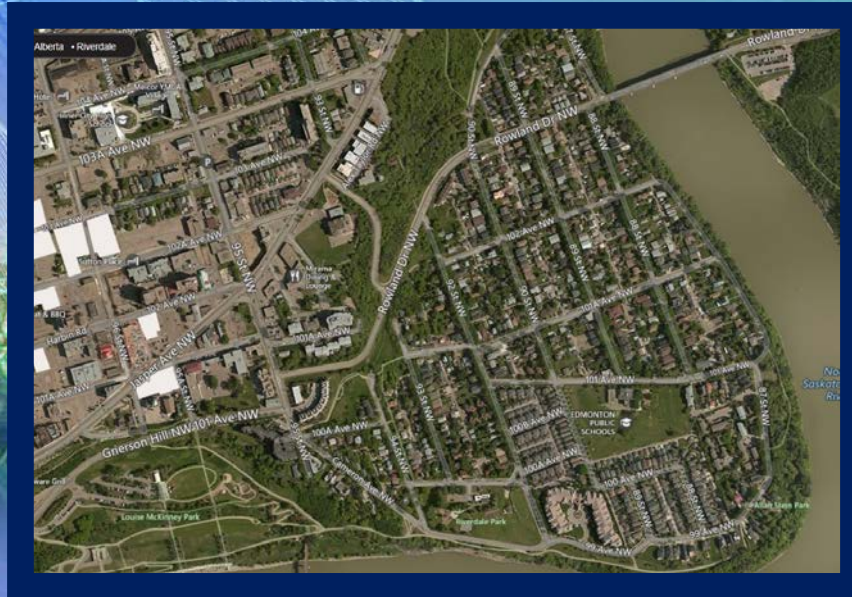


River Valley Neighbourhoods Flood Risk Study



Riverdale

Public Consultation - May 14, 2015



Today's Meeting

1. Provide results of the studies done regarding drainage issues in your neighbourhood.
2. Discuss proposed flood mitigation improvements.
3. Share Drainage Services' process for moving improvements forward.
4. Outline next steps.
5. Answer questions/get your input and feedback.



After Today's Meeting

1. Summarize and share meeting input.
2. Consider community input in work ahead.
3. Report on progress and keep you informed.

Please hold questions until after presentation.



Study Objectives

1. Comprehensive review and understanding of the existing drainage and sewer systems.
 - Cloverdale
 - Riverdale
 - Rossdale
2. Develop flood mitigation concepts to improve the level of flood protection in the neighbourhoods.

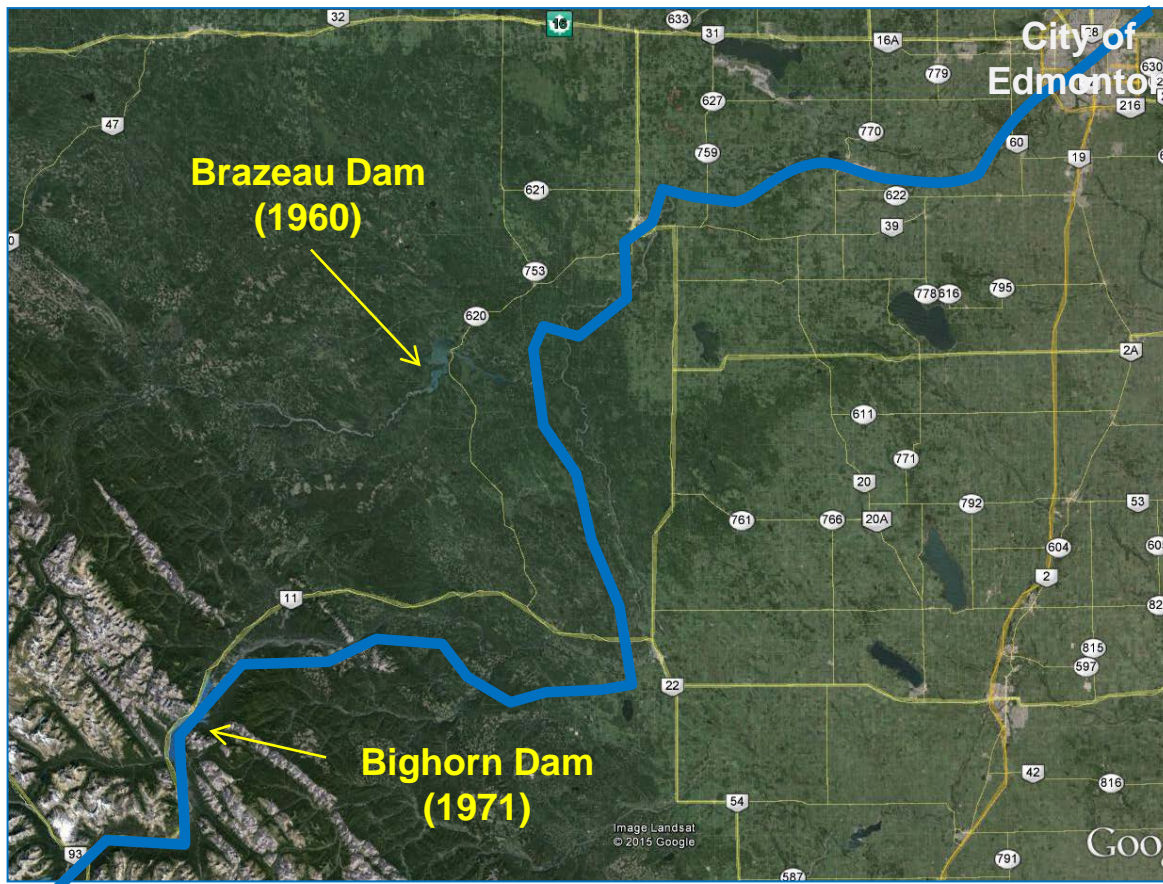


What is a 100 Year Event?

A 100 year event has a 1% chance of being exceeded in any given year.

