



**SUBJECT: Asset Management Plan**

**TO: Committee of the Whole**

**FROM: Capital Works**

Report Number: CW-22-17

Wards Affected: All

File Numbers: 701-04

Date to Committee: April 3, 2017

Date to Council: April 18, 2017

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**Recommendation:**

Receive and file the 2016 Asset Management Plan, attached as appendix A to capital works department report CW-22-17.

**Purpose:**

The purpose of this report is to bring forward the Corporate Asset Management Plan for review. Asset Management supports the City's strategic directions through good governance of infrastructure and common corporate objectives and priorities. The corporate Strategic Plan is supported by a number of key medium-term policy documents and short-term implementation plans. These documents and plans are the framework for critical decision-making for managing asset investments and/or resources. Asset management is embedded in most corporate plans and strategies, including but not limited to; the Official Plan, Long-Term Financial Plan, and the city's budget.

An Engaging City

- Good Governance

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**Background and Discussion:**

In 2013, staff provided an update to committee on the corporate Asset Management Project and provided an update (Report CSI-22-13) on the status of the city's infrastructure backlog and a quantified funding gap for the facilities and buildings and

roadways asset groups. Several funding alternatives were identified and staff committed to review these options in further detail and to report back later in 2013. In December 2013, Council approved the 20 year funding plan presented in the Asset Management Financing Plan report (F-39-13) with the purpose of reducing the infrastructure backlog, funding gap, as well as provide ongoing stable funding to the capital renewal program. The approved scenario was one that was consistent with the city's Long Term Financial Plan (LTFP).

In January 2015, a Roads Pavement Performance Update (Report CW-1-15) was brought forward based on two staff directions by Council. The purpose was to determine the road resurfacing funding allotment for the appropriate road types and segments, as well as identify a holistic and coordinated funding plan to address the existing backlog of road works. In July 2015, an additional \$20 million in funding to the roadways capital program for a four year period (2016-2019) was recommended and approved (CW-20-15). The basis for the short term infusion of debt and reserve fund financing was to capitalize on cost avoidance opportunities to renew roadway assets with less costly rehabilitation treatments.

In December 2016, an Asset Management Policy and Plan Update report (CW-32-16) provided a briefing on the state of the City's Asset Management program. In order to build upon an existing asset management culture in the organization, the Asset Management Policy was developed and received as part of the update.

## **Key Principles**

According to *ISO 55000:2014*, Asset Management is the coordinated activity of an organization to realize value from assets. An asset is an item, thing or entity that has potential or actual value to an organization. Asset Management is multi-disciplinary, and involves many services within the organization. It focuses on the balancing of costs, opportunities and risks against the desired performance of the assets, in order to achieve organizational objectives.

Good Asset Management is:

- Strategic (aligned with organizational strategies);
- Enterprise-wide;
- Applicable to asset owners, managers and those with delegated management responsibilities; and
- Aligned with best practices set out in the ISO 55000 Standard and the International Infrastructure Management Manual (IIMM)

Asset Management is an integrated framework that enables organizations like the City of Burlington to achieve our strategic infrastructure goals in a structured way. There are broad subject groups that form the basis of Asset Management. City staff across the organization are involved in a wide number of integrated activities that support Asset Management which aim to meet our strategic goals. Figure 1 shows the asset management subject groups within the conceptual model, developed by the Institute of Asset Management (IAM).



**Figure 1 – Subject Groups in the Conceptual Model for Asset Management**

*Source: Institute of Asset Management (IAM), 2014*

### **Asset Management Plans (AMPs)**

An Asset Management Plan (AMP) is a comprehensive document that states how assets are managed over a period of time addressing lifecycle planning of an asset. It acts as a tool for long term infrastructure planning, providing a report on the current state of assets, guiding the capital budget program and informing the City’s long term financing plan. The AMP describes the necessary actions to be carried out on assets in order to achieve related objectives.

