




CITY OF HAMILTON
PUBLIC WORKS DEPARTMENT
General Manager's Office

TO:	Mayor and Members General Issues Committee
COMMITTEE DATE:	June 15, 2022
SUBJECT/REPORT NO:	Core Asset Management Plan (PW22048) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Jasmine MacDonald (905) 546-2424 Ext. 2641
SUBMITTED BY:	Patricia Leishman Director, Corporate Asset Management Public Works Department
SIGNATURE:	

RECOMMENDATION

That the Corporate Asset Management Plan Overview and Core Asset Management Plans, attached to Report PW22048 as Appendix "A", "B", and "C" to, be approved as required by Ontario Regulation 588/17: Asset Management for Municipal Infrastructure;

EXECUTIVE SUMMARY

This is the first iteration of the Core Asset Management (AM) Plans completed by the Corporate Asset Management (CAM) office in partnership with over fifty asset owners and key stakeholders across the City. The intent of these first plans is to meet Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17) requirements including establishing the current levels of service and setting a benchmark for the City's core assets (water, wastewater, stormwater, roads and engineered structures) in order to identify continuous improvement items for the next iteration of the AM Plans. The intent is also to support addressing findings from the Roads Value for Money Audit (AUD21006) report related to asset management.

A key output of an AM Plan is the infrastructure funding gap. Over the 10-year planning horizon Hamilton's funding gap for core assets is estimated to be \$195.9 million annually. Moving forward, the City will continue to improve its asset lifecycle data, and this will allow for more informed choices as how best to mitigate any impacts and

OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

address the funding gap itself. This gap in funding future plans will be refined over the next three (3) years to improve the confidence and accuracy of the forecasts in alignment with O. Reg. 588/17 requirements and to present proposed levels of service and a funding strategy by 2025 for all City assets. There are no specific financial commitments required at this time from this AM Plan however findings from Report PW22048 will be used to inform the 2023 tax and rate supported budget process.

The total replacement cost for all core assets is approximately \$21.3B. Overall, core assets are an average of fair condition, and are an average of 28 years of age with 50% of service life remaining. However, the data confidence levels for these assets are shown as low to medium, indicating that as the City continues to improve data confidence for these assets, these values will change.

The CAM Office recognizes the importance of continuous improvement as an essential part of the asset management journey. As the City embraces improved practices, it is important to recognize that the City is early in this journey and will acknowledge findings through the Improvement Plan and future iterations of the AM Plans. The CAM Office will continue to support asset management through governance, expertise, monitoring, research support, reporting and assurance of consistent practices. Through the efforts of the CAM Office, enhanced asset management practices will become ingrained in the City's culture at all levels of the corporation. Requirements for a permanent CAM Office will be brought to Council through the 2023 budget cycle.

Alternatives for Consideration – Not Applicable

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: The approval of the Corporate Asset Management Plan Overview and Core Asset Management Plans, attached as Appendix "A", "B", and "C" to Report PW22048, is required for the City of Hamilton to qualify for future infrastructure grants.

There are no specific financial commitments required at this time from this AM Plan however the findings from Report PW22048 will be used to inform the 2023 tax and rate supported budget process.

Staffing requirements as discussed below will come to Council through the 2023 budget process.

Staffing: In order to meet the requirements under O. Reg 588/17 the CAM Office was implemented in June 2021 with Council approval for the creation of the Director position on a two-year contract (ending in June 2023). Additional temporary positions were added in late 2021 in order to meet the July 2022 O.Reg.588/17 requirements. As stated above, requirements span past the

June 2023 Director position end date and as such, resource requirements for the Office will be brought to Council through the 2023 budget cycle to begin the process of creating a permanent CAM Office. Asset Management Plans require regular review and updating in order to continue to meet regulatory requirements past the 2025 date. The creation of a permanent CAM Office will support this requirement as well as Council priorities with the creation of an Asset Management Program for the City.

Legal: N/A

HISTORICAL BACKGROUND

Since 2011, the Province of Ontario has held a strategic plan to guide future municipal investments through the development of asset management plans. Through the 2011 Building Together Program followed by the 2013 Municipal Infrastructure Investment Initiative municipalities were required to submit a detailed AM Plan in order to qualify for future Provincial grant program funding. Hamilton's response to this requirement was Report PW14035 Public Works Asset Management Plan which was published in April of 2014 and was the last AM Plan prepared in Hamilton prior to this report.

