“Every Downspout Counts”

Downspout Disconnection Program

Asset Management
& Waterworks

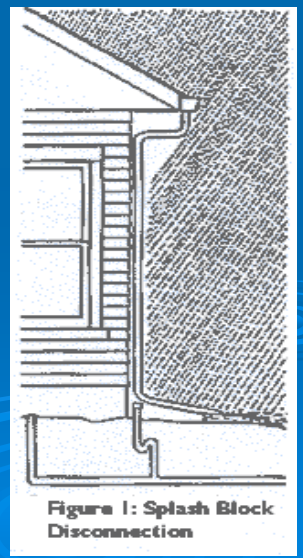
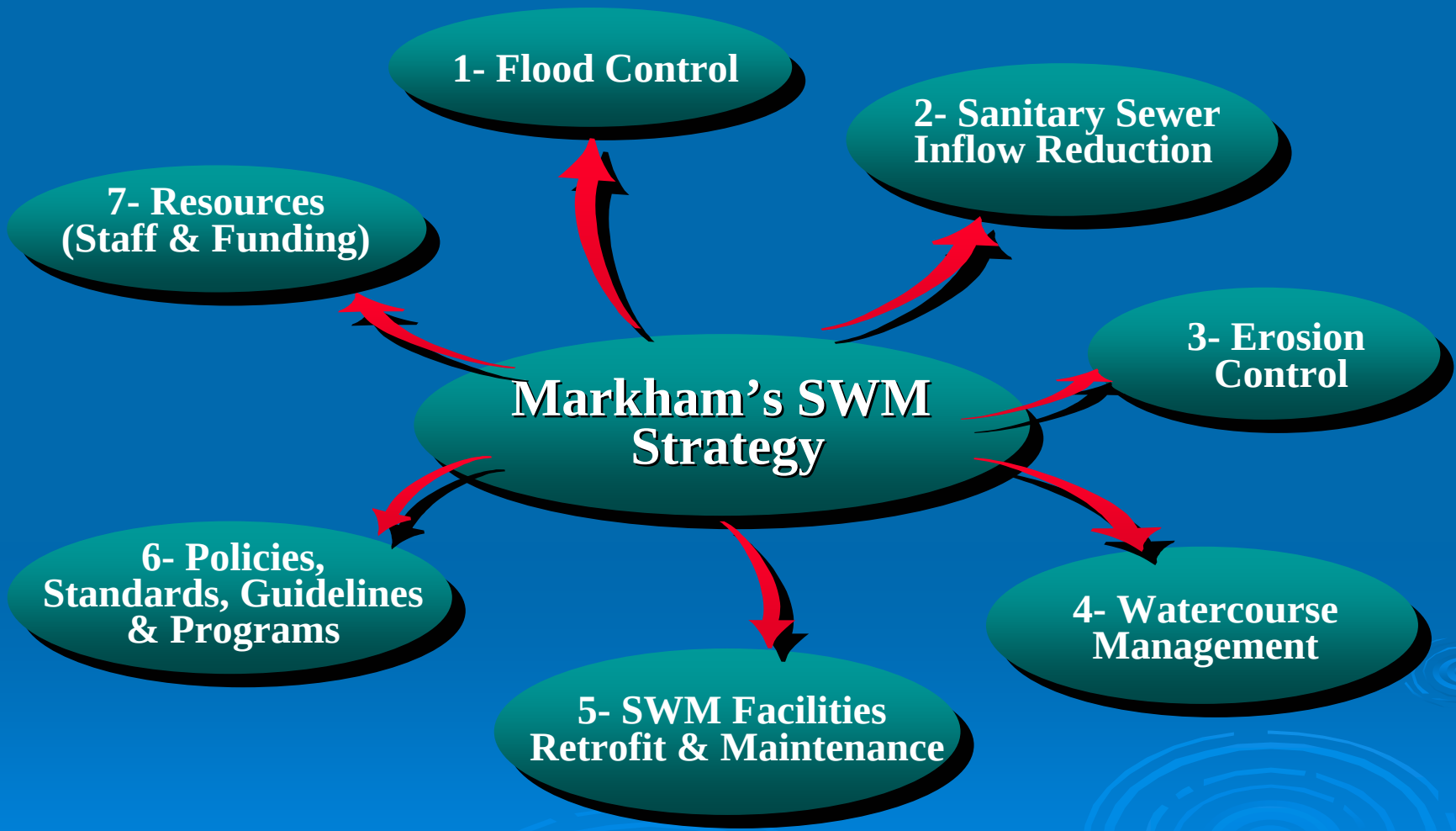


Figure 1: Splash Block Disconnection

Presentation Overview

- Components of Markham's Stormwater Management Strategy
- Why the Downspout Disconnection Component is required
- Pilot Program "Every Downspout Counts" to Disconnect Downspouts Connected to the Sanitary System

