Subject: Asset Management Governance Model

Report to: Corporate Services Committee

Report date: Wednesday, January 9, 2019

Recommendation

That the creation of a Corporate Asset Management Office at a cost of $0.85 million including the addition of seven full time equivalents **BE REFERRED** for consideration as part of the 2019 budget process.

Key Facts

- The purpose of this report is to inform Council of the proposed Asset Management (AM) Governance Model that will lead the Region's capital asset portfolio with a replacement value in excess of $7.4 billion.
- In 2017, the Ontario government released a new regulation under the Infrastructure for Jobs and Prosperity Act, 2015 – Ontario Regulation 588/17, Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17) which outlines deadlines for achieving strategic AM practices (Appendix 1).
- In addition to the above regulation, Federal and Provincial governments require updated comprehensive AM plans for Federal Gas Tax funding, future application based funding and Development Charges.
- Conservatively, the creation of a CAM office at an annual cost of $0.85 million and operating for a 10 year period, based on an industry scan and standards is estimated to have a 4 year payback period.
- Through consultation with local area municipalities, it is expected that they can leverage process, policy and strategy development, networking and technology from the Region's work on AM to further advance their own AM maturity levels.

Financial Considerations

As summarized in Table 1 below, the Council approved 2016 Asset Management Plan (AMP) identified for the Region an annual infrastructure funding gap of $73.3 million for the first 10 years. The remaining 40 years of the plan have a projected annual funding gap of $34.1 million.

Table 1: Avg. annual renewal investment (AARI) required compared to avg. annual capital budget

| (in $M) Asset Portfolio	Current Replacement Value	TCA Historical Value	10-Year Capital Budget	10-Year AARI	10-Year Budget vs AARI
Transportation	$1,787	$845	$58	$57	$1
Water & Wastewater	$4,402	$1,088	$58	$135	-$77
Waste Management	$331	$77	$3	$3	$0
Public Health	$37	$24	$4	$3	$1
Social & Community Services	$231	$104	$12	$12	$0
Niagara Regional Housing	$416	$176	$5	$3	$2
Information Technology	$27	$33	$4	$4	$0
Facilities	$134	$37	$3	$3	$0
Police	$33	$70	$6	$6	$0
Total	**$7,398**	**$2,454**	**$153**	**$226**	**-$73**

The CAM office will promote the use of consistent AM policies and practices across the Region's departments, boards and commissions, and ensure capital decisions are based on effective management of infrastructure risks, and balance the lowest cost of service (COS) while providing the desired levels of service (LOS), as per Image 1.

**Image 1: Relationship of LOS, COS and Risk**
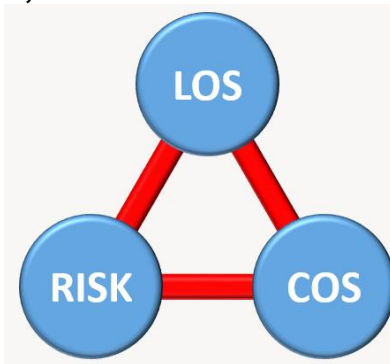
In order to fully implement the proposed CAM office structure, the Region will require an additional seven full time equivalent (FTE) employees (shown in orange in Figure 1). These employees would be required to start-up the AM governance structure, develop and implement policies and practices, and ensure there is adequate training, knowledge transfer and support for the departmental AM leads. This will help ensure that the Region is doing the right work, on the right assets, at the right time, for the right costs and the right reasons.

Figure 1: Proposed Asset Management Governance Model
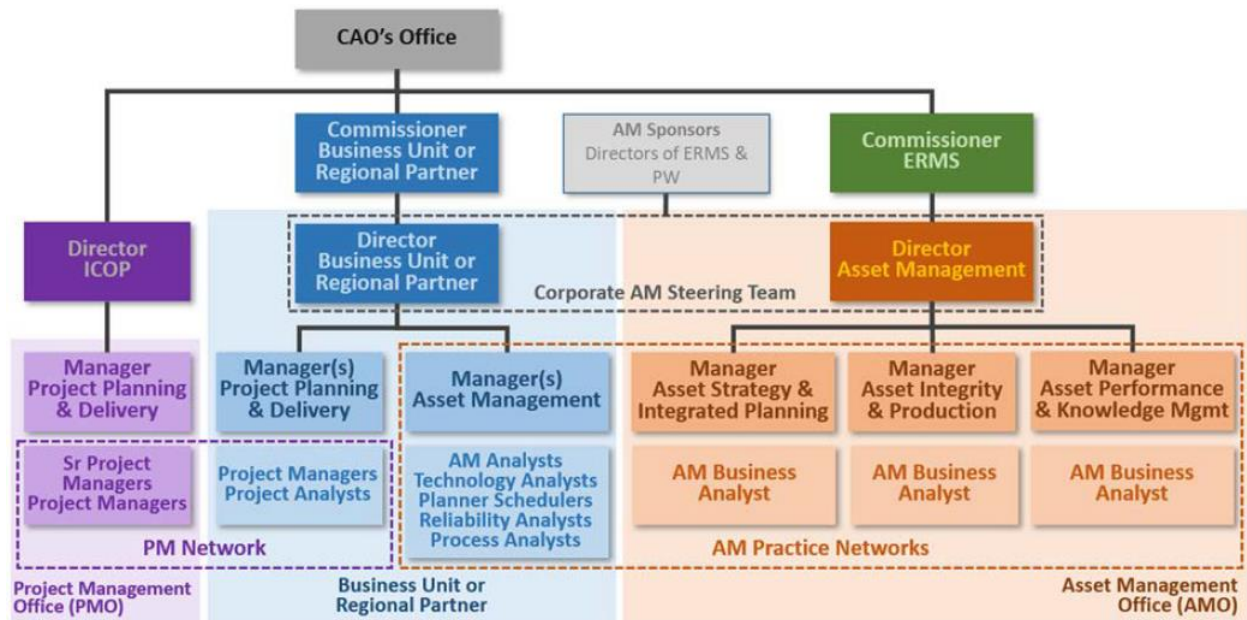
The CAM Office will lead the Region's cross departmental AM Networks that support the different focuses of AM (see Figure 2), including the integration of AM across the organization and building the inter-departmental relationships required to move the overall AM maturity of the organization forward. The recommended staff compliment of 7 for the CAM office will support the over $7.4 billion of Region owned assets.

Figure 2: Proposed Asset Management Networks
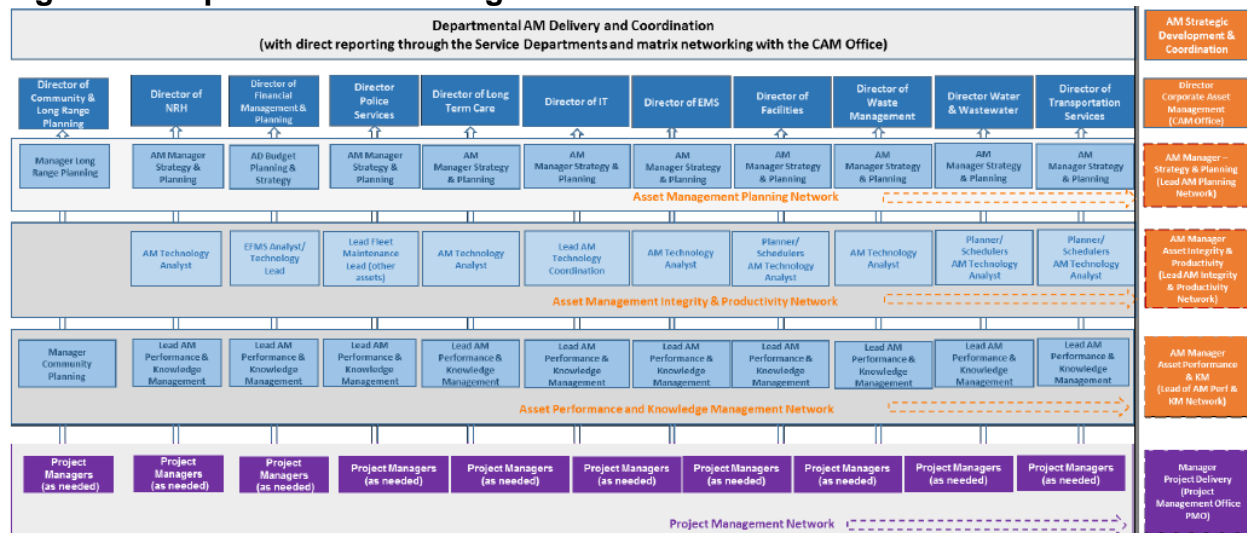
The fully staffed CAM office is estimated to have an annual cost of $0.85 million to implement in 2019, including all payroll-related costs, training, professional fees and general office related expenditures. The CAM office is proposed to be funded in 2019 within guidance, subject to 2019 budget approval. The Director of the CAM office fulfills the O. Reg. 588/17 requirement of an executive lead to be responsible for AM planning.

The implementation of a CAM office is expected to result in savings related to capital asset budgeting, on-going maintenance costs and utilities savings that based on industry standards, as well as a scan of other municipalities engaged in AM practices, conservative estimates suggest these savings to be 3%, 25%, and 5%, respectively. These savings will be a result of the Region being able to make corporate wide risk and condition based prioritization decisions to ensure that the projects that are approved deliver the best return for the Region. It will implement processes and procedures across the Region that will better identify other lifecycle activities that may be undertaken and the ideal timing for them to sustain the level of service (LOS) of the asset and prolong the useful life at the most effective cost for the Region. The CAM office will also help the Region better coordinate efforts across divisions and with local municipalities to ensure interconnected projects are completed concurrently, therefore reducing scenarios where assets are replaced before the end of their useful life.

An approved AM Plan is also a requirement of:
1. Federal Gas Tax, averaging approximately $14.2 million annually
2. Ontario Development Charges Act. Development Charges are projected to be $50.0 million annually (per the 2017 Development Charge Background Study), and
3. Future Federal and Provincial application based funding.

Analysis

The Region currently performs base requirements of AM as is evidenced by the maintenance and rehabilitation of the existing assets used in service delivery. However, as determined through the first phase on the AM program, the overall maturity of the Region was determined to be in the stage of Establishing, as seen in figure 1.

Figure 1: AM Maturity
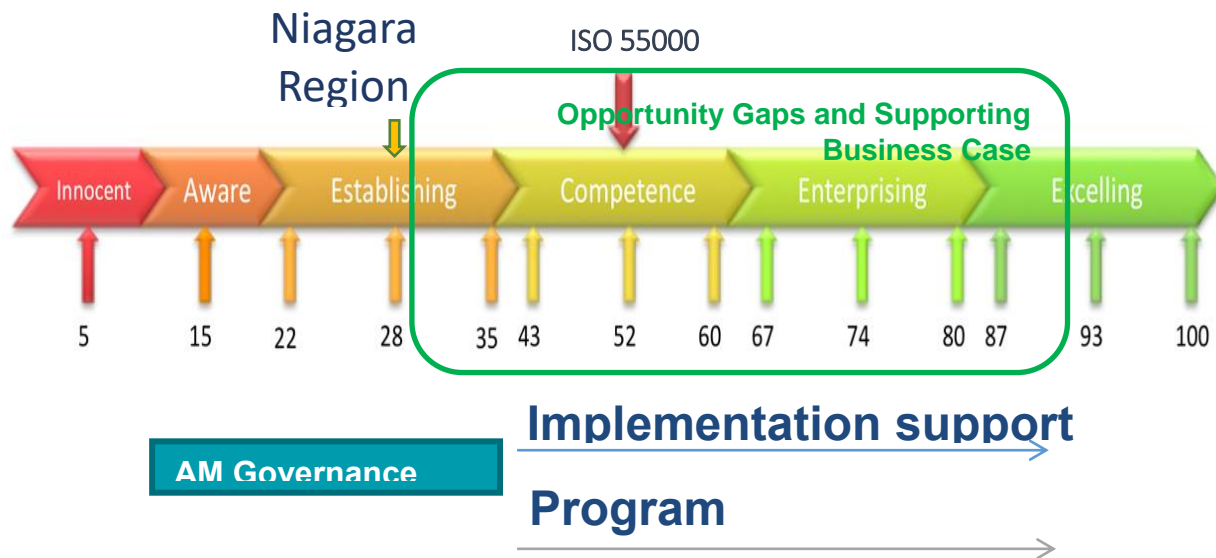
The Region has embarked on a multi-year phased AM Program to develop and implement leading AM principles and practices. O. Reg. 588/17, which was released in December 2016 and came into effect on January 1, 2017, requires the following be accomplished by the Region:

- July 2019: Strategic AM Policy approved and published
- July 2021: Core infrastructure AMP and current LOS
- July 2023: Comprehensive AMP and current LOS
- July 2024: Alignment of the Comprehensive AMP to the proposed LOS and financing strategy to achieve the proposed LOS
- Continuous updates to these every 5-years.

AM is considered to be a fundamental element in an asset-intensive organization's operations, as the efficient allocation and management of resources are crucial to maximize performance and fulfil strategic goals. The creation of a CAM office will position the Region to make AM practices a part of business as usual. The resulting capital program will be aligned with the AM Plan and will support the most effective use of Regional resources, and achieve the AM goals of doing the right work, on the right assets, at the right time, for the right cost and the right reasons

The first phase of the AM Program, which was completed in 2017, involved the development of:

- An AM Roadmap to guide the AM Program through the various phases of development.
- An AM Strategy that measured the Region's asset management system against a standard of best practice and outlined actions to achieve efficiency and effectiveness in service delivery across the Region.
- An update of the Region's AM Plan to 2016.
- An information technology review.

The second phase of the AM Program addresses governance models that underpin effective processes in managing assets, shifting the focus to concentrating on accountability for assets, asset life-cycle reporting requirements and communication between AM policy makers, asset managers and asset users in order to comply with regulations and to support good decision making. The outcomes of this phase include:
- Business case for the CAM office (Appendix 2)
- Proposing an AM Governance model that empowers staff (Appendix 3).
- Identifying the impacts on the organization of implementing an AM Governance structure by considering work tasks, people, structure and culture (Appendix 4).
- Developing a framework for change management, communications and training plans to support the implementation (Appendix 5)

As a result of the second phase analysis, the model that is being recommended is provided in Figure 1 and includes:
- The creation of a Corporate Asset Management (CAM) office (see Figure 1 orange areas).
- The establishment of a cross-divisional Corporate AM Steering Team The AM Steering Team would help guide AM decision and support the consistent implementation of AM practices throughout the Region that would report through the Corporate Leadership Team (CLT).
- Identification of current departmental staff that are performing AM tasks and formalize the AM component of their roles (see Figure 1 blue areas).
- The alignment of the Project Management Office (PMO) with the departmental staff who will be executing the projects identified through the AMP.

It is expected that the full implementation of the AM Governance initiative will occur over a one to two year period (including role integration) however we need to ensure that a sustainable source of funding is in place. This includes building the resources, training, capability, collaboration and guidance required to execute AM work efficiently and effectively at both the CAM office and departmental levels. In the interim, any surplus cash flow may be used to accelerate onboarding through the use of consultants.

In addition to the new roles and structures discussed above, the creation of AM Networks to support AM delivery, coordination and continuous improvements across departments is also being recommended. These networks will be cross-divisional

communities of practice that will meet frequently during the establishment of the Region's AM practices (i.e. monthly), then less frequently once the practices are fully implemented and are maturing (i.e. quarterly). Through these networks staff will share information, knowledge and best practices to help synchronize all divisions' AM maturation.

The Region has consulted with the local area municipalities (LAMs) including the CAO's, treasurers and public works officials, on the proposed AM Governance structure for the Region, and solicited feedback on how the Region's efforts could be further leveraged by the LAMs. The following opportunities were brought forward:

- Establish a central repository to promote the sharing of materials such as templates, policies, research, etc. This would be available to any LAM staff who is involved in AM planning.
- Establish a region-wide AM working group that would meet quarterly and work with the Region's cross-departmental teams to share knowledge, best practices, etc.
- Make available any reports and analysis completed by the consultants retained by the Region for the LAMs to leverage local information in their work.

Alternatives Reviewed

In addition to the recommended AM model, which includes the creation of a cross-Departmental Asset Management Steering Team, Corporate Asset Management Office and formal decentralization departmental Delivery, there were three other governance model structures considered during the assessment of the Region (please refer to Table 6.6 – Evaluation of Asset Management Governance Models in Appendix 3). Based on a review of the goals of AM practices and procedures that will promote effective and efficient AM implementation and growth throughout the entire Region, it was determined that they were not as effectively aligned as the model being proposed. These models included:

- Corporate Asset Management Steering Team (Senior Level Cross-Departmental Office) and Decentralized Departmental Delivery – **NOT RECOMMENDED** (lack of consistency across departments, difficulty reaching consensus on decisions, longer term to implement and realize benefits of AM)
- Corporate Asset Management Office and Informal Decentralized Departmental Delivery – **NOT RECOMMENDED** (fear CAM Office will take over departmental operations, CAM office could disconnect from departmental units)
- Corporate Asset Management Steering Team, Asset Management Delivery through Task Teams – **NOT RECOMMENDED** (lack of consistency across departments, longer term to implement, lack of accountability and authority)

Relationship to Council Strategic Priorities

The Comprehensive AM Plan was identified as a priority of the previous Council that directly supports Organizational Excellence, as well as supporting the Infrastructure and Taxation priorities.

The 2016 Council directed value for money audit conducted by Deloitte included a recommendation that the Region's capital investment plan should include major capital assets that are expected to require replacement or rehabilitation in the next 10 years to allow for effective decision making and a proactive approach to managing these large projects. The first step to address this recommendation was the update of the AM Plan.

In 2019 the Region will begin with the sustainability review supported by the previous Council with $400,000 in funding. The Region is faced with substantial fiscal challenges as it attempts to implement its long term AM program and support the increasing cost of the delivery of services in an environment where tax increases remain relatively modest. In order to ensure the Region has the funding necessary to maintain its capital assets and essential services, a review is required of the services provided for opportunities to redirect cost savings is required.

Other Pertinent Reports

CSD 11-2017	2017 DC Background Study
CSD 21-2017	Asset Management Plan
CSD 51-2018	Asset Management Governance

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Appendices

Appendix 1	Ontario Regulation 588/17
Appendix 2	Business Case
Appendix 3	Proposed Asset Management Governance Model
Appendix 4	Impact Assessment Report
Appendix 5	Change Management, Communications & Training Plan

ONTARIO REGULATION 588/17

made under the

INFRASTRUCTURE FOR JOBS AND PROSPERITY ACT, 2015

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ASSET MANAGEMENT PLANNING FOR MUNICIPAL INFRASTRUCTURE

CONTENTS

INTERPRETATION AND APPLICATION

Definitions

1. (1) In this Regulation,

"asset category" means a category of municipal infrastructure assets that is,

(a) an aggregate of assets described in each of clauses (a) to (e) of the definition of core municipal infrastructure asset, or

(b) composed of any other aggregate of municipal infrastructure assets that provide the same type of service; ("catégorie de biens")

"core municipal infrastructure asset" means any municipal infrastructure asset that is a,

(a) water asset that relates to the collection, production, treatment, storage, supply or distribution of water,

(b) wastewater asset that relates to the collection, transmission, treatment or disposal of wastewater, including any wastewater asset that from time to time manages stormwater,

(c) stormwater management asset that relates to the collection, transmission, treatment, retention, infiltration, control or disposal of stormwater,

(d) road, or

(e) bridge or culvert; ("bien d'infrastructure municipale essentiel")

"ecological functions" has the same meaning as in Ontario Regulation 140/02 (Oak Ridges Moraine Conservation Plan) made under the *Oak Ridges Moraine Conservation Act, 2001*; ("fonctions écologiques")

"green infrastructure asset" means an infrastructure asset consisting of natural or human-made elements that provide ecological and hydrological functions and processes and includes natural heritage features and systems, parklands,

stormwater management systems, street trees, urban forests, natural channels, permeable surfaces and green roofs; ("bien d'infrastructure verte")

"hydrological functions" has the same meaning as in Ontario Regulation 140/02; ("fonctions hydrologiques")

"joint municipal water board" means a joint board established in accordance with a transfer order made under the *Municipal Water and Sewage Transfer Act, 1997*; ("conseil mixte de gestion municipale des eaux")

"lifecycle activities" means activities undertaken with respect to a municipal infrastructure asset over its service life, including constructing, maintaining, renewing, operating and decommissioning, and all engineering and design work associated with those activities; ("activités relatives au cycle de vie")

"municipal infrastructure asset" means an infrastructure asset, including a green infrastructure asset, directly owned by a municipality or included on the consolidated financial statements of a municipality, but does not include an infrastructure asset that is managed by a joint municipal water board; ("bien d'infrastructure municipale")

"municipality" has the same meaning as in the *Municipal Act, 2001*; ("municipalité")

"operating costs" means the aggregate of costs, including energy costs, of operating a municipal infrastructure asset over its service life; ("frais d'exploitation")

"service life" means the total period during which a municipal infrastructure asset is in use or is available to be used; ("durée de vie")

"significant operating costs" means, where the operating costs with respect to all municipal infrastructure assets within an asset category are in excess of a threshold amount set by the municipality, the total amount of those operating costs. ("frais d'exploitation importants")

(2) In Tables 1 and 2,

"connection-days" means the number of properties connected to a municipal system that are affected by a service issue, multiplied by the number of days on which those properties are affected by the service issue. ("jours-branchements")

(3) In Table 4,

"arterial roads" means Class 1 and Class 2 highways as determined under the Table to section 1 of Ontario Regulation 239/02 (Minimum Maintenance Standards for Municipal Highways) made under the *Municipal Act, 2001*; ("artères")

"collector roads" means Class 3 and Class 4 highways as determined under the Table to section 1 of Ontario Regulation 239/02; ("routes collectrices")

"lane-kilometre" means a kilometre-long segment of roadway that is a single lane in width; ("kilomètre de voie")

"local roads" means Class 5 and Class 6 highways as determined under the Table to section 1 of Ontario Regulation 239/02. ("routes locales")

(4) In Table 5,

"Ontario Structure Inspection Manual" means the Ontario Structure Inspection Manual (OSIM), published by the Ministry of Transportation and dated October 2000 (revised November 2003 and April 2008) and available on a Government of Ontario website; ("manuel d'inspection des structures de l'Ontario")

"structural culvert" has the meaning set out for "culvert (structural)" in the Ontario Structure Inspection Manual. ("ponceau structurel")

Application

2. For the purposes of section 6 of the Act, every municipality is prescribed as a broader public sector entity to which that section applies.

STRATEGIC ASSET MANAGEMENT POLICIES

Strategic asset management policy

3. (1) Every municipality shall prepare a strategic asset management policy that includes the following:

1. Any of the municipality's goals, policies or plans that are supported by its asset management plan.

2. The process by which the asset management plan is to be considered in the development of the municipality's budget or of any long-term financial plans of the municipality that take into account municipal infrastructure assets.

3. The municipality's approach to continuous improvement and adoption of appropriate practices regarding asset management planning.

4. The principles to be followed by the municipality in its asset management planning, which must include the principles set out in section 3 of the Act.

5. The municipality's commitment to consider, as part of its asset management planning,

    i. the actions that may be required to address the vulnerabilities that may be caused by climate change to the municipality's infrastructure assets, in respect of such matters as,

        A. operations, such as increased maintenance schedules,

        B. levels of service, and

        C. lifecycle management,

    ii. the anticipated costs that could arise from the vulnerabilities described in subparagraph i,

    iii. adaptation opportunities that may be undertaken to manage the vulnerabilities described in subparagraph i,

    iv. mitigation approaches to climate change, such as greenhouse gas emission reduction goals and targets, and

    v. disaster planning and contingency funding.

6. A process to ensure that the municipality's asset management planning is aligned with any of the following financial plans:

    i. Financial plans related to the municipality's water assets including any financial plans prepared under the *Safe Drinking Water Act, 2002*.

    ii. Financial plans related to the municipality's wastewater assets.

7. A process to ensure that the municipality's asset management planning is aligned with Ontario's land-use planning framework, including any relevant policy statements issued under subsection 3 (1) of the *Planning Act*, any provincial plans as defined in the *Planning Act* and the municipality's official plan.

8. An explanation of the capitalization thresholds used to determine which assets are to be included in the municipality's asset management plan and how the thresholds compare to those in the municipality's tangible capital asset policy, if it has one.

9. The municipality's commitment to coordinate planning for asset management, where municipal infrastructure assets connect or are interrelated with those of its upper-tier municipality, neighbouring municipalities or jointly-owned municipal bodies.

10. The persons responsible for the municipality's asset management planning, including the executive lead.

11. An explanation of the municipal council's involvement in the municipality's asset management planning.

12. The municipality's commitment to provide opportunities for municipal residents and other interested parties to provide input into the municipality's asset management planning.

(2) For the purposes of this section,

"capitalization threshold" is the value of a municipal infrastructure asset at or above which a municipality will capitalize the value of it and below which it will expense the value of it. ("seuil de capitalisation")

Update of asset management policy

4. Every municipality shall prepare its first strategic asset management policy by July 1, 2019 and shall review and, if necessary, update it at least every five years.

ASSET MANAGEMENT PLANS

Asset management plans, current levels of service

5. (1) Every municipality shall prepare an asset management plan in respect of its core municipal infrastructure assets by July 1, 2021, and in respect of all of its other municipal infrastructure assets by July 1, 2023.

