Green Streets Demonstration Project

Lessons Learned So Far

Engineering & Construction Services

Building a Better Toronto Together

Agenda

- Green Streets Project Background
- Site Selection
- Procurement
- Byng Avenue Project
- Thorncrest Village Project
- Public Involvement
- Lessons Learned
- Next Steps

Project Background

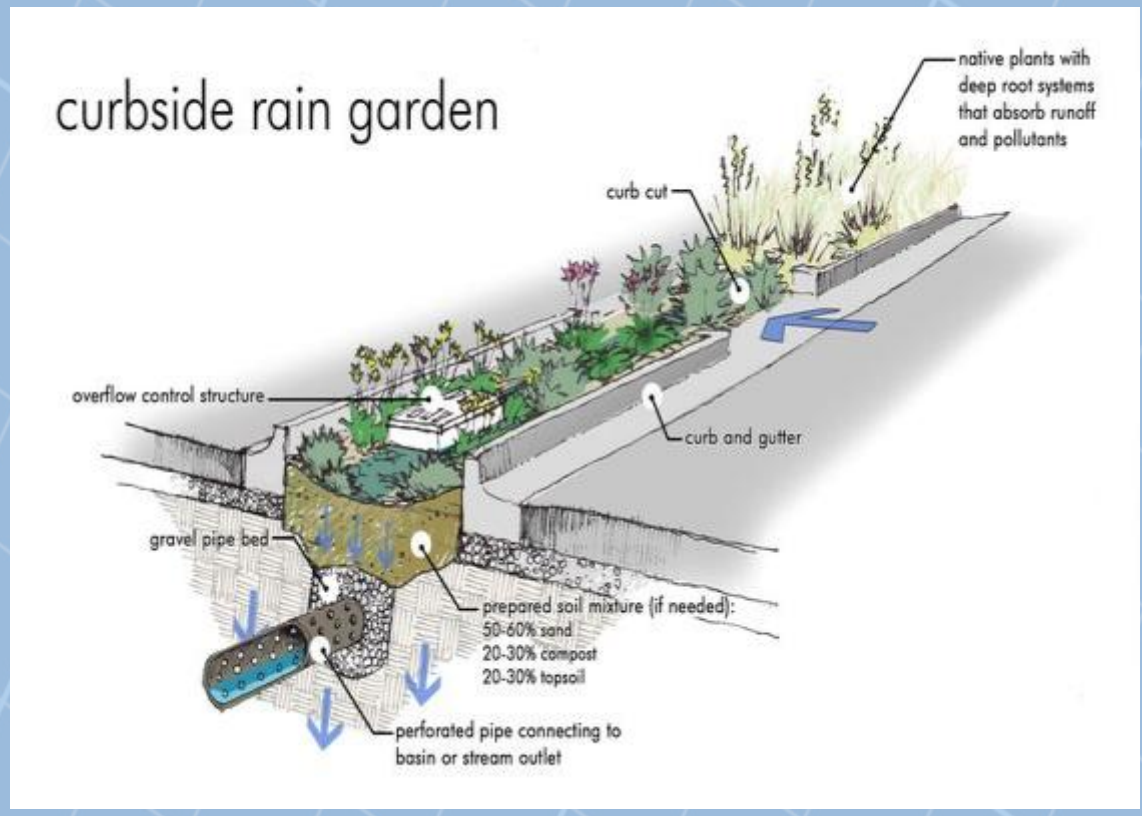
- Wet Weather Flow Master Plan
- Council Resolution
- Green Street Technical Guidelines
- General Managers and Executive Directors direction
- Divisional Partnership – TS, TW, ECS
- Goal: LID incorporated into all road recon projects

Demonstration Projects Site Selection

- Include LID in road reconstruction projects
- Required adequate soils for LID
- Preferably areas with existing ditches
- Interested in multiple locations
- Two sites in Etobicoke
  - Byng Avenue
  - Thorncrest Village

Engineering Services RFP

- Pre-construction monitoring
- Preliminary and detailed design
- Public consultation
- Construction services
- Post-construction services
- Post-construction monitoring
- Awarded May 2018