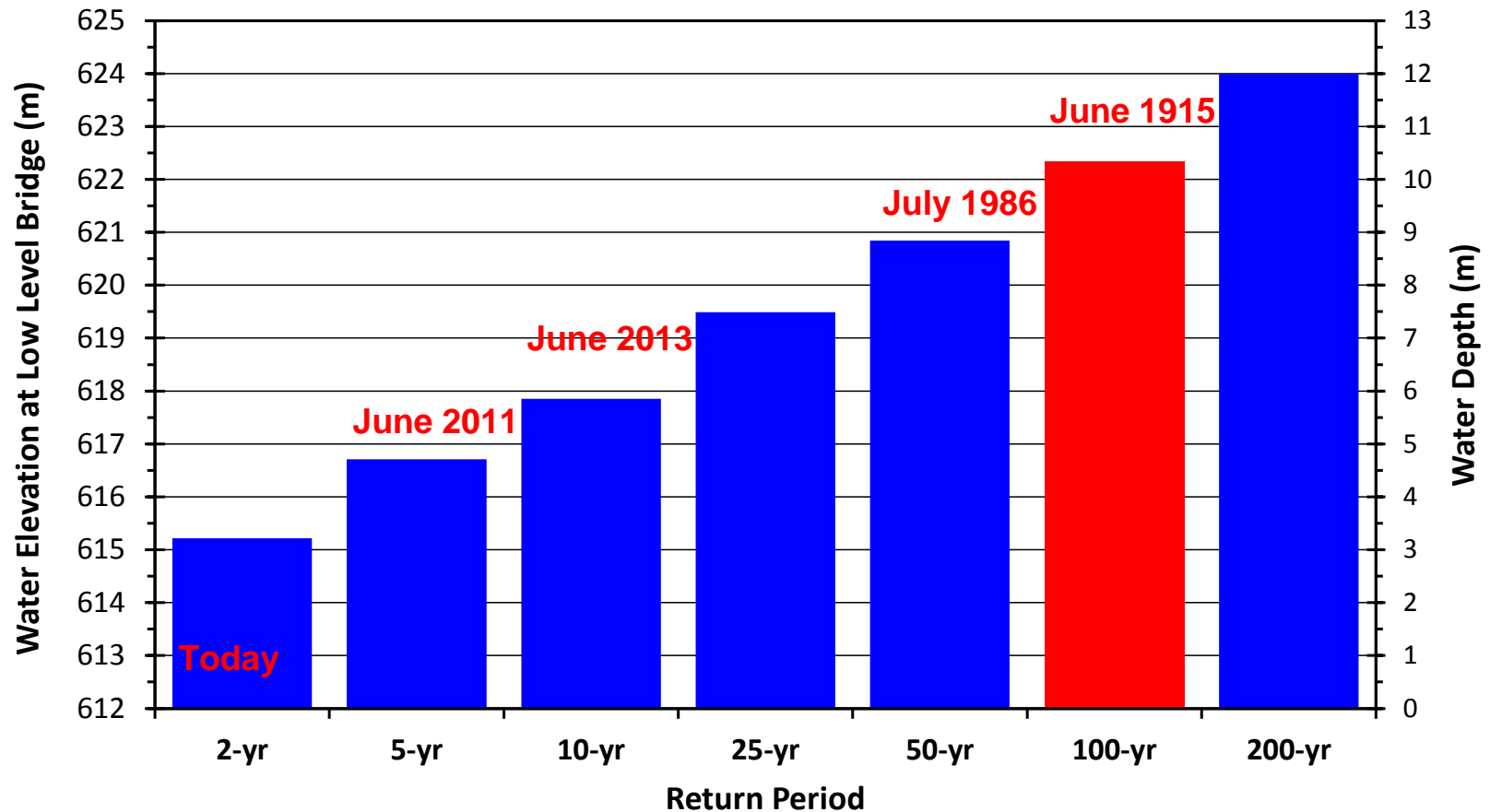
Return Period	% Chance of Exceedance in any given year
100 year	1% (1/100)
50 year	2%
25 year	4%
10 year	10%
5 year	20%
2 year	50%

North Saskatchewan River

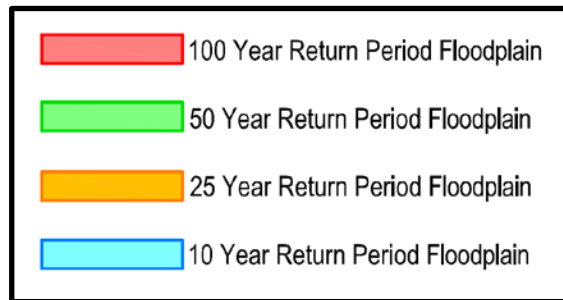


- River flows recorded since 1911(104 years)
- The dams have negligible impact on extreme peak flows events.