The AMP provides the following benefits:

- a complete, consolidated view of the current state of our asset inventories, replacement value and condition (“State of the Local Infrastructure”);
- key input into the city’s Capital Budget & Forecast;
- supports business cases relating to the investment of new, growth and renewal funding for infrastructure;
- value-based level of service identified;
- asset management (life-cycle) strategies stated for all major asset groups; and
- establishes an improvement and monitoring program to enhance future updates and guide asset management activities in the organization

The completion of the AMP (distributed under separate cover) satisfies a key requirement set in 2012 by the Ministry of Infrastructure Ontario, which mandated that in order to qualify for future Provincial funding programs; municipalities must develop a comprehensive AMP by December 31, 2016. The initial framework of the plan was established in 2013 to support the Asset Management Financing Plan (report F-39-13). The AMP brought forward for committee review today meets or exceeds all requirements put forth to municipalities. The plan was written and developed by internal city staff, and the draft was finalized in December 2016. It is considered to be a “living document” that will be updated to reflect changes to inventories, replacement value and condition data, as well as evolve based on changes to the asset management system or corporate strategic direction.

## **Methodology & Framework**

The final preparation of the plan required six months of concentrated staff effort; however it documents what the City has been doing for quite some time. The final AMP document culminates twenty years of knowledge building, system development, data refinement, and condition assessments, across all asset categories.

A core sub-group of asset leads, technologists and financial analysts from the Asset Management Team were involved in the plan development process. In order to inform the document, the team connected with key subject matter experts and support staff from each service area responsible for managing assets. A detailed questionnaire was distributed to asset managers, and the data and responses were submitted, reviewed and incorporated into the final version. Key strategic information was identified and a concentrated effort was made to integrate the plan with other key corporate planning documents.

The AMP framework was modeled based on best practices from the following sources: *Ontario's Building Together Guide for Municipal Asset Management Plans (2011)*, and the *National Guide to Sustainable Municipal Infrastructure (2002)*, also known as the *InfraGuide*. In developing the plan, each of the following questions and their key elements needed to be addressed:

**1. What infrastructure do you own?**

- Analysis of existing data and of data sources;
- Transfer of physical characteristic information into databases; and
- Document inventory of all assets; and

**2. What is it worth?**

- Define unit prices for replacement;
- Calculate replacement costs of all assets; and
- Input data in the Asset Information Systems (AIS) and analytical tools.

**3. What is its condition and remaining useful life?**

- Collect condition assessment data;
- Computing condition assessment indices and grades;
- Statistical analysis to verify estimated useful lives;
- Determination of service life of all infrastructure assets

**4. What are the long-term needs?**

- Upload condition data and process information
- Review the effect of different rehabilitation/replacement options
- Determine financial requirements to address the needs identified
- Production of a 60-year needs model

**5. What is the Level of Service?**

- Strategic goals
- Mandatory requirements
- Community expectations
- Affordability

**6. What asset management strategies are employed?**

- Lifecycle analysis
- Risk assessment
- Coordination with other asset renewal
- Approach to options analysis
- Future demand

All tangible (physical) assets owned by the City where asset management principles can be applied were included in the plan. For the ease of reporting, the discreet assets were rolled up into six asset categories and presented as follows:

1. Roadways
2. Facilities and Buildings
3. Parks and Land Improvements
4. Fleet Vehicles and Equipment
5. Storm Water Management
6. Information Technology (IT) Services

### **State of Local Infrastructure Analysis**

The state of local infrastructure section is a key part of any AMP. The focus in these sections is on presenting information relating to asset inventories, condition and replacement values. In order to report on this information reliably, there is a strong need for complete and accurate data sources, collected at a level that can be maintained. Data is the foundation for informed decision-making.

Asset inventories and supporting systems range in sophistication across the corporation. Data sources are primarily in GIS, Avantis, VFA and Microsoft Excel. All categories are utilizing discreet inventories, which allows for the aggregation of data to perform analysis and gain insight. It is estimated that more than 95% of all tangible assets have now been collected, with some underground servicing in parks and several land improvement assets accounting for the remaining 5% of the inventory yet to be collected.

