

# “Every Downspout Counts”

## Downspout Disconnection Program

Asset Management  
& Waterworks

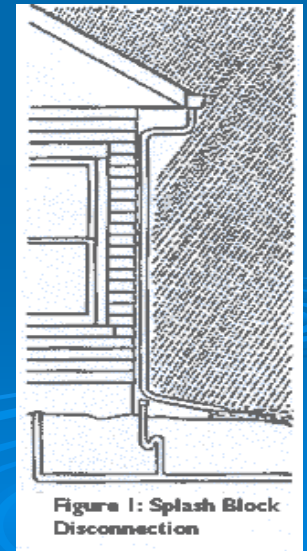


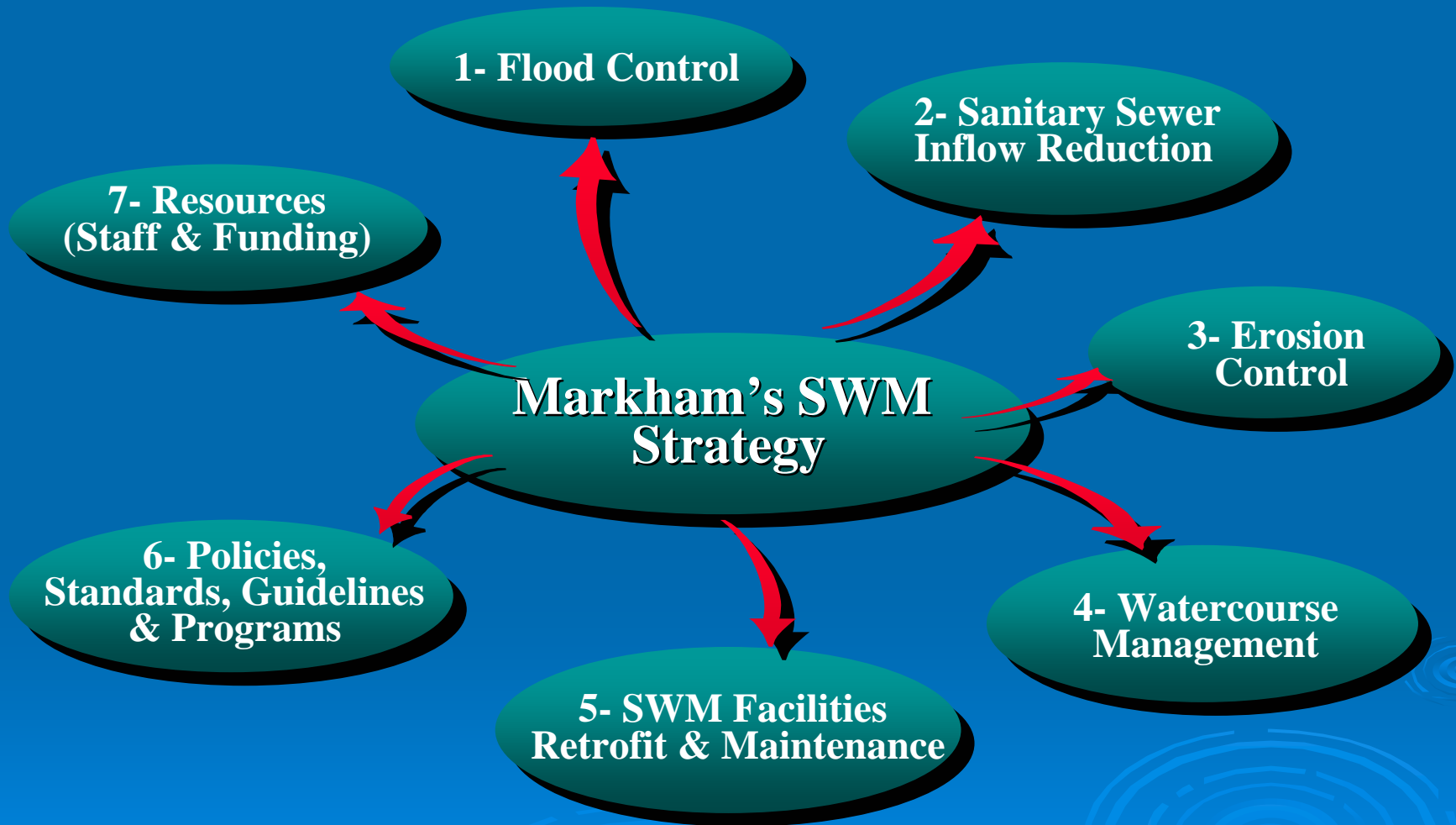
Figure 1: Splash Block  
Disconnection

# 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



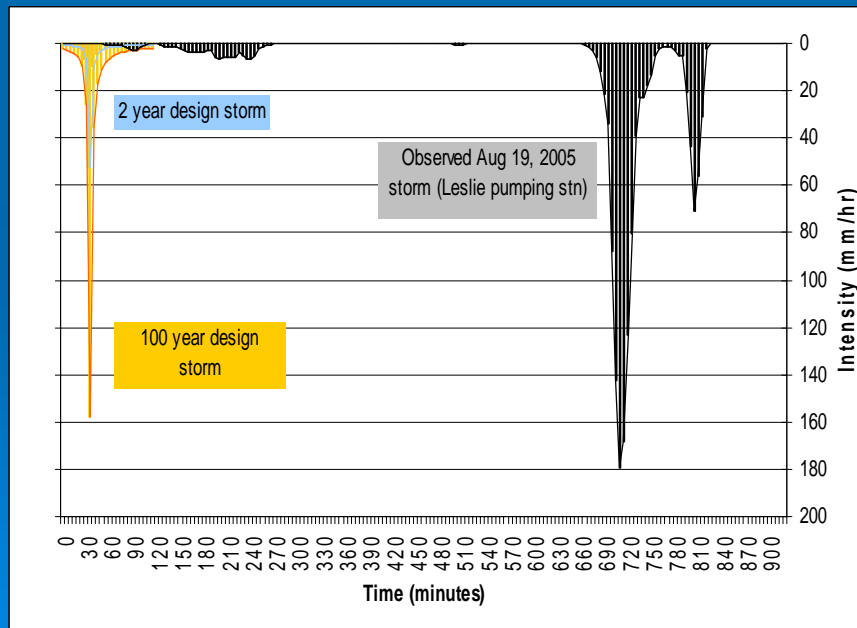
