Update on the July 2012 Flooding

Millbourne

Community Consultation

May 14, 2013

THE CITY OF Edmonton

Today's Meeting

1. Share additional information on engineering findings concerning last July's storm
2. Discuss various options under consideration regarding flood improvement projects for this area
3. Discuss the benefits and impact of these various options, and the general timing
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
4. Return to the community to present recommendations and get your feedback

Please hold questions until after presentation

How did we get here?

- Major flooding occurred in July 2012
- Flood prevention in Mill Woods becomes one of the City's top priorities
- Commitment to reduce flood risk and improve public awareness on drainage issues
- At risk neighbourhoods in Mill Woods & southwest Edmonton identified

July 2012 Storms

- 4 extreme storm events: localized, intense, short duration

Date	Rainfall	Duration	Area	Category
July 12	50 mm	90 minutes	south Edmonton	E6
July 14-15	85 to 105 mm	30 hour	southeast and west Edmonton	E3
July 17-18	30 mm	30 minutes	south Edmonton	E5
July 23	20 to 25 mm	30 minutes	south and west Edmonton	E5

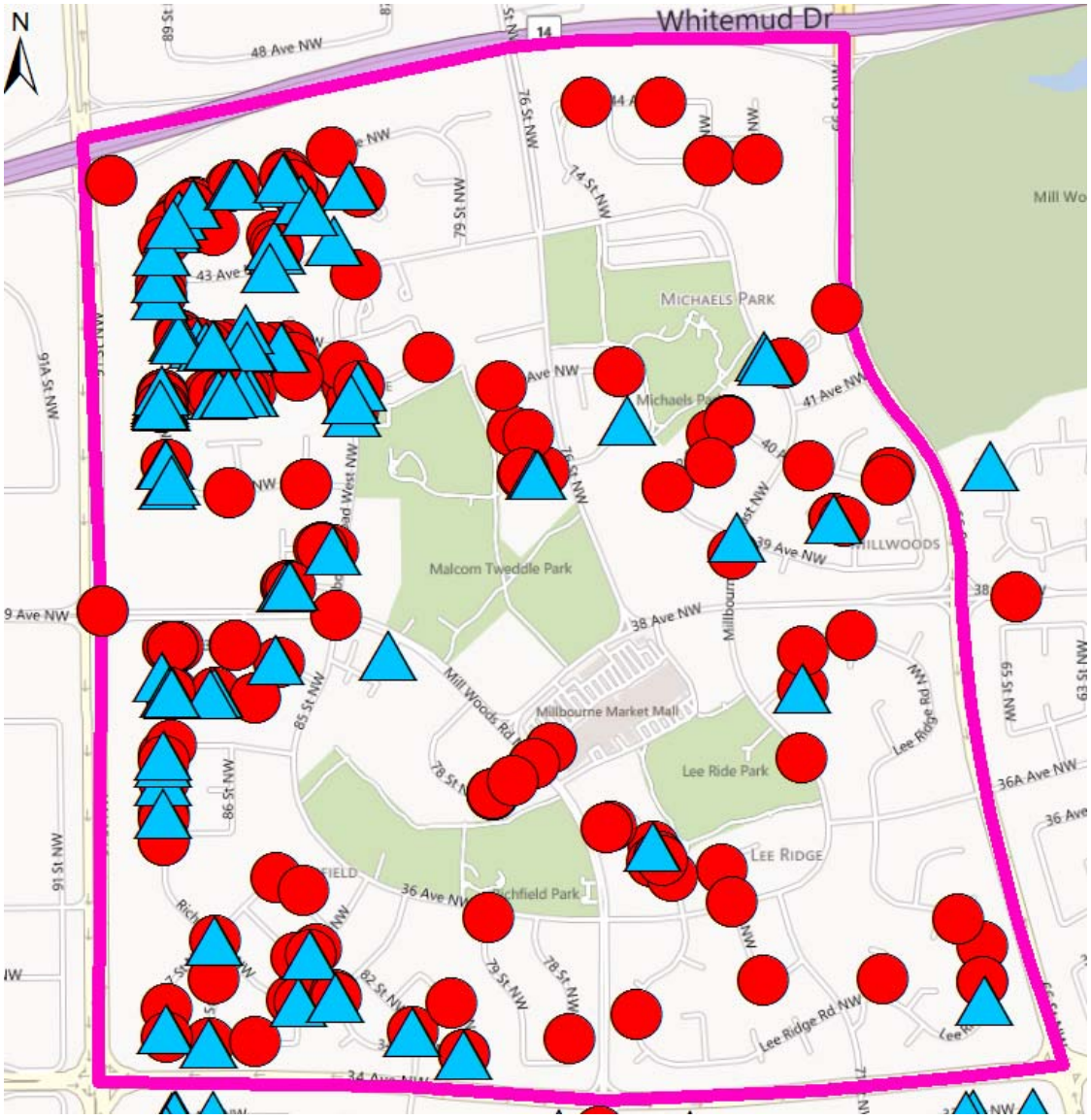
- Area south and west of the city received as much as 240 mm of rain, compared to 90 mm historical total average for July
- The July 12 storm resulted in more than 2.4 million cubic metres of rainfall in the area (2 ½ Commonwealth Stadium)
- 5,700 total calls received by 311 and 1,200 reported flooded basements in the City

What has been our Plan of Action?

Action plan with four key goals:

- Find the main causes of the July 2012 flooding
- Review any previously constructed and proposed upgrades in the on-going 2006 Flood Prevention Program
- Develop viable solutions and obtain funding from City Council to reduce the risk of flooding in the future
- Engage and work with the affected communities to implement the solutions

July 2012 Reported Flooding Incidents



Millbourne Area

- July 2012 was one of the wettest months on record since 1880
- July 12 storm event was unusually severe
- 112 reported basement floods in this area

Legend

Resident Questionnaire Flood Reports

Flooding-Related 311 Calls

Resident Questionnaire Results - Millbourne

From 88 Survey Responses:

- 73% Reported Sanitary Backups
- 5% Reported stormwater entering basements from the street
- 59% reported stormwater ponding on the street
- Many Vehicles flooded
- Flooding was frequently ‘severe’, covering floors
- Flooding often lasted hours

What Contributed to the Flooding?