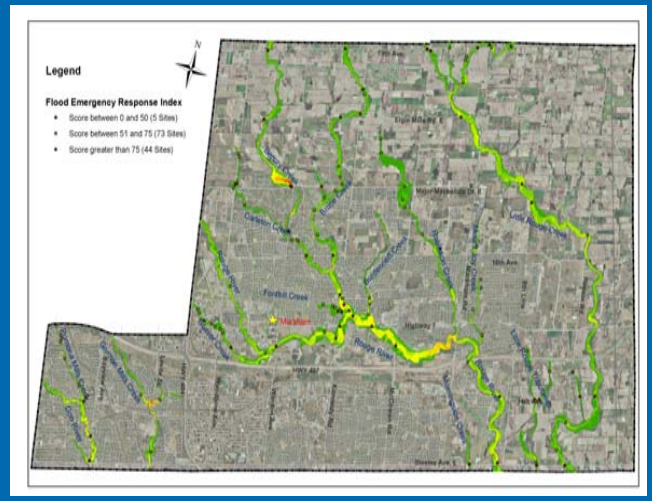
Components of Markham's SWM Strategy

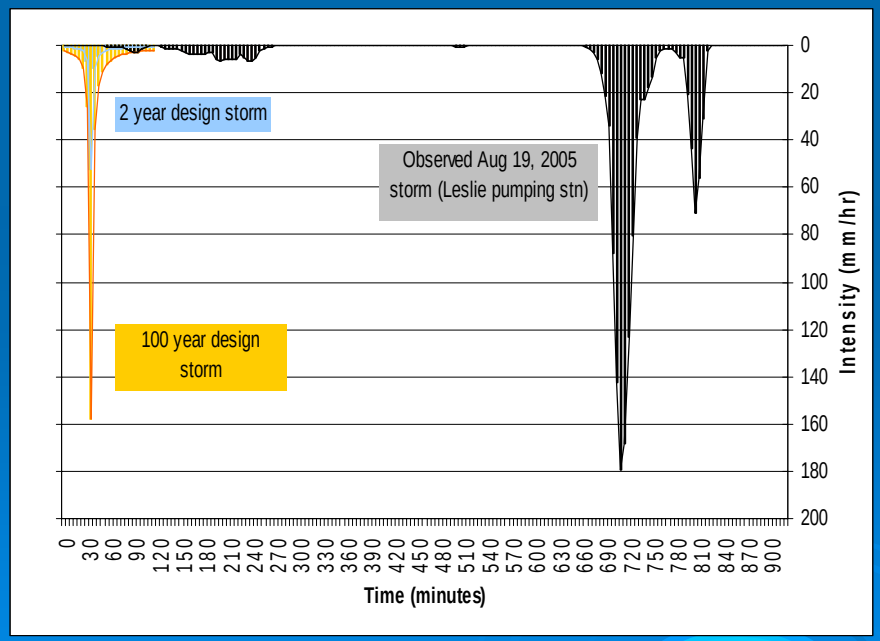


Components of Markham's SWM Strategy

1. Flood Control

- ✓ Town-wide Flood Emergency Response Plan (FERP)
- ✓ Don Mills Channel Capacity Study

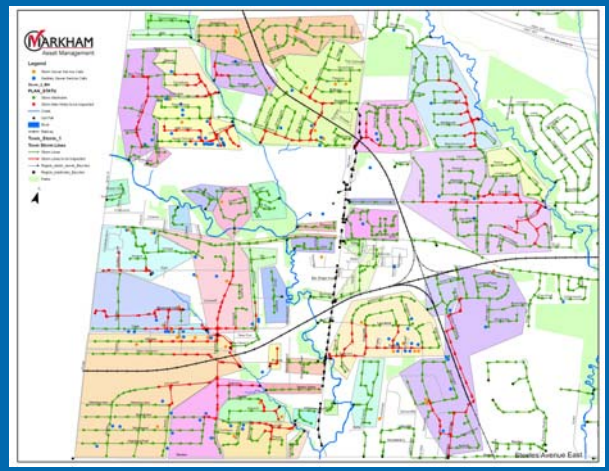




Components of Markham's SWM Strategy

1. Flood Control (continued)

- ✓ Assessment of Storm & Sanitary Sewer Systems in Thornhill
  - ✓ 2006 Study confirmed that the Town's design practices were consistent with standards of the day and other Ontario municipalities
  - ✓ Detailed Capacity Study undertaken in 2008
  - ✓ Provide Capacity for New Development



Components of Markham's SWM Strategy

2. Sanitary Sewer Inflow Reduction

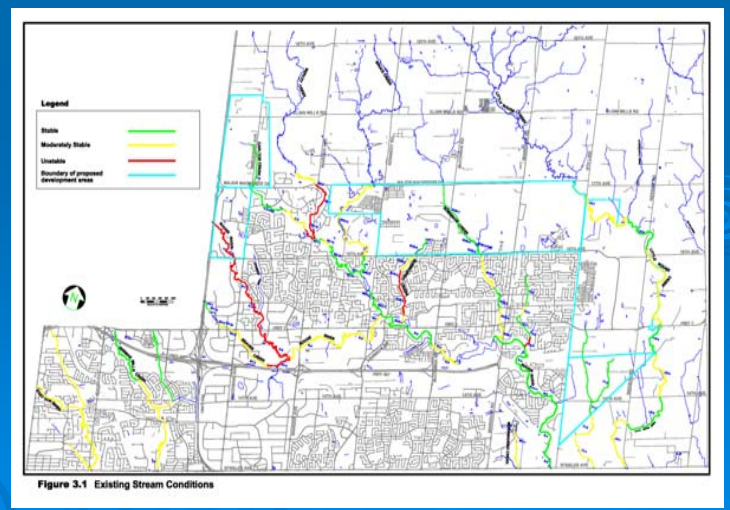
- ✓ **Downspout Disconnection from Sanitary System**
- ✓ Locate & Correct Other Connections of Surface Drainage to Sanitary System


Downspout disconnect and redirected to ground

Components of Markham's SWM Strategy

3. Erosion Control

- ✓ Town-wide Erosion Implementation Study



Components of Markham's SWM Strategy

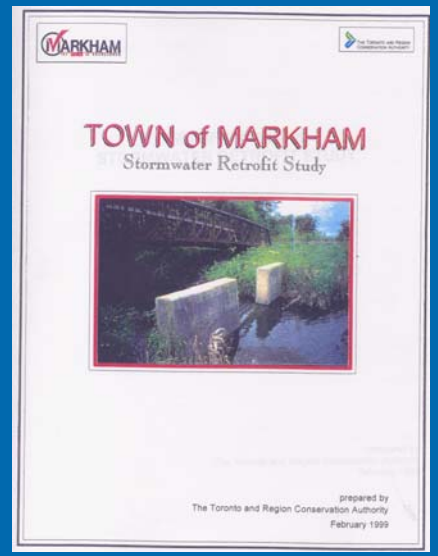
4. Watercourse Management

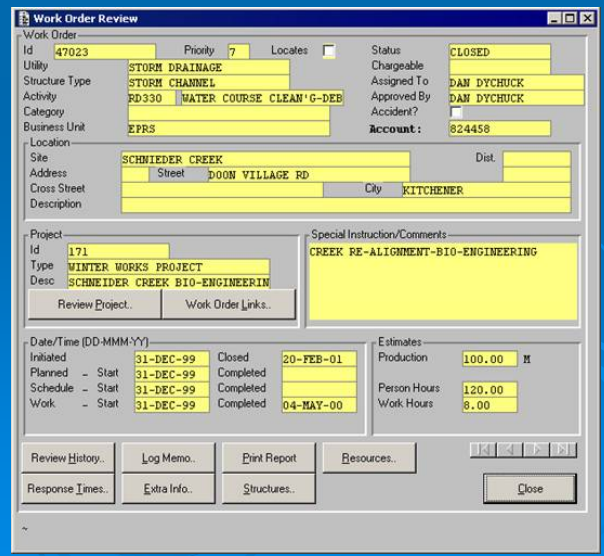
- ✓ Burndenet Creek Erosion Control Optimization study (2007)
- ✓ Pomona Mills Creek Erosion Restoration and Habitat Enhancement Study
  - Pomona Creek – Ph 1 of 8
  - German Mills Creek

