

**C 2**

**Communication**

**CW(WS) – May 8, 2024**

**Item No. 2**

# **Integrated Urban Water Plan (IUWP)**

**Committee of a Whole (Working Session)  
May 8<sup>th</sup>, 2024**

**Report No. 19  
Item # 2**







# Land Acknowledgment

We respectfully acknowledge that the City of Vaughan is situated in the Territory and Treaty 13 lands of the Mississaugas of the Credit First Nation. We also recognize the traditional territory of the Huron-Wendat and the Haudenosaunee. The City of Vaughan is currently home to many First Nations, Métis and Inuit people today. As representatives of the people of the City of Vaughan, we are grateful to have the opportunity to work and live in this territory.



# AGENDA

## Developing a Sustainable and Integrated Urban Water System

- Vision, Goals & Drivers
- Connecting Past, Present & Future
- Regional Context
- Planned Growth
- Municipal Environmental Assessment (EA)

## Consultation and Engagement

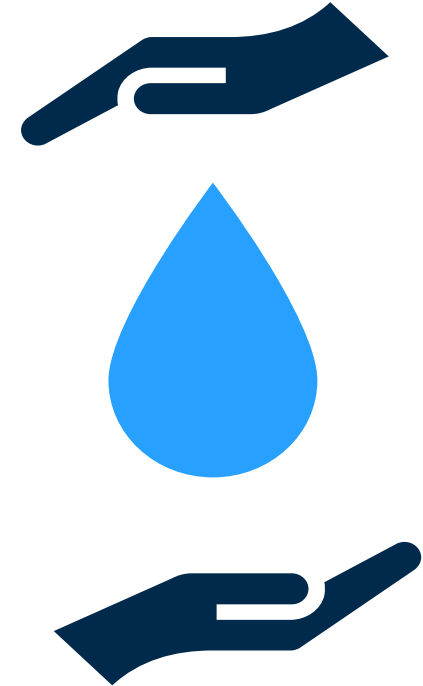
## Future Water Plans: City Wide + 12 Focus Areas + 23 MTSAs

## Next Steps

# VISION

**To establish a comprehensive plan for Vaughan's Water, Wastewater and Stormwater systems that meets present and future needs while prioritizing environmental sustainability and resiliency.**

**Environmental = Cultural + Social + Physical + Financial**





# IUWP & City's Strategic Goals



Meet Existing Needs, Regulatory & Legislative Requirements



Support Growth



Maintain Or Improve Service Levels



Improve System Resiliency And Operational Flexibility



Consider Long-term Financial Viability Of Systems

- ✓ Community Safety and Well-being
- ✓ Environmental Sustainability
- ✓ City Building
- ✓ Service Excellence and Accountability
- ✓ Transportation and Mobility
- ✓ Service Excellence and Accountability
- ✓ Active, Engaged and Inclusive Communities

# Drivers



## Rapid Growth

- Essential to Revisit Needs
- Servicing Supply and Collection Capacities
- Optimization of existing system



## New Approach

- In-house modelling capability
- Improved Regional collaboration
- Reduce cross-boundary reliance



## Planning for Buildout

- Flexibility in Servicing Strategy
- Understanding of Servicing Impacts and Costs

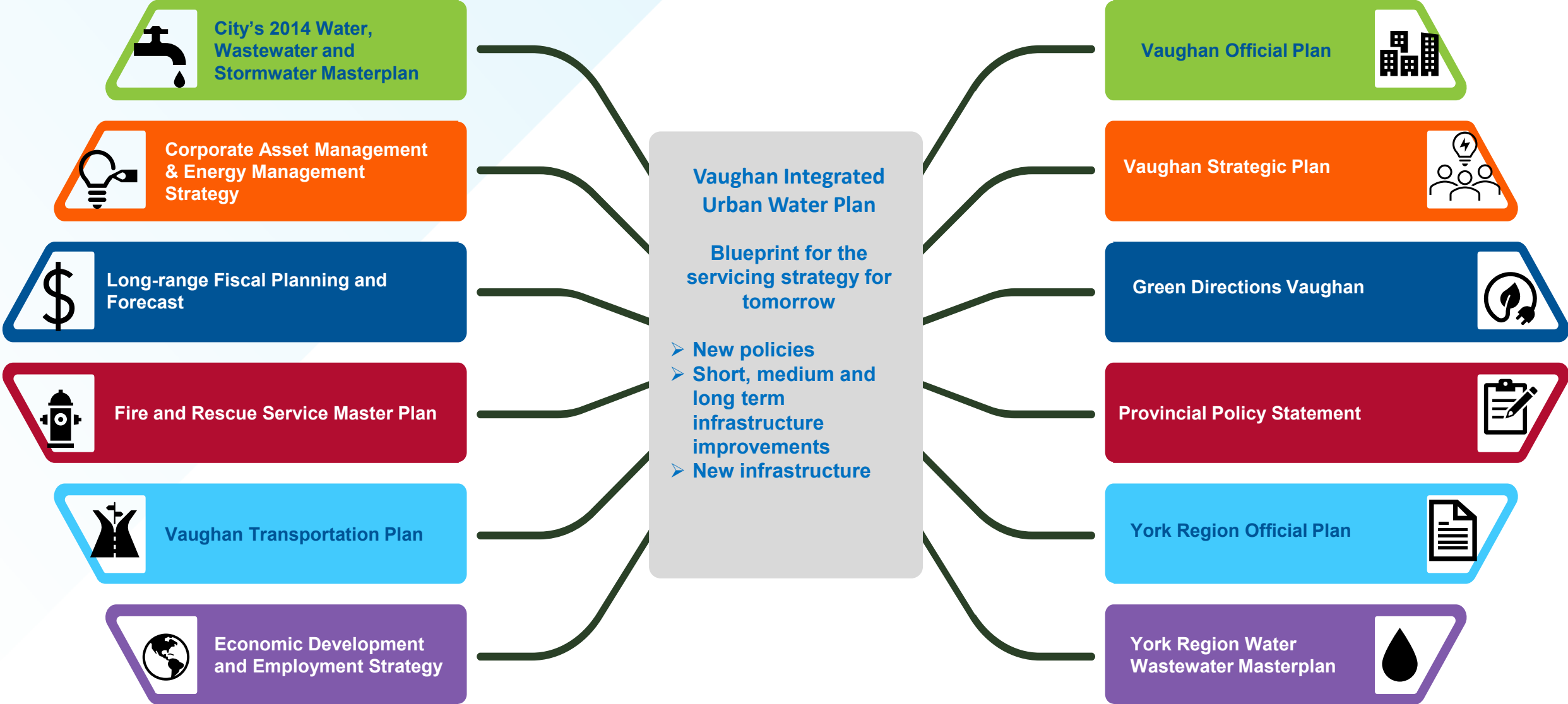


## Long-Term Financial Planning

- Capital Forecast to Service Existing and Support Future Growth
- Development Charges and Rates Updates