North Saskatchewan River Water Levels

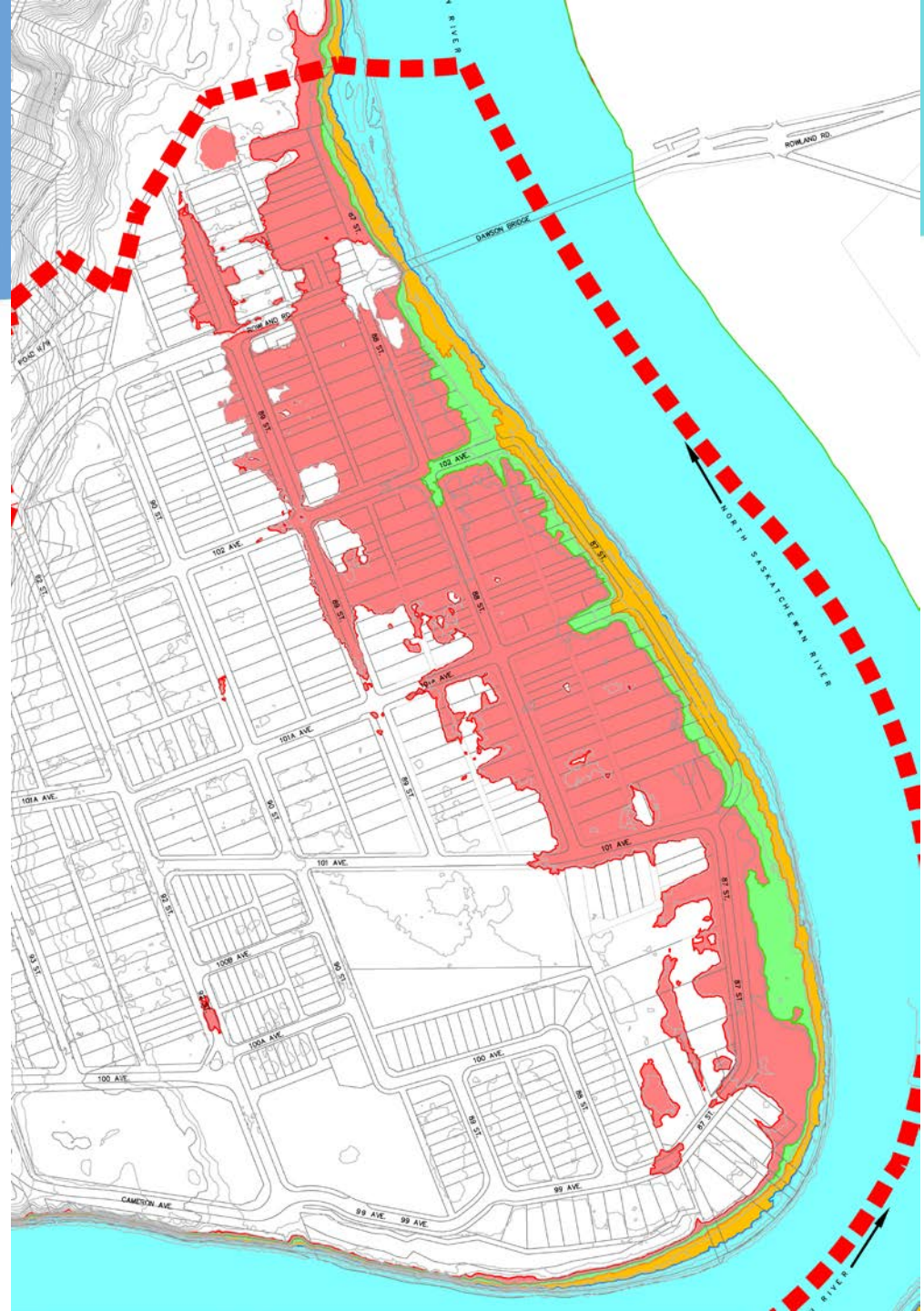


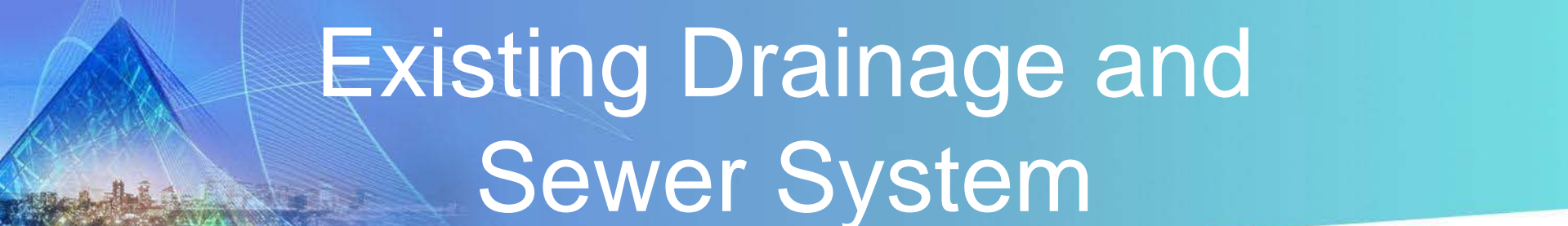
Floodplain Mapping



Note: This map shows the area on the ground surface that will be flooded due to high River water levels. It does not show properties that may experience sewer backups or underground parking floods.

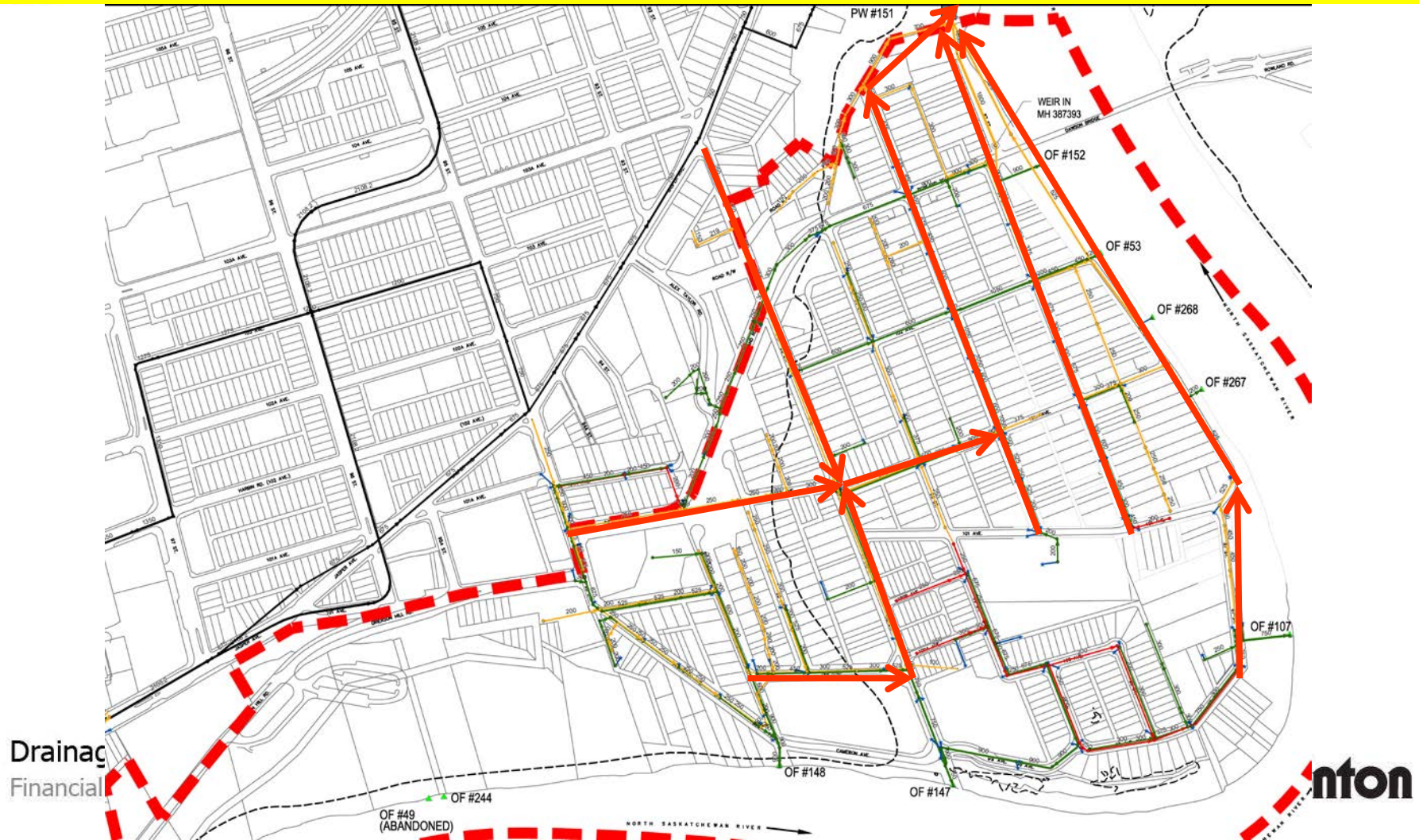
Drainage Services
Financial Services & Utilities