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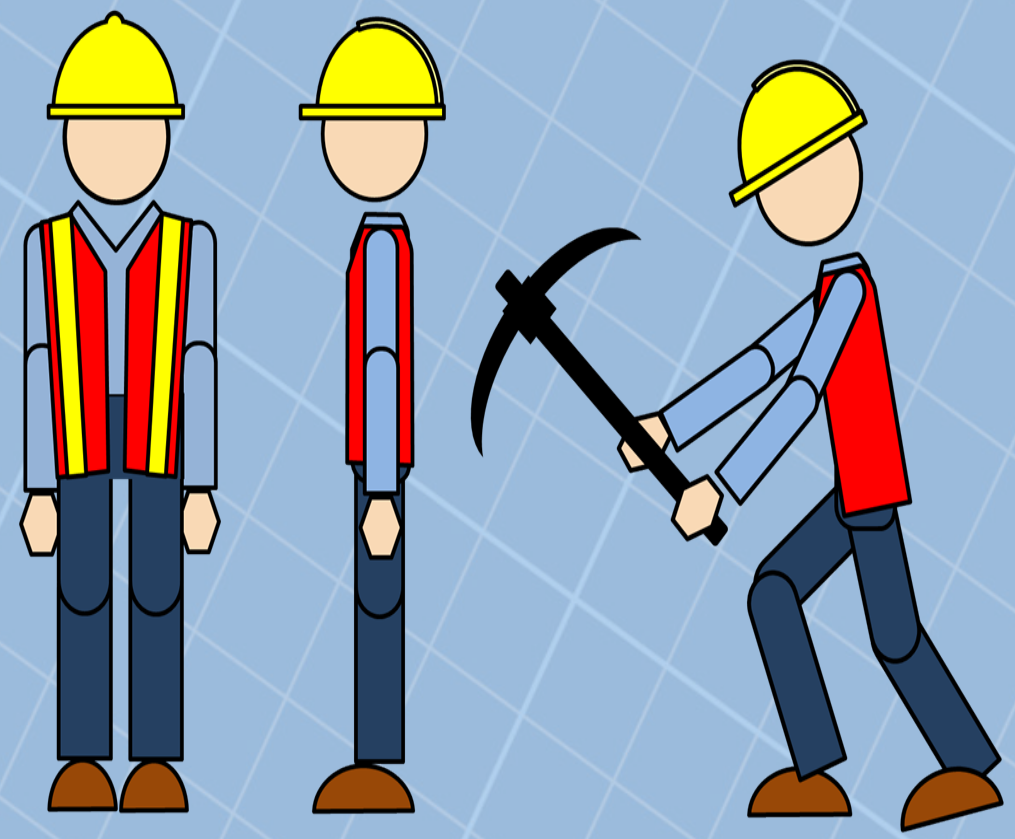
LID Contractor Prequalification

- Pre-qualify LID contractors (sub/general)
- Qualifications;
  - Record of successful LID projects; or,
  - Completed STEP LID Training; or,
  - Similar LID Training.
- Three contractors prequalified August 8th, 2018