# CONNECTING PAST, PRESENT & FUTURE



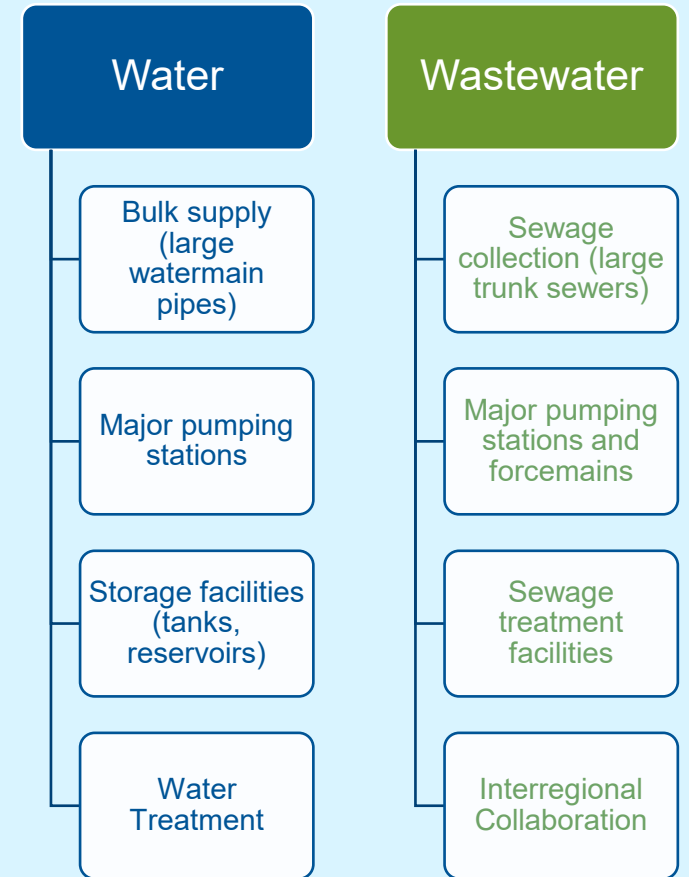
# REGIONAL SERVICING CONTEXT

## Upper and Lower Tiers



- York Region is **wholesale provider** to all local municipalities
- Local municipalities (Vaughan) are **retail providers** to end-users (all customers)

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

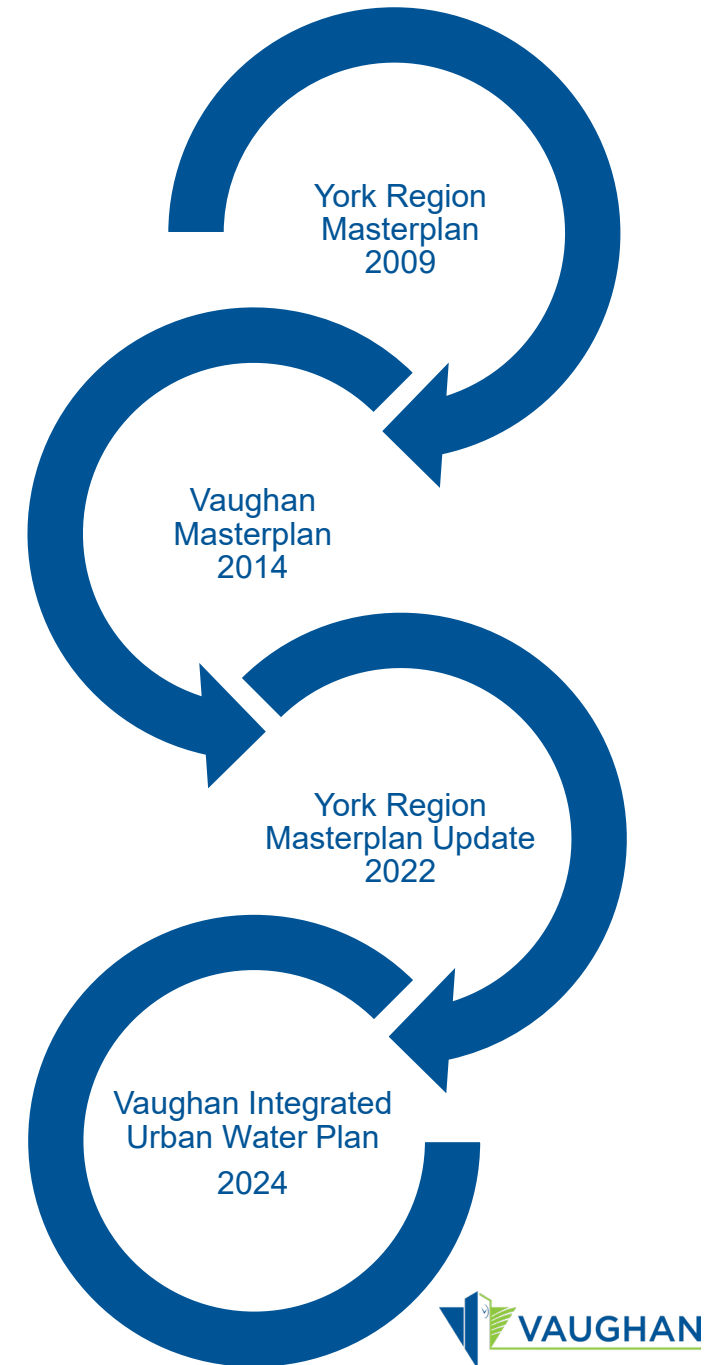


Allocation of overall system capacity to all local area municipalities

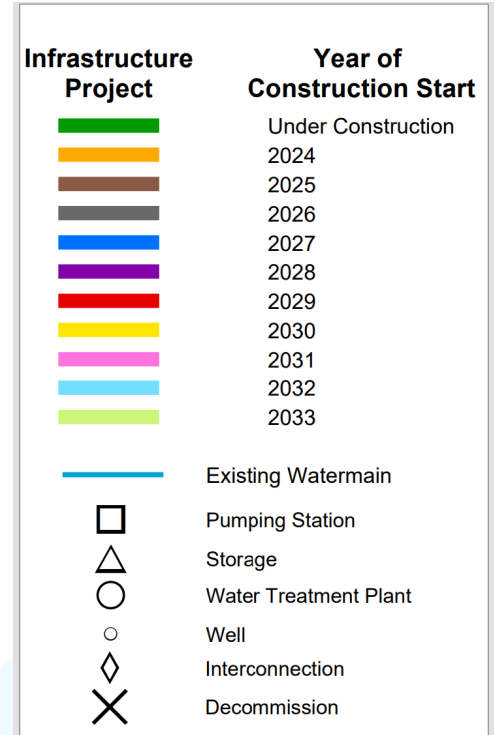
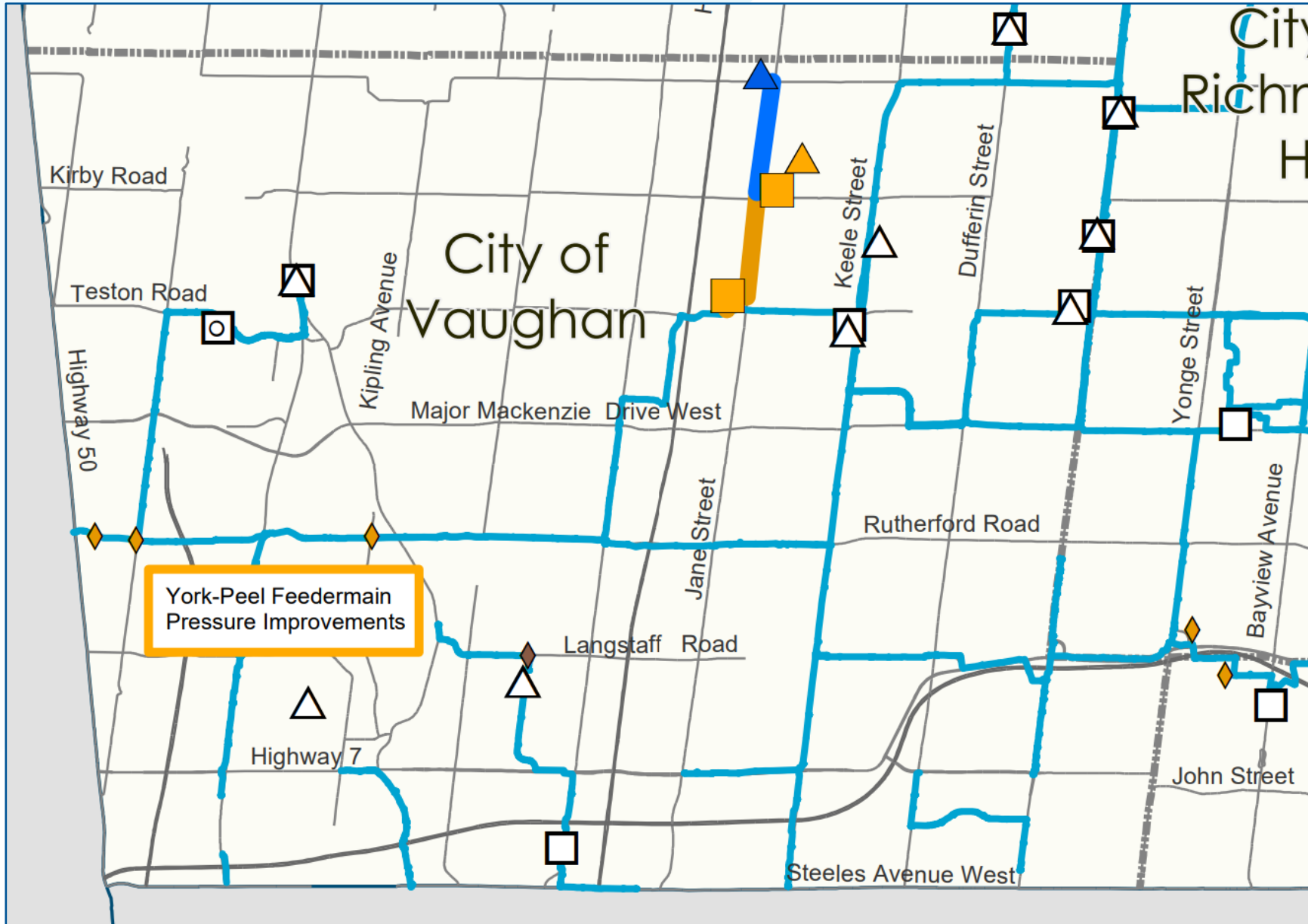