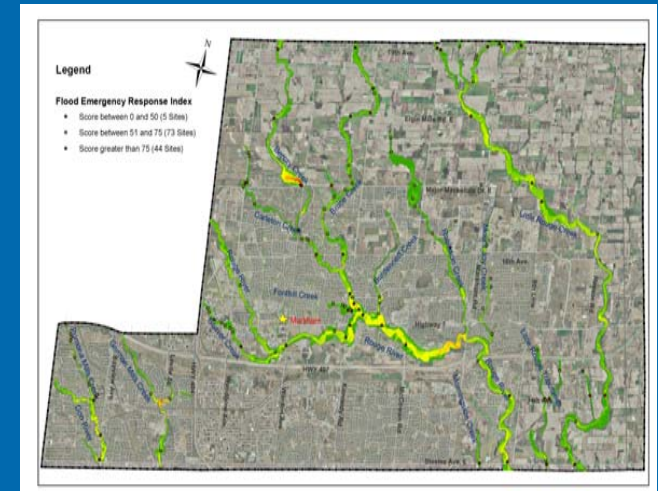
# Components of Markham's SWM Strategy



# Components of Markham's SWM Strategy

## 1. Flood Control

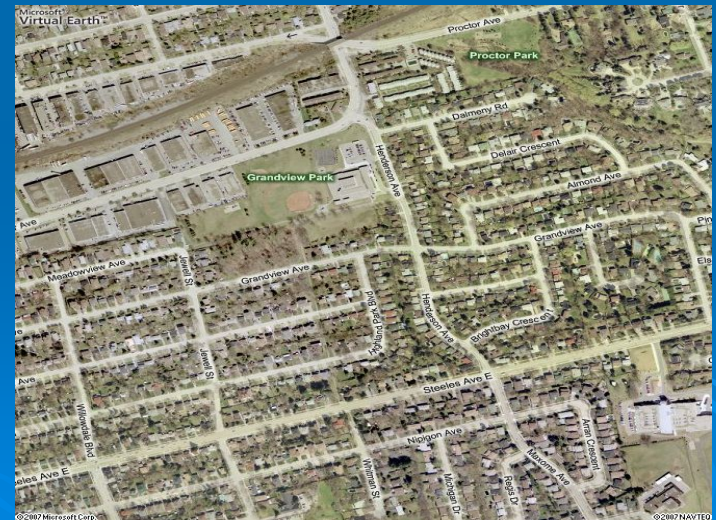
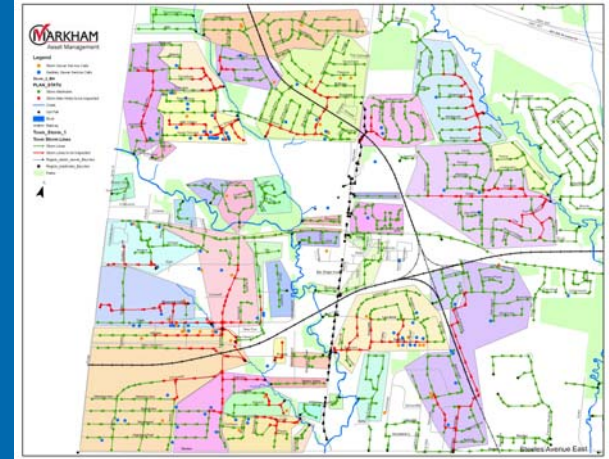
- ✓ Town-wide Flood Emergency Response Plan (FERP)
- ✓ Don Mills Channel Capacity Study