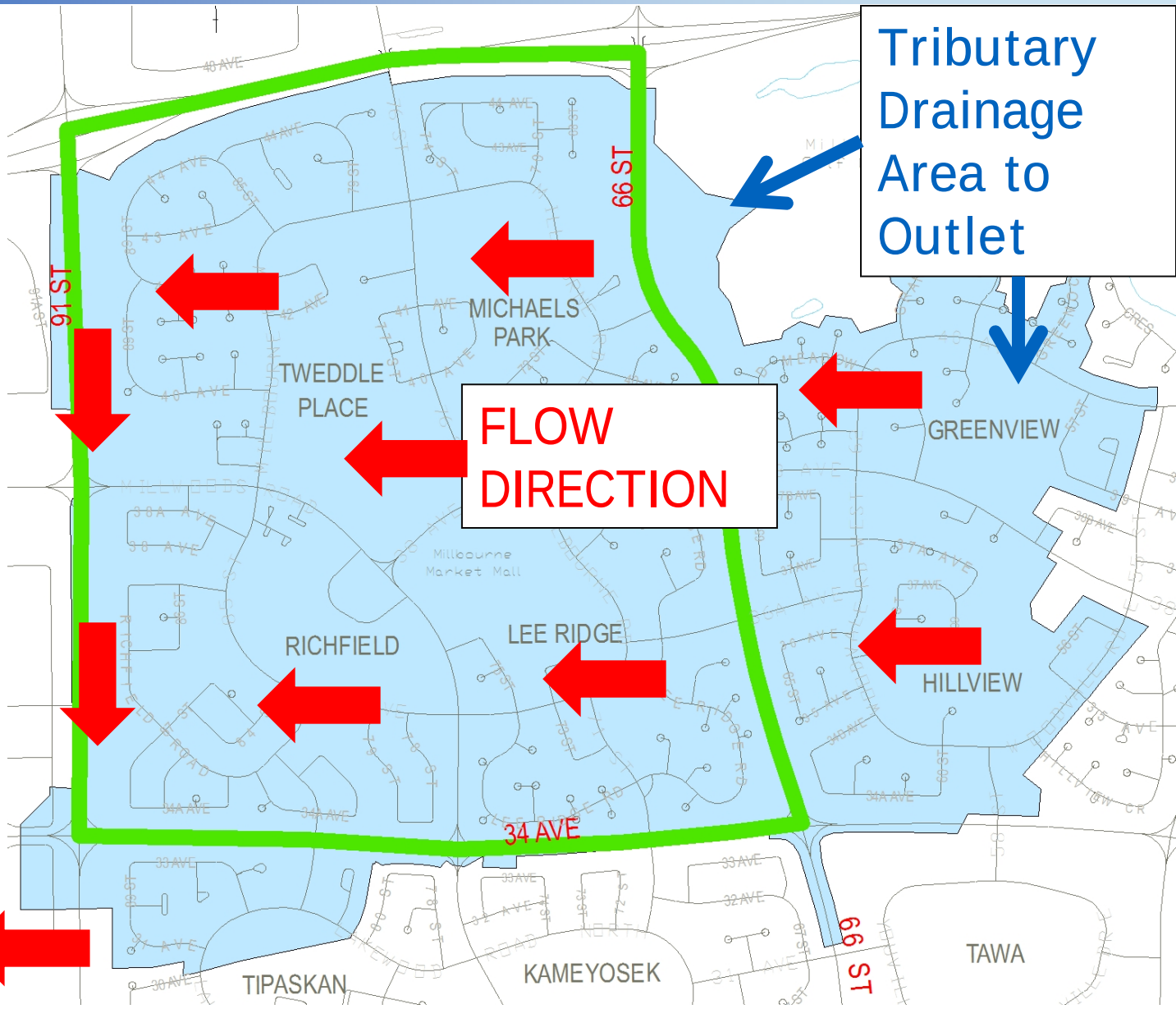
- Unusually intense storm
- Saturated soils from previous rainfalls
- Large runoff volumes
- Water flows exceeded storm sewer system capacity
- Surface flooding in trapped low areas inundated sanitary system, causing sanitary sewers to fill beyond capacity
- Plugging of catch basins with hail, vegetation, and debris

What Contributed to the Flooding?

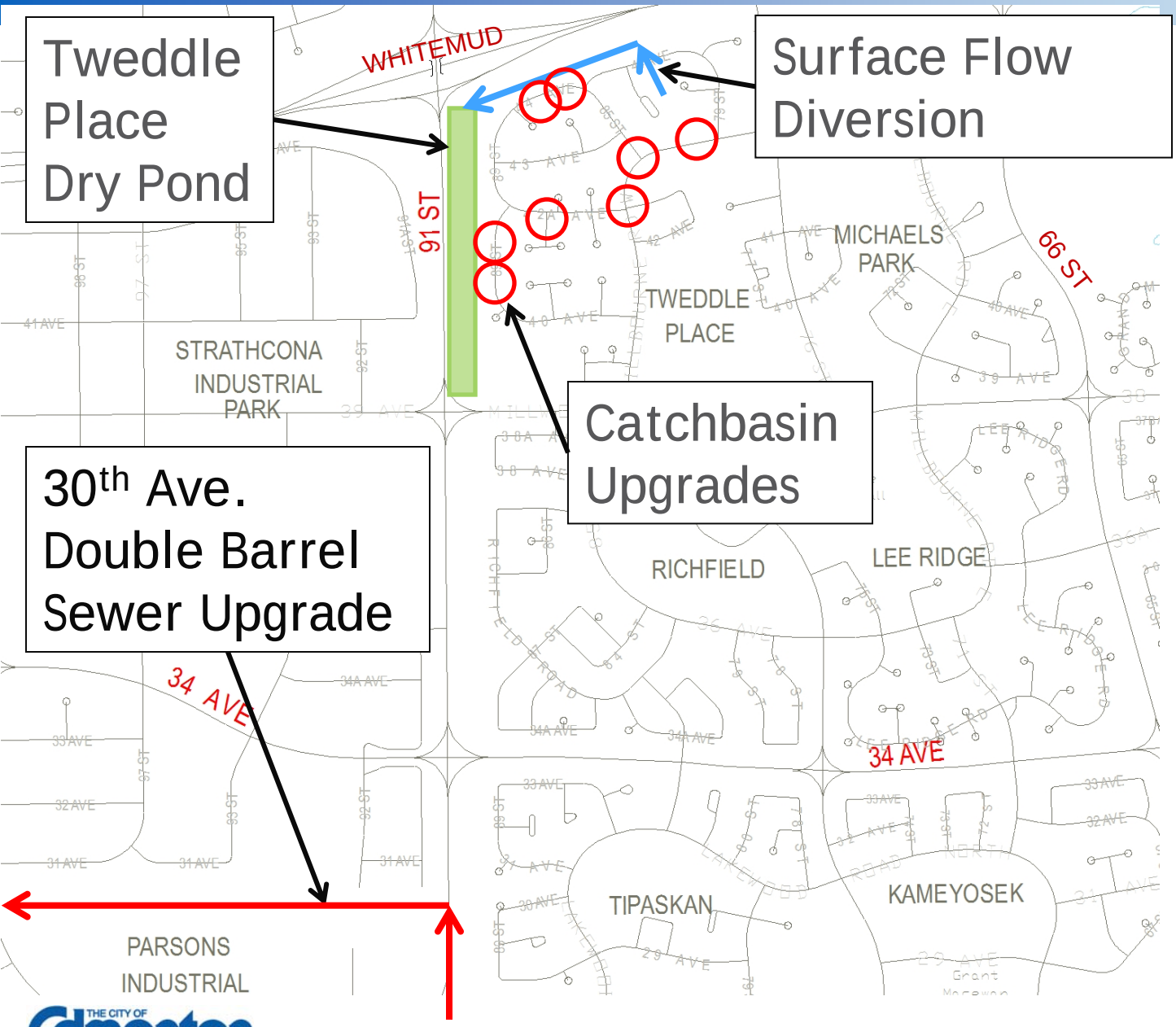
- Lot grading issues and altered downspout servicing
- Malfunction of backwater valves and sump pump
- Extra flows from weeping tiles
- Absence of overland drainage routes contributed to hydraulic restrictions on flow to Tweddle Place Pond
- Other localized hydraulic restrictions