# REGIONAL CONTEXT

- Well communicated and coordinated system for infrastructure improvements/programs and data sharing
- On-going initiatives to improve City/Region collaboration include:
  - All pipes hydraulic model management
  - Flow monitoring data sharing
  - Inflow/Infiltration reduction
  - Active participation in Liaison Committee meetings



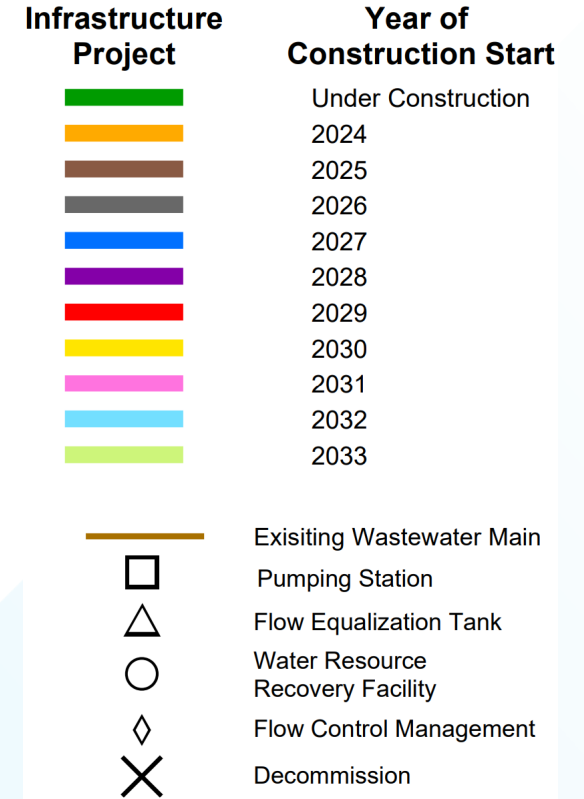
# REGIONAL 10 YEAR WATER CONSTRUCTION PROGRAM



As Approved by Regional Council December 2023



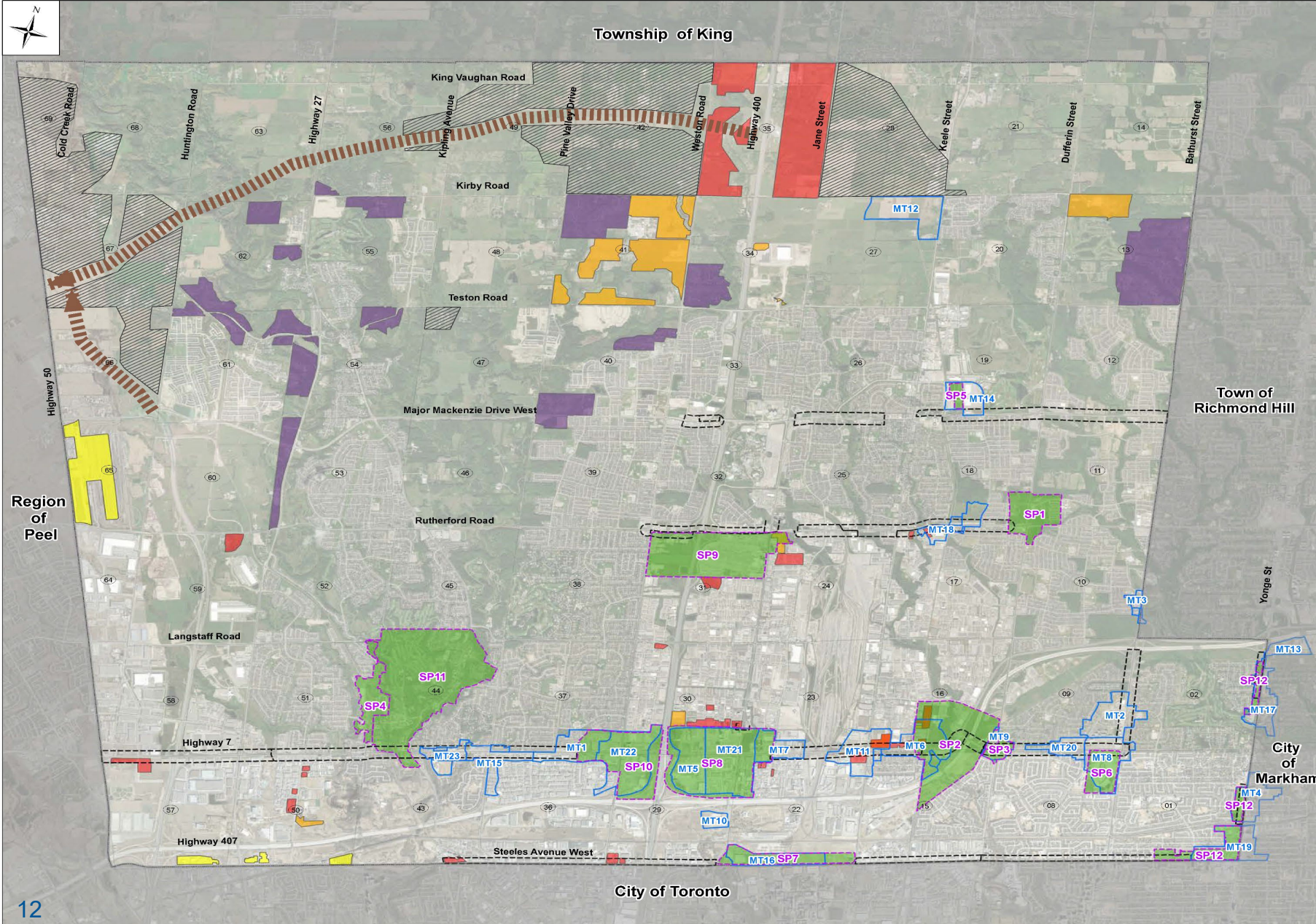
# REGIONAL 10 YEAR WASTEWATER CONSTRUCTION PROGRAM



