Corporate asset management strategy: 2016 UPDATE

OVERVIEW

The goal of Asset Management for the City of Kitchener is to:

- extend the useful life of all assets;
- in the most cost-effective way;
- with the least risk;
- while meeting agreed-upon levels of service.

In its most basic form, Asset Management applies management practices (including financial, risk, engineering, etc.) to physical assets in order to provide an essential level of service cost-effectively and at an acceptable level of risk. According to ISO 55000, it can also be defined as a "coordinated activity of an organization to realize value from assets." The City of Kitchener’s goal is to illustrate this value transparently and comprehensively, while answering the question:

Are we making the right infrastructure decisions at the right time, with the funding we have available?

Asset Management is traditionally a long-range planning process, but has turned into a long-term forecasting process and framework for data-driven decisions supporting operations that directly influence the sustainability and resilience of the city’s $4.5 billion in assets.

Throughout this document, there are many references to data-driven decisions and processes – all aspects of the Asset Management program must align with these in order to succeed. The demand for greater detail in data – as well as the quality of the information that is collected, maintained, managed and ultimately reported – will strengthen and validate the planning that informs the Asset Management strategy.

This strategy outlines the Asset Management program at the city; the three guiding principles of where the program intends to go, and the value gained by forming consistent practices throughout the asset groups.

1 IAM Institute of Asset Management; “What is Asset Management”; https://theiam.org/What-is-Asset-Management
**WHERE WE ARE NOW**

When the Corporate Asset Management Program Policy and Framework (Report INS-11-082) was adopted in January 2012, it defined 12 asset groups that shape the physical assets that make up the large and complex estimation of value.

![Pie chart showing the distribution of assets by category: Water Utility 17%, Gas Utility 5%, Sanitary Utility 20%, Stormwater Utility 16%, Transportation Services 25%, Other (Cemeteries & Golf) 2%, Parks & Open Areas 1%, Facilities 10%, Stormwater Utility 16%, Sanitary Utility 20%, Gas Utility 5%, Water Utility 17%]

<table>
<thead>
<tr>
<th><strong>WATER UTILITY</strong></th>
<th><strong>GAS UTILITY</strong></th>
<th><strong>WASTEWATER (SANITARY) UTILITY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• 893km of watermain pipes</td>
<td>• +1,000km of natural gas piping</td>
<td>• 816km of sanitary sewer pipes</td>
</tr>
<tr>
<td><strong>STORMWATER UTILITY</strong></td>
<td><strong>TRANSPORTATION SERVICES</strong></td>
<td><strong>GOLF ENTERPRISE</strong></td>
</tr>
<tr>
<td>• 600km of stormwater pipes</td>
<td>• 19 surface lots &amp; 5 garages</td>
<td>• two city-owned courses, including the Kitchener Golf Academy</td>
</tr>
<tr>
<td>• 125 ponds with 80km of streams</td>
<td>• 20K street lights</td>
<td>• 250 acres of golf courses</td>
</tr>
<tr>
<td><strong>FLEET</strong></td>
<td><strong>FACILITIES</strong></td>
<td><strong>ROADS &amp; TRAFFIC</strong></td>
</tr>
<tr>
<td>• 1,410 vehicles maintained</td>
<td>• 250 city-owned facilities</td>
<td>• 851km of roads</td>
</tr>
<tr>
<td>• 1.7M litres of fuel distributed</td>
<td>• 3.3M sq. ft.</td>
<td>• 1,100km of sidewalks</td>
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<tr>
<td><strong>PARKS AND OPEN SPACES</strong></td>
<td><strong>FORESTRY</strong></td>
<td><strong>CEMETERIES</strong></td>
</tr>
<tr>
<td>• 245km of trails</td>
<td>• 60,000 street trees</td>
<td>• 7 city owned Cemeteries</td>
</tr>
<tr>
<td>• 136 playgrounds &amp; 170 sports fields</td>
<td></td>
<td>• 128 acres plus burial provision for 3 private Cemeteries</td>
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The city is legislated by the Province of Ontario’s *Infrastructure for Jobs and Prosperity Act, 2015* to create and maintain thorough Asset Management plans (AMPs) for all asset groups by 2022. In order to achieve this, the city requires a complete and consistent set of AMPs. Creating and maintaining these plans as the city grows and as services mature will be an ongoing cycle. A data-driven process that combines capital forecasting and operational or maintenance activities will result in more transparent, consistent and comprehensive evaluation and decision-making.

To date, three (3) detailed Asset Management plans have been completed and are updated regularly. As well, two partial plans for key infrastructure components have been completed.

