

WATER & WASTEWATER ASSET MANAGEMENT PLAN

City Council Presentation No.4

April 11th, 2017

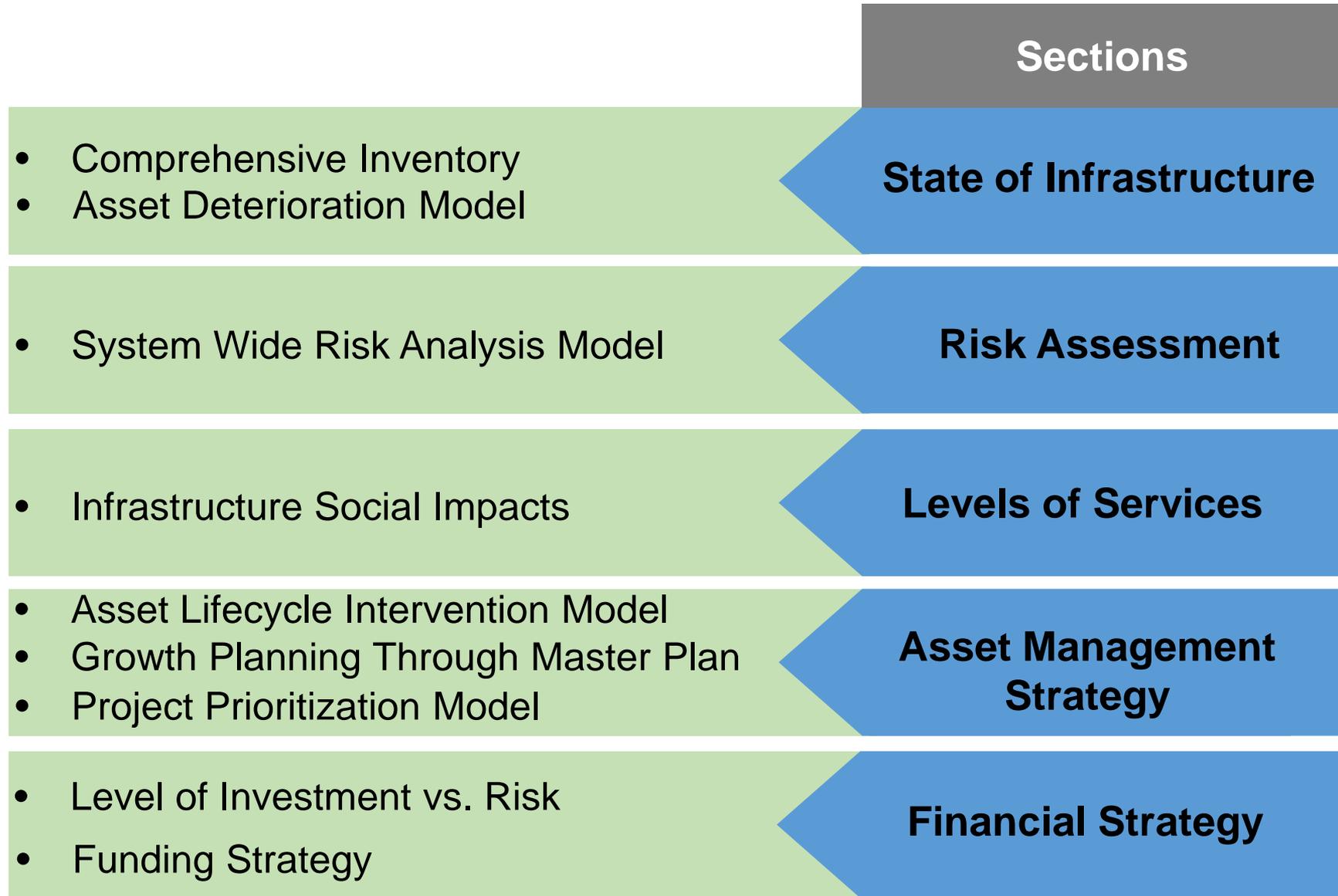
WATER AND WASTEWATER ASSET MANAGEMENT PLAN

PURPOSE

Strategic document to:

- Guide City's Water and Wastewater infrastructure decisions
- Efficiently and effectively allocate resources to meet City's desired levels of service in lowest overall lifecycle costs
- Identify costs and benefits of infrastructure investment decisions across organization's asset portfolio
- Ministry of Infrastructure Building Together Guide for Asset Management Plans
- Bill 6, Infrastructure for Jobs and Prosperity Act, 2015