Components of Markham's SWM Strategy

5. SWM Facilities Retrofit & Maintenance

- ✓ SWM Facility Maintenance Study
- ✓ SWM Pond Rehabilitations
  - ✓ Bridlewood Pond (2008)
  - ✓ Glynwood Pond (2008)
  - ✓ Tuclor Pond (2008)
- ✓ Culvert and Bridge Rehabilitation





Components of Markham's SWM Strategy

6. Policies, Standards, Guidelines and Programs

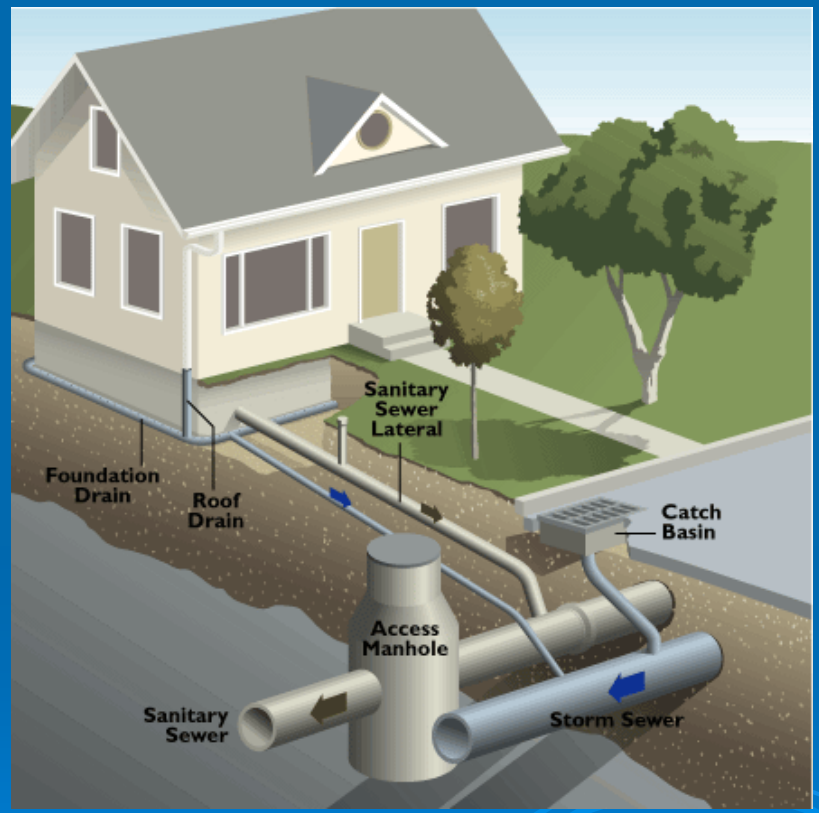
- ✓ Markham's SWM Guideline Update
- ✓ Markham's Engineering Design Criteria & Standard update (2008)
- ✓ Conservation & Education Initiatives

Education Components

- Benefit of low flow toilets & shower heads
- Repair of plumbing leaks
- Benefit of commercial car wash use
- Encourage clearing of debris from street gutters & catch basins by residents
- Use of rain barrel with drain to reduce lawn watering

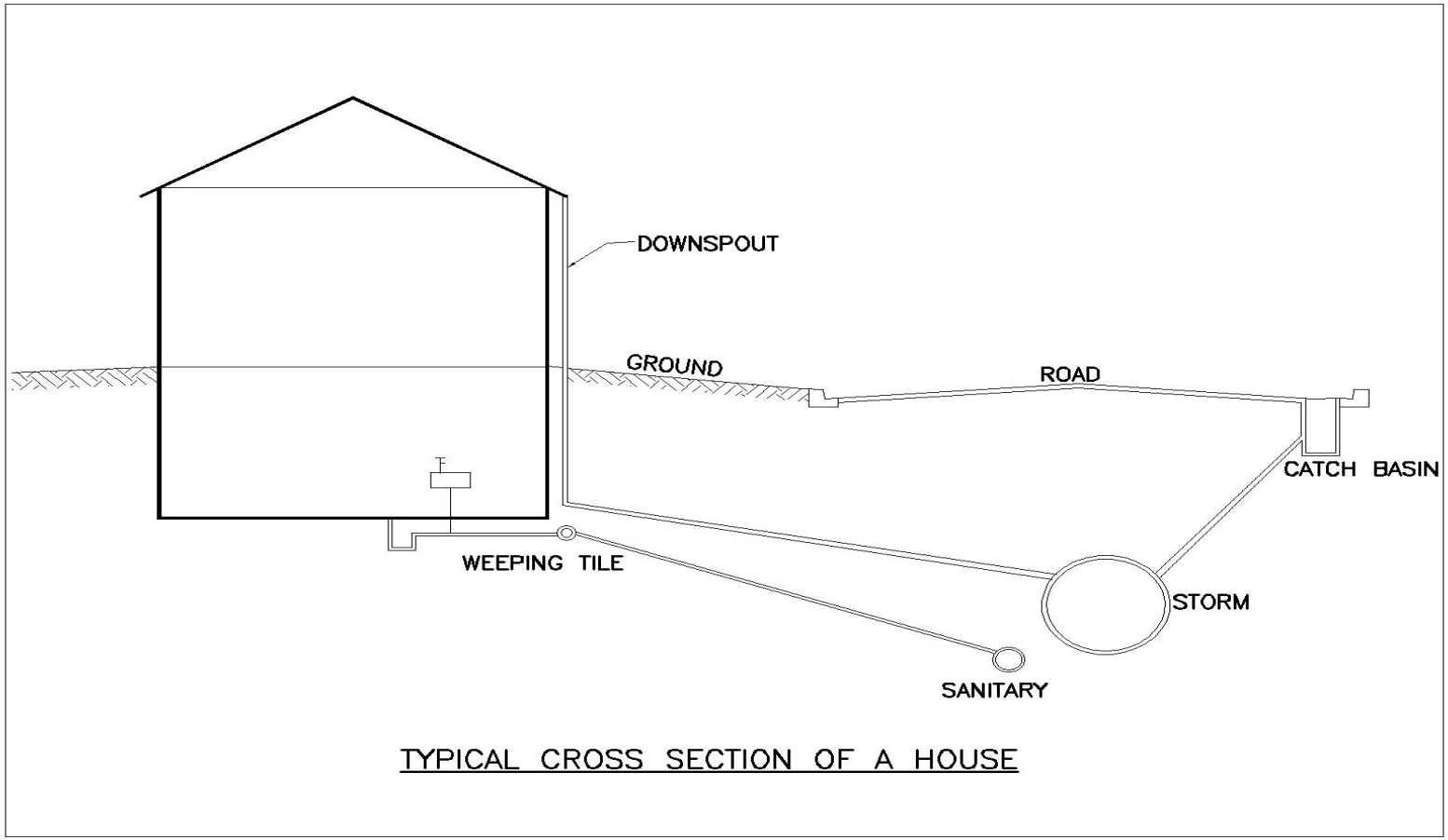
Why the Disconnection Program is Required?