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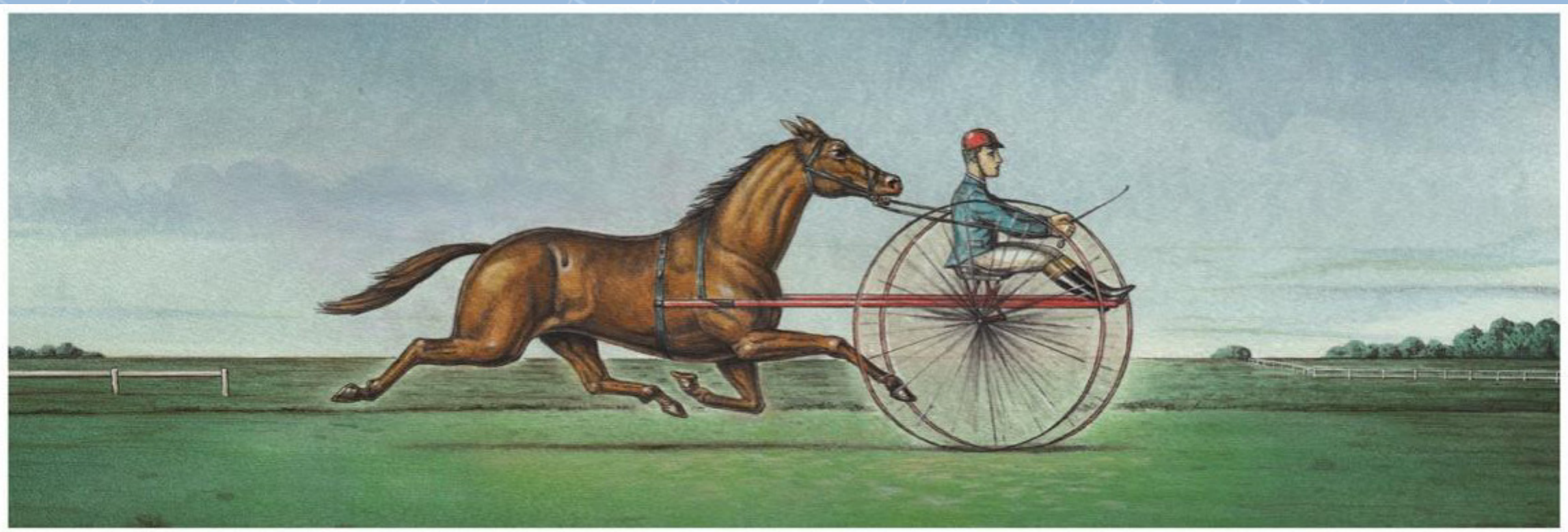
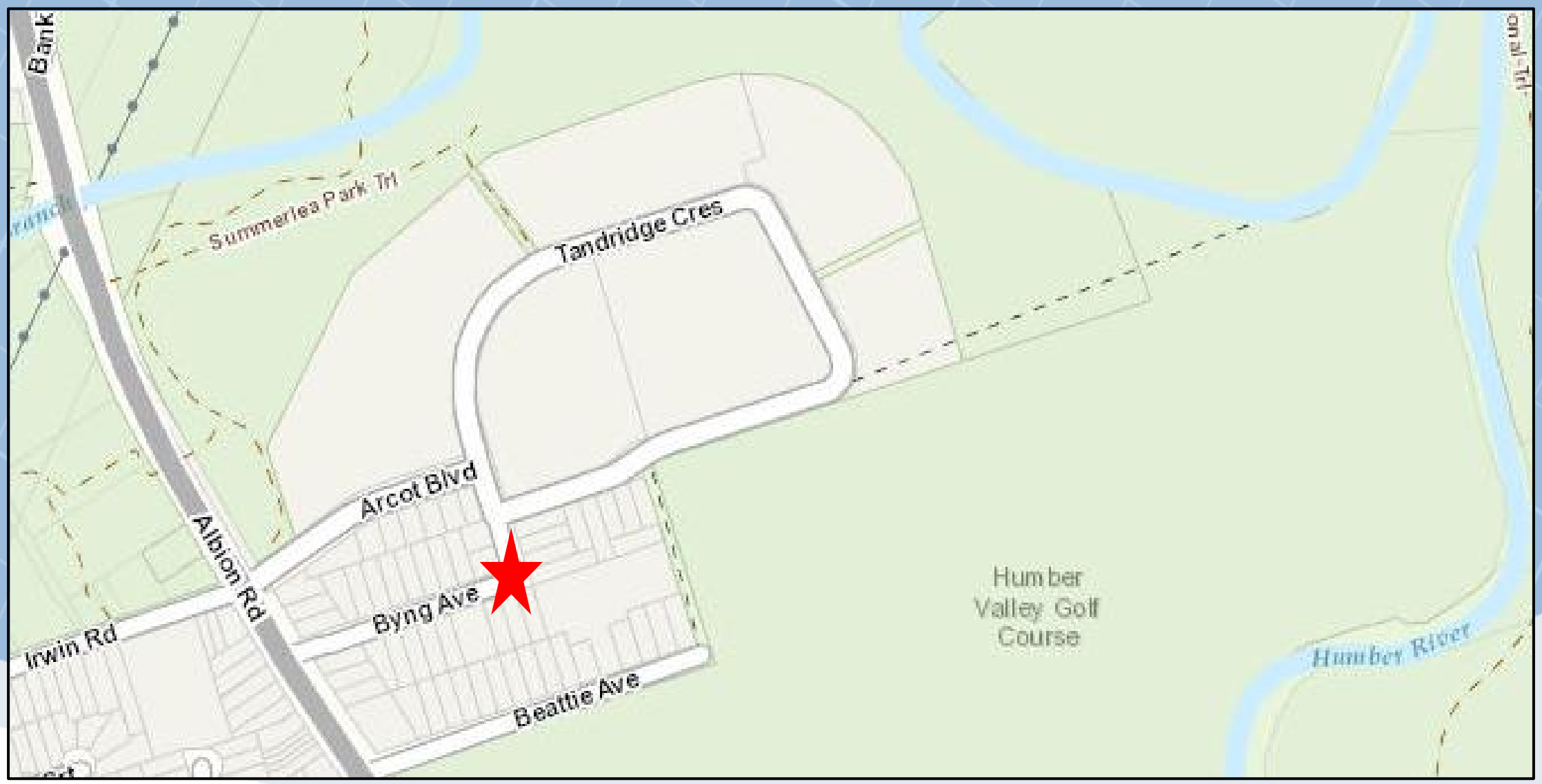
Schedule

