C 2 - COMMUNICATION
PKI - MARCH 17, 2014
ITEM 2

PRIORITIES AND KEY INITIATIVES COMMITTEE
March 17, 2014

CITY-WIDE WATER / WASTEWATER MASTER PLAN

CLASS ENVIRONMENTAL ASSESSMENT STUDY
NOTICE OF STUDY COMPLETION

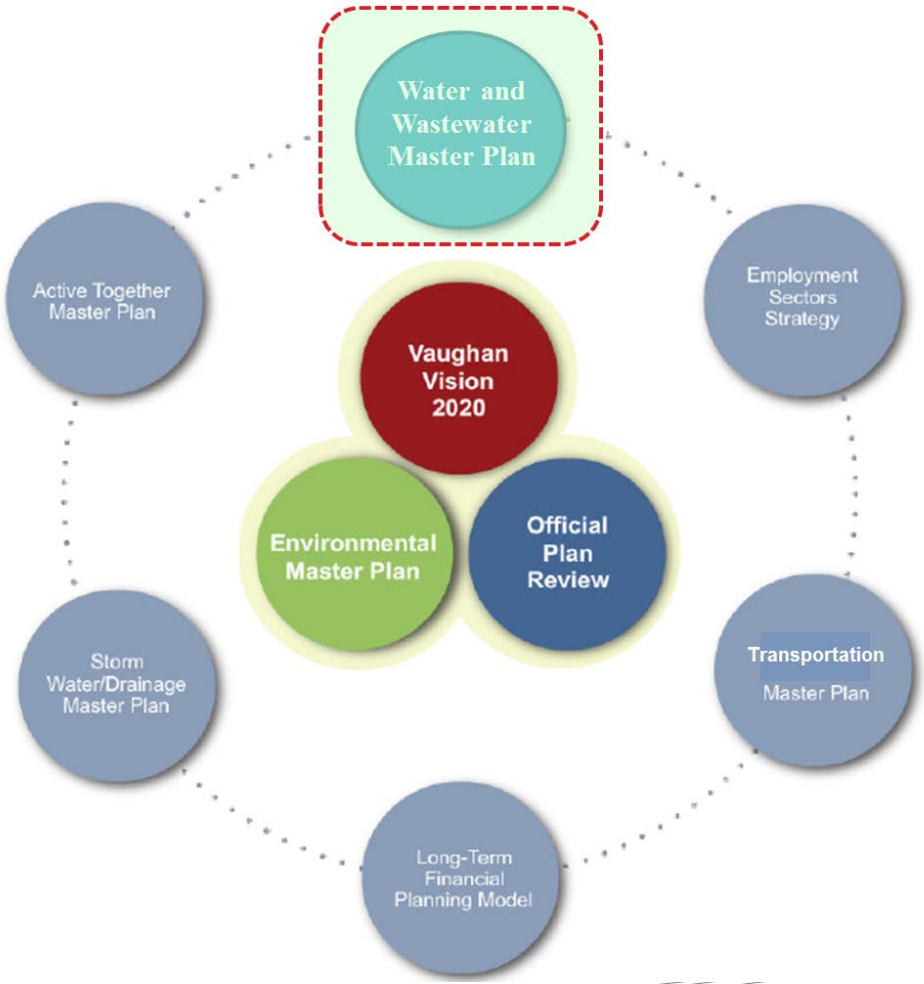
PRESENTATION OVERVIEW

1. Background
2. Water Infrastructure
3. Wastewater Infrastructure
4. Optimization Programs
5. Conclusions/Recommendations

