




**THE MASTER PLAN**

- Master Plan defines the next steps needed to improve water quality and protect infrastructure
- Preferred Strategy
  - to achieve the ambitious goals of the plan (over 70 - 100 years)
- 25 year Master Plan
  - a list of projects to be implemented over the next 25 years
  - considers priority areas for water quality improvement and address corporate priorities:
    - Health & Safety (beach water quality, basement flooding, river flooding)
    - Legislative (combined sewer overflow control: MOE F5-5)
    - Infrastructure Protection & Renewal
    - Accommodate Growth
    - \$40 million annually for 25 years (or total of \$1 billion)

**WWFMMP PHILOSOPHY**

- Wet weather flow issues to be managed on a watershed basis



- Stormwater Management using a hierarchical approach:
  - Source Control // Conveyance System // End-of-pipe
- Source control measures considered first and balanced with the other measures in regards to impacts:
  - Environmental // Social // Economic

## PUBLIC EDUCATION



## MANAGEMENT & OPERATIONS PRACTICES



Street Cleaning



Catchbasin Cleaning



## SOURCE CONTROLS



Downspout Disconnection



Porous Pavers



Parking Lot Drainage  
Pocket Wetland



## CONVEYANCE MEASURES



Infiltration/Exfiltration  
Systems



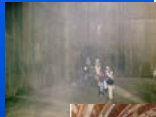
Roadside Swales



### END-OF-PIPE TREATMENT



Wet Pond/Wetland



Underground Storage Tanks



Flow Balancing System



Underground Infiltration Basin



### STREAM RESTORATION



Humber Creek



### PHYSICAL IMPACTS

- Surface Flooding



- Basement Flooding



- Stream Erosion



- Impacts on Infrastructure



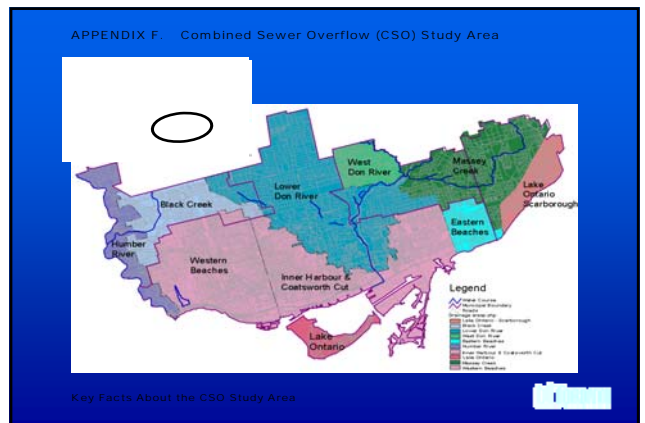
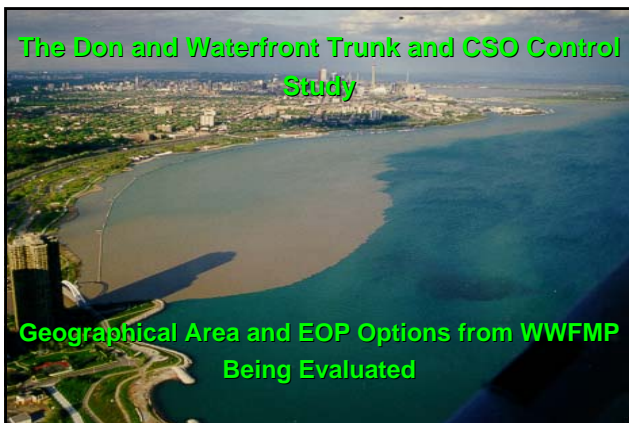
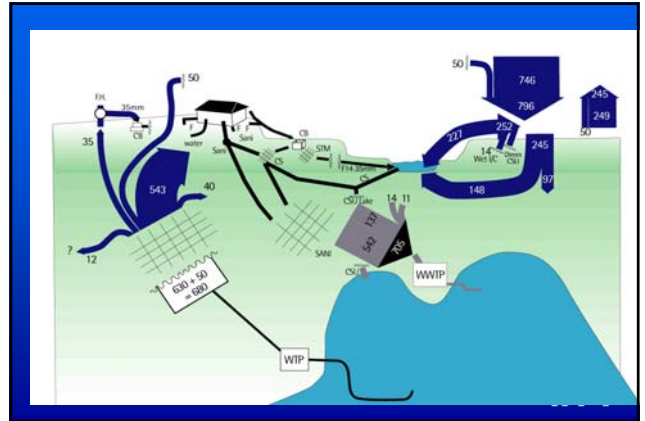
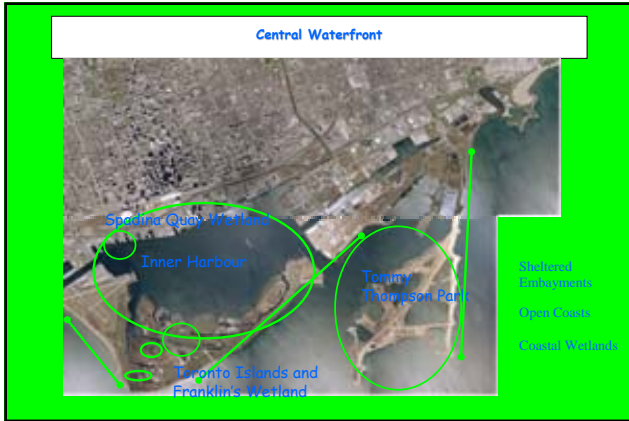
### DEVELOPMENT - REDEVELOPMENT - RETROFIT