ASSET MANAGEMENT PLAN

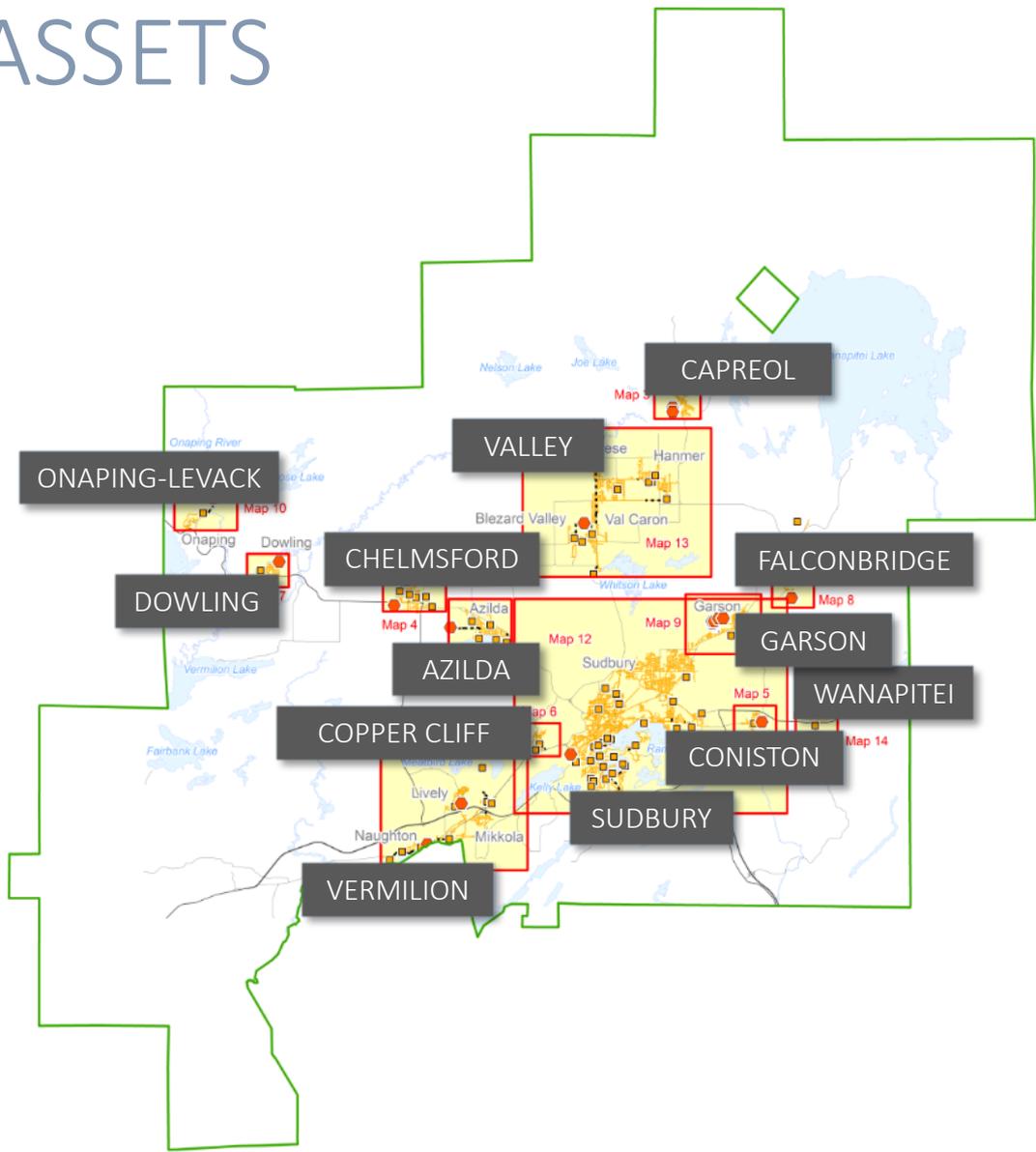


WASTEWATER ASSETS

13

Individual Wastewater Systems

- Gravity Mains: 791 km
- Service Connection: 381km
- Pressurized Main: 9.7km
- Service Connections: 382km
- Force Main: 53km
- Maintenance Holes: 11,726
- Control Valves: 70
- Drop Shafts: 21
- Collection Facilities: 69
- Treatment Facilities: 14



LINEAR REPLACEMENT VALUE: \$1,473 million
VERTICAL REPLACEMENT VALUE: \$656 million

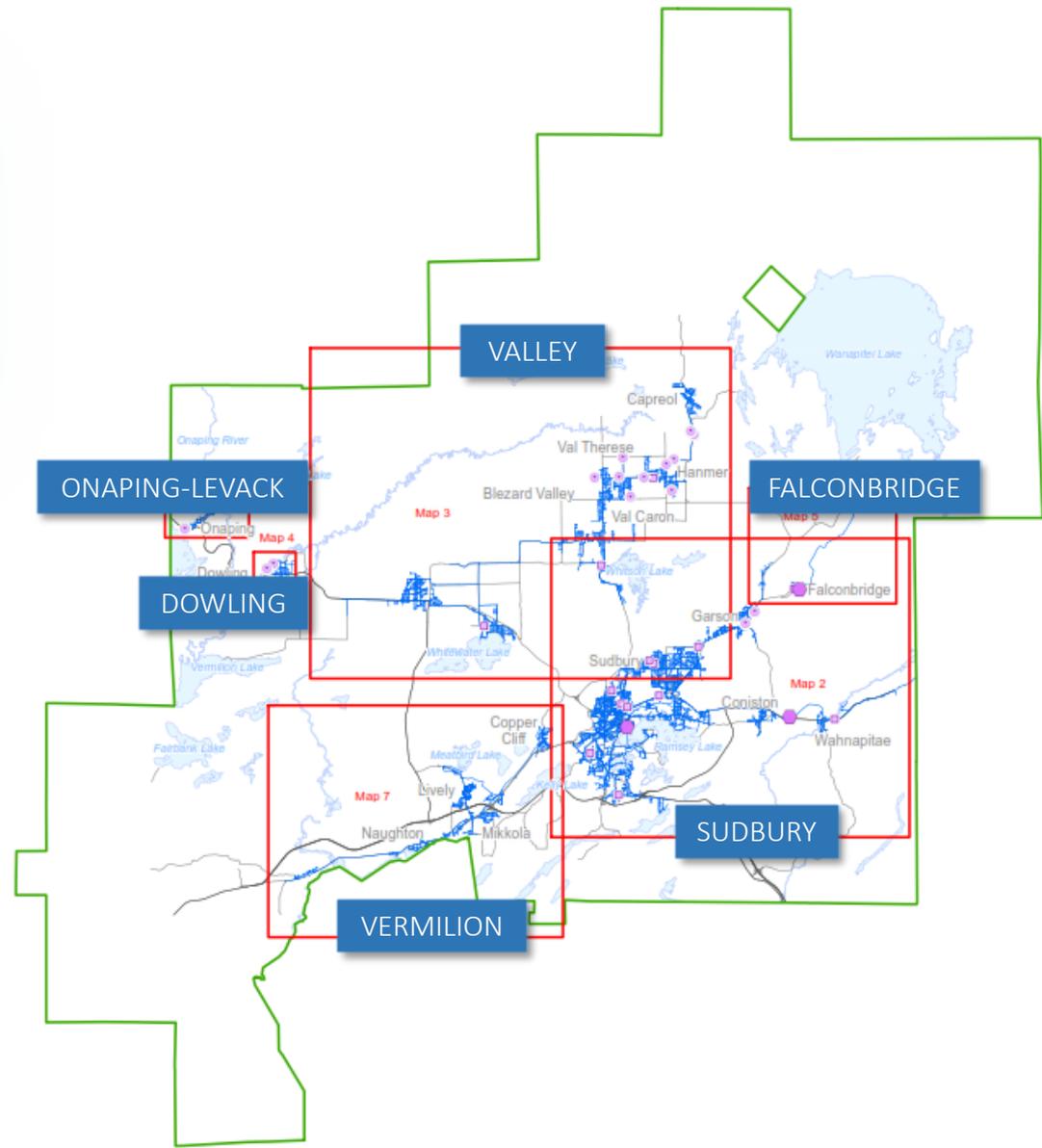
WATER ASSETS

6

Individual Water Systems

- Watermains: 997 km
- Hydrants: 5,699
- Valves: 8,950
- Valve Chambers: 2792
- Service Connections: 906 km
- Control Valves: 90
- Water Meters: 47,940
- Meter Stations: 6
- Treatment Facilities: 28
- Supply Facilities: 35

LINEAR REPLACEMENT VALUE: \$2,172 million
VERTICAL REPLACEMENT VALUE: \$179 million