General Drainage Patterns

- Stormwater generally flows east to west, then south along 91st Street. to A large sewer on 30th Ave.



What Flood Prevention Work Has Been Done?



- Total investment: $50M
- Tweddle Place Upgrades Completed in 2009
- Double Barrel to be operational in near future

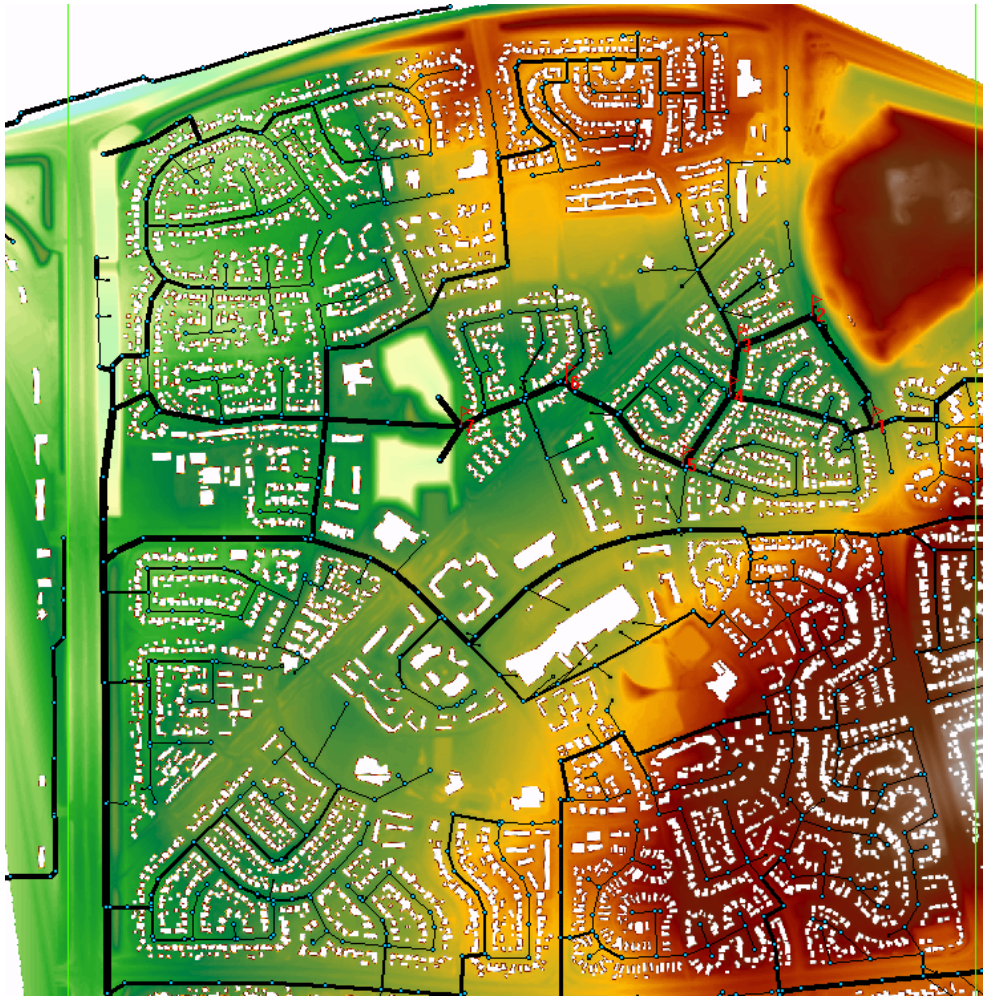
Collected Information

- City 311 Call Records
- September 2012 Community Open House Feedback
- Resident Photos & Reports
- Resident Flooding Questionnaire
- City Rain Gauge Data
- Sewer Flow Monitoring Records
- Sewer Inspection Reports