#### LOT LEVEL CONTROLS

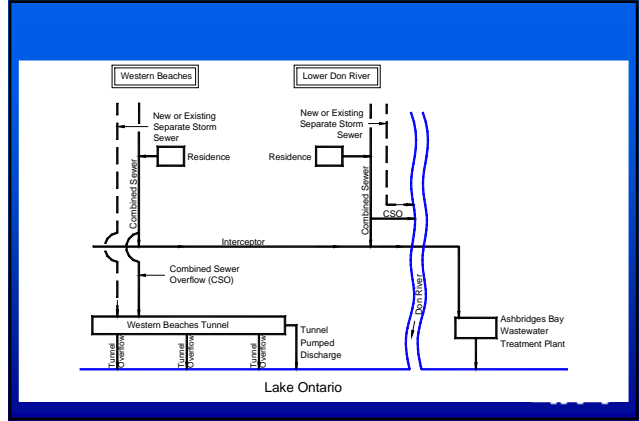
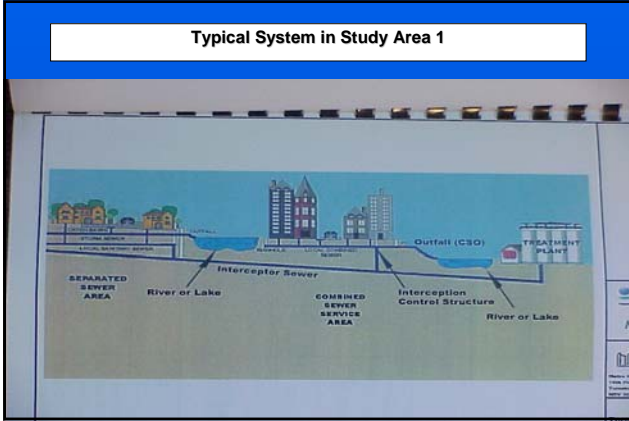


