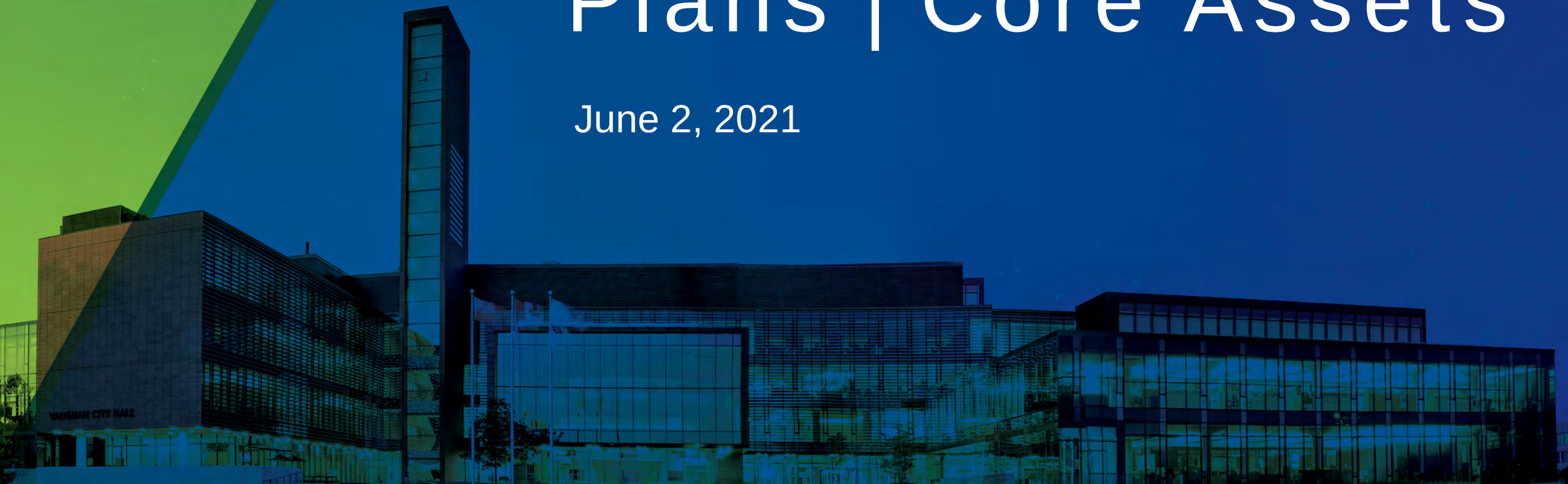
VAUGHAN

C18
Communication
CW (WS) – June 2, 2021
Item(s) # - 2

Infrastructure Planning & Corporate Asset Management

Asset Management Plans | Core Assets

June 2, 2021

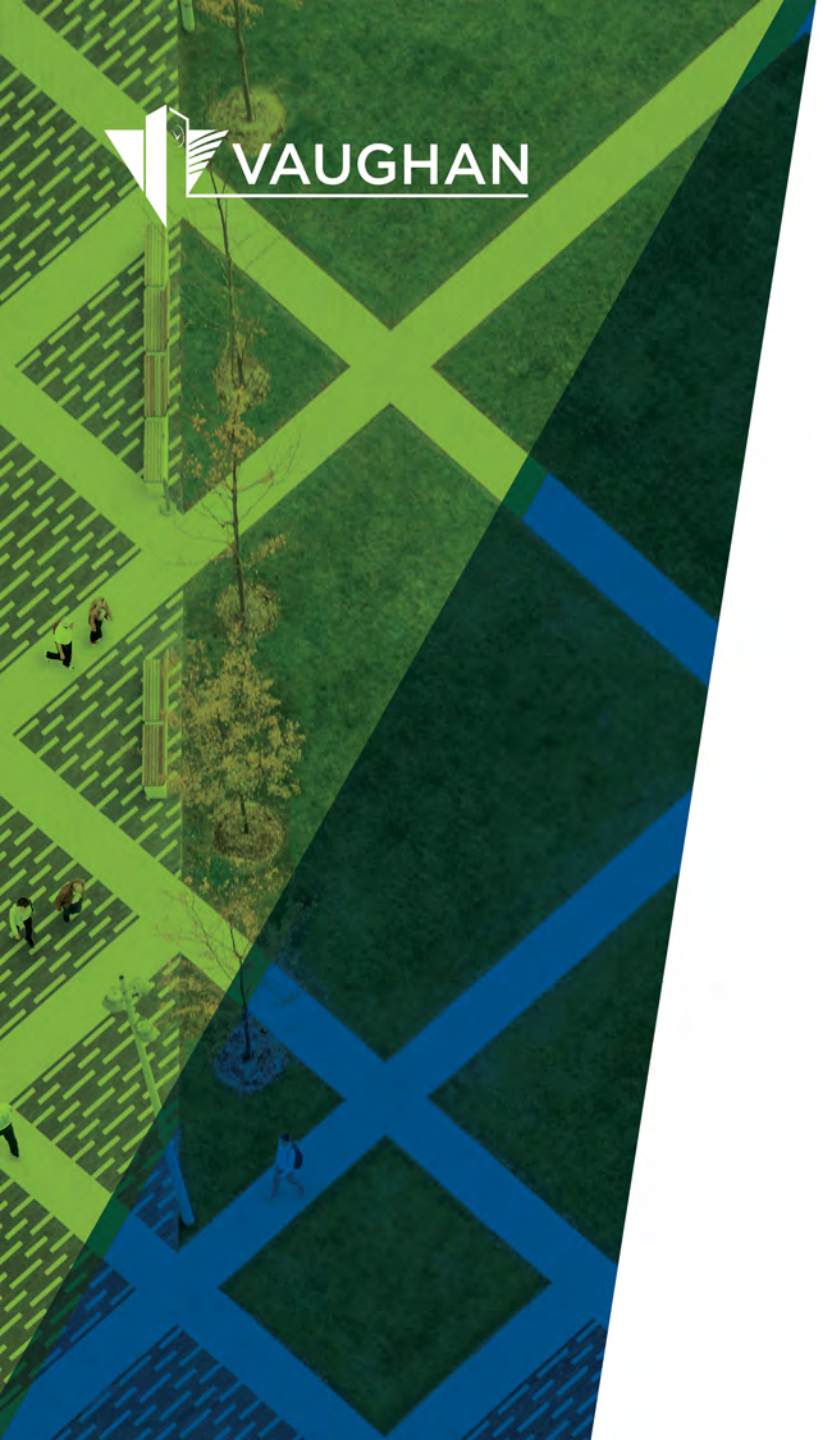


Agenda

Purpose: Present an overview of the Asset Management Plans (Core Assets) for Council endorsement.

1. Ontario Regulation 588/17
2. Asset Management Plans – Approach
3. Asset Management Plans – Levels of Service
4. Asset Management Plans – Funding Needs Analysis

Once endorsed, the AMPs will be posted to the City's website as required by O. Reg. 588/17.



