



# 2024 Asset Management Plan

Corporate Asset Management  
General Committee, October 22, 2024





# Agenda

1. Regulatory Requirements
2. This Plan's Features
3. 2024 Asset Management Plan's Findings
4. Recommendations





# Markham's AM Journey

Strategic Plan – 2020 to 2026

Building Markham's Future Together

## Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure





# 2024 Asset Management Plan

Strategic Plan – 2020 to 2026

Building Markham's Future Together

The 2024 Asset Management Plan is the **3<sup>rd</sup> of 4 phases** required to satisfy O. Reg. 588/17, scope includes:

- *All known assets that the City owns and manages*
- *An assessment of the current state of the infrastructure, including asset replacement values and current asset performance*
- *An assessment of the current levels of service provided to the community*
- *Documentation of the lifecycle activities required to maintain current service levels*
- *A risk assessment of the City's assets*
- *A financial summary outlining the cost requirements to maintain current service levels through to 2051*
- *Plan is based upon 2023 year-end data*

Several industry best practice frameworks and tools were developed:

- *A service-centric asset hierarchy that details the relationships between assets and the services they provide to the community*
- *In-house growth model forecasting future asset acquisitions and resource needs*
- *Levels of service framework and performance measures*
- *Risk management strategy and risk ratings aligned to assets*
- *Life cycle renewal forecast computational model*