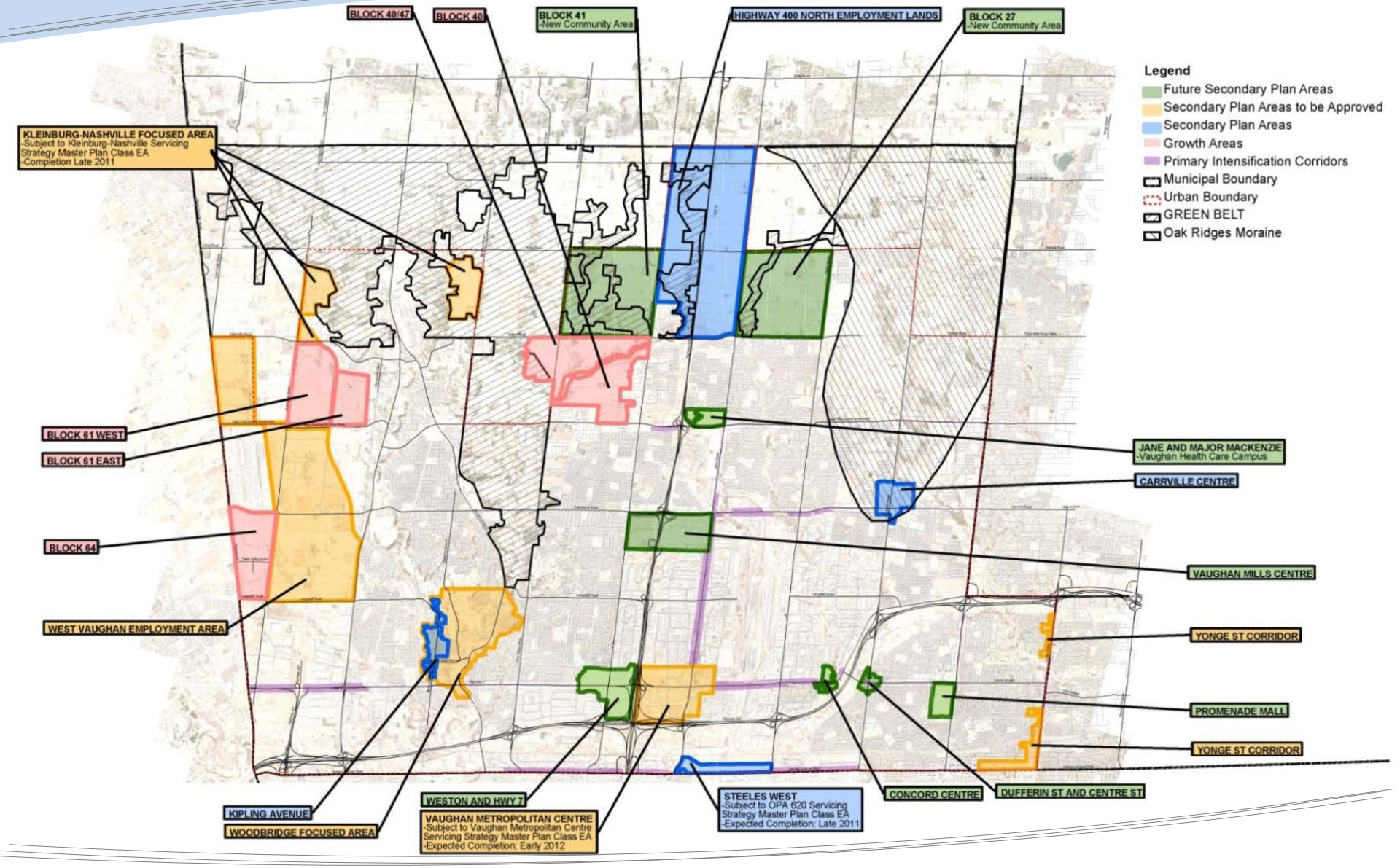
Relationship to Vaughan Tomorrow

Vaughan Tomorrow is the City's growth management program. It consists of:

- The *Vaughan Vision 2020*, outlining the City's mission, vision, goals and objectives
- The Environmental Master Plan, ensuring sustainability throughout all of the City's activities
- The Official Plan, creating a new official plan and secondary plans to guide development in Vaughan to 2031
- A series of individual master plans to support these growth management initiatives - including the Water/Wastewater Master Plan



Major Growth Areas – Official Plan 2010



MASTER PLAN IDENTIFIES NEED FOR NEW INFRASTRUCTURE AND OPTIMIZATION PROGRAMS TO MEET CITY'S PLANNED GROWTH

Recommendations of the Master Plan:

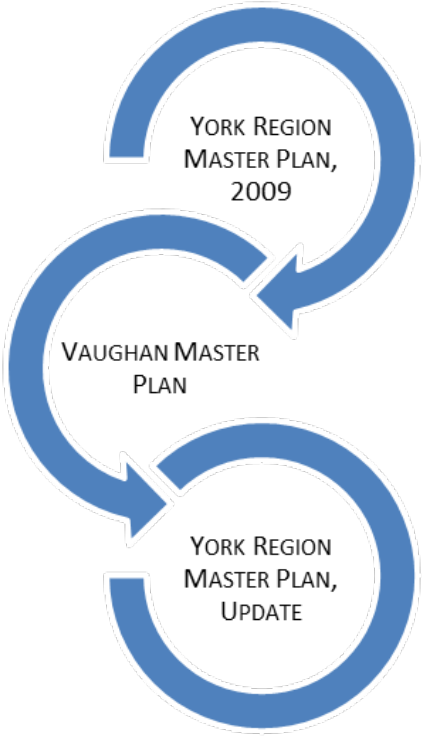
- Need to construct a network of new watermains and sanitary sewers to service planned growth
- Expand system optimization programs to ensure maximum efficiency of existing infrastructure to provide for growth in intensification and expansion areas
- Invest over $140 million in new servicing infrastructure and system monitoring/optimization programs