As Approved by Regional Council December 2023



# VAUGHAN'S PLANNED GROWTH



- Legend**
- Secondary Plan Areas (14) Index
  - Major Transit Station Areas (35) Index
  - Regional Intensification Corridors (23)
  - Employment Conversion Requests
  - Ministerial Zoning Orders (MZOs)
  - Properties on City Boundaries
  - White Belts
  - Existing Septic and/or Well
  - Municipal Boundary
  - 58 Block Number
  - GTA west - Preferred Alignment

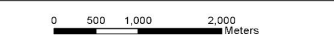
Secondary Plan Areas	
SP1	Carrville Centre
SP2	Concord GO Centre
SP3	Dufferin Street and Centre Street
SP4	Kipling Avenue Corridor
SP5	Maple GO Station
SP6	Promenade Centre
SP7	Steeles West
SP8	Vaughan Metropolitan Centre
SP9	Vaughan Mills Centre
SP10	Weston Road and Highway 7
SP11	Woodbridge Centre
SP12	Yonge Steeles Corridor
Major Transit Station Areas (MTSA)	
MT1	Anslie Grove BRT Station
MT2	Atkinson BRT Station
MT3	Bathurst-Highway 7 BRT Station
MT4	Clark Subway Station
MT5	Commerce BRT Station
MT6	Concord BRT Station
MT7	Creditstone BRT Station
MT8	Disera - Promenade BRT Station
MT9	Dufferin BRT Station
MT10	Highway 407 Subway Station
MT11	Keele BRT Station
MT12	Kirby GO Station
MT13	Langstaff-Longbridge Subway Station
MT14	Maple GO Station
MT15	Pine Valley BRT Station
MT16	Pioneer Village Subway Station
MT17	Royal Orchard Subway
MT18	Rutherford GO Station
MT19	Steeles Subway Station
MT20	Taiga BRT Station
MT21	Vaughan Metropolitan Centre Subway Station
MT22	Weston BRT Station
MT23	Wilgoss-Helen BRT Station



VAU19-0018  
- Integrated Urban Water Master Plan

Study Area

Drawn By: J.H. Date: Jan 10, 2024



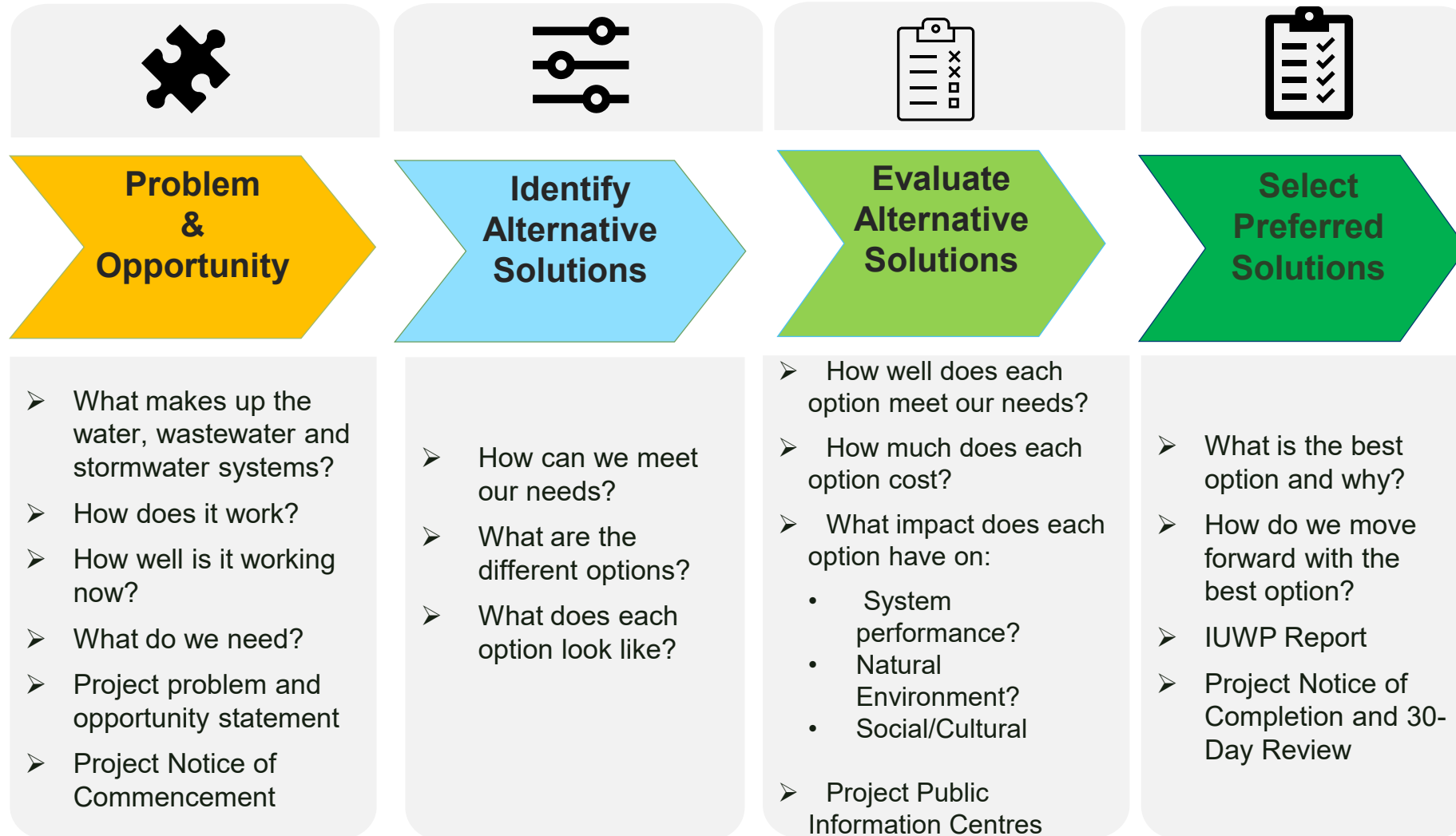
# Focus Areas

- Concord GO Centre
- Dufferin Street and Centre Street
- Kipling Avenue and Highway 7
- Maple GO
- Promenade Centre
- Vaughan Mills Centre
- Vaughan Metropolitan Centre
- Weston Road and Highway 7
- Steeles West Corridor
- Carrville Centre
- Woodbridge Centre
- Yonge Street and Steeles Avenue

- Major Transit Station Areas (MTSAs)
- Regional Intensification Corridors
- Interim Servicing Strategy (ISS) Areas
- Ministerial Zoning Orders (MZO's)
- Employment conversions
- **Secondary Plan Areas**
- Properties on private systems
- Properties along City boundaries currently connected to neighbouring municipalities (Inter Regional connections)
- White Belt/Urban expansion areas (residential and employment)
- Secondary suite allowance / sensitivity analysis