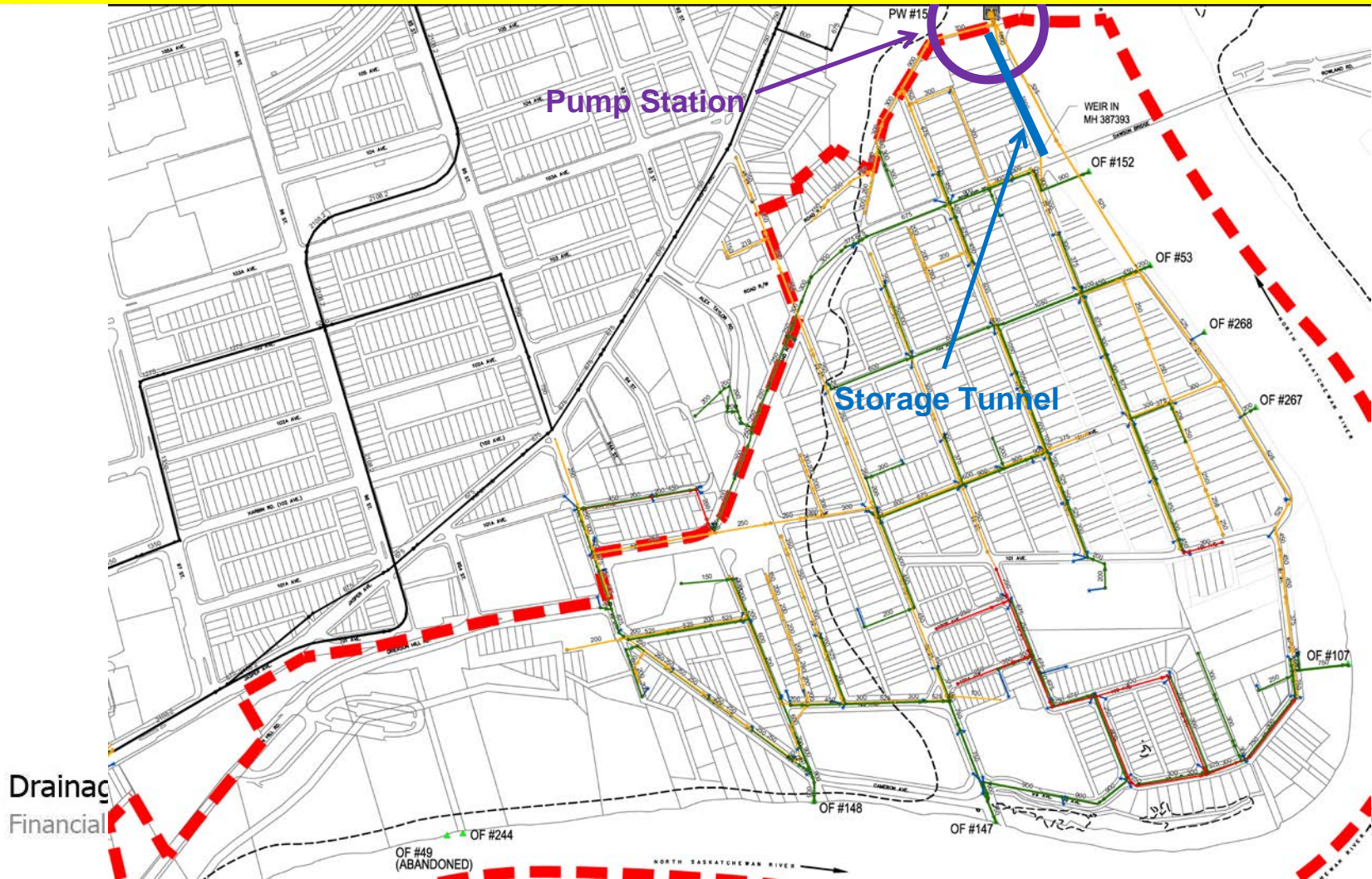
Existing Drainage and Sewer System

First combined sewers in Riverdale installed in 1910. Most were replaced/rehabilitated since then. The latest combined sewer upgrades were implemented in 1997/98. No flows from other neighbourhoods.



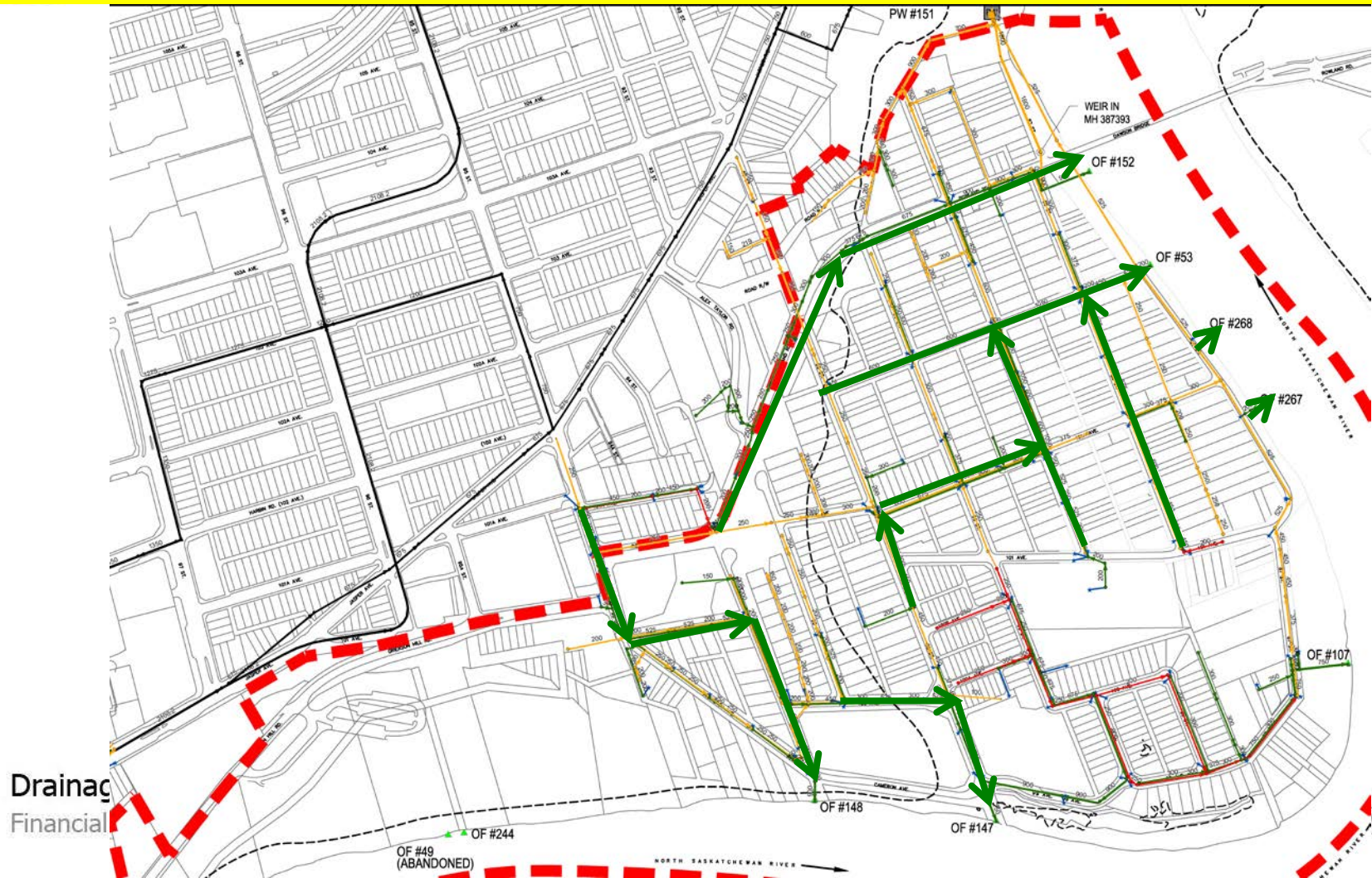
Existing Drainage and Sewer System


Riverdale Pump Station was constructed in 1958; most recent upgrades in 2007.
In 1998, a 1800mm diameter storage tunnel (460m³ storage) was constructed near the pump station.



