City View Drainage Study

November 2022

Land acknowledgement

We recognize that Ottawa is located on unceded territory of the Anishinabe Algonquin Nation.

We extend our respect to all First Nations, Inuit and Métis peoples for their valuable past and present contributions to this land.

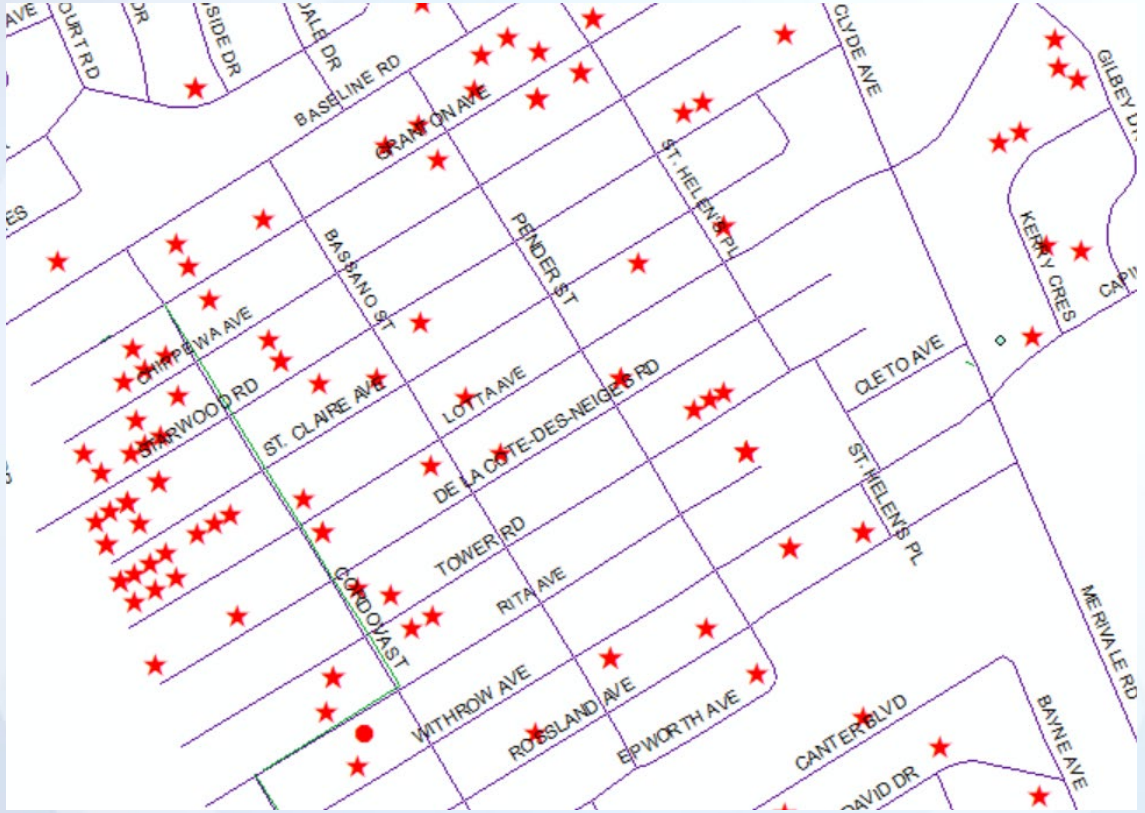
We also recognize and respect the cultural diversity that First Nations, Inuit and Métis people bring to the City of Ottawa.

Background - Neighbourhood

- City View is a residential neighbourhood constructed in the 1960s as a semi urban type development
- It has sanitary and water services, but drainage is achieved via ditches that outlet to trunk storm sewers

Background – Previous flooding

- History of flooding mostly due to sanitary sewer backup.
- The event of September 4, 2004, caused significant flooding and led to a study of the area.
- Although the major source of flooding in 2004 was due to sanitary sewer backup, the resulting study did identify drainage issues needing remediation.



Background – Drainage issues

- Ditch infills (Nepean permits and illegal)
- Sedimentation of ditches (lack of cleaning)
- Lack of proper outlet for sump pumps

Background – 2006 Delcan Study

Focus was on a Trunk Sanitary sewer solution.