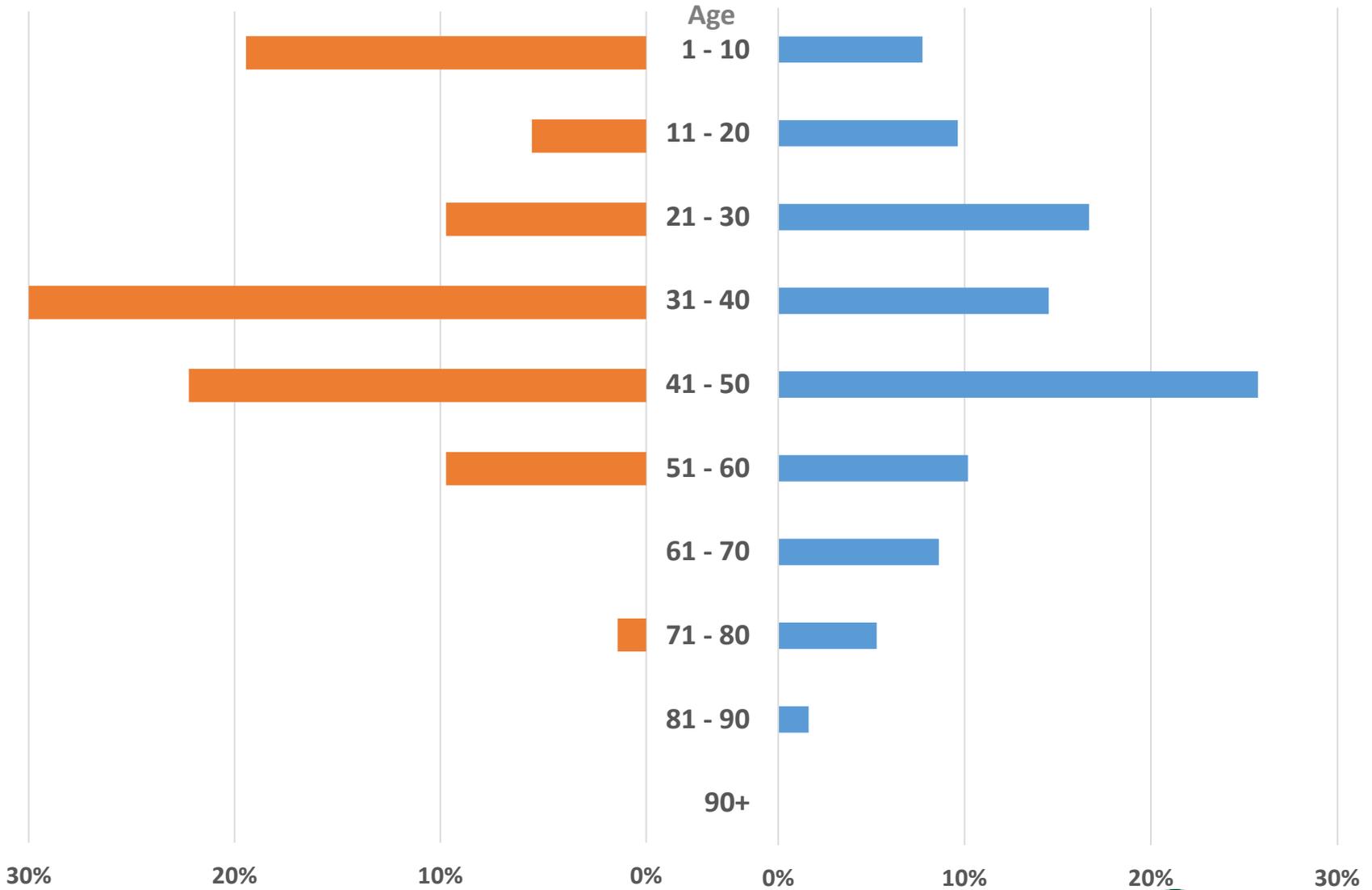


AGE DISTRIBUTION

STATE OF INFRASTRUCTURE

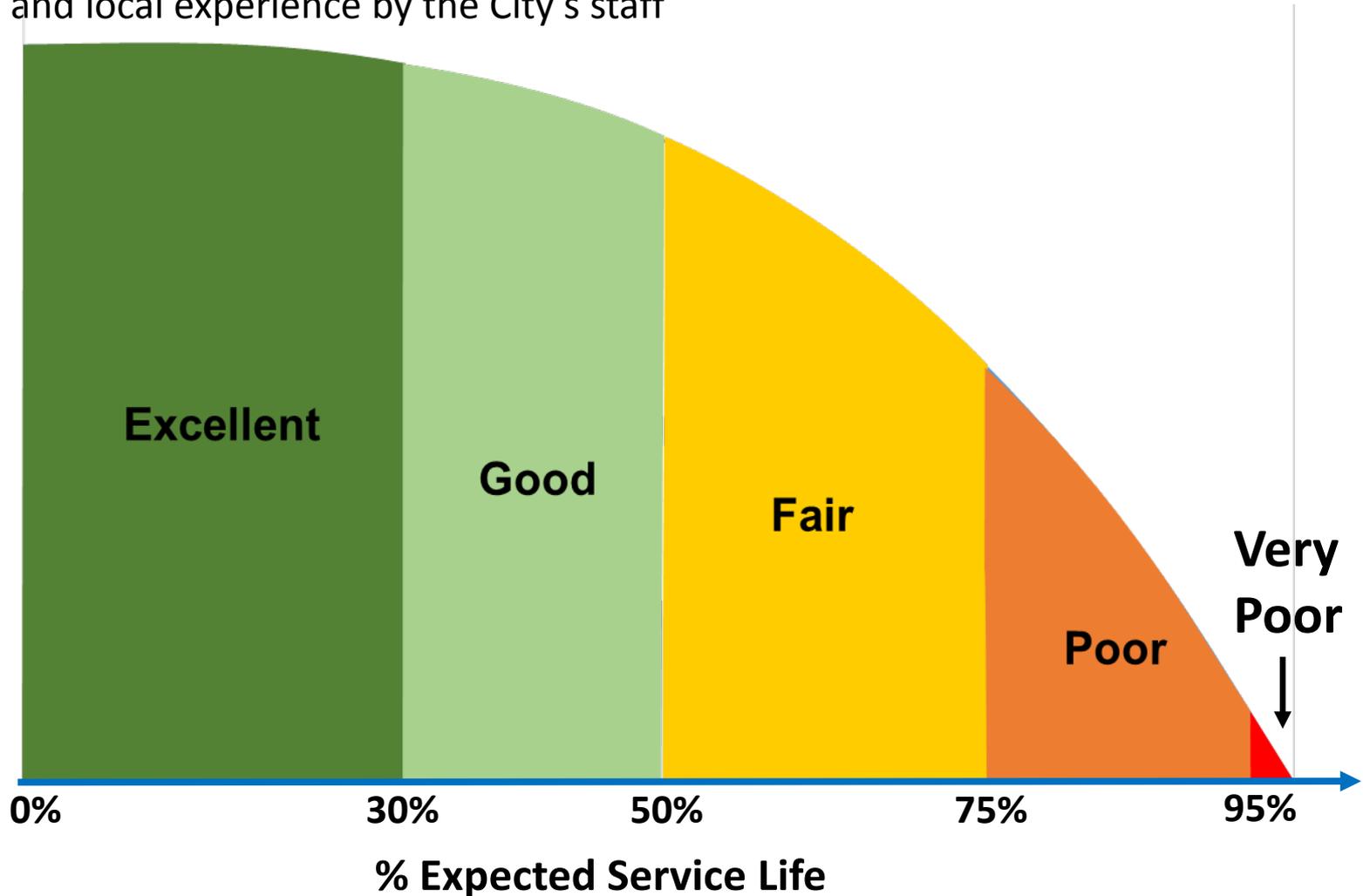
Vertical Infrastructure

Linear Infrastructure



CONDITION ASSESSMENT

- Asset Life Expectancies are based on Industry standards, background study, and local experience by the City's staff

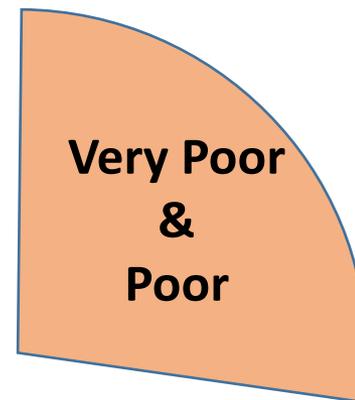


REPLACEMENT VALUE VS CONDITION

- **\$513M** worth of assets have reached and/or exceeded 100 %ESL
- **\$703M** worth of assets are approaching end of ESL
- Immediate and short-term actions **must be** applied to these assets