Condition information for assets is assessed according to standard practices. Some assets (pavements, sewers, bridges, facilities, etc.) rely on commonly accepted condition measures based on formal assessments. For other assets, an age-based analysis was undertaken, and the assets were classified based on their remaining useful life, expressed in years or percent of life remaining. To allow for cross-category comparisons, every asset type was incorporated into a standardized Asset Condition Grade System (represented by Table A). An asset that is classified as 'Very Good' would be new or recently rehabilitated. A 'Very Poor' asset would be one that is in unacceptable condition with widespread deterioration and likely causing an impact to service.

**Table A: Asset Condition Grade System**

<b>Grade</b>	<b>Remaining Useful Life</b>
Very Good	>80%
Good	60% to 79.9%
Fair	40% to 59.9%
Poor	20% to 39.9%
Very Poor	< 20%

Overall, the average grades across all asset categories indicate that the City’s infrastructure is in a state of good condition. This can be attributed to the fact that the majority of long-life assets, built during periods of rapid growth, are only now approaching the middle of their estimated useful life. However, the good condition is also due to solid asset management practices and a corporate commitment to infrastructure investment.

The overall replacement value of the City’s assets is approximately \$2.95 billion broken down by asset category in Table B below. This figure is an increase from the \$2.5 billion stated in the previous update in 2015. The revised total is based on enhanced information and data compiled and analyzed for each asset category and is expressed in 2016 dollars. Unlike in previous reports which relied in part on the city’s Tangible Capital Asset (TCA) system, the valuations in the AMP are based on recent market replacement data and analysis of historical renewal expenditures. Anticipated soft costs and costs to meet legislative requirements and established standards have now been incorporated. These types of additional costs are most evident in the Facilities and Buildings category.

All replacement costs are based on maintaining the current asset inventory, and renewing or replacing assets to a similar function and equivalent utility. Replacement values by asset category can be expected to change as the city aims to strike a balance by strategically choosing between investing in what we have, building future expansions, revitalization of current assets or divesting what may no longer be required.

**Table B: Replacement Values by Asset Category (2016)**

<b>Asset Category</b>	<b>Replacement Value</b>
Facilities & Buildings	\$547,696,300
Roadways	\$2,013,335,791
Stormwater Management	\$66,573,650
Parks & Land Improvements	\$200,306,630
Fleet - Vehicles & Equipment	\$70,598,338
Information Technology (IT) Services	\$44,732,000
<b>Total</b>	<b>\$2,943,242,709</b>

### **Renewal Needs Analysis**

As part of the development of the AMP, it was necessary to undertake a detailed analysis of overall asset renewal needs. This effort involved the identification of the unfunded renewal needs as well as calculating the long term reinvestment requirement to sustain the current asset inventory at current service levels.

Unfunded Renewal Need (URN) is defined as the unfunded value of infrastructure renewal that requires immediate attention as of the current year. This was previously referred to as 'backlog', but has been refined to align more closely with the intended meaning and use of the term. Addressing the URN in a timely manner is critical to managing assets in a cost effective manner. Providing sustainable service by the way of adjusting services and service levels, rationalizing assets and increasing revenue can assist in managing the URN.

Based on the recently completed AMP the estimated URN is \$126.5M, as shown (by asset category) in Table C – Summary of Renewal Needs Analysis. Overall, this represents a \$7M reduction from the previous report in 2015, even when considering factors related to improved inventory information resulting in a greater number of assets reported on, updated costing, and more formalized assessments. This progress can be attributed primarily to a strong commitment focused on capital investment in asset renewal projects and related initiatives.

The resulting analysis indicates that the City's capital needs are expected to increase steadily over the 60-year time frame. The annual average renewal need over that period is estimated at \$67.5M, which is the amount the City requires to sustain its



existing inventory of assets. These needs are shown in Table C – Summary of Renewal Needs Analysis, and are primarily driven by the Roadways and Facilities & Buildings categories, which together comprise over 87% of the total replacement value of the City’s assets. The dollars can be roughly translated into the volume of capital work required.

The impact of the renewal needs analysis on estimated capital funding requirements will be brought forward in Q2 2017 as part of the Asset Management Financing Plan update.