- Byng Avenue tender awarded April 2018
- Engineering Services Contract – May 2018
- Contractor pre-qualification – August 2018
- LID Construction planned for September, actual October 2018
- Compressed Design Time, Provisional Amount in Tender
- Thorncrest Village – planned for summer 2019

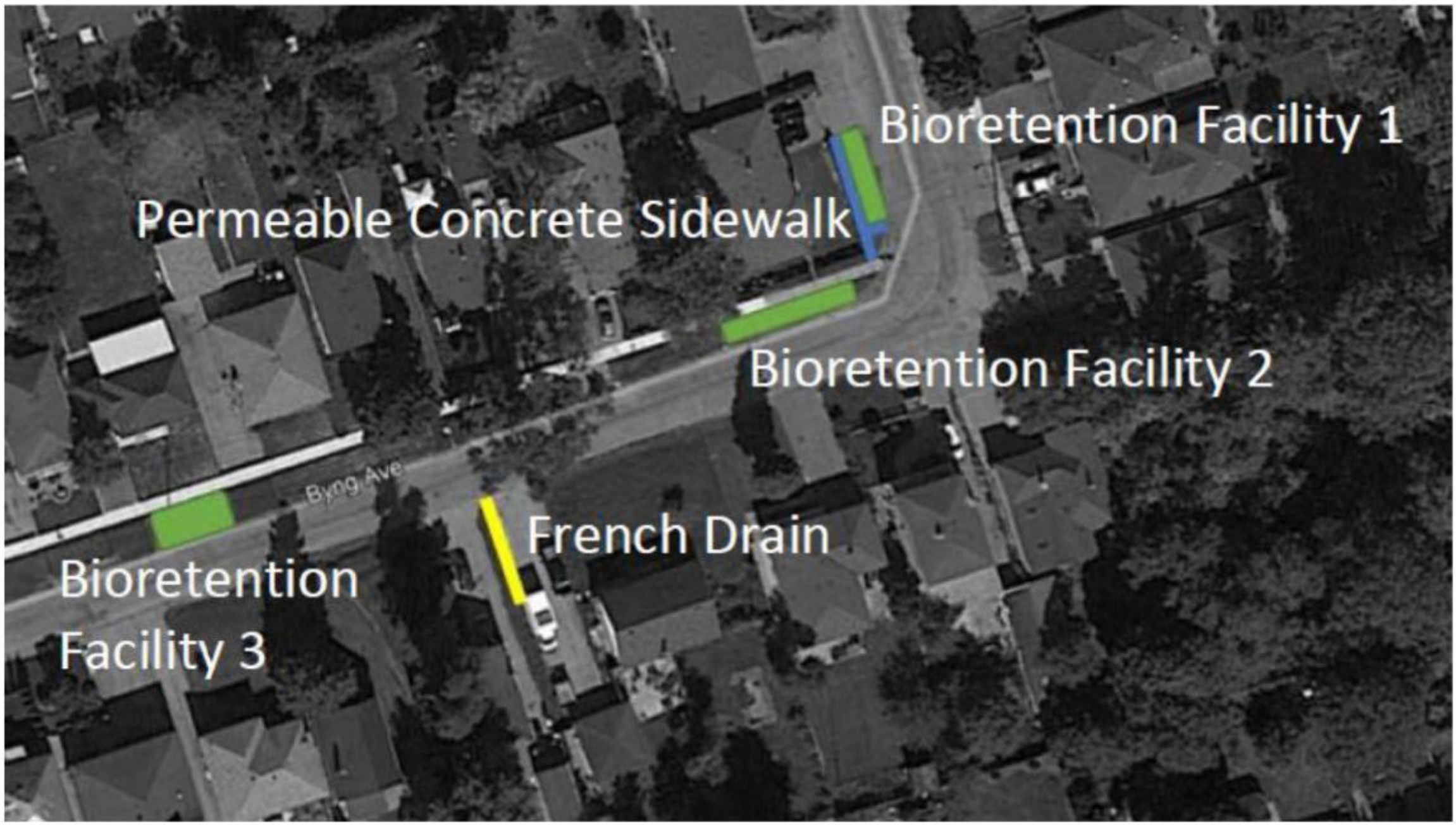


Byng Avenue Site