# Environmental Assessment Process





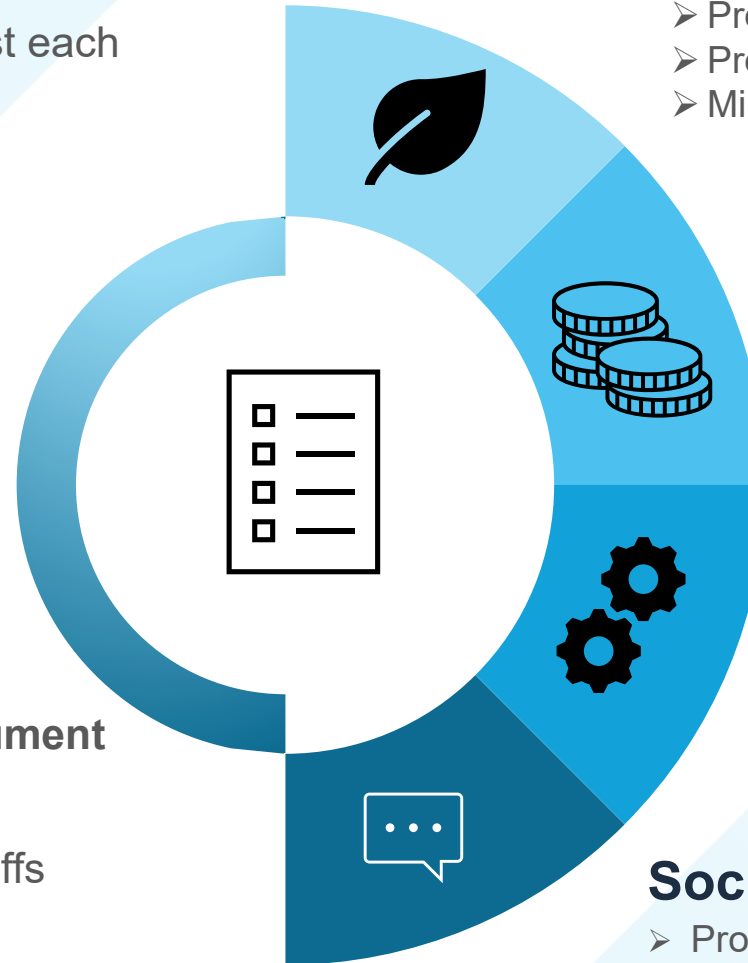
# Criteria Scoring and Selection

Each individual project was evaluated against each criteria using the following rank approach:

- **“High”** Solution generates beneficial impacts and/or has no substantial technical challenges
- **“Medium”** Solution with a mix of positive and negative elements with some impacts
- **“Low”** Solution presents permanent negative impacts and/or presents significant technical challenges

Selection was guided by the **Reasoned Argument Approach**

- ✓ Clear and thorough rationale of the tradeoffs among the various criteria
- ✓ Highlights the best alternative



## Environmental Factors

- Protect environmental features
- Protect wildlife and species-at-risk
- Minimize climate change impacts

## Financial Viability

- Capital and life-cycle costs
- Operation and maintenance costs

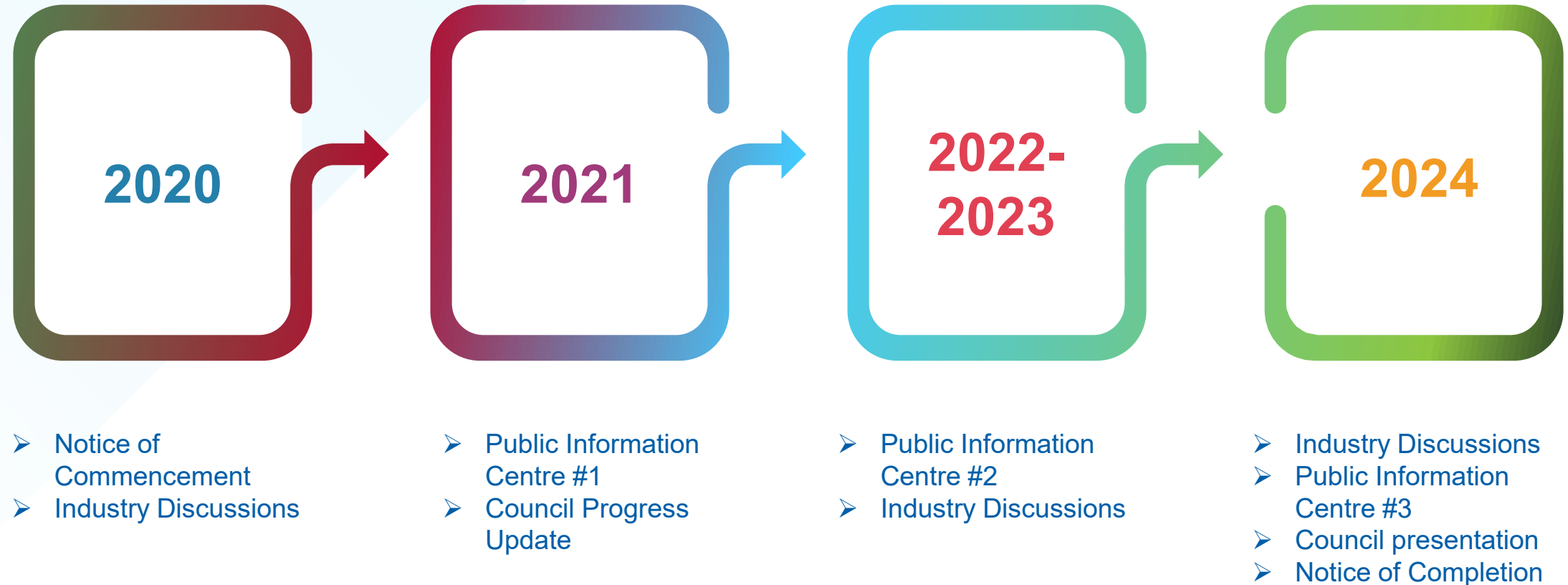
## Technical Factors

- Meet existing and future servicing needs
- Support phased expansion of the system
- Provide a reliable service
- Minimize and manage construction risks
- Align approval and permitting process
- Ability to adapt to climate change

## Social And Cultural Factors

- Protect resident quality of life
- Manage and minimize construction impacts
- Protect cultural heritage features
- Protect archaeological features

# Consultation and Engagement



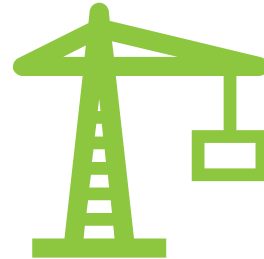
# Key Recommendations

## Optimize



**Expand system optimization programs to maximize existing infrastructure and provide for growth**

## Construct



**Expand the existing water and wastewater systems through infrastructure construction projects**

## Invest



**Invest in new infrastructure and system monitoring/optimization programs**

# Key Programs Recommended

## Systems Optimization Program

### Water

- Loss and Demand Management
- Conservation
- Recycling and Reuse
- Pricing and Rates
- Smart Meter Technology, Monitoring & Analysis

### Wastewater

- Inflow and Infiltration Reduction (I/I)
- Public & Private I/I Reduction Partnership
- Sanitary Sewer Flow Monitoring
- Basement Flooding Protection