Ontario Regulation 588/17 – Asset Management Planning for Municipal Infrastructure, under the Infrastructure for Jobs and Prosperity Act, 2015, came into force on January 1, 2018. Building on the Province's 2011 Building Together: Guide for Municipal Asset Management Plans, the Ontario Regulation 588/17 (O.Reg. 588/17) sets out requirements and deadlines for municipal asset management plans and policies.

The key requirements of O.Reg. 588/17 are described in further detail below. They include the preparation of a strategic asset management policy and phased implementation of the asset management plans.

(1) Strategic Asset Management Policy

The deadline for strategic asset management policy implementation was July 1, 2019. It requires Municipal Council endorsement and shall be reviewed and updated every five (5) years. City Council approved the Corporate Asset Management Policy (PW19053) in June 2019, fulfilling this requirement.

(2) Corporate Asset Management Plan (AM Plan)

The Corporate Asset Management Plan (AM Plan) has three implementation deadlines summarized below:

- i. July 1, 2022 – Preparation of an AM Plan, including current levels of service (LOS) in respect of a municipality's core municipal infrastructure which is defined as water, wastewater, storm water, roads and engineered structures;

- ii. July 1, 2024 – Preparation of an AM Plan with respect to all of its other municipal infrastructure assets; and,
- iii. July 1, 2025 –Preparation of an AM Plan, which will include proposed levels of service, with respect to all its municipal infrastructure assets.

The regulation also outlines that a municipality shall review and update its asset management plan at least every five (5) years.

The Core AM Plans are the result of efforts from staff across the city who are involved with managing municipal infrastructure assets, including finance and technical service areas and operations staff. The process of developing the comprehensive Core AM Plans was complex and required multiple meetings and workshops with each of the 5 service areas included in the scope of the Core AM Plans. The Core AM Plans were developed through different stages including data collection, analysis of lifecycle activities, risk and financial management and current levels of service.

Previous Reports pertinent to this Recommendation:

- a) Corporate Asset Management Information Report PW22037 May 18, 2022;
- b) Strategic Asset Management Policy PW19053 June 17, 2019; and,
- c) Public Works Asset Management Plan - Provincial Requirement PW14035 April 7, 2014.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

O.Reg. 588/17 came into effect January 1, 2018. It requires the City to develop a comprehensive Corporate Asset Management Plan based on a phased approach with three (3) deadlines of July 1, 2022, July 1, 2024, and July 1, 2025. The July 1, 2022 and July 1, 2024 deadlines are where 'Core' assets (water, wastewater, stormwater, road and engineered structures) and all other City infrastructure assets, respectively, are required to have an asset management plan documenting current levels of service. The final deadline requires the documentation of proposed levels of service and financial strategies to fund these expenditures.

RELEVANT CONSULTATION

As part of the AM Plan preparation and development process various workshops and meetings were held with all relevant core asset owner groups and stakeholders. These included the following departments and divisions to ensure that all relevant information had been captured accurately:

- Corporate Services Financial Planning and Policy Division;
- Chief Road Official;

- Public Works divisions (Hamilton Water, Engineering Services and Transportation, Operations and Maintenance); and,
- Planning and Economic Development divisions (Transportation Planning, City Planning and Strategic Growth).

ANALYSIS AND RATIONALE FOR RECOMMENDATION

Like many progressive municipalities, Hamilton is shifting its view of asset management and moving to adopt a service-focused view of its infrastructure and investments. By adopting a customer-centric level-of-service framework, measures and targets, and weighing investment based on service impact and risk, the City will establish a clear relationship between infrastructure investment and service outcomes.

A key output of an AM Plan is the infrastructure funding gap. Hamilton's current infrastructure position represents a social investment that has been built up progressively over the last 150 years predominantly due to underinvestment, including a lack of permanent infrastructure funding from senior levels of government, as well as large spikes of growth throughout the years. Hamilton's challenge is to determine how it will manage the gap over the long term to ensure that the City can continue to deliver its services sustainably today and across future generations.