- Scheduled for **Reconstruction**: complete removal and replacement of existing road pavement/structure



Byng Design



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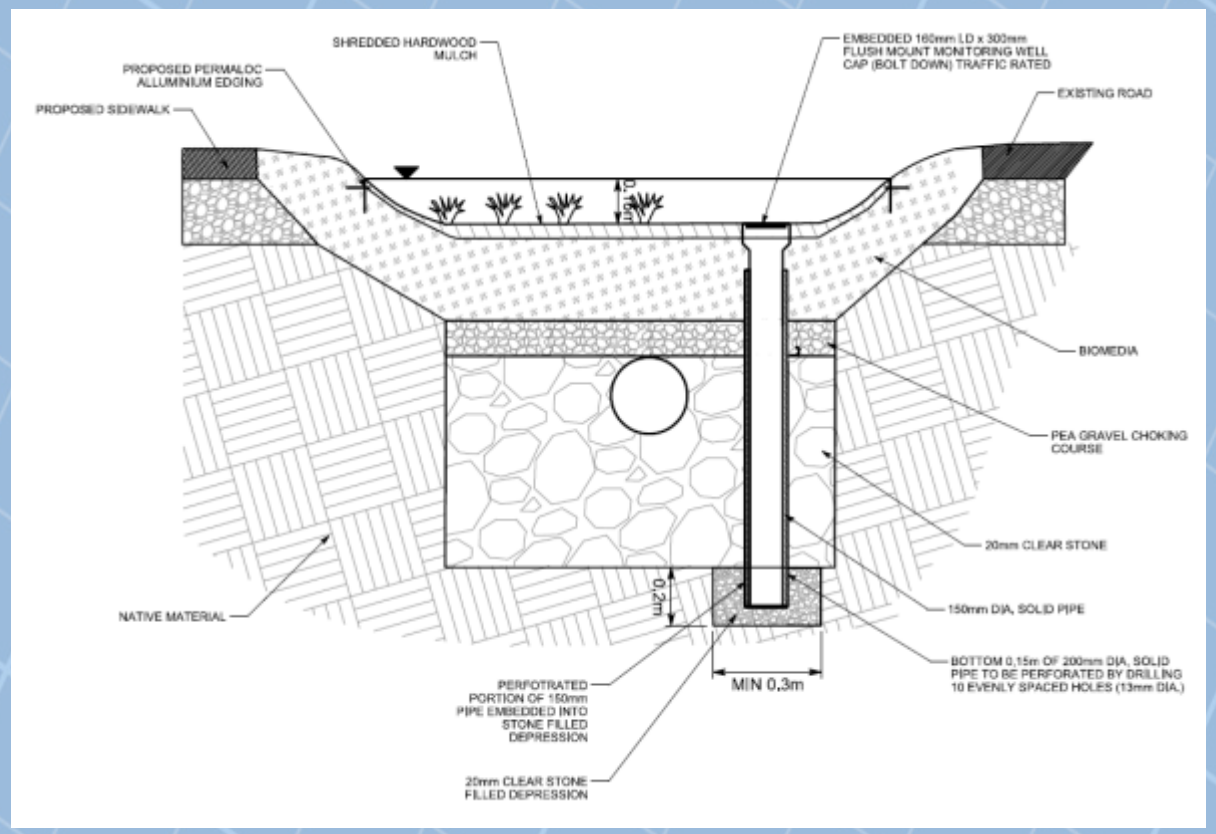
Byng Bioretention Cells



- Infiltration rates 13.7 to 46.3 mm/hr
- Underdrains
- 100% of 5 mm event
- 42-100% of 25 mm event
- Surface Treatments
- Monitoring
- Existing catchbasins