**Table C: Summary of Renewal Needs Analysis (2016)**

<b>Asset Category</b>	<b>Unfunded Renewal Need (URN)</b>	<b>60-yr Average Renewal Need</b>
Facilities & Buildings	\$11,800,000	\$8,955,034
Roadways	\$107,975,465	\$42,650,016
Stormwater Management	\$ -	\$1,190,506
Parks & Land Improvements	\$6,283,519	\$5,632,851
Fleet - Vehicles & Equipment	\$ -	\$6,629,505
Information Technology (IT) Services	\$390,000.00	\$2,438,100
<b>Total</b>	<b>\$126,448,984</b>	<b>\$67,496,010</b>

**Next Steps:**

A continuous improvement plan has been developed and is outlined in the AMP document. This section of the AMP was generated due to gaps in data and processes that became evident during the development of earlier versions of the plan. However, a more robust information gap analysis of the City’s current asset management capabilities and competencies will be carried out to better understand appropriate current and future asset management practices. As asset management practices evolve, so will the completeness and quality of future AMPs. The following short and intermediate-term improvements are required in order to maintain the City’s commitment to effectively manage infrastructure and support delivery of safe, reliable and quality municipal services;

- Provincial AMP reporting requirements (based on Bill 6 legislation);
  - Comprehensive strategic asset management gap analysis;
  - Risk assessment framework development;
  - Move to more formalized condition assessments (rather than age-based assumptions);
  - Asset information strategy – assessment of the confidence level of asset information (data), including timeliness and accuracy; and
  - Level of service (LOS) framework – defining LOS targets across all asset categories and development of a LOS registry to help define needs of the asset base
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### **Financial Matters:**

The City's tangible capital assets have a replacement value of approximately \$2.95 billion. The analysis undertaken as part of the Asset Management Plan identifies an unfunded renewal need of approximately \$126.5M and a long-term (60 year) annual reinvestment need that averages approximately \$67.5M.

Council over the last numbers of years has made steady investments in the management of our infrastructure. Based on the 2013 Asset Management Financing plan (F-39-13) Council approved a 20 year financing plan which included the following;

- Dedicated Infrastructure levy of 1.25% (up to 2022), reducing to 1% (2023-2033) and further reducing to 0.5% (2034 and beyond)
- re-purposing the hospital levy in phases beginning in 2019

Furthermore, the 2015 Asset Management Plan update also included the following;

- \$20 million phased over 4 years to directly assist with the renewal of the city's roads infrastructure
- 0.2% levy beginning in 2020 to address the renewal needs of a growing asset inventory

Staff will update the Asset Management Financing Plan using the updated and refined asset management data as presented within this report. The Asset Management Financing plan will be brought forward to Committee in Q2 of 2017.

### **Other Resource Impacts**

Any decision to grow capital programs to address the existing unfunded renewal needs will have a resulting impact on staff resources to both plan for and deliver the increase in work. Furthermore, the AMP includes a section on Continuous Improvements and Monitoring. Based on timelines of future updates to the AMP and considerations for

implementing process improvements, staff will evaluate impacts to resourcing requirements. Any required changes will be brought forward and reviewed as part of the budget process.

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### **Public Engagement Matters:**

The full copy of the AMP was provided for Council review. A digital copy is to be made available on the City's website at <http://www.burlington.ca/assetmanagement>

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### **Conclusion:**

The City's infrastructure has a current replacement value of approximately \$2.95 billion. The Asset Management Plan has documented the detailed life cycle renewal needs of the city's assets. The next step will be to update the Asset Management Financial Plan which is anticipated to be brought forward to Committee in Q2 2017.

The completion of a comprehensive Asset Management Plan (AMP) is a significant step forward for asset planning at the City of Burlington. Beyond satisfying all mandated requirements, the plan will assist the City in making informed decisions about infrastructure in order to maintain an optimal balance between having adequate assets to support city services, at costs that are reasonable and affordable to the public.

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Respectfully submitted on behalf of the Asset Management Team,

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### **Appendices:**

A. 2016 Asset Management Plan

### **Report Approval:**

All reports are reviewed and/or approved by Department Director, Director of Finance and Director of Legal. Final approval is by the City Manager.