# 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

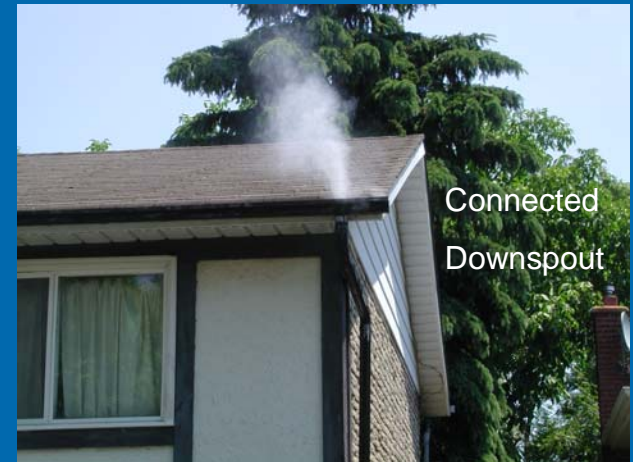




# Components of Markham's SWM Strategy

## 2. Sanitary Sewer Inflow Reduction

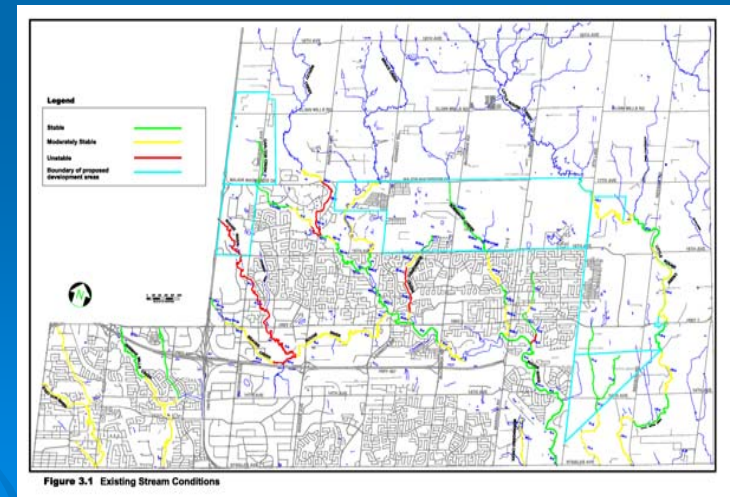
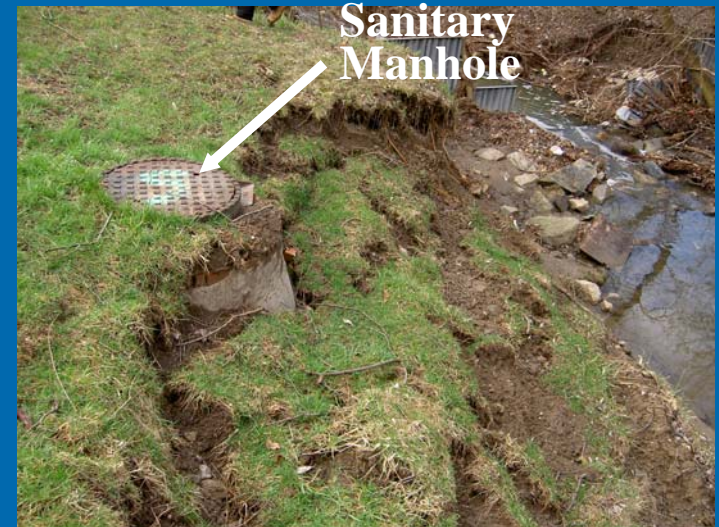
- ✓ **Downspout Disconnection from Sanitary System**
- ✓ Locate & Correct Other Connections of Surface Drainage to Sanitary System



# Components of Markham's SWM Strategy

## 3. Erosion Control

- ✓ Town-wide Erosion Implementation Study



# Components of Markham's SWM Strategy

## 4. Watercourse Management

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

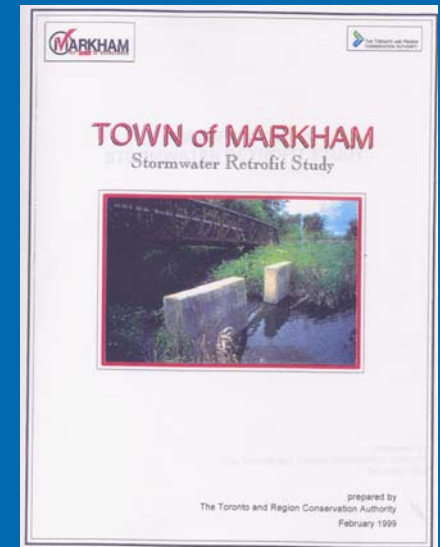




# Components of Markham's SWM Strategy

## 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

The image is a screenshot of a "Work Order Review" software window. It contains various fields for project information, including Id (47023), Priority (7), Locates (unchecked), Status (CLOSED), Chargeable (DAN DYCHUCK), Assigned To (DAN DYCHUCK), Approved By (DAN DYCHUCK), Accident? (unchecked), and Account (824458). The Location section includes Site (SCHNIEDER CREEK), Street (DOON VILLAGE RD), City (KITCHENER), and Description. The Project section includes Id (171), Type (WINTER WORKS PROJECT), and Desc (SCHNIEDER CREEK BIO-ENGINEERING). The Date/Time section shows a table with columns for Date, Time, and Status, with rows for Initiated, Planned, Schedule, and Work. The Estimates section shows a table with columns for Production, Person Hours, and Work Hours. At the bottom, there are buttons for Review History, Log Memo, Print Report, Resources, Response Times, Extra Info, Structures, and Close.