- Benefits
  - Flood relief
  - Environmental
    - Energy
    - Treatment Quality
    - Infiltration
    - Groundwater
    - Vegetation
  - Cost

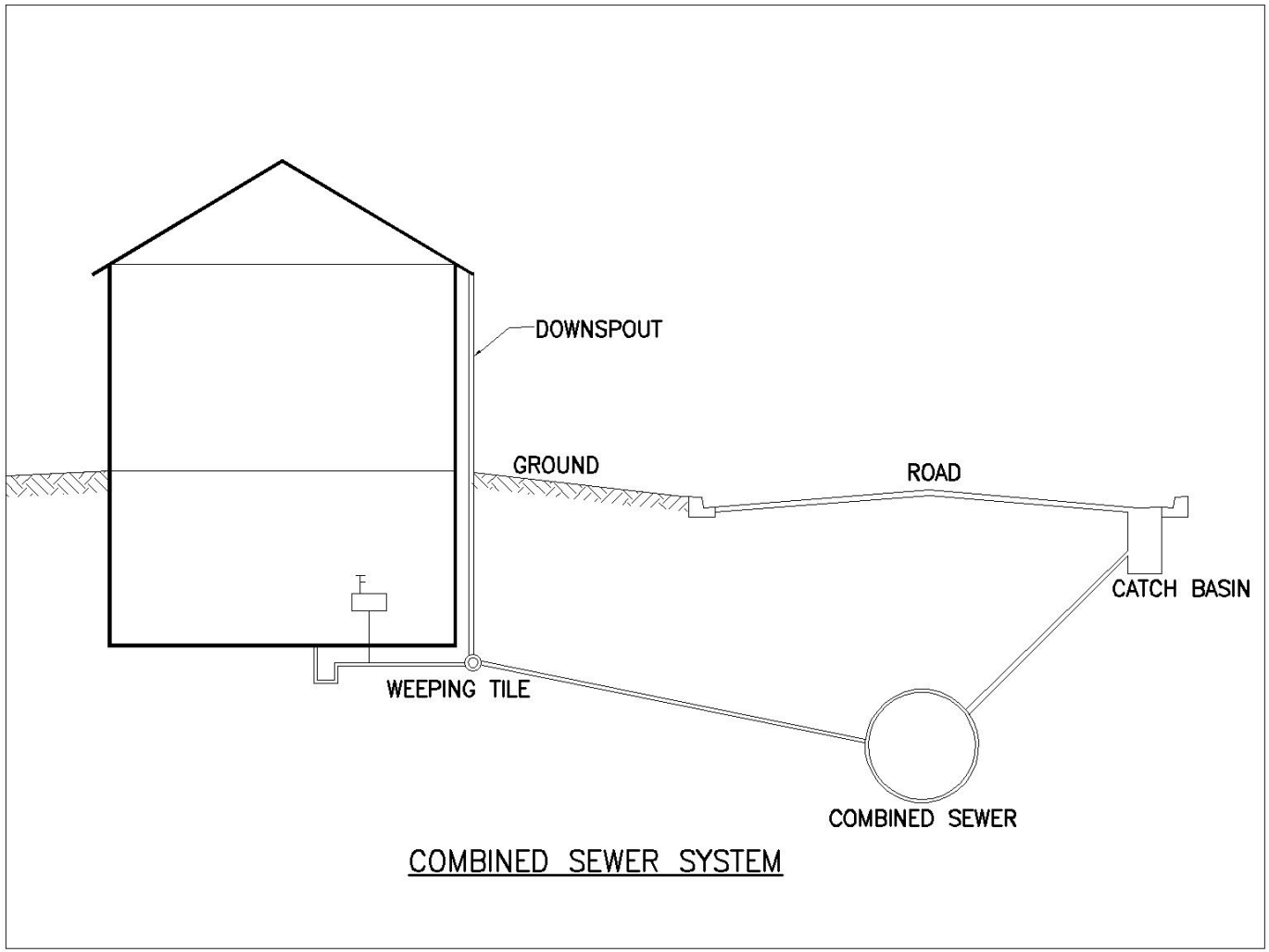


Why the Disconnection Program is Required?