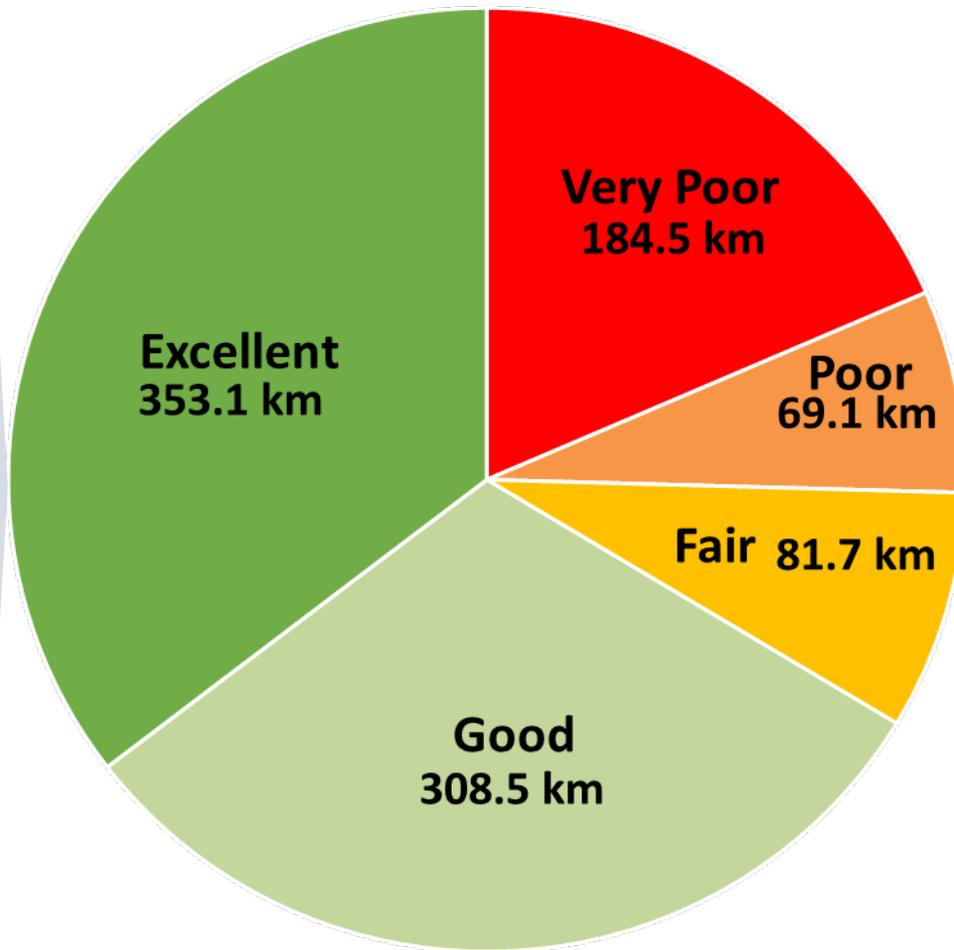


System Total Replacement Value
\$4,479M



\$1,216M
**27% of Assets require
Immediate or Short-Term
Intervention**

MAJOR LINEAR ASSETS – WATERMAINS

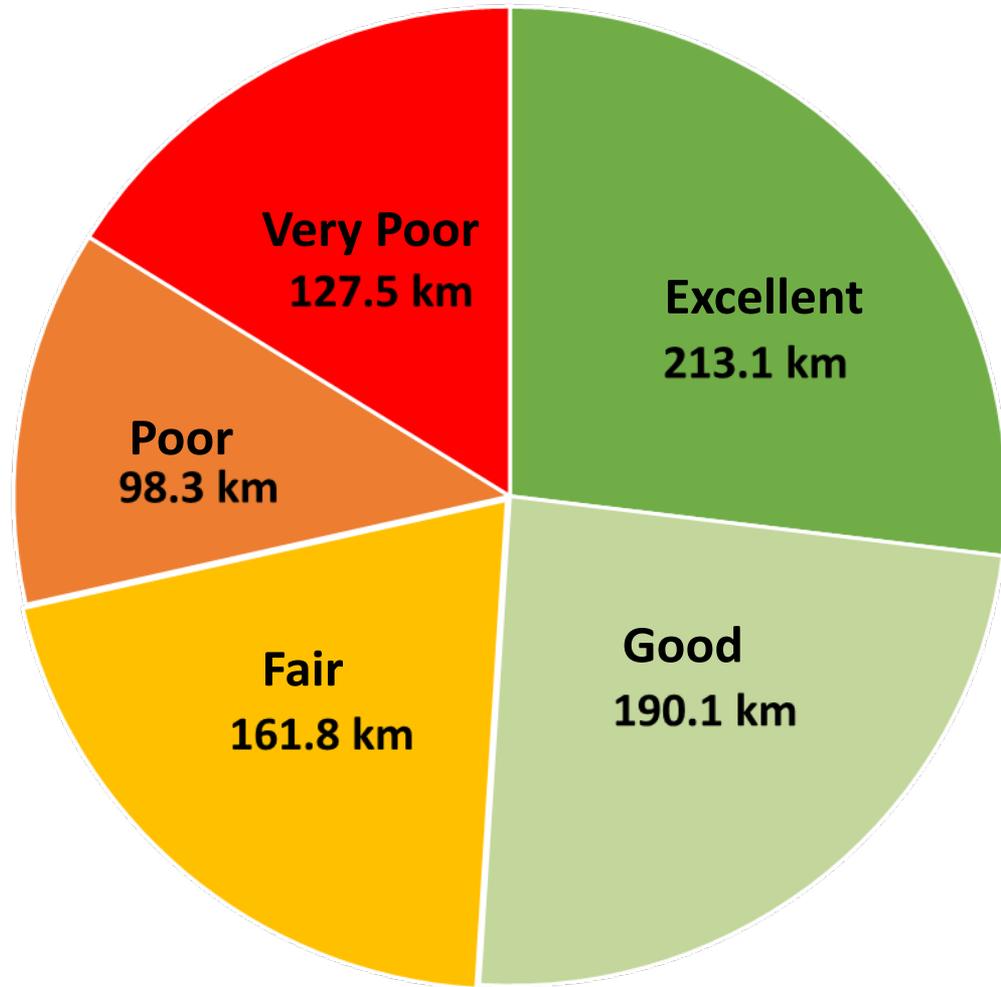


- **19%** of Watermains (184.5 km) have reached end of estimated service life
- **15%** of Watermains (75.4 km) are approaching their end of service life
- “Immediate” investment