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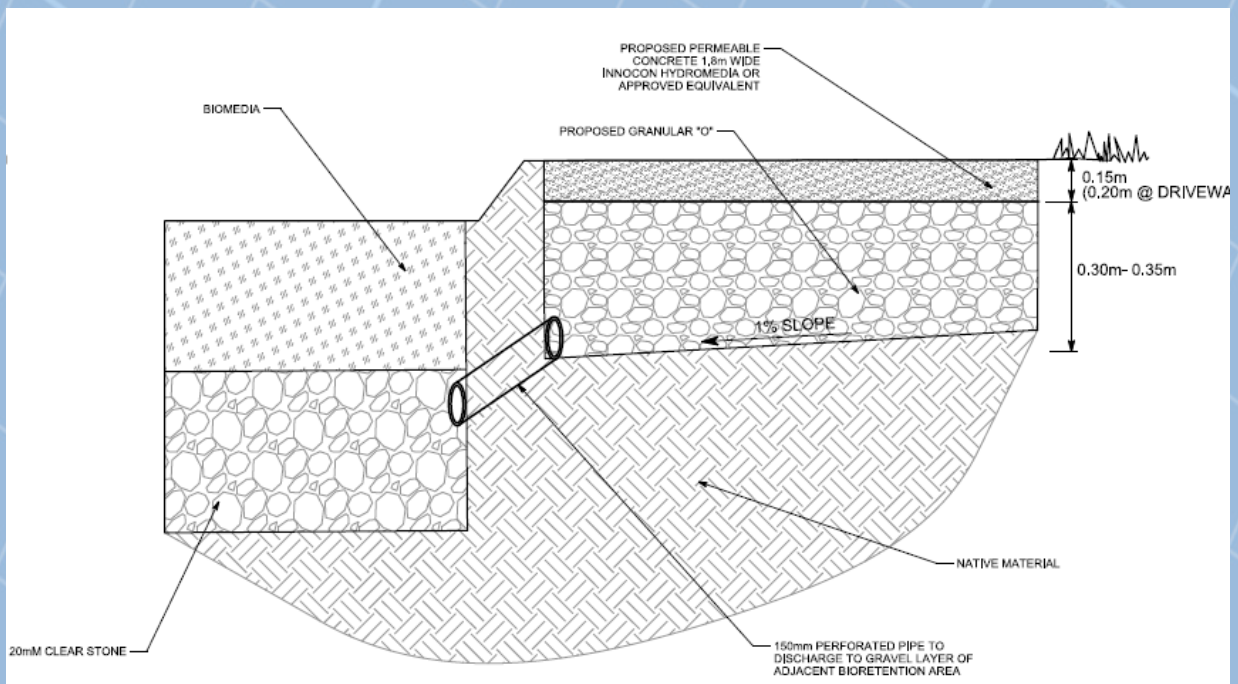
Byng Permeable Sidewalk and French Drain



PERMEABLE CONCRETE GENERAL NOTES

1. THE CONCRETE MUST BE DELIVERED BY A TRUCK MIXER AND MUST BE RAPIDLY PLACED DUE TO THE LOW WATER CONTENT. THIS DECREASES THE CONCRETE SETTING TIME.
2. AFTER POURING THE CONCRETE, SPREAD
3. LEVEL AND SCREED THE SURFACE TO THE DESIRED HEIGHT USING A BOARD OR A VIBRATORY SCREED.
4. CONCRETE SURFACE SHALL BE COVERED WITH PLASTIC TARPAULIN TO KEEP THE CONCRETE FROM DRYING TOO QUICKLY. CONCRETE LAYER SHOULD BE COVERED 15 MINUTES AFTER BEING EXPOSED AT THE LATEST.
5. INSTALL JOINTS, TO CONTROL AND PREVENT RANDOM CRACKING AT THE SURFACE DUE TO DRYING SHRINKAGE. THE APPROPRIATE JOINT SPACING IS RELATED TO THE THICKNESS OF THE CONCRETE LAYER. JOINTS MUST BE SET 6 TO 48 HOURS AFTER THE CONCRETE IS POURED. THE DEPTH OF THE JOINTS MUST BE AT LEAST ONE THIRD THE THICKNESS OF THE PERVIOUS LAYERS BUT NOT LESS THAN 5 MM.
6. CURING IS NECESSARY TO AVOID WATER EVAPORATION. GIVEN THE POROSITY OF THE MATERIAL, THE USE OF A CURING COMPOUND IS NOT RECOMMENDED. COVER THE SURFACE INSTEAD WITH A POLYETHYLENE FILM FOR 7 TO 10 DAYS.