THE SUPPLY OF WATER & WASTEWATER COLLECTION IS PROVIDED THROUGH CLOSELY INTEGRATED SYSTEMS COMPRISED OF YORK REGION & CITY COMPONENTS

- Two-tier system approach composed of Regional trunk and City local servicing systems

- Well communicated and coordinated system for infrastructure improvements / programs and data sharing

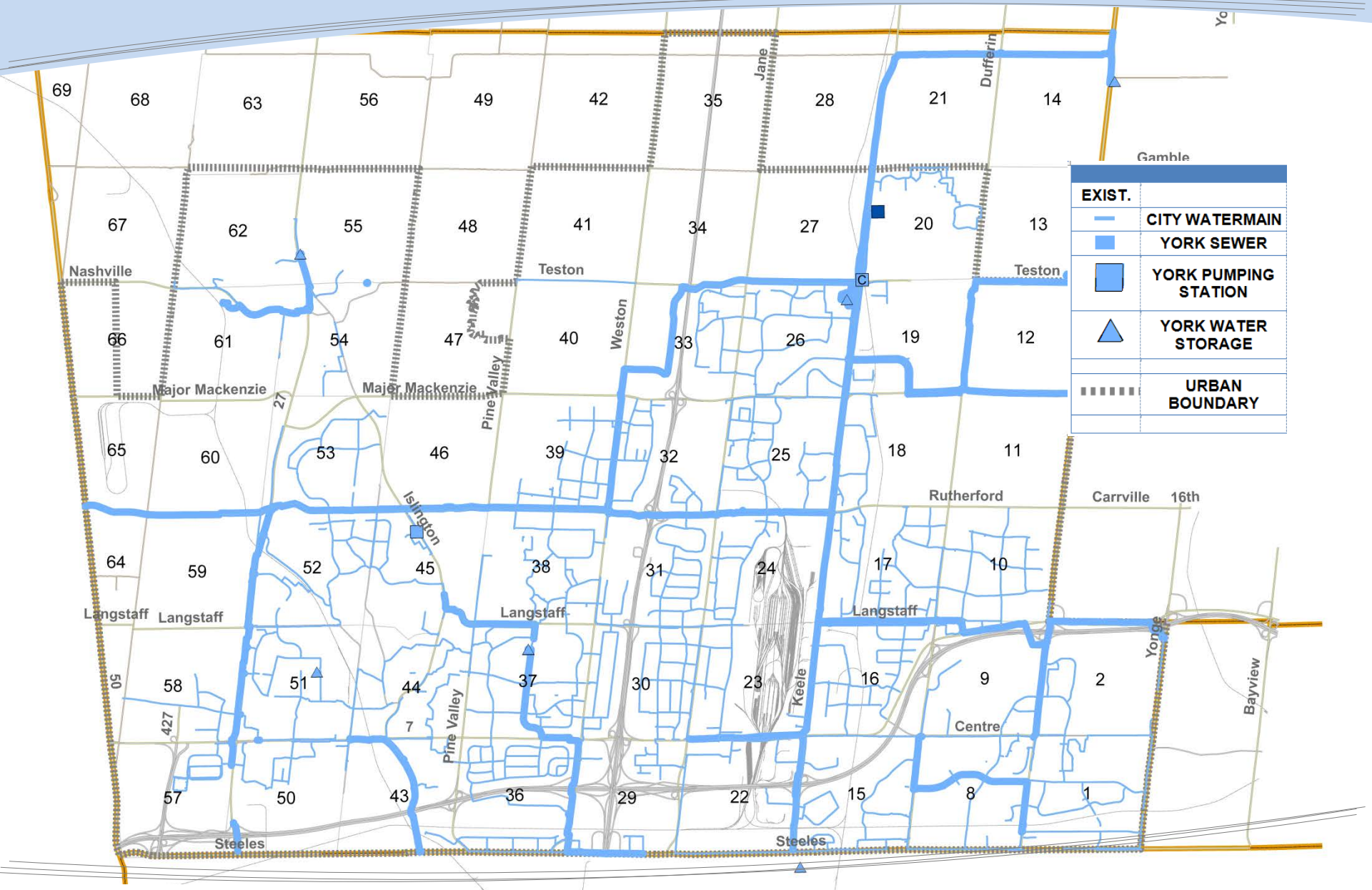
- On-going initiatives to improve City/Region collaboration include:
  - Adoption of common system modeling software;
  - Continued participation in Regional initiatives: All Pipes Model data sharing; Inflow/Infiltration Reduction;
  - Active participation in Liaison Meetings