(2) A municipality's asset management plan must include the following:

1. For each asset category, the current levels of service being provided, determined in accordance with the following qualitative descriptions and technical metrics and based on data from at most the two calendar years prior to the year in which all information required under this section is included in the asset management plan:

    i. With respect to core municipal infrastructure assets, the qualitative descriptions set out in Column 2 and the technical metrics set out in Column 3 of Table 1, 2, 3, 4 or 5, as the case may be.

    ii. With respect to all other municipal infrastructure assets, the qualitative descriptions and technical metrics established by the municipality.

2. The current performance of each asset category, determined in accordance with the performance measures established by the municipality, such as those that would measure energy usage and operating efficiency, and based on data from

at most two calendar years prior to the year in which all information required under this section is included in the asset management plan.

3. For each asset category,

   i. a summary of the assets in the category,

   ii. the replacement cost of the assets in the category,

   iii. the average age of the assets in the category, determined by assessing the average age of the components of the assets,

   iv. the information available on the condition of the assets in the category, and

   v. a description of the municipality's approach to assessing the condition of the assets in the category, based on recognized and generally accepted good engineering practices where appropriate.

4. For each asset category, the lifecycle activities that would need to be undertaken to maintain the current levels of service as described in paragraph 1 for each of the 10 years following the year for which the current levels of service under paragraph 1 are determined and the costs of providing those activities based on an assessment of the following:

   i. The full lifecycle of the assets.

   ii. The options for which lifecycle activities could potentially be undertaken to maintain the current levels of service.

   iii. The risks associated with the options referred to in subparagraph ii.

   iv. The lifecycle activities referred to in subparagraph ii that can be undertaken for the lowest cost to maintain the current levels of service.

5. For municipalities with a population of less than 25,000, as reported by Statistics Canada in the most recent official census, the following:

   i. A description of assumptions regarding future changes in population or economic activity.

   ii. How the assumptions referred to in subparagraph i relate to the information required by paragraph 4.

6. For municipalities with a population of 25,000 or more, as reported by Statistics Canada in the most recent official census, the following:

   i. With respect to municipalities in the Greater Golden Horseshoe growth plan area, if the population and employment forecasts for the municipality are set out in Schedule 3 or 7 to the 2017 Growth Plan, those forecasts.

   ii. With respect to lower-tier municipalities in the Greater Golden Horseshoe growth plan area, if the population and employment forecasts for the municipality are not set out in Schedule 7 to the 2017 Growth Plan, the portion of the forecasts allocated to the lower-tier municipality in the official plan of the upper-tier municipality of which it is a part.

   iii. With respect to upper-tier municipalities or single-tier municipalities outside of the Greater Golden Horseshoe growth plan area, the population and employment forecasts for the municipality that are set out in its official plan.

   iv. With respect to lower-tier municipalities outside of the Greater Golden Horseshoe growth plan area, the population and employment forecasts for the lower-tier municipality that are set out in the official plan of the upper-tier municipality of which it is a part.

   v. If, with respect to any municipality referred to in subparagraph iii or iv, the population and employment forecasts for the municipality cannot be determined as set out in those subparagraphs, a description of assumptions regarding future changes in population or economic activity.

   vi. For each of the 10 years following the year for which the current levels of service under paragraph 1 are determined, the estimated capital expenditures and significant operating costs related to the lifecycle activities required to maintain the current levels of service in order to accommodate projected increases in demand caused by growth, including estimated capital expenditures and significant operating costs related to new construction or to upgrading of existing municipal infrastructure assets.

(3) Every asset management plan must indicate how all background information and reports upon which the information required by paragraph 3 of subsection (2) is based will be made available to the public.

(4) In this section,

"2017 Growth Plan" means the Growth Plan for the Greater Golden Horseshoe, 2017 that was approved under subsection 7 (6) of the *Places to Grow Act, 2005* on May 16, 2017 and came into effect on July 1, 2017; ("Plan de croissance de 2017")

"Greater Golden Horseshoe growth plan area" means the area designated by section 2 of Ontario Regulation 416/05 (Growth Plan Areas) made under the *Places to Grow Act, 2005*. ("zone de croissance planifiée de la région élargie du Golden Horseshoe")

Asset management plans, proposed levels of service

6. (1) Subject to subsection (2), by July 1, 2024, every asset management plan prepared under section 5 must include the following additional information:

1. For each asset category, the levels of service that the municipality proposes to provide for each of the 10 years following the year in which all information required under section 5 and this section is included in the asset management plan, determined in accordance with the following qualitative descriptions and technical metrics:

    i. With respect to core municipal infrastructure assets, the qualitative descriptions set out in Column 2 and the technical metrics set out in Column 3 of Table 1, 2, 3, 4 or 5, as the case may be.

    ii. With respect to all other municipal infrastructure assets, the qualitative descriptions and technical metrics established by the municipality.

2. An explanation of why the proposed levels of service under paragraph 1 are appropriate for the municipality, based on an assessment of the following:

    i. The options for the proposed levels of service and the risks associated with those options to the long term sustainability of the municipality.

    ii. How the proposed levels of service differ from the current levels of service set out under paragraph 1 of subsection 5 (2).

    iii. Whether the proposed levels of service are achievable.

    iv. The municipality's ability to afford the proposed levels of service.

3. The proposed performance of each asset category for each year of the 10-year period referred to in paragraph 1, determined in accordance with the performance measures established by the municipality, such as those that would measure energy usage and operating efficiency.

4. A lifecycle management and financial strategy that sets out the following information with respect to the assets in each asset category for the 10-year period referred to in paragraph 1:

    i. An identification of the lifecycle activities that would need to be undertaken to provide the proposed levels of service described in paragraph 1, based on an assessment of the following:

        A. The full lifecycle of the assets.

        B. The options for which lifecycle activities could potentially be undertaken to achieve the proposed levels of service.

        C. The risks associated with the options referred to in sub-subparagraph B.

        D. The lifecycle activities referred to in sub-subparagraph B that can be undertaken for the lowest cost to achieve the proposed levels of service.

    ii. An estimate of the annual costs for each of the 10 years of undertaking the lifecycle activities identified in subparagraph i, separated into capital expenditures and significant operating costs.

    iii. An identification of the annual funding projected to be available to undertake lifecycle activities and an explanation of the options examined by the municipality to maximize the funding projected to be available.

    iv. If, based on the funding projected to be available, the municipality identifies a funding shortfall for the lifecycle activities identified in subparagraph i,

        A. an identification of the lifecycle activities, whether set out in subparagraph i or otherwise, that the municipality will undertake, and

        B. if applicable, an explanation of how the municipality will manage the risks associated with not undertaking any of the lifecycle activities identified in subparagraph i.

5. For municipalities with a population of less than 25,000, as reported by Statistics Canada in the most recent official census, a discussion of how the assumptions regarding future changes in population and economic activity, set out in subparagraph 5 i of subsection 5 (2), informed the preparation of the lifecycle management and financial strategy referred to in paragraph 4 of this subsection.

6. For municipalities with a population of 25,000 or more, as reported by Statistics Canada in the most recent official census,

i. the estimated capital expenditures and significant operating costs to achieve the proposed levels of service as described in paragraph 1 in order to accommodate projected increases in demand caused by population and employment growth, as set out in the forecasts or assumptions referred to in paragraph 6 of subsection 5 (2), including estimated capital expenditures and significant operating costs related to new construction or to upgrading of existing municipal infrastructure assets,

ii. the funding projected to be available, by source, as a result of increased population and economic activity, and

iii. an overview of the risks associated with implementation of the asset management plan and any actions that would be proposed in response to those risks.

7. An explanation of any other key assumptions underlying the plan that have not previously been explained.

(2) With respect to an asset management plan prepared under section 5 on or before July 1, 2021, if the additional information required under this section is not included before July 1, 2023, the municipality shall, before including the additional information, update the current levels of service set out under paragraph 1 of subsection 5 (2) and the current performance measures set out under paragraph 2 of subsection 5 (2) based on data from the two most recent calendar years.

Update of asset management plans

7. (1) Every municipality shall review and update its asset management plan at least five years after the year in which the plan is completed under section 6 and at least every five years thereafter.

(2) The updated asset management plan must comply with the requirements set out under paragraphs 1, 2 and 3 and subparagraphs 5 i and 6 i, ii, iii, iv and v of subsection 5 (2), subsection 5 (3) and paragraphs 1 to 7 of subsection 6 (1).

Endorsement and approval required

8. Every asset management plan prepared under section 5 or 6, or updated under section 7, must be,

(a) endorsed by the executive lead of the municipality; and

(b) approved by a resolution passed by the municipal council.

Annual review of asset management planning progress

9. (1) Every municipal council shall conduct an annual review of its asset management progress on or before July 1 in each year, starting the year after the municipality's asset management plan is completed under section 6.

(2) The annual review must address,

(a) the municipality's progress in implementing its asset management plan;

(b) any factors impeding the municipality's ability to implement its asset management plan; and

(c) a strategy to address the factors described in clause (b).

Public availability

10. Every municipality shall post its current strategic asset management policy and asset management plan on a website that is available to the public, and shall provide a copy of the policy and plan to any person who requests it.

TABLE 1

WATER ASSETS

Column 1 Service attribute	Column 2 Community levels of service (qualitative descriptions)	Column 3 Technical levels of service (technical metrics)
Scope	1. Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system. 2. Description, which may include maps, of the user groups or areas of the municipality that have fire flow.	1. Percentage of properties connected to the municipal water system. 2. Percentage of properties where fire flow is available.
Reliability	Description of boil water advisories and service interruptions.	1. The number of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system. 2. The number of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system.

TABLE 2

WASTEWATER ASSETS

Column 1	Column 2	Column 3

Service attribute	Community levels of service (qualitative descriptions)	Technical levels of service (technical metrics)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system.	Percentage of properties connected to the municipal wastewater system.
Reliability	1. Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes. 2. Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches. 3. Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes. 4. Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid events described in paragraph 3. 5. Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system.	1. The number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system. 2. The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system. 3. The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.

TABLE 3

STORMWATER MANAGEMENT ASSETS

Column 1 Service attribute	Column 2 Community levels of service (qualitative descriptions)	Column 3 Technical levels of service (technical metrics)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are protected from flooding, including the extent of the protection provided by the municipal stormwater management system.	1. Percentage of properties in municipality resilient to a 100-year storm. 2. Percentage of the municipal stormwater management system resilient to a 5-year storm.

TABLE 4

ROADS

Column 1 Service attribute	Column 2 Community levels of service (qualitative descriptions)	Column 3 Technical levels of service (technical metrics)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity.	Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the municipality.
Quality	Description or images that illustrate the different levels of road class pavement condition.	1. For paved roads in the municipality, the average pavement condition index value. 2. For unpaved roads in the municipality, the average surface condition (e.g. excellent, good, fair or poor).

TABLE 5

BRIDGES AND CULVERTS

Column 1 Service attribute	Column 2 Community levels of service (qualitative descriptions)	Column 3 Technical levels of service (technical metrics)
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists).	Percentage of bridges in the municipality with loading or dimensional restrictions.
Quality	1. Description or images of the condition of bridges and how this would affect use of the bridges. 2. Description or images of the condition of culverts and how this would affect use of the culverts.	1. For bridges in the municipality, the average bridge condition index value. 2. For structural culverts in the municipality, the average bridge condition index value.

COMMENCEMENT

Commencement

11. This Regulation comes into force on the later of January 1, 2018 and the day it is filed.

Asset Management Governance

Business Case

The Regional Municipality of Niagara

December 2018

Table of Contents

List of Appendices

1. Introduction

1.1 Background

1.1.1 Region of Niagara AM Program: Corporate AM Strategy

The Region of Niagara has embarked on a phased, multi-year Asset Management (AM) Program that is focused on improving the Region's overall efficiencies and effectiveness in delivering sustainable services through the development and implementation of leading AM practices.

The first phase of the Region's AM Program, which was completed in 2017, included the development of an AM Strategy that measured the Region's AM system maturity and outlined an AM Roadmap of initiatives to achieve efficiency and effectiveness in service delivery across the Region. The supporting services recommendations in the AM Strategy included initiative SS1: Develop and Implement an AM Governance Model. A copy of the AM Strategy Implementation Roadmap is provided in Appendix A.

The AM Roadmap shows the estimated resource requirements to implement each of the AM Roadmap initiatives. The resource requirements average $1.47 million per year as provided at a summary level in the following table, with the majority of the required investments being for additional Regional staff time related to the AM Governance Model.

Table 1.1   Estimated Resource Requirements for AM Roadmap

Requirement	Description	Annual Costs
Region Staff Time	To support development and implementation of the AM Roadmap initiatives *	$0.85 M
	To sustain each of the AM Roadmap initiatives *	$0.15 M
Consulting Costs	For external consultants to support development and implementation of the AM Roadmap initiatives **	$0.47 M
Total		**$1.47 M**

Note: Based on an FTE of 1820 hours of internal staff time at an estimated cost of $110,000 per annum inclusive of payroll costs

*** Note: Annual cost for first six years of implementation*

1.1.2 Federal and Provincial Legislation

O. Reg. 588/17: AM Planning for Municipal Infrastructure

On December 13, 2017, the province approved a new municipal AM planning regulation (O. Reg. 588/17) under the Infrastructure for Jobs and Prosperity Act, 2015. Improved AM planning has been a key objective of the province's Municipal Infrastructure Strategy since 2012. Building on this objective, O. Reg. 588/17 will help municipalities take stock of their infrastructure challenges, better understand what important services need to be supported over the long-term, and seek new opportunities to address infrastructure challenges through innovative solutions.

O. Reg. 588/17 comes after a year and a half of consultations with municipalities, stakeholders and the broader public. The new requirements are being phased in over a period six years to provide municipalities adequate time for implementation:

- **January 1, 2018:** Effective date of Regulation (there are no requirements that must be met at this time).

- **July 1, 2019:** Date for municipalities to have a finalized and published strategic AM policy.

- **July 1, 2021:** Date for municipalities to have an approved AM plan for core assets (roads, bridges and culverts, water, wastewater and stormwater management) that discusses current levels of service and the cost of maintaining those services.

- **July 1, 2023:** Date for municipalities to have an approved AM plan for all municipal infrastructure assets that discusses current levels of service and the cost of maintaining those services.

- **July 1, 2024:** Date for municipalities to have an approved AM plan for all municipal infrastructure assets that builds upon the requirements set out in 2023. This includes a discussion of proposed levels of service, what activities will be required to meet proposed levels of service, and a strategy to fund the activities.

Federal Gas Tax Agreement in Ontario

The federal Gas Tax Agreement required Ontario municipalities to develop and implement AM plans by December 31, 2016. Municipalities are now expected to continuously improve and implement their existing AM plans according to the requirements of O. Reg. 588/17.

In addition, provisions of the federal Gas Tax Agreement related to AM planning consider *"investments related to strengthening the ability of Municipalities to develop long-term planning practices"* as eligible expenditures for gas tax funding.

Development Charges Act (DCA)

The recent changes to the DCA in December 2016 (new clause 10(2) (c.2)) requires that a Development Charge Background Study must include an AM plan related to new infrastructure.

Subsection 10 (3) of the DCA provides:

(3) The asset management plan shall,

(a) deal with all assets whose capital costs are proposed to be funded under the development charge by-law;

(b) demonstrate that all the assets mentioned in clause (a) are financially sustainable over their full lifecycle;

(c) contain any other information that is prescribed; and

(d) be prepared in the prescribed manner.

Clean Water and Wastewater Fund (CWWF) Agreement in Ontario

The Canada-Ontario Clean Water and Wastewater Fund (CWWF) agreement is designed to improve the safety and quality of water for Canadian families, while supporting a clean economy. Funding recipients must provide data for performance indicators related to outcomes such as improved reliability, improved efficiency, and improved rehabilitation.

1.1.3 Region of Niagara AM Program: AM Governance Model

In February 2018, the Region issued a request for proposals for consultancy services to develop an AM Governance Model. GHD Limited was awarded the assignment and conducted the kick-off meeting with the Region's project team in May 2018.

The structural configuration of an organizational design is the way work is divided and how it achieves coordination among its various work activities. For AM governance, this includes work activities around the asset lifecycle, from determining needs based on specified performance criteria to planning, acquiring, operating, measuring performance, renewing and disposing of assets.

Through the AM Strategy, the Region was found to have an overall maturity rating reflective of the early stages of "Establishing" – less than half way on an international scale of AM practice competencies from "Innocent" to "Excelling". The current approach to AM governance was identified as a key inhibitor to AM development at the Region and is characterized by:

- A lack of Corporate-wide AM Steering team (with departmental representation) to provide guidance and direction for the AM Program

- A lack of dedicated departmental AM roles to lead implementation and sustain best practices in the department

- A lack of formalized collaboration and coordination across business units with respect to lifecycle analysis and decision making

- A lack of formalized networks or communities of practice for knowledge sharing and enabling continuous improvement.

An effective AM Governance Model can help the Region address its current challenges to AM practice development through improved collaboration and coordination around business processes related to planning, core service delivery, performance management, and the enabling elements of data, technology, people and financial management. With the right AM Governance Model in place, overall AM Program development can be expedited and new ways of working can be quickly integrated into the AM culture at the Region.

An appropriately resourced AM Office, reporting at the right level of influence, can focus on competency development (creating the necessary strategies and frameworks at the corporate level) and provide guidance and support to colleagues in the various departments. Similarly, dedicated AM staff in the various departments can take ownership for AM execution and sustenance of best practices at the departmental level. Networks and communities of practice can encourage coordination around the asset lifecycle and collaboration in the form of knowledge sharing and continuous improvement.

Senior managers and political decision makers would then have the confidence that they are operating a lean organization and have quantified and understand the risks to the business and the optimal cost of asset ownership to meet set service levels.

The first part of the AM Governance initiative has reviewed various AM governance models and identified a clear structure with appropriate authority, roles and responsibilities to support the development and implementation of leading AM practices at the Region. The organizational structure considers the needs for corporate standardization and consistency in AM and also provides the flexibility for implementation unique to the asset class and operating environment.

1.2   Purpose of AM Governance Model Business Case

In this part of the AM Governance initiative, a Business Case has been developed to provide decision makers with tangible and intangible evidence of the benefits and costs of implementing the identified AM Governance Model.

The business case is a vehicle for communicating the evidence-based development of potential options and the rationale for the preferred solution. It provides justification for the proposed solution or recommended initiative, summarising all the work undertaken and results obtained so as to:

- Enable the reader to effectively comprehend and assess the merit of the initiative, and assess this against the criteria stipulated by funding agencies

- Provide certainty to decision-makers that they have been provided with sufficiently detailed information to assure them they are making a fully informed decision on the initiative.

The business case documents the following:

- **The Opportunity:** Identification of the problems that prevent (or opportunities that enable) the achievement of the stated goals and objectives, and assessment of their importance to the Region through provision of evidence of their scale, cost, causes and effects.

- **The Options:** Development of potential initiatives (options) to solve problems or realise opportunities (ideally, this would include at least two options in addition to a "do minimum" base case)

- **The Preferred Solution:** Assessment of the options to select the one with the highest net value to the Regional community (considering intangible benefits and costs, and tangible benefits and costs of the options, expressed as economic criteria: Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period (PBP))

- **Performance of Implemented Solution:** Document how performance will be measured over time to understand whether benefits have been realised as expected, whether costs estimations were accurate, and what lessons can be learned.

2. The Opportunity

This section of the Business Case develops a clear statement of the problems that prevent (or opportunities that enable) the achievement of the Region's stated goals and objectives. This section also assesses the importance of the problem or opportunity to the Region through provision of evidence of their scale, cost, causes and effects.

2.1 Opportunity Identification

The province has approved a new municipal AM planning regulation (O. Reg. 588/17). The timing of the provincial requirements will be phased in over six years, as described in the Introduction, to provide time for implementation.

To meet the requirements of the new regulation, the Region plans to proceed with implementation of the Corporate AM Strategy developed in 2016. One of the first year initiatives is the development and implementation of an AM Governance Model to lead continuous improvement of the Region's overall AM practice maturity and meet the phased requirements of O. Reg. 588/17.

2.1.1 Current AM Governance Model

The current AM organizational design at the Region can be described as a mix of informal AM roles embedded in traditional manager, supervisor and analyst roles, and in some cases formal or dedicated AM roles. Both informal and formal AM roles currently reside at the individual business unit level, with limited collaboration across business units.

An AM Steering Team was established to initiate and guide the design and implementation of the AM Program at the Region. However, at the conclusion of the Phase 1 AM Project, the AM Steering Team was replaced by a Finance led project team for the AM Governance Model initiative.

The current approach to AM governance was identified as a key inhibitor to AM development at the Region.

2.1.2 Recommended AM Governance Model

The first part of the AM Governance initiative has recommended creating a formal AM Governance Model with a clear organizational structure and appropriate authority, roles and responsibilities to support the development and implementation of leading AM practices.

The AM Governance Model recommendations include creation of a Corporate AM Steering Team, a centralized Corporate AM Office to develop and guide AM practices and AM Practice Networks, and formalization of decentralized

Departmental AM responsibilities that implement and sustain AM practices. Implementation is recommended in three steps, as shown below (with timing).

Table 2.1   Recommended AM Governance Model Implementation

Step 1. Corporate (Immediate)	Step 2. Department (Short Term)	Step 3. Department (Medium Term)
1.1 Create a Corporate AM Steering Team		
1.2 Create (new) a formal Corporate AM Office (AMO): • Director of AMO (1) • AM Manager & Analyst: Strategy & Integrated Planning (2) • AM Manager & Analyst: Asset Integrity & Productivity (2) • AM Manager & Analyst: Asset Performance & Asset Knowledge (2)	**2.1 Create (rebrand and augment) formal Departmental AM Responsibilities:** • Dept AM Managers **2.2 Establish AM Practice Networks across the Departments:** • AM Planning Network • AM Productivity Network • Asset Knowledge & Performance Management Network	**3.1 Create (rebrand and augment) formal Departmental AM Responsibilities:** • Dept Planner Schedulers • Dept Technology Analysts • Dept Reliability Analysts • Dept Process Analysts

The addition of the roles and responsibilities needed for immediate creation of a formal Corporate AM Office will require **seven net new staff at an estimated annual cost of approximately $0.85 million per year**.

O. Reg. 588/17 Asset Management Planning for Municipal Infrastructure requires that the Region identify a senior executive with responsibility for implementing and managing an AM program. The AM Co-Sponsors are the Commissioners of Enterprise, Resource Management Services / Regional Treasurer and the Commissioner of Public Works.

The organization chart of the recommended AM Governance Model is show in the following figure.

Figure 2.1 Recommended AM Governance Model
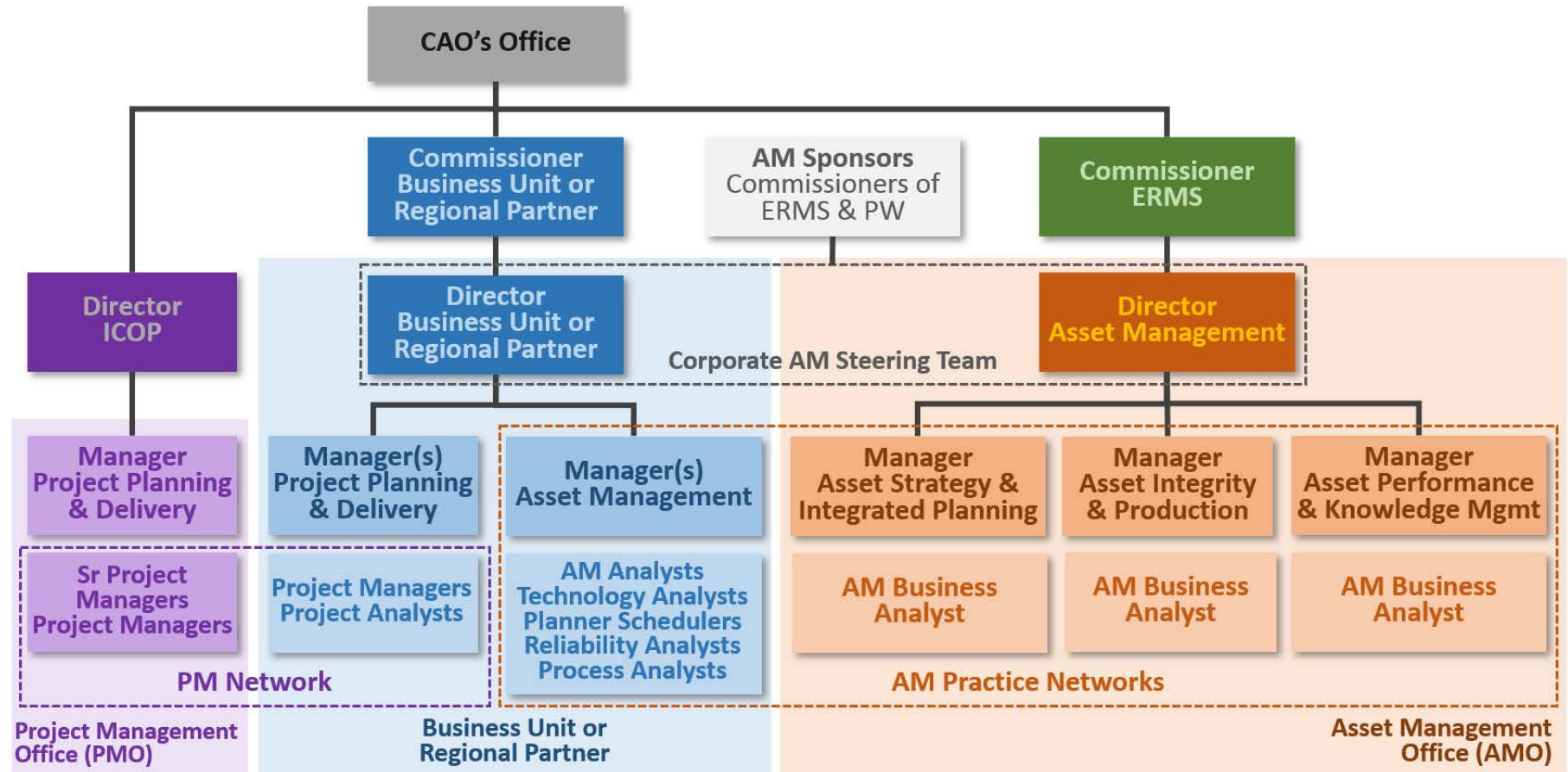
2.2 Opportunity Assessment

The preceding step developed a clear statement of the problems that prevent (or opportunities that enable) the achievement of the stated goals and objectives. This step provides evidence of the scale, costs, causes and effects of the problem or opportunity.