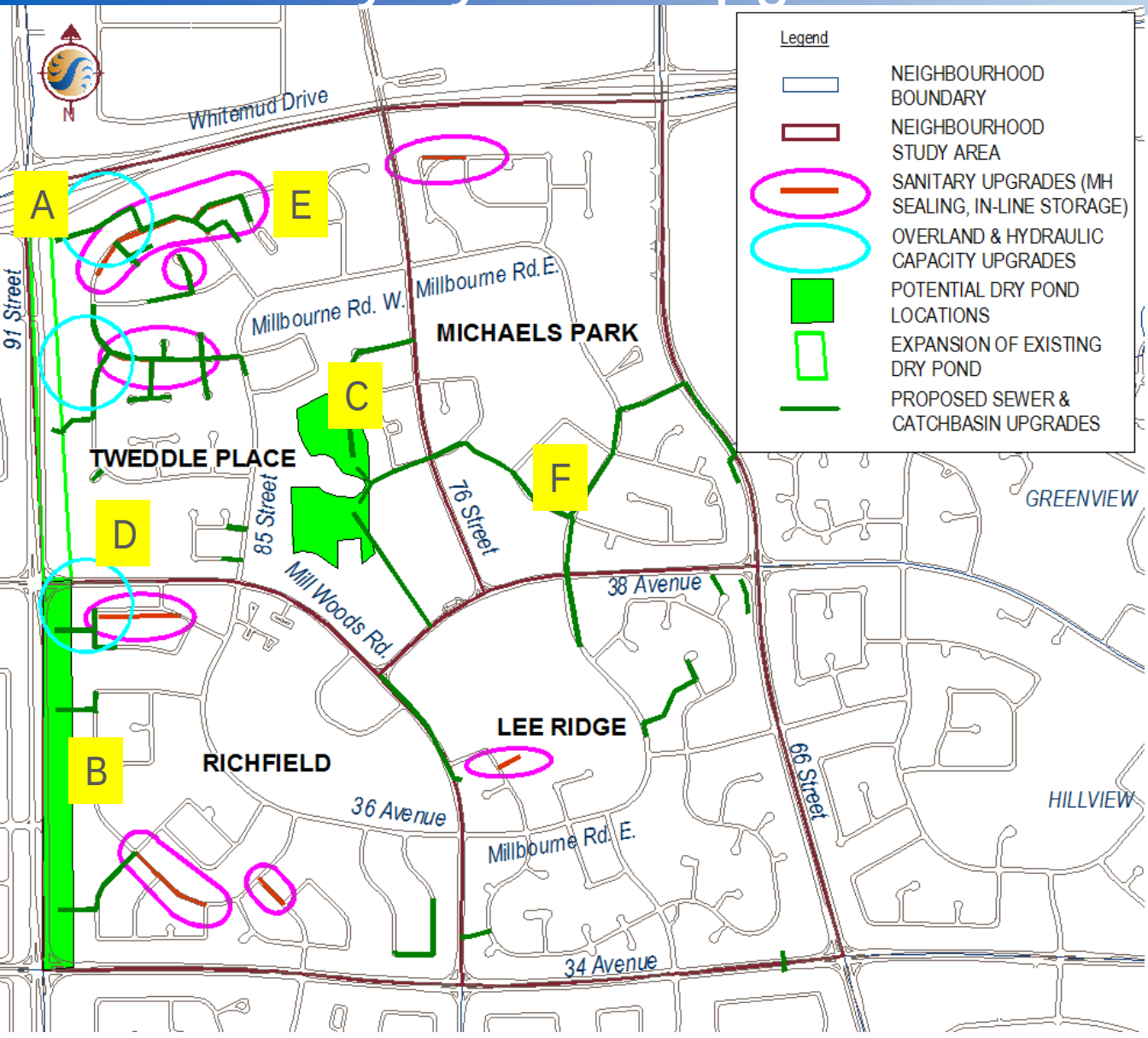
Sewer Inspection Photo, August 2012. No blockages found.

Analysis & Assessment

Using all the collected data, a computer model was assembled to re-create the existing flooding, and assess the impact of potential upgrades



Preliminary System Upgrades



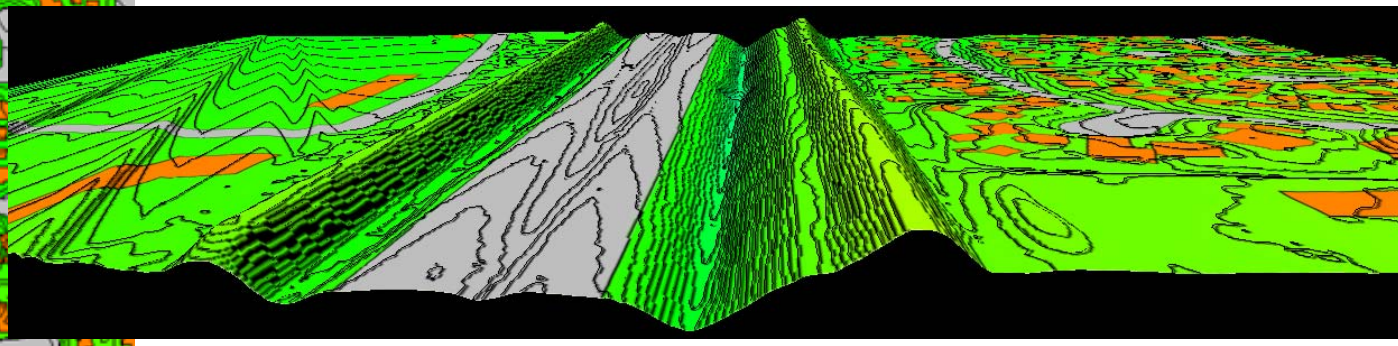
A. Expand existing Tweddle Place dry pond (along 91st St.)
B. May require new dry pond on 91st St. in Richfield
C. New dry pond in Malcolm Tweddle-Edith Rogers open space
D. Overland flow route and localized hydraulic improvements
E. New sanitary storage sewers & sanitary manholes sealing
F. Storm trunk sewer, 66 St. to Pond, & other sewer upgrades

Tweddle Place Pond Expansion & Potential Richfield Pond

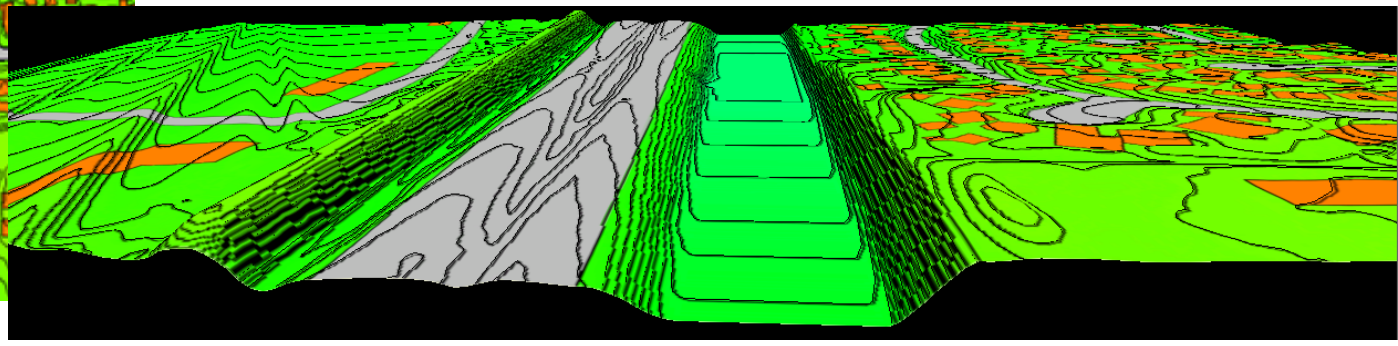
- Remove existing berm and widen existing Dry Pond bottom
- Replace berm with noise barrier to provide noise protection
- Additional pond along 91st St. with similar cross-section may be required