# 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



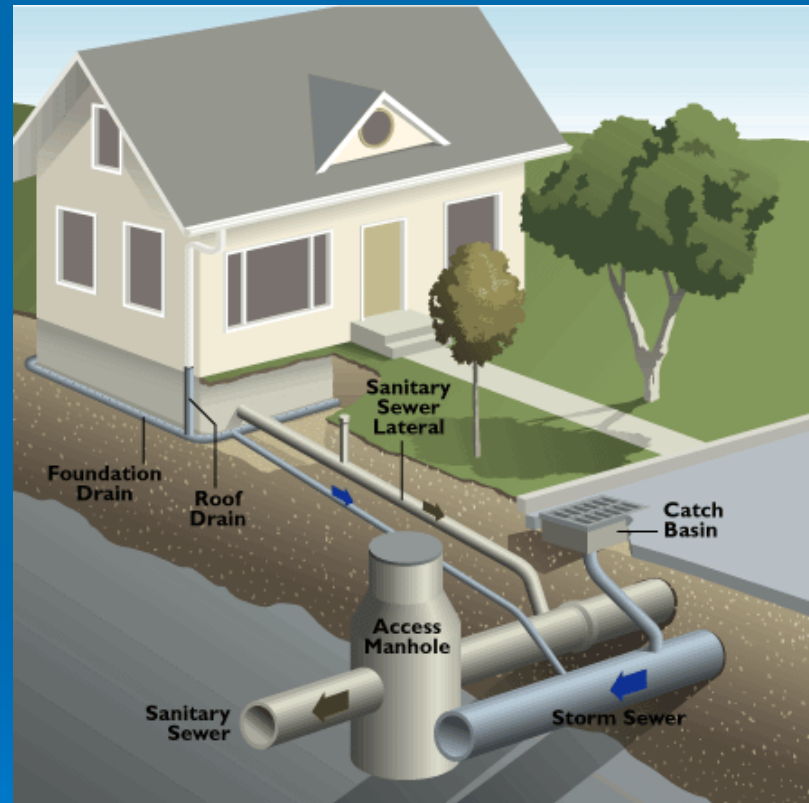
### Education Components

- 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



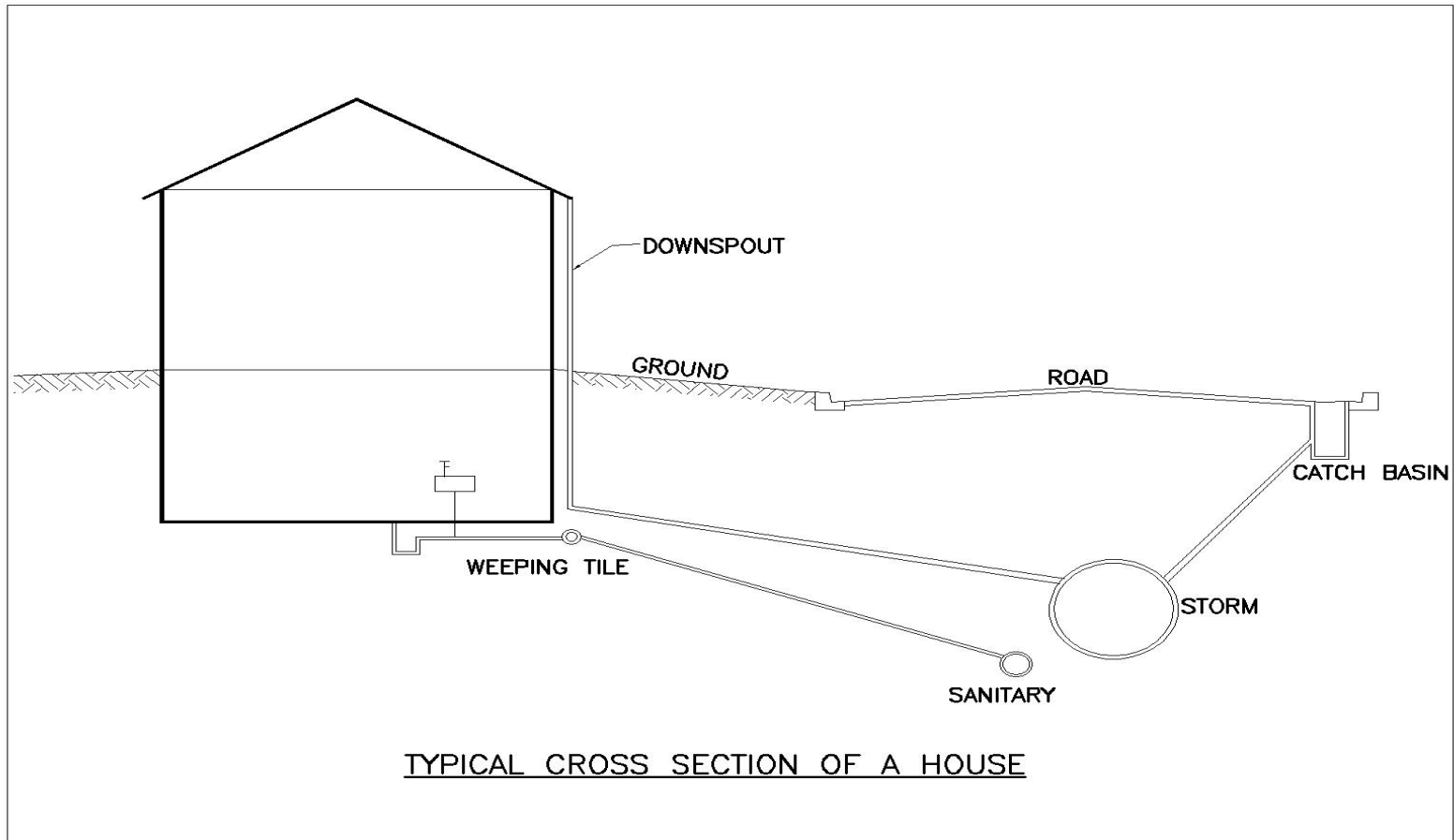
# Why the Disconnection Program is Required?