2.2.1 Scale and Cost of the Opportunity

The Region's eligibility for federal Gas Tax funding, valued at approximately $15 million per year, is reliant on the Region's ability to demonstrate compliance of AM planning with O. Reg. 588/17. Other sources of funding also require production of AM Plans, including Development Charge funding (approximately $60 million per year) and Clean Water & Wastewater funding.

Implementation of the AM Strategy Roadmap, through the recommended AM Governance Model, will greatly increase the likelihood of meeting the new O. Reg. 588/17 requirements over the next five (5) years. Costs to implement the recommended AM Governance Model are estimated at $0.85 million per year, which are eligible expenditures through federal Gas Tax funding.

2.2.2 Causes and Effects of the Opportunity

Cause of the opportunity

The federal government states that the federal Gas Tax Fund is a permanent source of funding for municipal infrastructure. It is predictable, long-term and stable.

This opportunity is a result of the federal government requirement that a municipality provide O. Reg. 588/17 compliant AM Plans as support for projects to be eligible for federal Gas Tax funding. The Region's AM Program must be expedited for the Region to be assured that it will meet the phased requirements of O. Reg. 588/17.

Effects of the opportunity

The impact of not meeting O. Reg. 588/17 and, therefore, becoming ineligible for federal Gas Tax funding would be loss of all or part of annual Gas Tax funding value of approximately $15 million for the Region.

3. The Options

This section of the Business Case develops potential initiatives (options) to solve problems or realise opportunities (ideally, this would include at least two options in addition to a "do minimum" base case).

3.1 Options Identification

- **Base Case: Current Decentralized AM Governance Model:** The "Do Minimum" base case is to implement the Corporate AM Strategy through the current decentralized governance model. The costs associated with this option are assumed to be the same for all options, but the benefits for the Base Case will be delayed as it will take longer to implement the AM Roadmap initiatives outlined in the Corporate AM Strategy.

- **Outcome 1: Proposed Hybrid Model: Conservative:** Outcome 1 is to implement the Corporate AM Strategy through the recommended AM Governance Model assuming the same costs as the base case, but being conservative with assumptions for the benefits: both the amount of the benefit and the timing of receipt of the benefits.

- **Outcome 2: Proposed Hybrid Model: Optimistic:** Outcome 2 is to implement the Corporate AM Strategy through the recommended AM Governance Model assuming the same costs as the base case, but being optimistic with assumptions for the benefits: both the amount of the benefit and the timing of receipt of the benefits.

The proposed hybrid model consists of:

- **Corporate AM Steering Team** with designated senior executives with clear responsibility for implementing and managing the AM program.

- An appropriately resourced **Corporate AM Office** that focuses on competency development (creating the necessary strategies and frameworks at the corporate level) and provides guidance and support to colleagues in the various departments.

- **Dedicated AM staff in the departments** who take ownership for execution and sustenance of AM best practices at the departmental level.

- **Networks and communities of practice** that encourage coordination around the asset lifecycle and collaboration in the form of knowledge sharing and continuous improvement.

3.2 Options Development

3.2.1 Tangible Benefits

To enable economic analysis, the anticipated tangible benefits are developed for each option. The following benefits are described for the Base Case: Current Decentralized AM Governance Model, and for the two outcomes of the Proposed Hybrid Model: Outcome 1 – Conservative and Outcome 2 – Optimistic. The following four benefits were considered:

- **Eligibility for Funding:** A key objective of all Ontario municipalities at this point in time is the production of AM plans to meet the new O. Reg. 588/17. Meeting this regulation is a prerequisite to eligibility for funding from other agencies (e.g. federal Gas Tax fund). Although the Region has a greater risk of not meeting O. Reg. 588/17 with the Base Case and therefore not being eligible for funding from other agencies, this risk has not been monetized in the model.

- **Improved Capital Planning:** The primary objective of implementing more advanced AM practices is to improve the efficiency and effectiveness of AM practices at the Region. The benefits include savings from more cost effective lifecycle management: doing the right projects, at the right times, through a formal options development and analysis process based on risk to meeting levels of service. Based on savings reported by similar organizations, the savings from improved capital planning can result in up to 5% reduction in annual Capital Infrastructure Program (CIP) budget in the second year of implementation. The Region's annual CIP budget is assumed to be $200M based on forecasts from the Region's 2016 AM Plan.

- **Optimized Maintenance Programming:** Based on information reported by similar organizations, a move from reactive to proactive maintenance can lead to up to 20% reduction in O&M costs through savings in maintenance labour (internal and external) and materials, and operations savings through better coordination between maintenance and engineering in optimal system performance. The Region's annual O&M budget is assumed to be $35M. *Note: The maintenance cost was estimated to be 0.5% of the Region's total $7 billion asset inventory as maintenance costs are not generally discernable from operating expenses in the Region's 2016 AM Plan.*

- **Utilities Savings:** Based on information reported by similar organizations, potential savings in energy costs though more reliable, energy efficient and better operated assets range from 5% in the second year to 10% per year after the third year of implementing the program. The Region's annual Utilities budget is assumed to be $5M based on national benchmarking estimates.

The following table outlines anticipated tangible benefits that have been used in developing the AM business case.

Table 3.1   Tangible Benefits, by Option

Benefit	Description	Base Case	Outcome 1: Conservative	Outcome 2: Optimistic
Eligibility for Funding	Producing O. Reg. 588/17 compliant AM Plans to enable funding from other agencies (e.g. federal Gas Tax fund). Although the Region has a greater risk of not meeting O. Reg. 588/17 with the Base Case and therefore not being eligible for funding from other agencies, this risk has not been monetized in the model.	1% reduction in federal Gas Tax funding starting in Year 3 (not included)	Fully eligible (not included)	Fully eligible (not included)
Improved Capital Planning	Savings from more cost effective lifecycle management: doing the right projects, at the right times, through a formal options development and analysis process based on risk to meeting levels of service. Can result in up to 5% reduction in annual Capital Infrastructure Program (CIP) budget in the second year of implementation. The annual CIP budget is assumed to be $200M.	1% reduction in annual CIP budget starting in Year 5	3% reduction in annual CIP budget starting in Year 3	5% reduction in annual CIP budget starting in Year 2
Optimized Maintenance Programming	A move from reactive to proactive maintenance can lead to a 20% reduction in O&M costs. Savings in maintenance labour (internal and external) and materials, and operations savings through better coordination between maintenance and engineering in optimal system performance. The annual O&M budget is assumed to be $35M.	10% reduction in annual O&M budget starting in Year 5	25% reduction in annual O&M budget starting in Year 3	40% reduction in annual O&M budget starting in Year 2
Utilities Savings	Potential savings in energy costs though more reliable, energy efficient and better operated assets from 5% in the second year to 10% per year after the third year of implementing the program. The annual Utilities budget is assumed to be $5M.	2% reduction in annual utilities budget starting in Year 5	5% reduction in annual utilities budget starting in Year 3	10% reduction in annual utilities budget starting in Year 2

3.2.2 Intangible Benefits

Moving from a reactive AM culture to a cost-effective and sustainable program based on the asset lifecycle and a focus on minimal overall cost of ownership provides intangible benefits. Intangible benefits include:

- More confidence that the Region is doing the right work, on the right assets, at the right time, at the right costs, and for the right reasons (i.e. the Region has clearly defined and agreed levels of service, understands and manages the risks to delivery of these levels of services through both asset and non-asset solutions, and measures and addresses performance against the agreed levels of service).

- More satisfied customers and other stakeholders as the assets are managed to provide the capacity, function and reliability required to deliver the agreed level of service at appropriate levels of risk and affordable costs.

- Valid, compete and timely inventory and performance information is available to everyone for day to day decision making around the asset lifecycle and to support continuous improvement initiatives.

- Reduced or zero safety and environmental issues.

- Better trained staff who are prepared to be empowered and take on new roles and responsibilities.

- Better staff motivation, commitment and coordination around the asset lifecycle.

- Corporate knowledge retention necessary to support a succession planning strategy and continuity of the business.

- A work culture that embraces change and smarter ways of working using technology (this makes it easier to make future changes).

3.2.3 Costs

Costs can be broadly classified into two major areas:

- **Region Staff Time for AM Governance Model:** New hires to implement and guide the AM Program, including overhead costs

- **Consulting Costs for AM Improvement Initiative:** Consulting and other costs, excluding people costs

The costs are outlined in the AM Strategy Roadmap, provided in Appendix A. A summary of AM Strategy Roadmap costs are shown in the following table.

Table 3.2   Costs (million), by Year, for all Options

Cost	Description	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Totals
Region Staff Time for AM Governance Model	New hires to support development and implementation of the AM Roadmap initiatives	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	**$8.50**
	To sustain each of the AM Roadmap initiatives	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15	**$2.5**
Consulting Costs for AM Improvement Initiative	For external consultants to support development and implementation of the AM Roadmap initiatives	$0.47	$0.47	$0.47	$0.47	$0.47	$0.47	$0.0	$0.0	$0.0	$0.0	**$2.8**
Total		**$1.47**	**$1.47**	**$1.47**	**$1.47**	**$1.47**	**$1.47**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$12.86**

* Note: An FTE denotes 1820 hours of internal staff time and is costed at $110,000 per annum inclusive of payroll costs

4. The Preferred Solution

This section of the Business Case assesses the options to select the one with the highest net value to the Regional community considering intangible benefits and costs and tangible benefits and costs of the options.

4.1 Economic Criteria

A key consideration in value to the Regional community is the economic assessment of the tangible benefits and costs of the options. The following economic criteria were considered:

- **Net Present Value (NPV) of the funds:** NPV considers the time value of money. The calculation uses an assumed interest rate and calculates what the value of the overall cost and investment money would be in each year of the assessment.

- **Internal Rate of Return (IRR):** IRR is one of the more popular parameters used to evaluate economic feasibility. The internal rate of return calculates the percentage return, on an annualized basis, regardless of the actual investment period.

- **Pay Back Period (PBP):** The payback period is the point where the NPV is equal to zero. At this point the overall expenditure equals the savings. Additional savings represent an overall return on investment. Stated differently, after the PBP the investment in effect earns a profit.

4.2 Economic Assessment

For this business case, the analysis is based on a 10 year project life. This is a reasonable timeframe to implement all of the proposed improvement initiatives, operationalize concepts and practices, and realize benefits.

The following table provides a summary of the economic assessment results for the base case and the two outcomes: conservative and optimistic, for each of the three economic criteria.

Table 4.1 Economic Assessment, by Option

Option	Description	NPV	IRR	PBP
Base Case	Current Decentralized AM Governance Model, Steering Team	$6.6 M	23%	9 yrs
1-Conservative	Recommended Hybrid AM Governance Model, 7 new FTEs in Corporate AM Office, Conservative Savings	$41 M	87%	4 yrs
2-Optimistic	Recommended Hybrid AM Governance Model, 7 new FTEs in Corporate AM Office, Optimistic Savings	$98 M	245%	3 yrs

4.3   The Preferred Option

All business case options suggest that investing in AM practice improvements is a good investment for the Region. The payback period is estimated at 9 years for the Base Case and between 3 or 4 years for the Recommended Hybrid AM Governance Model, depending on whether one takes a conservative or optimistic view. The Recommended Hybrid AM Governance Model is the preferred option, as outlined in the above table and the following figure.

Figure 4.1 Cumulative Cash Flow
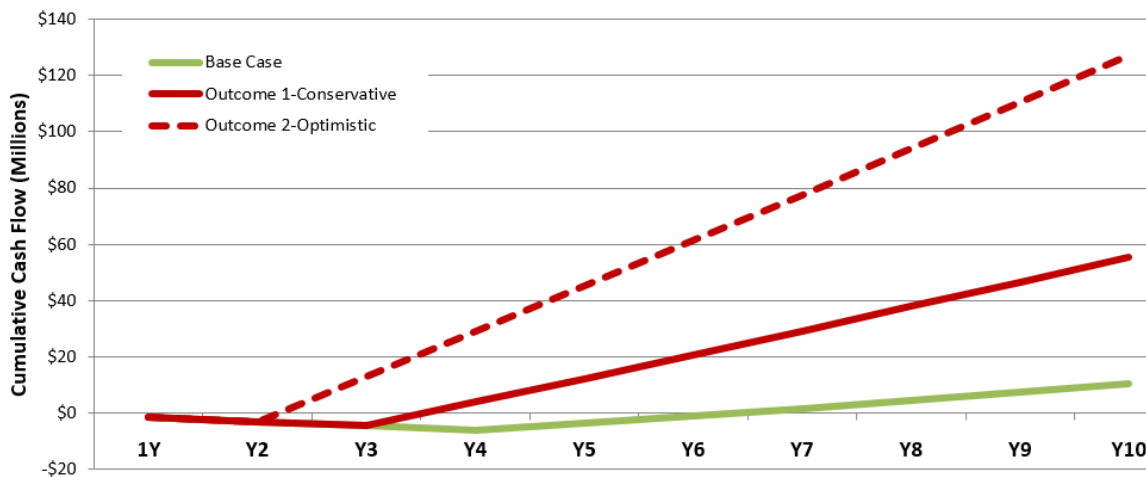
4.4 Funding

The Region is proposing to source funding of $0.85 million per year to implement the recommended Hybrid AM Governance Model from the 2019 operating budget. The recommended AM Governance Model increases the likelihood that the Region will produce O. Reg. 588/17 compliant AM Plans and, therefore, the Region's eligibility for all available federal Gas Tax funding ($15 million). A small investment in the AM Governance Model will trigger continued supply of federal Gas Tax funding for eligible projects.

Figure 4.2 AM Governance Model Funded from Federal Gas Tax
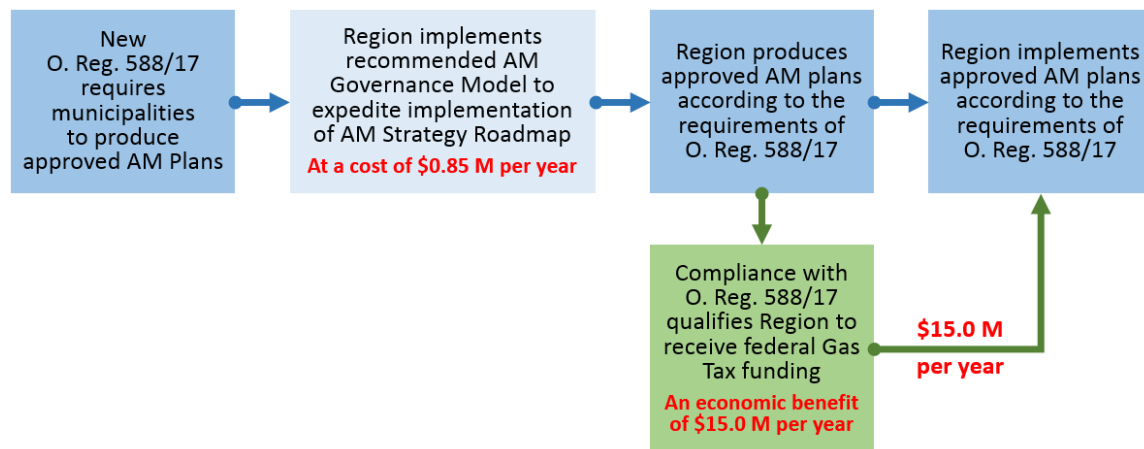
5. Performance of Implemented Solution

This section of the Business Case outlines how performance will be measured over time to understand whether benefits have been realised as expected, whether costs estimations were accurate, and what lessons can be learned.

5.1 The Opportunity

The opportunity is to implement the recommended hybrid AM Governance Model, at an estimated cost of $1.0 million, with a corporate AM Steering Team, centralized AM Office to develop and guide AM practices, AM Practice Networks, and decentralized service areas with dedicated AM staff that implement and sustain AM practices:

- To expedite further development of the Region's AM capabilities through the AM Roadmap

- To meet the requirements of O. Reg. 588/17.

Federal Gas Tax funding is reliant upon O. Reg. 588/17 compliance. Federal Gas Tax funding is eligible to fund AM practice development.

5.2 Performance of the Implemented Solution

When the business case of the AM Governance Model is adopted and program implementation is in progress, it is essential to demonstrate the return on the investment. The performance of the implemented solution should be captured and reported over time. Actual costs and benefits can be used to update the business case and show actual economic indicators.

5.2.1 Costs

Costs can be captured and reported in three major areas:

- Costs for new hires for the **Corporate AM Office** that focuses on competency development through corporate strategies and frameworks at the corporate level and provides guidance and support to colleagues in the various departments.

- Costs for new hires for **dedicated AM staff in the departments** who take ownership for execution and sustenance of AM best practices at the departmental level.

- **Other costs related to the AM Improvement Initiative such as c**onsulting and information technology costs.

5.2.2 Benefits

Benefits can be captured and reported in four major areas:

- **Eligibility for Funding:** Producing O. Reg 588/17 compliant AM Plans to enable funding from other agencies (e.g. federal Gas Tax fund)

- **Improved Capital Planning:** Savings from more cost effective lifecycle management: doing the right projects, at the right times, through a formal options development and analysis process based on risk to meeting levels of service.

- **Optimized Operations and Maintenance Planning:** Savings in maintenance labor (internal and external) and materials, and operations savings through better coordination between maintenance and engineering in optimal system performance.

- **Utilities Savings:** Potential savings in energy costs though more reliable, energy efficient and better operated assets.

Appendix A

Appendix 1 - AM Roadmap

Practice Area	Initiative		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 to 10	TOTALS
PLANNING PROCESSES	Develop and Update AM Policy & Framework and AM Improvement Roadmap (Strategy) — P1	*Ongoing Improvements*							
		FTE Req.	0.050	-	-	-	-	0.050	*0.100*
		FTE Cost	$5,500	-	-	-	-	$5,500	*$11,000*
		Consulting Cost	$25,000	-	-	-	-	-	*$25,000*
		Total Cost	**$30,500**	-	-	-	-	**$5,500**	*$36,000*
	Review & Redesign Strategic AM Planning Workflows & Implement Pilots — P2	*Ongoing Improvements*							
		FTE Req.	1.636	1.636	1.227	1.125	1.125	5.625	*12.374*
		FTE Cost	$180,000	$180,000	$135,000	$123,750	$123,750	$618,750	*$1,361,250*
		Consulting Cost	$154,545	$154,545	$115,909	-	-	-	*$424,999*
		Total Cost	**$334,545**	**$334,545**	**$250,909**	**$123,750**	**$123,750**	**$618,750**	*$1,786,249*
CORE SERVICE DELIVERY PROCESSES	Review & Redesign Asset Creation / Renewal Processes & Work flows — CS1	*Ongoing Improvements*							
		FTE Req.	-	-	2.093	2.093	0.314	5.625	*10.125*
		FTE Cost	-	-	$230,233	$230,233	$34,535	$618,750	*$1,113,751*
		Consulting Cost	-	-	$139,535	$139,535	$20,930	-	*$300,000*
		Total Cost	-	-	**$369,768**	**$369,768**	**$55,465**	**$618,750**	*$1,413,751*
	Refine Asset Maintenance, Operations & Work Management Workflows — CS2	*Ongoing improvements*							
		FTE Req.	-	0.625	1.250	1.250	1.250	0.625	*5.000*
		FTE Cost	-	$68,750	$137,500	$137,500	$137,500	$68,750	*$550,000*
		Consulting Cost	-	$31,250	$62,500	$62,500	$62,500	$31,250	*$250,000*
		Total Cost	-	**$100,000**	**$200,000**	**$200,000**	**$200,000**	**$100,000**	*$800,000*
	Develop and Implement a Project Management Governance System — CS3	*Ongoing Improvements*							
		FTE Req.	-	1.000	0.250	0.250	0.250	1.250	*3.000*
		FTE Cost	-	$110,000	$27,500	$27,500	$27,500	$137,500	*$330,000*
		Consulting Cost	-	$100,000	-	-	-	-	*$100,000*
		Total Cost	-	**$210,000**	**$27,500**	**$27,500**	**$27,500**	**$137,500**	*$430,000*
PERFORMANCE MANAGEMENT PROCESSES	Continue to Review & Improve the AM System (i.e., Framework) — PM1	*Ongoing Improvements*							
		FTE Req.	1.739	0.261	1.000	1.000	1.000	5.000	*10.000*
		FTE Cost	$191,304	$28,696	$110,000	$110,000	$110,000	$550,000	*$1,100,000*
		Consulting Cost	$108,696	$16,304	-	-	-	-	*$125,000*
		Total Cost	**$300,000**	**$45,000**	**$110,000**	**$110,000**	**$110,000**	**$550,000**	*$1,225,000*
	Redesign Performance Monitoring & Reporting Workflows — PM2	*Ongoing Improvements*							
		FTE Req.	-	-	-	0.917	0.917	0.917	*2.751*
		FTE Cost	-	-	-	$100,833	$100,833	$100,833	*$302,499*
		Consulting Cost	-	-	-	$25,000	$25,000	$25,000	*$75,000*
		Total Cost	-	-	-	**$125,833**	**$125,833**	**$125,833**	*$377,499*
	Redesign the Performance Assessment & Continuous Improvement Workflows, including External Benchmarking — PM3	*Ongoing Improvements*							
		FTE Req.	-	-	-	4.500	1.125	5.625	*11.250*
		FTE Cost	-	-	-	$495,000	$123,750	$618,750	*$1,237,500*
		Consulting Cost	-	-	-	$375,000	-	-	*$375,000*
		Total Cost	-	-	-	**$870,000**	**$123,750**	**$618,750**	*$1,612,500*

Practice Area		Initiative	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 to 10	TOTALS
ORGANIZATION & PEOPLE	SS1	Review, Endorse & Implement the AM Governance Model			Ongoing Improvements				
		FTE Req.	1.154	0.346	0.375	0.375	0.375	1.875	4.500
		FTE Cost	$126,923	$38,077	$41,250	$41,250	$41,250	$206,250	$495,000
		Consulting Cost	$57,692	$17,308	-	-	-	-	$75,000
		Total Cost	$184,615	$55,385	$41,250	$41,250	$41,250	$206,250	$570,000
	SS2	Develop & Implement the Communications Plan			Ongoing Improvements				
		FTE Req.	-	0.250	0.063	0.063	0.063	0.313	0.752
		FTE Cost	-	$27,500	$6,875	$6,875	$6,875	$34,375	$82,500
		Consulting Cost	-	-	-	-	-	-	-
		Total Cost	-	$27,500	$6,875	$6,875	$6,875	$34,375	$82,500
	SS3	Develop & Implement the Succession Plan			Ongoing Improvements				
		FTE Req.	-	0.438	0.875	0.438	0.438	2.188	4.377
		FTE Cost	-	$48,125	$96,250	$48,125	$48,125	$240,625	$481,250
		Consulting Cost	-	$31,250	$62,500	$31,250	-	-	$125,000
		Total Cost	-	$79,375	$158,750	$79,375	$48,125	$240,625	$606,250
	SS4	Develop & Implement the Knowledge Management Plan						Ongoing Improvements	
		FTE Req.	-	-	-	1.400	1.400	4.200	7.000
		FTE Cost	-	-	-	$154,000	$154,000	$462,000	$770,000
		Consulting Cost	-	-	-	$60,000	$60,000	$30,000	$150,000
		Total Cost	-	-	-	$214,000	$214,000	$492,000	$920,000
	SS5	Incorporate AM Requirements into Information Systems						Ongoing Improvements	
		FTE Req.	-	-	-	1.375	1.375	3.343	6.093
		FTE Cost	-	-	-	$151,250	$151,250	$378,125	$680,625
		Consulting Cost	-	-	-	$150,000	$150,000	-	$300,000
		Total Cost	-	-	-	$301,250	$301,250	$378,125	$980,625
	SS6	Plan & Implement AM Decision Support System for Lifecycle Asset Planning						Ongoing Improvements	
		FTE Req.	-	-	-	1.395	1.395	3.209	5.999
		FTE Cost	-	-	-	$153,488	$153,488	$353,023	$659,999
		Consulting Cost	-	-	-	$93,023	$93,023	$13,953	$199,999
		Total Cost	-	-	-	$246,511	$246,511	$366,976	$859,998
	SS7	Plan & Implement a Performance Management Systems						Ongoing Improvements	
		FTE Req.	-	-	-	-	3.500	4.375	7.875
		FTE Cost	-	-	-	-	$385,000	$481,250	$866,250
		Consulting Cost	-	-	-	-	$300,000	-	$300,000
		Total Cost	-	-	-	-	$685,000	$481,250	$1,166,250
TOTALS		FTE Req	4.579	4.556	7.133	16.181	14.527	44.220	91.196
		FTE Cost	$503,727	$501,148	$784,608	$1,779,804	$1,597,856	$4,874,481	$10,041,624
		Consulting Cost	$345,933	$350,657	$380,444	$936,308	$711,453	$100,203	$2,824,998
		Total Cost	$849,660	$851,805	$1,165,052	$2,716,112	$2,309,309	$4,974,684	$12,866,622

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Asset Management Governance
Charter, Vision, Mission and Potential Models

The Regional Municipality of Niagara

September 2018

GHD

Table of Contents

1. Executive Summary

The Region has embarked on a multi-year phased Asset Management Program to develop and implement leading asset management principles and practices. The current Asset Management design at the Region can be described as a mix of informal Asset Management roles embedded in traditional manager, supervisor and analyst/technician jobs and in some cases dedicated asset management jobs. These all occur at the individual business unit level with limited collaboration across business units. An Asset Management Steering Team was established to initiate and guide the design and implementation of the Asset Management Program at the Region, however at the conclusion of the Phase 1 Asset Management Project, the overview of the program was transitioned to the Region's Corporate Leadership Steering Team.