NEW WATER & WASTEWATER IMPROVEMENTS NEEDED TO ACCOMMODATE GROWTH

- Master Plan prepared following Class Environmental Assessment Process
- Master Plan provides a comprehensive, coordinated and efficient framework for the expansion of the City-wide water and wastewater systems
- Plan identifies need for 26 new water & wastewater (major trunk) infrastructure projects to service growth areas
- Local servicing will be provided through development in the usual manner

Existing Water Distribution Network



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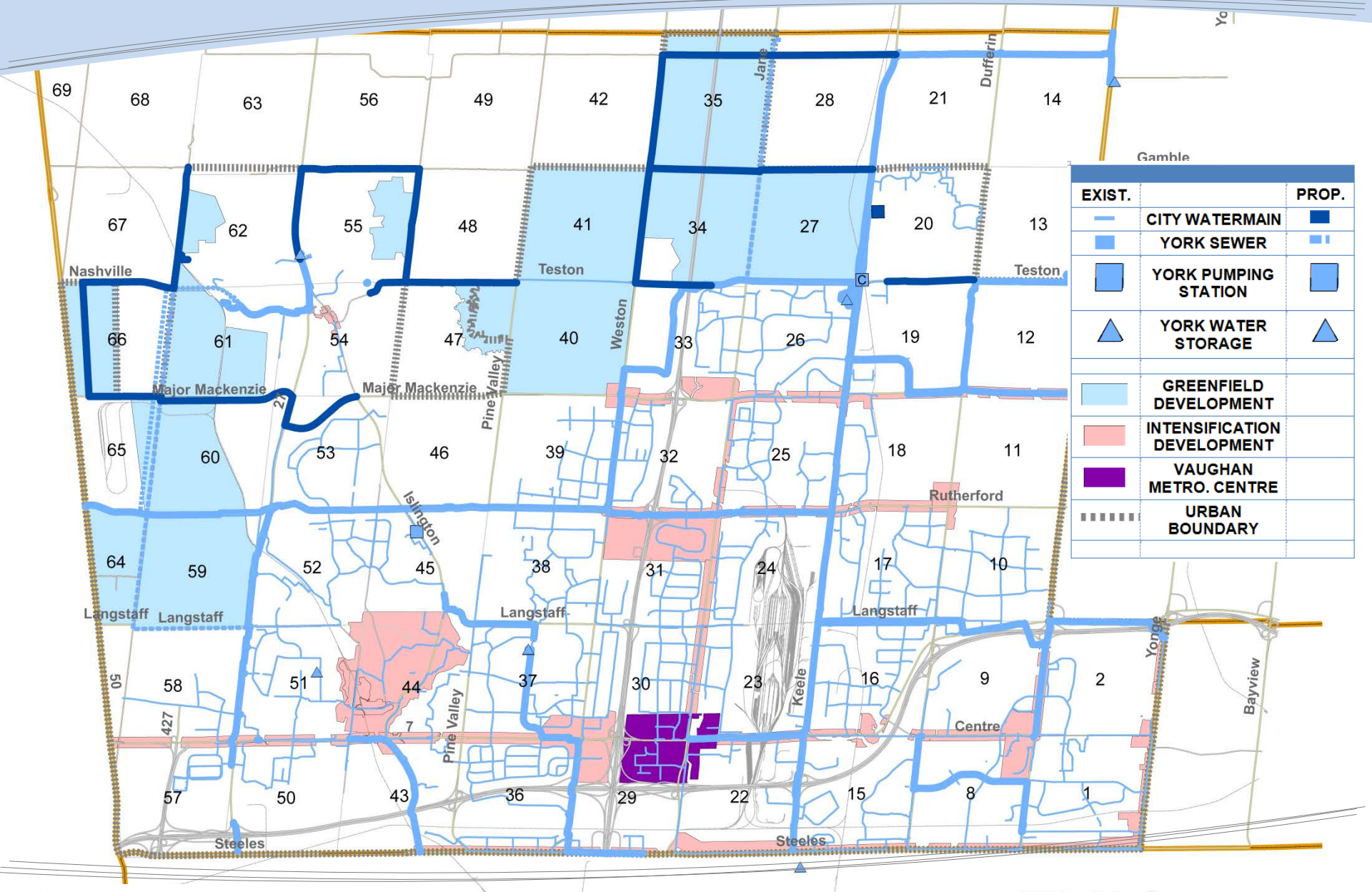
Planned Water Distribution Network