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



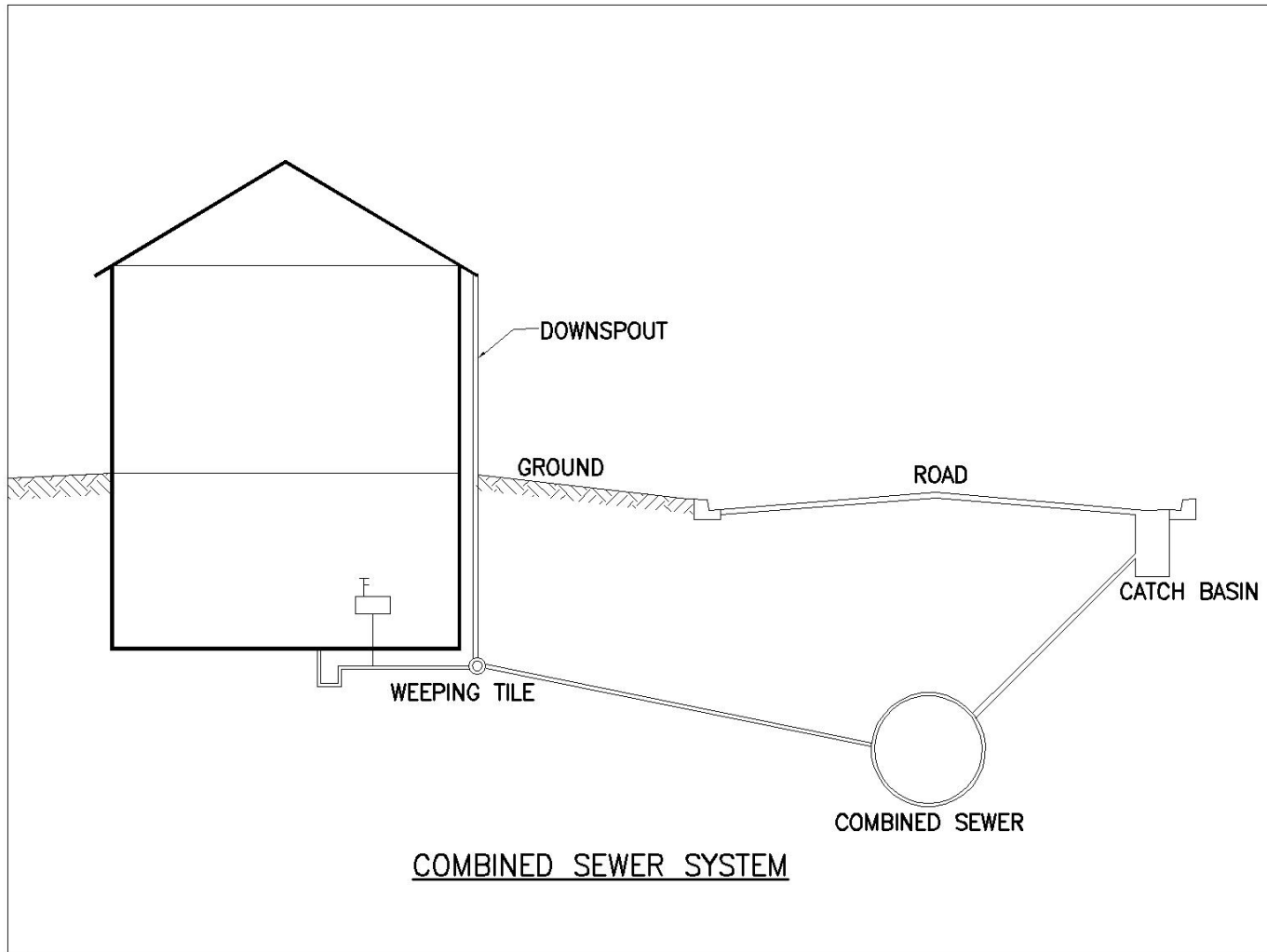
# Why the Disconnection Program is Required?