Existing Drainage and Sewer System

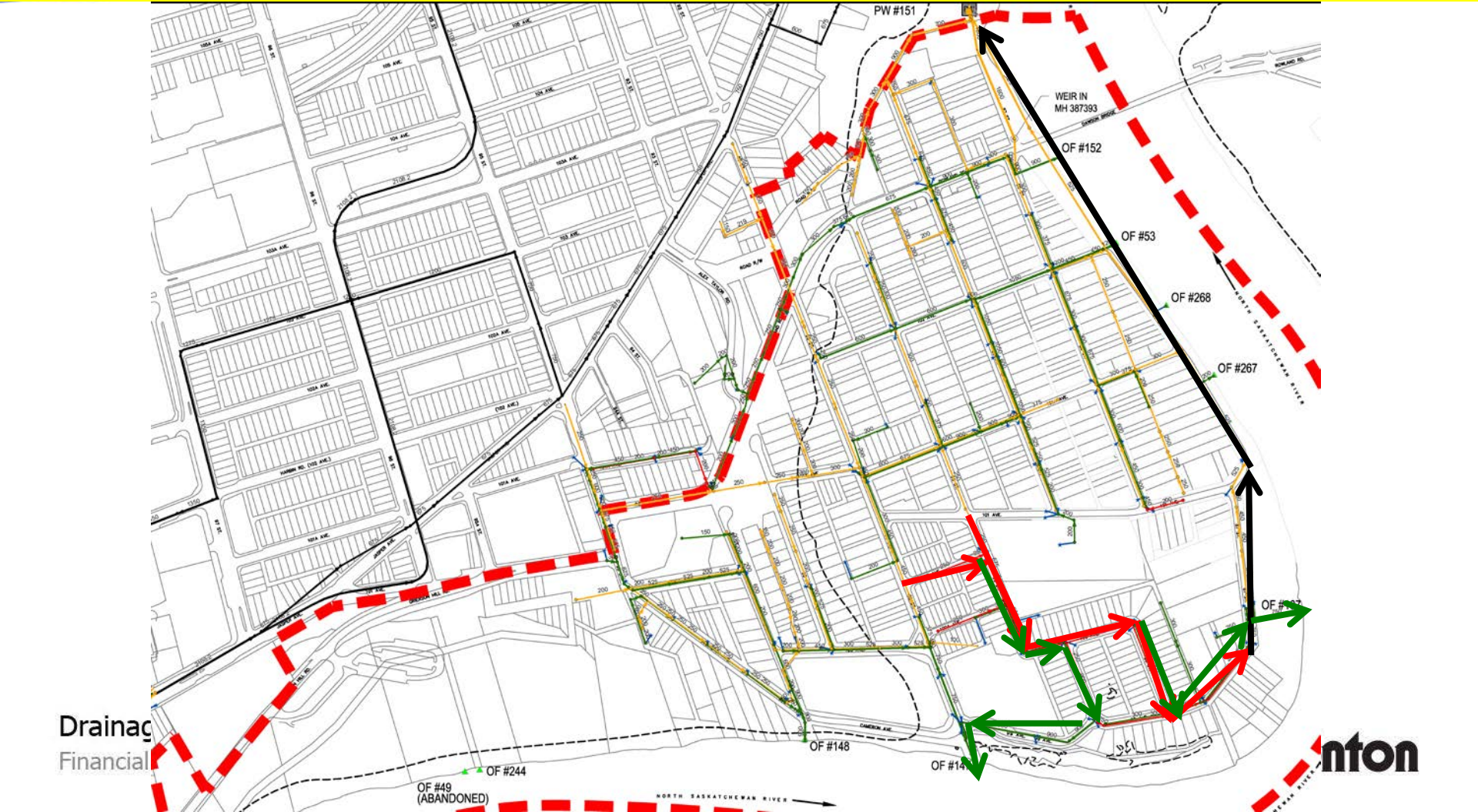
In 1997/98, the City constructed several storm sewers with new outfalls.
Almost all of the catchbasins in Riverdale are connected to the storm sewer system.





Existing Drainage and Sewer System

2001: Brickyard Development. Sanitary sewers connected to existing combined sewer system. Storm Sewers connected to storm outfalls.