1.1 Asset Management Governance Models

Four organizational models (based on the above guidelines and principles) listed below are currently being used by municipalities and utilities that have implemented Asset Management (AM) leading practices and have similarities to the Region's operational and business environments (e.g. assets, services and service delivery methods). These models are:

- Model 1: Departmental Asset Management Steering Team (Facilitation and Advisory), Corporate Asset Management Office and Formal Decentralized Departmental Delivery

- Model 2: Corporate Asset Management Steering Team (Senior Level Cross-Departmental Office) and Decentralized Departmental Delivery

- Model 3: Corporate Asset Management Office and Informal Decentralized Departmental Delivery

- Model 4: Corporate Asset Management Steering Team, Asset Management Delivery through Task Teams

An evaluation of the four models against the Region's needs suggests that Model 1 would best meet its needs.

1.2 Asset Management Governance Model Recommendations

A number of recommendations are provided for creating the Region's current Asset Management Governance Model, these are listed below in order of priority:

Immediate

1. Create a Corporate AM Steering Team

2. Create a formal Corporate AM Office (CAM):

   a. Director of CAM

   b. AM Manager and Analyst – Strategy & Integrated Planning

   c. AM Manager and Analyst – Asset Integrity & Productivity

   d. AM Manager and Analyst – Asset Performance & Asset Knowledge

Short term

Following the creation of the CAM office, and based on the results of the detailed organizational impacts of the AM Program, the following recommendations may need to be considered:

1. Rebrand (and augment with minor changes as necessary) existing roles & create AM Manager Position with business unit responsibility for Strategy, Planning, Performance & Knowledge Management

2. Implement a Formal Decentralized Departmental Delivery through formal AM roles and through Networks

Medium Term (AMO and Departmental AM Manager in Place)

1. Rebrand (and augment with minor changes as necessary) existing roles & create Planner/Schedulers to the W/WW and Transportation groups

2. Rebrand (and augment with minor changes as necessary) existing roles & create a Reliability Analyst to the W/WW group

3. Additional considerations regarding the long-term departmental support for AM will be required to determine the potential need to add AM Analyst roles to each department to support with lifecycle management activities.

The proposed organization chart based on the above recommendations is show in Fig 1.1 below:

Figure 1.1 Proposed Asset Management Governance Model
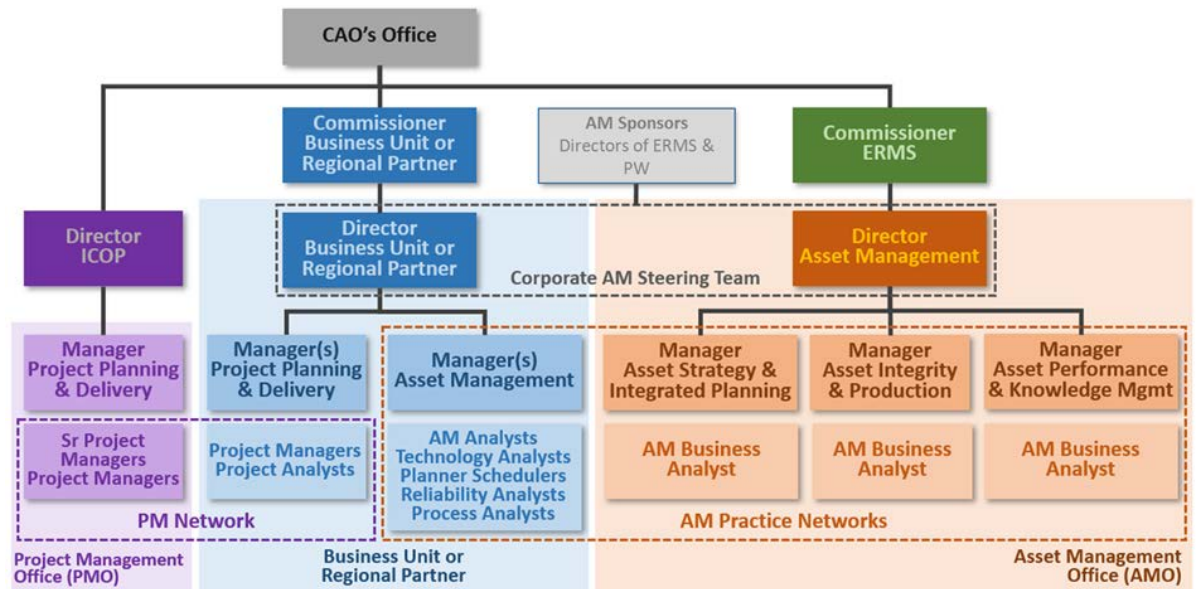
Note: Table 6.6 provides a summary description for each of the proposed roles.

Figure 1.2 below shows the Asset Management Governance Model with the proposed Asset Management Networks (or Communities of Practice) that will enable the desired level of collaboration, coordination and continuous improvement.

It is important to note that the proposed resourcing is reflective of a leading practices governance structure for the Region, and impacts and implementation feasibility will be addressed within the impact assessment.

Figure 1.2 Communities of Practice
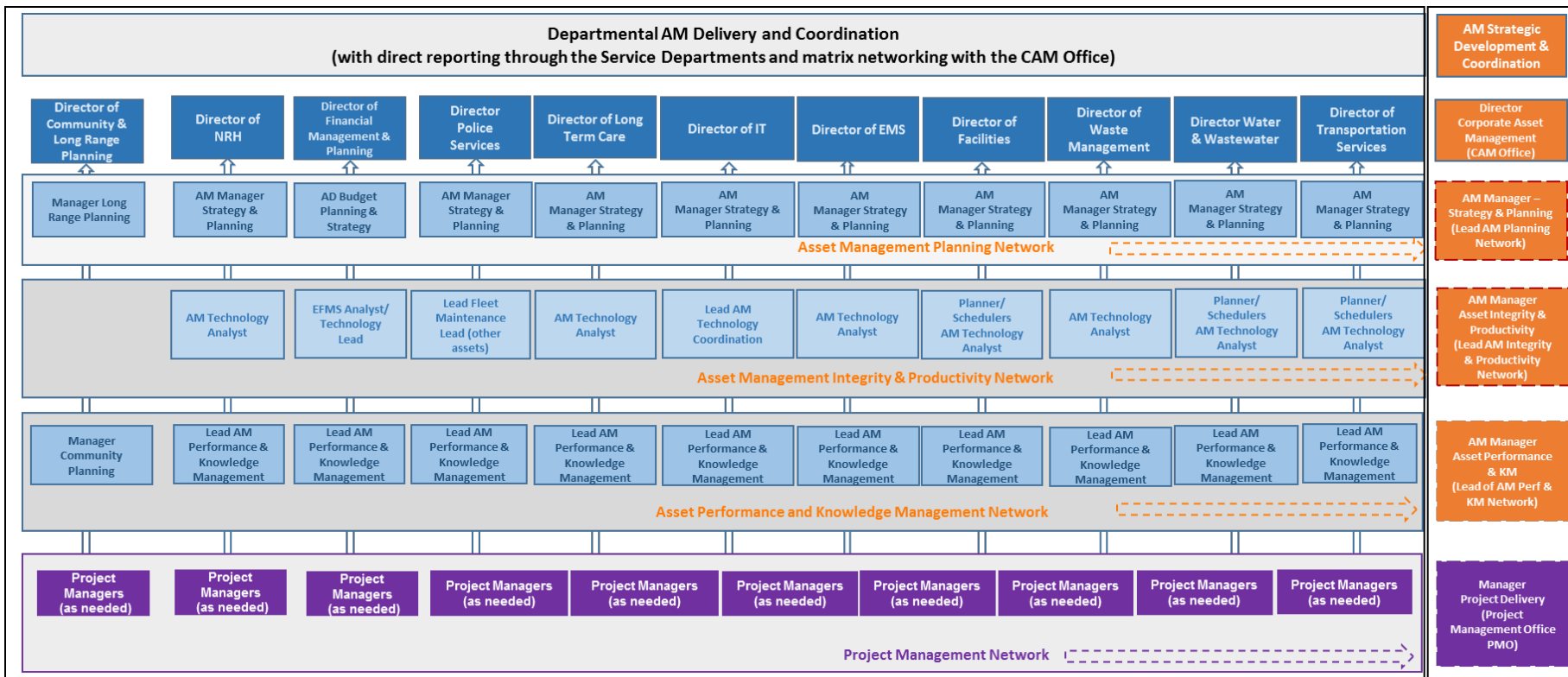
1.3 Governance Model Resourcing Summary

It is recommended that the Region transition over the next few years into the full Asset Management Governance Model. Table 1.1 provides a summary of the proposed resourcing for the next two years. New FTEs are shown in orange and positions to be filled by rebranding existing ones are shown in green. After this period, there will be a better understanding of gaps at the tactical and operational level and there will be a need to evaluate requirements for additional Asset Management Analysts in the various departments/business units, and Reliability and Planner Schedulers in the Public Works departments.

Table 1.1 Asset Management Resourcing Impacts

Business Unit	AM Director	AM Manager	AM Analyst	Manager PMO	Program Manager	Project Manager	Reliability Analyst	Process Analyst	Planner Scheduler	Technology Analyst
PMO				As per Project Management Initiative						
CAM	1	3	3							
Public Works		To be decided (TBD)	TBD				TBD	TBD	TBD	TBD
Other Business Units		TBD	TBD						TBD	TBD

New → (orange arrow)
Rebrand → (green arrow)

2. Introduction

2.1 Introduction

The Region has embarked on a multi-year phased Asset Management Program to develop and implement leading asset management principles and practices. The Asset Management Program, shown below (Fig 2.1), is focused on improving the Region's overall efficiencies and effectiveness in delivering sustainable services to its customers.

Figure 2.1 Region Asset Management Program Phases
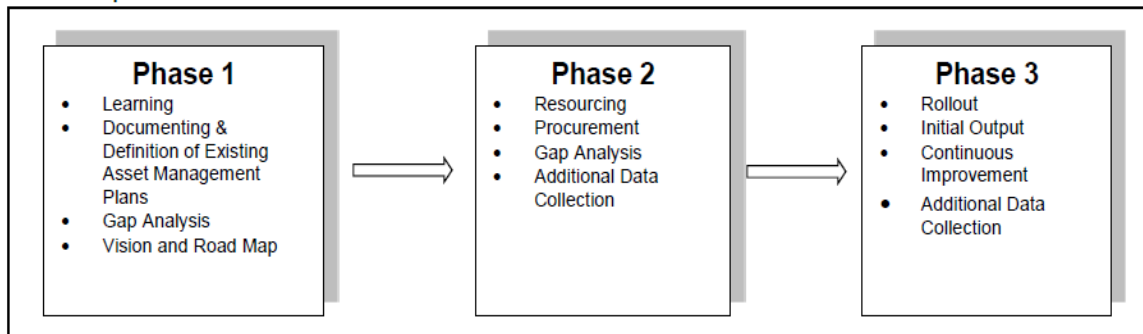
The first phase of the Asset Management Program, which was completed in 2017, involved the development of:

- An Asset Management Strategy that measured the Region's asset management system maturity and outlined actions to achieve efficiency and effectiveness in service delivery across the Region

- An update of the Region's Asset Management Plan to 2016

- An information technology review

The first step of the second phase of the Asset Management Program moves away from the traditional engineering and technical management of assets and addresses governance models that underpin effective processes in managing assets. Therefore there is a shift in focus, concentrating on accountability for assets, decision making processes, asset life-cycle reporting requirements, and communication between asset management policy makers, asset managers and asset users.

Asset management is considered to be a fundamental element in an asset-intensive organization's operations, as efficient allocation and management of resources are crucial to maximise performance and fulfil strategic goals.

Although the processes to provide a service at the optimum level varies between service areas, asset management generally starts with identifying the need for a new asset, followed by writing asset specifications, forecasting financials related to the asset and predicting its lifecycle, then acquiring, operating, maintaining and renewing the asset, reporting on the asset, and disposing of the asset.

While asset management can be applied in many fields and has a vast interpretation, the principles are the same. Each asset management concept shares the common themes of strategic importance, systematic processes, optimising efficiency, maximising performance and output, and minimising risks, and are applicable to any service area.

This assignment focuses on the governance structures that define, regulate, and control the way in which assets are managed from a business or management point of view. This report will demonstrate how governance structures and policies impact asset management and recommend potential governance models for Niagara Region. Based on feedback from the Corporate Leadership Team, the next part of this assignment will include detailed impact analysis on the selected Regional governance model.

2.2   Background

Asset management elements or practices lead to the sustainable creation, acquisition, maintenance, operation, rehabilitation and disposal of the assets required to deliver municipal services. Asset management is a way of doing business, and a key part of a municipality's culture. Asset management practices need to be aligned with strategic objectives from executive management through to front-line service delivery. To guide staff in delivering services, municipalities typically adopt policies and define management practices and processes. These policies, practices and processes are often referred to as management systems.

An asset management system should be aligned and integrated, where appropriate, alongside other management systems in the municipality, such as financial management, health and safety management and others.

The ISA Asset Management Standard (ISO 55000, 55001 & 55002) also provides guidance on Asset Management governance as shown in Table 2.1 below:

Table 2.1   ISO 55000/1/2 Asset Management System

ISO Clause		AM System Element	Documents	Description
4		Organizational Context	Organizational Plans and Objectives	• Ensure clear understanding of the organizational objectives and mission for stakeholders • Contain existing strategic plans that relate to the assets (e.g. service goals, sustainability)
5		Governance and Leadership	Asset Management Policy	• Articulates senior management commitment to asset management and continual improvement • Provides "top down" direction regarding expectations and mandatory requirements for asset management and defines the key principles that underpin asset management in the municipality
			Asset Management Strategy	• Defines what the organization intends to achieve from asset management activities and by when • Identifies and prioritizes key initiatives that support delivery of the asset management policy • High-level overview of resources, time scales for implementation
6		Planning and Decision-Making	Master Plans Asset Management Plans Maintenance Strategies	• Provide approach to managing the assets over the short, medium, and long term • Outline long-term plans for the assets including service expectations, timelines and funding, and resource requirements
7		Resources and Support		• There are resource implications with this clause that need to be considered in an Asset Management Governance Model
8		Operation (Service Delivery)		• There are resource implications with this clause that need to be considered in an Asset Management Governance Model

ISO Clause		AM System Element	Documents	Description
9		Performance and Condition Evaluations	Performance and Condition Reports	• There are resource implications with this clause that need to be considered in an Asset Management Governance Model
		Stakeholder Engagement		• There are resource implications with this clause that need to be considered in an Asset Management Governance Model
10		Continuous Improvement		• There are resource implications with this clause that need to be considered in an Asset Management Governance Model

The recent publication by the Federation of Canadian Municipalities (FCM), "How to develop an asset management policy, strategy and governance framework: Set up a consistent approach to asset management in your municipality" also identifies the need for an Asset Management Governance Model (Figure 2.2) and provides some insights into good Asset Management governance (discussed below):

Figure 2.2 FCM Asset Management System
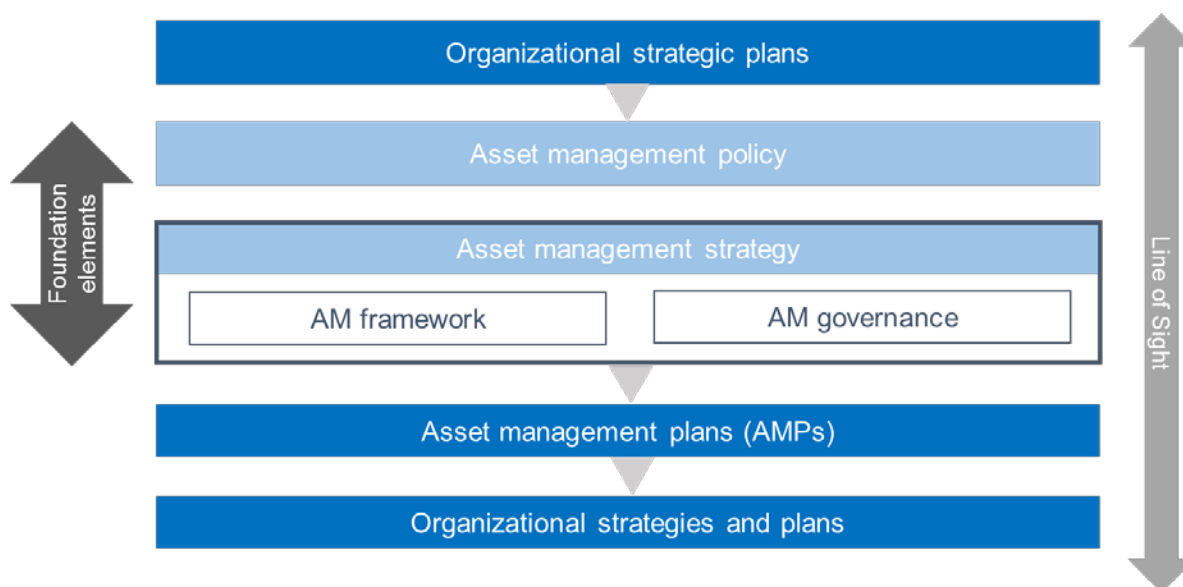
Clear definition and differentiation of roles and responsibilities of the asset manager, and the service providers for operational and maintenance activities is central to asset governance. Thus asset governance emphasises the separation of powers in asset management to increase value through effective management and exploitation of assets.

Asset governance concentrates on the process underlying rules and regulations development, ensuring alignment of asset operations to business goals/strategies. Asset governance emphasises the how and why asset-related policies are developed, especially in ensuring policies are developed in alignment with organizational strategy and goals. Asset governance is also focused on how the organizational structure can support effective asset management practices, especially by creating a more streamlined decision making process and clearer lines of responsibility (for the asset).

In line with the difference in focus between asset management and asset governance, there is a difference in the "standard" that each concept adheres and evaluates themselves against. Due to its engineering/operational focus, asset management refers to the compliance against technical specifications, health and safety standards, and any other operational industry standard. Such a compliance evaluation is executed to ensure that the physical assets acquired are fit for use and will ensure high level performance. Asset governance on the other hand ensures the organization is in compliance with business related industry regulations and rules, and international standards. This is a key requirement in the Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17) that requires the municipality to identify a senior executive with responsibility for implementing and managing an asset management program. (Ref. 3(1), 10) An explicit example of the difference between the two is that while asset management concentrates on whether or not a physical asset fulfils technical specifications (such as colour, kilometres recorded, engine cylinders), asset governance ensures reporting of the physical asset (cost, utilisation, etc.) is executed in a standardised manner across the organization and is available upon request for audit.

3. Charter for Asset Management Governance

The Asset Management Governance charter will build high levels of clarity, agreement and motivation among the participants at the beginning of a project. It increases the probability that the Asset Management Governance will be successful, and will achieve high-quality performance and results. It ensures that team members share the same vision for the project and helps to create team behaviours that are stronger than individual behaviours. A draft charter for the Asset Management Program was developed in the previous AM project and is provided in Appendix A. The final charter will align with industry standard and best practice, the Asset Management Policy (in development), the Asset Management Roadmap and applicable Regional policies or By-laws.

3.1 Project Justification

An AM Steering Team was established to get the AM program going. It has enabled initial asset management strategies, frameworks, plans, databases and systems to be established. Development of a Regional Strategic Asset Management Policy is in progress, as is required by O. Reg. 588/17 Asset Management Planning for Municipal Infrastructure before July 1, 2019.

A number of improvement initiatives have been proposed for the Region to take advantage of identified opportunity gaps and improve its asset management maturity scores. The implementation of the improvement initiatives "road map" over the next five years includes development of Regional asset management policies, frameworks, processes, and systems based on best practice and current service area practices, and the adoption of Regional AM practices into service area practices. The governance model required through this period of reviewing, improving and documenting a consistent Regional asset management system will have needs that are different from those at other times.

The Region has identified the following needs:

- The determination and integration of the Region objectives for Asset Management Governance in all the Regional departments

- A collaborative relationship with all governance structures that exist within the Niagara Region departments, including the Niagara Regional Police Services and Niagara Regional Housing

- Integration of information across departments, agencies boards and commissions

- Integration of the Regional one team culture

- Accountability by management and staff within the governance structure

- Support to ensure that there is compliance by the organization to government of Ontario regulations including O. Reg. 588/17 as well as to the Asset Management Policy that is currently under development

- Defined Asset Management practices and procedures to ensure consistency and quality of data

- Protocols for changing and updating data standards, procedures and roles and responsibilities

- Deliverance of Asset Management objectives through effective Asset Management processes while meeting organizational and stakeholder objectives for scope, quality, risk, budget, and time

- Roles and responsibilities and communication lines within the organization clearly defined to carry out Asset Management objectives. Staff awareness of the part they play in ensuring that reliable data is available to support informed decision-making

- Optimization of decision making

- Alignment of capital and financial planning

- Alignment with project management

- Consistency and uniformity of financial reporting

- Consistency and uniformity of Asset Management practices

- Comparability of information between competing asset projects

- Comparisons for asset project alternatives

- Quantification of the impact of Asset Management work not done

- Efficient use of resources to achieve the goals and objectives of the Asset Management Roadmap

- Establishment of an effective process for the change management for the Asset Management Governance Model (framework)

The proposed structure for Asset Management Governance must be flexible to grow and change in an appropriate manner while ensuring strong leadership at the Niagara Region as it progresses and develops on the asset management maturity scale detailed in the Asset Management Roadmap.

It is also expected that the recommended Asset Management Governance should be reflective of all relevant industry best practices and meets all requirements under O. Reg. 588/17.

3.2 Stakeholders

The Region's stakeholders are listed in the Table 3.1 below together with their interest in Asset Management:

Table 3.1 Asset Management Stakeholders

Type	Stakeholder	Interest in Asset Management
Internal	Staff	• Adequate resources to manage assets (do the right thing) • Adequate processes to manage projects (do things right) • Improved collaboration & coordination • Reduced risk taking • Quality service delivery • Customer satisfaction • Pride in the Region
	Middle Management	• Effective planning (growth, renewal/replacement & maintenance) • Adequate resources to manage assets (do the right thing) • Improved collaboration & coordination • Regulatory compliance • Reduced risk taking • Quality service delivery • Customer satisfaction • Pride in the Region
	Senior Leadership	• Confidence that budget requests are realistic • Fiscal responsibility in delivery of service • Minimum cost of asset ownership • Managed risk

Type	Stakeholder	Interest in Asset Management
		• Quality service delivery • Regulatory compliance • Customer satisfaction • Pride in the Region
Political	Regional Council	• Confidence that budget requests are realistic • Minimum cost of asset ownership • Managed risk • Quality service delivery • Customer satisfaction • Pride in the Region
External	Lower Tier Municipalities	• Confidence that budget requests are realistic • Quality service delivery • Customer satisfaction
	Residents (Housing)	• Reliable, safe and timely service delivery • Low cost of service
	Community	• Quality service delivery • Customer satisfaction • Pride in the Region
	Regulators	• Regulatory compliance (normal operations) • Compliance with Asset Management Regulation
	Developers	• Clarify Asset Management standards and specifications that impact their developments • Cost (including development charges) impacts on their development projects

3.3   Elevator Speech

At the project kick-off meeting, initial communication about the project and the Asset Management Governance Model from consultation with key stakeholders was developed in the form of an "Elevator Speech", as provided below:

What is the project about?

We set the foundation for our Asset Management Program with the completion of our Asset Management Policy, Framework and Strategy. We are now ready to develop an Asset Management Governance model to support implementation of the Asset Management Strategy and support the overall sustainability of our Asset Management Program Leadership. Our Asset Management will help us do the right work, on the right assets, at the right time, for the right cost and for the right reason.

What process is being followed?

Our consultant, GHD will be working closely with us to develop a governance model that works for us and fits with the way we do our tasks, our people, structure and culture. We will ensure engagement of staff to get feedback, validation of approach and outcomes through a peer review of other municipalities.

How will it impact the work we do?

The governance model will provide, the right level of resources, training, capability, empowered staff, collaboration and guidance to execute Asset Management work efficiently and effectively. There will be transparency in decision making (our goal is evidenced based decision making). It will help get the right resources at the right time to support the lifecycle management strategies that need to be implemented. It will also give us confidence that staff are balancing Cost – Level of Service (LOS) – Risk (doing the right tasks at the right time and the right costs). We will achieve consistency / standardization in Asset Management and be seen as leaders in Asset Management practices.