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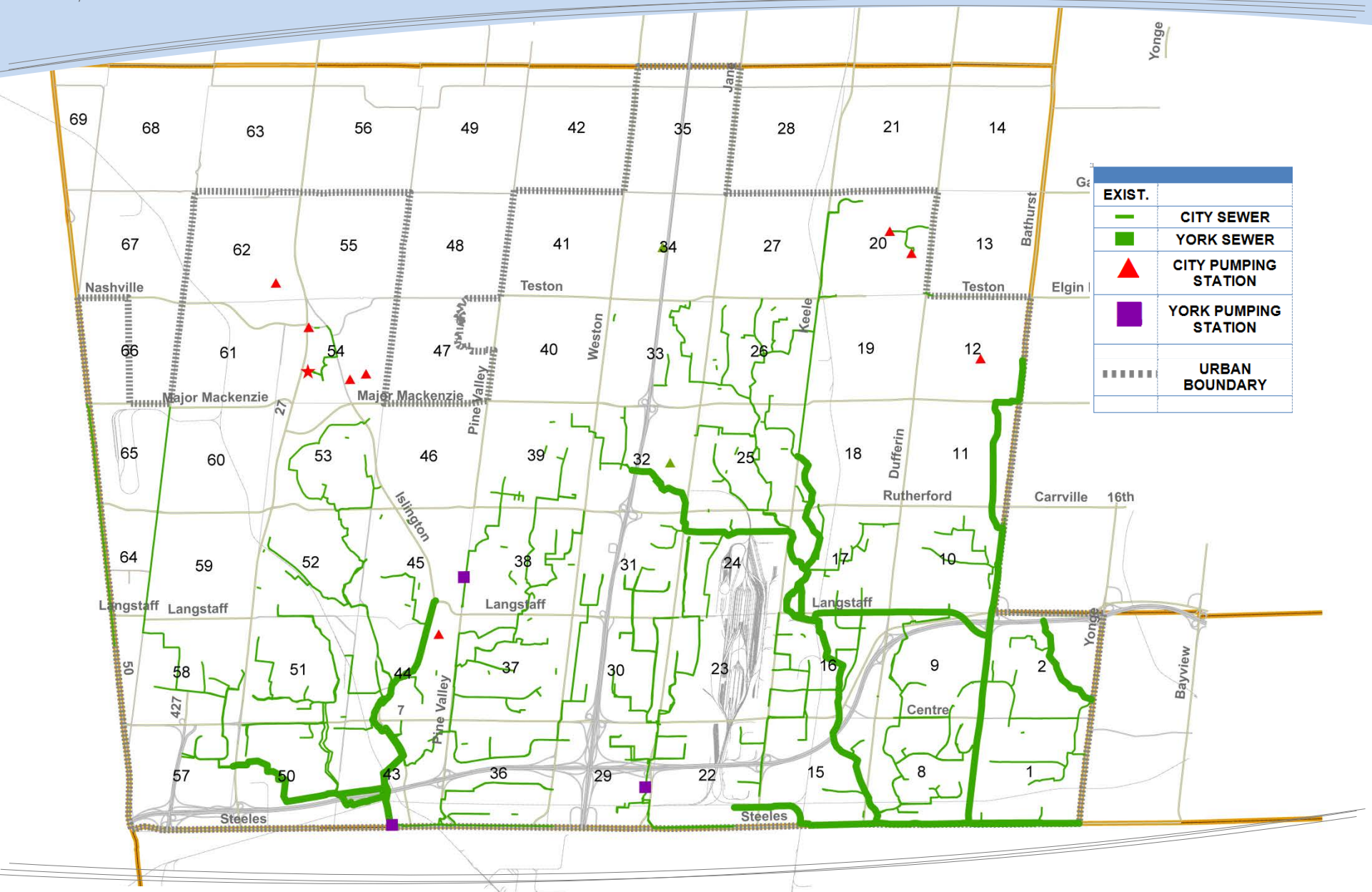
Physical Infrastructure Improvements – Water Servicing