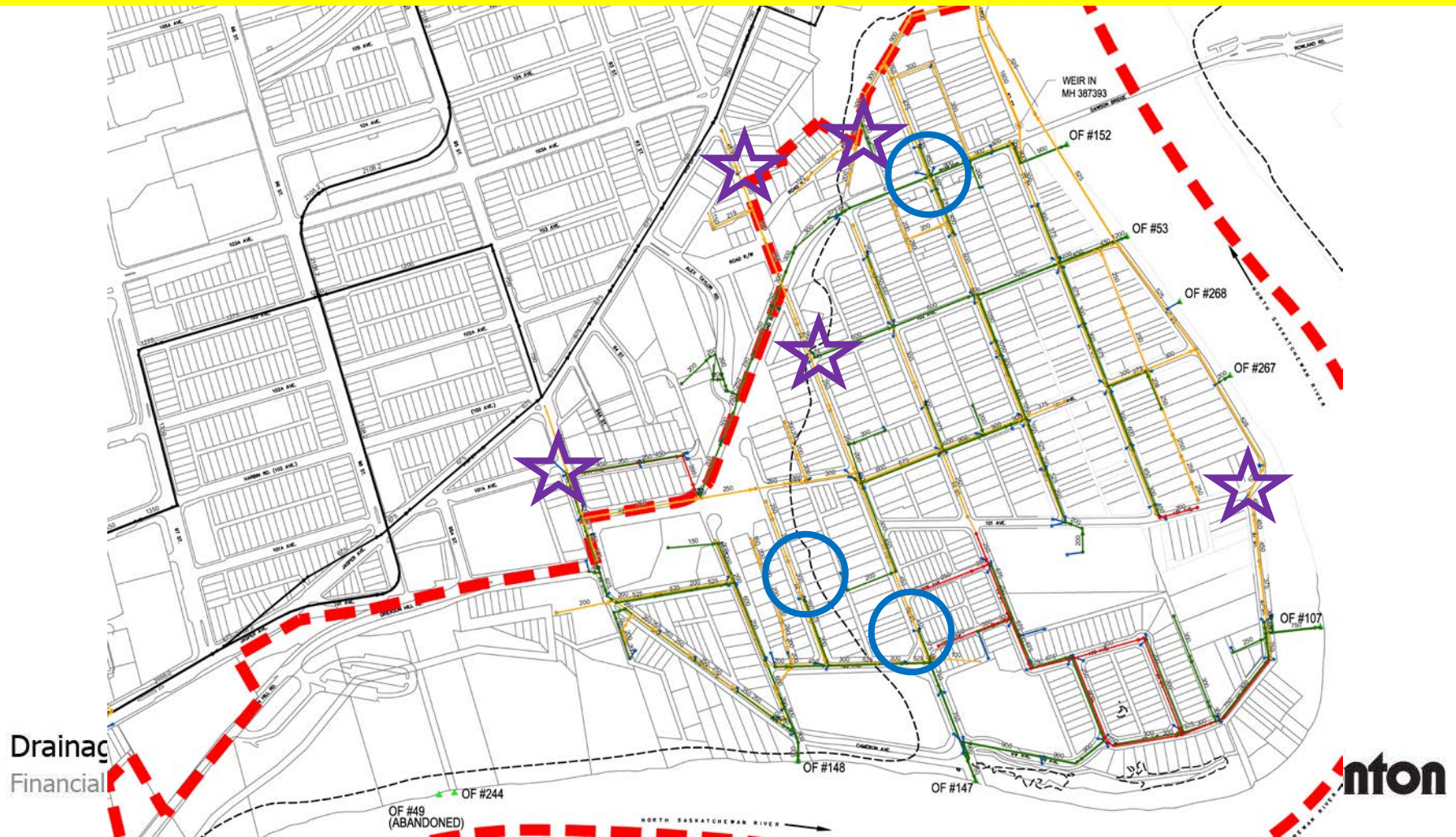




Main Drainage Issues

Intense Rainfall

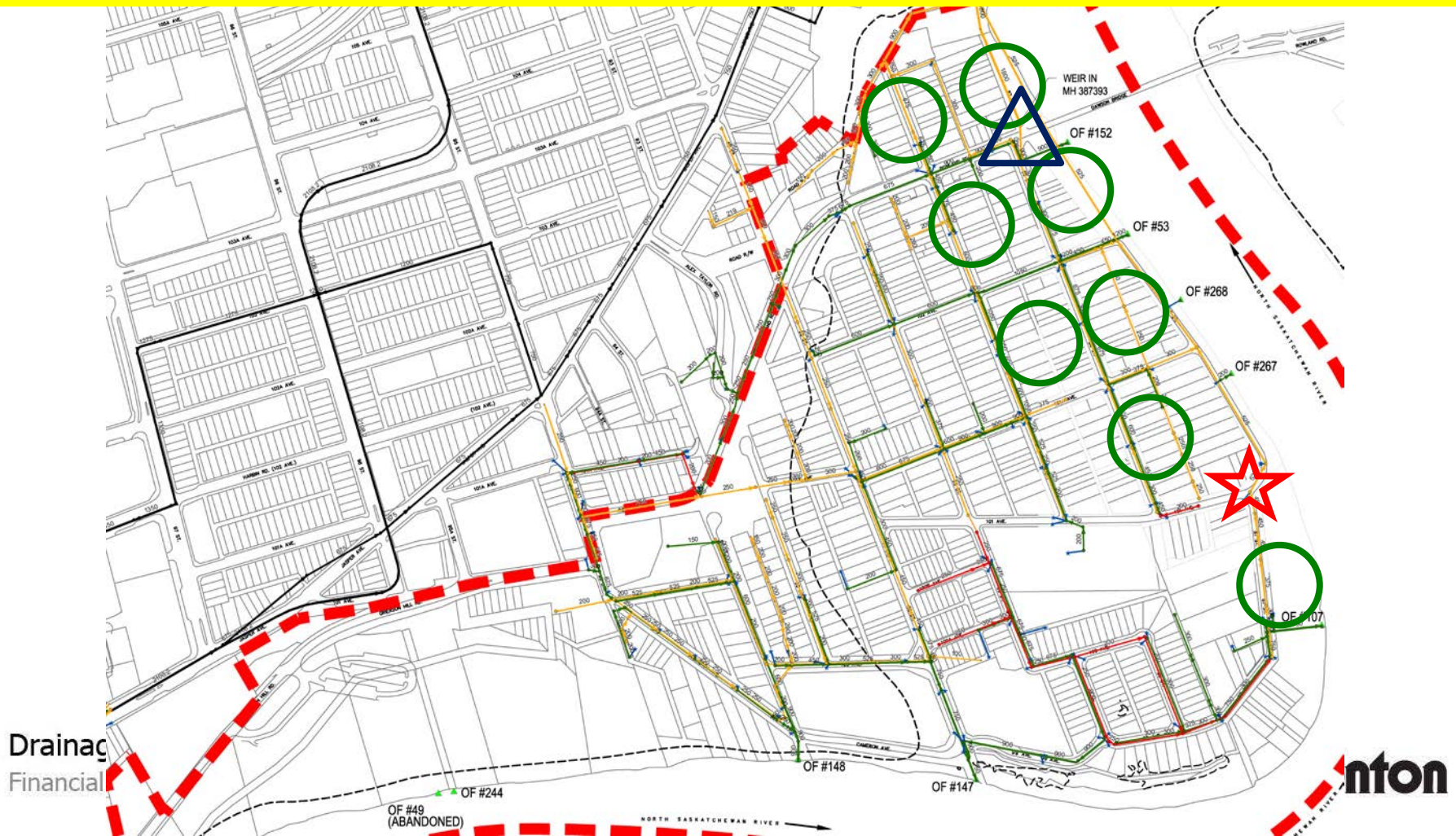
- ★ 1- A few catchbasins are still connected to the combined sewers.....Risk of Sewer Backup (localized)
- 2- Several homes have roof leaders connected to the combined sewers.....Risk of Sewer Backup (localized)
- 3- Large ponding area in localized areas threatening to flood homes.....Risk of Surface Floods (localized)



Main Drainage Issues

High River Water Level

- ★ 1- Few catchbasins connected to combined sewers are in floodplain.....Risk of Sewer Backup (widespread)
- △ 2- High River may backflow into storage tunnel and pump station.....Risk of Sewer Backup (widespread)
- 3- High River Water Levels flooding floodplain (>1:10 year)..... Risk of Surface Floods (floodplain)





Main Drainage Issues

Top 5 Concerns According to Residents

1. High River water levels overflowing banks and flooding homes located near the River.
2. Erosion of the River banks.
3. Sump pumps discharging to ground forming ice on sidewalks during winter.
4. Storm drains clogged by leaves and snow causing street flooding.
5. Concerns about infill development creating additional sewer flows.