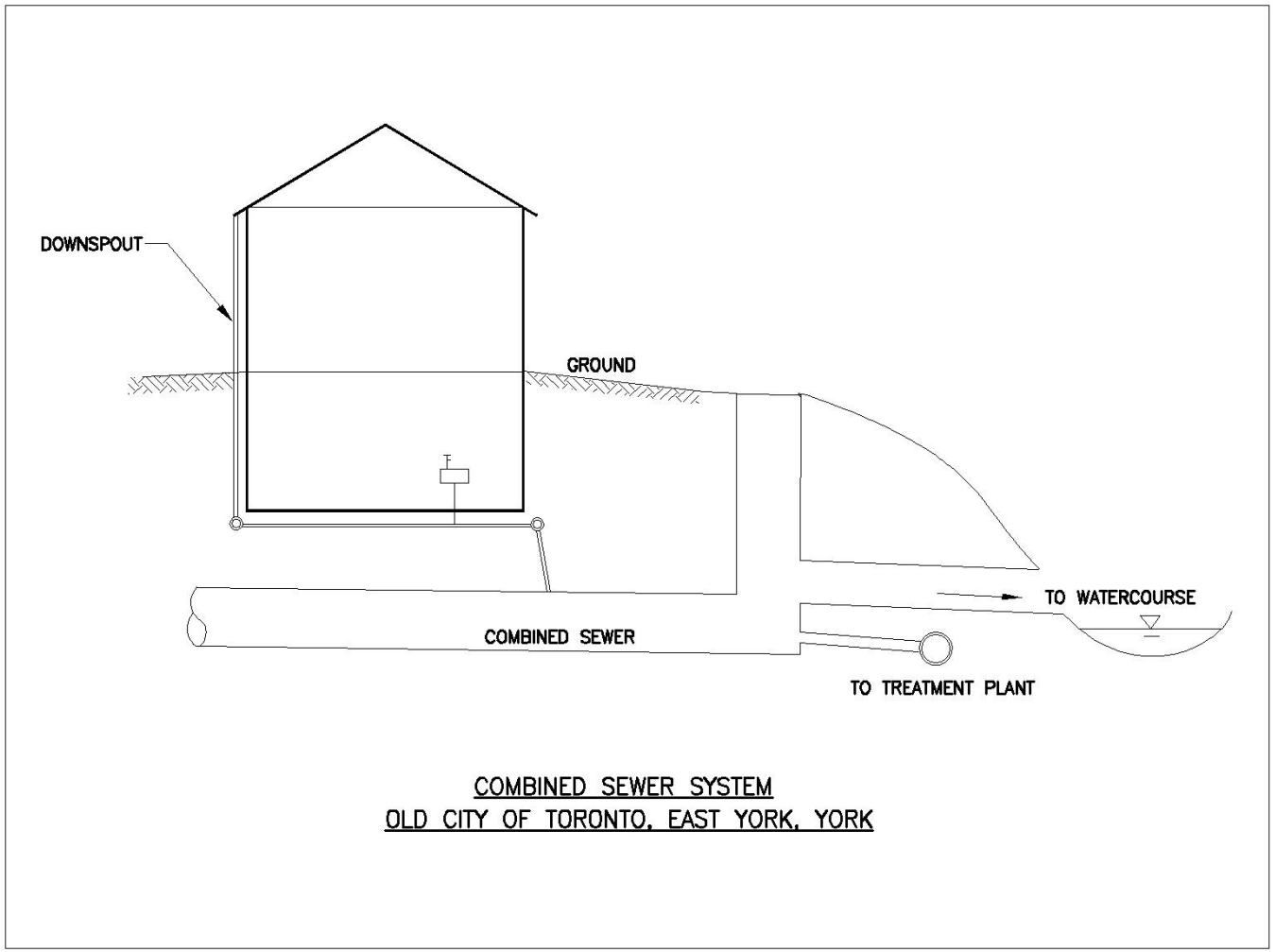
Standard Markham Service Connection Layout



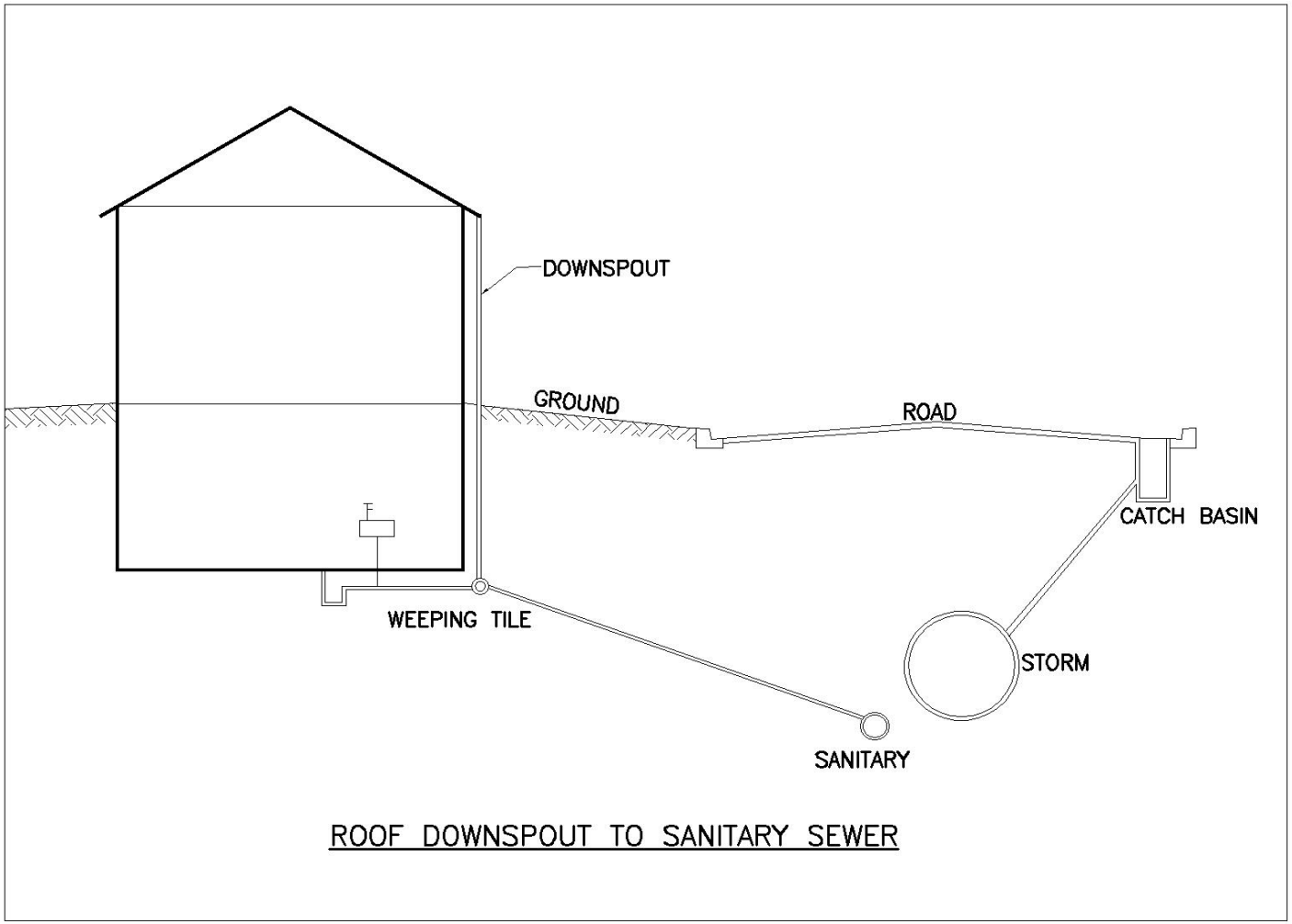
Toronto Combined Service Connection Layout