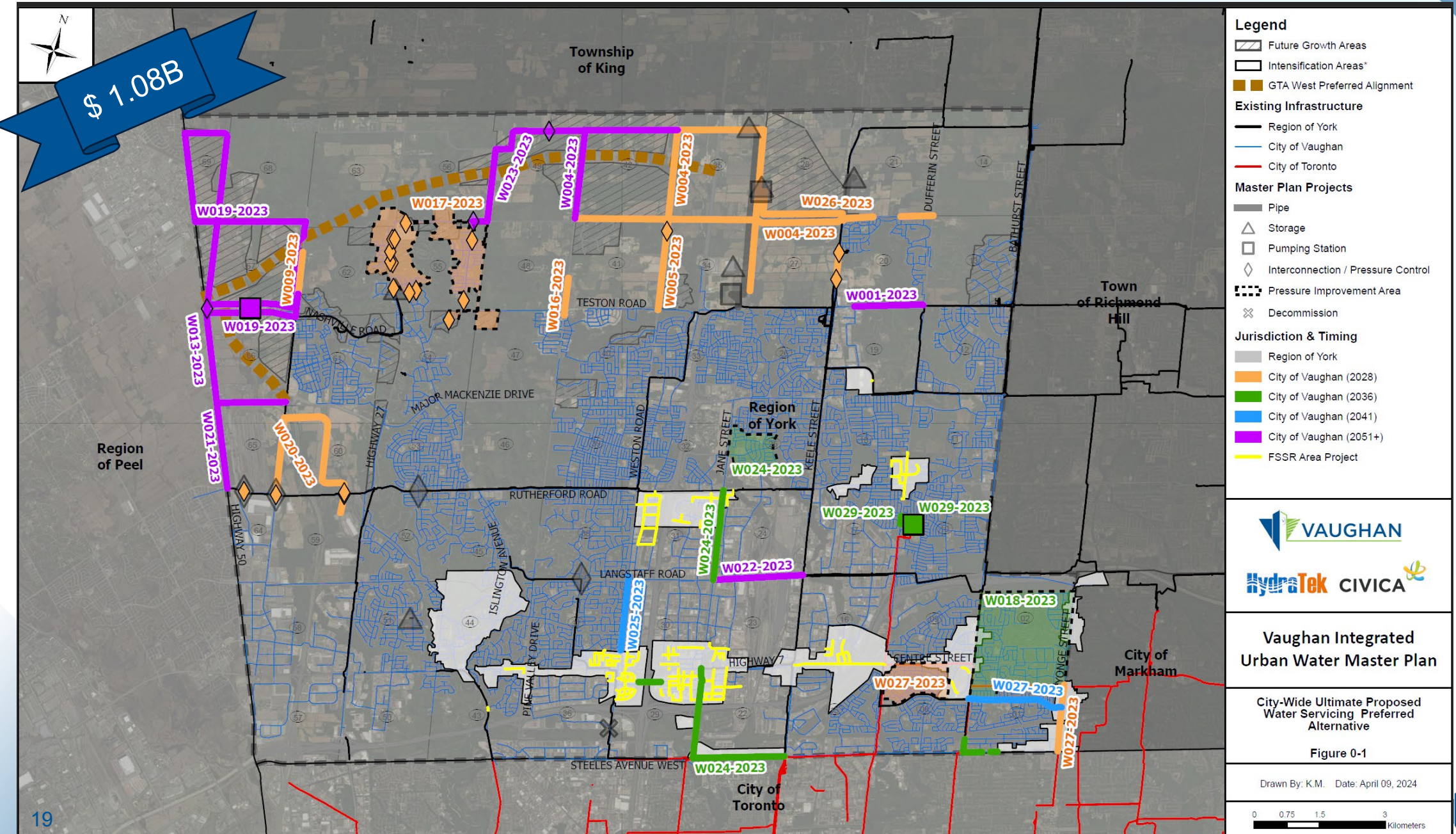
### Stormwater

- Greywater and Rainwater Harvesting
- Low Impact Development (LID)
- Overland Flood Protection
- Green Infrastructure Development

- ✓ **Integrated Approach for Water Resources Management**
- ✓ **Sound Asset Management Plans and Policies**
- ✓ **Long term financial sustainability**
- ✓ **Land Use Planning and City Building**



# Water Infrastructure Needs



# City Wide Water Cost Estimate

**\$ 1.08B**

Area	Project ID	Budget	Estimated Timing	EA Schedule
City-wide	W001-2023	\$8,900,000	2051	Exempt
	W004-2023	\$106,300,000	2028	Schedule B
		\$33,000,000	2051	Schedule B
	W005-2023	\$14,000,000	2028	Exempt
	W009-2023	\$5,800,000	2028	Exempt
		\$3,300,000	2051	Exempt
	W011-2023	TBD on site-by-site basis		
	W013-2023	\$51,600,000	2051	Schedule B
	W016-2023	\$5,700,000	2028	Exempt
	W017-2023	\$4,600,000	2028	Exempt
	W018-2023	\$2,300,000	2036	Exempt
	W019-2023	\$126,200,000	2051	Schedule B
	W020-2023	\$36,500,000	2028	Exempt
	W021-2023	\$15,500,000	2051	Schedule B
	W022-2023	\$18,000,000	2051	Exempt
	W023-2023	\$30,100,000	2051	Schedule B
	W024-2023	\$93,600,000	2036	Exempt/B (TBC)
	W025-2023	\$9,500,000	2036	Schedule B

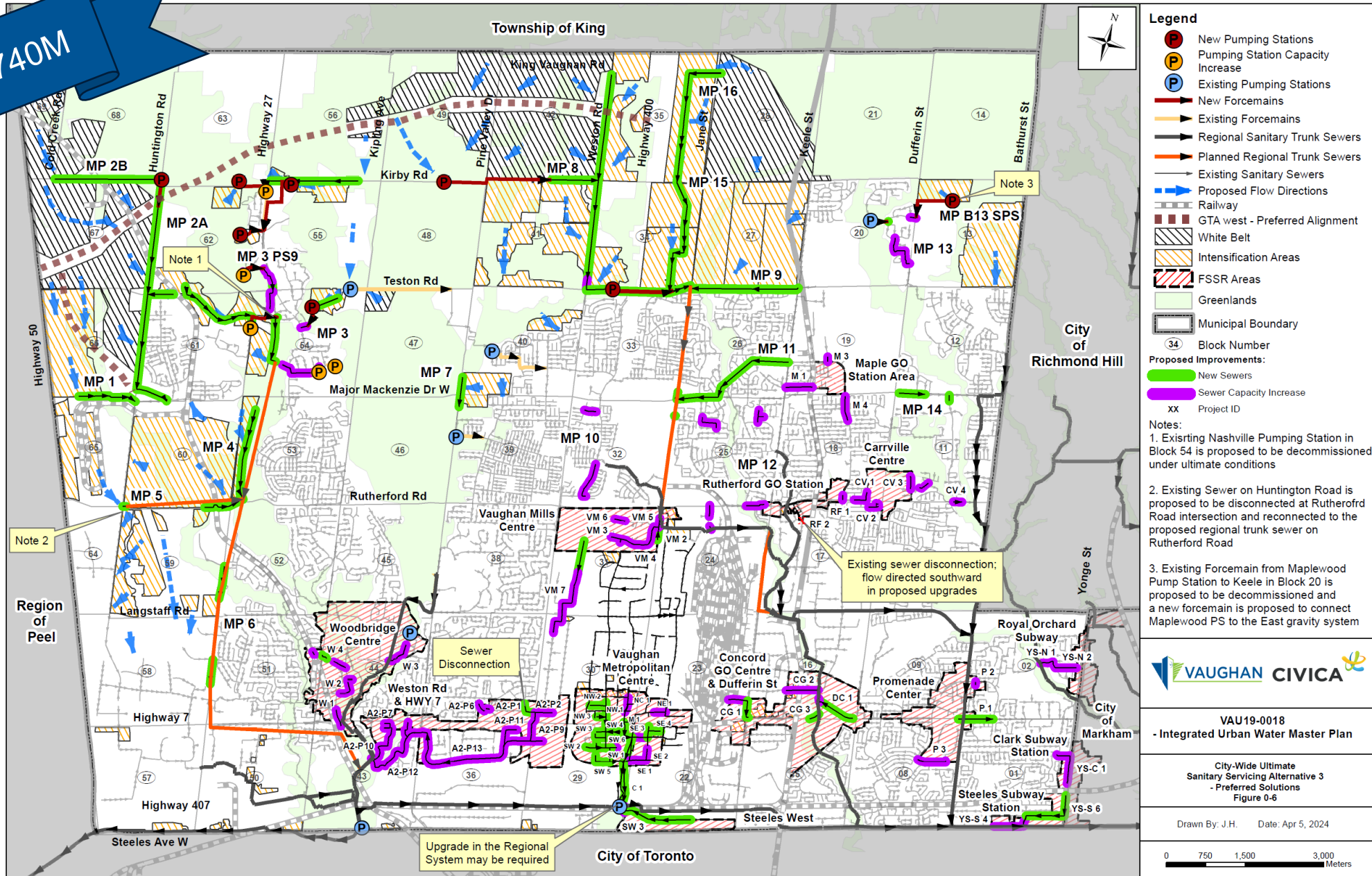
Area	Project ID	Budget	Estimated Timing	EA Schedule	
		\$10,900,000	2041	Exempt	
	W026-2023	\$56,700,000	2028	Exempt	
	W027-2023	\$22,900,000	2028	Exempt	
		\$8,500,000	2036	Exempt	
		\$19,400,000	2041	Exempt	
	W028-2023	\$300,000	2028	Exempt	
	W029-2023	\$35,500,000		Schedule B	
		<b>\$719,100,000</b>			
	Concord Go and Dufferin & Centre	1	\$11,900,000	2028	Exempt
		2	\$5,900,000	2041	Schedule B
3		\$4,200,000	2041	Schedule B	
	<b>\$22,000,000</b>				
Maple Go Station	1	\$500,000	2041	Exempt	
	<b>\$500,000</b>				
Promenade	1	\$1,500,000	2041	Schedule B	
	2	\$2,000,000	2041	Schedule B	
	<b>\$3,500,000</b>				
VMC	1	\$58,700,000	2036	2036	
	2	\$1,300,000	2028	2028	
	3	\$1,800,000	2028	2028	
	4	\$3,300,000	2028	2028	
	5	\$15,600,000	2041	2041	
	6	\$22,500,000	2041	2041	
	7	\$11,400,000	2051	At time of road construction	
	<b>\$114,600,000</b>				
Weston and Highway 7	1	\$10,100,000	2028	Schedule B	
	2	\$7,900,000	2036	Exempt	
	3	\$1,100,000	2041	Schedule B	
	4	\$4,600,000	2041	Exempt	
	5	\$21,600,000	2041	Schedule B	
	6	\$400,000	2041	Exempt	
	7	\$8,100,000	2041	Schedule B	
	<b>\$53,800,000</b>				
Carrville Centre	1	\$800,000	2041	Schedule B	
	2	\$1,700,000	2041	Schedule B	
	3	\$1,600,000	2041	Exempt	
	4	\$8,700,000	2041	Schedule B	
	<b>\$12,800,000</b>				
Vaughan Mills	1	\$19,200,000	2028	Schedule B	
	2	\$5,000,000	2036	Schedule B	
	3	\$9,100,000	2036	Schedule B	