Over the 10-year planning horizon Hamilton's funding gap is estimated to be \$1,959 million or \$195.9 million annually (see Table 1) with a low-medium data confidence. Moving forward, the City will continue to improve its asset lifecycle data, and this will allow for more informed choices as how best to mitigate any impacts and address the funding gap itself. This gap in funding future plans will be refined over the next three (3) years to improve the confidence and accuracy of the forecasts in alignment with O. Reg. 588/17 requirements and to present proposed levels of service and a funding strategy by 2025. It should be noted that this funding gap relates to core assets (water, wastewater, stormwater, roads and engineered structures) only and as additional asset classes are added to the program and the City applies asset management practices more robustly, it is expected that this gap will increase.

Table 1: Summary of Assets

Asset Category	Replacement Value (B)	Average Age (Years)	Average Condition	Renewal Funding Ratio	10 Year O&M & Renewal Funding Ratio	Funding Gap per year (M)	Funding Gap over 10 years (M)
Water	\$4.3	34	Fair	75%	85%	\$20	\$202
Data Confidence	Low	Medium	Low	Low-Med	Low-Med	Low-Med	Low-Med
Wastewater	\$7.3	30	Fair	46%	70%	\$49.8	\$498
Data Confidence	Low	Medium	Medium	Low-Med	Low-Med	Low-Med	Low-Med
Storm Water	\$3.1	22	Good	9.5%	42%	\$31	\$312
Data Confidence	Medium	Medium	Low	Low-Med	Low-Med	Low-Med	Low-Med
Road Network	\$5.1	16	Fair	14%	66%	\$87	\$866
Data Confidence	Low	Low	Medium	Low-Med	Low-Med	Low-Med	Low-Med
Engineered Structures	\$1.5	33	Good	33%	67%	\$8.1	\$81
Data Confidence	Medium	Medium	Medium	Low-Med	Low-Med	Low-Med	Low-Med
TOTAL	\$21.3					\$195.9	\$1,959

The total replacement cost for core assets is approximately \$21.3B. Overall, core assets are an average of Fair condition, and are an average of 28 years of age with 50% of service life remaining. However, the data confidence levels for these assets are shown as low to medium, indicating that as the City continues to improve data confidence for these assets, these values will change. By only having sufficient funding to renew assets at the above stated ratios (see Table 1), the City will be required to make difficult choices that could include a reduction of the level of service, ability to accept more risk and potentially higher costs to maintain assets. These choices could result in increased customer complaints, potential damage to the City's reputation and risk of fines or legal costs.

Over the next three (3) years Hamilton will be updating the Long-Term Financial Plan (LTFP) to connect the current tax and rate financing strategies to the asset management plans and the levels of service Hamilton provides. This will be a critical task for Hamilton to assist with the undertaking of timely renewals, ensuring both legislative compliance (indicating that the city has no choice) and the continuation of services.

The AM plans detail how the City plans to manage and operate the assets at the current levels of service through managing its life cycle costs. These costs are categorized by life cycle phases which includes acquisition, operations, maintenance, renewal and disposal. Over the ten (10)-year planning horizon Hamilton will acquire \$1.728 billion worth of core assets and is expecting to invest \$3.448 billion in operations and maintenance. Adding additional assets over time significantly impacts the operational and maintenance resources required to sustain the expected or mandatory level of service. It should be noted that a significant amount of operational and maintenance expenditures are mandatory due to legislative requirements and cannot simply be avoided or deferred. Additionally, over the ten (10)-year planning horizon, Hamilton is expecting to invest \$913 million in renewals for the five (5) assets covered under this AM Plan. Continually deferring renewals create risks of higher financial costs, decreased availability, and decreased satisfaction with asset performance.

Data Confidence is referenced throughout the report based on asset management best practice and indicates how confident the City is in the data provided. If the data was obtained using reliable documentation or methodology, then the data has higher confidence than if it was estimated. It was difficult to confirm the accuracy of the data, as such the confidence has predominately been estimated based on completeness. It is a continuous improvement item to continue to assess the data accuracy for assets and implement improvements. See Table 2 for the Data Confidence Grading Scale.