Core Assets

Water

Stormwater

Wastewater

Roads & Bridges

Strategic Alignment

Good Governance

Financial Stewardship & Sustainability

1. Ontario Regulation 588/17

Ontario Regulation 588/17: AM Milestone Dates

2019
AM Policy approved by Council

July 1 2019
milestone

2021
Present AM Plans for "Core Assets" to Council

2022
AM Plans for "Core Assets" Approved by Council

Water
Wastewater
Stormwater
Roads & Bridges

milestone

2024
AM Plans for Remaining Assets Approved by Council

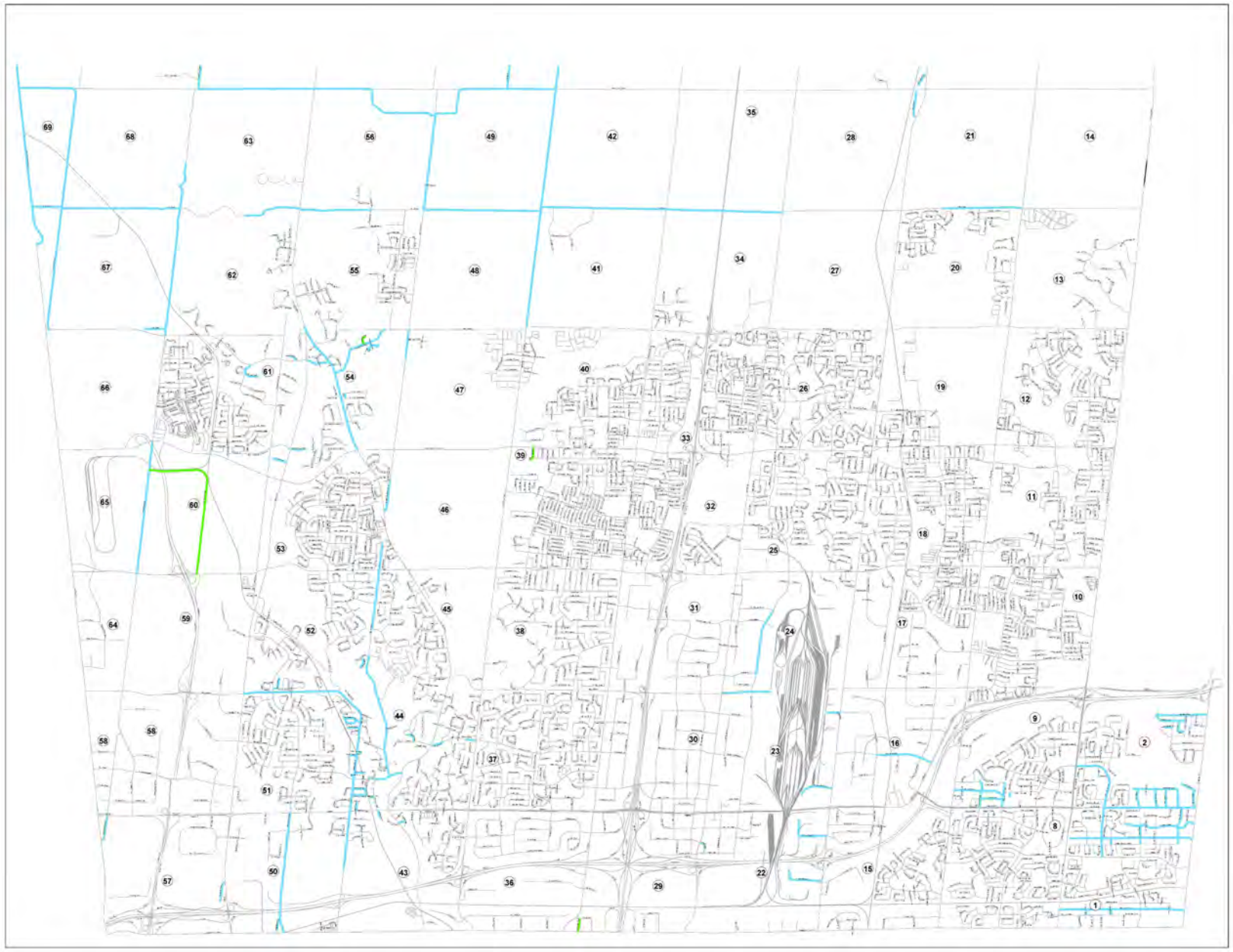
Remaining Assets

2025