View From Here, Looking North

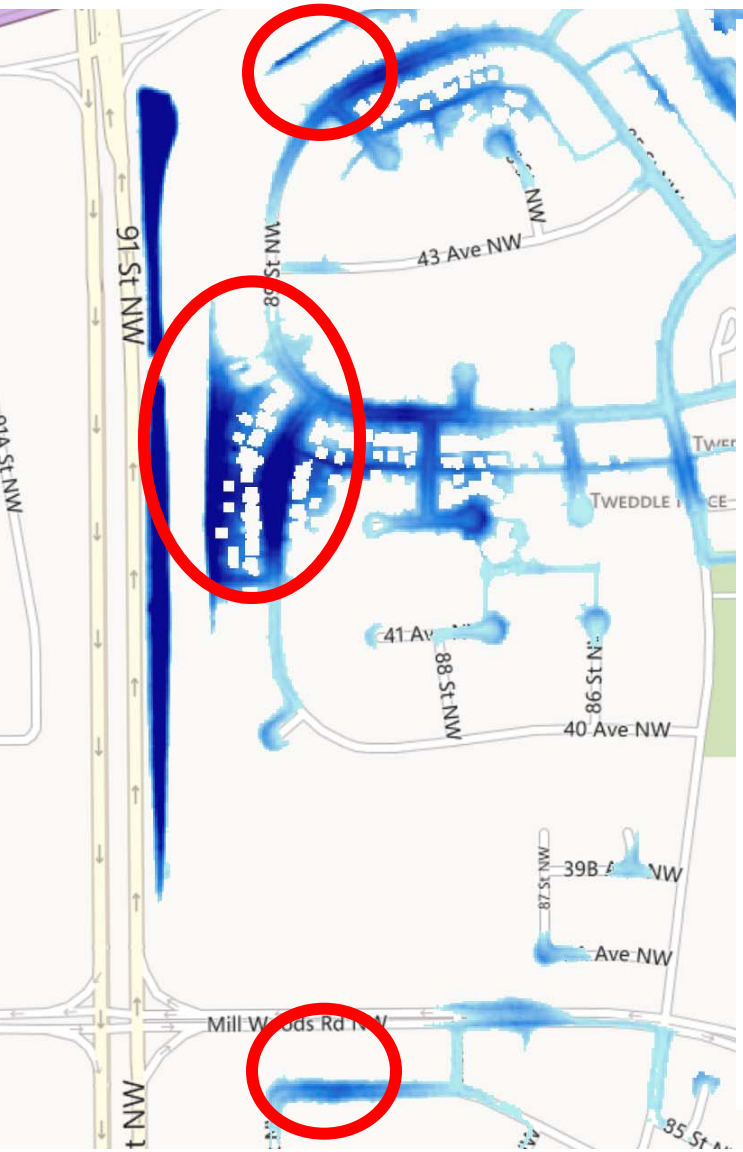
Existing 91st St. Cross-section, looking North



Conceptual 91st St. Cross-section. looking North



Overland Route & Hydraulic Capacity Upgrades

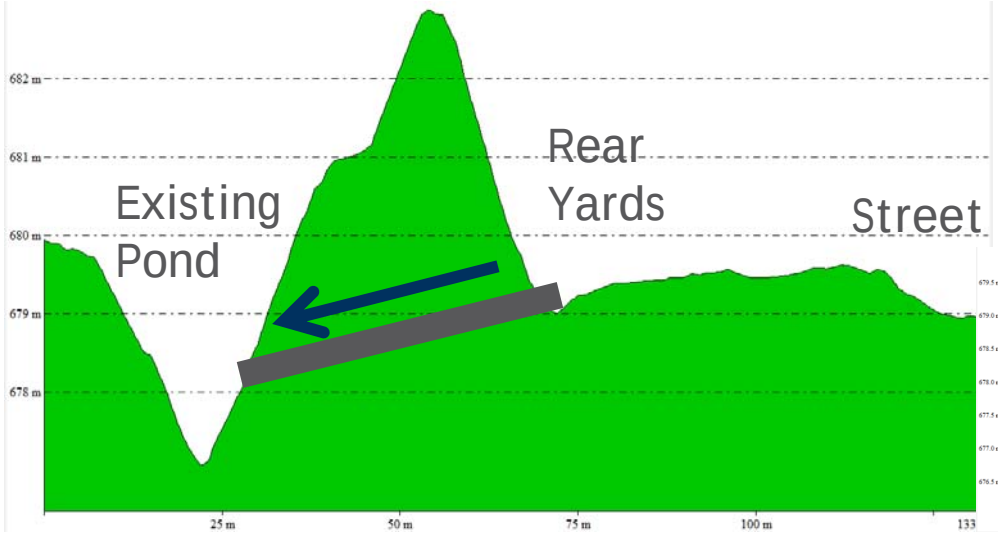


- Hydraulic improvements are required to convey water from the streets and rear yards to the expanded Tweddle Place / Richfield ponds
- Overland Flow routes and hydraulic relief pipes will be investigated in three key locations along 91 St
- Other localized hydraulic restrictions have been identified within the four neighbourhoods and are currently being evaluated

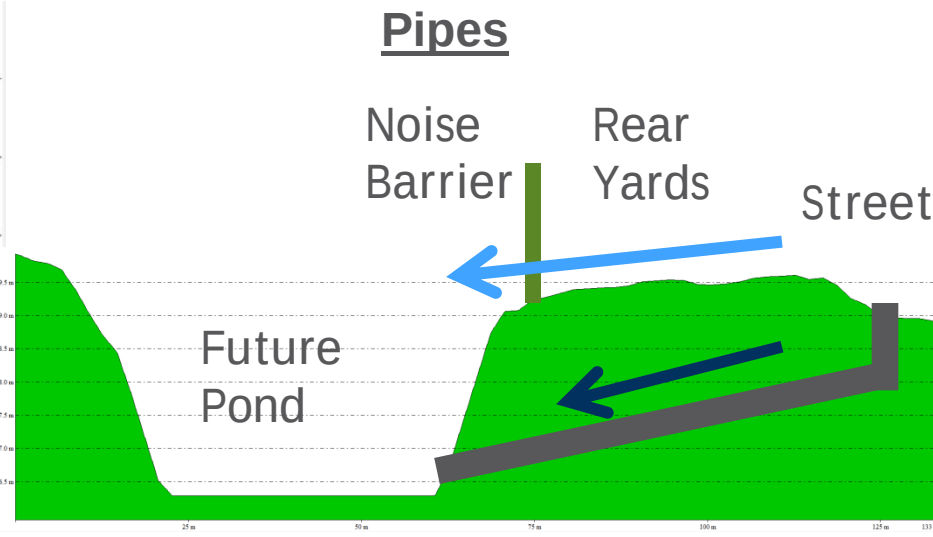
Overland Route & Hydraulic Capacity Upgrades