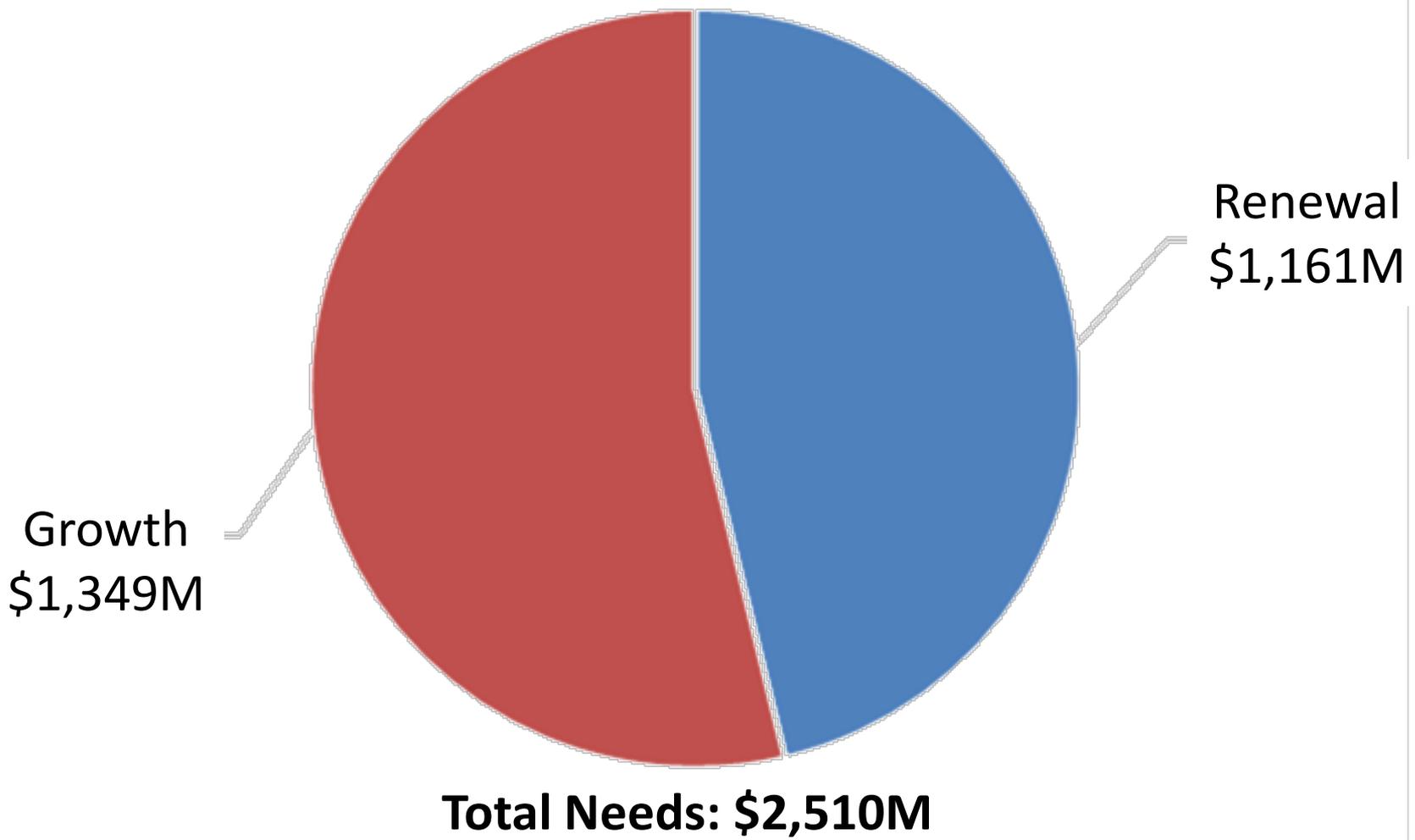
\$254M

MAJOR LINEAR ASSETS – SANITARY SEWERS

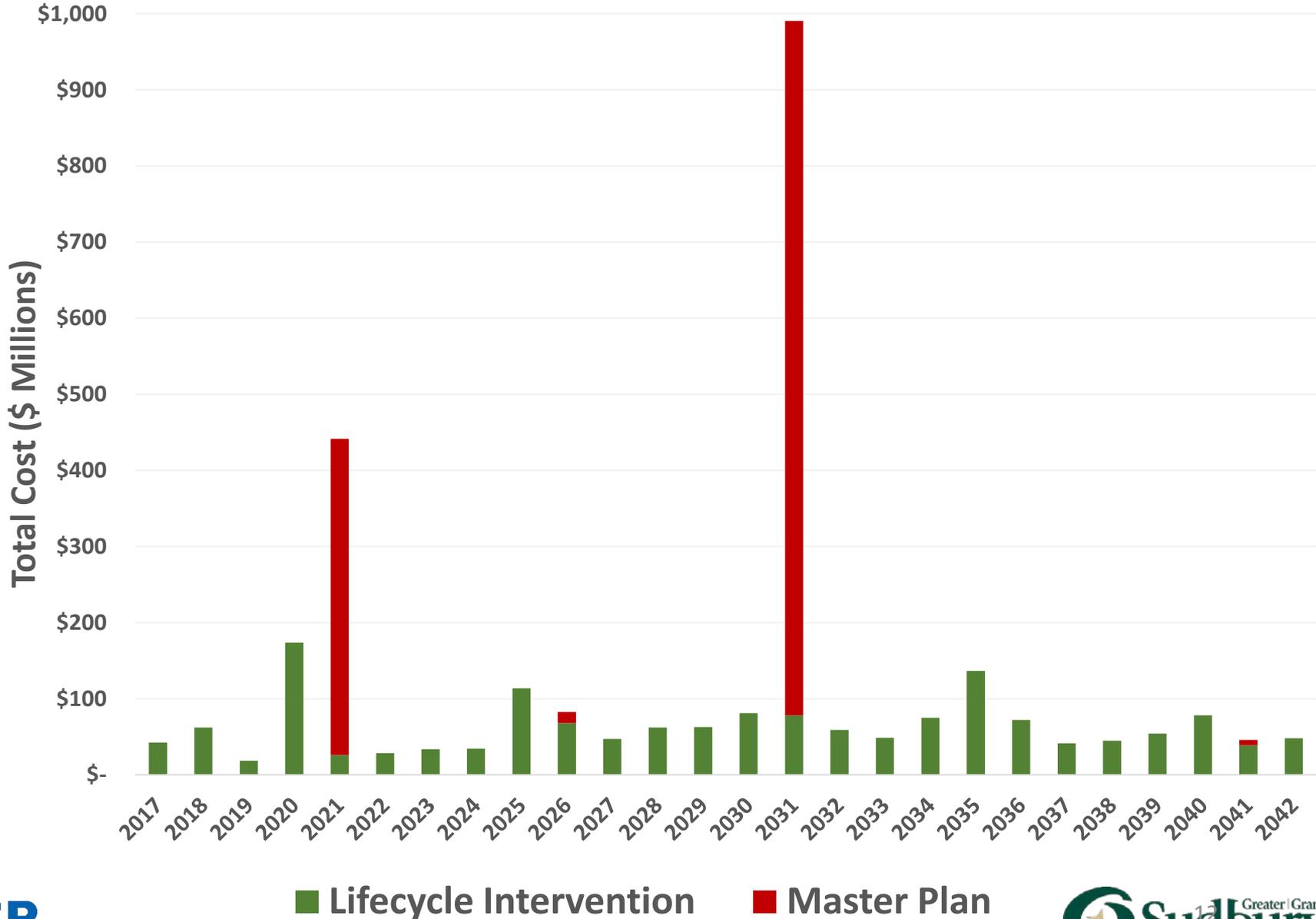
- **16%** of Sanitary Sewers (127.5 km) have reached the end of service life
- **32%** of Sanitary Sewers (260.2 km) are approaching their end of service life
- “Immediate” Investment
\$226M



