

## 10. Asset Management Strategy

### 10.1. Asset Management Overview

Asset management has almost as many definitions as there are agencies that manage assets. The Ontario Ministry of Infrastructure's Building Together: Guide for Municipal Asset Management Plans indicates that asset management planning is

*'... the process of making the best possible decisions regarding the building, operating, maintaining, renewing, replacing and disposal of infrastructure assets ... to maximize the benefits, manage risk and provide satisfactory levels of service to the public in a sustainable manner.'*

The International Infrastructure Maintenance Manual (IIMM), Version 4.0, 2011 defines asset management as

*'The systematic and coordinated activities and practises of an organization to optimally and sustainably deliver on its objectives through the cost-effective lifecycle management of assets.'*

The IIMM lists the key elements of asset management as:

- providing a defined level of service and monitoring performance,
- managing the impact of growth through demand management and infrastructure investment,
- taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet that defined level of service,
- identifying, assessing and appropriately controlling risks, and
- having a long-term financial plan which identifies required expenditure and how it will be funded.

As an absolute minimum, the objective of any asset management plan or strategy should be to ensure that the overall condition of an asset group does not diminish over time. The asset management strategy of an agency is heavily based on, and inseparably linked to, the available funding.

Most agencies are not fully funded, and a large number are not even funded sufficiently as to maintain the current condition of their asset groups. In those circumstances, the strategies should be:

- to focus on an asset management strategy that prioritizes preservation and rehabilitation programs and utilizes available funding on those programs. Reconstruction and replacement candidates will remain reconstruction and replacement candidates and cost increases will be incremental with inflation. Preservation and rehabilitation opportunities that are missed will escalate in cost by several hundred percent depending on site specifics.
- to develop the financial plan in order that there is sufficient funding to maintain the condition of the road system.

Future updates to this plan will compare the current and historic funding levels to the levels recommended to maintain the overall condition asset groups. Where a funding gap exists, a primary recommendation will be to establish a program to remove the funding gap over a predefined period, such as 5 years. A recommendation of this report is to develop performance models for all asset group. A model including all linear assets within the road allowance can be developed to select priority projects using a best return on investment (ROI) analysis.

## 10.2. Managing Assets by Condition Rating

Information in a database may be sorted and analyzed in numerous ways. Understanding what information a data field represents is key to the analysis.

Using the road assets and the Inventory Manual as an example, the database includes many rated and calculated data fields and therefore provides many ways to sort the data. Some commonly used fields used for sorting the information include:

- Priority Rating
- Priority Guide Number
- Structural Adequacy (Condition)

Priority Rating is a calculated field in the Inventory Manual and is a function of the traffic count and the overall condition rating of the road section. This approach adds weight to the traffic count of the section. Although the word 'priority' is included in the field name, a road section that has a higher calculated Priority Rating is not necessarily a higher priority in the broader sense of asset management.

Similarly, a municipality may choose to sort the road sections based on condition and cost per vehicle. The Priority Guide Number data field would assist in providing that analysis, as sorting on that parameter would prioritize road sections that have higher traffic and a lower cost per vehicle.

Developing a road capital program around the Priority Rating or Priority Guide Number fields, similar to the Town, may generally result in programming the results in a poorer system performance, particularly if funding levels decrease. The exception to this statement would be cases where rehabilitation funding is at a high enough level to ensure that the preservation and maintenance program requirements can be met. Further study around the current programming methodology at the Town is required.

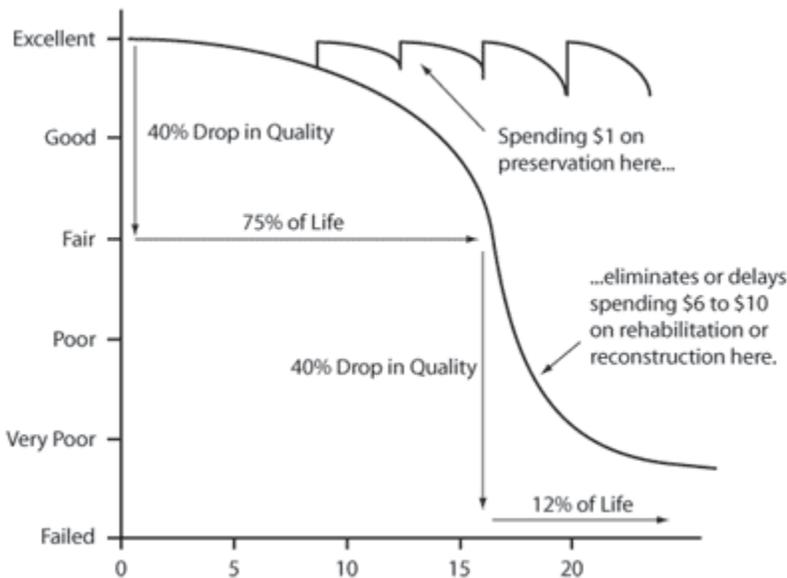
From a more current asset management perspective, project selection should be established by condition; Structural Adequacy or PCI. Figure 10.1 illustrates the financial advantages of managing the road system by performing the right treatment at the right time of the asset lifecycle. If appropriate strategies are not undertaken at the correct time, there is a less effective usage of the available funding. Similar concepts may be applied to most assets.