All AM Plans to Include Funding Surplus/Shortfall Forecasting

2. Asset Management Plans

Approach

City of Vaughan: Development By Decade



1900 - 1959

1960 - 1969

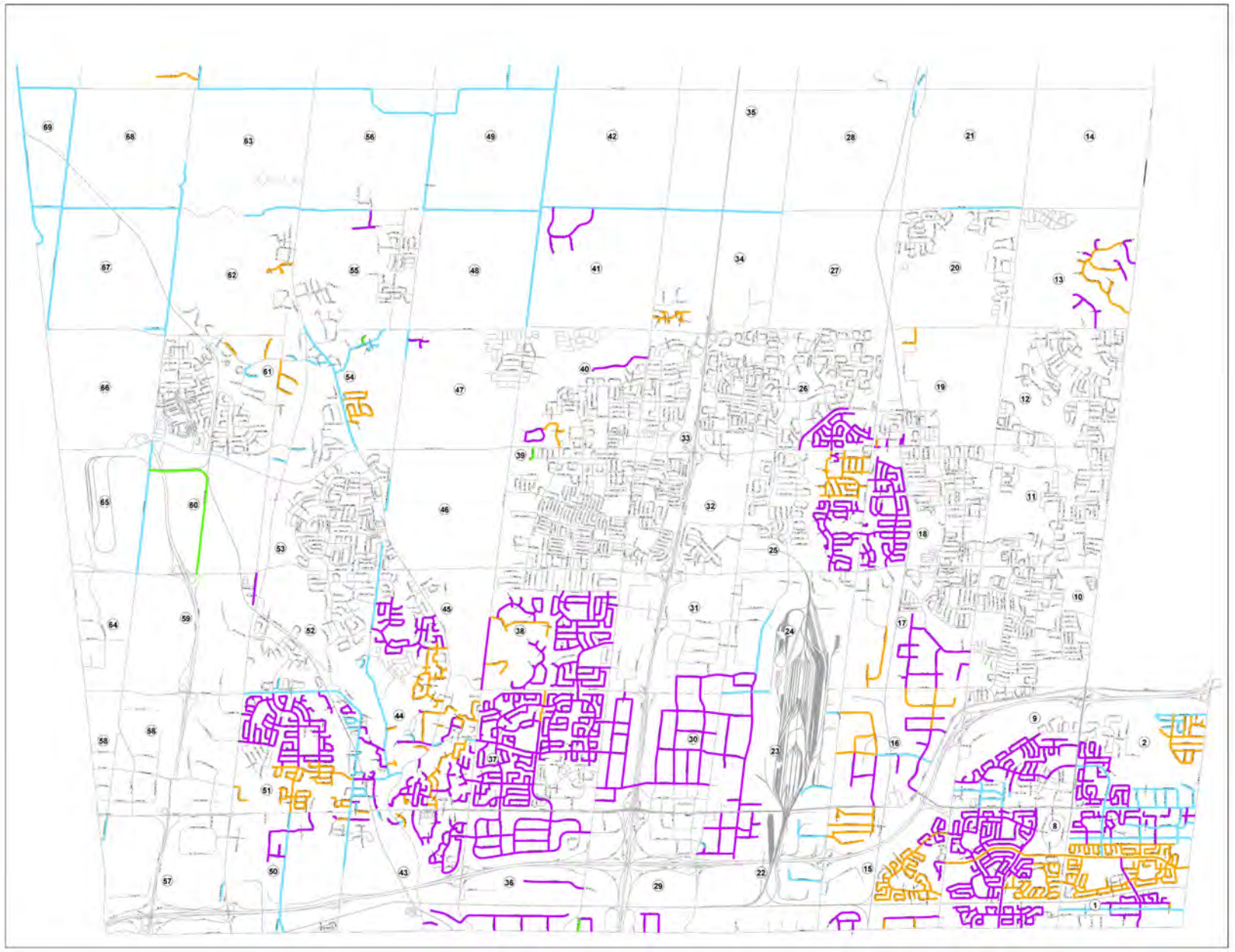
City of Vaughan: Development By Decade

1900 - 1959

1960 - 1969

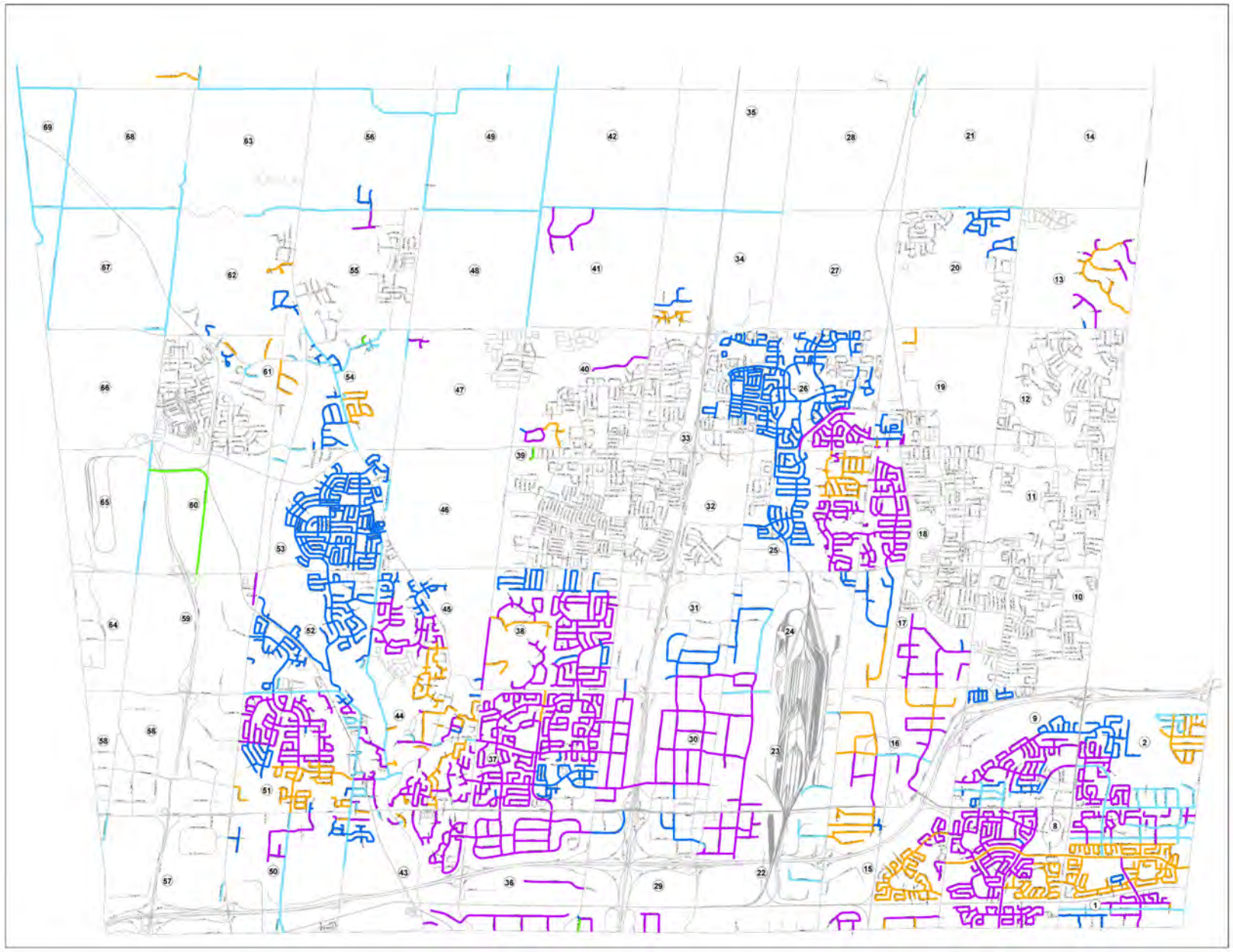
1970 - 1979

City of Vaughan: Development By Decade



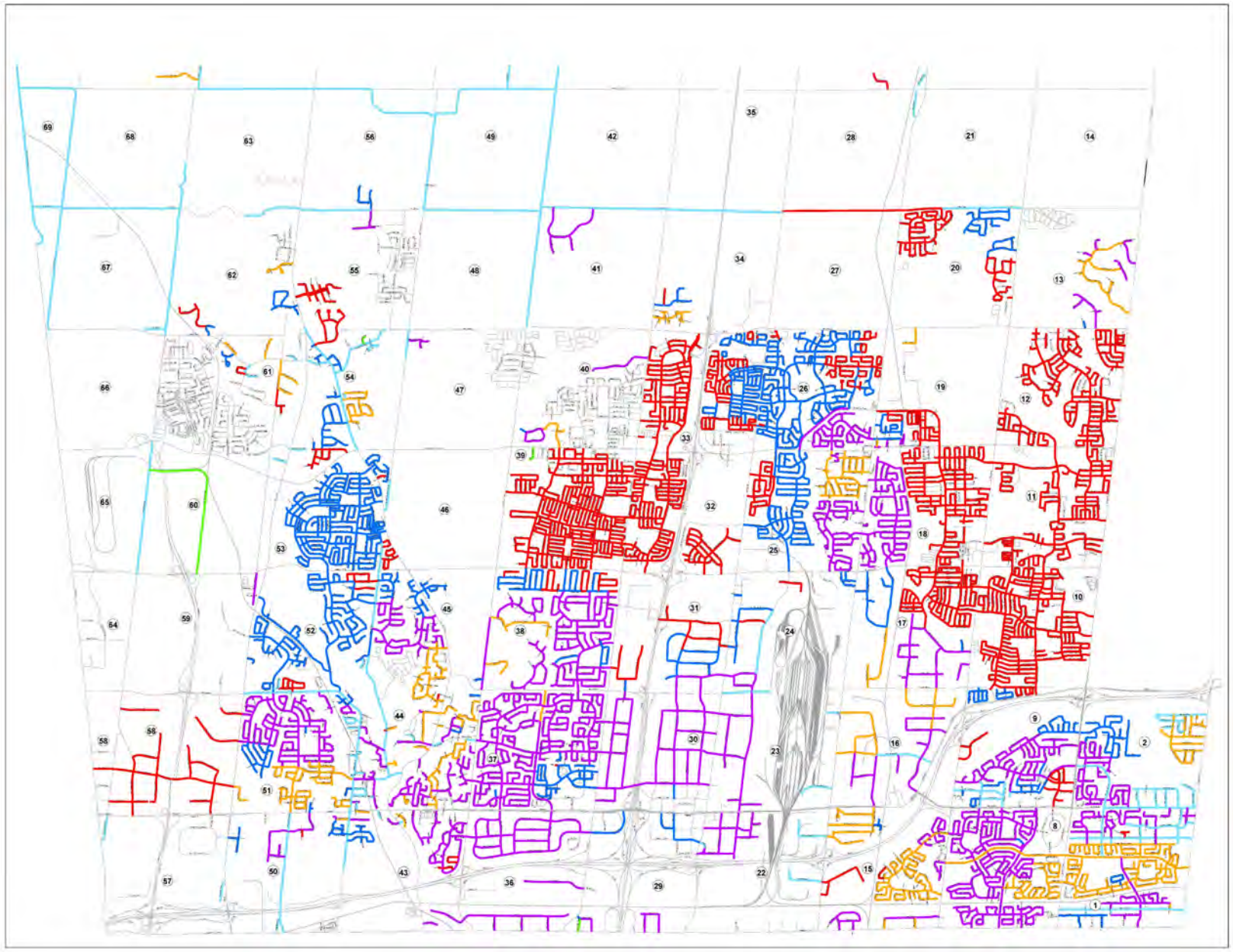
1900 - 1959
1960 - 1969
1970 - 1979
1980 - 1989

City of Vaughan: Development By Decade



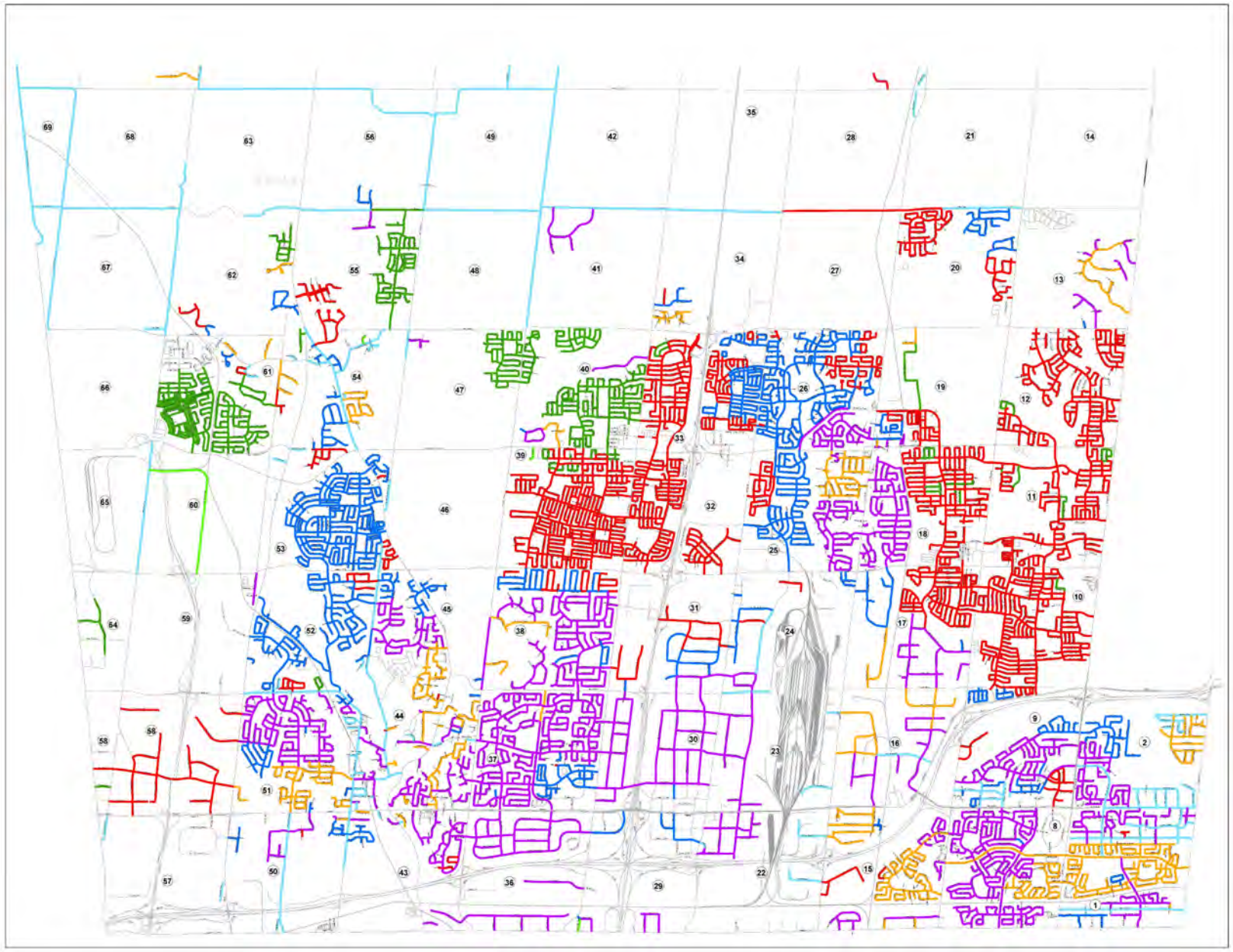
1900 - 1959
1960 - 1969
1970 - 1979
1980 - 1989
1990 - 1999