Improvements Concepts

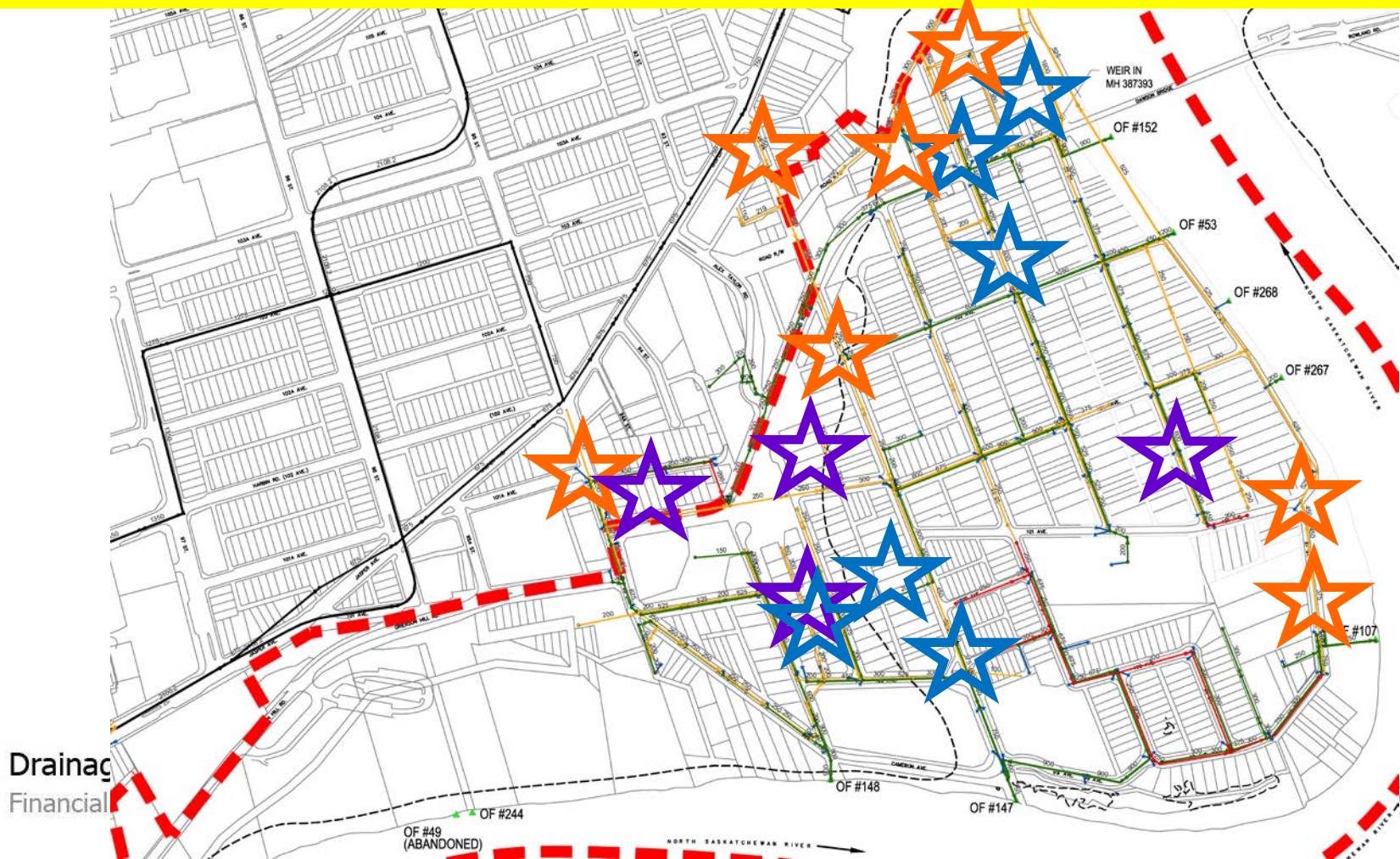
Main Objectives

- Increase the level of flood protection, and reduce flood risks throughout Riverdale due to:
 - Intense Rainfall
 - High River Water Level
 - Both at the same time
- Provide up to 100 year level of flood protection

Improvements Concepts

Intense Rainfalls

- 1. Provide additional sewer separation (catchbasin reconnections, new storm sewers)
- 2. Roof leader disconnection from combined sewer pipes at select locations.
- 3. Provide drainage and storm sewer improvements (e.g. new sewers, additional catchbasins, swales)

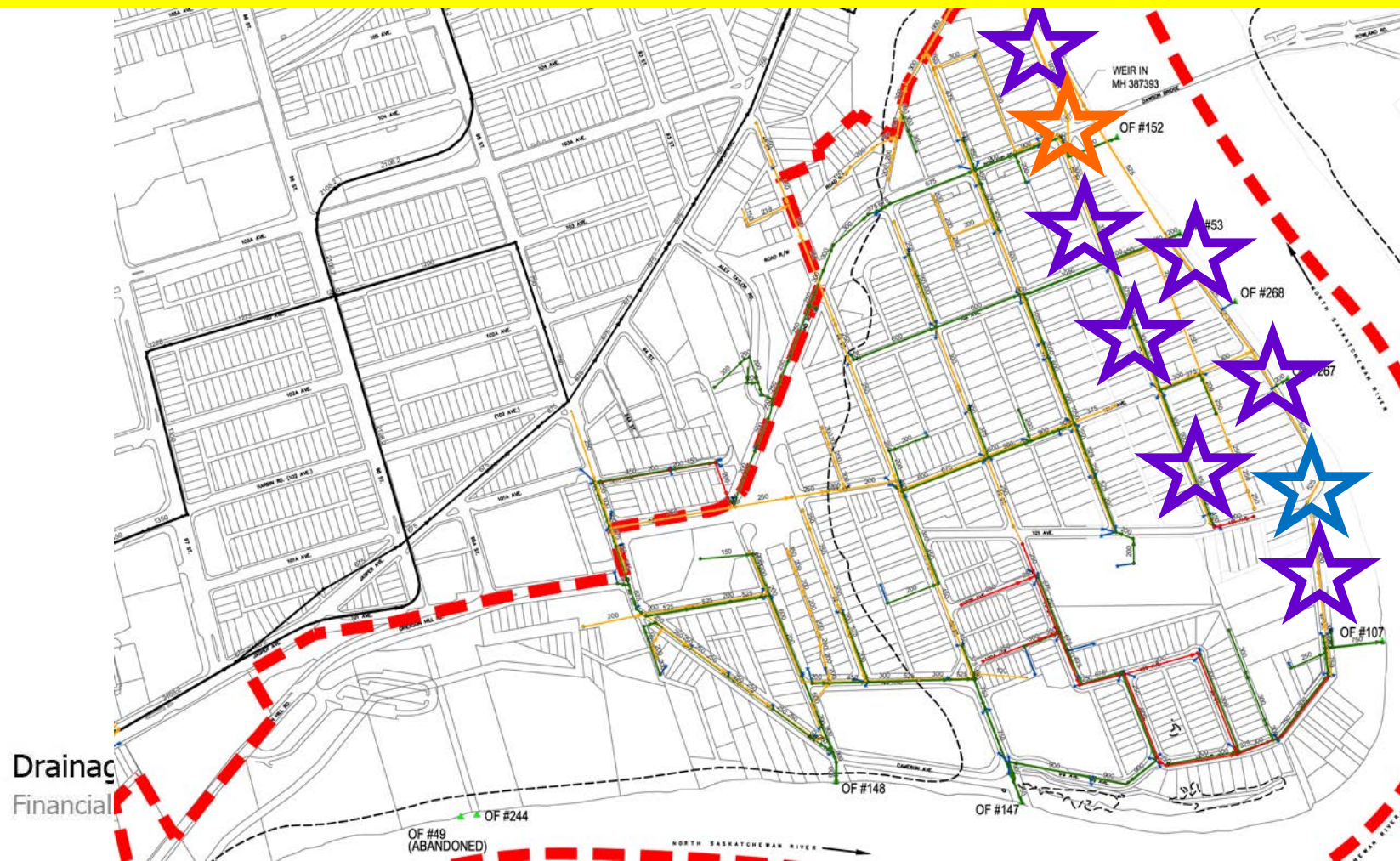




Improvements Concepts

High River Water Level – Sewer Backups

- 1. Prevent River water from entering the sewer system via the outfall (at pump station storage)
- 2. Prevent River overflow from entering into the sewer system via the manholes (manhole sealing)
- 3. Catchbasin reconnection to storm sewer system (if located in floodplain).