# State of City Infrastructure

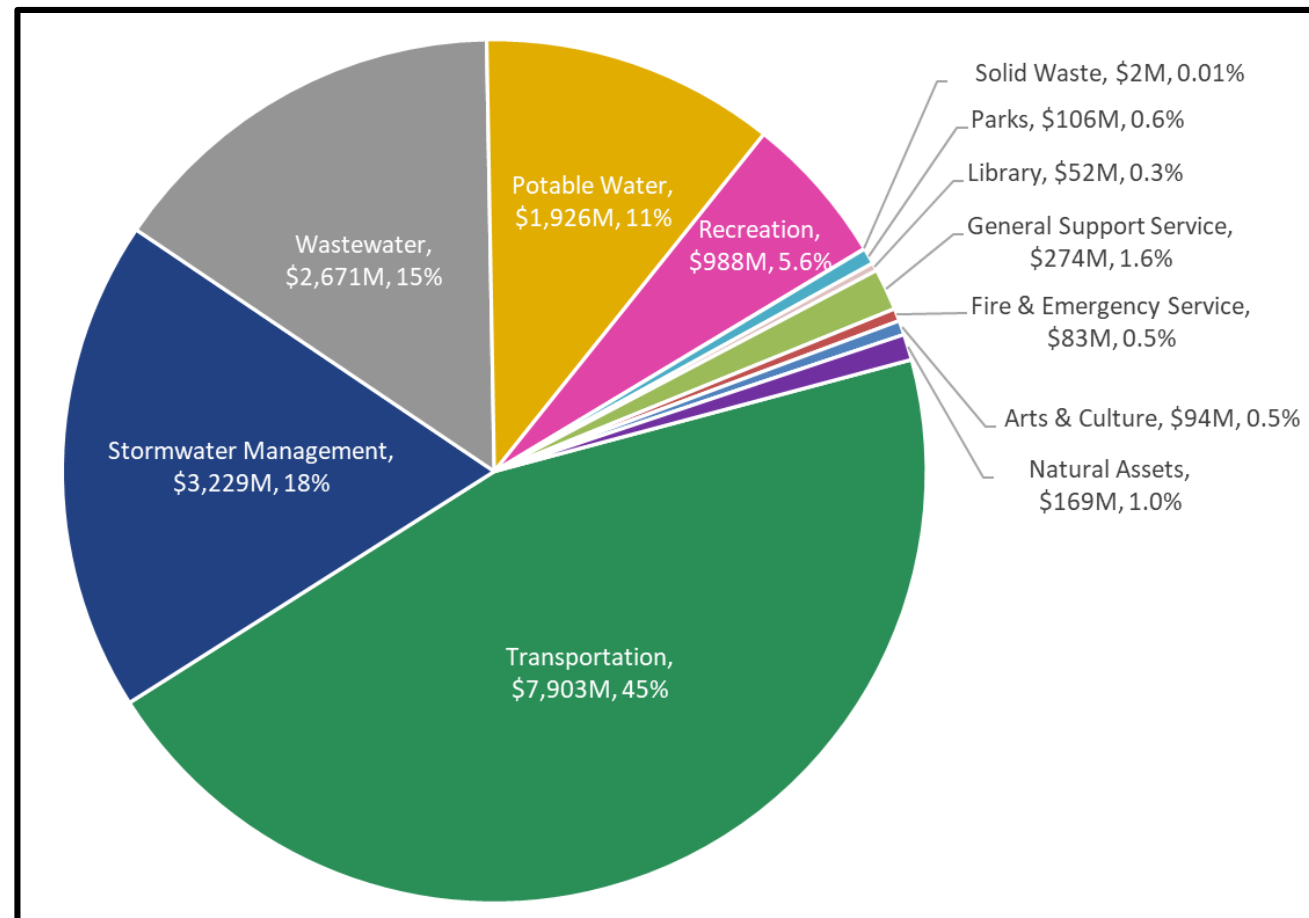
Strategic Plan – 2020 to 2026

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## Current Replacement Value (CRV) by Service

### Key Takeaways

- The City's assets have a combined current replacement value of **\$17.5B**
- 2021 Asset Management Plan CRV = \$9.63B
- Increase in overall value mainly attributed to the updating of replacement cost rates and asset acquisitions since 2020
- The road pavement component of Transportation represents the largest material change due to an increase in **replacement cost unit rates**, for comparison:
  - 2021 Asset Management Plan = \$768M
  - 2024 Asset Management Plan = \$7.149B
  - Change is a result of no longer using a resurfacing ("shave and pave") unit rate to determine a road's current replacement value





# State of City Infrastructure

## Installation & Performance Profiles

### Key Takeaways

- Asset acquisitions peaked from the 1980s through to the 2000s
- The City's assets are relatively young:
  - Average age of **33** years
  - Average useful service life of **81** years
- Overall, assets remain in a **GOOD** state of performance since last reported
- **88% or \$15.4B** of assets performing as intended
- **12% or \$2.1B** of assets are subject of planned maintenance or renewal