## Standard Markham Service Connection Layout

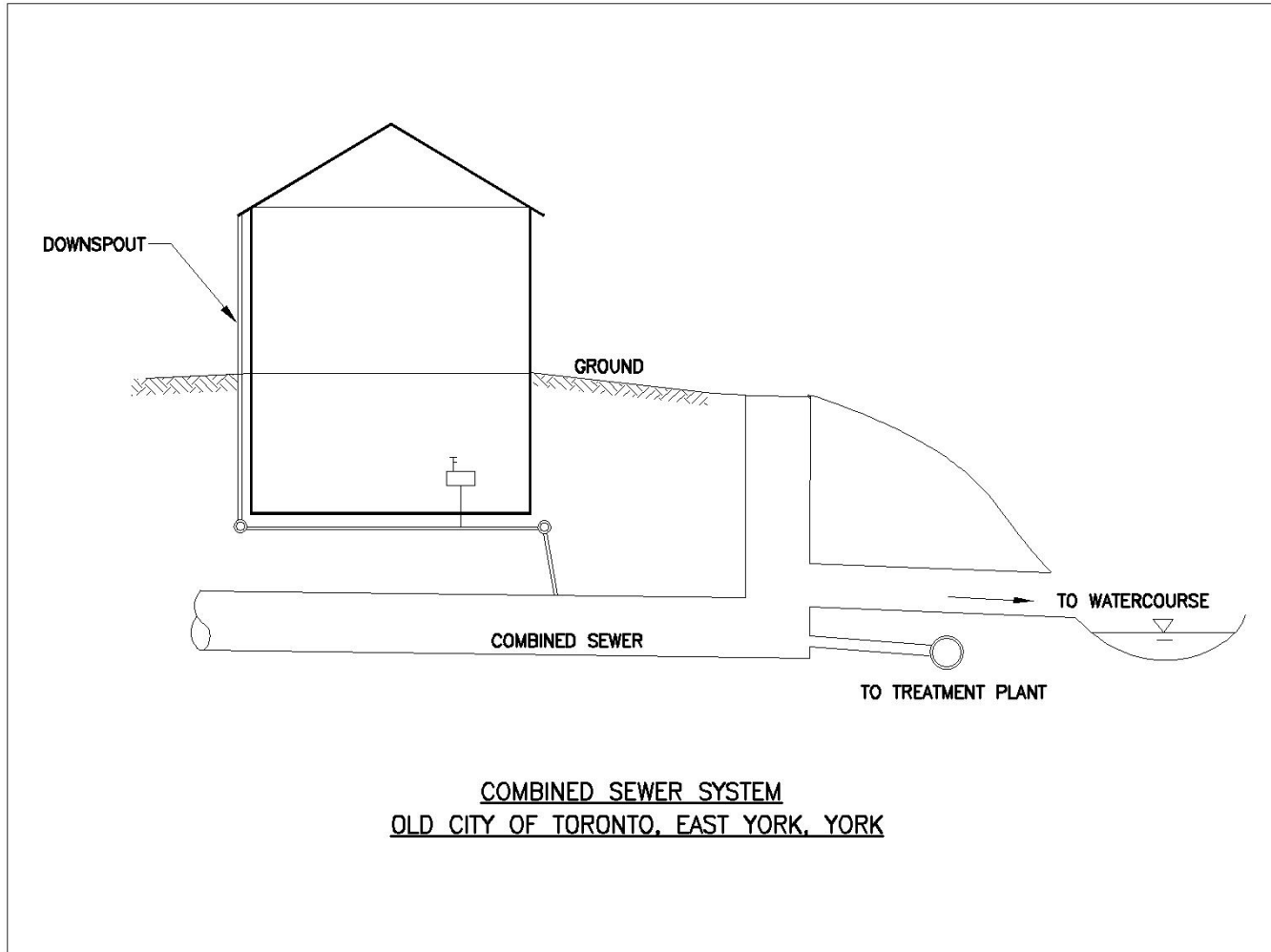




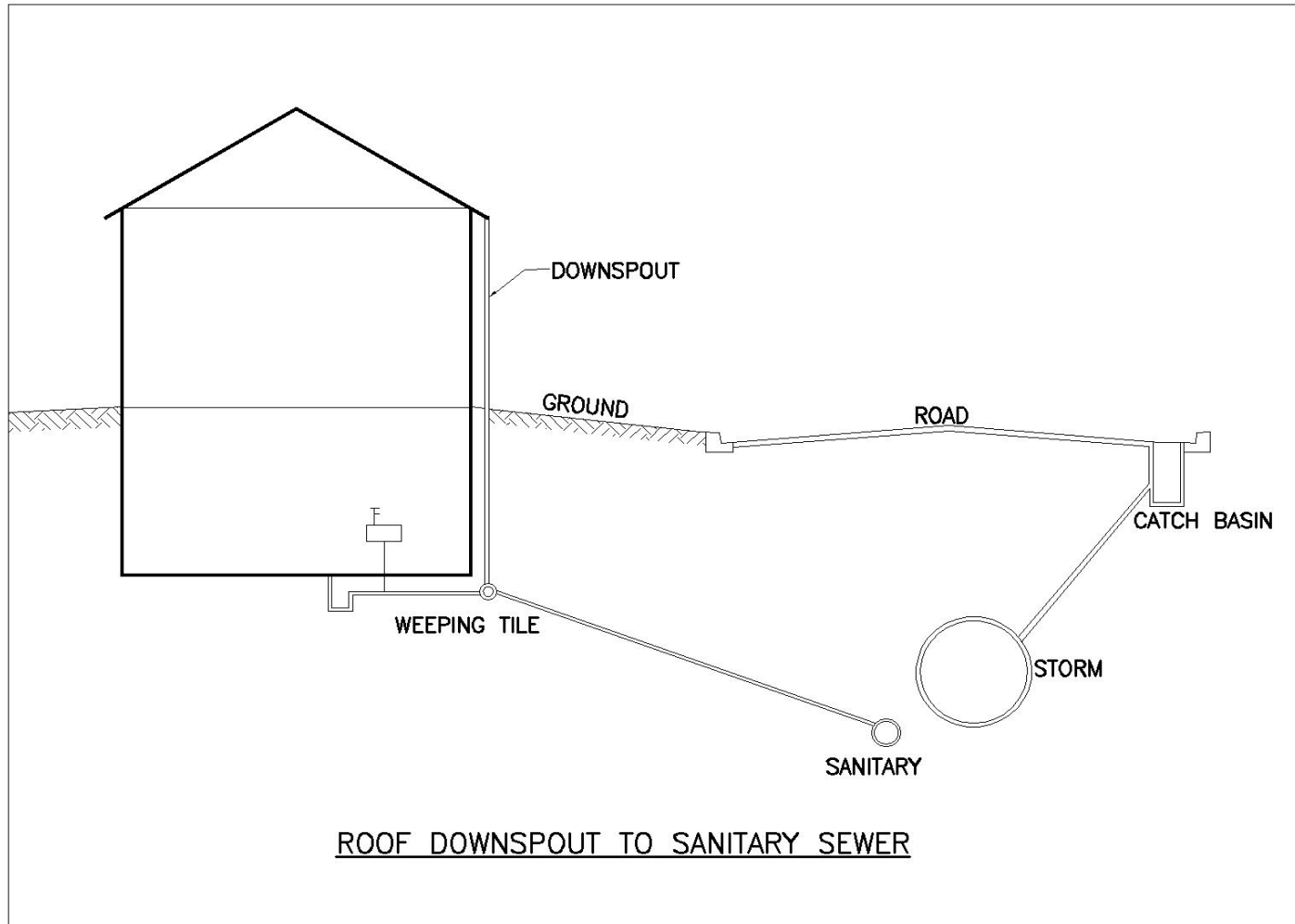
## Toronto Combined Service Connection Layout