<table>
<thead>
<tr>
<th>Asset Group</th>
<th>Asset Management Plan Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Utility</td>
<td>Full Asset Management Plan</td>
</tr>
<tr>
<td>Wastewater Utility</td>
<td>Full Asset Management Plan</td>
</tr>
<tr>
<td>Stormwater Utility</td>
<td>Full Asset Management Plan</td>
</tr>
<tr>
<td>Transportation</td>
<td>Partial Asset Management Plan – Pavement &amp; Traffic Signs</td>
</tr>
<tr>
<td>Facilities</td>
<td>Partial Asset Management Plan – Kitchener Memorial Auditorium</td>
</tr>
</tbody>
</table>

The fully developed plans (along with the partial plan for pavement) have been important in supporting the *Accelerated Infrastructure Replacement Program (AIRP)*, which ensures that clean water flows into homes and businesses while wastewater/sanitary flows out for treatment. The city always meets its obligation to replace aging infrastructure based on the overall health (condition) of underground pipes and assets.

As we move ahead on the program, the remaining asset groups will also have full plans that monitor the current condition of their assets, as well as determine a long-term estimate and lifecycle management plan. This information will rank resources across the groups and identify how to develop proactive maintenance actions.

Other areas within the city not currently defined as specific asset groups may also be included. For example, information technology (e.g. software, hardware, communications equipment, etc.) has significant spending requirements; including them in the plan could help balance investment priorities across traditional asset types and newer or emerging asset groups.

As the community expects greater service levels and the city strives to remain financially sustainable, a more reliable framework is required to evaluate all groups. Decision-makers can assess the need based on demand and on the overall condition of assets within the groups.
WHERE WE ARE GOING AND HOW WE WILL GET THERE

The goal of Asset Management for the city is to extend the useful life of all assets in the most cost-effective way, with the least risk, while also meeting agreed-upon levels of service. Three key guiding principles will help achieve this:

GUIDING PRINCIPLE #1: BALANCING ASSET CONDITION and LEVEL OF SERVICE

The Asset Management program will evaluate and quantify the “condition” of any one asset throughout its lifecycle – from when it is first built or installed, through to when it needs to be replaced or disposed. Determining “condition” requires an information-driven process where each asset in the group is measured against a pre-defined set of observations during regular inspection intervals. This information helps us understand the effect that maintenance has on the overall health of the asset.

Many of the asset groups maintain a level of service to which our community stakeholders have agreed. Appropriately allocating resources to support those services means striking a balance to make sure infrastructure is maintained to the expected condition.

HOW DO WE MAKE THIS HAPPEN?

The normal decline of an asset because of its use, environmental and other factors is directly related to the actions needed to maintain it. Condition information is used to select operational and preventative maintenance programs that will extend the asset’s useful life. The process of evaluating the condition is below:

1. Develop the criteria/observations to be inspected;
2. Inspect the asset against the established criteria;
3. Determine the condition of the asset against the inspection data;
4. Determine the resulting outcome in terms of rehabilitation, replacement or disposal.

Depending on the complexity and size of the asset category, the amount of data required to determine its overall condition could take months or years to collect. How much change any one asset needs is based on what is required to maintain it. As more data is collected, the better the decisions become because more information is available.

It is difficult to maintain assets cost effectively before they fail, when there is not enough useful information about conditions to make informed decisions about financial priorities. Inspection programs

EXAMPLE: the city’s sports fields

Activities such as watering the field or applying fertilizer directly relates to maintaining the condition and/or health of the asset – in this case, the sports fields. It is expected that there will be freshly painted lines on the field; this doesn’t have an impact on the health of the asset, but it is directly linked to service expectations. The balance is found in allocating enough resources to do both types of activities without negatively impacting either the agreed-upon service level or the condition of the sports field.
build this knowledge and create the potential to extend the life of the asset. The balance between maintaining an expected level of service and extending the asset’s useful life is achieved by using available information to make decisions that serve our community best.

In order to develop condition assessments for the city’s assets, several key things need to happen:

- For asset groups that don’t have legislated or regulatory service standards, service expectations need to be defined with detailed actions that relate to these standards.
- Collecting condition inspections portably captures the most current and accurate data.
- Developing condition models across remaining asset groups.
- Determining lifecycle investment requirements for individual assets within an asset group.

**GUIDING PRINCIPLE #2: ALLOCATE FINANCIAL RESOURCES AMONG PRIORITIES**

Prioritizing financial resources consistently requires: (a) understanding condition information about the asset, and (b) risk, which plays an important part in establishing a framework for complete and consistent decision-making for budgeting and long-term financial planning.

Risk has two components in this particular context:

1. Consequence of failure (i.e. the impact of failure or reduced levels of service);
2. Probability of failure.

Applying a weighting to these two factors, along with the overall condition of the asset, results in a score that can be evaluated reliably against other defined asset groups and projects. This scoring system allows decision-makers to determine if resources are necessary to rehabilitate, replace or dispose of an asset.

Condition information, along with other key information for every asset the City of Kitchener owns, allows investment decisions to be made across asset groups to ensure the city is investing in the right infrastructure at the right time.