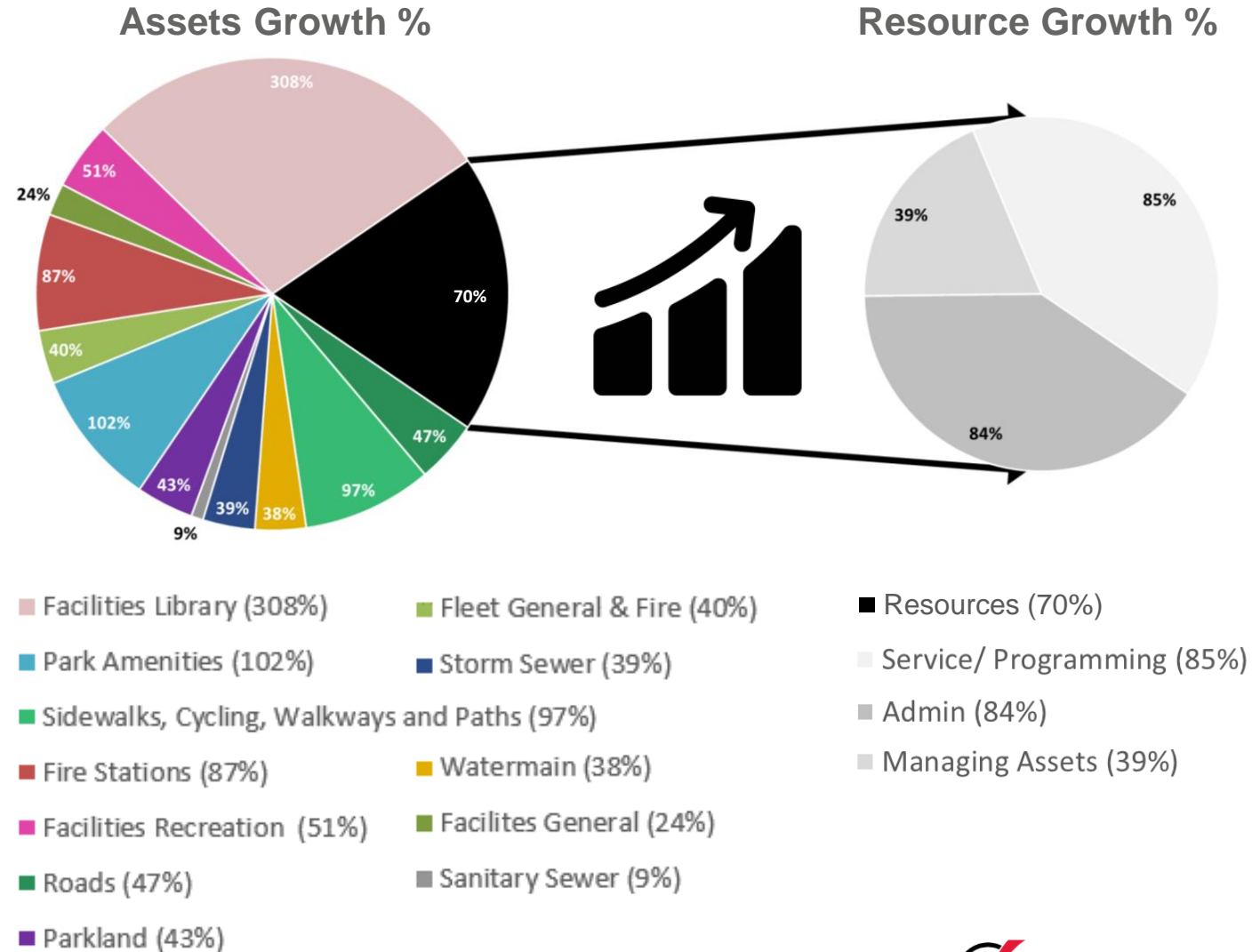


# NEW Growth Model

## Asset & Resource Based Growth Projections to 2051 (full build-out)

### Key Takeaways

- The City will grow to approximately **610,500 residents and 301,600 jobs by 2051**
- Preliminary projections suggest:
  - Asset growth averaging **74% increase** across all portfolios
  - Resource growth averaging **70% increase**
- Peak development and construction activity may be expected around **2026-2035** and again in the **2041-2050** timeframes
- The City's current Development Charges Background Study determined that **\$2.79B** is required to support growth from 2021 through to 2031
- **Additional DC funding will** be required to support growth from 2031 through to 2051







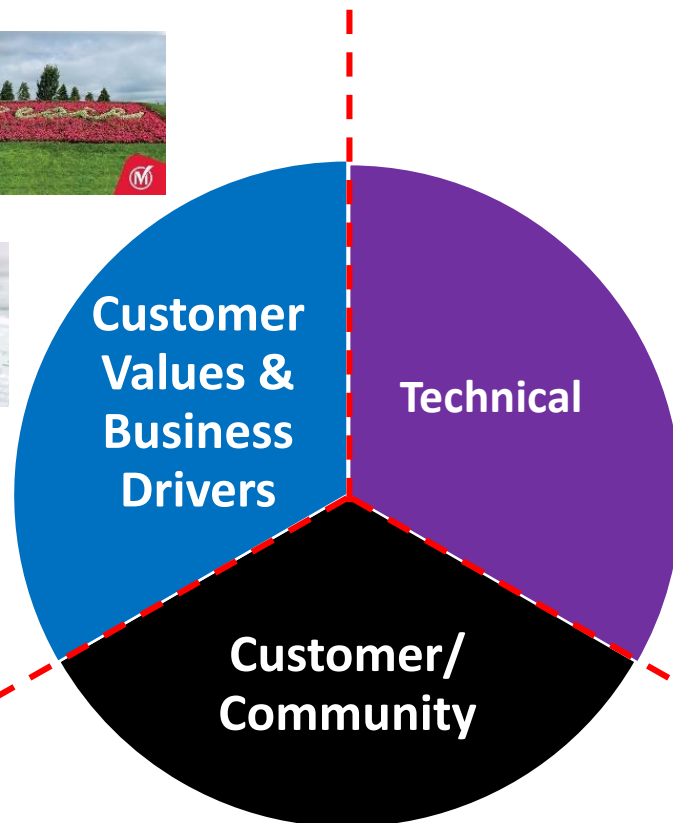
# NEW Levels of Service

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## WHY WE DO THINGS

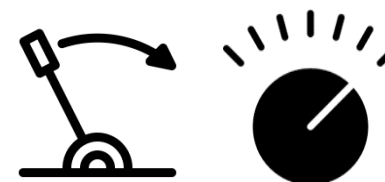
- Council Direction
- BMFT
- Legislative requirements with mandates & regulations
- Tax payer priorities