If an agency's budget is fully funded, the programming will include reconstruction, resurfacing, and preservation programs for road assets. Prioritization within the different programs will vary as demands are different. However, within the resurfacing and preservation programs, the pavement condition should drive the decision making.

Similarly for structure assets, the programming should include resurfacing, waterproofing, minor and major rehabilitations and replacements.

Where funding is limited, resurfacing and preservation programs should be prioritized over the construction program. The effect of this approach will be that the 'NOW' need roads may remain 'NOW' needs. However, by virtue of their 'NOW' need condition, 'NOW' need roads will require increased maintenance and likely generate increased complaints from the driving public. To deal with this eventuality, a municipality should create a 'maintenance paving budget', over and above the resurfacing budget. The purpose of this budget is to defer the reconstruction needs, and reduce maintenance efforts and complaints until the road can be reconstructed.

Figure 10.1: Preservation Cost vs. Pavement Deterioration



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### 10.3. Cross Asset Integration and Project Prioritization

Prioritizing projects from a purely asset management perspective is a relatively straightforward exercise, regardless of funding level. Complications arise when the specific needs, commitments of the agency, and priorities of other utilities factor into the decision making process.

The road system is, in reality, a utility corridor. Multiple utilities in both urban and rural roadside environments will present conflicting demands and priorities in advancing projects. The Road Needs Study, 2012, provides rating that deal strictly with the condition of various factors as they relate to the road section. Those factors have to be considered in conjunction with needs and priorities that may exist for other utilities or pending development. In fact, the condition of other infrastructure within the road allowance may be the key element in the prioritization. For example, a road rated as a reconstruction project may have a relatively low priority rating, but a trunk storm sewer servicing a greater area may require immediate installation. The lower priority of the road is then elevated by the more immediate need of the other utility, and should be integrated into the capital plan, to best serve all interests.

Less tangible priorities may also be project prioritization tools for some agencies. For example, an agency may want to advance projects that also include bus routes or bike lanes.

As a municipal road program is developed, opportunities to complete work on smaller sections adjacent to the main project, as a lesser cost than if completed as a stand-alone project, should be considered to realize economies of scale, and to complete improvements that may otherwise be passed over.

Within the WorkTech software, which the Town is currently implementing, Cross Asset Integration may be developed in a model with multiple asset types such as roads, water and sewers. Selecting a model parameter that will maintain the condition of the assets selected, will produce a work plan that includes

all of the assets selected. The initial model output is then modified to change the project year to match other selected assets in order to reduce the loss of investment on one assets by undertaking a project on another asset prematurely, thus optimizing available funding.

#### 10.4. Asset Management Strategy

Notwithstanding the need for program development to include cross asset integration, for the foreseeable future the Town of Bradford West Gwillimbury should:

- Focus on those assets that are in a condition range that will benefit from preservation, maintenance and rehabilitating treatments
- Incrementally increase funding levels for all asset groups included in this report to recommended levels
- Continue to explore alternatives for additional funding such as
  - User fees
  - Grant funding
  - Local improvements

##### 10.4.1. Asset Management Strategy and Plan Project, 2012

In February 2012, the Town of Bradford West Gwillimbury completed its Asset Management Strategy and Plan Project (the Project) with GHD Inc. Through this initiative, the Town was seeking to improve its asset management (AM) competencies to improve the management of existing infrastructure and prepare for future growth.

This Project was intended to help the Town understand the requirements to achieve the following objectives:

- Document a vision for asset management.
- Define the actions and resources required to achieve this vision as well as enable continuous improvement of service delivery
- Define information technology systems required to manage the Town's assets and the means to optimise the use and cost of these systems.
- Understand the current and long-term costs to sustain the Town's infrastructure over the full lifecycle of the assets.

The Project outlined asset management best practices, documented observations/findings and conclusions relating to the current status of the Town's asset management practice, and recommended a prioritized improvement plan (AM Roadmap) to help the Town achieve its asset management vision. The roadmap considered the unique challenges of a small municipality with limited resource availability.

Given the above objectives, the Project did not meet the Province's Building Together definition of an asset management strategy;

*'... the set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.'*

The Project and its associated Asset Replacement Plans remained moderately unchanged since completion. However, some of the Project's short-term suggested activities have been, or are continuing to be, implemented:

- Formation of an IT Steering Committee, 2011.
- Purchase and implementation of WorkTech software, a computerized maintenance management system (CMMS), 2016.
- Development of an asset management Policy (subject to Council approval).
- Creation of a Project Manager – Asset Management staff position, approved in 2016 Budget & Business Plan.

The Project's Asset Replacement Plans provided much of the replacement costs and recommended annual program funding recommendations contained in this Asset Management Plan. The AM Roadmap will continue to be utilized to continue to advance the Town's asset management competencies.