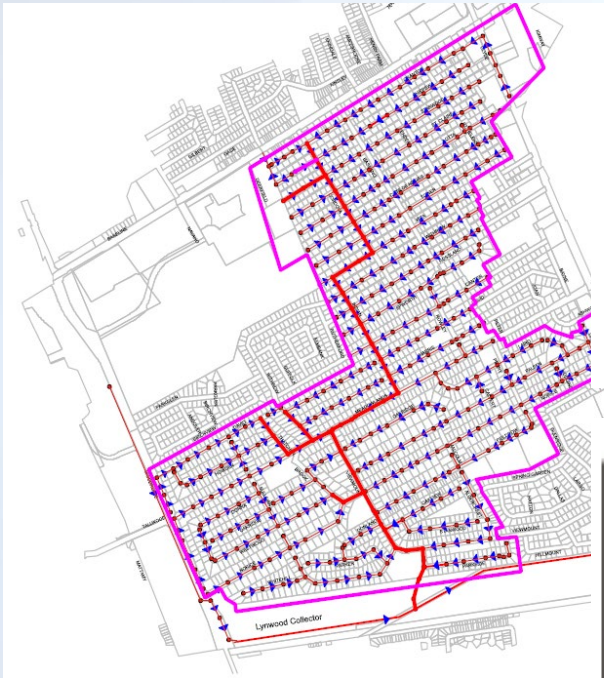
The 2006 Delcan study proposed a combination of ditches and shallow storm sewers throughout the neighbourhood via a local improvement initiative.

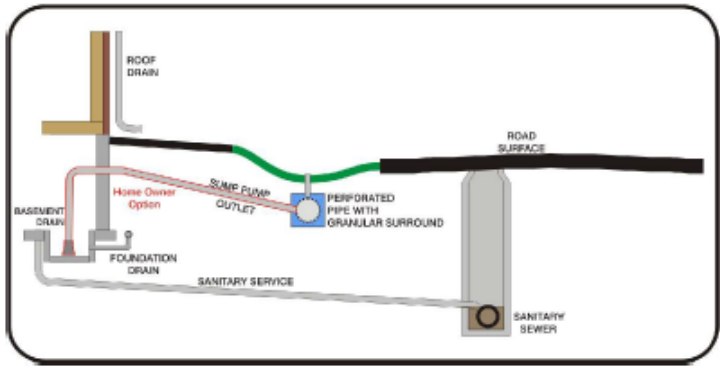
Provided best sump pump outlet solution.

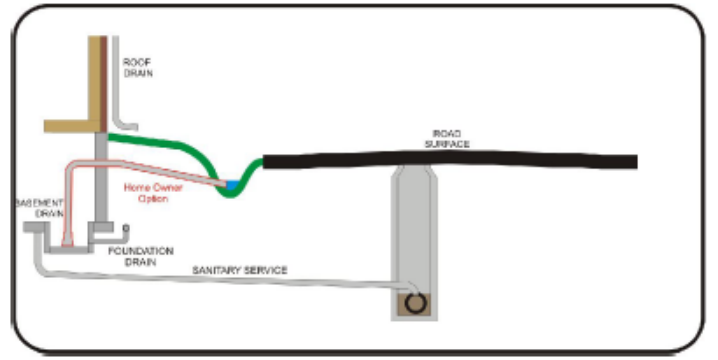
The community rejected this proposal due to cost.

Instead, a combination of spot repairs and ditch rehabilitation was recommended.

Since then, some localized improvements were done, but no overall approach to cleaning and re-opening all of the ditches was ever undertaken.







Intensification pressures

- The Neighbourhood has seen much intensification in the past few years.
- Larger homes are being built as are multiple units on a former single lot.
- New homes are exacerbating the existing situation due to the lack of an adequate drainage system.
  - Intensification creates further ditch infill due to additional driveways.
  - Intensification increases runoff due to greater imperviousness.

Purpose of 2021-2022 Drainage Study

- Document existing drainage conditions (taking an area-wide approach)
- Identify problem areas. This involved reviewing background information, compiling existing Geographical Information System (GIS) data, and documenting existing conditions in the field.
    - Findings were circulated to the community through the City View Community Association to obtain feedback regarding drainage conditions.
- Propose remedial measures to address the identified drainage concerns that fit within the unique constraints of the area, create conceptual level drawings, and establish a phasing plan along with a construction cost estimate.