- Interim improvements will be implemented until ultimate infrastructure can be put in place:
  - culverts will be placed through the 91st St. berm from rear yards
  - sanitary manhole sealing
  - upgrades to the storm pond inlet structure
- Ultimate improvements will require easements and pipes to convey flow from streets

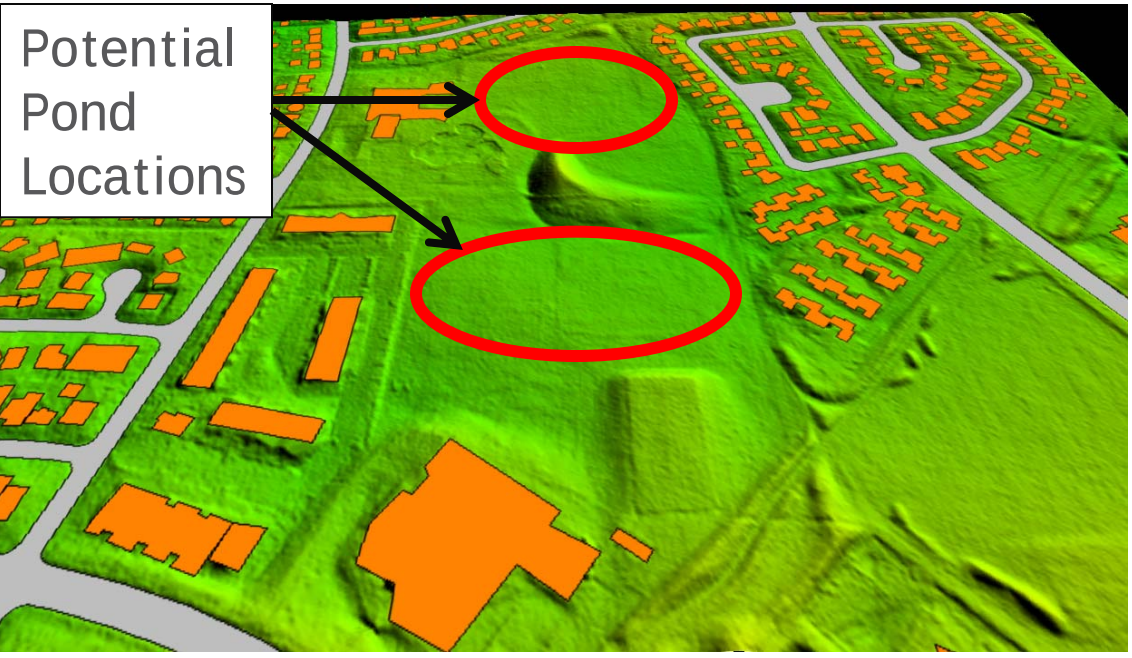
Existing Berm & Dry Pond along 91 St., with Proposed Interim Culverts



Proposed Berm Removal & Expanded Pond, with Permanent Overland Relief Pipes



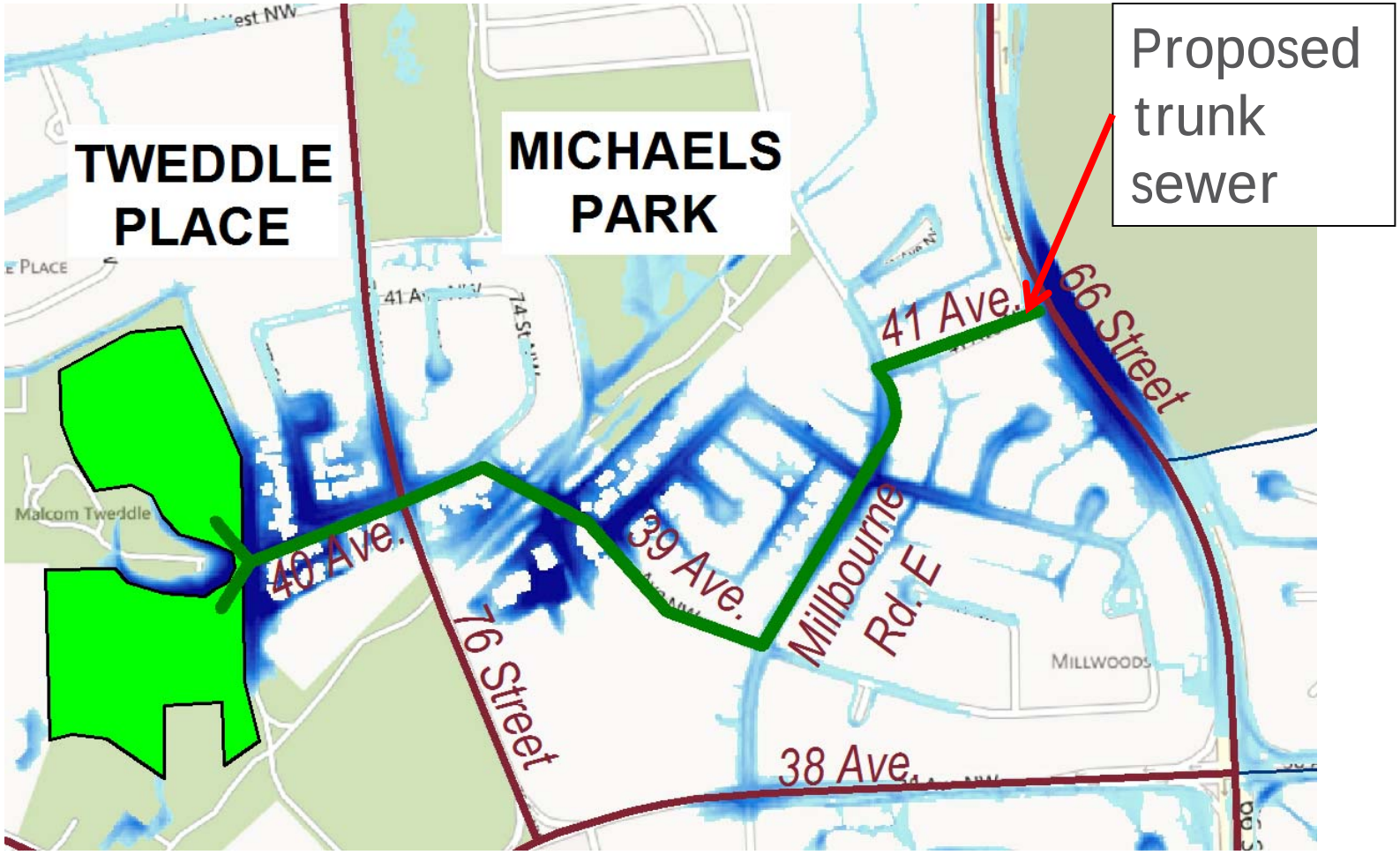
Malcolm Tweddle –Edith Rogers Pond



Existing Parks, looking North

- Reduces flooding in Michaels Park and on 66 Street
- Helps reduce flood volume reaching downstream areas in Tweddle Place and Richfield along 91 St. berm
- Existing parks would be re-designed and rehabilitated to provide dual use as sports fields & surge ponds