City of Vaughan: Development By Decade



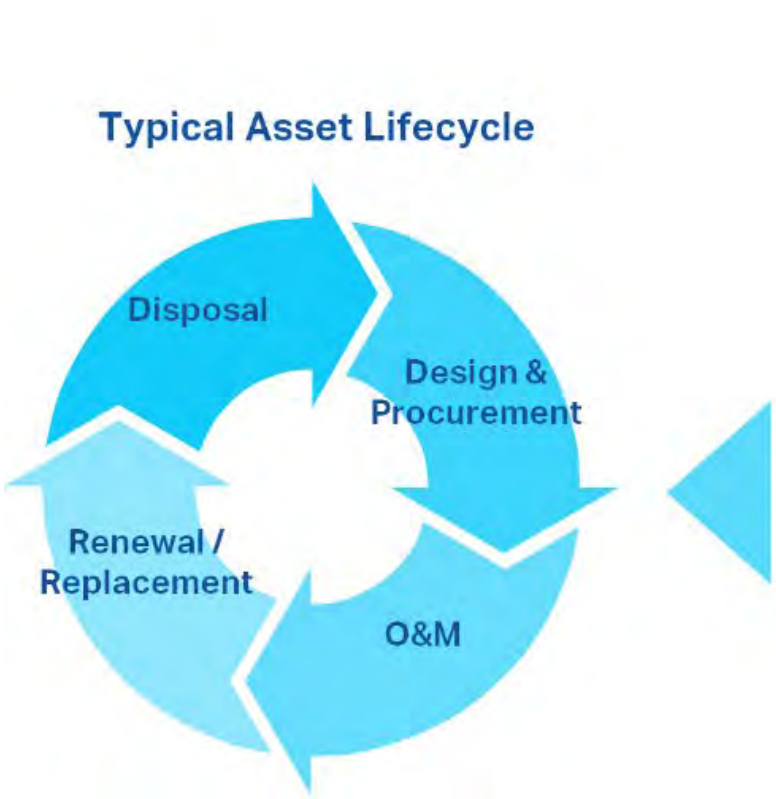
1900 - 1959
1960 - 1969
1970 - 1979
1980 - 1989
1990 - 1999
2000 - 2009

City of Vaughan: Development By Decade



- 1900 - 1959
- 1960 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1999
- 2000 - 2009
- 2010 - 2020

Asset Management Plans: Approach



What is the current state of my assets?

What is the required level of service?

Which assets are critical to sustain performance?

1 Inventory Assets

2 Assess Condition

3 Determine Residual Life

4 Set Target LoS

5 Assign BRE Rating (Criticality)

6 Predict Failure Mode

7 Optimized Investment Decision Making Process

8 Optimized Operation and Maintenance Program

9 Optimized Capital Investment Strategy

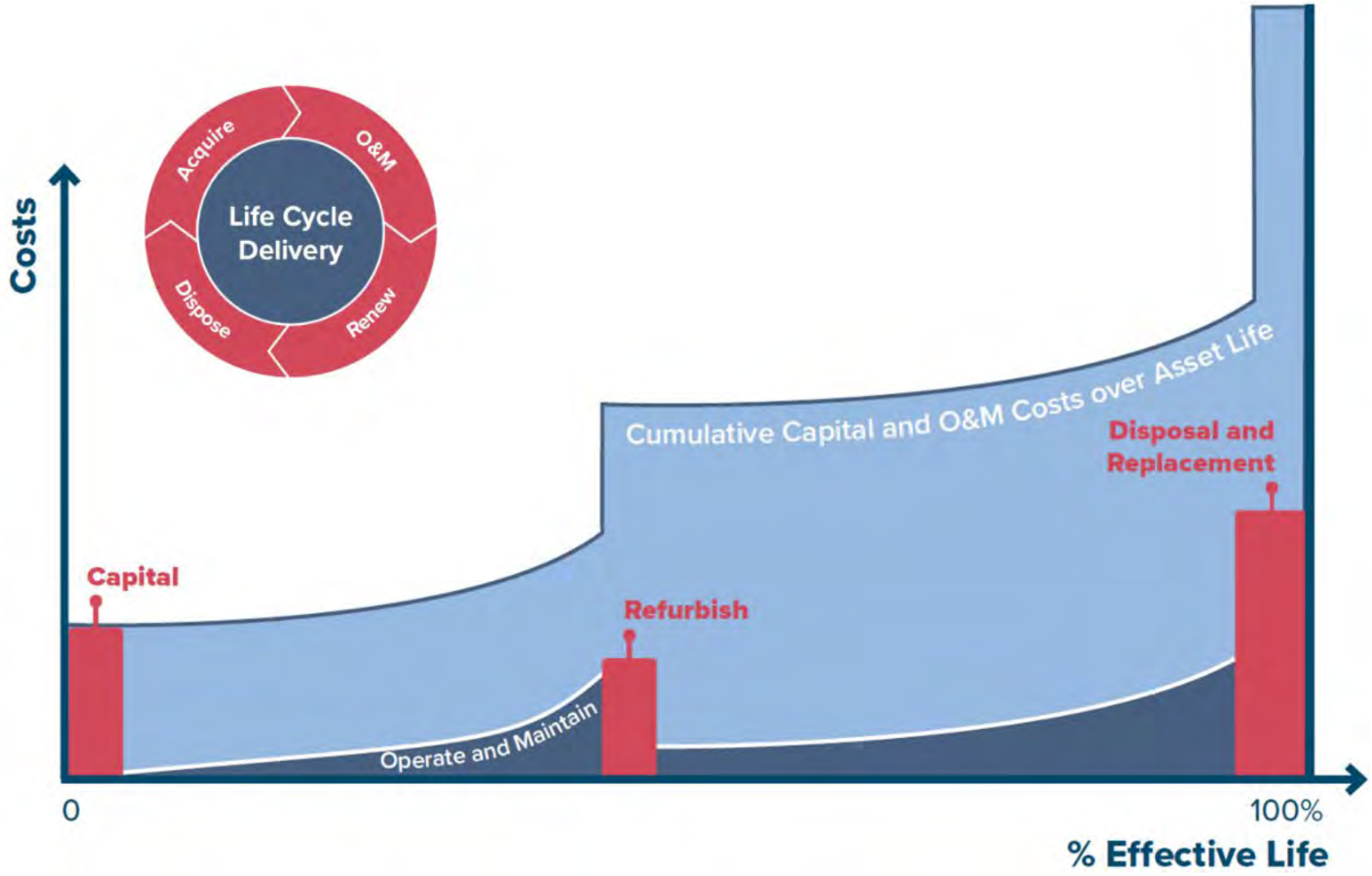
10 Life Cycle and Replacement Costs

What is the likely mode of failure?

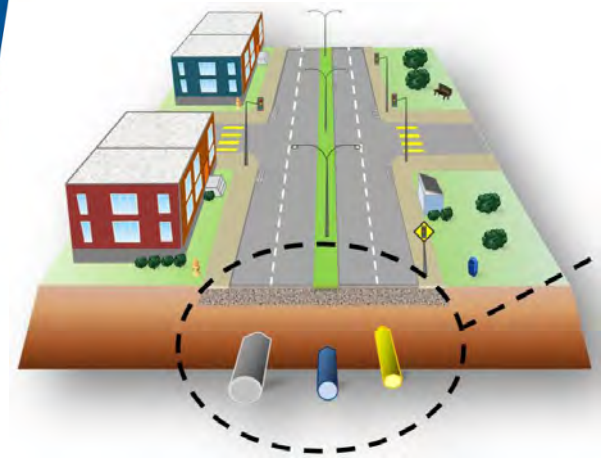
What are the best O&M and capital improvement strategies?

What are the life cycle costs?