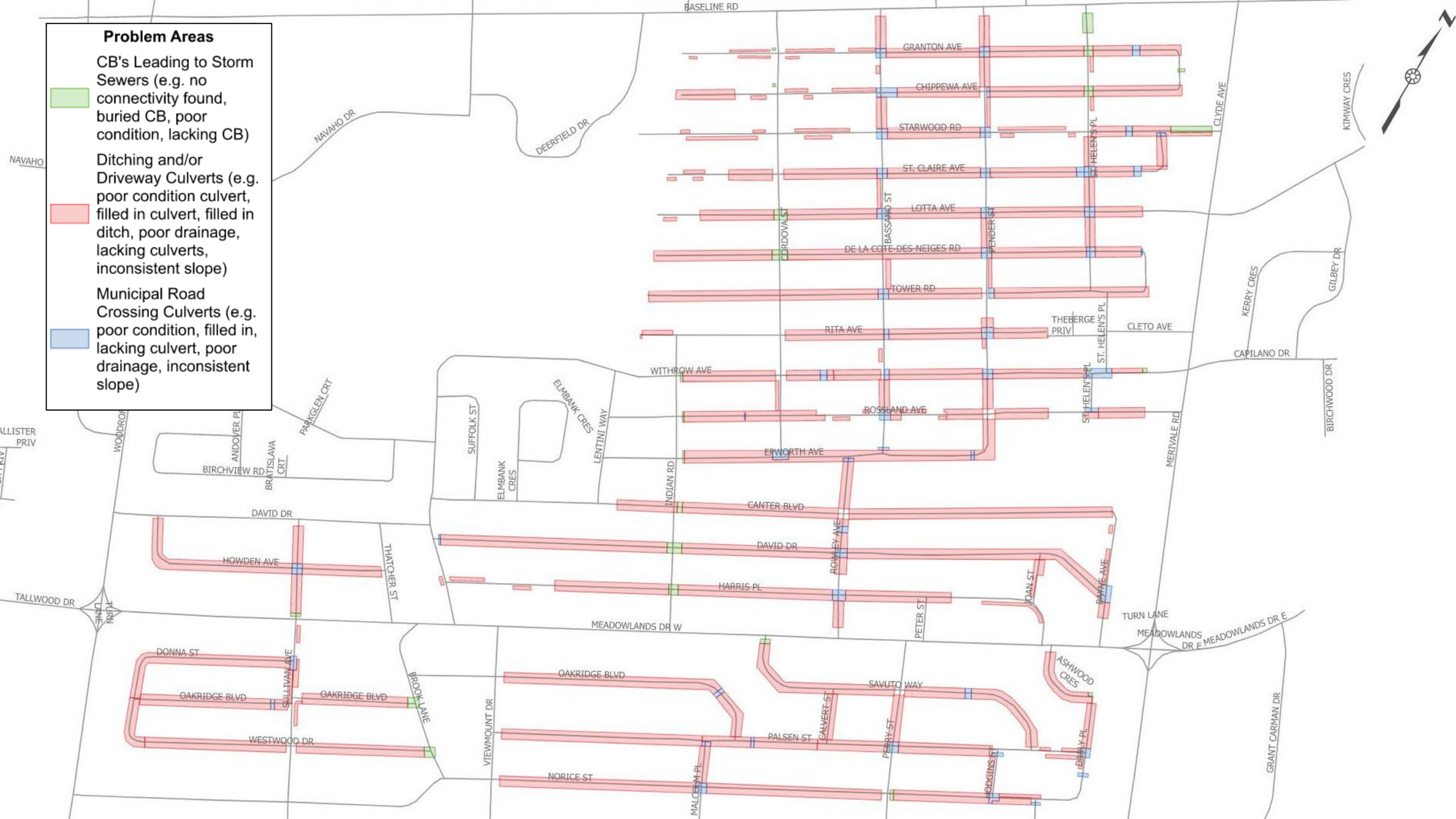
Existing conditions

Issues found

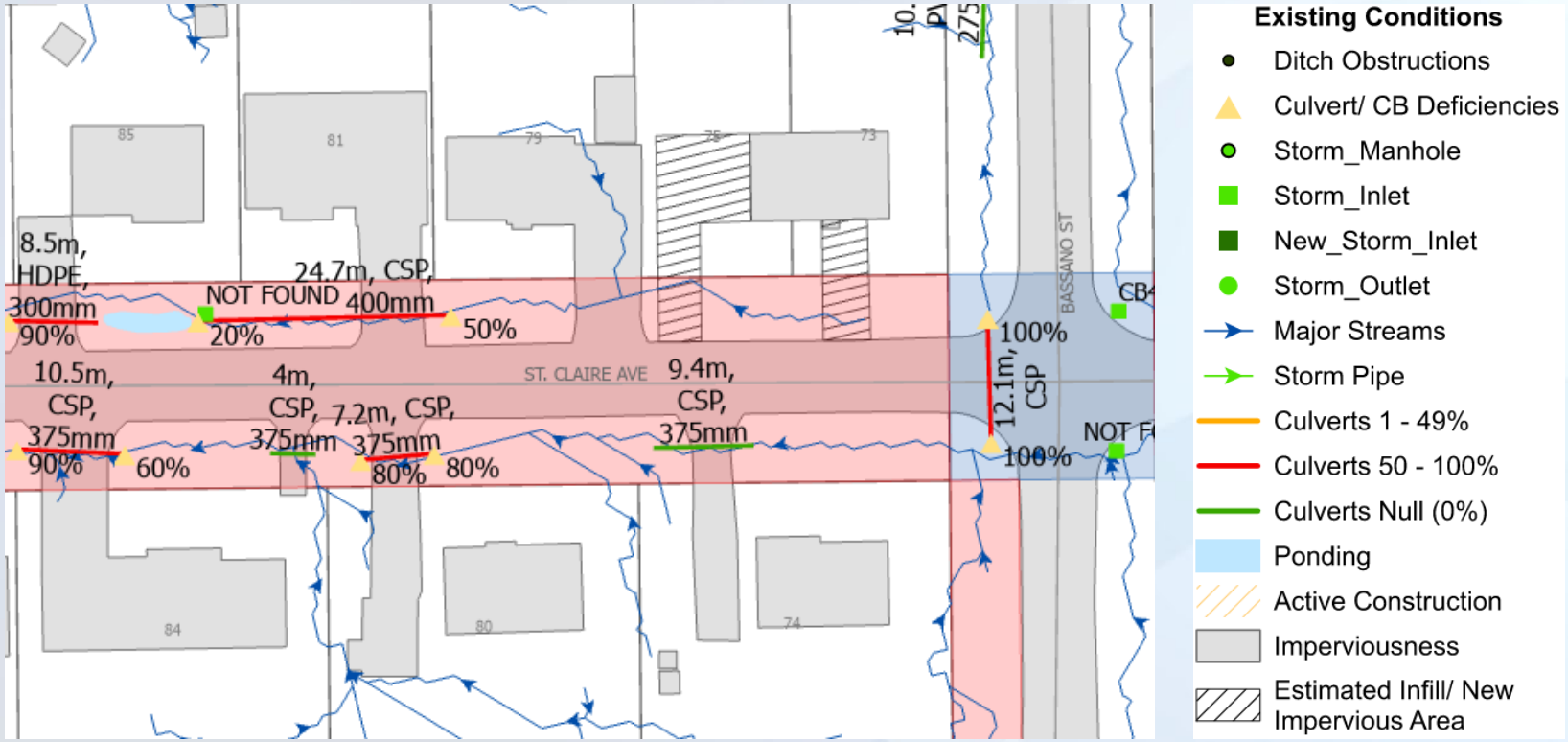
- Lack of consistency and connectivity
- Informal Ditch piping systems
- Filled in ditches, blocked or buried culverts
- Various culvert sizes and extensions
- Poor condition road crossing culverts
- Lack of adequate outlets
- Widespread ponding