- Permeable Concrete:
  - 100% of 25 mm event
  - Underdrain
  - Temperature Challenges
  - Neighbourhood Challenges
- French Drain
  - Solves existing erosion
  - Ecoraster surface

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Byng Avenue Photos - 1

Byng Avenue Photos - 2

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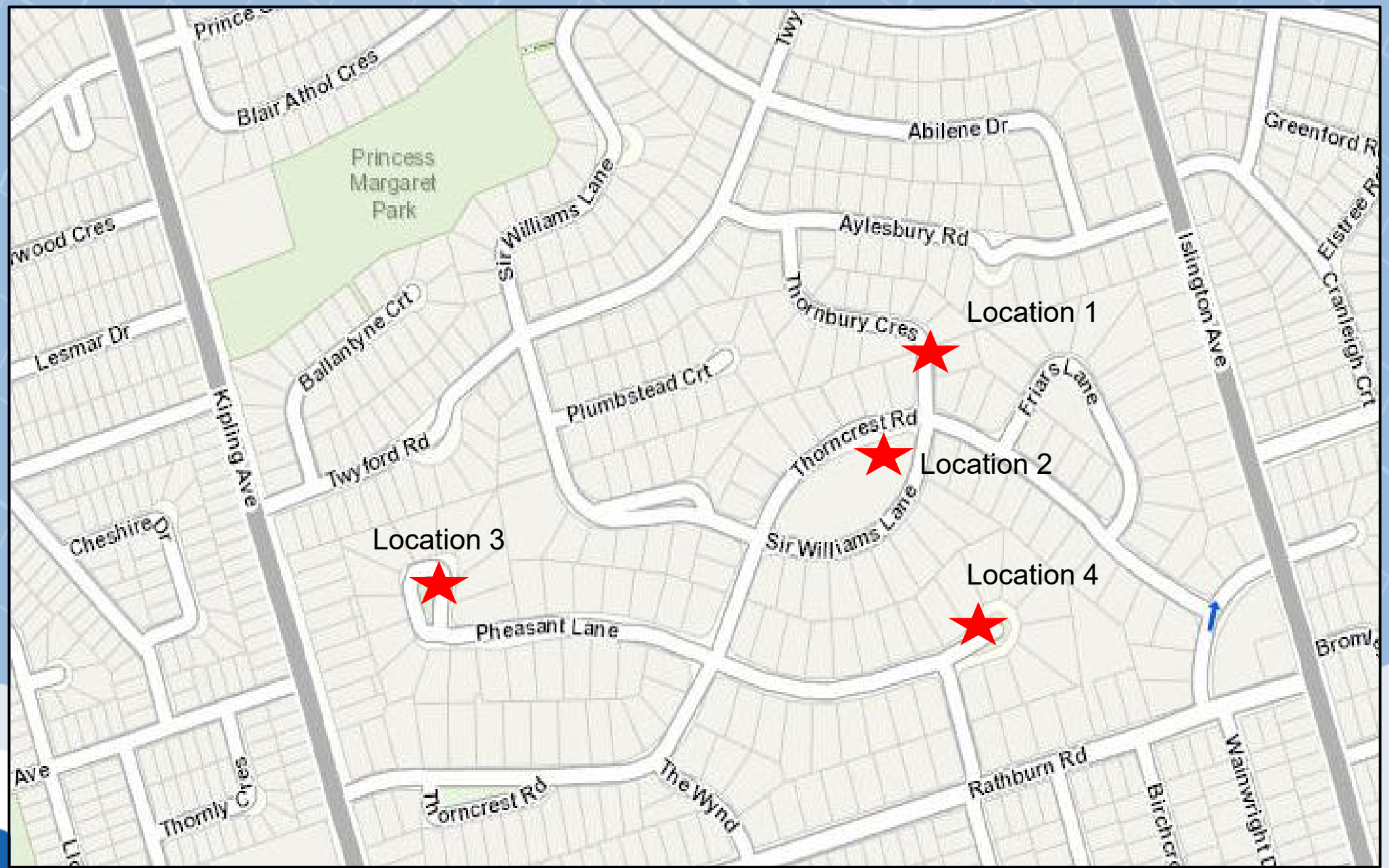
Thorncrest Village