Improvements Concepts

High River Water Level – Surface Floods

- **Current Strategy:**
 - Flood proofing of homes – by homeowner.
 - City installs sand bags at most vulnerable properties.
- **Alternative Solutions:**
 - Permanent Flood Barrier (i.e. berm, wall) along River.
 - Temporary Flood Barrier installed days before floods and removed after flood.
 - Flood barrier: Up to 3.8m high, 1000m in length.



Improvement Concepts

High River Water Level – Surface Floods

- Alberta Government conducting Flood Study on North Saskatchewan River watershed.
 - Expected completion in 2015.
- Work with the Alberta Government to identify next steps and develop a flood mitigation plan.



Improvement Concepts

Enhanced Communications

- Provide early warning system for the residents when:
 - High River water levels that may cause flooding is forecasted.
- Implement Communication Plan:
 - Email List
 - Community League
 - Street Signage
 - Social Media



Until improvements are in place, what can residents do to prevent flooding?

Physical Improvements:

1. Install **backflow valve on the sanitary service line** to reduce the risk of sewer backups in basement.
 - a) Drainage Services has a Backflow Valve Subsidy Program.
2. Ensure **roof leaders** discharge to ground surface.
3. Ensure **lot grading** is sloped away from your home.
4. Install **weeping tiles**, connected to a sump and sump pump.
5. Ensure **sump pump** discharges on ground or into storm sewer.

City of Edmonton's Flood Prevention Home Check-Up
*** Free Inspection and Recommendations by Drainage Specialist ***

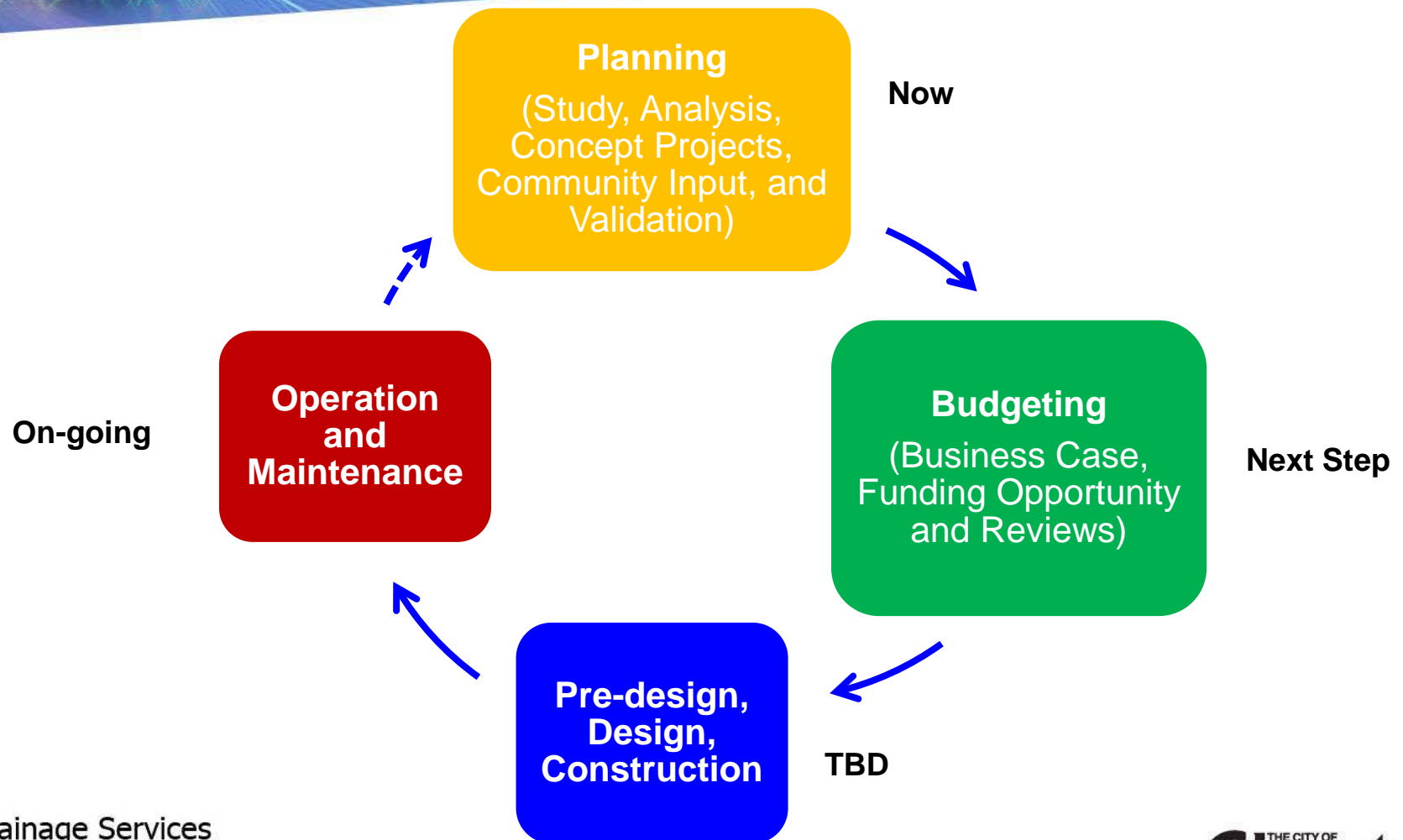


Until improvements are in place, what can residents do to prevent flooding?

Prior to High River Water Level / Intense Rainfall:

1. Move valuables to high ground (not basement).
2. Ensure street catchbasins are free of debris.
3. Ensure eavestroughs are clean.
4. Park vehicles at safe location:
 - a) Not in depressions on the streets.
 - b) Not in underground garage.
 - c) Not in floodplain.
5. Minimize water usage.

Next Steps





Next Steps

1. Implement immediate improvements:
 - a. Improve communication during a potential flooding threat from high river levels.
2. Take input, validate and prioritize recommended improvements.
3. Look at how high priority projects can be advanced as quickly as possible.



Next Steps

4. Coordinate planning and work with:
 - a. Drainage Services programs including Neighbourhood Renewal Program, Opportunistic Sewer Separation, Flood Mitigation Program and Sewer Upgrading Strategy.
 - b. Other City departments like Transportation.
 - c. Other organizations like Community League.
5. Follow up with provincial North Saskatchewan River Basin Study.
6. Support homeowners via Flood Prevention Home Check-up and subsidies.



Questions Comments