Area	Project ID	Budget	Estimated Timing	EA Schedule
		\$33,300,000		
Yonge and Steeles	1	\$21,400,000	2028	Exempt
	2	\$18,000,000	2041	Exempt
	3	\$3,400,000	2036	Exempt
	4	\$5,900,000	2036	Exempt
		<b>\$48,700,000</b>		
<b>Total</b>		<b>\$1,008,300,000</b>		



# Wastewater Infrastructure Needs

**\$ 740M**



# Citywide Wastewater Cost Estimate

Area	Project Code	Budget	Estimated Timing	EA Schedule
City Wide	MP 1	\$10,700,000	Prior 2028	Exempt
	MP 2A	\$29,800,000	Prior 2028	Schedule B
	MP 2B	\$31,600,000	2051	Schedule B
	MP 3	\$97,900,000	Prior 2028	Schedule B
	MP 4	\$25,500,000	Prior 2028	Exempt
	MP 5	\$900,000	Prior 2028	Exempt
	MP 6	\$6,800,000	Prior 2028	Exempt
	MP 7	\$2,300,000	Prior 2028	Exempt
	MP 8A	\$91,600,000	Prior 2028	Schedule B
	MP 8B	\$38,400,000	2051	Schedule B
	MP 9	\$19,200,000	Prior 2028	Exempt
	MP 10	\$4,400,000	Prior 2028	Exempt
	MP 11	\$4,600,000	Prior 2028	Exempt
	MP 12	\$11,400,000	Prior 2028	Exempt
	MP 13	\$5,900,000	Prior 2028	Schedule B
	MP B13 SPS	\$14,500,000	Prior 2028	Schedule B
	MP 14	\$9,900,000	Prior 2028	Exempt
MP 15	\$37,100,000	Prior 2028	Exempt	
MP 16	\$4,300,000	2051	Exempt	
	Flow Monitoring and Sewer Capacity Analysis Studies	\$5,000,000	Prior 2028	
	City-Wide Infiltration/Inflow (I/I) Monitoring and Reduction	\$5,000,000	Prior 2028	
		<b>\$456,800,000</b>		
Concord Go and Dufferin & Centre	CG 1	\$8,200,000	Prior 2028	Exempt
	CG 2	\$21,300,000	Prior 2028	Schedule B
	CG 3	\$4,800,000	Prior 2028	Exempt
	DC 1	\$11,200,000		Exempt
		<b>\$45,500,000</b>		
Maple Go Station	M 1	\$1,700,000	Prior 2028	Exempt
	M 3	\$700,000	Prior 2036	Exempt
	M 4	\$2,100,000	Prior 2028	Exempt
		<b>\$4,500,000</b>		
Promenade	P 1	\$10,400,000	Prior 2028	Exempt

Area	Project Code	Budget	Estimated Timing	EA Schedule
	P 2	\$400,000	2036-2041	Exempt
	P 3	\$2,800,000	Prior 2028	Exempt
			<b>\$13,600,000</b>	
Steeles West	SW3	\$5,800,000	Prior 2028	Schedule B
		<b>\$5,800,000</b>		
Vaughan Metropolitan Centre	NC 1	\$2,700,000	Prior 2028	Exempt
	NW 1	\$8,200,000	Prior 2028	Exempt
	NW 2	\$1,600,000	Prior 2028	Schedule B
	NW 3	\$1,000,000	Prior 2028	Schedule B
	SW 1	\$700,000	2036-2041	Exempt
	SW 2	\$2,100,000	Prior 2028	Exempt
	SW 3	\$900,000	Prior 2028	Exempt
	SW 4	\$1,700,000	Prior 2028	Schedule B
	SW 5	\$2,200,000	Prior 2028	Exempt
	SW 6	\$1,300,000	Prior 2028	Exempt
	SE 1	\$2,300,000	Prior 2028	Exempt
	SE 2	\$1,100,000	Prior 2028	Exempt
	SE 3	\$1,700,000	Prior 2028	Exempt
	SE 4	\$2,400,000	Prior 2028	Schedule B
	C 1	\$21,500,000	Prior 2028	Schedule B
	M 1	\$11,500,000	Prior 2028	Schedule B
	NE 1	\$1,400,000	Prior 2028	Exempt
		<b>\$64,300,000</b>		
Weston and Highway 7	A2-P 1	\$1,800,000	Prior 2028	Schedule B
	A2-P 2	\$1,800,000	Prior 2028	Exempt
	A2-P 6	\$900,000	Prior 2028	Exempt
	A2-P 7	\$1,600,000	Prior 2028	Exempt
	A2-P 9	\$10,400,000	Prior 2028	Exempt
	A2-P 10	\$5,700,000	Prior 2028	Exempt
	A2-P 11	\$2,700,000	Prior 2028	Exempt
	A2-P 12	\$16,200,000	Prior 2028	Exempt
	A2-P 13	\$24,000,000	Prior 2028	Exempt
			<b>\$65,100,000</b>	
Carrville Centre	CV 1	\$2,100,000	Prior 2028	Exempt
	CV 2	\$1,100,000	2036-2041	Schedule B
	CV 3	\$2,400,000	2036-2041	Exempt
	CV 4	\$4,100,000	2036-2041	Exempt
		<b>\$9,700,000</b>		
Rutherford Go Station	RF1 and RF 2	\$700,000	Prior 2028	Exempt
		<b>\$700,000</b>		
Vaughan Mills	A2-VM 2	\$1,200,000	Prior 2028	Exempt
	A2-VM 3	\$1,000,000	Prior 2028	Exempt
	A2-VM 4	\$5,100,000	Prior 2028	Exempt
	A2-VM 5	\$2,100,000	Prior 2028	Exempt