This approach also allows stakeholders to see how much it will cost over the long-term to introduce new assets or programs and allocate appropriate budget while balancing investments in infrastructure repairs.

**EXAMPLE: city facilities**

Our city facilities, such as city hall, are a good indication of this guiding principle in action. With a detailed Asset Management plan in hand, resources can be put aside to address large projects, such as roofing replacements or large-scale rehabilitation of the ice rink or parking lot, over the life of the facility. In addition to condition information, the Asset Management plan is proactive, rather than reactive, based on a failed/degraded service level or differing priority.
Evaluating projects and core services within and across asset groups requires a clear understanding of the information that is available, and the tools needed to evaluate investment requirements and condition. In order to have a forward-looking plan, detailed AMPs need to be in place for each category. These help us understand the total cost of ownership for the asset, as well as the times when we may need additional resources for rehabilitation, replacement or disposal. There are two phases of the plan that need to be completed:

### PHASE 1 – CURRENT STATE & GAP ANALYSIS

For the asset groups that have not had any formal condition information gathered we will need to create a Version 1.0 AMP. The outcome of this plan is to provide a current state of the asset category – including the following components:

1. A comprehensive inventory;
2. A current financial valuation, and
3. The current position the assets sit within their lifecycle (where possible)

This initial version of the AMP assesses gaps in the data and in operation-related activities in order to develop a comprehensive lifespan based on measurable data and observations that are acquired through inspections. This plan outlines how the essential information will be collected in order to inform a framework that is based on reliable information about condition and risk. Depending on the size and complexity of the asset grouping, this first phase of AMP can take upwards of 6-8 months to complete.

### PHASE 2 – LIFECYCLE MANAGEMENT PLAN

Armed with enough condition information, Version 2.0 of an AMP will introduce a lifecycle management strategy that could extend the useful life of the asset. Using data-driven information, staff can directly assess the assets overall condition; the cause and effect of that assessment will support maintain expected levels of service. Grasping the costs related to this level of service means creating consistent guidelines for comparing:

- the need for future resources and
- projected planning, as long as the assets last.

These plans provide valuable insight into the resources needed over the long-term, which means funding can be set aside to address the degraded condition of the asset. Each asset category will have:

- A detailed plan outlining the overall condition;
- A current financial valuation, and
- A risk index, which serves as a basis for consistent planning and decision-making.
Each AMP will be evaluated every three to four years to account for growth and changes to service expectations. With the added complexities of adding a detailed lifecycle plan, the time needed may exceed 4-8 months to finalize this phase of AMP.

As the practice of Asset Management matures at the city, asset groups may be added. Pilot programs over the next two years will evaluate the scoring framework for completed AMPs among several asset groups, in order to improve the process and make sure the right information is gathered to make data-driven decisions throughout the budgeting process.

**GUIDING PRINCIPLE #3: SHIFT HOW WE DO BUSINESS**

This Asset Management strategy reliably evaluates the city’s investments. The framework is a tangible, practical, data-driven process for planning and maintaining the city’s assets, while also providing the right information to the right people at the right time. Approaching our work through preventative maintenance means the community benefits from our less reactive method of dealing with issues, ensuring that each asset’s lifespan is maximized, and that service levels are maintained.

To support the momentum of developing AMPs, we will be holding strategic workshops across the corporation, including with council, through the next 12 months to make sure all participants understand the vision and related steps. As well, priority is given to those asset groups (e.g. parks & open spaces) that have fewer components completed, as identified above, in either phase of the AMP. A strategic session will be held throughout the year to update council on the current state of our assets.

New operational programs within the Asset Management division will support the requirement for high-quality data services, specifically:

- Introducing more mobile solutions;
- Integrating information reporting and analysis functions within the division, and
- Focusing on a data quality program.

These three programs will be essential ingredients to a successful Asset Management program. In the coming years as asset management plans are completed, the model to evaluate the asset categories will be used in the decision making process for both capital and operating budgets. In 2018, a pilot phase will be conducted to understand this new model between at least two of the completed AMPs.
CONCLUSION

There isn’t a single city service that isn’t directly or indirectly tied to one of our corporation’s assets. Every day, our city’s residents make use of, or are affected by, our assets, whether they are doing laundry, travelling on one of our roads or attending a program at a community centre. It is our responsibility to provide safe and thriving neighbourhoods that support long-term community needs and sustainable infrastructure. Asset Management is the fuel that boldly drives the city forward in a way that supports the challenges and opportunities. Asset Management supports decision-making, as outlined in the city’s 2015-2018 Strategic Plan:

“It will inspire innovation, a dedication to improvement and a drive to serve the community better. It will help to keep the energy and commitment of our people focused on what matters most so that citizens see meaningful results that balance both short-term needs and long-term opportunities.”

This strategy serves as an opportunity to bravely embrace decision-making, continually challenging the status quo and improving our efforts to provide existing services and introduce new ones within our vibrant community.