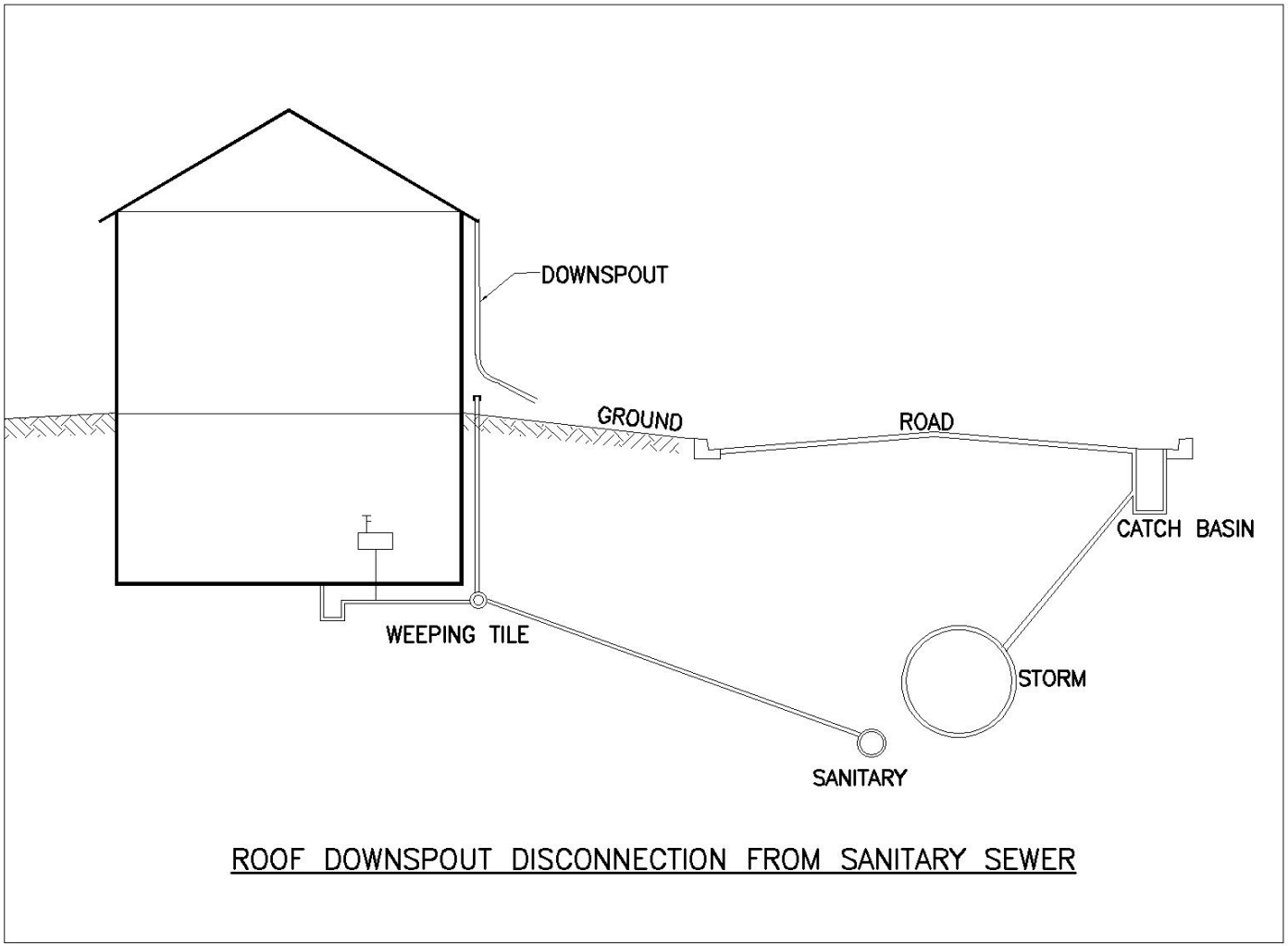
Toronto Combined Sewer Overflow



Roof Downspout to Sanitary Sewer



Roof Downspout Disconnection to Ground



ROOF DOWNSPOUT DISCONNECTION FROM SANITARY SEWER

Downspout Disconnection Program

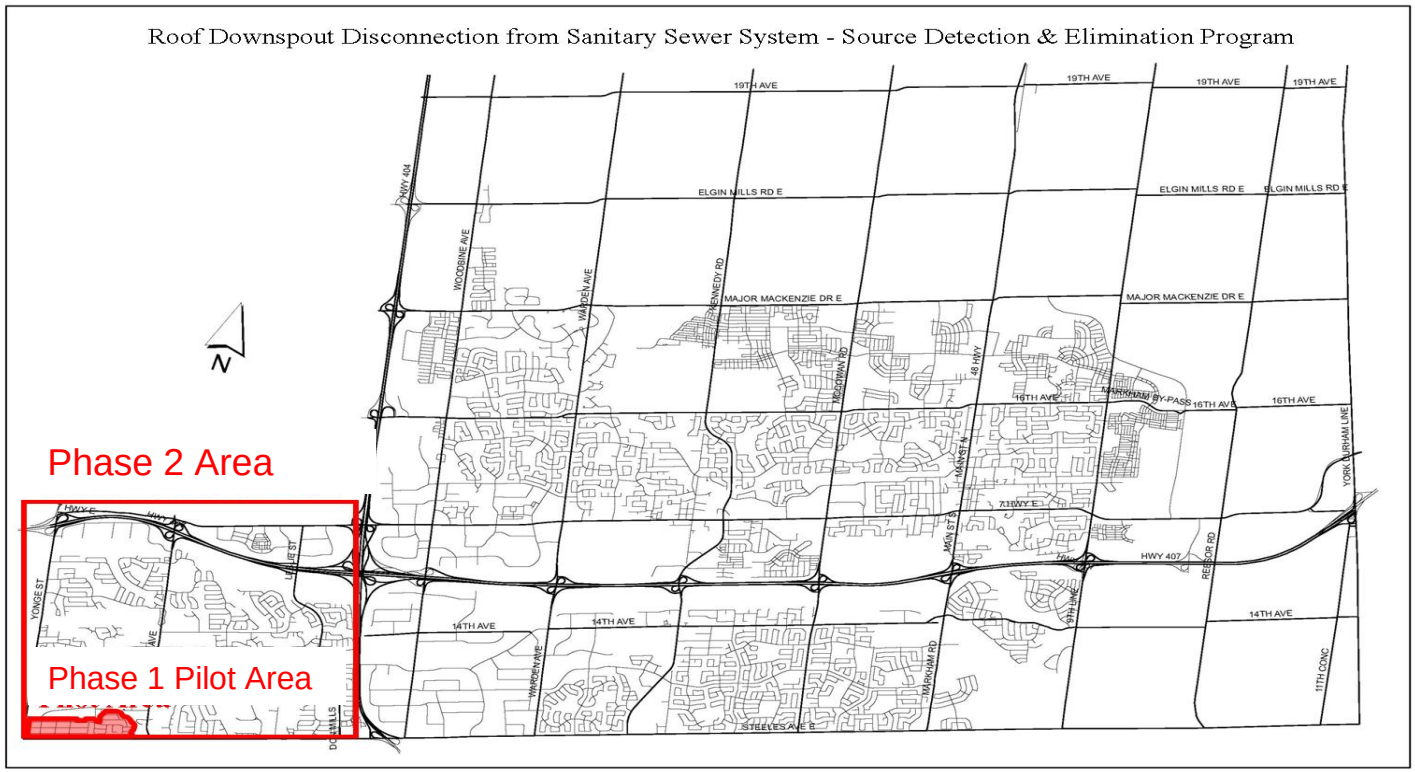
Phase 1 – "Every Downspout Counts" Voluntary with Incentives Pilot Program

Goals:

- ✓ Reduce rainwater flow into sanitary sewer to reduce basement flooding
- ✓ Identify illegal downspout connections