ID	Description	Trigger/Timing	Anticipated Class EA Schedule	Estimated Cost (2013 dollars)
W1(A)	Option A: Teston Road PD8 Watermain	Subject to ongoing monitoring of pressures and construction of Teston Road connection	B	$2.8 M
W1(B)	*Option B:* *PD8 East Improvements*	*Connections to Region infrastructure. Subject to further study.*	*A+*	*$1.4 M* *(not carried in total)*
W3	Teston Road PD7 Watermain Twinning	Block 40/41747/55 Development. Subject to further study.	B	$5.6 M
W4	Block 35 PD8 Watermain	Block 34E/35 Development	A+	$23.9 M
W5	Weston Road PD7 Watermain	Block 34W/41 Development	A+	$2.8 M
W6	Forest Fountain Drive PD6 Watermain Connection	Subject to ongoing monitoring of pressures	A+	$0.4M
W7	Block 55 PD-KN Watermains	Block 55 Development	B	$10.1 M
W8	Major Mackenzie Drive PD6 Watermain	Block 60/61 Development	B	$7.2 M
W9	Huntington Road Watermain	Block 62W Development	A+	$3.2 M
W10	PD5-East Improvements	Subject to further study and ongoing monitoring of pressures	TBD	$1.7 M
W11	*Water Conservation Program -Water Loss Monitoring & Control System*	*Progressive development 2013-2017*	*TBD*	*$2.5M (not carried in total)*
W12	Realignment of PD4/PD5 Zone Boundary on Kipling Avenue	Subject to ongoing monitoring of pressures	A	$0.1M
W13	Block 66W PD6 Watermain	Development of the industrial lands	A+	$6.5 M
W14	PD9 Pumping Station	Subject to condition assessment of existing City pumping station	B	$3.4 M
	TOTAL WATER PROJECTS			❖ $68 M

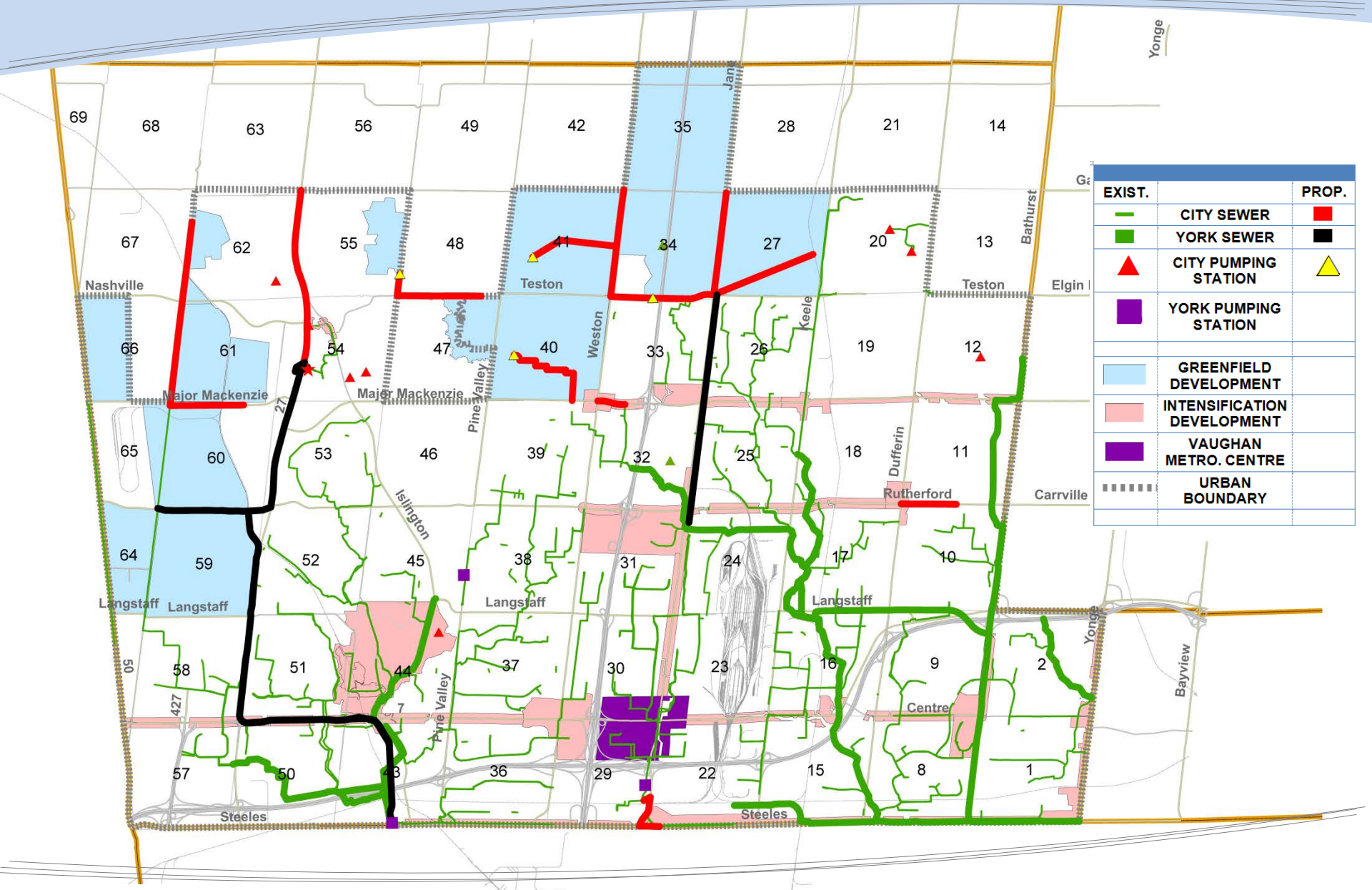
- ❖ Estimated capital cost for water infrastructure at full build out
- ❖ Growth related infrastructure constructed by development
- ❖ Funding included in the City's current Development Charge Background Study and City Wide By-Law
- ❖ Estimated increase in operating & maintenance costs - $2M (water & wastewater)