Asset Management Plans: Life Cycle Activities



Risk-Based Multi-Asset Lifecycle Management



Road Corridor
Asset Management Integration

- **Decision support system (dTIMS) formalizes a comprehensive approach to the risk-based optimization of capital funding allocations across multiple asset classes.**
- **Geo-coordination of capital projects across Road, Water, Wastewater and Stormwater assets can yield up to 20% in cost savings.**
- **Cross-asset geo-coordination also reduces duration of interruption impacts for the affected local community.**

3. Asset Management Plans

State of the Infrastructure

Water Asset Inventory

$ 1.5 B

Components:	Inventory:
Chambers	10,421
Hydrants	10,309
Junctions	29,993
Service Connections (Commercial)	3,616
Service Connections (Residential)	87,943
Valves	52,642
Water Mains	1,146 km
Water Meters	91,081

Wastewater Asset Inventory

$1B

Components:	Inventory:
Flow Meters	45
Generator Station	1
Laterals	246 km
Manholes	16,174
Pump Stations	12
Sanitary Sewer Mains	1,000 km

Stormwater Asset Inventory

Components:	Inventory:
Catch Basins	21,375
Culverts	177
Ditches & Devices	776
In/Out Structures	756
Laterals	226 km
Manholes	16,125
Storm Sewer Mains	1,213.5 km
Stormwater Management Ponds	153

Road Asset Inventory

$ 1.5 B

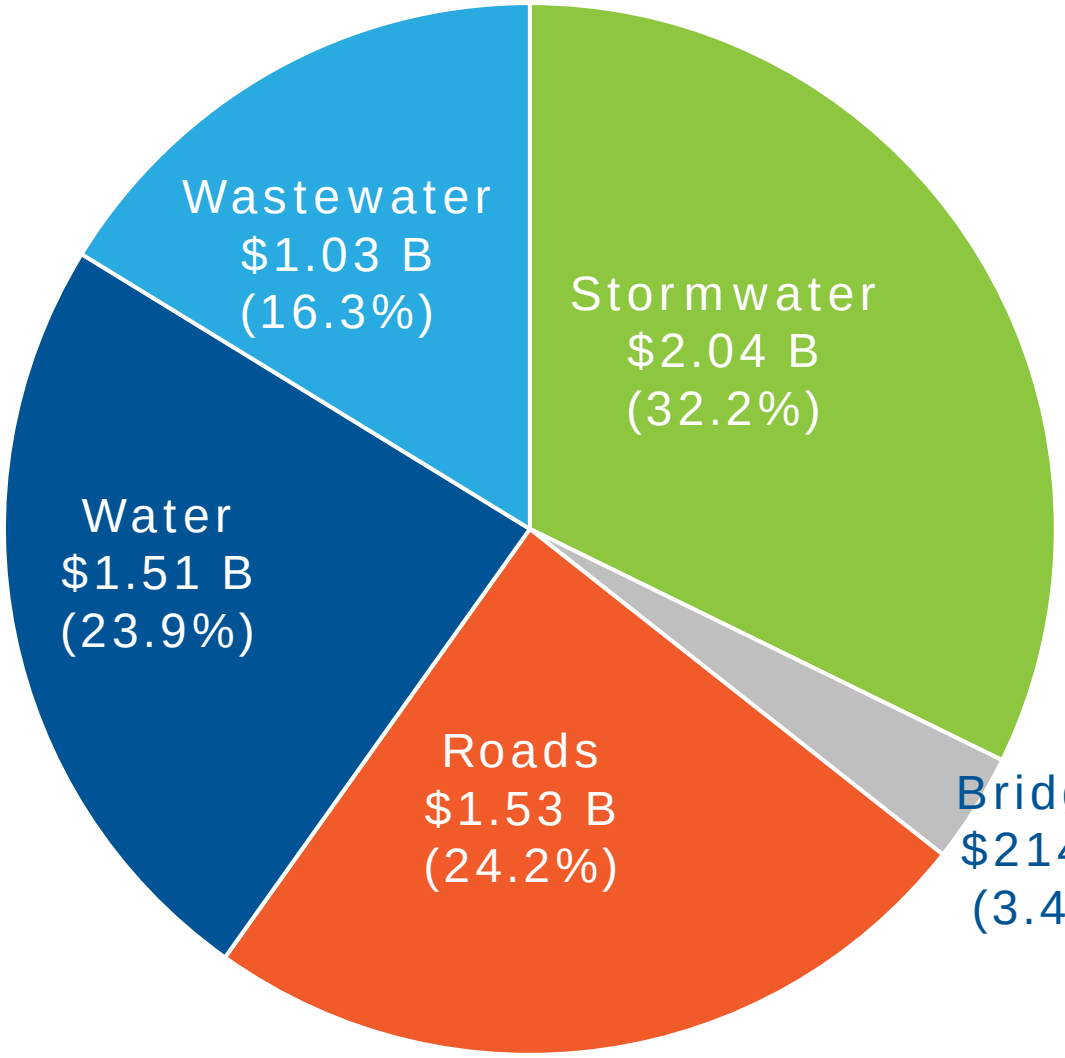
Components:	Inventory:
Collector Roads	744 lane km
Laneways	15 lane km
Rural Roads	110 lane km
Urban Local Roads	1,273 lane km

Bridge Asset Inventory

$ 214 M

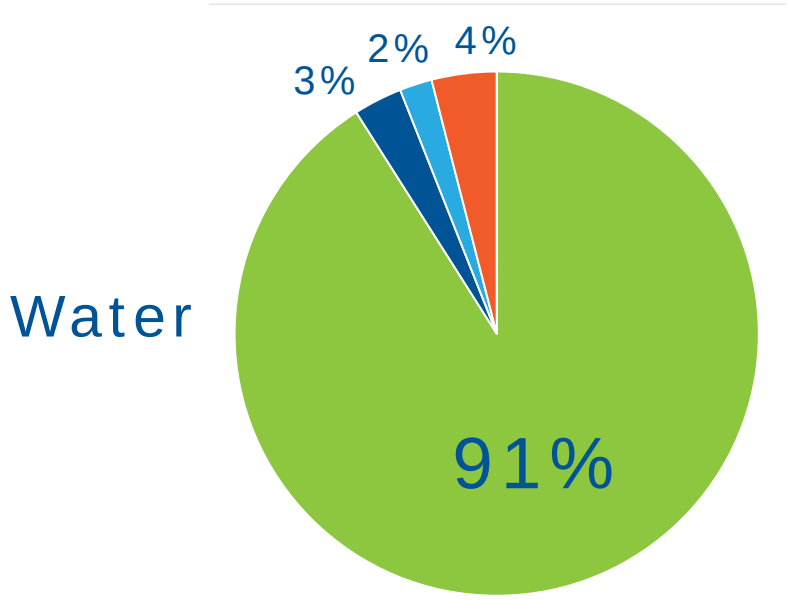
Components:	Inventory:
Bridges	33
Culverts	115
Pedestrian Bridges	41
Pedestrian Culverts	4