What will we achieve?

We will achieve a high performance governance model that supports implementation of our Asset Management Strategy, Empowerment of the work force, Clarity of Asset Management roles / responsibilities and Embed Asset Management into the overall culture at the Region (Asset Management will be business as usual for our staff).

4. Vision and Mission for AM Governance

4.1 Vision for Asset Management Governance

Achieve a high performing Asset Management Governance model that empowers our staff, supports implementation and sustenance of our Asset Management Strategy and Program and fits with the way we do work and our culture. The Asset Management Governance model:

- Supports a pragmatic approach to Asset Management / practical approach

- Creates a sustainable Asset Management program

- Covers all elements of Asset Management – including lifecycle of Asset Management – and considers the disciplines involved in effective Asset Management at the Region

- Adds to our unique culture and aligns with the Region's values, goals and objectives – leading to a better future

- Helps 'Shape Niagara', including helping each Council shape its priorities

- Is agile and adaptive to the Region's changing needs

- Sets the stage for continuous improvement and innovation.

4.2 Mission for Asset Management Governance

The Asset Management Governance initiative will be implemented over a one to two year period (including role integration) and will be sustained into the future to provide an Asset Management Governance model that supports the Asset Management Strategy and Program across the organization, considering work tasks, people, structure and culture. The Asset Management Governance model will provide the resources, training, capability, collaboration and guidance to execute Asset Management work efficiently and effectively.

5. Approach to AM Governance Models

The following discussion provides an overview of relevant organization design concepts and principles and potential models that were considered in determining the most suitable one for the Region.

5.1   Background on Organizational Design

The structural configuration of an organizational design is the way work is divided and how it achieves coordination among its various work activities around the asset lifecycle from determining needs based on specified performance criteria to planning, acquiring, operating, renewing and disposing of assets. An organizational design structure resolves the two basic tasks of getting work done by:

- Enabling performance management by dividing up the work in the organization into logical units, and

- Ensuring the work gets done by providing the coordination and control of work.

5.2   Organization Design Concepts

Understanding the assets and the work needed around the lifecycle (plan, design, create, operate, maintain rehabilitate/replace and dispose) of these assets to create a service is fundamental to the organizational design process. Organization design is the series of management decisions needed to achieve the Region's vision and mission that gets translated into the strategies and tactics in the Strategic Plan. Figure 5.1 below shows four key organization concepts that can be considered in developing a suitable design for the Region, these include: Division of Labour, Distribution of Authority, Departmentalisation and Span of Control. The resulting organization design options can span from mechanistic to matrix or a combination in between.

Figure 5.1 Mechanistic vs. Organic Organizational Designs

Mechanistic Design		Organic Design
Highly Specialized Employees work separately and specialize in one task	**Division of Labour** Degree of Work Specialization	**Less Specialized** Employees work together and coordinate tasks
Highly Centralized Decision-making kept as high as possible and most communication is vertical	**Distribution of Authority** Degree of Centralization	**Less Centralized** Authority to control tasks is delegated and most communication lateral
Highly Standardized Extensive use made of rules and Standard Operating Procedures	**Departmentalization** Degree of Work Uniformity	**Less Standardized** Work processes tend to be less uniform with face-to-face contact for coordination
Fewer direct reports	**Span of Control** Number of Resources	**Many direct reports**

5.3 Organizational Design Principles

The most successful and effective Asset Management governance models in place at other municipalities and utilities share many of the same organizational design principles. The most common of these are as follows:

- Reflect the strategic vision, mission and values of the organization as well as the vision for Asset Management strategy implementation.

- Reallocate and balance human resources and workload across positions within existing and vacant positions and provide for appropriate critical functions.

- Acknowledge and leverage the existing skill and expertise areas of management and staff; acknowledge the strengths of management and staff involved and identify and create opportunities for further enhancing skills (gap and skills analysis – development and succession planning).

- Reflect the organization's current Human Resources policies and practices.

- Adhere to Collective Agreements.

- Decisions will consider the best interests of the organization, customer and staff.

- Roles, responsibilities, communication links and decision making rights will be clearly defined.

- The structure will support the integration of Asset Management across the organization and the necessary interdepartmental relationships required

for moving the organization towards its vision so that activities that need to be coordinated fall within program boundaries.

- Enable the organization to attract and retain the right people/skills.

- Provide for performance measurement of Asset Management program delivery.

- The structure will be flexible to support and adapt to future Asset Management needs.

5.4 Potential Benefits to Developing an AM Governance Model

The Region was found to have an overall maturity rating reflective of the early stages of "Establishing" of Asset Management practices. The current approach to Asset Management governance is a key inhibitor to Asset Management development at the Region and is characterized by:

- A lack of Corporate-wide Asset Management Steering team (with departmental representation) to provide guidance and direction for the Asset Management Program

- A lack of dedicated departmental Asset Management roles to lead implementation and sustain best practices in the department

- A lack of formalized collaboration and coordination across business units with respect to lifecycle analysis and decision making

- A lack of formalized networks/forums or communities of practice for knowledge sharing and enabling continuous improvement.

An effective Asset Management Governance Model can help the Region address the challenges to Asset Management development listed above.

An Asset Management Governance Model is intended to ensure that there is effective collaboration and coordination around all business processes (planning, core service delivery, performance management, and the enabling processes; data/technology, people and finance). With the right Asset Management Governance Model in place overall Asset Management Program development can be expedited and new ways of working can be quickly integrated into the Asset Management culture at the Region.

To effectively develop the Asset Management Program, the Region needs an appropriate level of Capability based on best practices, and all Region staff need to be able to execute this Capability effectively in all relevant business

processes. An appropriately resourced Asset Management Office, reporting at the right level to have proper influence can focus on Capability development: creating the necessary strategies and frameworks at the corporate level, and providing guidance and support to their colleagues in the various departments. Similarly, dedicated Asset Management staff in the various departments can take ownership for Asset Management execution and sustenance of best practices at the departmental level. Networks and communities of practice can encourage coordination around the asset life cycle, collaboration, knowledge sharing and continuous improvement. The end result and benefit to the Region is that there will be transparency and accountability at all levels of the organization ensuring that the Region complies with O. Reg. 588/17 and everyone is working on the:

- Right activities (project management/delivery operations, maintenance etc.);
- at the right time;
- for the right reason; and
- for the right cost.

Senior managers and political decision makers would then have the confidence that they are operating a lean organization and have quantified and understand the risks to the business and the optimal cost of asset ownership to meet set service levels.

5.5 Current Organizational Design

The current Asset Management design at the Region can be described as a mix of informal Asset Management roles embedded in traditional manager, supervisor and analyst/technician jobs and in some cases dedicated asset management jobs. These all occur at the individual business unit level with limited collaboration across business units.

An Asset Management Steering Team was established to initiate and guide the design and implementation of the Asset Management Program at the Region, however at the conclusion of the Phase 1 Asset Management Project, this has been replaced by a Finance led project team for the Asset Management Governance Model Project.

Program Financial Specialists (PFS) are deployed in a matrix type structure, embedded in the various business units but reporting to the Financial Office. This

allows for centralised budget planning. PFS also provide administrative support with respect to financial technology and business processes in the business unit.

A similar arrangement is in place for IT support at the Business Unit level.

These organizational designs can be leveraged to build a more effective Asset Management Governance Model. Figure 5.2 below shows the current Asset Management organization chart at the Region:

Figure 5.2 Current Asset Management Organization Chart

5.6   Key Findings and Opportunity Gaps

A review of the existing organization charts and job descriptions at the Region and information obtained from interviews with senior leaders, middle management and staff highlighted the findings and opportunity gaps that are captured in Table 5.1 below. This information provides guidance for the proposed Asset Management Governance Model recommendations in Section 6.

Table 5.1   Summary of Findings, Conclusions/Opportunity Gaps

Findings	Conclusions / Opportunity Gaps
A. Organizational Design	
The Corporate Leadership Team (CLT) is supportive of Asset Management Development at the Region and is reflected in an assigned Asset Management Sponsor at the executive level. There is no Asset Management Steering Team in place.	A cross departmental Asset Management Steering Team will enable Asset Management development and buy in at the departmental level. A formal Corporate Asset Management Office and decentralized Asset Management Roles in the various business units will support the Region's Asset Management Maturity goals.
The overall organization design at the Region is "functional" and the various project teams try to implement Asset Management best practices concepts by influencing other Offices in a matrix organization design.	The current functional organizational design limits Asset Management related collaboration, coordination and continuous improvement.
An Asset Management Project Team has been established to guide the implementation of the current Asset Management Governance Model Project.	The Asset Management Project team is an excellent idea for Asset Management development at the Region, however, it is short term (project focused).
A PMO support office is being considered and a PM Network is being implemented at the Region. There are no other Asset Management Community of Practices where departmental representatives meet on a regular basis to share information and best practices for Asset Management across the organization.	The PMO and a strong PM Network is an important and essential Asset Management Community of Practice. The PM Community of Practice is a good idea and this concept can be extended to specific Asset Management focus areas to be more meaningful.
There is a governance model in place for IT assets and solutions to support Region business processes. This model also allows for appropriate interaction with many Offices (e.g. the CLT, IT Governance Community, IT Projects).	This is a good example at the departmental level of a governance model to manage IT assets.
There are Program Financial Specialists (PFS) embedded in various business units to provide timely financial support.	The use of PFS at the business unit level is a good Asset Management governance practice. PFS role can be supplemented

Findings	Conclusions / Opportunity Gaps
	with AM Analyst resources to support strategic AM financial activities.
B. Asset Management Roles CAM Office	
No Corporate Asset Management Office in place.	Limited coordination and collaboration across Offices. Lack of confidence in budget requests and decisions coming up to the CLT and Council.
C. Asset Management Roles Departmental	
Strategy & Integrated Planning Asset Management strategy is based on the Asset Management Phase 1 development work that has been completed in the previous year, however, on going Asset Management development has been on hold pending completion of the Asset Management Governance Model Project. There are current manager positions responsible for asset growth and renewal planning in each of the departments or business units. These roles are limited in some cases and well developed in other groups. *Asset Performance Management & Knowledge Management* Level of service development and performance and monitoring varies across business units and tends to be very mature for regulatory compliance. Asset knowledge management varies across the organization and is still very dependent on individuals in the business units – there has been some improvement with the capture of asset knowledge in core/enterprise systems (e.g. CMMS, GIS, FIS).	Opportunity to augment Asset Planning role to create more comprehensive Asset Management Strategy and Planning roles. Opportunity to formalise Level of Service and Performance Management. Opportunity to formalise Knowledge Management.

Findings	Conclusions / Opportunity Gaps
There is business analyst support for each of the departments in the form of the Program Financial Specialist (PFS).	The PFS role can be supplemented with AM Analyst resources to support strategic AM financial activities
Asset Integrity and Productivity All business units conduct asset integrity/condition assessment – some of this is very comprehensive and is based on asset criticality (e.g. W/WW, Transportation and Housing/Facilities). However there are no common asset integrity protocols across the Region. Maintenance planning and scheduling is done formally for short lived assets (e.g. Fleet, EMS). In many areas planning and scheduling varies from simple to informal – resulting in reactive maintenance. The W/WW group conducts process optimization reviews to ensure that the treatment processes are optimal. Asset reliability analysis and continuous improvement is very formal for fleet and EMS assets, however, this is informal for other asset classes.	Opportunity to provide Region wide guidance and standards for asset integrity and productivity management. Formalized Planning & Scheduling roles will help improve asset reliability, effective asset lives and drive a proactive approach to maintenance. Formal planning and scheduling for W/WW and Transportation work would be foundational in creating a proactive work environment and preventive maintenance optimisation. Opportunity to extend asset reliability, performance and effective life though Reliability Engineering.
Capital Project Delivery There is a PM support office initiative being considered that will improve project delivery effectiveness across the Region.	A Corporate focus on integrated project delivery is a best in class Asset Management practice. There is an opportunity to ensure that the development of a centralized PM delivery (PMO) and decentralized PM delivery at the business unit is aligned to the Asset Management Governance Model.
D. Resourcing Strategy	
Funding pressures have resulted in an overall lean organization at the Region.	This has limited the ability to add new FTEs – especially where these new roles may be considered to be "support".

Findings	Conclusions / Opportunity Gaps
Asset Management is currently being delivered at the departmental level as part of staff' current roles and often as one off initiatives/tasks.	Political decision makers think that Asset Management is part of the job of existing staff and may not be convinced that dedicated Asset Management resources are needed.

6. Potential Asset Management Governance Models

From the previous section it is clear that the Region can benefit from a more structured approach to Asset Management Governance. This proposed Asset Management Governance model should focus on implementing the recommendations of the Asset Management Policy (that is being developed), the Asset Management Framework, the Asset Management Roadmap Initiatives and set the stage for sustenance of the new Asset Management culture at the Region. The Asset Management Governance Model should also enable the Region to comply with the new O. Reg. 588/17 Asset Management Planning for Municipal Infrastructure. Based on research of best in class Asset Management Governance and the ISO 55000 Asset Management requirements for Asset Management Governance, a number of models have been developed and evaluated. These are discussed below:

6.1   Asset Management Governance Models

Four organizational models (based on the above guidelines and principles) listed below are currently being used by municipalities and utilities that have implemented Asset Management leading practices and have similarities to the Region's operational and business environments (e.g. assets, services and service delivery methods):

- Model 1: Departmental Asset Management Steering Team (Facilitation and Advisory), Corporate Asset Management Office and Formal Decentralization Departmental Delivery

- Model 2: Corporate Asset Management Steering Team (Senior Level Cross-Departmental Office) and Decentralized Departmental Delivery

- Model 3: Corporate Asset Management Office and Informal Decentralized Departmental Delivery

- Model 4: Corporate Asset Management Steering Team, Asset Management Delivery through Task Teams

Each of these models are discussed below together with the advantages, disadvantages and which municipalities currently use the model.

6.1.1 Model 1

Departmental Asset Management Steering Team (Facilitation and Advisory), Corporate Asset Management Office and Formal Decentralization Departmental Delivery – details in Table 6.1 and Figure 6.1 below:

Table 6.1 Model 1 Details

Municipalities with this Model	Advantages	Disadvantages	Notes
- Sydney Water - Columbus Department of Public Utilities - Auckland Council (New Zealand) - City of Calgary - Toronto Water - City of London - City of Winnipeg - City of Windsor - City of Mississauga - City of Grande Prairie	- Consistency in Asset Management practices. - Standardization of tools and templates. - Autonomy and flexibility. - Collaboration. - High level of specialization & technical knowledge. - Dedicated Asset Management Office roles. - Clear career paths & succession planning. - Ownership of Asset Management remains with the Departments.	- Adversarial relationships if the Asset Management Office is perceived to be prescriptive with policies and standards. - Resistance to corporate guidelines. - Additional staffing may be required.	- Many organizations have found that this is the most successful governance model for the ongoing implementation of an Asset Management Program. - Allows for frequent, consistent collaboration and communication across the organization. - Allows for consistency in strategy but also provides for the flexibility in implementation unique to the service area assets and operating environment.

Figure 6.1 Model 1: Corporate AM Steering Team, Corporate AM Office, Formal Decentralized Departmental Delivery through Networks
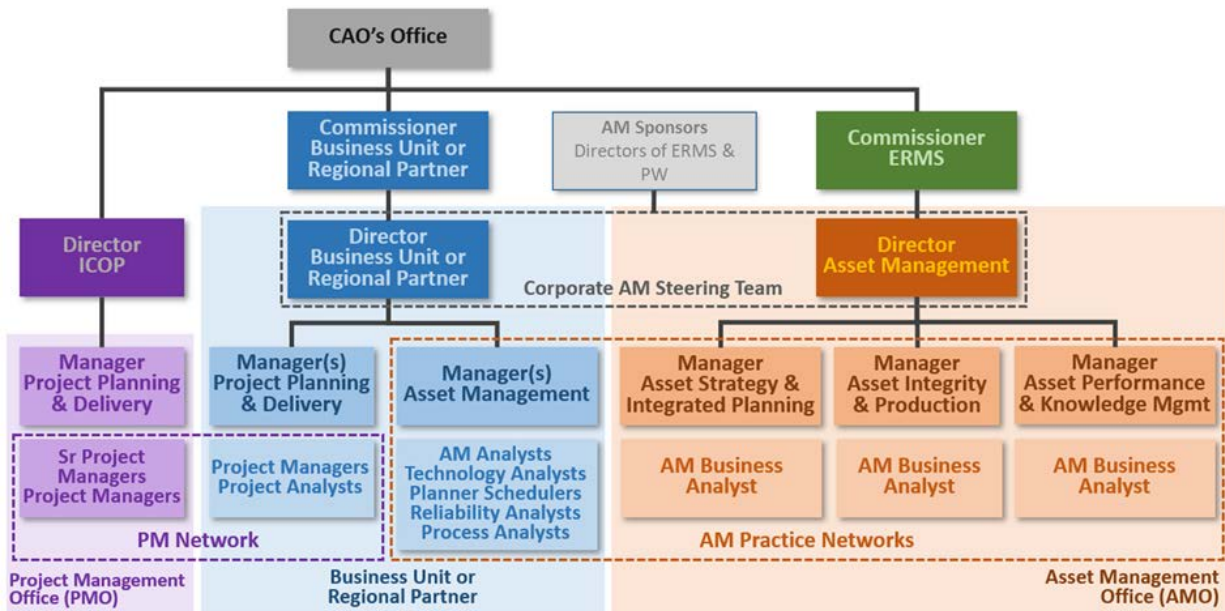
Note: Table 6.6 provides a summary description for each of the proposed roles.

6.1.2 Model 2

Corporate Asset Management Steering Team (Senior Level Cross-Departmental Office) and Decentralized Departmental Delivery. The Region of Niagara is mostly aligned to this model with an initial Asset Management Steering Team for the Asset Management Strategy project (now disbanded) and Asset Management being done at the departmental level with formal and informal Asset Management roles. Details are provided in Table 6.2 and Figure 6.2:

Table 6.2 Model 2 Details

Note the Region of Niagara is more aligned to this AM Governance Model

Municipalities with this Model	Advantages	Disadvantages	Notes
• Palm Beach County Water Utility (USA)	• All Departments are involved in Asset Management	• Lengthy implementation.	• This is the easiest route for municipalities as it

Municipalities with this Model	Advantages	Disadvantages	Notes
• Tacoma Water • Region of Niagara	strategic & tactical decision making. • Departments control what is implemented and the level of support they require. • No new hires. • Overall it does not involve a significant change program.	• Lack of consistency. • Lack of accountability and authority. • Difficulty reaching consensus on key decisions. • Staff may be overloaded. • Concerns for long term viability of Asset Management Steering Team. • Will take longer to show benefits of Asset Management Implementation. • Work flow and information sharing silos that currently exist are unlikely to change.	requires no additional staff. • However, committee members have to work on Asset Management as well as their normal jobs. And commitment to the program wavers as other priorities get in the way • Implementation of Asset Management elements vary in consistency and maturity • Change management can be a challenge

Figure 6.2 Model 2: Corporate AM Steering Team (Senior Cross-Departmental Office), Decentralized Departmental Delivery
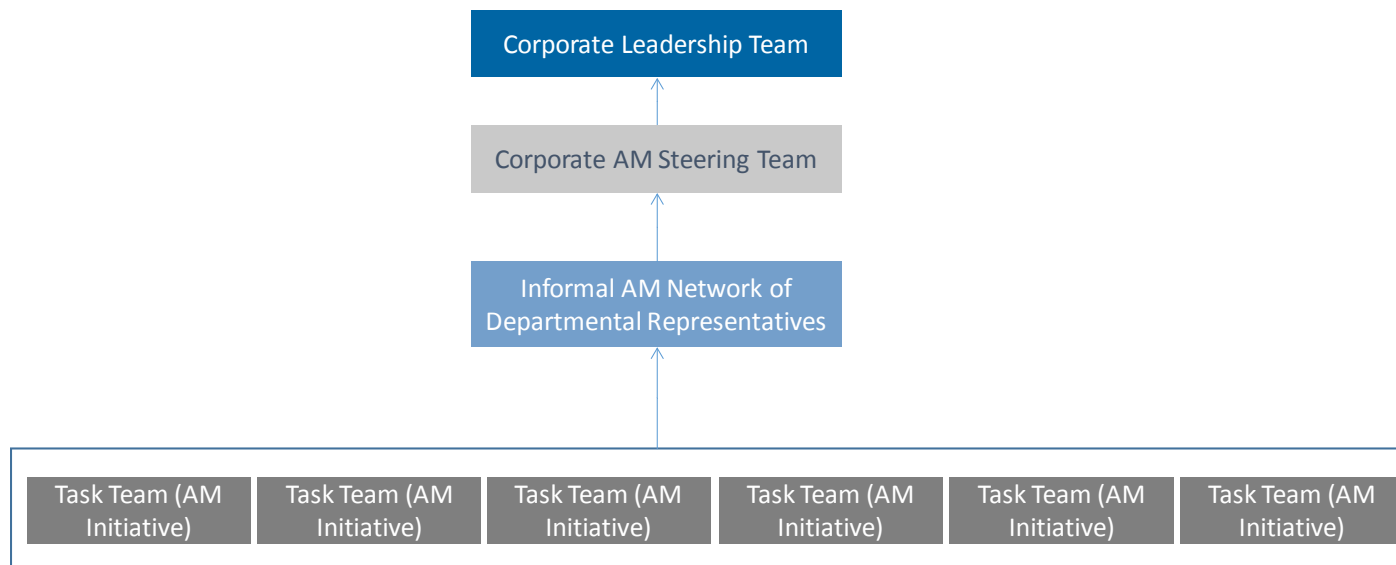
6.1.3 Model 3

Corporate Asset Management Office and Informal Decentralized Departmental Delivery. Details are provided in Table 6.3 and Figure 6.3 below:

Table 6.3 Model 3 Details

Municipalities with this Model	Advantages	Disadvantages	Notes
• Seattle Public Utilities (USA) • Washington Suburban Sanitation Commission (USA) • Most UK Utilities (e.g. Scottish Water) • City of Brampton • City of Ottawa • City of Barrie • Region of Peel	• Accountability for Asset Management is a core function. • Consistency and tight control over all aspects of Asset Management.	• Departments could fear that the Asset Management Office will take over their operations. • Asset Management Office could become disconnected from operational business units.	• This approach has not worked well and many municipalities that started down this route have now moved to implementing Model 1. • Implementation of Asset Management elements vary in consistency and maturity • Change management can be a challenge

Municipalities with this Model	Advantages	Disadvantages	Notes
			• The Corporate Asset Management Office struggles to be seen as helpful and not prescriptive

Figure 6.3 Model 3: Corporate AM Office, Informal Decentralized Departmental Delivery
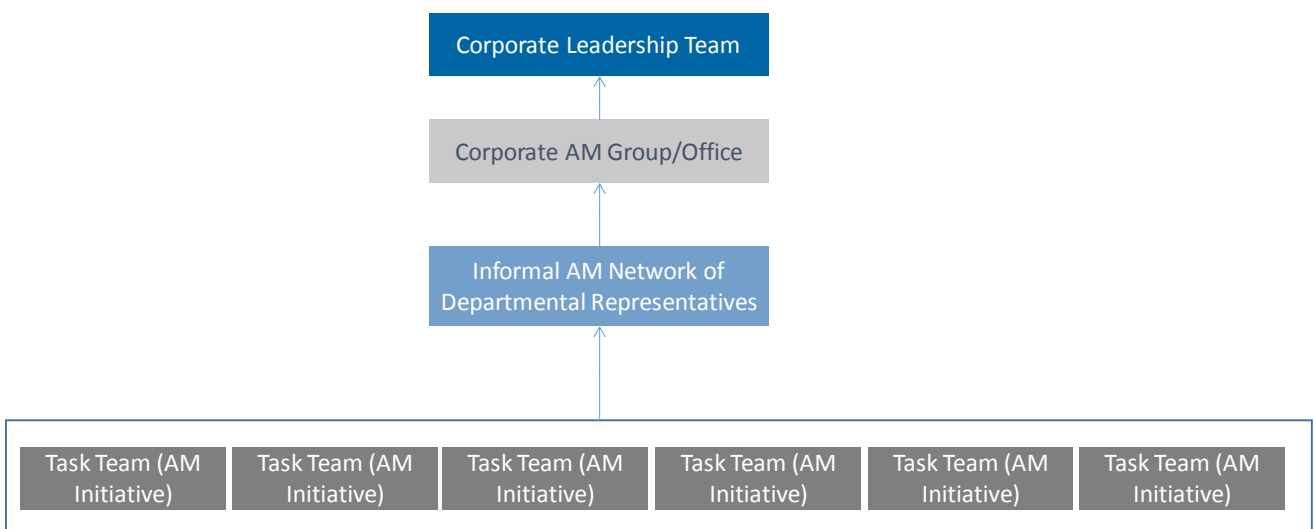
6.1.4 Model 4

Corporate Asset Management Steering Team, Asset Management Delivery through Task Teams. Details are provided in Table 6.4 and Figure 6.4 below:

Table 6.4 Model 4 Details

Municipalities with this Model	Advantages	Disadvantages	Notes
• City of Lincoln (Nebraska, USA) • Town of Orangeville • Strathcona County	• Departments are involved in both Asset Management strategic and tactical decision making. • Departments have a forum for discussing	• Lengthy implementation. • Lack of consistency. • Lack of accountability and authority.	• This is another route for municipalities as it requires no additional staff and Asset Management Steering Team members have to work on Asset

Municipalities with this Model	Advantages	Disadvantages	Notes
	implementation and support needs for Asset Management and in this way have some control on what is implemented and the level of support received. • No new hires required.	• Meetings can be adhoc and attendance can be seen as optional. • Staff may be overloaded. • Competing objectives duplication of frameworks and the development of standalone solutions.	Management as well as their normal jobs. • Implementation of Asset Management elements vary in consistency and maturity • Change management can be a challenge • This model has not been very successful.