Existing Wastewater System



Priority & Key Initiatives Committee
March 17, 2014

Planned Wastewater System



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Physical Infrastructure Improvements – Wastewater Servicing

ID	Description	Trigger/Timing	Anticipated Class EA Schedule	Estimated Cost (2013 dollars)
WW1	Jane Street Sub-Trunk Sanitary Sewer	Block 35E Development. Subject to completion of York Region EA.	A+	$3.3 M
WW2	Block 27 Sub-Trunk Sanitary Sewer	Block 27 Development	A+	$1.7 M
WW3	Teston Road Sub-Trunk Sanitary Sewer and SPS	Block 34/35W/41 Development	B	$10 M
WW4	Weston Sub-Trunk Sanitary Sewer	Block 34W/35W/41 Development	A+	$2.6 M
WW5	Block 55 SPS/Forcemain	Block 55 Development	B	$5.4 M
WW6	Huntington Road Sub-Trunk Sanitary Sewer	Block 62W Development	A+	$2.1 M
WW7	Major Mackenzie Drive Sub-Trunk Sanitary Sewer	Block 61 Development	B	$2.6 M
WW8	Carrville Centre Sewer (Rutherford Road)	Carrville Centre Development	A+	$1.5 M
WW9	Vellore Centre Sewer (Major Mackenzie Drive)	Vellore Centre Development	A+	$700K
WW10	South Jane Street Sanitary Sewer Upgrades	Steeles West Development	A+	$2.2 M
WW11	Pine Valley North SPS/Forcemain	Block 40/41W/47/55 Development	B	$28.6 M
WW12	Highway 27 (Kleinburg) Sanitary Sewer	Further Development in North Kleinburg	A+	$3.6 M
WW13	Block 41 SPS, Forcemain and Sanitary Sewer	Block 41 Development	B	$5.3 M
WW14	*Flow Monitoring and Sewer Capacity Analysis Studies (3 studies)*	*2014*	*TBD*	*($2.5 M) (not carried in total)*
WW15	*City-Wide Infiltration/Inflow (I/I) Monitoring and Reduction (50 flow monitors)*	*Progressive development during 2013-2017*	*TBD*	*($2.5 M) (not carried in total)*
	TOTAL WASTEWATER PROJECTS			$70 M*

- Estimated capital cost for wastewater infrastructure at full build out
- Growth related infrastructure constructed by development
- Funding will be collected through future Area Specific Development Charge By-Laws
- Estimated increase in operating & maintenance costs - $2M (water & wastewater)

CITY TO OPTIMIZE EXISTING SYSTEMS TO SERVICE INTENSIFICATION AREAS

Key programs and recommendations of the Master Plan:

1. Water Conservation / Leak Detection
2. Inflow/Infiltration Reduction
3. Flow Monitoring

Implementation/expansion of these programs will assist to:

- ✓ Maximize efficiencies within existing network of pipes and facilitate new growth
- ✓ Maintain levels of service for existing communities and new development
- ✓ Meet City's legislative obligations - MOE and Regional mandates for Inflow/Infiltration Reduction and Water Conservation

Key programs and recommendations of the Master Plan

1. Water Conservation / Leak Detection:

- Assist in long-term water conservation
- Support growth by minimizing the amount of water lost through leakage as water infrastructure ages

2. Inflow/Infiltration Reduction:

- Minimize extraneous flows entering the sanitary sewer system
- Maximize use of existing wastewater system capacity
- Reduces capacity constraints within the existing system
- Decreases risk of potential surcharging and basement flooding