STORMWATER MANAGEMENT WET PONDS

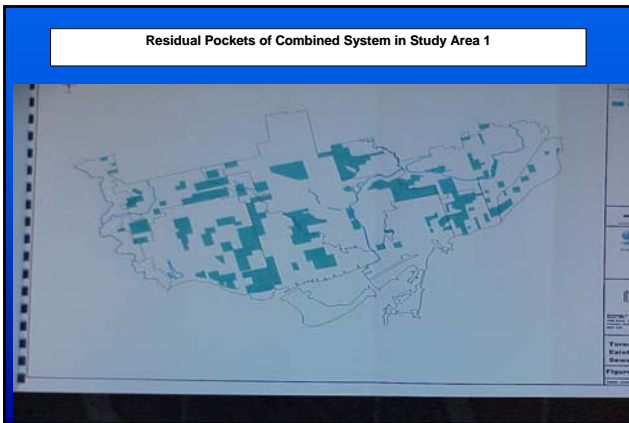




Typical System in Study Area 1

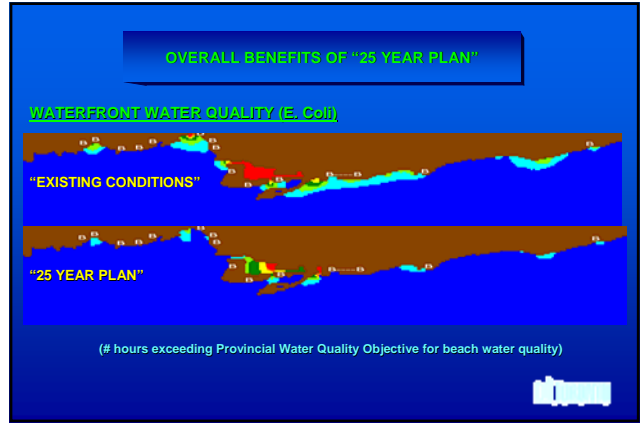
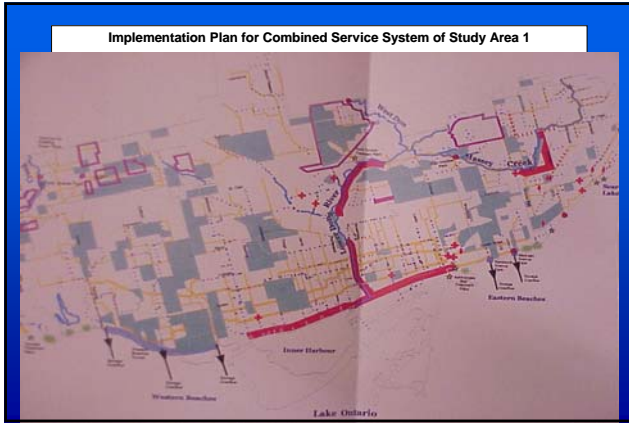


Residual Pockets of Combined System in Study Area 1



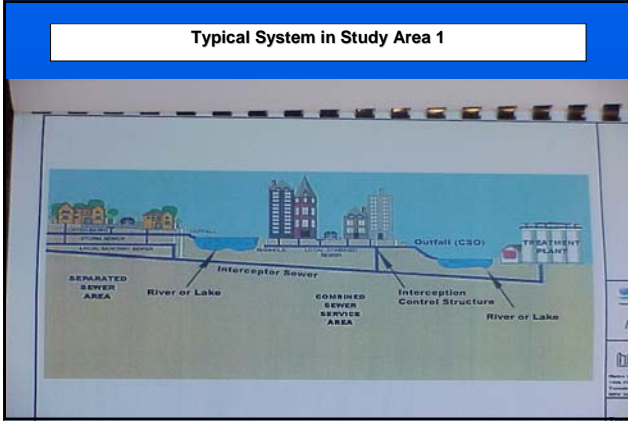
Existing Outfalls in Combined Service Area of Study Area 1



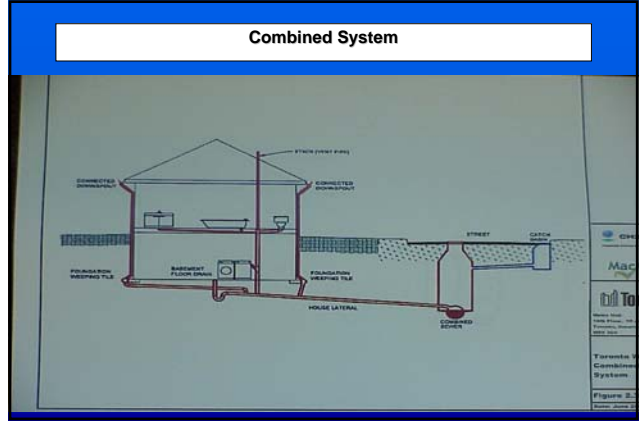


- WHAT CAN INDIVIDUAL DO
- Central Thinking Process
    - water flow pathways
  - Redevelopment and Industrial Areas
  - Individual
    - Lot level and human behaviour
  - Allied Efforts
    - water efficiency program
    - green roof

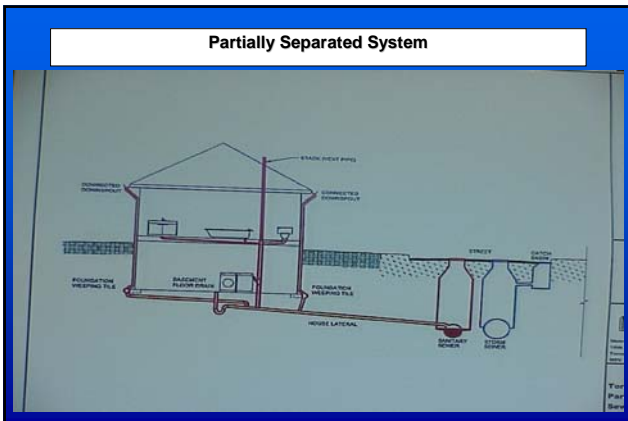
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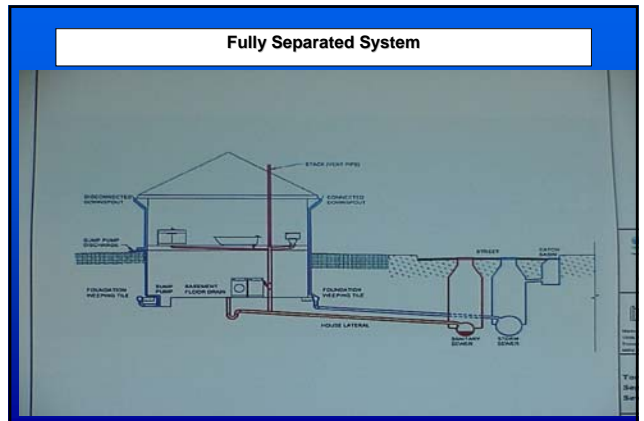
Combined System