Figure 6.4 Model 4: Corporate AM Steering Team, AM Delivery through Task Teams
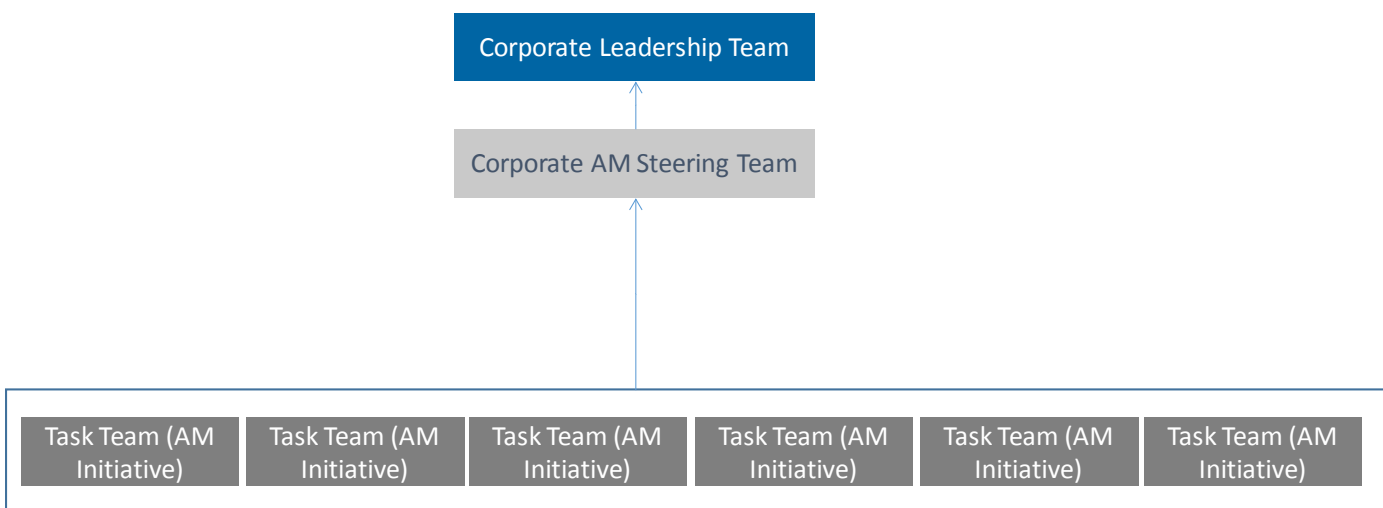
Further evaluation of the four potential models is provided in Table 6.5 below. The scoring basis for the table is:

- Categories with a scoring continuum of a maximum score of 5 and a minimum score of 1
- A score of 1 least reflects the intent concept and a score of five fully realizes the intent of the concept

In GHD's experience, Model 1 is one of the stronger organizational designs, more widely adopted and incorporates many of the Asset Management leading design principles discussed previously.

Table 6.5 – Evaluation of Asset Management Governance Models

Organizational Design Principles	Model 1	Model 2	Model 3	Model 4
TOTAL SCORE	**42 / 50**	**26/ 50**	**30/ 50**	**24/50**
Corporate Asset Management (CAM) Office	Allows for autonomy and flexibility of CAM while still encouraging consistency and collaboration. Score -4	Lengthier implementation time and reduced consistency and accountability. Score - 3	Less collaborative with risk of CAM becoming disconnected from operational business units. Score - 2	Lengthier implementation time and reduced consistency and accountability. Score - 1
Reallocate and balance human resources and workload across positions within existing and vacant positions and provide for appropriate critical functions.	Core Asset Management responsibilities shouldered by CAM Score - 4	Asset Management responsibilities loaded on top of regular job duties for Asset Management Steering Team members. Score - 2	Core Asset Management responsibilities shouldered by CAM. Score - 4	Asset Management responsibilities loaded on top of regular job duties for Asset Management Steering Team members. Score - 2

Organizational Design Principles	Model 1	Model 2	Model 3	Model 4
Acknowledge and leverage the existing skill and expertise areas of management and staff; acknowledge the strengths of management and staff involved and identify and create opportunities for further enhancing skills (gap and skills analysis – development and succession planning).	Ownership of Asset Management remains with the Departments facilitating leverage of embedded skill and expertise. Clear career paths and succession planning for Asset Management. Score - 4	All Departments are involved in Asset Management strategic and tactical decision making. Score - 4	Tight control on over all aspects of Asset Management maintained by CAM. Risk of missing opportunities to leverage embedded skill and expertise. Clear career paths and succession planning for Asset Management. Score - 3	All Departments are involved in Asset Management strategic and tactical decision making. Score - 4
Reflect the organization's current Human Resources policies and practices.	Additional staffing is required. Score - 2	No new hires required. Score - 4	Additional staffing may be required. Score - 2	No new hires required. Score - 4
Decisions will consider the best interests of the organization, customer and staff.	Collaborative approach with ownership of Asset Management retained by Departments. Score - 5	Will take longer to show benefits of Asset Management implementation. Score - 2	Less collaborative with tight control over all aspects of Asset Management residing with CAM. Score - 3	Will take longer to show benefits of Asset Management implementation. Score - 2
Roles, responsibilities, communication links and decision making rights will be clearly defined.	Dedicated CAM roles. Collaborative approach with ownership of Asset Management retained by Departments Score - 5.	Informal delivery model. Lack of accountability and authority. Score - 2	Dedicated CAM roles. CAM could become disconnected from operational business units. Score - 3	Informal delivery model. Lack of accountability and authority. Score - 2

Organizational Design Principles	Model 1	Model 2	Model 3	Model 4
The structure will support the integration of Asset Management across the organization and the necessary interdepartmental relationships required to move the organization towards its vision so that activities fall within program boundaries.	Promotes consistency in Asset Management practices. Collaborative approach Score - 5	Lack of consistency. Workflow and information sharing silos that currently exist are unlikely to change. Score - 2	Consistency and tight control over all aspects of Asset Management. Less collaborative with risk of CAM becoming disconnected from operational business units. Score - 3	Lack of consistency. Potential for competing objectives (duplication of frameworks and development of standalone solutions). Score - 2
Enable the organization to attract and retain the right people/skills.	Dedicated CAM roles. Clear career paths and succession planning for Asset Management. Score - 5	Asset Management responsibilities loaded on top of regular job duties for Asset Management Steering Team members. Score - 3	Dedicated CAM roles. Clear career paths and succession planning for Asset Management. Score -4	Asset Management responsibilities loaded on top of regular job duties for Asset Management Steering Team members. Score - 3
Provide for performance measurement of Asset Management program delivery.	Promotes consistency in Asset Management practices. Collaborative approach. Score - 4	Lack of consistency. Lack of accountability and authority. Score - 2	Consistency and tight control over all aspects of Asset Management. Less collaborative with risk of CAM becoming disconnected from operational business units. Score - 3	Lack of consistency. Lack of accountability and authority. Score - 2
The structure will be flexible to support and adapt to future Asset Management needs.	Autonomy and flexibility. Collaborative approach. Score - 4	Workflow and information sharing silos that currently exist are unlikely to change. Score - 2	Tight control over all aspects of Asset Management maintained by CAM. Score - 3	Potential for competing objectives (duplication of frameworks and development of standalone solutions). Score - 2

6.2   Asset Management Governance Model Considerations

Of the four models reviewed in the previous section, Model 1 is best suited to the Region and would be characterized by:

- Departmental Asset Management Steering Team
- Corporate Asset Management Office
- Formal Decentralized Departmental Delivery and Coordination

The previous work completed on asset management has been instrumental in establishing key Asset Management strategies and frameworks and the initial Asset Management Plans at the Region as well as establish overall awareness on Asset Management best in class practices. However, to effectively improve Asset Management maturity at each of the Region's departments/service areas it is necessary to consider another iteration of the current Asset Management practices. This model should not only focus on ongoing strategy development but also departmental Asset Management delivery and coordination. Asset Management governance should continue to comprise of a small Office of specialized Asset Management staff and can be referred to as the Corporate Asset Management (CAM) Office. The Formal Decentralized Delivery would be guided by Asset Management practitioners embedded in the various departments and will form various networks to coordinate Asset Management activities with representatives from the CAM Office. Work Offices (or Task Teams) should be created, with appropriate members from any of the departments to implement the updated Asset Management Strategy and associated Asset Management Roadmap. As Asset Management initiatives are identified and implemented, progress should be reported back up to the CAM Office and the Asset Management Steering Committee periodically. The value propositions for this model are summarized below:

- Allows for autonomy and flexibility of CAM while still encouraging consistency in Asset Management practices and collaboration.
- Will seek to realign and balance human resources and workload across positions within existing and vacant positions and provides for appropriate critical functions.
- Core Asset Management responsibilities shouldered by CAM through dedicated CAM roles and clear career paths and succession planning for Asset Management.
- Acknowledges and leverages the existing skill and expertise areas of management and staff; acknowledges the strengths of management and

staff involved, and identifies and creates opportunities for further enhancing skills (gap and skills analysis – development and succession planning).

- Ownership of Asset Management remains with the Departments/Divisions facilitating leverage of embedded skill and expertise.

- Aligns with the Region's Human Resources policies and practices.

- Decisions will consider the best interests of the organization, customer and staff.

- Collaborative approach with ownership of Asset Management retained by Departments/Divisions.

6.3   Asset Management Governance Model Recommendations

A number of recommendations are provided for updating the Region's current Asset Management Governance Model, these are listed in the following Table 6.6 and are aligned to the conclusions and opportunity gaps discussed above in Table 3.

Table 6.6   Summary of AM Governance Recommendations

Recommendation Overview	Recommendation Details
A. Organizational Design	
A true Corporate focus is needed for improving overall Asset Management maturity at the Region Adopt Organization Design Model 1	Make the following organization changes, building on the existing Asset Management governance elements: • Create a Corporate Asset Management Steering Team • Create a formal Corporate Asset Management Office • Implement a formal Decentralized Departmental Delivery through formal Asset Management roles and through Networks
	A dedicated Corporate Asset Management Team and decentralized Asset Management staff will be better positioned to implement and sustain best in class Asset Management practices at the Region
Establish and charter formal networks to enable standardization, collaboration, coordination and continuous improvement in Asset	**Project Management Network:** continue implementing the PM Network as per the recommendations of previous initiatives. This will provide a forum for project managers to standardize and establish consistency in project delivery across the Region's asset classes.

Recommendation Overview	Recommendation Details
Management practices and concepts at the Region	Implement the following additional networks/communities of practice • **Asset Management Planning Network:** Provide a forum for Asset Management practitioners to standardize and establish consistency in Asset Management practices and concepts, related Asset Management strategy, capital planning, budgeting and integrated project coordination across the Region's asset classes • **Asset Management Productivity Network:** Provide a forum for Asset Management practitioners to standardize and establish consistency in O&M practices and concepts related to maintenance/work order management, reliability and continuous improvement across the Region's asset classes • **Asset Knowledge and Performance Management Network:** Provide a forum for Asset Management practitioners to standardize and establish consistency in Asset Performance Management and Knowledge Management across the Region's asset classes
Build on the PFS role for Asset Management at the Business Unit by adding AM Analyst resources	PFS role can be supplemented with AM Analyst resources to support strategic AM financial activities
B. Asset Management Roles CAM Office	
Create and staff a Corporate Asset Management Office	Create a Corporate Asset Management Office reporting to the Commissioner ERMS. Build out the CAM Office as follows: Director CAM Office • Provides Region-wide leadership in the development and sustainability of the Asset Management program • Provides leadership to Asset Management roles in CAM and the various related network teams • Works collaboratively with PMO to meet and implement project planning and delivery objectives • Takes ownership for overall Asset Management maturity improvement at the Region • Realizes the value proposition for investing in Best in Class Asset Management practices and concepts CAM Manager, Strategy & Integrated Planning

Recommendation Overview	Recommendation Details
	• Leads the implementation of Planning related initiatives on the Asset Management Roadmap • Provides leadership for the Asset Management Strategy/Planning, & Project Network • Coordinates the development of the Region-wide Asset Management Plan • Provides quality assurance of the Region's Capital Program developed by each department • Develops and updates processes around Asset Management Planning • Undertakes external environmental scans and develops external and internal inputs for Asset Management CAM Manager, Asset Integrity & Productivity • Leads the implementation of O&M related initiatives on the Asset Management Roadmap • Provides leadership for the Asset Management Productivity Network • Oversees the implementation and monitors the effectiveness of the Asset Management Condition Assessment Program for the Region • Prepares the Region's State of the Asset Report • Develops, implements and supports a Region-wide asset reliability program • Coordinates the development of the Region's Asset Management Continuous Improvement Program – to be developed CAM Manager, Asset Performance & Asset Knowledge Management • Leads the implementation of Performance and knowledge related initiatives on the Asset Management Roadmap • Reviews and updates the Region's Asset Management Performance Management system on a regular basis (at least annually) to reflect substantial changes and/or improvements to Asset Management • Coordinates the implementation of the Asset Management Knowledge Management Strategy and monitors and reports on knowledge management performance • Updates Asset Management Knowledge in the key areas/categories (electronic, paper etc. – focus should be to have all knowledge in electronic form)

Recommendation Overview	Recommendation Details
	• Leads the development of the Asset Management Communication program • Leads the development and implementation of the Asset Management Training program
C. Project Management Office	**Recommendations**
Ensure that the PM Office captures the key roles expected for effective integrated capital project delivery	Project Management and Delivery is an important pillar of Asset Management and there needs to be good alignment and coordination of the PMO with the CAM Group Project Management Office (Positions/Roles) necessary to support Asset Management Goals and Objectives: Manager PMO • Work collaboratively with CAM Director to coordinate and achieve AM goals and objectives related to project planning and delivery • Provides leadership for the PM Office and the PM Network • Oversees and manages the Organizational Change Management Process for projects • Manages and provides oversight of project portfolio • Ensures consistency for project management approach and practice Program Managers • Develops and maintains Region PMBOK • Develops and maintains Project Management Information System (PM Portal & PM Software) • Develops and maintains the Project Management Dashboard • Conducts ongoing PM Training • Conducts ongoing project reviews • Conducts project audits • Provides support to PM in RFP/Tendering stage of the project lifecycle Participates in PM Network meetings and activities
D. Asset Management Roles Departmental	**Recommendations**

Recommendation Overview	Recommendation Details
Rebrand existing role and create a Departmental CAM Manager, Strategy & Planning Position to include business unit responsibility for Strategy, Planning, Performance and Knowledge Management	CAM Manager *(Strategy and Planning):* • Leads the implementation of Asset Management Roadmap initiatives at the department/Business Unit level • Leads the development and update of the Asset Management Plan • Leads the development of risk profiles, input to the capital plan and budget coordination • Integrated capital project delivery (infrastructure projects) coordination • Conducts medium and long term analysis using the Decision Support System (DSS) Tool for modelling asset deterioration, levels of service and to develop the long term investment profile for the asset base (Asset Performance and Asset Knowledge Management) • Develops and maintains the LOS Framework for the department, tracks asset performance (condition assessment, availability, capacity etc.) • Conducts an asset knowledge gap analysis, develops and implements a knowledge management plan for the department's assets • Provides input for implementation of an electronic document management system • Provides input into the overall Asset Management Training Plan and deliver training as necessary
Determine Need for Departmental AM Analyst roles to support financial and lifecycle management activities	Business Analysis (Asset Management Focus): • Budget planning and control • Asset financial investment planning • Risk profile development • Business case evaluation (for capital project requests) • Asset scenario modeling using the Decision Support System
Rebrand Planner/Schedulers to the W/WW and Transportation groups	Maintenance Optimization and Reliability – rebrand one Reliability Analyst to the W/WW operations (could extend to other groups based on the return on the investment) • Develops asset criticalities • Conducts reliability centered maintenance studies/pilots on critical assets

Recommendation Overview	Recommendation Details
Rebrand a Reliability Analyst to the W/WW group

Rebrand a Technology Analyst to W/WW, Transportation, Long Term Care, Police and EMS group | • Conducts PM Optimization analysis
• Conducts Root Cause Failure analysis
• Conducts continuous improvement training for staff and facilitate CI initiatives

Maintenance Planning and scheduling – rebrand two Planner/Schedulers, one each in W/WW and Transportation

• Develops and maintains the maintenance dashboard
• Conducts basic and advanced work order planning & scheduling
• Conducts preventive maintenance optimization exercises
• Analyzes asset data and conducts root cause analyses and reliability improvement initiatives
• Provides input into ongoing work management system development

Asset Management Technology Analyst (as part of the business unit roles):

• Provides departmental level input for technology and data asset management
• Actively provides and supports departmental requirements for ongoing system development lifecycle activities for Asset Management technology enablers |
| **Resourcing strategy** | |
| Hire Director and Manager roles for the CAM Office – leverage existing vacancies if possible

Rebrand existing roles in the Business Units to align with desired Asset Management positions/roles | Rebrand existing roles at the departmental level to meet Asset Management resourcing needs

Utilize long term vacancies (Region-wide) to fill new CAM Office roles

Set up temporary Task Teams to undertake Asset Management improvement projects on - these teams will disband on completion of the project. |
| | Provide the rationale to Political Decision-makers for Asset Management Development at the Region |

The changes discussed above are shown in Figures 6.5 and 6.6 below. Detailed roles and responsibilities for all asset management positions and networks or communities of practice will be provided in Tech Memo 2 (Task 3 deliverable) where the organizational impacts are analysed. Consider additional FTEs (new) if the above

does not yield the desired positions and gain Council approval for funding the recommendations of the Asset Management Governance Model.

Implementation priorities:

Immediate

1. Create a Corporate AM Steering Team

2. Create a formal Corporate AM Office (CAM):

   a. Director of CAM

   b. AM Manager and Analyst – Strategy & Integrated Planning

   c. AM Manager and Analyst – Asset Integrity & Productivity

   d. AM Manager and Analyst – Asset Performance & Asset Knowledge

Short term

Following the creation of the CAM office, and based on the results of the detailed organizational impacts of the AM Program, the following recommendations may need to be considered:

1. Rebrand (and augment with minor changes as necessary) existing roles & create AM Manager Position with business unit responsibility for Strategy, Planning, Performance & Knowledge Management

2. Implement a Formal Decentralized Departmental Delivery through formal AM roles and through Networks

Medium Term (AMO and Departmental AM Manager in Place)

1. Rebrand (and augment with minor changes as necessary) existing roles & create Planner/Schedulers to the W/WW and Transportation groups

2. Rebrand (and augment with minor changes as necessary) existing roles & create a Reliability Analyst to the W/WW group

3. Additional considerations regarding the long-term departmental support for AM will be required to determine the potential need to add AM Analyst roles to each department to support with lifecycle management activities.

In addition, a RACI Chart will be provided as part of Tech Memo 2 in line with the key elements of asset management to show who is Responsible, Accountable, Consulted and Informed (RACI).

As the Region continues to focus on the development of its Asset Management processes and practices, it will reach a level of relative Asset Management maturity

at which point the Region should consider transitioning its Asset Management governance structure to one that treats Asset Management more as "business as usual". The Asset Management governance structure at maturity is characterized by the following:

- Primary role of the CAM Office continues but the focus of Asset Management becomes innovation and continuous improvement using data to drive optimal decision making. The CAM Office may report elsewhere in the organization if innovation and continuous improvement becomes a key strategy at the Region and has executive sponsorship.
- The Asset Management Steering Committee is dissolved as the need to provide overall guidance and direction for Asset Management development across the Region is reduced, the Corporate Asset Management Office is fully resourced and the Asset Management Networks are in place and functional.
- Elimination of Task Teams as Asset Management improvement projects becomes less frequent.

Figure 6.5 **Proposed Asset Management Governance Model**
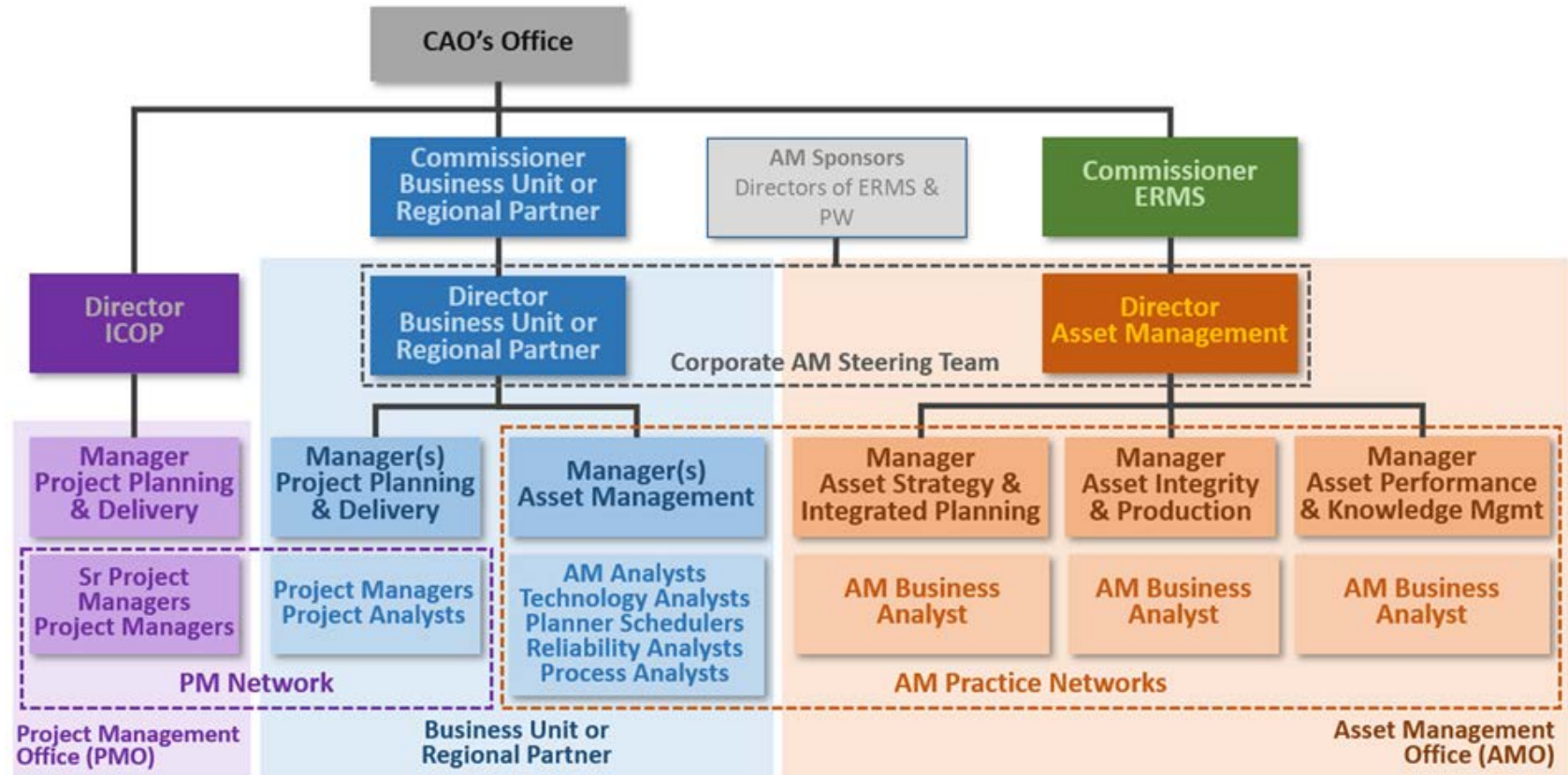
Figure 6.6 below shows the Asset Management Governance Model with the proposed Asset Management Networks (or Communities of Practice) that will enable the desired level of collaboration, coordination and continuous improvement.

It is important to note that the proposed resourcing is reflective of leading practices governance structure for the Region, and impacts and implementation feasibility will be addressed within the impact assessment.