25-YEAR INFRASTRUCTURE RENEWAL AND GROWTH FORECAST



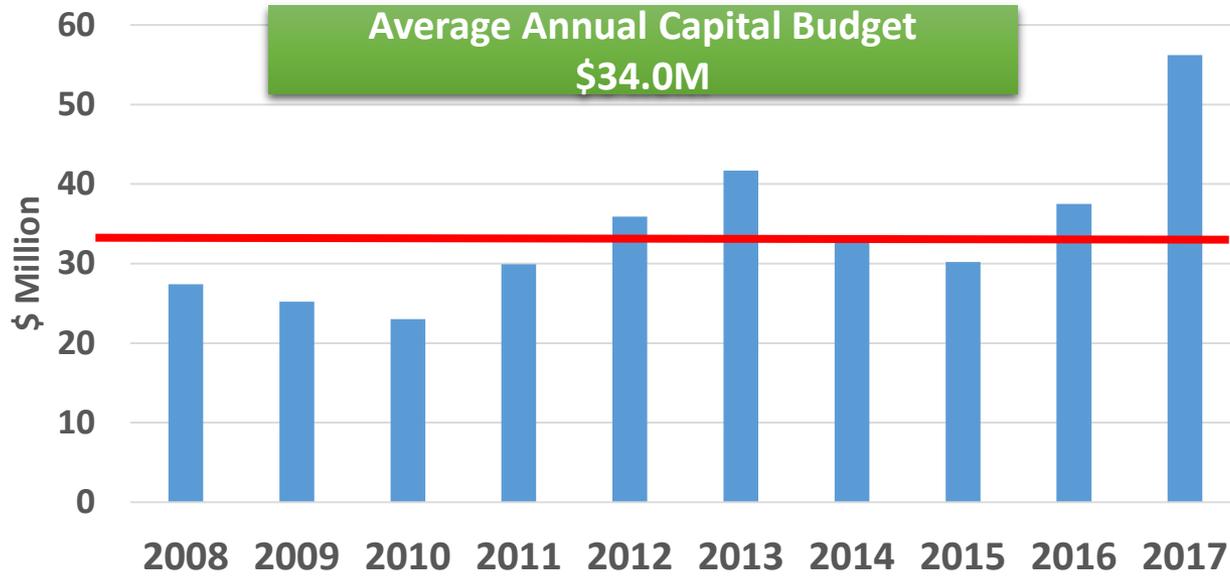
INFRASTRUCTURE REQUIREMENTS WITH MASTER PLAN RECOMMENDATIONS



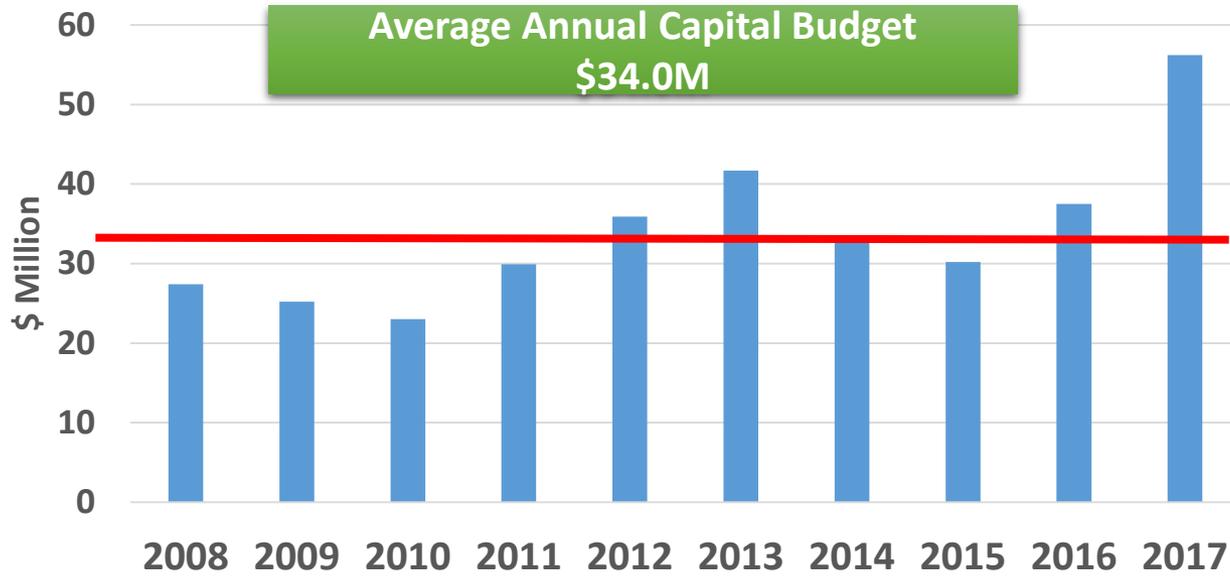
Presented costs may change based on Master Plan team and CGS comments