- Scheduled for **Cold-in-Place Recycling (CIR)**: reusing existing asphalt pavement



Thorncrest Village – Location 1

Thornbury Crescent

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Thorncrest Village – Location 2

Thorncrest Road

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Thorncrest Village – Location 3&4

Pheasant lane

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Thorncrest Village – Challenges

- Coordination between city projects
  - –Basement Flooding
  - –Local Roads
  - –Green Streets Demonstration Project

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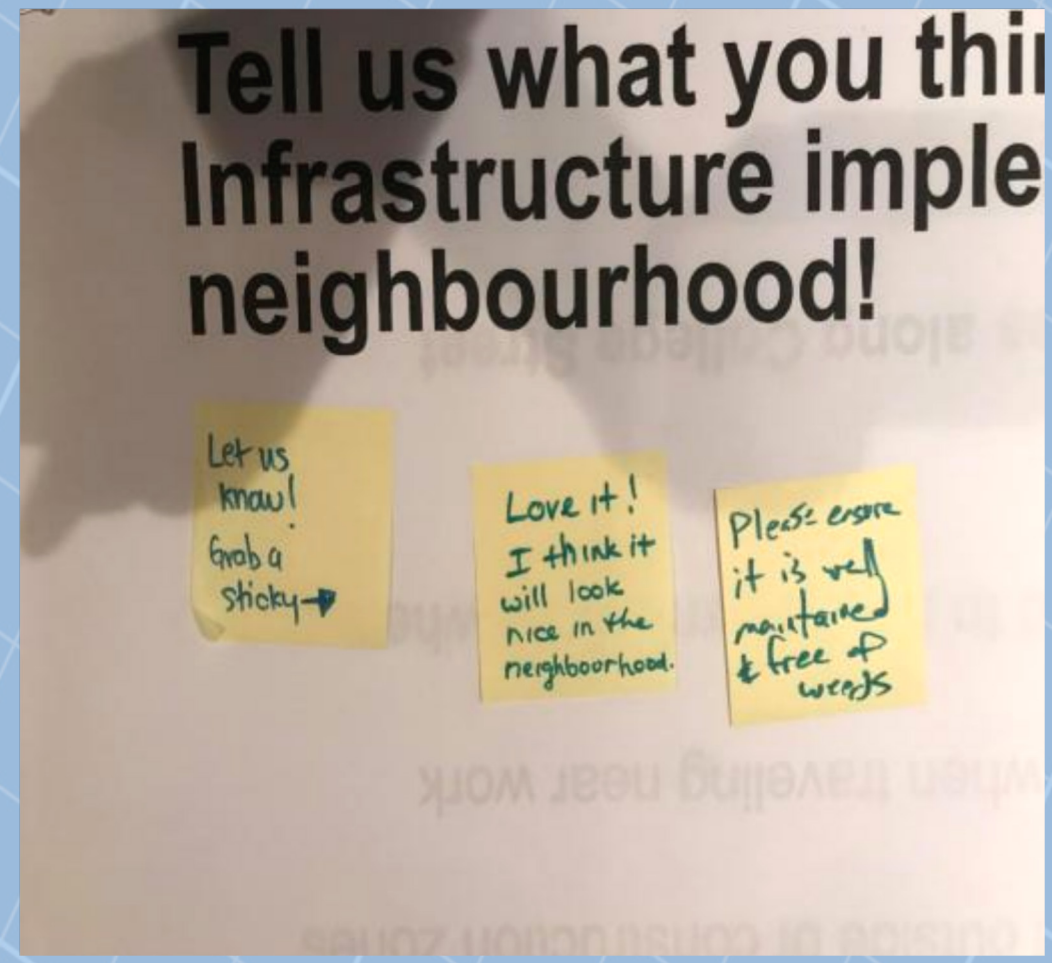
Public Involvement

- Extensive public involvement
- Green Streets initiative new to residents
- Thornbury Concerns
- Byng Concerns



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Lessons Learned So Far

- Give your project time
- Develop a process
- Be adaptable
- Revise expectations
- Coordinate with other projects
- Engage the public

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Next Steps

- Planning for 2020
- Selecting ideal sites
- Building capacity at the City
- Development projects

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Questions?