Figure 6.6 Communities of Practice

Figure 6.6 Communities of Practice

Departmental AM Delivery and Coordination (with direct reporting through the Service Departments and matrix networking with the CAM Office)											AM Strategic Development & Coordination
Director of Community & Long Range Planning	Director of NRH	Director of Financial Management & Planning	Director Police Services	Director of Long Term Care	Director of IT	Director of EMS	Director of Facilities	Director of Waste Management	Director Water & Wastewater	Director of Transportation Services	Director Corporate Asset Management (CAM Office)
Manager Long Range Planning	AM Manager Strategy & Planning	AD Budget Planning & Strategy	AM Manager Strategy & Planning	AM Manager Strategy & Planning	AM Manager Strategy & Planning	AM Manager Strategy & Planning	AM Manager Strategy & Planning	AM Manager Strategy & Planning	AM Manager Strategy & Planning	AM Manager Strategy & Planning	AM Manager – Strategy & Planning (Lead AM Planning Network)
				Asset Management Planning Network							
	AM Technology Analyst	EFMS Analyst/ Technology Lead	Lead Fleet Maintenance Lead (other assets)	AM Technology Analyst	Lead AM Technology Coordination	AM Technology Analyst	Planner/ Schedulers AM Technology Analyst	AM Technology Analyst	Planner/ Schedulers AM Technology Analyst	Planner/ Schedulers AM Technology Analyst	AM Manager Asset Integrity & Productivity (Lead AM Integrity & Productivity Network)
					Asset Management Integrity & Productivity Network						
Manager Community Planning	Lead AM Performance & Knowledge Management	Lead AM Performance & Knowledge Management	Lead AM Performance & Knowledge Management	Lead AM Performance & Knowledge Management	Lead AM Performance & Knowledge Management	Lead AM Performance & Knowledge Management	Lead AM Performance & Knowledge Management	Lead AM Performance & Knowledge Management	Lead AM Performance & Knowledge Management	Lead AM Performance & Knowledge Management	AM Manager Asset Performance & KM (Lead of AM Perf & KM Network)
				Asset Performance and Knowledge Management Network							
Project Managers (as needed)	Project Managers (as needed)	Project Managers (as needed)	Project Managers (as needed)	Project Managers (as needed)	Project Managers (as needed)	Project Managers (as needed)	Project Managers (as needed)	Project Managers (as needed)	Project Managers (as needed)	Project Managers (as needed)	Manager Project Delivery (Project Management Office PMO)
				Project Management Network							

6.4 Governance Model Resourcing Summary

It is recommended that the Region transition over the next few years into the full Asset Management Governance Model. Table 6.7 provides a summary of the proposed resourcing for the next two years. New FTEs are shown in orange and positions to be filled by rebranding existing ones are shown in green. After this period, there will be a better understanding of gaps at the tactical and operational level and there will be a need to evaluate requirements for additional Asset Management Analysts in the various departments/business units, and Reliability and Planner Schedulers in the Public Works departments.

Table 6.7 – Asset Management Resourcing Impacts

Business Unit	AM Director	AM Manager	AM Analyst	Manager PMO	Program Manager	Project Manager	Reliability Analyst	Process Analyst	Planner Scheduler	Technology Analyst
PMO				As per Project Management Initiative						
CAM	1	3	3							
Public Works		To be decided (TBD)	TBD	New → Rebrand →			TBD	TBD	TBD	TBD
Other Business Units		TBD	TBD						TBD	TBD

Appendix A – Asset Management Program Charter

Asset Management Program Charter

Niagara Region's Asset Management project is focused on improving the Regions' overall effectiveness as it continues to provide its customers high quality services while balancing cost of service and risk.

The following Vision, Mission and Program Measures of Success will guide implementation.

Vision

Achieve excellence and efficiency in service delivery through all Region owned assets, at sustainable asset lifecycle costs, and acceptable levels of risk.

Mission

Asset management development at the Region is continuous and will be sustained into the future to provide levels of service (LOS) that the community and stakeholders need and are willing to pay for through:

Preservation of assets

Financial sustainability

Skilled and knowledgeable people

Protection of the environment

Consideration of health and safety implications

Compliance with all applicable regulations

Sustainable growth

This will be embraced by staff and stakeholders, as they communicate a common purpose through use of current and accurate information, and application of consistent leading asset management principles and practices. Asset management is and will continue to be incorporated with other initiatives within the Region such as growth, planning processes and, development approvals.

Project Measures of Success

✓ Consistent with leading practices (ISO 55000, IIMM and SIMPLE AMP guideline)

✓ Informs lifecycle management decision making related to maintenance, renewal and capital programming based on levels of service, cost of service and risk considerations

✓ Objective prioritisation of capital needs across business lines

✓ Addresses financial, operational, administrative, regulatory and strategic Region wide requirements that contributes to our goal of economic prosperity

✓ Provides for a common organization wide approach to AM with clear accountabilities, roles and responsibilities and governance

✓ Achieve the desired culture change for excellence in AM

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Asset Management Governance
Impact Assessment Report

The Regional Municipality of Niagara

December 2018

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Executive Summary

The first part of the Asset Management (AM) Governance initiative has recommended creating a formal AM Governance Model with a clear organizational structure and appropriate authority, roles and responsibilities. The AM Governance Model (see Figure ES-1) will support the development and implementation of leading AM practices and enable the Region to meet *Ontario Regulation 588/17: AM Planning for Municipal Infrastructure*.

Figure ES-1 Proposed AM Governance Model
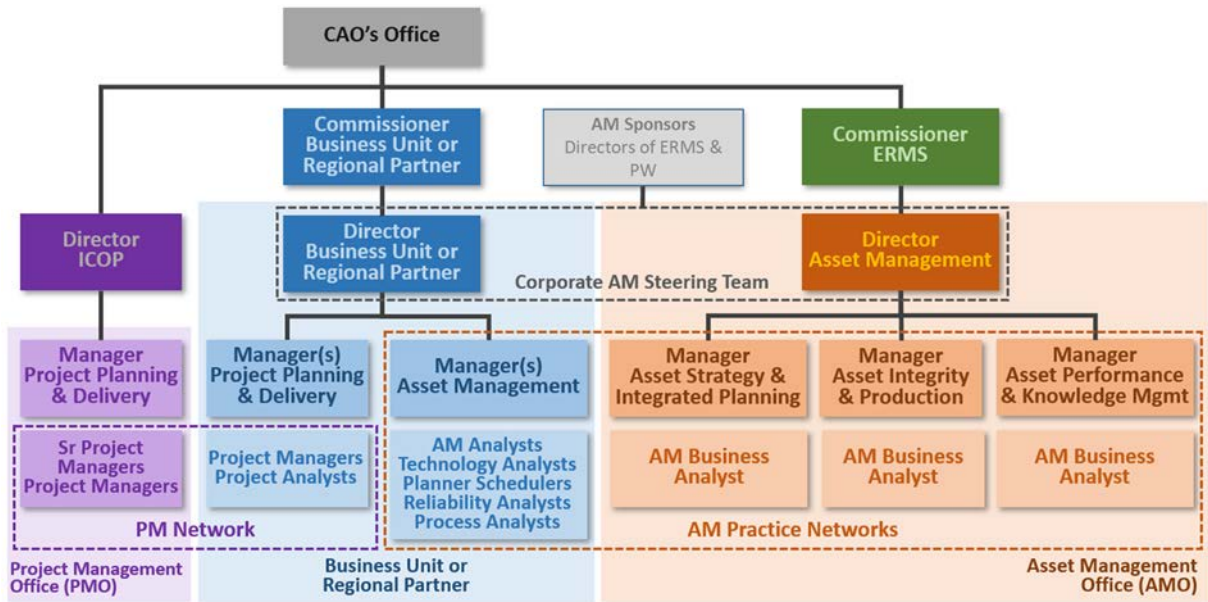
The AM Governance Model recommendations include a three step implementation plan, as shown below in Table ES-1.

Table ES-1 Recommended AM Governance Model Implementation

1. Corporate (Immediate)	2. Department (Short Term)	3. Departmental (Medium Term)
1.1 Create a Corporate AM Steering Team		
1.2 Create (new) a formal Corporate AM Office (AMO): • Director of AMO • AM Manager & Analyst: Strategy & Integrated Planning • AM Manager & Analyst: Asset Integrity & Productivity • AM Manager & Analyst: Asset Performance & Asset Knowledge	**2.1 Create (augment) formal Departmental AM Responsibilities:** • Departmental AM Managers **2.2 Establish AM Practice Networks across the Departments:** • AM Planning Network • AM Productivity Network • Asset Knowledge & Performance Management Network	**3.1 Create (augment & new) formal Departmental AM Responsibilities:** • Departmental Planner Schedulers • Departmental Technology Analysts (new) • Departmental Reliability Analysts • Departmental Process Analysts

The first part of this Impact Assessment Report provides details on the proposed AM Governance Model including the organizational structure, roles and responsibilities for both new and augmented corporate and departmental positions, and career track progressions. The estimated budget for the immediate seven new positions for the Corporate Asset Management Office (AMO) is estimated to be $0.9 million per year.

With the implementation of the recommended AM Governance Model, some Region staff members will be required to adopt some form of change to their day-to-day work. Identifying the potential impacts resulting from this change on Regional staff, processes and technology provoked meaningful discussion around the change and will inform courses of action to address the change impacts within the Region in the appropriate timeframe (e.g. targeted communication, special training requirements).

The second part of this report outlines risks associated with change impacts to start building momentum within the Region, begin preparing leadership to guide people through the change, and inform the initiatives required to lead the Region towards success.

For the proposed AM Governance Model changes, the impact from a structure, people, and process perspective was assessed to be low to medium. Table ES-2 provides an overview of the assessment and strategies to mitigate the identified impacts and assessed degree of change.

Note: for the table below (C)=Communication, (T)=Training

Table ES-2 Overview of Change Impacts and Mitigation Strategies

Category / Criteria	Assessment	Rating	Mitigation Strategy*
Governance & Structure			(C) Benefits of new structure
Change in accountability or reporting relationship (e.g. level and / or position)?	Minor accountability change	Low	(C) How AM Networks will enable better collaboration of the AM practice across the Region
Change in the number of people required to do the work?	Yes		(C) New AMO and dept structures and roles
Change in location where work is performed?	No		
People			(C) Benefits of AM practices
Requires new skill(s) to perform the activity?	Considerable	Medium	(C) New skill(s) for roles
Tasks added or eliminated for a position?	Yes		(C) Added or eliminated task(s) for role
Requires a change in behavior or culture?	Minor		(C) How AM Governance Model will impact work
Requires significant training to learn how to perform the activity	Considerable		(T) Leverage capacity, skills and knowledge in HR for training to support the AMO (T) How to access curriculum and course info
Process			(C) Benefits of new process
Change in the way the work gets done?	Moderate	Medium	(C) New process (T) How to access curriculum and course information
Change in the frequency of performance of an activity?	Minor		
Change in the length of time required to perform an activity?	Minor		
Change in data sources or inputs?	Moderate		(C) New data sources
Change in reports or outputs?	Moderate		(C) New reports or outputs
Change in communication / interaction required to complete an activity	Minor		

1. Introduction

1.1 Background

The Region of Niagara has embarked on a multi-year phased Asset Management (AM) Program that is focused on improving the Region's overall efficiencies and effectiveness in delivering sustainable services through the development and implementation of leading asset management practices.

The AM Program consists of the following three (3) phases:

Phase 1
- Learning
- Documentation & Definition of Existing AM Plans
- Gap Analysis
- Vision & Roadmap

Phase 2
- Resourcing
- Procurement
- Additional Data Collection

Phase 3
- Roll Out
- Initial Output
- Continuous Improvement
- Additional Data Collection

The first phase of the Region's AM Program, which was completed in 2017, included the development of an AM Strategy that measured the Region's asset management system maturity and outlined an AM Roadmap of initiatives to achieve efficiency and effectiveness in service delivery across the Region. The supporting services recommendations in the AM Strategy included initiative SS1: Develop and Implement an AM Governance Model.

The first part of the AM Governance initiative (documented in Technical Memorandum No. 1 *Asset Management Governance Charter, Vision, Mission and Potential Models*) has reviewed various AM governance models and identified a clear structure with appropriate authority, roles and responsibilities to support the development and implementation of leading asset management practices at the Region. The organizational structure considers the needs for corporate standardization and consistency in asset management and also provides the flexibility for implementation unique to the asset class and operating environment.

This report builds on Technical Memorandum No. 1 and provides a detailed impact assessment of the proposed AM governance model on the organization's structure focused on:

- How the proposed AM governance structure integrates with the Region's current organizational structure
- Details of positions being proposed for the AM governance model (including roles and responsibilities, anticipated new FTEs, augmentation of existing roles)
- A RACI (*Responsible, Accountable, Consulted and Informed*) chart which identifies the flow of information and the delineation of responsibility

- Job descriptions and career track progression for AM roles.

The following elements of the impact analysis are provided under separate covers:

- Tech. Memo No. 3: Training, Change & Communication Plan
- Tech. Memo No. 4: Business Case

1.2 Why does the Region need an AM Governance Model?

The Region's current capital asset portfolio has a replacement value in excess of $7.4 billion. A structured and consistent approach to asset management is needed to coordinate and prioritize infrastructure spending.

In 2017, the Ontario government released a new regulation under the Jobs and Prosperity Act, 2015 – O.Reg.588/17 AM Planning for Municipal Infrastructure which prescribes the requirement for point responsibility for AM as well as deadlines for achieving the following:

- Strategic AM Policy (July 2019)
- Core Infrastructure AM Plan & current Levels of Service (July 2021)
- Comprehensive Infrastructure AM Plan & proposed Levels of Service (July 2023)
- Alignment of AM plans to the proposed Levels of Service and Financial Strategy (July 2024)

In addition to the above regulation, Federal and Provincial governments require updated comprehensive AM plans for Federal Gas Tax funding, future application based funding, and Development Charges.

1.3 Methodology for Assessing Change Impacts

As part of the approach to develop the AM Governance Model and to inform the impact analysis, workshops and interviews were held with key staff from across the Region. The Corporate Leadership Team (CLT), which also served as the Project Steering Team, was engaged at key milestones to review and endorse project recommendations and findings.

To align project recommendations with industry and leading practice, key project recommendations were also vetted through a peer review group made up of six other municipalities (Region of Waterloo, Region of York, Region of Peel, Toronto Water, City of Barrie and the City of Calgary) that have implemented AM governance models.

The approach used to gather change impacts for the AM Governance Model included the following steps:

- Assessing current state and to-be processes through the AM Strategy development (in 2017)
- Gathering change impacts through staff and middle management interviews (in August 2018)
- Reviewing and validating change impacts through middle management and senior leadership interviews in (September 2018)
- Identifying mitigation tactics.

The *Congruence Model* is based on the principle that an organization's performance is derived from four elements – structure, people, work and culture. The higher the congruence, or compatibility amongst these elements, the greater the performance.

As part of the impact analysis for the Region's AM Governance Model, GHD assessed congruency among the following elements of asset management to inform development of the deliverables for this phase of the project.

Table 1-1   Congruence Model

Elements of Congruency Model	Impact Analysis
Structure	
How standardized is the work?	• Training Plan
People	
Who interacts to get the work done?	• RACI Chart
What are people's expectations for career progression & organizational commitment?	• Job Descriptions • Career Track Progression • Business Case
Work	
What work needs to be done?	• RACI Chart
What work requires specific knowledge or skill?	• RACI Chart • Training Plan • Job Descriptions
What approach is needed to do the work best?	• Governance Model / Structure
Culture	
How does information flow around the organization?	• RACI Chart
How can leadership be leveraged?	• Change & Communications Plan • Business Case

2. Defining the Change

2.1 Proposed AM Governance Model

2.1.1 Organizational Design Principles

The most successful and effective AM governance models in place at municipalities and utilities share many of the same organizational design principles. The most common of these are:

- Sponsorship of the strategic vision, mission and values of the organization
- Alignment with the organization's current Human Resources policies and practices
- Clear definition of roles, responsibilities, communication links and decision making rights
- Balancing of human resources and workload across positions within existing and vacant positions and provision for appropriate critical functions
- Provision for the performance measurement of Asset Management program delivery
- Leveraging of existing skill and expertise areas of management and staff
- Facilitation of career development and progression through formal skills, training and succession planning programs
- Support for the integration of Asset Management across the organization and the necessary interdepartmental relationships required to move the organization towards its vision so that activities that need to be coordinated fall within program boundaries
- A flexible structure that can support and adapt to future Asset Management needs.

2.1.2 Current AM Governance at the Region

The Region's Corporate Leadership Team (CLT) also serves as the Corporate AM Steering Team. AM initiatives are supported and delivered through informal task teams made up of representatives from each department.

- Advantages of this model
  - A high level of engagement and representation of all Departments in AM strategic and tactical decision making
  - No new hires or FTEs are needed for AM
- Disadvantages of this model
  - A perceived absence of AM authority and sponsorship
  - Lengthier implementation times for AM initiatives because accountability is divested with many groups / individuals

- A lack of consistency in how AM processes and practices are being applied across service groups
- Prolonged investment horizons to realize and demonstrate the ROI from outlays in AM
- Slow adoption of change and cultural shifts.

2.1.3 Proposed AM Governance Model for the Region

A number of asset management governance models were reviewed for the Region. Of the models reviewed, the model shown in Figure 2-1 (on the following page) is recommended. This model is characterized by:

- A Corporate Asset Management Steering Team

  - Consists of departmental representation to provide guidance, direction and feedback for the Asset Management Program
- A Corporate Asset Management Office (AMO)

  - A Director of AM
  - A Manager of AM Strategy and Integrated Planning
  - A Manager of Asset Integrity and Productivity
  - A Manager of Asset Knowledge and Performance Management
  - Three AM Analysts
- Formal Decentralized Departmental Delivery and Coordination

  - Guided by AM practitioners embedded in the various departments that will work together to form various networks to coordinate AM activities with representatives from the Corporate AMO.
- Practice Networks (or Work Offices or Task Teams)

  - Made up of appropriate members selected from any of the departments to support implementation of the AM Strategy and associated Asset Management Roadmap
  - As Asset Management initiatives are identified and implemented, progress is reported back up to the CAM Office and the Asset Management Steering Committee periodically.

Figure 2-1 Proposed AM Governance Model
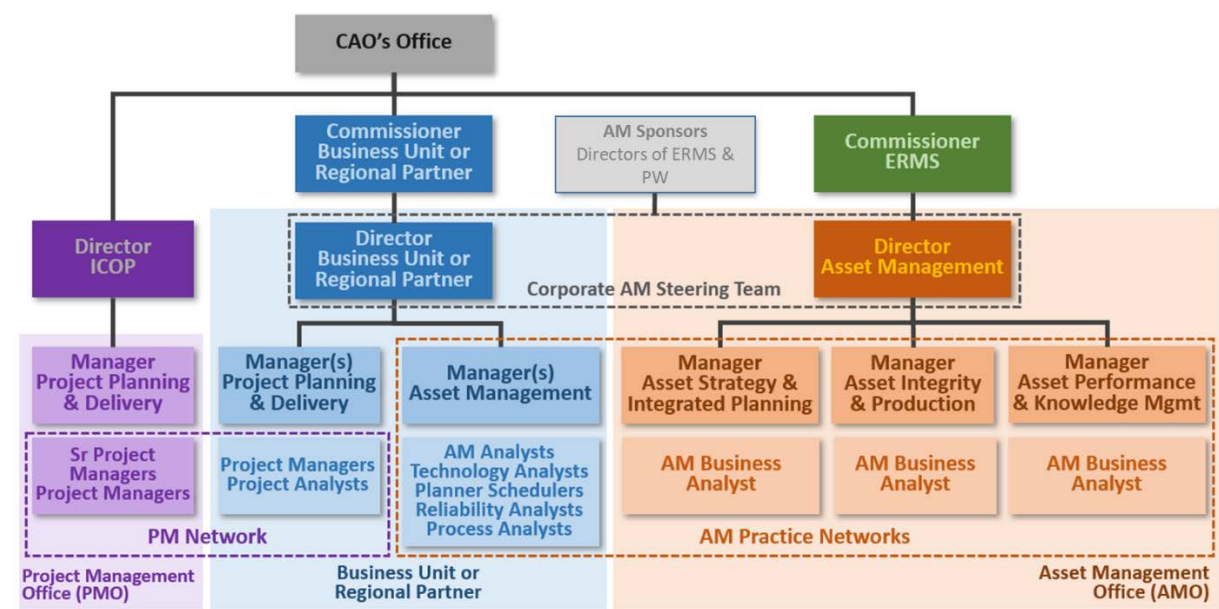
This model fits in well with the Region's present governance strategy that advocates the use of a hierarchical structure to provide oversight, leadership, management, implementation and collaboration and support authorities and functions (See Table 2-1).

Table 2-1   Governance Strategy at the Region

Governance Function	Governance Responsibility
Oversight	CAO / Corporate Leadership Team
Advocacy & Leadership	Steering Committee(s)
Management	Departmental Management
Implementation	Program Managers
Collaboration & Support	Departmental Leads

The Region has been successful in implementing a centralized corporate functional group with decentralized departmental support to the business lines in the Communications, Human Resources, IT and Finance Groups.

2.2 Proposed Roles & Responsibilities for AM Governance

2.2.1 Proposed Roles for AM Governance

A summary of the proposed new or augmented roles for the AM governance model by Office / Department is provided below.

Table 2-2   Corporate Asset Management (CAM) Office

Proposed Position	New or Augmented Role
Director of AM	New (1)
Manager of AM Strategy & Integrated Planning	New (1)
Manager of Asset Integrity & Productivity	New (1)
Manger of Asset Knowledge & Performance Management	New (1)
AM Analysts	New (3)

Table 2-3   Departments New or Augmented Roles (number)

Proposed Position	Transport	W&WW	Waste	Facilities	IT
AM Manager	Aug (1)	Aug (1)	Aug (1)	Aug (1)	Aug (1)
AM Analyst	Aug (1)	Aug (1)	Aug (1)	Aug (1)	Aug (1)
Technology Analyst	Potential Future (1)	Potential Future (1)	Potential Future (1)	Potential Future (1)	Potential Future (1)
Planner / Scheduler	Aug (2)	Aug (2)		Aug (1)	
Process Analyst		Aug (2)			
Reliability Analyst		Aug (1)			

Table 2-4   Departments New or Augmented Roles, cont'd (number)

Proposed Position	EMS	Police	LTC	NRH
AM Manager	Aug (1)	Aug (1)	Aug (1)	Aug (1)
AM Analyst	Potential Future (1)	Potential Future (1)	Potential Future (1)	Potential Future (1)
Technology Analyst	Aug (1)	Aug (1)	Aug (1)	Aug (1)

2.2.2 Proposed Responsibilities for AM Governance

AM is a business model that requires governance to implement and sustain it. To be effective, an AM governance framework must include a clear description of the governance roles, accountabilities and responsibilities. Doing so helps to form the terms of reference for the roles making up an organization's AM governance model.