CHALLENGES

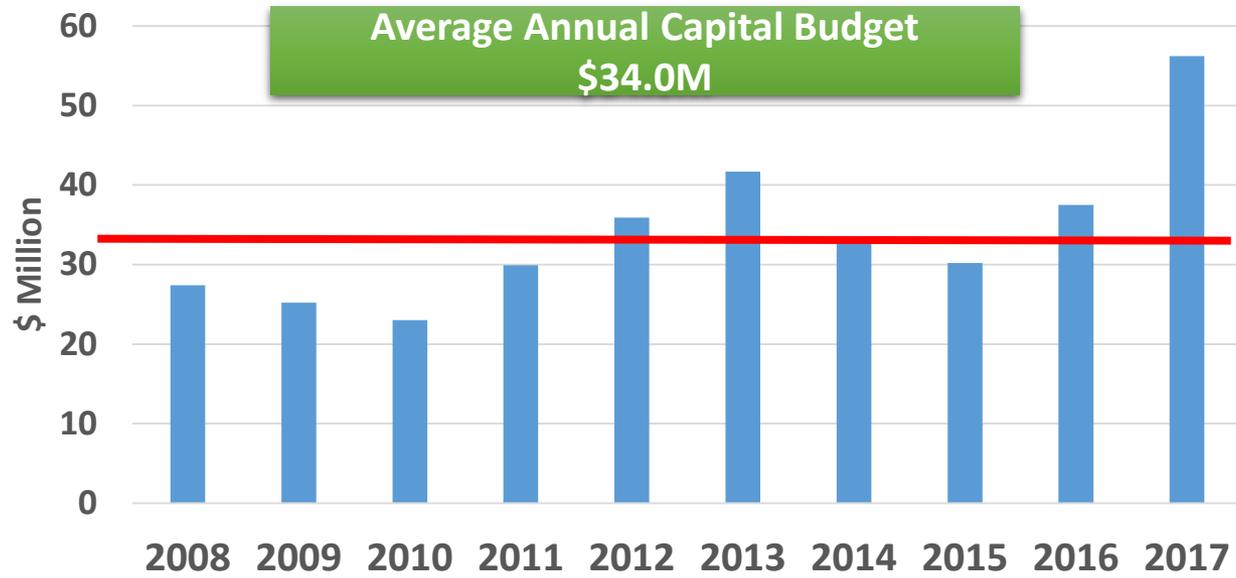


CHALLENGES



Difficult to address the current W&WW Infrastructure gap with limited budget

CHALLENGES



Difficult to address the current W&WW Infrastructure gap with limited budget

Solution

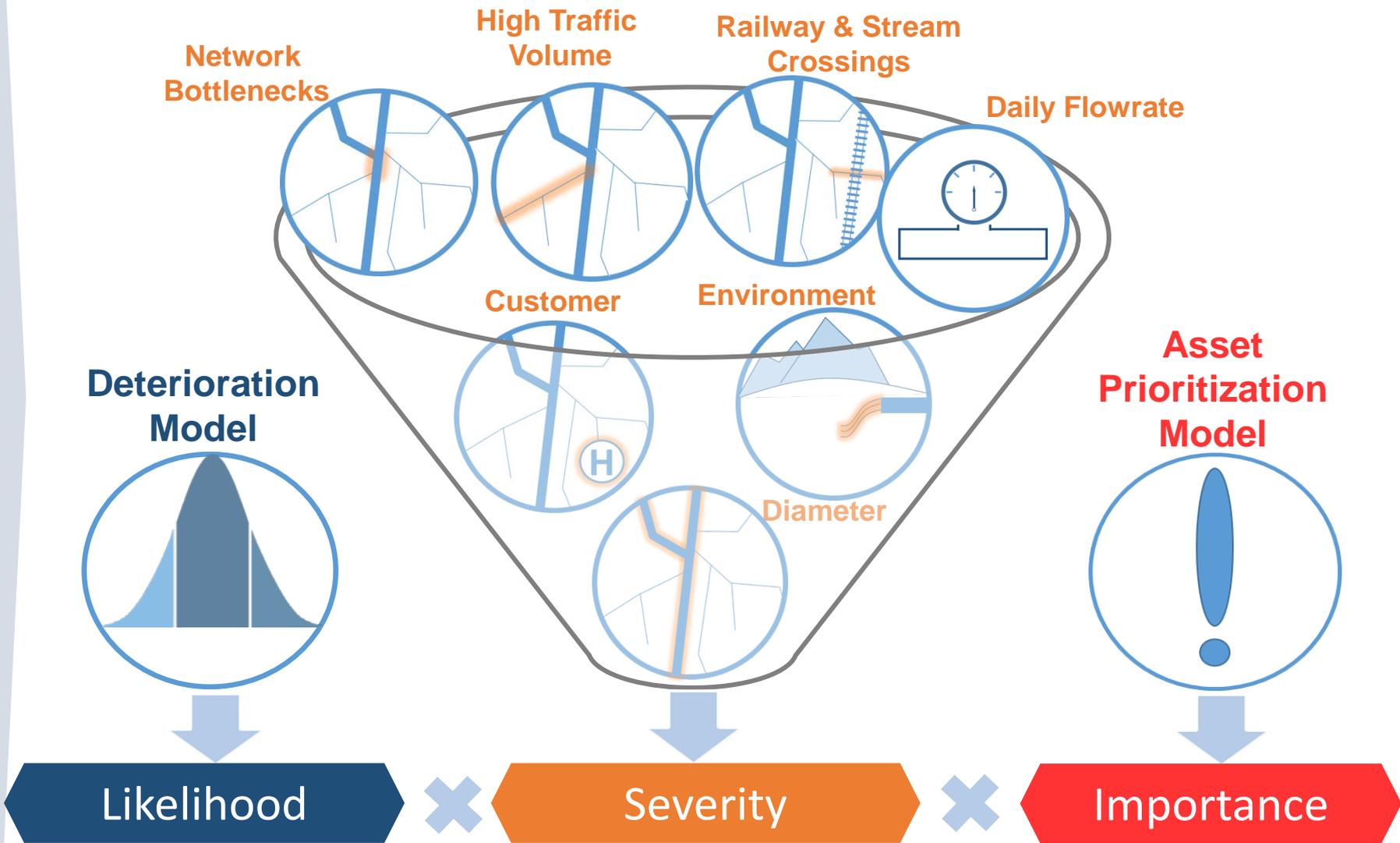
Risk based Capital Project Prioritization System