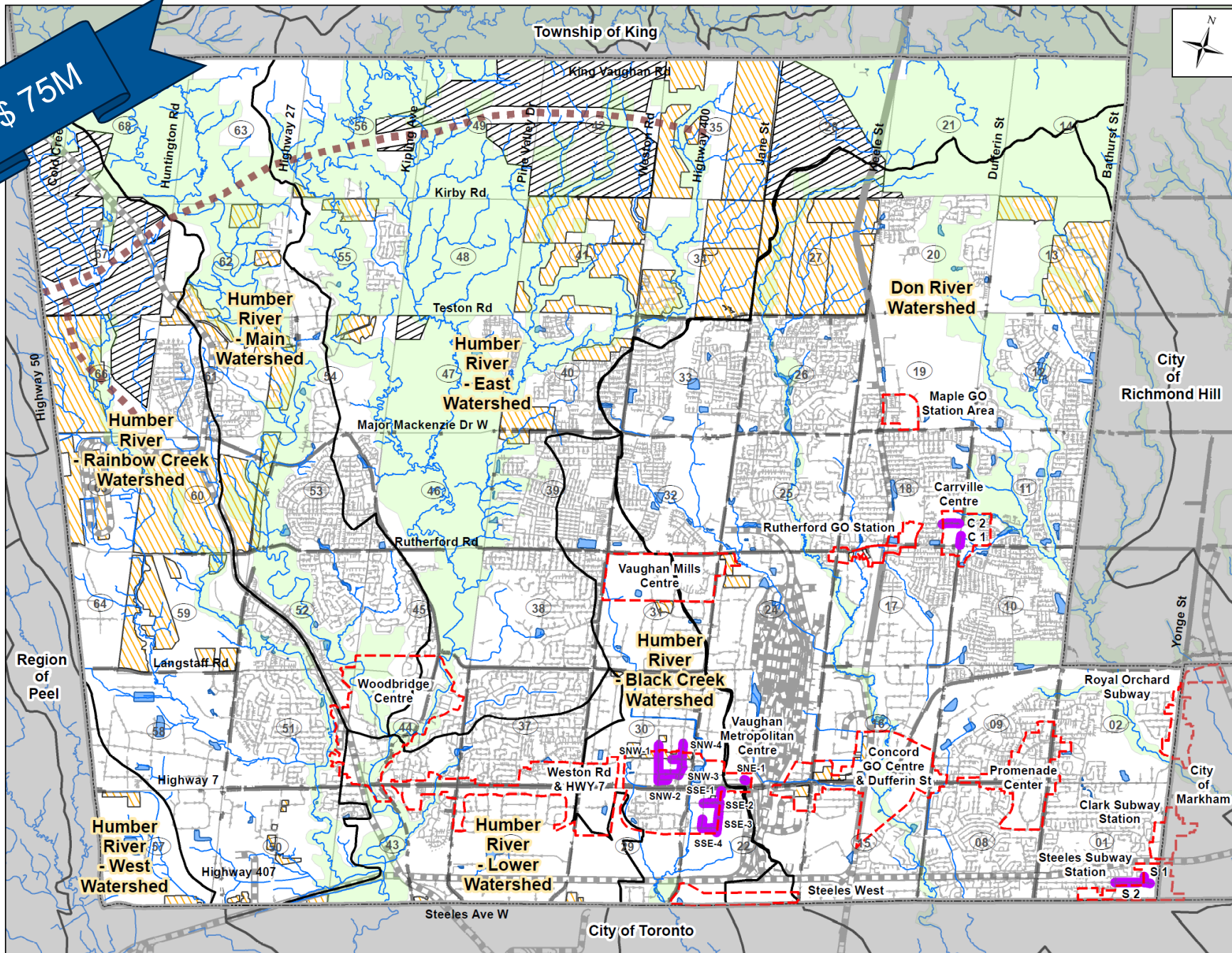
**\$740M**

Area	Project Code	Budget	Estimated Timing	EA Schedule
	A2-VM 6	\$800,000	Prior 2028	Exempt
	A2-VM 7	\$16,300,000	Prior 2028	Schedule B
		<b>\$26,500,000</b>		
Woodbridge	W 1	\$4,600,000	Prior 2028	Exempt
	W 2	\$1,700,000	Prior 2028	Exempt
	W 3	\$4,000,000	Prior 2028	Schedule B
	W 4	\$2,100,000	2036-2041	Exempt
		<b>\$12,400,000</b>		
Yonge and Steeles	YS-S4	\$8,700,000	Prior 2028	Exempt
	YS-S6	\$7,600,000	Prior 2028	Exempt/Schedule B
	YS-C1	\$12,600,000	2036-2041	Exempt
	YS-N1	\$2,900,000	Prior 2028	Exempt
	YS-N2	\$2,900,000	2036-2041	Exempt/Schedule B
			<b>\$34,700,000</b>	
<b>Total</b>		<b>\$739,600,000</b>		



# Stormwater Infrastructure Needs

**\$ 75M**



- Legend**
- Existing Storm Sewers
  - York Region Storm Sewers
  - GTA West - Preferred Alignment
  - Railway
  - Watercourse
  - SWM Ponds
  - Watershed
  - Greenlands
  - White Belt
  - Intensification Areas
  - FSSR Areas
  - Municipal Boundary
  - Block Number
- Proposed Improvements:**
- Pipe Replacement
  - XX Project ID



VAU19-0018  
- Integrated Urban Water Master Plan

City-Wide Stormwater Map  
Figure 0-15

Drawn By: J.H. Date: Apr 4, 2024



# Citywide– Stormwater Cost Estimate

Area	Project	Budget	Estimated Timing	EA Schedule
Vaughan Metropolitan Centre	SNE-1	\$600,000	2028-2036	Exempt
	SNW-1	\$2,500,000	2028-2036	Exempt
	SNW-2	\$2,500,000	2028-2036	Exempt
	SNW-3	\$5,000,000	2028-2036	Exempt
	SNW-4	\$6,600,000	2028-2036	Exempt
	SSE-1	\$200,000	2028-2036	Exempt
	SSE-2	\$1,500,000	2028-2036	Exempt
	SSE-3	\$1,500,000	2028-2036	Exempt
	SSE-4	\$2,600,000	2028-2036	Exempt
	NWQ	\$7,700,000	2028-2036	Schedule B
	NEQ	\$11,100,000	2028-2036	Schedule B
	SEQ	\$7,000,000	2028-2036	Schedule B
	SWQ	\$15,300,000	2028-2036	Schedule B
			<b>\$64,100,000</b>	
Carrville Centre	S1	\$1,000,000	2036	Exempt
	S2	\$3,600,000	2036	Exempt
		<b>\$4,600,000</b>		
Yonge & Steeles	C1	\$3,500,000	2028	Exempt
	C2	\$2,600,000	2028	Exempt
		<b>\$6,100,000</b>		
<b>Total</b>		<b>\$74,800,000</b>		

**\$75M**

# Benefits to Implementing IUWP

Asset Management – Inform  
Water/Wastewater Rates

Minimize Flooding Risks

Ensure Clean Drinking Water

Strengthen City/Regional Coordination  
Communication

Adequate Water Pressure &  
Supply

Optimize Use of Existing Systems  
and Innovation

Development Charge Funding



Maximize Efficiencies & Reduce  
Operating & Maintenance Costs

Support Planned Growth/City  
Building

Provide Opportunity to Convert from Private  
Systems via Local Improvement

## Next Steps:

- Finalize IUWP documentation
- Issue Notice of Study Completion
- Initiate 30-day public review period
- Address final comments
- Develop 10-year capital program
- Implement, optimize, monitor and update



**Thank You**

Questions...