Existing conditions

Existing conditions

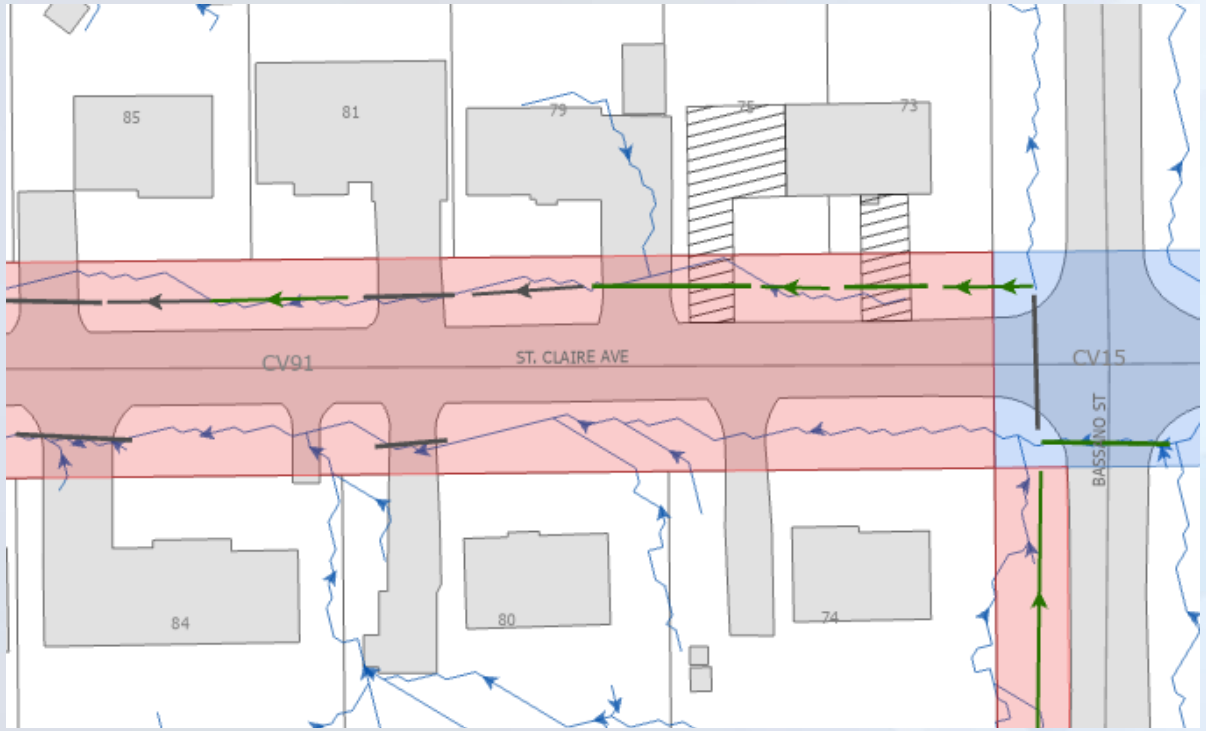

Problem Areas
CB's Leading to Storm Sewers (e.g. no connectivity found, buried CB, poor condition, lacking CB)
Ditching and/or Driveway Culverts (e.g. poor condition culvert, filled in culvert, filled in ditch, poor drainage, lacking culverts, inconsistent slope)
Municipal Road Crossing Culverts (e.g. poor condition, filled in, lacking culvert, poor drainage, inconsistent slope)
BASELINE RD
GRANTON AVE
CHIPPEWA AVE
STARWOOD RD
ST. CLAIRE AVE
LOTTA AVE
DE LA COTE-DES-NEIGES RD
TOWER RD
RITA AVE
WITHROW AVE
ROSSLAND AVE
EPWORTH AVE
CANTER BLVD
DAVID DR
HARRIS PL
MEADOWLANDS DR W
MEADOWLANDS DR E
TURN LANE
TALLWOOD DR
HOWDEN AVE
OAKRIDGE BLVD
WESTWOOD DR
DONNA ST
PALSEN ST
NORICE ST
SAVUTO WAY
ASHWOOD CRES
THEBERGE PRIV
CLETO AVE
CAPILANO DR
NAVAHO DR
DEERFIELD DR
NAVAHO
KIMWAY CRES
CLYDE AVE
KERRY CRES
GILBEY DR
BIRCHWOOD DR
MERIVALE RD
GRANT CARMAN DR
BIRCHVIEW RD
BRATISLAVA CRT
ANDOVER PL
PARKGLEN CRT
SUFFOLK ST
ELMBANK CRES
LENTINI WAY
INDIAN RD
ROWLEY AVE
THATCHER ST
SULLIVAN AVE
BROOK LANE
VIEWMOUNT DR
CORDOVA ST
BASSANO ST
BENDER ST
ST HELEN'S PL
PETER ST
JOAN ST
RAINE AVE
CALVERT ST
PERRY ST
HODGINS ST
DAILY PL
MALCOLM PL