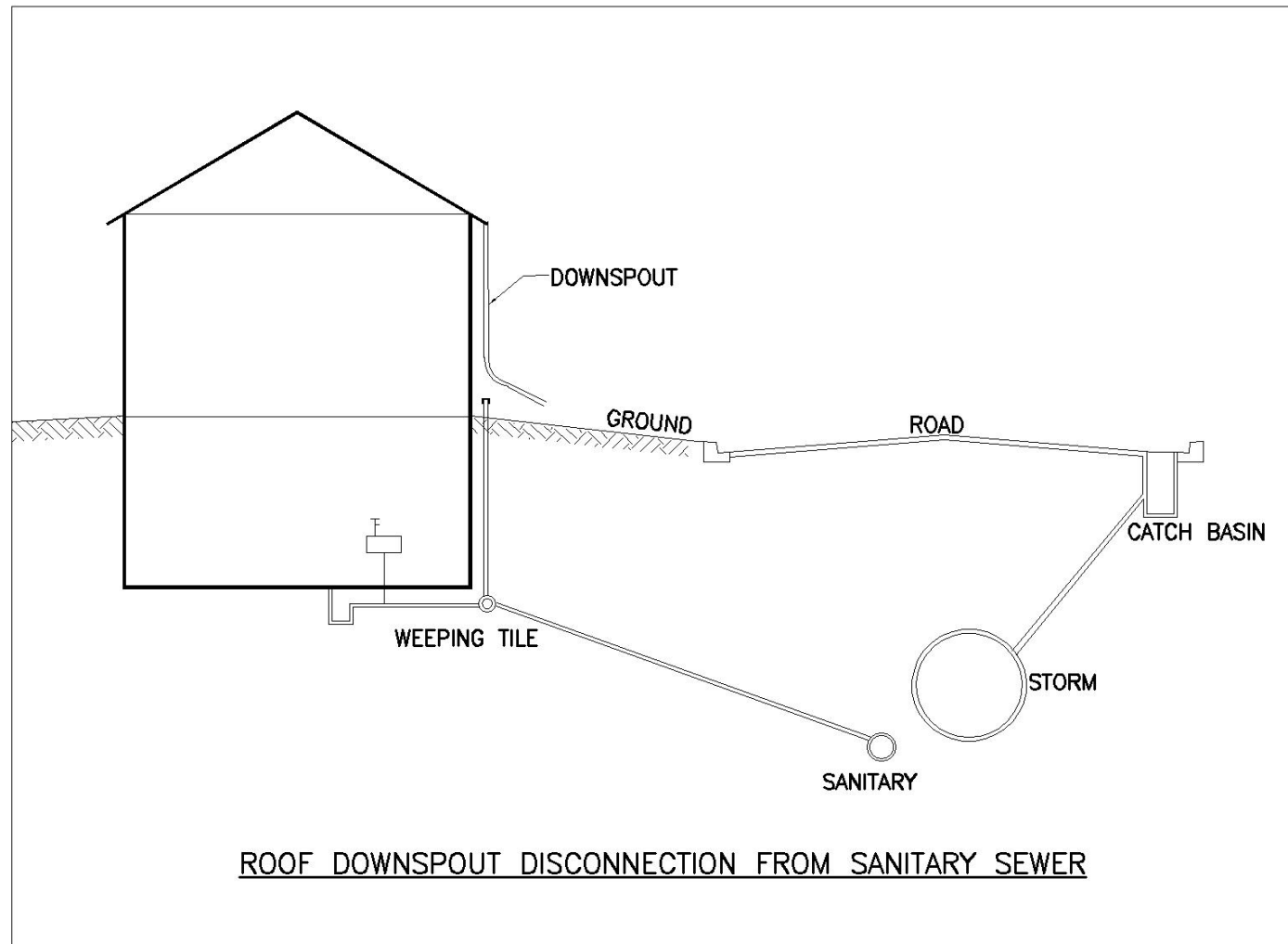
# Toronto Combined Sewer Overflow



## Roof Downspout to Sanitary Sewer



## Roof Downspout Disconnection to Ground





# Downspout Disconnection Program

## Phase 1 – “Every Downspout Counts” Voluntary with Incentives Pilot Program

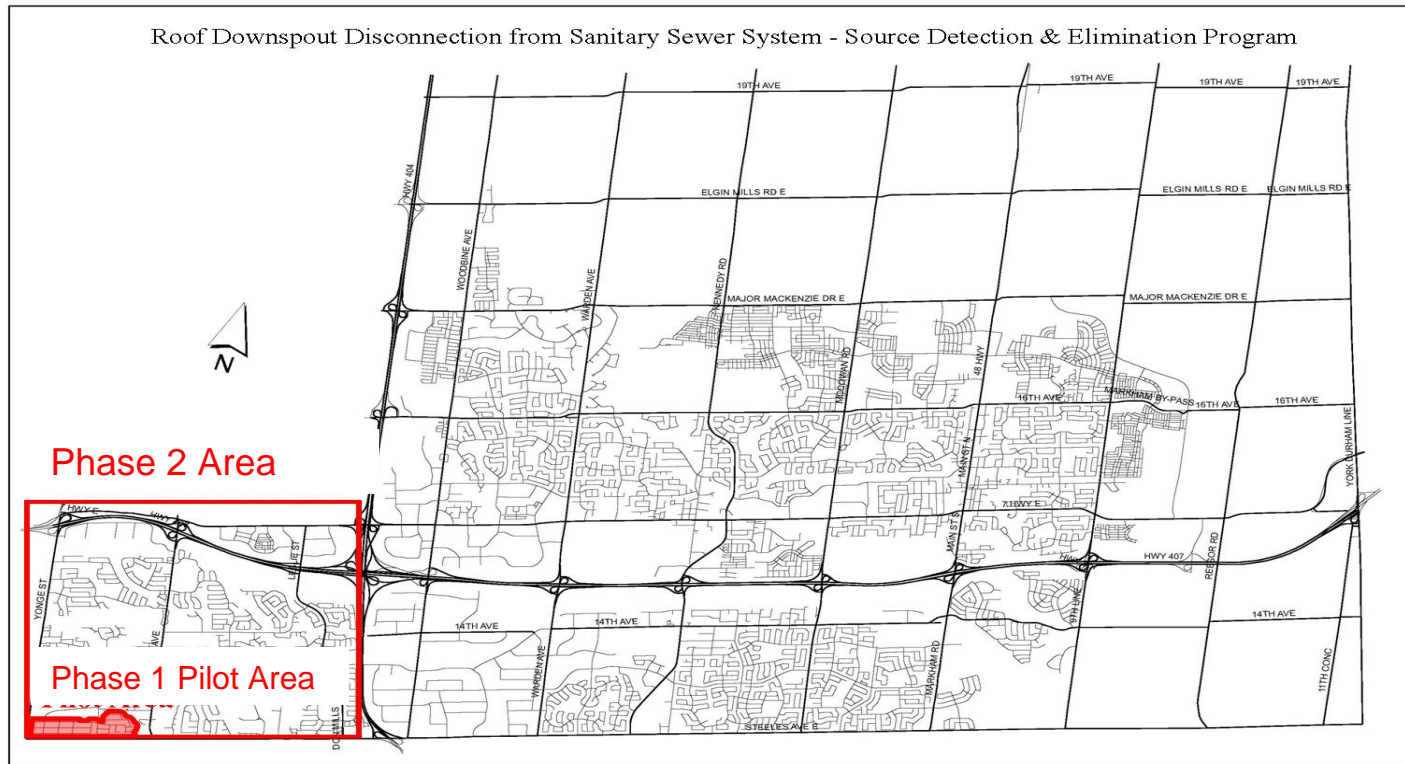
### Goals:

- ✓ 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)



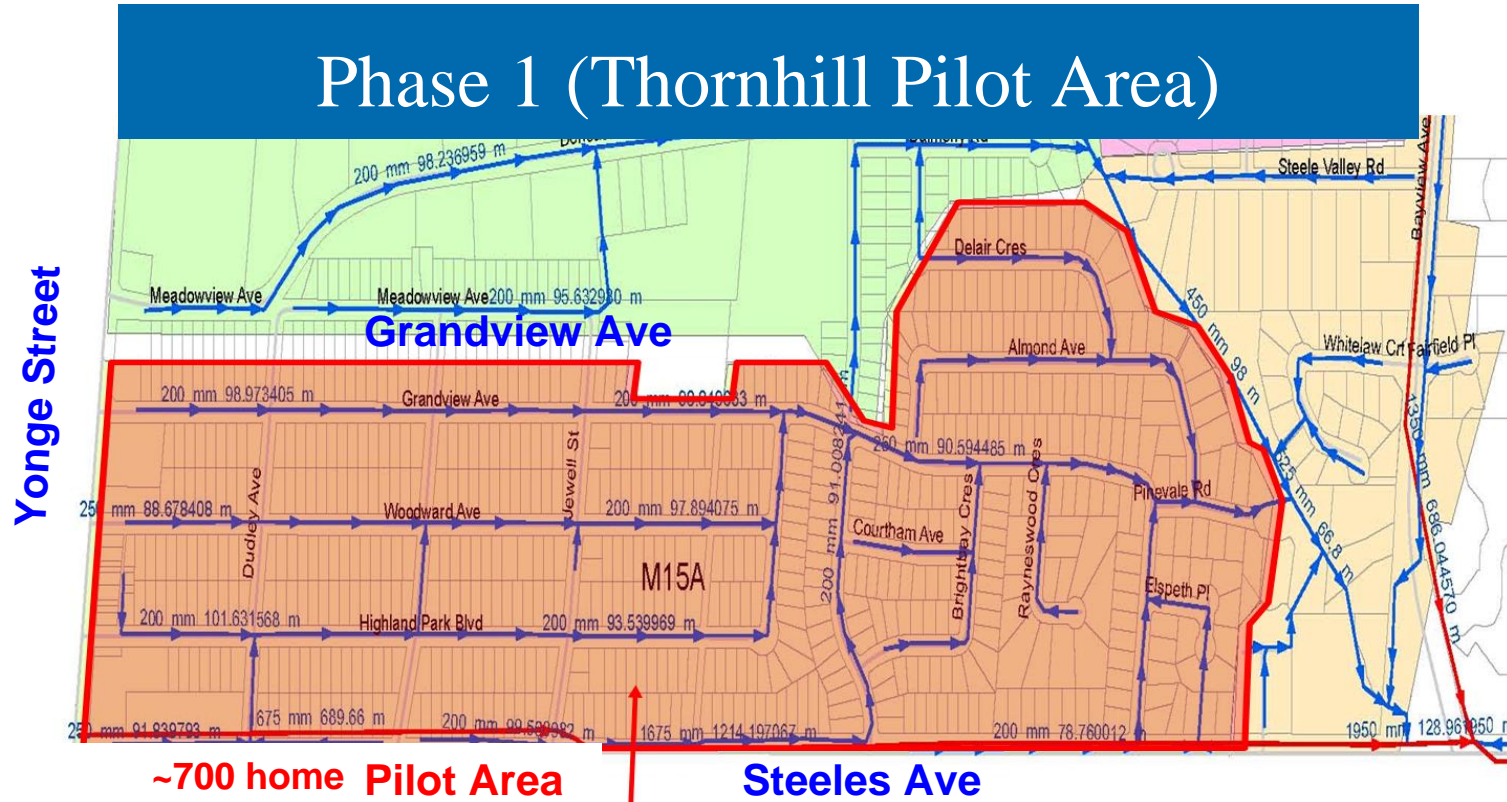
# Downspout Disconnection Program

## 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:

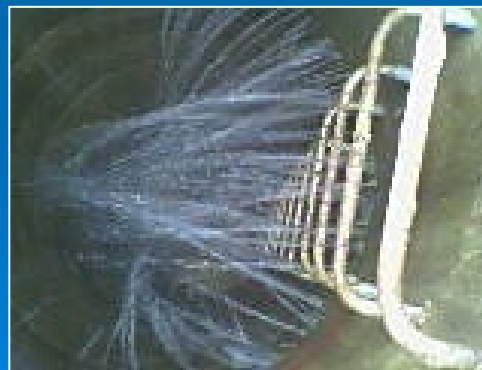
- ✓ Community Consultation (including Liaison Group)
  - to outline pilot program “Every Downspout Counts”
- ✓ Community Education
  - Benefits of Downspout Disconnection and Conservation
- ✓ Smoke and Dye Testing Program
  - to locate directly connected roofs and other inflow sources



# 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



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

Roof Downspout Disconnection Program																									
	2008												2009												
Activity	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	
Phase 1 (Pilot Area within Thornhill M15 A)																									
(1) Retention of Source Detection Consultant																									
(2) Resident Communication re Overall Program & Disconnection																									
(3) Source Detection Program																									
(4) Assessment of Inflow Sources & Correction Options																									
(5) Resident Communication re Disconnection & Funding																									
(6) Downspout Disconnection by Homeowner																									
(7) Inspection of Disconnection & Homeowner Re-imbursement																									
(8) Sanitary System Inflow Corrections by Town																									
(9) Post Flow Monitoring (to determine program success)																									
(10) Program Review & Recommendations (Source & Disconnection)																									
Phase 2 - Remaining Thornhill area																									
(1) Source Detection																									
Legend: <span></span> Town Staff <span></span> Consultant / Contractor <span></span> Homeowner																									

Legend: Town Staff

Consultant / Contractor

Homeowner

# 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