Relief Trunk Sewer, 66 Street to Proposed Tweddle-Rogers Pond

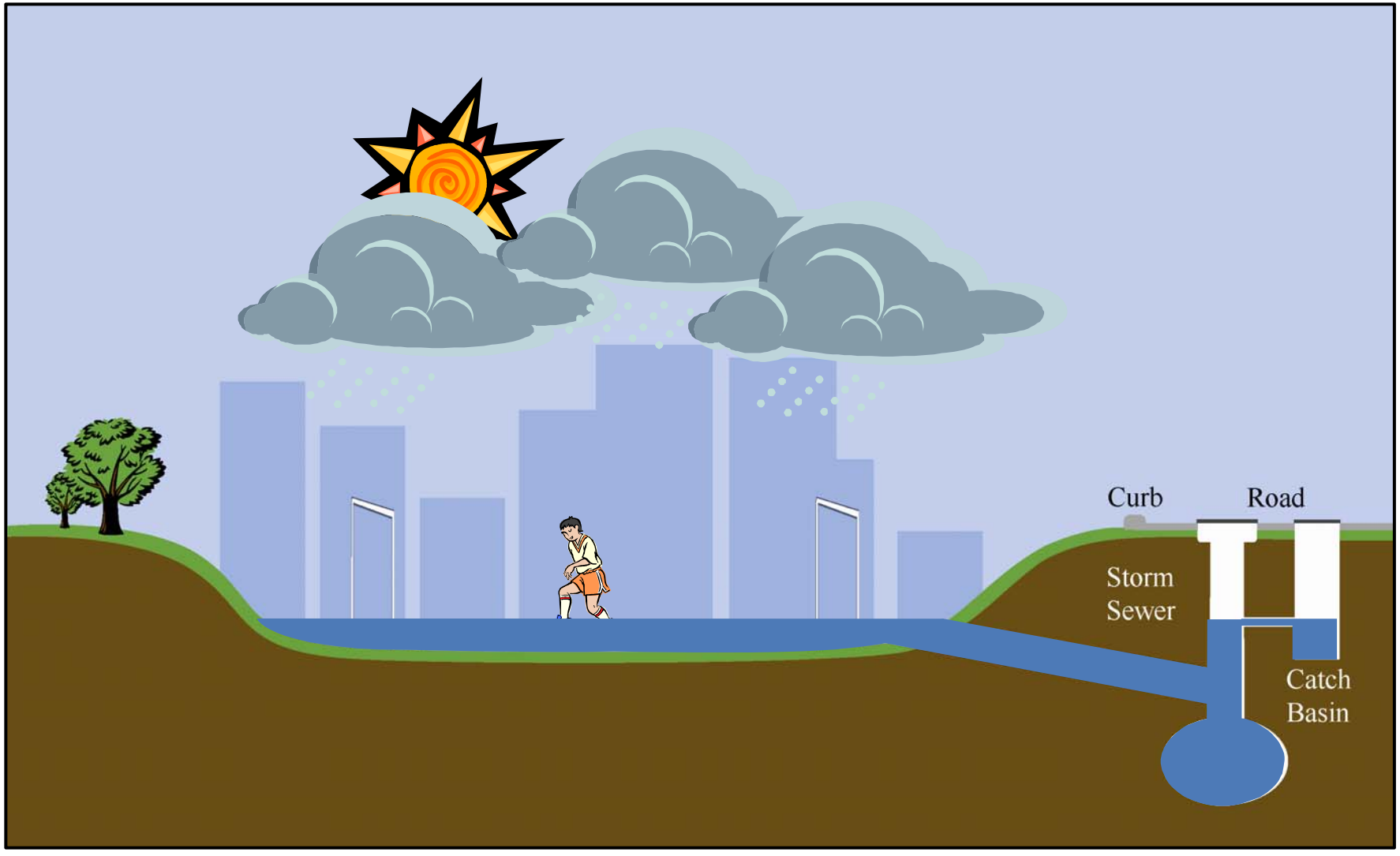


- Reduces flooding in Michaels Park and on 66 Street.
- Collects drainage along route

Other Storm Sewer Upgrades

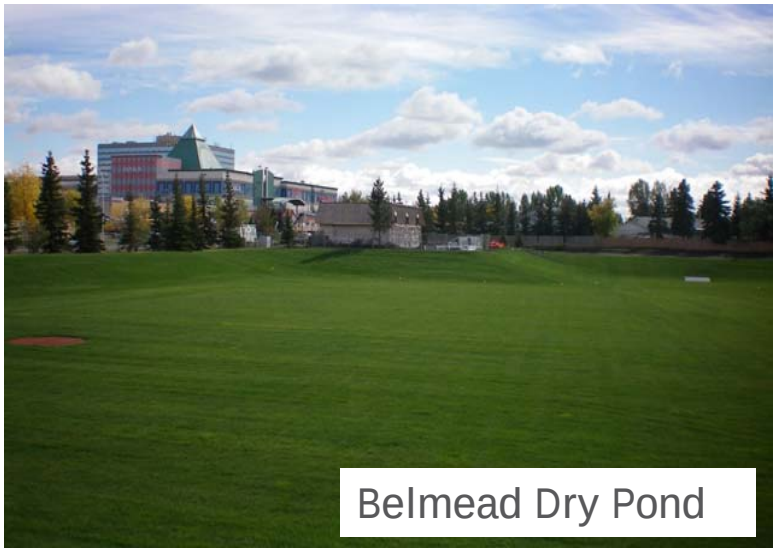
- Additional sewer upgrades could include catchbasin size increases, additional catchbains, additional sewers, or replacement of sewers.