Existing conditions



Existing conditions

Proposed remediations



Proposed Improvements

- Install New Ditch Inlet Catch Basin
- Repair Existing Culvert (e.g. replace, re-lay, shorten, unblock)
- Existing Ditch Cleanout (e.g. connect repaired culverts, adjust slopes or ditch geometry, remove blockages)
- Install New Culvert (e.g. lacking existing culvert)
- Install New Ditch (e.g. replace ditch pipe system, change ditch direction, connect proposed culverts)

Proposed improvements

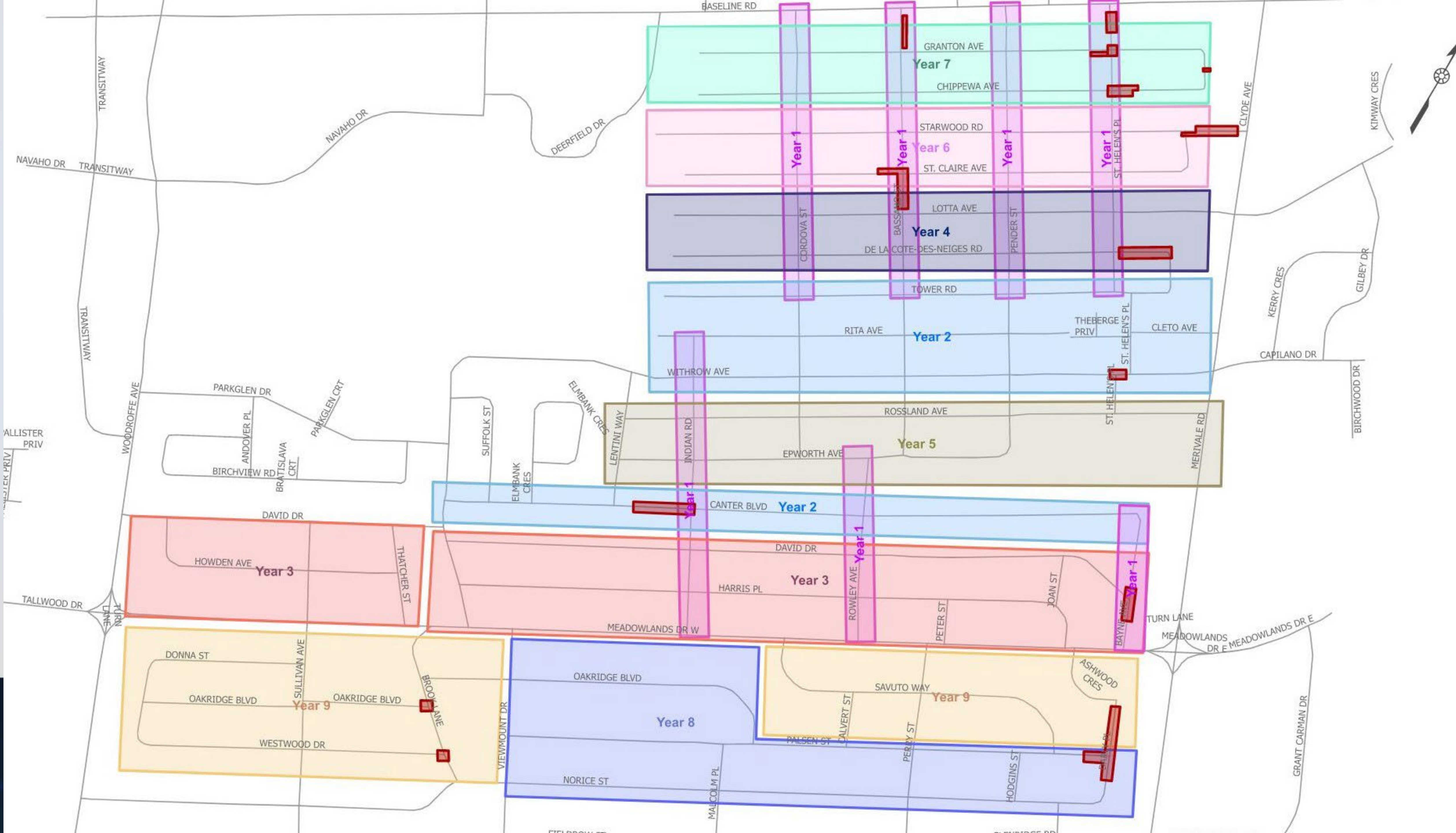
Proposed remediation

Phasing

- Recommended **9-year** phased approach (pending budget, capacity, scheduling, etc.)
- Year 1 would start with ‘quick fixes’ to remove bottle necks in the systems.
    - Blocked culverts
    - Gap in ditch continuity
    - Outlets (connections to storm sewers).