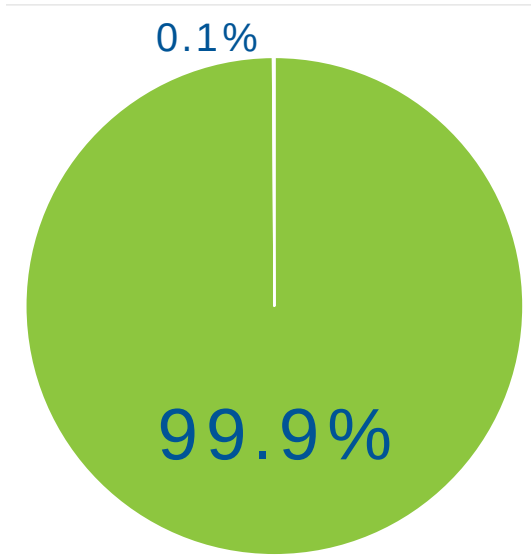
Total Asset Replacement Value

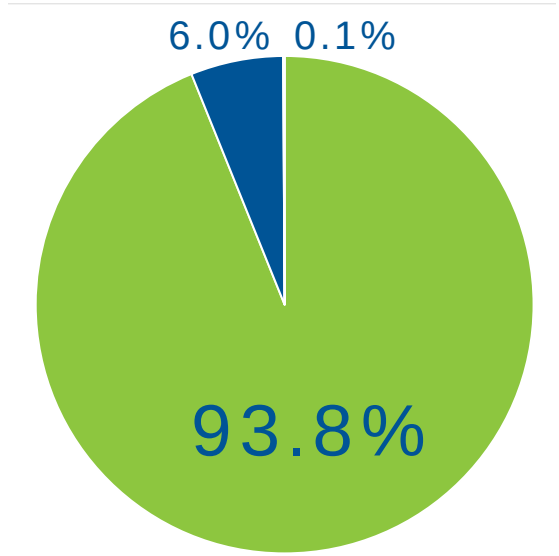


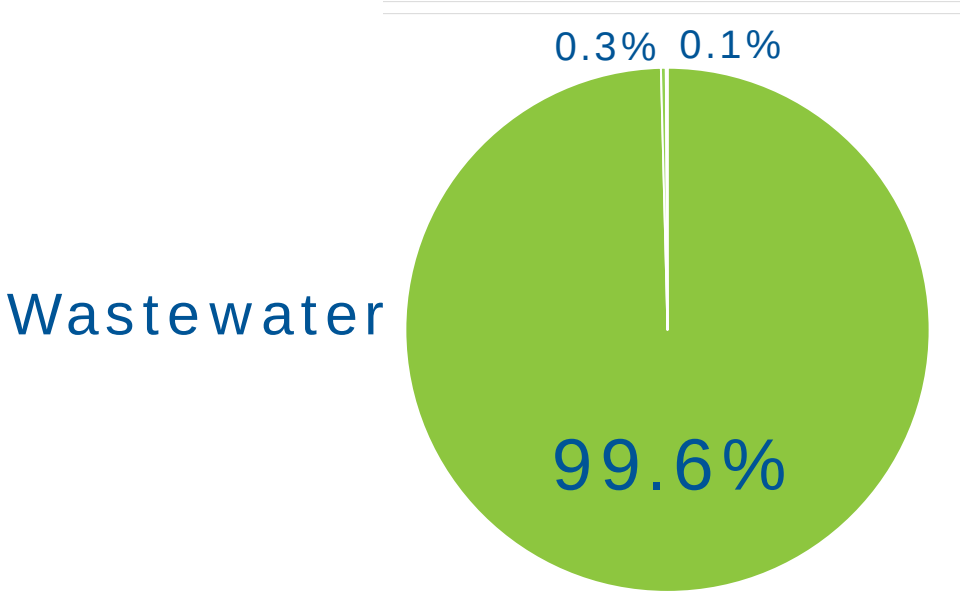
Total Valuation of Core Assets = $6.3 B

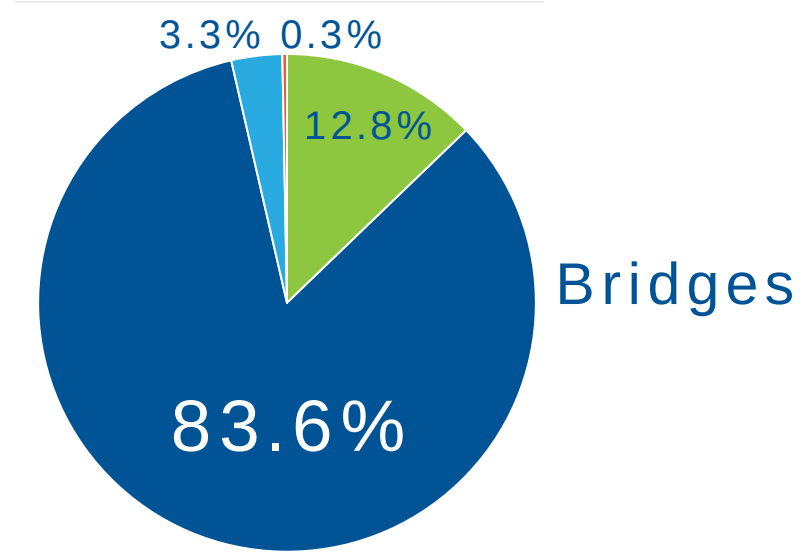
Asset Condition





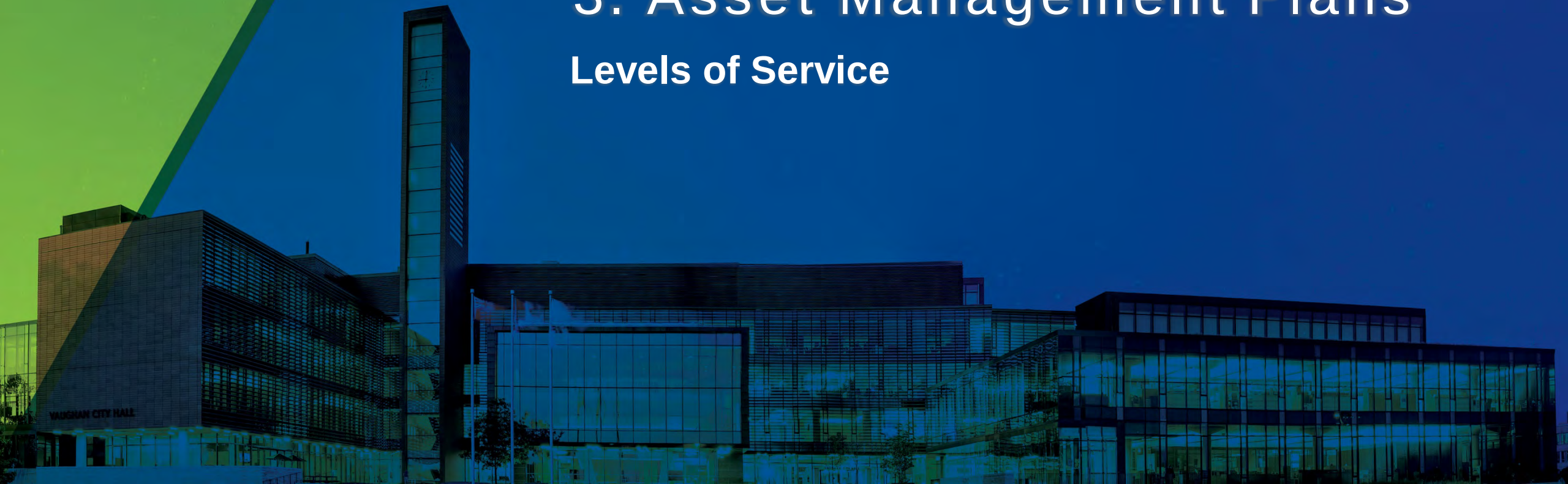






3. Asset Management Plans

Levels of Service



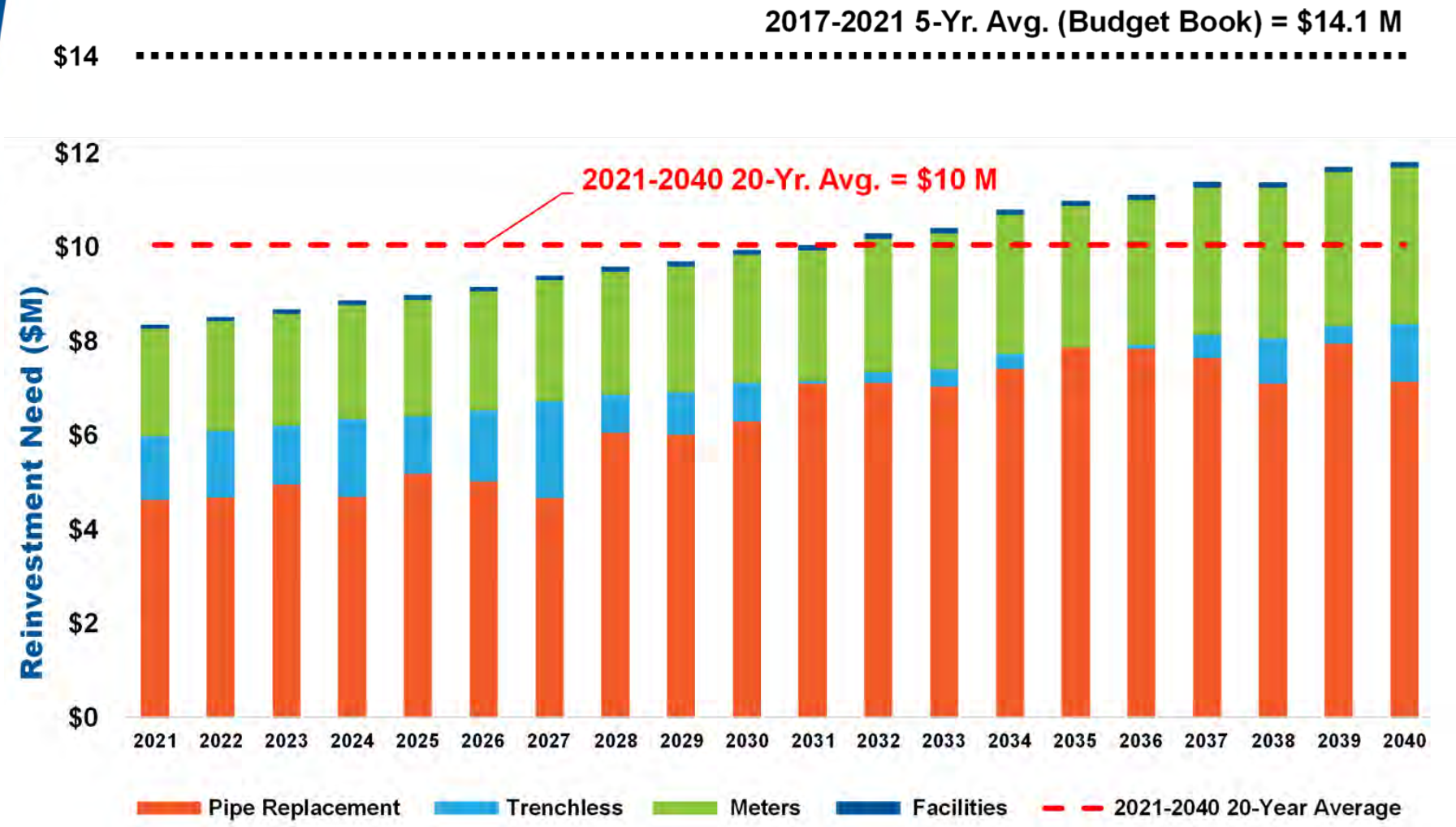
Level of Service Measures

Major Asset Class	Community LOS Measures	Technical LOS Measures
Water	**Map illustrating areas that are connected to the water system.**	**% of properties with access to the water system.**
Wastewater	**Map illustrating areas that are connected to the wastewater system.**	**% of properties with access to the wastewater system.**
Stormwater	**Map illustrating areas that are serviced by the stormwater system.**	**% of properties resilient to 100-year storm.**
Roads	**Images illustrating the different levels of road pavement conditions.**	**Average road pavement condition index value.**
Bridges	**Images illustrating the different levels of bridge conditions.**	**Average bridge condition index value.**