How Dry Ponds will Work



Examples of Dry Ponds in the City


Lendrum Dry Pond


Belmead Dry Pond


Aldergrove Dry Pond

These ponds are landscaped to fit into the surrounding communities and are used for recreation when dry

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Sanitary System Upgrades

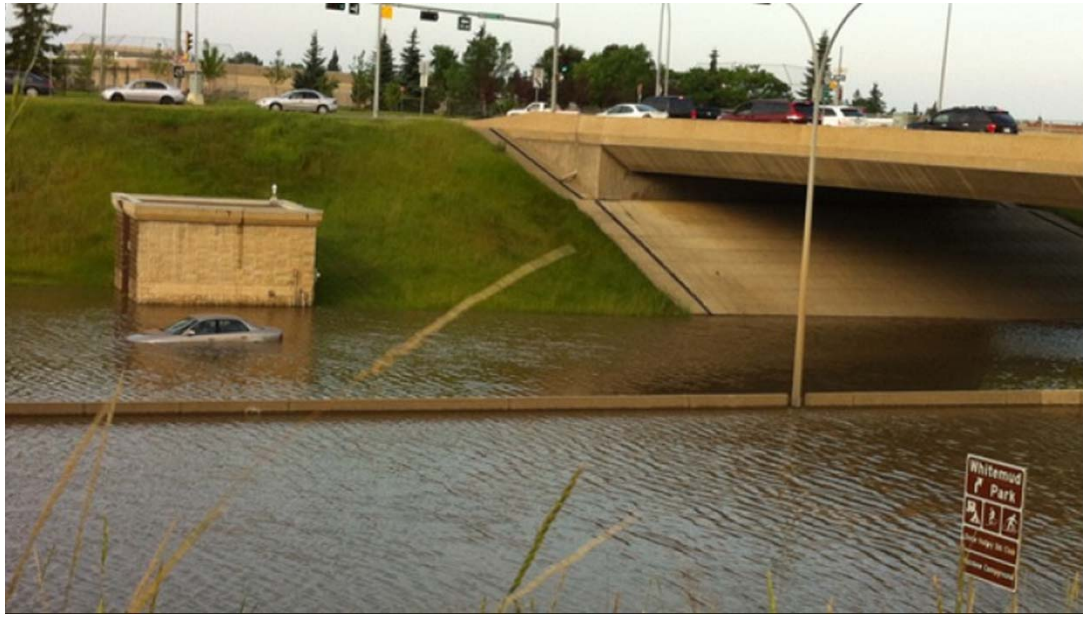
- Wet Weather Storage Pipes (Super Pipes): These pipes will store water until sewer capacity becomes available

- Sanitary Manhole Sealing: These will prevent stormwater ponding on streets from entering the sanitary sewer system

- Diversion pipes to redirect sanitary flows

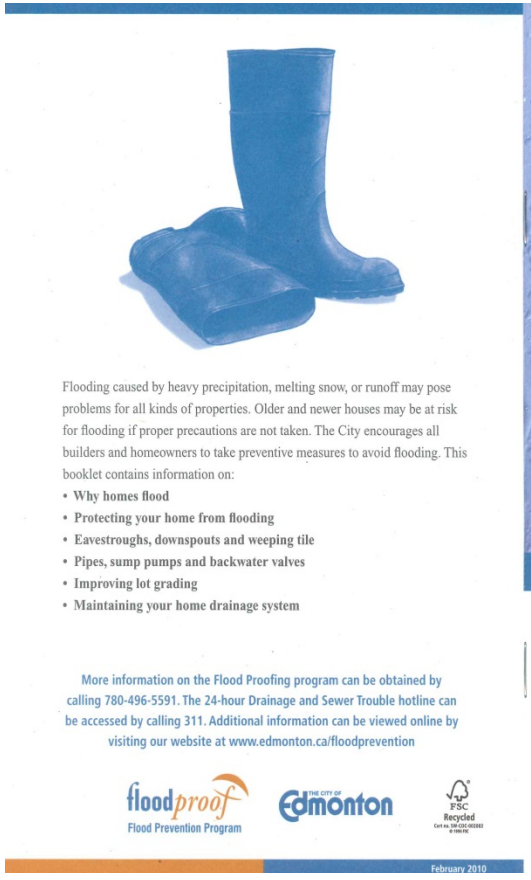
What are the benefits of these improvements?

- Less pooling of water on the surface
- Reduced risk of sanitary backups and basement flooding
- Less property damage
- Savings of time, money and inconvenience



Recommendations for Homeowners

- Install and routinely check backwater prevention valve
- Improve lot grading to get surface water away from property
- Install/maintain adequate eavestroughs
- Channel downspout water to proper place
- Check foundations for cracks and leaks
- Flood Prevention Checkup Program (for advice call: 780-944 – 7777)



Flooding caused by heavy precipitation, melting snow, or runoff may pose problems for all kinds of properties. Older and newer houses may be at risk for flooding if proper precautions are not taken. The City encourages all builders and homeowners to take preventive measures to avoid flooding. This booklet contains information on:

- Why homes flood
- Protecting your home from flooding
- Eavestroughs, downspouts and weeping tile
- Pipes, sump pumps and backwater valves
- Improving lot grading
- Maintaining your home drainage system

More information on the Flood Proofing program can be obtained by calling 780-496-5591. The 24-hour Drainage and Sewer Trouble hotline can be accessed by calling 311. Additional information can be viewed online by visiting our website at www.edmonton.ca/floodprevention

floodproof Flood Prevention Program

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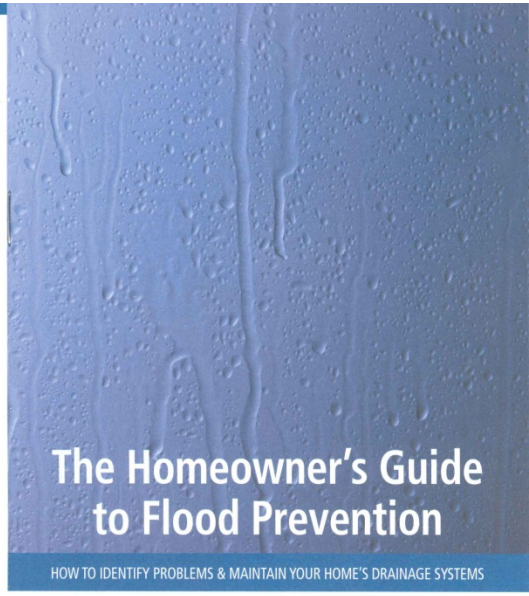
FSC Recycled

February 2010



floodproof Flood Prevention Program

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Next Steps

- Continue the engineering assessments to refine and prioritize the identified upgrades and estimate construction costs and impacts
- Consult and work with stakeholders on the use of the identified land parcels for stormwater management dry ponds
- Develop an Expanded Flood Prevention Program and present to City Council for funding approval in the Fall
- Consult/inform communities and others on design and construction progress

Discussion and Feedback

Clarifying Questions?

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Issues, comments, concerns?

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Additional information needs?