Budget

- Estimated average construction cost of **$860K** (2022 dollars) per year



Year 7
Year 6
Year 4
Year 2
Year 5
Year 2
Year 3
Year 3
Year 9
Year 8
Year 9
Year 1
BASELINE RD
GRANTON AVE
CHIPPEWA AVE
STARWOOD RD
ST. CLAIRE AVE
LOTTA AVE
DE LA COTE-DES-NEIGES RD
TOWER RD
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NAVAHO DR
TRANSITWAY
DEERFIELD DR
PARKGLEN DR
BIRCHVIEW RD
MERIVALE RD
CLYDE AVE
CAPILANO DR
MEADOWLANDS DR E

Ditch design recommendations

Design considerations:

- Capacity,
- Maintenance,
- Subgrade drainage,
- Width constraints,
- Vehicle and pedestrian safety,
- Flow speeds/erosion.

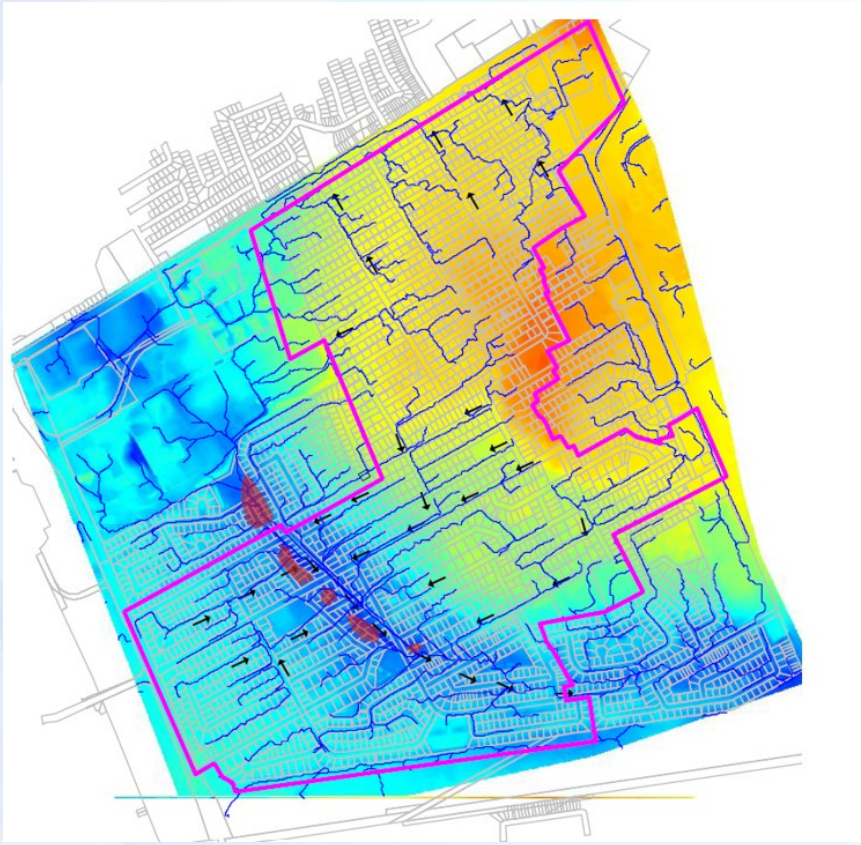
Ditch design recommendations

Key recommendations:

- Side slopes 3H:1V (2H:1V maximum)
- Minimum depth 1m from top of road asphalt, 0.8m from top of driveway asphalt.
- Ditches deeper than 2m recommended to trigger an internal City review.
- Ditches deeper than 3m recommended for guide rail assessment (this is uncommon in semi urban ditch systems).

Why storm sewers won’t work today

- Restricted outlet in Pinecrest Creek
- Lack of Storm Water Management
- Cost: Local improvement approach was rejected in 2006



Thank You

- **Questions?**