- ✓ Achieve 80 % disconnection by homeowners with cost sharing by Town
- ✓ Reduce other entry of runoff into sanitary sewers (eliminate any interconnections between storm and sanitary sewers)

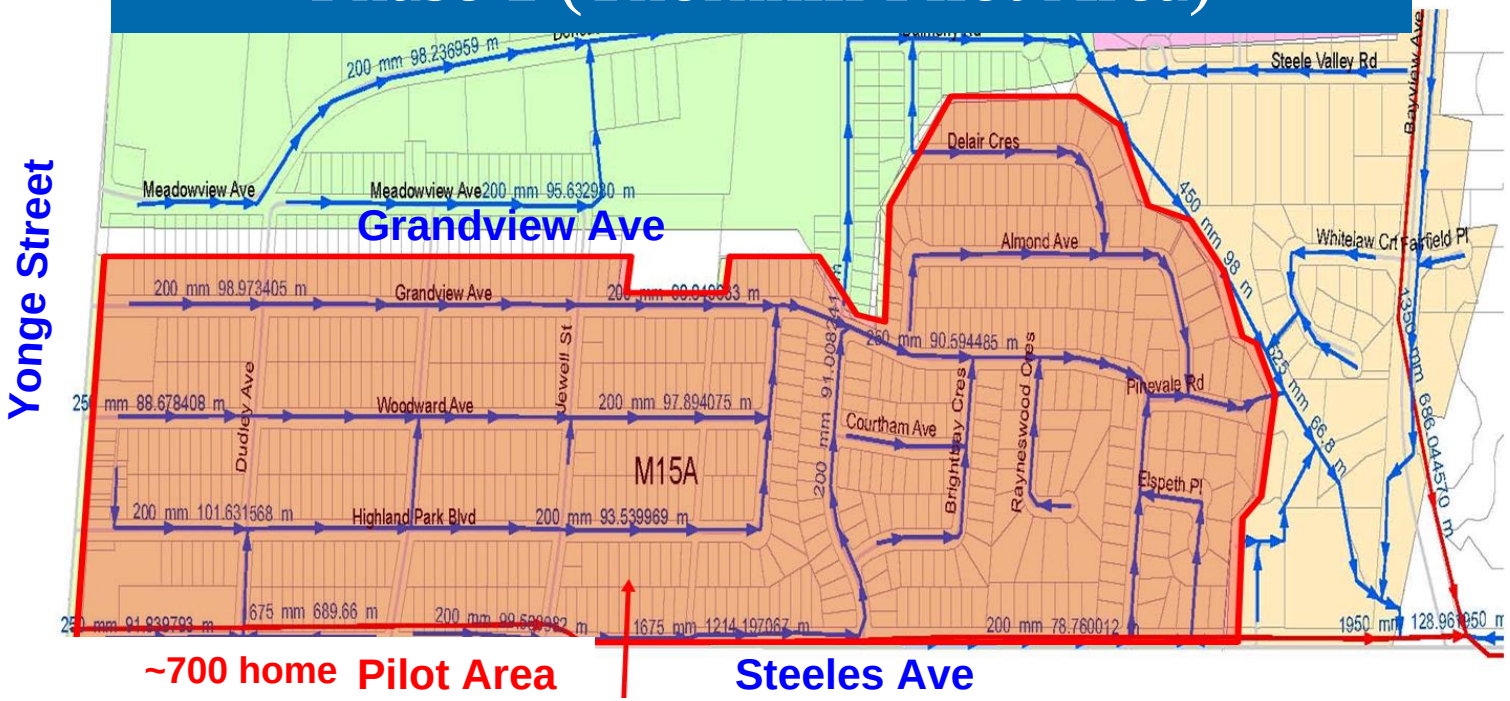
Downspout Disconnection Program

Location of Phase 1 (Thornhill Pilot) & Phase 2



Downspout Disconnection Program

Phase 1 (Thornhill Pilot Area)



~700 home **Pilot Area** **Steeles Ave**

Area where sanitary sewer flow is known to increase dramatically following rainfall.