Increase Capital Budget



RISK ANALYSIS MODEL

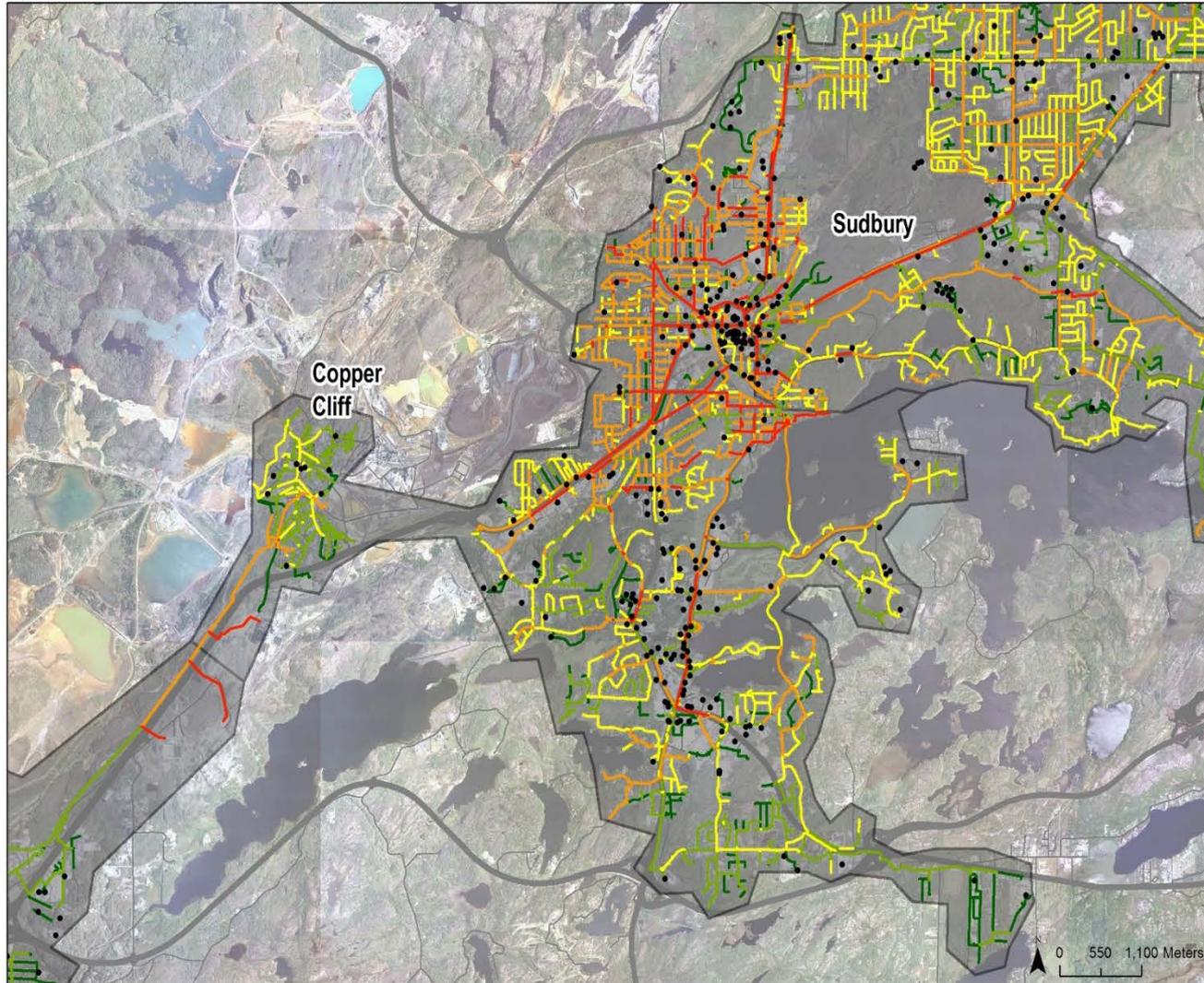
RISK ASSESSMENT



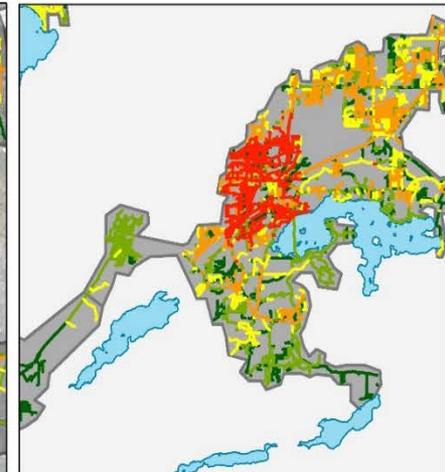
SUDBURY WATER SYSTEM – RISK ANALYSIS

RISK ASSESSMENT

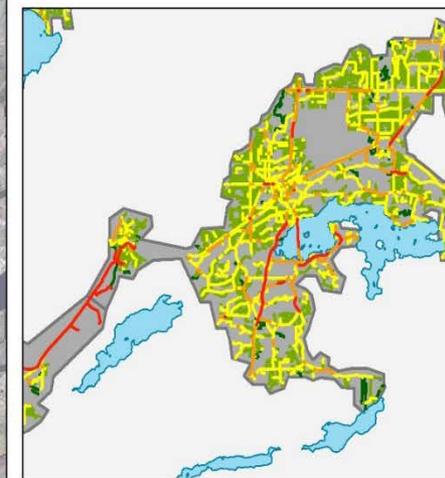
Risk



Likelihood



Severity



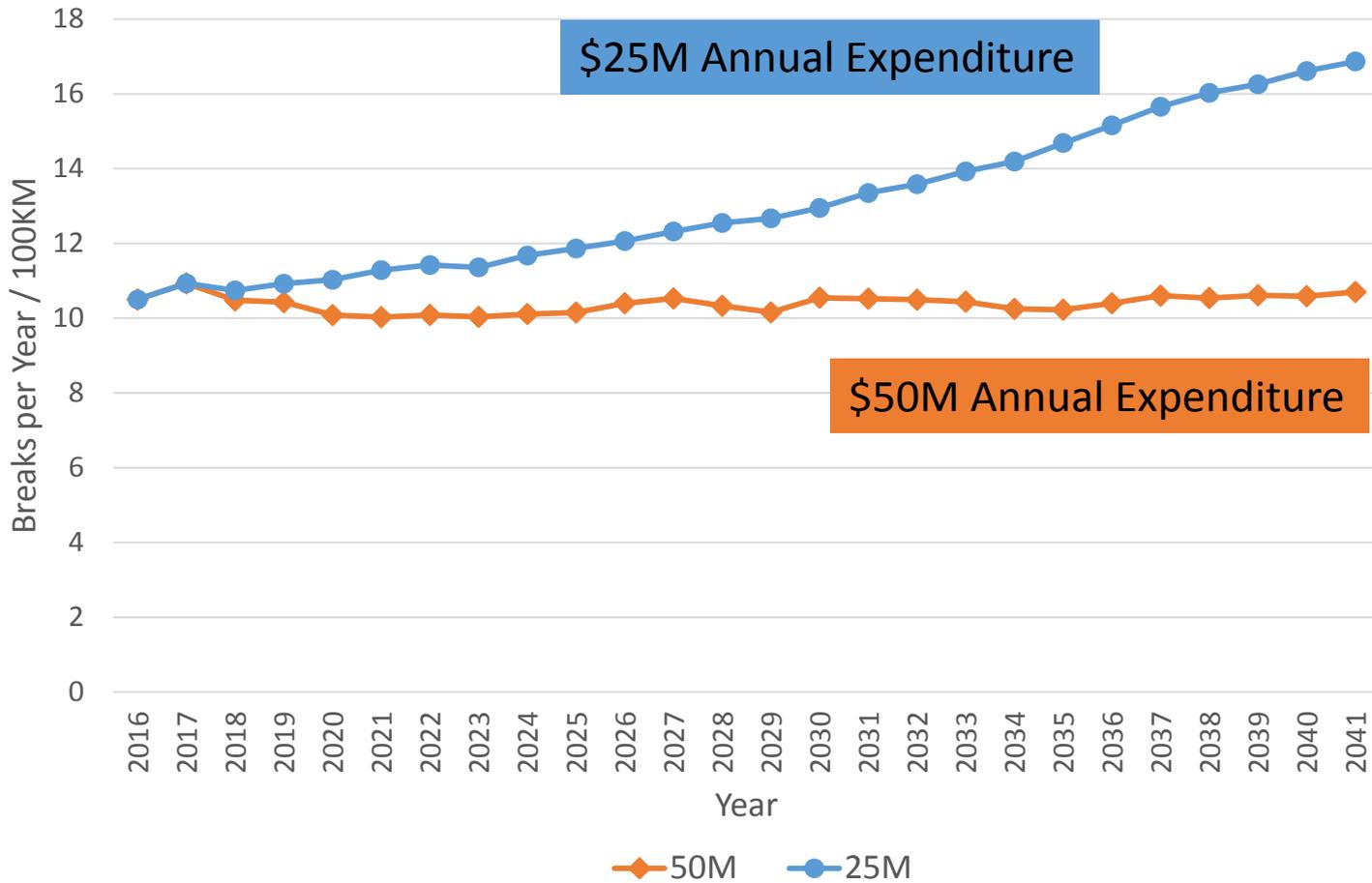
Water Mains Risk Analysis
Sudbury

Mains Risk

	1		3		Critical Customer
	2		4		
			5		



WATERMAIN BREAK SIMULATION BASED ON INFRASTRUCTURE RENEWAL BUDGET



CONCLUSION

- Risk-based Asset Management Plan (AMP) report that captures relevant details, including:
 - State of Local Infrastructure;
 - Levels of Service (risk-based);
 - Asset Management Strategy; and
 - Financing Strategy.
- Recommendations will consider maintaining system risk at a sustainable level, with options highlighted to explain impact of increases or decreases of investment.
- Documentation will be in compliance with the Ministry of Infrastructure *Building Together Guide*, ISO 55001 Standards, and Ontario Bill 6: An Act to enact the Infrastructure for Jobs and Prosperity Act, 2015.



NEXT STEPS

- Establish short- and long-term fiscal measures and financial management strategies.
- Identify funding shortfalls as well as their impact and management strategies.
- Advance knowledge of asset condition

QUESTIONS AND DISCUSSION