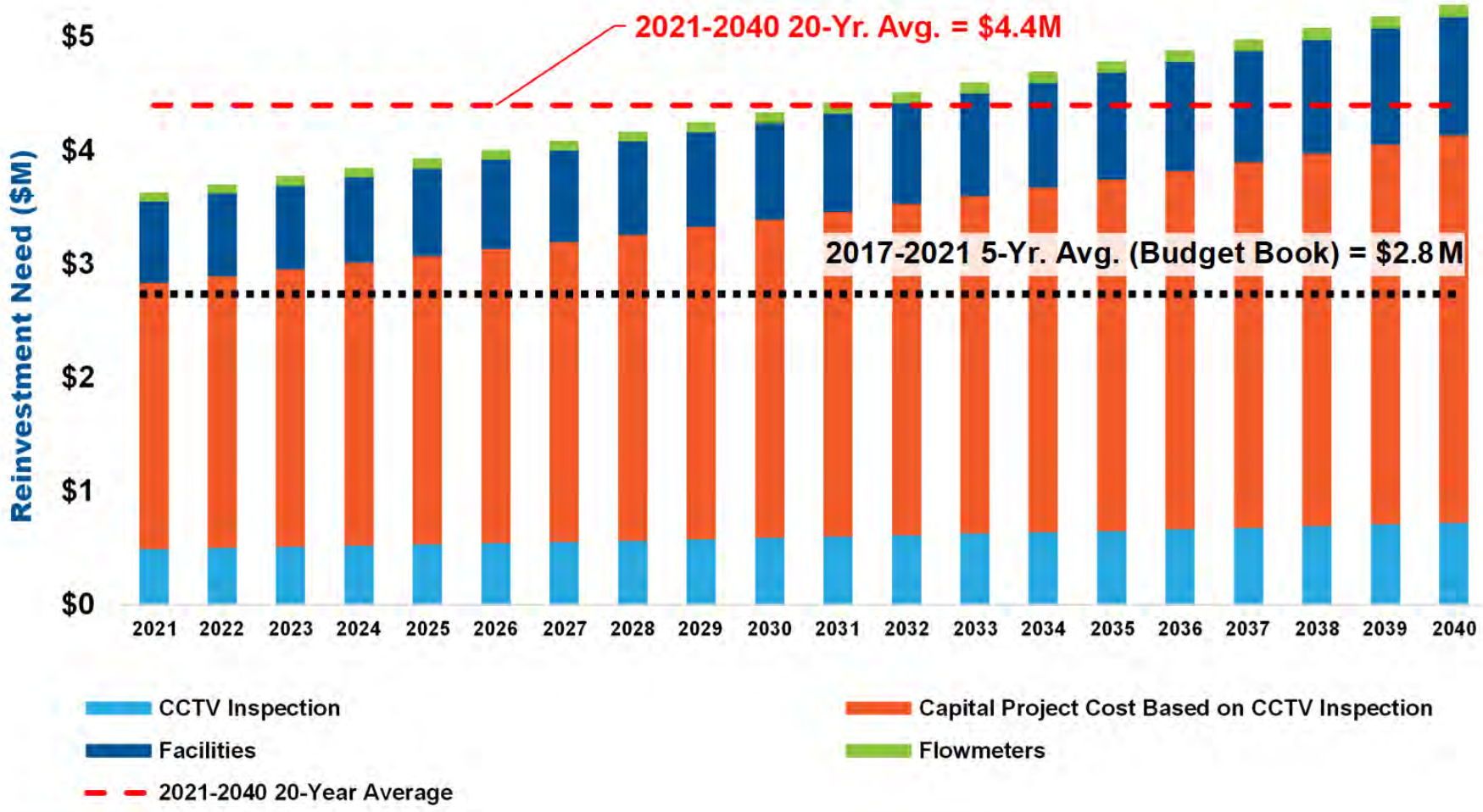
4. Asset Management Plans

Funding Needs Analysis

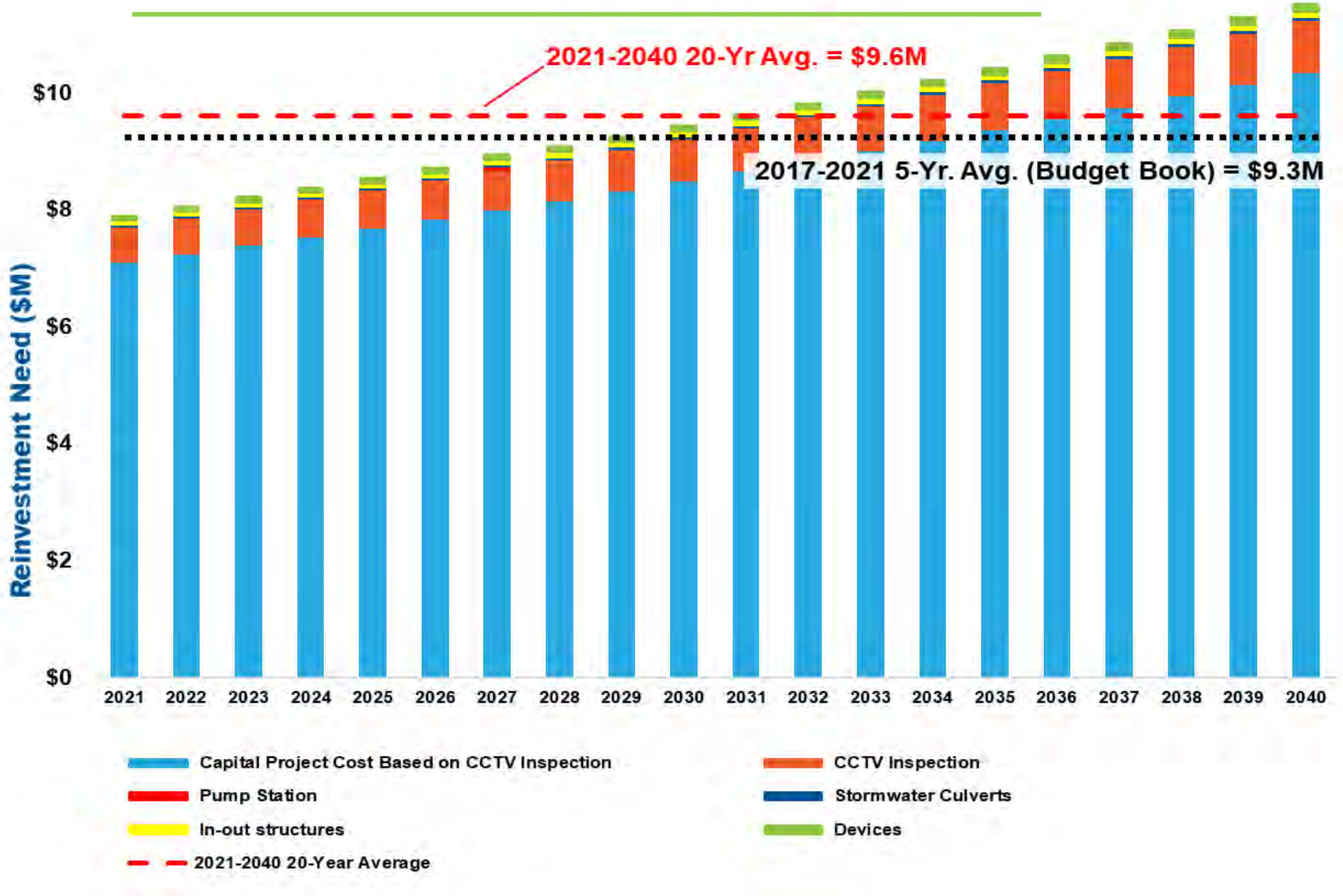
Annual Capital Funding Needs: Water



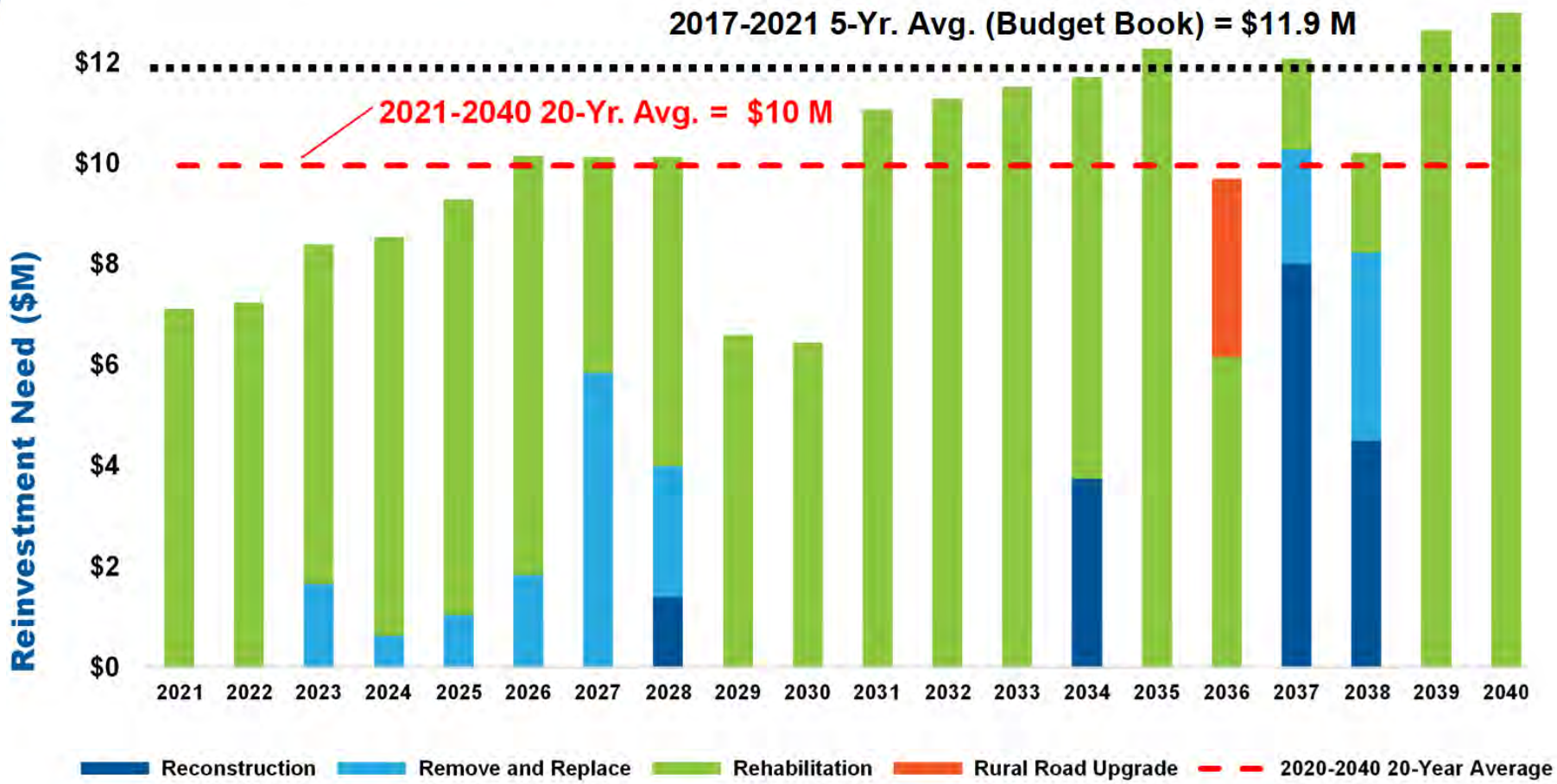
Annual Capital Funding Needs: Wastewater



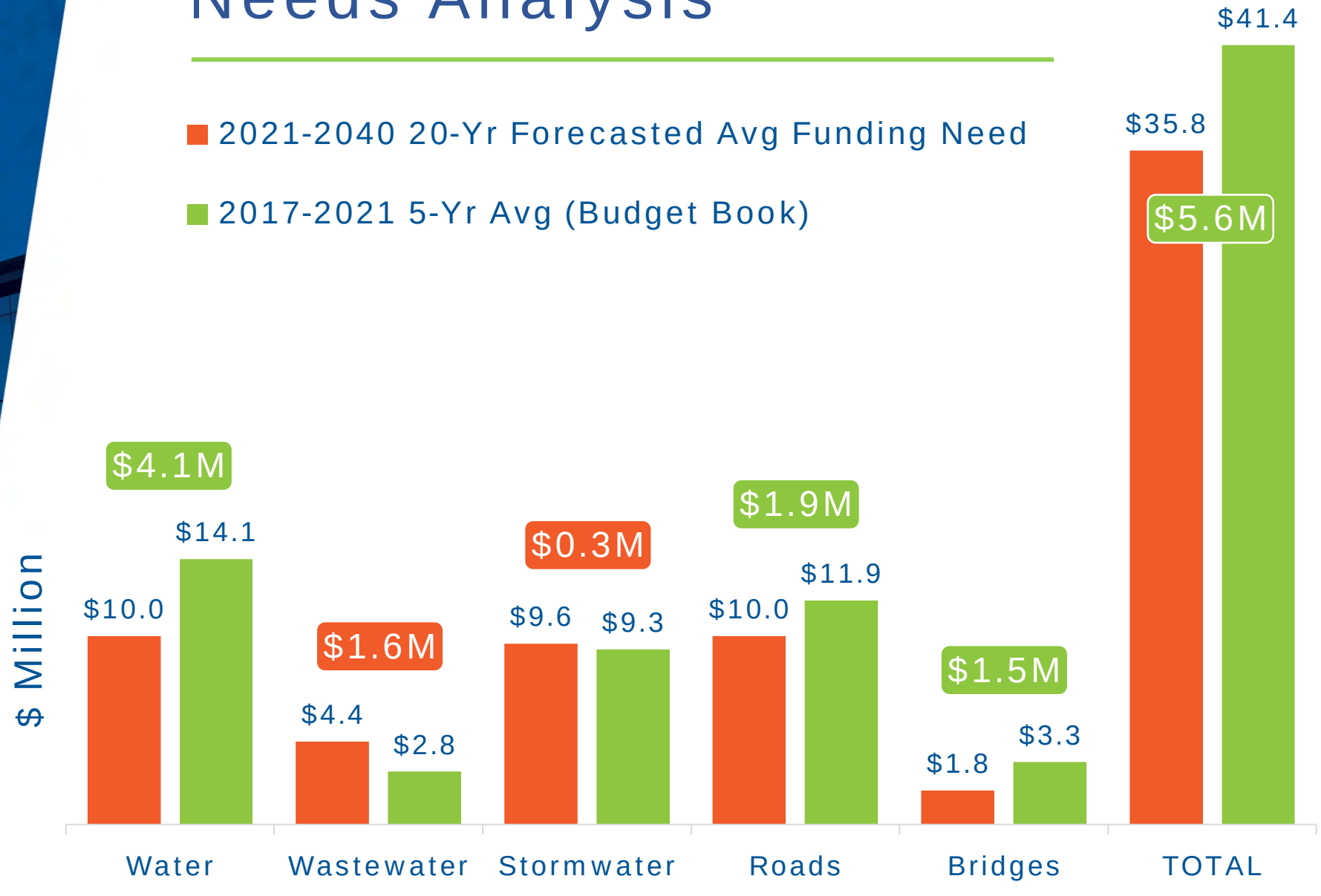
Annual Capital Funding Needs: Stormwater



Annual Capital Funding Needs: Roads



Summary of Annual Asset Needs Analysis



Program Management Process

Infrastructure Development Portfolio

Next Steps

Council Endorsement: Asset Management Plans for Core Assets

- Council Endorsement of AM Plans
- Posting of AM Plans on City Website
- Input into Allocation of Capital Funds and Prioritization of Capital Projects (Infrastructure Development)
- Input into Long Term Fiscal Model and Plan (Finance)
- Development of AM Plans for Remaining Non-Core City Assets

Questions

VAUGHAN

Thank You.