



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 **3rd 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*

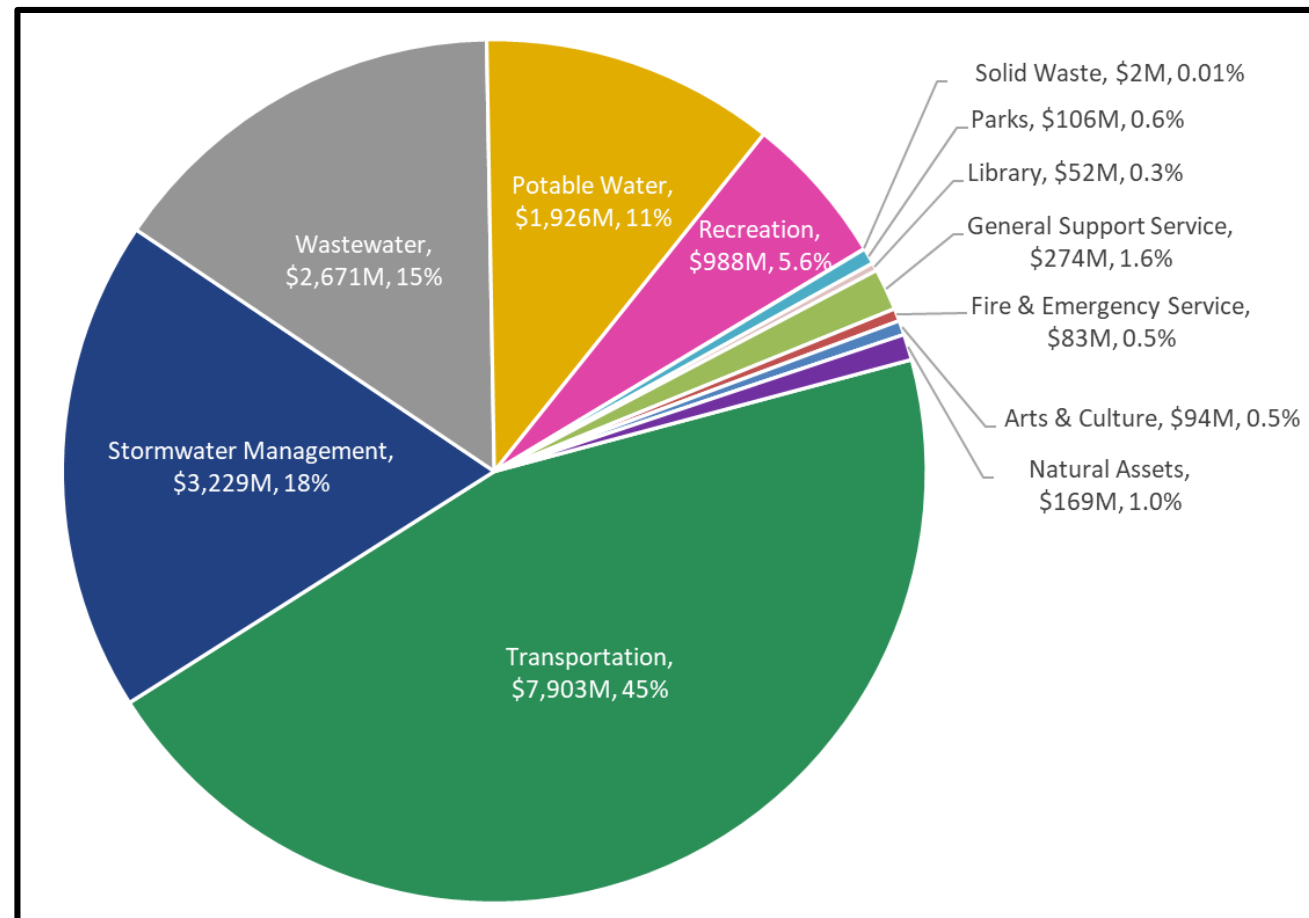


State of City Infrastructure

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

Strategic Plan – 2020 to 2026

Building Markham's Future Together

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



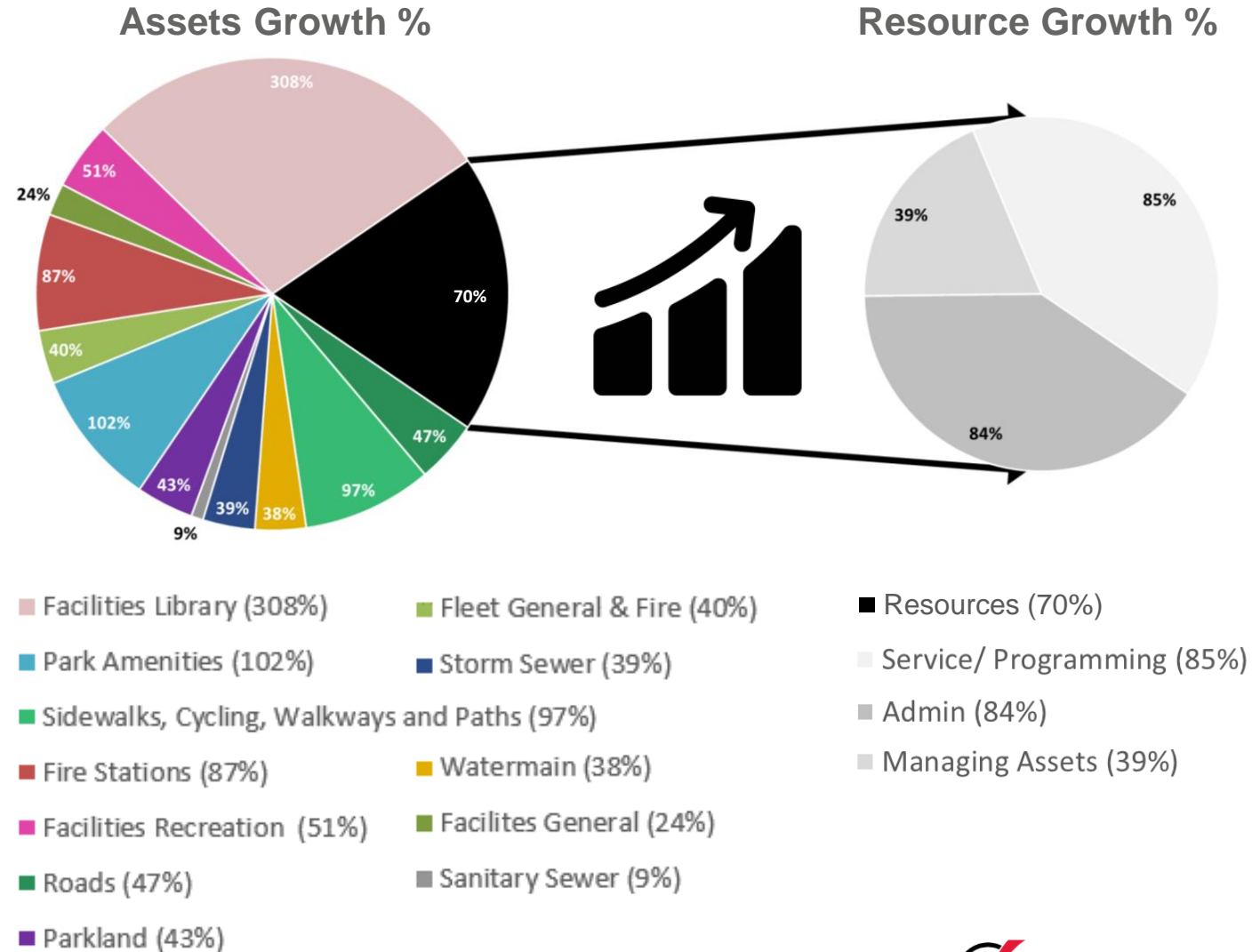