## ANNUAL WORK PROGRAMS & BUDGETS

(work we do and cost)

- Bridge Inspection
- Road resurfacing
- Valve exercising
- Water quality sampling
- Building renovation
- HVAC replacement
- Computer replacement



## PERFORMANCE MANAGEMENT

(what the end user experiences)

### Resulting Condition

- 88% of assets are performing as intended
- 12% of assets are subject of planned maintenance or renewal

### Resulting Functionality

- # of closures/ IT server downtime



### Resulting Capacity

- Widen a 2 lane to a 4 lane road

### Resulting Availability/ Accessibility

- Can I connect to municipal water?







# NEW Risk Management

## Key Takeaways

- Highlights the significance of the asset in the context of the service it supports
- Better informs day to day operating, maintenance and renewal practices
- **48.8% or \$8.5B** of all assets assessed as **Very Low risk or fit for future use**
- **44.4% or \$7.8B** of all assets assessed as **Low risk or adequate for now**
- **6.4% or \$1.1B** of all assets assessed as **Moderate risk or may require attention**
- **0.4% or \$67.5M** of all assets assessed as **High risk or at risk or requires attention**
- **NO ASSETS** are assessed as **Very High risk or unfit for sustained service**

*Risk Rating (out of 25) = Likelihood of Failure (out of 5) × Consequence of Failure (out of 5)*

		Consequence of Failure				
		1	2	3	4	5
Likelihood of Failure	1	\$84,338,977 0.5%	\$2,191,182,430 12.5%	\$3,031,655,144 17.3%	\$149,016,025 0.9%	\$0
	2	\$127,927,211 0.7%	\$2,743,160,517 15.7%	\$3,303,538,056 18.9%	\$254,801,676 1.5%	\$2,836,032 0.0%
	3	\$105,132,401 0.6%	\$1,807,073,834 10.3%	\$1,415,437,168 8.1%	\$67,632,808 0.4%	\$10,272,917 0.1%
	4	\$52,889,314 0.3%	\$778,189,355 4.4%	\$800,685,177 4.6%	\$55,515,269 0.3%	\$0 0.0%
	5	\$45,763,184 0.3%	\$220,459,770 1.3%	\$238,713,920 1.4%	\$11,979,447 0.1%	\$0 0.0%

Legend		
Very Low	1-5	Fit for the Future
Low	6-10	Adequate for Now
Moderate	11-15	Requires Attention
High	16-20	At Risk
Very High	21-25	Unfit for Sustained Service

### Staff notes:

- A new tool in the tool box
- **Methodologies used in its development**
- Common framework that fits all asset types and the services that they support
- Defining asset failure:
  - Likelihood of failure (LoF) score out of 5
  - Consequence of failure (CoF) score out of 5
- Scores are multiplied together for an overall risk rating out of 25



# Financial Summary

## Maintain Current Level of Service Scenario

### Key Takeaways

- Preliminary findings suggest:
  - Approximately **\$200M** average annual capital requirement (to 2051) to keep the asset portfolio's performance rated as **GOOD**
  - City is managing financial resources **well**
  - Renewal needs and service delivery pressures for assets in service today are expected to **peak in 2040-2044, and again by 2051**
  - New assets to service growth are expected to **peak in 2026-2035 and again in the 2041-2050 timeframes**
- This important work should help inform:
  - Future financial planning to set optimal infrastructure investment target
  - Annual budgets
  - Background studies that support growth and development
- Asset management needs will also result in operating pressures, including staffing, that will be considered as part of the annual budget process





# Recommendations

## General Committee, October 22, 2024

1. That the report and presentation titled “2024 Asset Management Plan” be received; and,
2. That Council endorse the findings from the update of the City’s Asset Management Plan, for all city owned and/or managed assets assessed at current levels of service; and,
3. That Council direct staff to submit the 2024 Asset Management Plan (the document) to the Ministry of Infrastructure, informed by the findings noted under Recommendation 2 and as outlined in this report; and make the document publicly available on the City’s website upon its completion; and,
4. That Staff be authorized and directed to do all things necessary to give effect to this resolution.



Thank you