Downspout Disconnection Program

Methodology:

- ✓ Community Consultation (including Liaison Group)
  - to outline pilot program " Every Downspout Counts"
- ✓ Community Education
  - Benefits of Downspout Disconnection and Conservation
- ✓ Smoke and Dye Testing Program
  - to locate directly connected roofs and other inflow sources

Downspout Disconnection Program

Methodology:

- ✓ Consultation with Affected Homeowners
  - Disconnection timeframe
  - Cost sharing program
- ✓ Homeowner Disconnection of Downspouts by June, 2009
- ✓ Town Repairs of Other Sanitary Inflow Sources

Manhole in depression

mH infiltration

Connected cB

Downspout Disconnection Program

Success Measures:

- ✓ Community Participation
- ✓ Field confirmation - 80% of problem downspouts disconnected
- ✓ Reduced impact of rainfall on sanitary sewer flow as evidenced through end of project flow monitoring

Phase 2 (2009)

- ✓ Incorporate lessons learned from Phase 1 Pilot Program
  - Level of participation
  - Need for enforcement
  - Disconnection methodology

Downspout Disconnection Program

Potential Disconnection Cost Sharing Program:

The greater of $500 OR 50% of the cost of disconnection up to a maximum of $1000

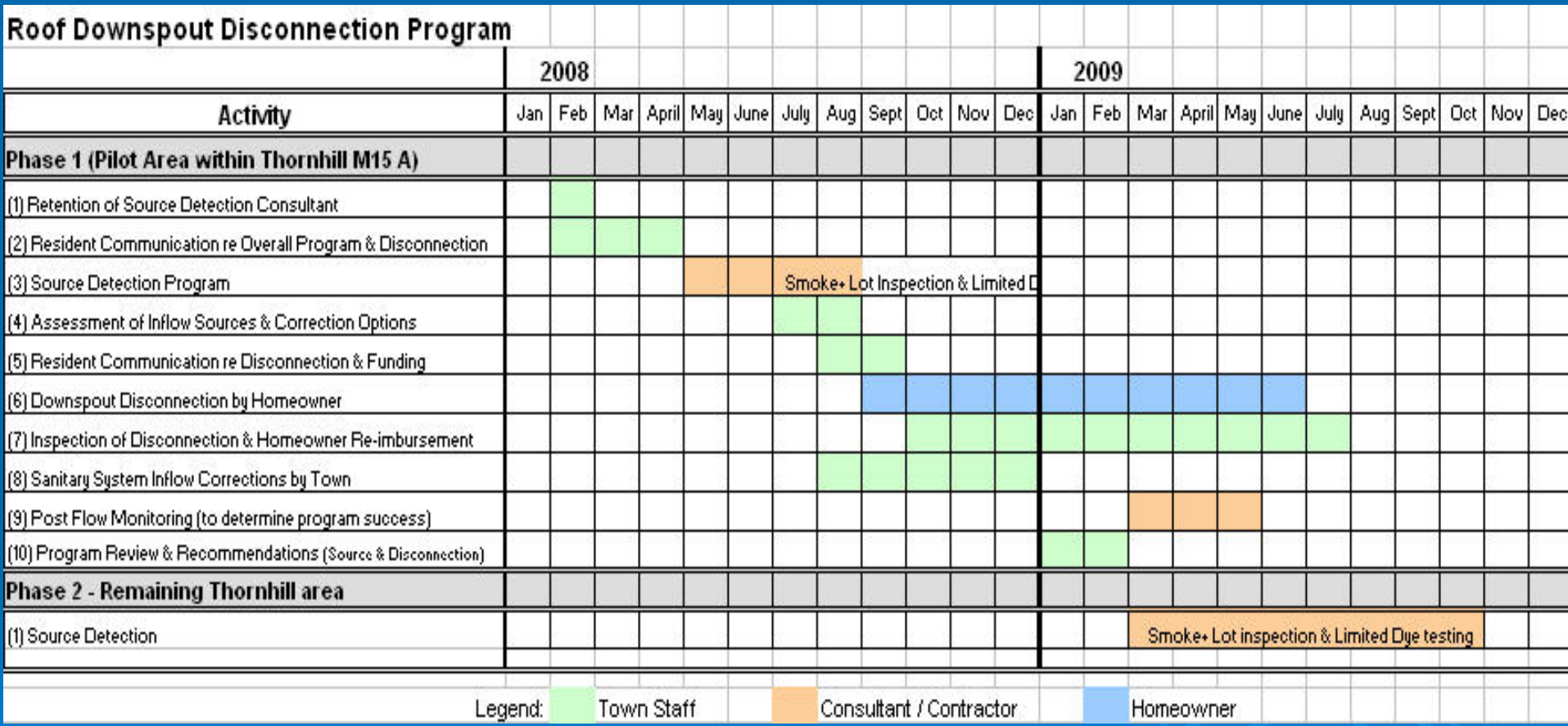
Estimated Pilot Program Cost: $175,000

- 100 Disconnections @ $750 = $ 75,000
- Source Detection & Monitoring = $75,000
  - ✓ Smoke (700 houses) = $5,000
  - ✓ Dye testing (200 houses) = $50,000
  - ✓ Lot Inspection = $5,000
  - ✓ Flow Monitoring (12 months) = $15,000
- Communications = $ 25,000

Community Consultation & Education Plan

- ✓ Consultation with the Thornhill Stormwater Mgmt. Community Liaison Committee
- ✓ Information package to each homeowner in the pilot area
- ✓ Information on Town website, media
- ✓ Hold two community consultation meetings before testing is started to educate homeowners on the pilot program and to seek their assistance
- ✓ Regular communication updates to each homeowner
- ✓ Consultation meetings to inform residents of the results and to consult with those homeowners with problems on the procedures, timelines and funding to disconnect

Program Implementation Timeframe



Next Steps

- ✓ Report to Council
  - To authorize Phase 1 Pilot program re downspout disconnection
  - Retention of source detection consultant
    (source location, flow monitoring, analyses & reporting)
  - Initiation of community consultation