Table 2: Data Confidence Grading Scale		
Confidence Grade	Reliability	Accuracy
A - Very High	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment.	Dataset is complete and estimated to be accurate +/- 2%
B - High	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings. For example, some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation.	Dataset is complete and estimated to be accurate +/- 10%

C - Medium	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available.	Dataset is substantially complete but up to 50% extrapolated data and accuracy estimate +/- 25%
D - Low	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis.	Dataset may not be fully complete, and most data is estimated or extrapolated. Accuracy +/- 40%
E - Very Low	None or very little data held.	Dataset does not exist or very little accuracy.

Although the City considers condition as the preferred measurement for planning, many assets in the City do not yet have a process to determine condition. For assets where there was no known condition information, or inspections were not completed in a manner in which the conditions could be converted to a standardized scale, the condition was assumed based on remaining service life.

In January 2022, the CAM Office released its first two (2) surveys related to asset management for core assets on the Engage Hamilton Site (Roads and Water Services Review page). The number of survey respondents for this initial survey only represents a small portion of the population. Some key findings include that 54% of survey respondents rate the road surface as Poor or Very Poor while almost 79% felt safe using the roads in a motorized vehicle. 89% of survey respondents have not experienced an unplanned water service interruption while 87% feel that drinking water is somewhat safe to drink or better. The full results were used to assist with defining customer levels of service within each AM Plan. Future surveys will be released on a regular basis for each service area to ensure the City is continually receiving feedback on City services.

Since demand is not yet an extensive requirement in O.Reg. 588/17 for the July 1, 2022 deadline, this section is not as robust as some other sections of the report. It is an obligation for the report by July 1, 2025 and will be expanded in future iterations. Some key demand drivers identified throughout the AM Plans are population change, regulatory changes/obligations, changes in demographics, seasonal factors, consumer preferences and expectations, technological changes, economic factors and environmental awareness/commitments.

Navigating the climate crisis has been a key area of focus for the City of Hamilton, which is represented by historical efforts to understand the challenges that climate change poses to City assets. As part of this work, an inventory of projects/initiatives has been created and can be found in the Climate Change Adaptation sections of the AM Plans. There will be more robust incorporation of climate initiatives in future AM Plans.

Hamilton has begun to undergo a shift in how it evaluates risk in accordance with its infrastructure planning. While high level risks have been identified in the AM Plans, at this time, the City does not have sufficient data to present risks and trade-offs. This information will be presented in the 2025 AM Plan regarding proposed levels of service.

The CAM office recognizes the importance of continuous improvement as an essential part of the asset management journey. As the City begins to embrace asset management practices, it is important to recognize that the City is early in this journey and will acknowledge findings through the Improvement Plan and future iterations of the AM Plans. Improvement findings include categories such as data inconsistencies (e.g. lack of asset registries, gaps, duplication, low confidence, multiple sources, outdated), asset condition (lack of condition assessments, lack of process), lack of governance structure which impacts staff understanding their roles and responsibilities related to asset management and lack of clearly defined asset ownership. Condition was largely based on estimated service life for the majority of assets and as such, a low confidence level was assigned as age is not always an indicator of condition. In addition, replacement costs were based on in-house costs which were not always based on current market rates.

In summary, the CAM Office has made good progress in both the finalization of the Core AM Plans and the development of the Corporate Asset Management Program. Asset Management is a journey. Some great first steps have been taken in not only meeting the requirements under O. Reg 588/17 but also in developing a corporate wide asset management program that will support the City in making better informed decisions about our assets and the services that we provide.

The CAM Office will continue to lead asset management through governance, expertise, monitoring, research support, reporting and assurance of consistent practices. Enhanced asset management practices will become ingrained in the City's culture at all levels of the corporation.

ALTERNATIVES FOR CONSIDERATION

Council could choose not to endorse the Core Asset Management Plan (AM Plan), attached as Appendices "A", "B" and "C" to this report, as required by Ontario Regulation 588/17. This would put the City of Hamilton in a non-compliant state as it relates to Ontario Regulation 588/17.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Community Engagement and Participation

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community

Economic Prosperity and Growth

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

Built Environment and Infrastructure

Hamilton is supported by state-of-the-art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

Our People and Performance

Hamiltonians have a high level of trust and confidence in their City government.

Clean and Green

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” to Report PW22048 – Corporate Asset Management Plan Overview

Appendix “B” to Report PW22048 – Transportation Asset Management Plan

Appendix “C” to Report PW22048 – Waterworks Asset Management Plan