NEW Growth Model

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





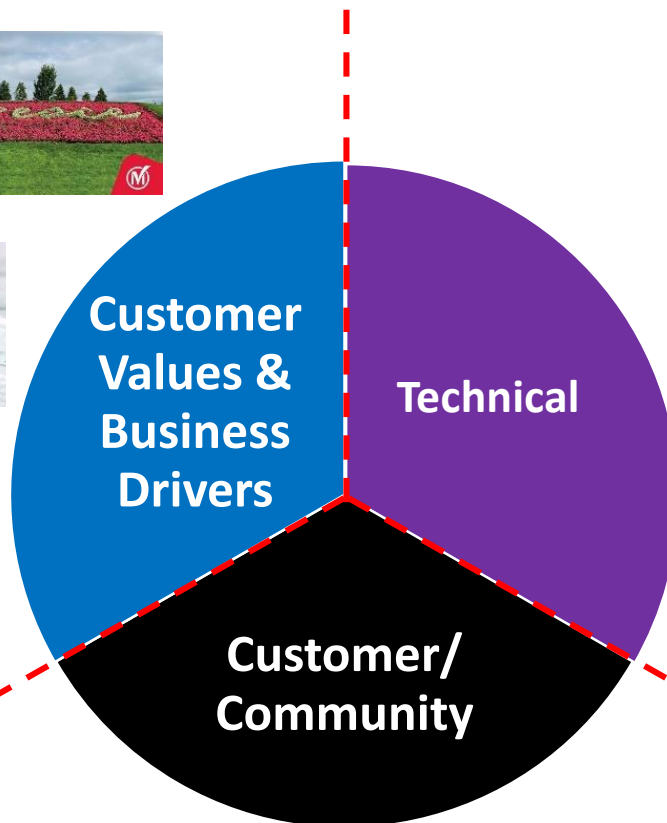
NEW Levels of Service

Strategic Plan – 2020 to 2026

Building Markham's Future Together

WHY WE DO THINGS

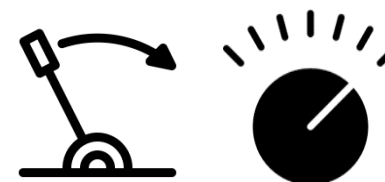
- Council Direction
- BMFT
- Legislative requirements with mandates & regulations
- Tax payer priorities



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