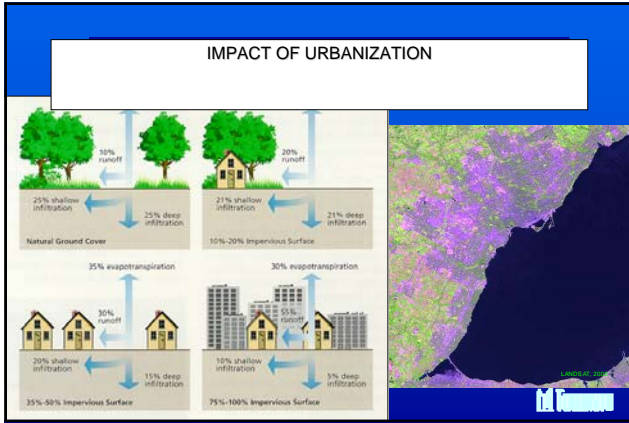


Partially Separated System



Fully Separated System





### DEVELOPMENT RELATED

**STORMWATER MANAGEMENT WET PONDS**

- Greenwood Race Track Redevelopment (Toronto)
- Woodbine Centre: Rattling Chain (Etobicoke)
- Greenbelt Drive (North York)
- Downsview Lands - Don River Valley (North York)

**LOT LEVEL CONTROLS**

- commercial/industrial
- surface drainage control and/or oil/grit collectors

### DEVELOPMENT - REDEVELOPMENT - RETROFIT

**LOT LEVEL CONTROLS**

**STORMWATER MANAGEMENT WET PONDS**

### SYSTEMS APPROACH - LOT LEVEL

**Prestige Industrial Catchment**

- Bio-filtration in Parking Lot
- Underground Storage in Parking Lot
- Additional Trees in Open Areas
- Oil/Grit Separators in Parking Lot
- Parking Lot Runoff to Pervious Areas
- Pervious Pavement in Parking Lot
- Catchbasin Controls in Parking Lot
- Rooftop Controls with Infiltration Gallery
- Rooftop Gardens



## NEW SEWER USE BY-LAW

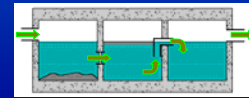
- No new connections to storm sewer system permitted
- Stormwater runoff to be addressed in Pollution Prevention Plans (required by commercial/industrial sectors)
- More stringent stormwater quality limits
- Most restrictive by-law in Canada



## SPILL CONTAINMENT DEVICES



- Underground spill containment tanks/devices
- Floatables, oils and grit are captured within the devices
- Site prioritization based on: spill frequency and outfall accessibility
- Require regular inspection & maintenance
- New monitoring technology being investigated for early spill warning



## YOU CAN MAKE A DIFFERENCE



Downspout Disconnection



## HOUSEHOLD STORMWATER



The problem

Stormwater runoff

**The solution:**

Disconnect your downspout from the sewer system and re-direct the rain away from the sewer system

Don't let it go down the drain, recycle your rain



YOU CAN MAKE A DIFFERENCE



Lot Grading & Rain Gardens



YOU CAN MAKE A DIFFERENCE



Porous Pavement



YOU CAN MAKE A DIFFERENCE



Pollution Prevention



YOU CAN MAKE A DIFFERENCE



Public Education



## YOU CAN MAKE A DIFFERENCE



### Public Education



## YOU CAN MAKE A DIFFERENCE



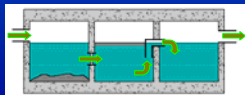
### Public Education



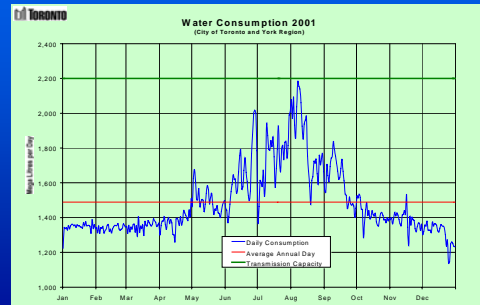
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## ANNUAL WATER CONSUMPTION





Wet Weather Flow Management Master Plan



JUMP IN GET INVOLVED!