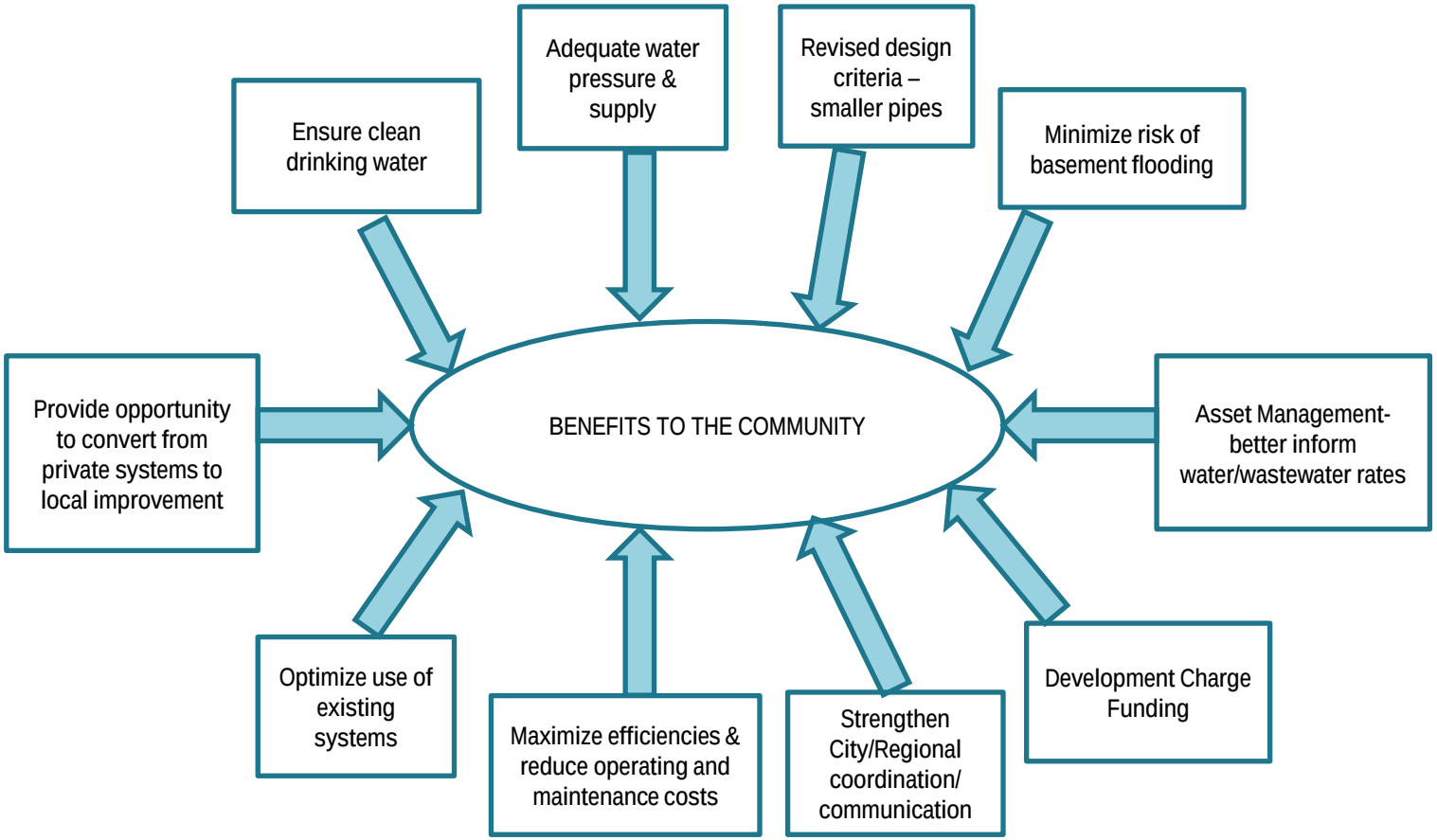
3. Flow Monitoring:

- Supports I/I Reduction program
- Intensification is serviced through the existing sanitary system
- Verify that the existing conditions are consistent with the design parameters in the hydraulic model
- Allows maximum system efficiency as additional demands are introduced

Total estimated operating/equipment cost $1.5 million/year

Funding source may include development charges, water/sewer rates & water/sewer reserves

Benefits of Implementing the Master Plan



To support planned growth demands, City needs to…

- ✓ Expand the existing water and wastewater systems through the construction of 26 major trunk infrastructure projects
- ✓ Expand system optimization programs to ensure maximum efficiency of existing infrastructure to provide for growth in intensification and expansion areas
- ✓ Invest over $140 million in new servicing infrastructure and system monitoring/optimization programs

Next Steps

- Finalize Master Plan document
- Issue Notice of Study Completion
- Place Master Plan on Public Record for 30-Day review period

QUESTIONS ?