A RACI (Responsible, Accountable, Consulted and Informed) chart which includes key elements of the AM System (aligned to the Region's AM Strategy and Roadmap), sub elements or practices, practice descriptions and responsible parties is shown in the RACI chart below (See Table 2-5). The following legend applies to the chart:

- R: Does the step
- A: Accountable for the step
- C: Consulted with before the step
- I: Informed when the step is completed

Table 2-5   AM Governance RACI Chart

Key AM Elements	Leading Practices Description	LENGEND: R: Does the step C: Consulted with A: Accountable I: Informed	AM Steering Committee	Corporate AM Office	Dept AM Managers	Dept AM Analyst	Dept Technology Analyst	Dept Planner/ Schedulers	AM Planning Network	AM Productivity Network	Project Management Network
Setting Direction											
AM Policy	The asset management policy has been documented, authorized and approved. It is aligned with other Organizational policies and is monitored and updated on a regular basis.		A	R/C	C/I	I	I	I	C/I	C/I	C/I
AM Strategy	The AM strategy is derived from the AM policy and the strategic plan and takes into account the lifecycle of assets, related risks, criticality, asset types and system functions and condition. It describes the approach and principal methods by which assets will be managed. Like the AM policy, the AM strategy is reviewed on a regular basis.		I	I	A/R	C	C	C	C	C	C
Demand Analysis	This area focuses on the capture and analysis of historical demand data. It incorporates the impact of demand from demographic changes in the customer base, growth, aging infrastructure, key stakeholders, state and nature of the economy, pending or proposed changes in regulations.		I	C/I	A/R	C	C	C	C	C	C
Setting AM Objectives	Measurable objectives have been developed (i.e. capable of objective assessment that incorporates legal, regulatory, statutory, stakeholder and business requirements).		C/I	C/I	A/R	C	C	C	C/I	C/I	C/I
Programming											
Accounting & Costing	Asset valuations and effective lives are in place. Costs are captured throughout the asset lifecycle and are capable of being rolled up through the asset hierarchy. A process is in place for determining future liabilities (capital and operational) based on residual risk and an asset renewal program. A process in place for TCA (PSAB 3150).		I	C/I	A	R/C	C	C	C	C/I	C/I
Strategic Planning	Processes are in place for making optimized asset renewal decisions by identifying the most economical renewal solution and point in time to renew an asset, capturing/assessing lifecycle costs, identification of cost reduction or service level improvement opportunities, and for working with customers and other stakeholders during long term strategic planning. In addition, capital, operations and maintenance expenditures are linked with overall business goals in triple bottom line (social, economic and environmental) terms.		I	A	R	C/I	C	C	C	C/I	C/I
Capital Expenditure Evaluation	Policies are in place for linking service demand with the level of expenditure necessary to achieve long term sustainability. In addition, processes are in place for evaluating capital projects and supply or program delivery options. Out of the Box solutions (such as "Do Nothing, Project Deferral, manage the Risk, and Non-Asset solutions) are considered and recorded as options. Economic evaluations (business cases that develop Internal Rate of Return, Benefit Cost Ratio or Net Present Values) are used to decide on options and includes Operations and Maintenance costs.		I	C/I	A/R	C	C	C	C	C/I	C/I
Preparation											
Maintenance Decision Making	A maintenance policy is in place to define what, why and when the municipality undertakes maintenance of its assets. Processes are in place for setting strategic level maintenance framework (such as Preventive Maintenance, Predictive Maintenance and Reliability Centered Maintenance) that defines how the organization undertakes maintenance of its assets. Processes are in place for reviewing and analyzing the effectiveness of maintenance programs.		I	A	A/R	I	C/I	R	C/I	R/C	C/I
Asset Management Plans (AMPs)	AMPs exist for each service that is provided (usually by major asset class) and there are processes in place for producing AMPs from a strategic perspective. AMPs include a record of current and future levels of service, knowledge of the assets, predictions of major failure modes and the business risk exposure, optimal renewal strategies to extend asset life LOS, capital projects necessary to service new customers or requirements. AMPs have a clear link to business plans and goals.		I	A	R	R	C	C	C	C	C
Implementation of AM Plans	Roles & responsibilities for AMP implementation are clearly defined together with processes for AMP implementation, review and update. Processes are also in place to ensure that the municipality is capable of delivering the work programs set out in the AMP.		I	C/I	A/R	R	R	R	C/I	C/I	C/I

Key AM Elements	Leading Practices Description	LENGEND: R: Does the step A: Accountable	C: Consulted with I: Informed	AM Steering Committee	Corporate AM Office	Dept AM Managers	Dept AM Analyst	Dept Technology Analyst	Dept Planner/ Schedulers	AM Planning Network	AM Productivity Network	Project Management Network
Maintenance Decision Making	Processes are in place for setting strategic level maintenance framework (such as Preventive Maintenance, Predictive Maintenance and Reliability Centred Maintenance) that defines how the organization undertakes maintenance of its assets. Processes are also in place for reviewing and analyzing the effectiveness of maintenance programs.			I	A	A/R	I	C/I	R	C/I	R/C	C/I
Implementation												
Operations	Processes exist for successful operation and monitoring of assets supported by well documented operating procedures/manuals. There is a complaints system that ensures customer complaints are handled effectively. In addition, processes are in place for the development and maintenance of Emergency Response Plans including for what event and against what level and criticality of asset the plans are to be completed.			I	C/I	C/I	C	R/C	A/R	C/I	R/C	C/I
Creation & Acquisition	Processes are in place for the successful program management of the asset creation or acquisition program. In addition, processes exist for contract administration, project management, value engineering, optimum maintainability/operability, construction, and for asset commissioning and handover. These are all based on clearly defined standards (e.g. design standards by asset class).			I	C/I	C/I	I	C/I	C/I	C/I	C/I	A/R
Maintenance	Processes exist for the monitoring and control of the maintenance program, recording and reporting maintenance costs and for developing and maintaining contents of maintenance manuals and instructions. In addition, there are processes in place for ensuring that facilities, equipment and tools are maintained and calibrated as required.			I	C/I	C/I	I	R/C	A/R	C/I	C/I	I
Work & Resource Management	Processes are in place for matching skills to the demand for services and activities, prioritizing work, control inventory stock and managing larger projects that involve multiple tasks.			I	C/I	C/I	I	R/C	A/R	C/I	C/I	C/I
Rationalization & Disposal	Processes are in place for the Rationalization of the asset portfolio and disposal of unwanted assets.			I	I	A/R	C/I	R/C	R/C	C/I	C/I	C/I
Asset Monitoring												
Asset Condition Monitoring	Processes are developed for assessing the condition for the various asset classes, together with appropriate controls, analysis and corrective action following asset condition parameter exceedance.			I	C/I	A/R	C/I	R/C	R/C	C/I	C/I	C/I
Asset Performance Monitoring	Processes are developed for monitoring of asset performance for the various asset classes, together with appropriate controls, analysis and corrective action following poor performance.			I	C/I	A/R	C/I	R/C	R/C	C/I	C/I	C/I
Incident Investigation	There is a clear process and responsibility for handling investigation and mitigation of asset related failures, incidents and emergency situations. In addition, a process is in place for determining preventative actions and communicating results of the investigation.			I	C/I	C	I	C/I	A/R	I	I	I
Management System Review												
Management System	The asset management system (including AM policy, strategy, objectives and plan(s)) is defined, documented and fully established. It includes process diagrams/flow charts and records to demonstrate conformance. There are internal quality assurance practices in place ensure that the performance of the asset management system is as desired.			A	A/R	R	R	R	R	I	C/I	C/I
Business Risk Management	A risk management framework is in place and considers desired levels of service, probability and consequences. Processes exist for analyzing risks including the makeup and ranking of risks and managing risk reduction including the assessment of mitigation options. Business risk management also includes weather risk, climate change adaptation and mitigation.			C/I	A/R	R/C	C	C	C	C	C/I	C/I
Asset Risk Management	This is similar to the above but with a focus on the physical asset. It includes failure mode prediction (processes for predicting expected failure modes of assets) and control of asset risks.			C/I	A/R	R/C	C	C	C	C	C/I	C/I

Key AM Elements	Leading Practices Description	LEGEND: R: Does the step C: Consulted with A: Accountable I: Informed	AM Steering Committee	Corporate AM Office	Dept AM Managers	Dept AM Analyst	Dept Technology Analyst	Dept Planner/ Schedulers	AM Planning Network	AM Productivity Network	Project Management Network
Continuous Improvement	An audit program for continual improvement of the AM system and processes is in place with assigned responsibilities for auditing. Processes are in place for externally benchmarking AM. There is also a sustainable development strategy in place that considers social, environmental, staff wellbeing and environmental responsibilities.		I	C/I	A/R	C	C	C	C	C/I	C/I
Legal, Regulatory & Other Requirements	Procedures are in place for identifying and providing access to all applicable legal and statutory requirements, these requirements are incorporated into the asset management system. Processes are also in place to communicate requirements and demonstrate compliance.		I	I	A/R	C	C	R/C	I	C/I	C/I
People & Organization											
Organizational Issues	There is a clear structure with appropriate authority, roles and responsibilities in place to support AM. There is usually a single executive with overall AM responsibility, an AM Coordinating Group or Steering Committee, Implementation Team or Coordinating group, and a AM Managers/Coordinators by major asset class.		I	I	A	C	C	C/I	I	C/I	C/I
People Issues	Desired AM skills and competencies are documented and a training program is in place to deliver these skills to staff. There are processes in place to manage and implement AM related change throughout the business and to review whether the appropriate skills and staff numbers are available for implementing best practices. In addition, processes are in place for managing knowledge throughout the business.		I	I	A	C	C	C/I	I	C/I	C/I
Commercial	Core and non-core activities have been defined together with a clear contracting strategy. Processes are in place to develop and manage high quality specifications for contracts and service agreements as well as to ensure contractors have access to the required information and data. In addition, there are processes in place for assessing and selecting contractors as well as monitoring their performance.		I	I	A	C	C	C/I	C/I	C/I	C/I
Communication	There are processes in place to enable dissemination and feedback of asset management related performance and other relevant information on a timely basis. This process also enables continuous improvement in the AM space.		I	I	A	C	C	C/I	C/I	C/I	C/I
Data & Information											
Processes for Managing Asset Knowledge	Asset management data and information required to perform asset management activities, considering all phases of the asset life cycle, have been identified. The appropriate level of asset detail, the appropriate asset attributes, and the appropriate quality of each data element have been established based on the benefit garnered by each data element. Available and access to data are defined for different types of users and different types of data. Procedures have been defined to ensure security, archiving and preservation of data.		I	C/I	A	A/R	R/C	R/C	C/I	C/I	C/I
Asset Data & Knowledge	Asset data required for asset management are being collected at the appropriate level of asset detail, for the appropriate the asset attributes, and with the appropriate quality. Asset data is organized in a way that allows for analysis, reporting and manipulation based on type, location, material, site and other characteristics relevant to the business. Spatial data are stored within GIS, especially all distributed linear assets and locations of larger facilities. Parent and child relationships have been defined to allow asset data to be aggregated in ways that are meaningful to the organization.		I	C/I	A	A/R	R/C	R/C	C/I	C/I	C/I
Activity Data & Knowledge	Risk assessments provide input into identification of adequate resources and training and competency needs. Historical maintenance, operational and cost data are available. Asset valuation, life cycle costs and cost data for construction, renewal and maintenance interventions are available. Resource information on work force, skills, materials and tools are used to manage operational and capital activities.		I	C/I	A	A/R	R/C	R/C	C/I	C/I	C/I
Technology Systems											

Key AM Elements	Leading Practices Description	LENGEND: R: Does the step C: Consulted with A: Accountable I: Informed	AM Steering Committee	Corporate AM Office	Dept AM Managers	Dept AM Analyst	Dept Technology Analyst	Dept Planner/ Schedulers	AM Planning Network	AM Productivity Network	Project Management Network
Information System Issues	The organization has processes to ensure that asset management information systems are appropriate for its needs, and data are of requisite quality, accuracy and consistency. IT systems are linked and staff have ready access to IT systems and up-to-date data. An IT system strategy has been developed, which addresses AM activities and accommodates growth in AM data and information. Mobile computing tools are used by field operations and maintenance staff for rapid entry and live access.		I	C/I	R/C	C/I	R/C	R/C	C/I	C/I	C/I
Financial & HR Information Systems	IT systems are available to support financial activities; to track customer property details; to store, manage and report on data derived from independent information systems; and to plan workforce competency, training and recruiting. Cost centres have been structured to allow meaningful categorisation of costs at an appropriate level of detail. Costs are attributed to appropriate levels of the asset hierarchy. Maintenance and operational costs are attributed to specific assets.		I	C	C	A/R	C/I	C	C/I	C/I	C/I
Asset & Work Management Information Systems	IT systems store and track customer complaints and enquiries from receipt to resolution. Unique asset identification numbers assigned to all assets in the system, and associated to asset attributes. Asset locations and key attributes for all distributed and linear / networked assets are spatially stored (GIS). Maintenance activities, including work orders, work scheduling, controlling and costing are managed by a maintenance management system. Labour, equipment, tools and materials are tracked in a job resource management system. Emergency response plans are linked through to the asset register in accordance with the data standard using an emergency response plan information system. Condition data is stored and analyzed with respect to parameters or required level of service. Risk assessments are performed to determine probabilities and consequences of failure. Results are stored in a risk assessment information system. Tools are used to track timing and costing of multiple project tasks and resources required to produce required deliverables.		I	A/R	R/C	I	C	R/C	C/I	R/C	C/I
Supply & Logistics Management Information Systems	IT systems are used to track inventory, spares, stores, purchasing and supplier information. Levels of stores and spare parts to be carried are optimized across the organization based on criticality, planned or scheduled consumption and order lead time.		I	C/I	C/I	I	R/C	A/R	C/I	C/I	C/I
Advanced Information Systems	IT systems are used to manage, store and access detailed drawings, documents, guidelines, manuals and policies related to assets and asset management. Capacity modelling tools are used to determine current capacity needs and to forecast future needs. Predictive models are used to estimate asset failure in terms of capacity, reliability, condition, performance and outages / emergency failures. Life cycle costs are modelled for different asset options to support comparison of renewal and investment alternatives.		I	A/R	R/C	R/C	R/C	R/C	C/I	C/I	C/I

2.2.3 Proposed Job Descriptions for AM Governance

Key roles have been identified as part of the proposed AM governance model. The aim is to align defined qualifications and competencies within each role to achieve consistency across the governance model, and to support training and succession planning.

There are certain job descriptions that the Region needs to incorporate into any new positions, and over time, augment and align existing positions to meet the roles, responsibilities and qualifications of the proposed AM governance model.

Standardized job descriptions have been developed for each of the following roles / positions and are provided in Appendix A.

Table 2-6 Proposed Job Summaries for AM Governance

Role	Summary Description
CAM Director of Asset Management	• Provides Region wide leadership in the development and sustainability of the Asset Management program • Works collaboratively with PMO to meet and implement project planning and delivery objectives • Takes ownership for overall Asset Management maturity improvement at the Region
CAM Manager of Strategy & Integrated Planning	• Leads the implementation of Planning related initiatives on the Asset Management Roadmap • Provides quality assurance of the Region's Capital Program developed by each department • Develops and updates processes around Asset Management Planning
CAM Manager of Asset Integrity and Productivity	• Leads the implementation of O&M related initiatives on the Asset Management Roadmap • Prepares the Region's State of the Asset Report • Develops, implements and supports a Region‑wide asset reliability program
CAM Manager of Asset Knowledge and Performance Management	• Leads the implementation of Performance and knowledge related initiatives on the Asset Management Roadmap • Leads the development of the Asset Management Communication program • Leads the development and implementation of the Asset Management Training program
Dept Asset Manager	• Leads the implementation of Asset Management Roadmap initiatives at the department/Business Unit level • Leads the development and update of the Asset Management Plan • Develops and maintains the LOS Framework for the department, tracks asset performance (condition assessment, availability, capacity etc.)

| Role	Summary Description
	• Conducts an asset knowledge gap analysis, develops and implements a knowledge management plan for the department's assets
Dept Business Analyst	• Plans for and controls the budget • Plans for asset financial investments • Develops risk profiles • Develops and evaluates business cases or capital project requests • Conducts asset scenario modeling using the Decision Support System
Dept Technology Analyst	• Provides departmental level input for technology and data asset management • Actively provides and supports departmental requirements for ongoing system development lifecycle activities for Asset Management technology enablers
Dept Planner / Scheduler	• Develops and maintains the maintenance dashboard • Conducts basic and advanced work order planning & scheduling • Conducts preventive maintenance optimization exercises • Analyzes asset data and conducts root cause analyses and reliability improvement initiatives • Provides input into ongoing work management system development
Dept Reliability Analyst	• Conducts PM Optimization analysis • Conducts Root Cause Failure analysis • Conducts continuous improvement training for staff and facilitate CI initiatives
Dept Process Analyst	• Creates process documentation/workflows, knowledge articles and self-service guidance for the department • Collects and documents business requirements for project and process improvement/automation efforts • Reviews information and trends to ensure that the output of processes are achieving the desired results and that services are meeting agreed upon service levels • Conducts maturity assessments against the process activities to highlight areas of improvement or concerns

2.2.4 Proposed Career Track Progression for AM Governance

Career progression is a critical part of a governance framework and demonstrates an organization's commitment to developing career paths for its employees. It also facilitates its ability to recruit and retain top-performing talent. Formalized career paths sends a message to employees that they are valuable and benefits the organization by:

- Supporting business continuity planning
- Establishing a pipeline of qualified and motivated talent that is prepared to take on broader responsibilities when current staff and other key employees leave the organization
- Ensuring key core competencies and qualifications are available to achieve strategic plans and objectives of the organization.

The following figure summarizes role responsibilities for AM governance roles proposed for the Region. It is noted that formal succession planning for AM roles will be facilitated as part of the Region's *Succession Planning and Critical Roles Program* once the governance model is established.

Figure 2-2   Proposed AM Governance Model Career Track Progression
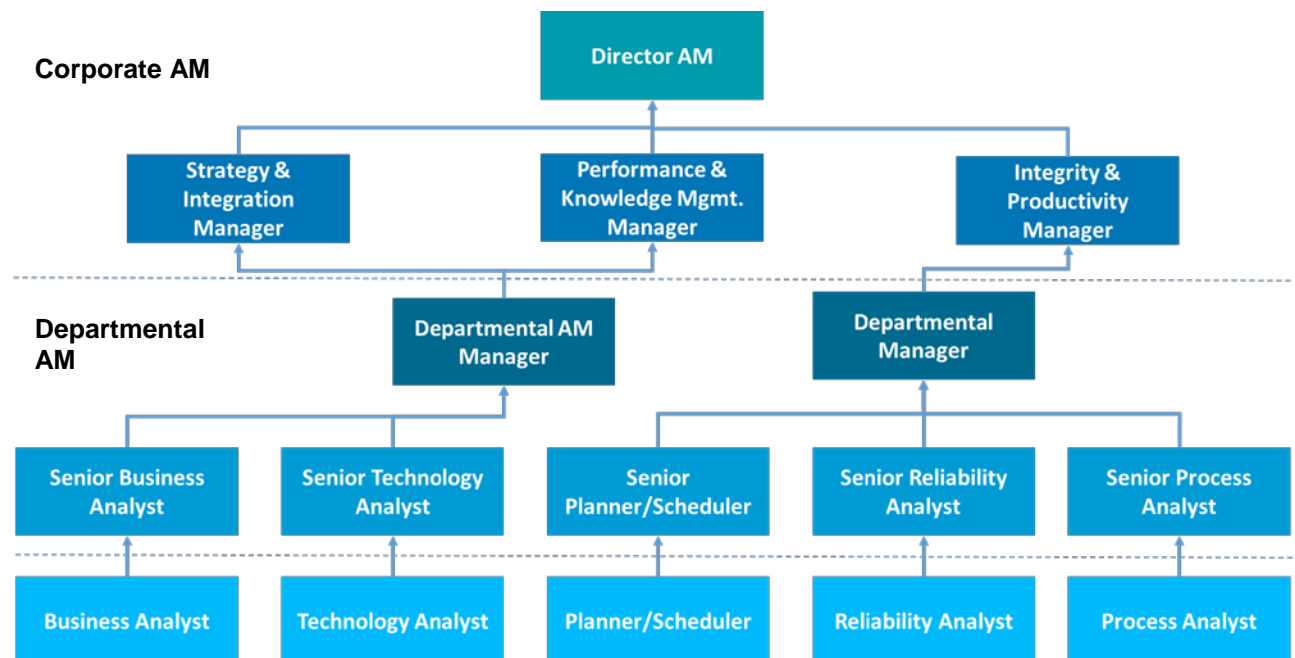
3. Change Impact Assessment

3.1 Introduction

With the implementation of the recommended AM Governance Model, some Region staff members will be required to adopt some form of change to their day-to-day work. Identifying the potential impacts resulting from this change on Regional staff, processes and technology will provoke meaningful discussion around the change and inform courses of action to address the change impacts within the Region in the appropriate timeframe (e.g. targeted communication, special training requirements).

This part of the AM Governance initiative identifies key benefits and risks associated with change impacts to start building momentum within the Region, begin preparing leadership to guide people through the change, and inform the initiatives required to lead the Region towards success.

To understand the Region's current readiness for change, a number of factors were considered. Table 3-1 provides an overview of the assessment factors, and how they have been assessed.

Table 3-1   Overview of Impact Assessment Categories and Criteria

Category	Criteria	High	Medium	Low
Governance & Structure	• Does the accountability or reporting relationship change? • Is there a change in the number of people required to do the work? • Does the location where the work is performed change?	Significant accountability change (level and position)	Moderate accountability change	Change in location
People	• Are there new skills required to perform the activity? • Are there tasks eliminated for a position? • Is there a change in behavior or culture? • Is significant training required?	Requires significant amount of training and support	Requires considerable training; tasks are added or deleted	1 out of 3 criteria apply
Process	• Change in the way work gets done • Change in the frequency required to perform an activity • Change in the length of time required to perform an activity • Change in data sources or inputs	4 out of 6 criteria apply	3 out of 6 criteria apply	2 out of 6 criteria apply

Category	Criteria	High	Medium	Low
	• Change in reports or outputs • Change in communication / interaction required to complete an activity			

3.2   Summary of Change Impacts

The following tables provide summaries of the following assessments:

- **Impacts on Internal AM Stakeholders:** Region's internal stakeholders are listed in the table together with their interest in Asset Management (taken from the AM Governance Model report) and the impacts of the AM Governance Model from structure, people and process perspectives.

- **Change Readiness Assessment and Strategies:** The purpose of a change readiness assessment is to analyse the preparedness of the conditions, attitudes and resources needed for change to happen successfully. The table provides a summary of the assessment for change readiness including change history, business capacity, current climate, change infrastructure and sponsorship / leadership.

- **Summary of Change Impacts and Mitigation Strategies:** This table summarizes the impacts on internal AM stakeholders and change readiness assessment and strategies.

Table 3-2   Impacts on Internal AM Stakeholders

Stakeholder	Interest in AM	Structure Impacts	People Impacts	Process Impacts
Staff	• Adequate resources to manage assets (do the right thing) • Adequate processes to manage projects (do things right) • Improved collaboration & coordination • Reduced risk taking • Quality service delivery • Customer satisfaction	• Addition of seven new roles in the Corporate AM Office (AMO) including Director, Managers and Analysts • Potential future addition of one new role in each Department (Technology Analysts) • Current Department reporting relationships are unchanged except for collaboration on AM Networks • No change in the location where work is performed	• New tasks will be added to some roles • Requires new or augmented specialized skills and/or knowledge based on role changes, new process, new technology, etc. • Requires training to learn how to perform new tasks • Minimal change in behavior or culture if AMO is perceived as guiding development of standard tools and templates for implementation and application by Departments	• Requires change in the way work is performed including formalization of existing processes and modification to include leading practices and to standardize processes across the Region • May require change in data sources and reporting • No anticipated changes to the volume of work
Middle Management	• Effective planning (growth, renewal/replacement & maintenance) • Adequate resources to manage assets (do the right thing) • Improved collaboration & coordination • Regulatory compliance • Reduced risk taking • Quality service delivery	• Current Department reporting relationships are unchanged except for collaboration on the Corporate AM Steering Team • Core responsibilities for development of the AM program shouldered by AMO, with future new Department staff	• Ownership of AM program implementation remains with the Departments • Requirements for new or augmented specialized skill and/or knowledge defined and training facilitated by AMO	• Requirements for new or augmented AM work flows, data requirements and reporting defined by AMO

Stakeholder	Interest in AM	Structure Impacts	People Impacts	Process Impacts
	• Customer satisfaction		• Clear career paths and succession planning for AM	
Senior Leadership	• Confidence that budget requests are realistic • Fiscal responsibility in delivery of service • Minimum cost of asset ownership • Managed risk • Quality service delivery • Regulatory compliance • Customer satisfaction	• Continued participation on the Corporate Leadership Team	• Formalization and standardization of staff development and succession planning for AM	• Formalization and standardization of new or augmented AM work flows, data requirements and reporting

Table 3.3   Change Readiness Assessment and Strategies

Factor	Description	Assessment	Strategies
Change history	• What type of change has been previously managed well? What made the difference? • What type of change hasn't been managed so well? What was missing or not done? What could have been done?	Recent changes at the Region include: • Implementation of a new Financial Management System including embedding new Program Financial Specialists (PFSs) and Program Financial Analysist (PFAs) into the Departments (reporting to Manager Program Financial Support). • The FTE's for the PFS and PFA roles were provided by each Department which reduced existing capacity within the Departments • The addition of the PFS and PFA roles was required for implementation of the Financial Management System • Implementation of a new corporate Project Management Office with five staff from Information Technology (Fall 2018) to lead and support standardized best in class PM practices within Regional departments • The implementation is just beginning	• Continue to track performance from past and current change initiatives • Incorporate lessons learned
Business capacity	• What other initiatives are going on at the Department level? • Who will feel the most impact and when?	• The capacity of each department varies • Addition of responsibilities to some of the smaller departments is viewed as a big change • Particular times of the year may be busier than others (e.g. budget development)	• Clearly communicate the roles, responsibilities and time commitments to enable staff to understand the impacts
Current climate	• What's morale like in your part of the organization at the moment?	• Improving the effectiveness and efficiency of service delivery across the Region is viewed as a positive change by most Regional staff	• Clearly communicate how the AM Governance Model will impact the work the Region does • Communicate progress

Factor	Description	Assessment	Strategies
	• What are people's views on the current projects being planned and in progress?		
Change infrastructure	• How well do the organization's communication channels work for building awareness and engagement in projects (compared to business as usual)? • Are there any natural "champions" in your team who embrace change and motivate others?	• Internal Control and Organizational Performance (ICOP) group provides guidance on business improvements • Human Resources group can assist with development and implementation of communications and training plans	• Leverage capacity, skills and knowledge in ICOP (business process improvements) and HR (communications and training) to support the AMO • Select "champions" throughout the organization who embrace the change to motivate others
Sponsorship and leadership	• Do senior managers visibly sponsor change – e.g. by role modelling new behaviours or using new systems? • Are people involved in projects given performance objectives that indicate how seriously the success of those projects is taken?	• AM Program co-sponsors are: • The Commissioner of Enterprise Resource Management Services / Treasurer who is responsible for the Regional Budget and Plan • The Commissioner of Public Works who is responsible to deliver Transportation, Water, Wastewater, Stormwater and Waste Management services, including lifecycle management of the assets that support delivery of these services • AM Program co-sponsors have a good understanding of the vision and of the impacts of the change	• Ensure that co-sponsors are visible "champions" of change • Include performance objectives that indicate how seriously the success of the AM Strategy initiatives is to the Region

Table 3.4   Summary of Change Impacts and Mitigation Strategies

Category / Criteria	Assessment	Rating	Mitigation Strategy
Governance & Structure			Communicate: Benefits of new structure
Change in accountability or reporting relationship (e.g. level and / or position)?	Minor accountability change • Current Department reporting relationships are unchanged except for collaboration with peers on AM Networks • New Corporate AM Steering Team	Low	• Communicate: How AM Networks will enable better collaboration of the AM practice across the Region • Communicate: Ensure that co-sponsors are visible "champions" of change
Change in the number of people required to do the work?	Yes • Addition of seven new roles in the Corporate AM Office (AMO) including Director, Managers and Analysts • Core responsibilities for development of AM program shouldered by AMO • Addition of one future new role in each Department (Technology Analysts) • The capacity of each department varies: Addition of responsibilities to some of the smaller departments is viewed as a big change	Low	• Communicate: New AMO and dept structures and roles • Communicate: Performance of PMO and dept structures • Communicate: Time commitments for implementing AM program initiatives
Change in location where work is performed	No		
People			Communicate: Benefits of AM practices
Requires new skill(s) to perform the activity?	Considerable • Requires new or augmented specialized skills and/or knowledge based on role changes, new process, new technology	Medium	• Communicate: New skill(s) for roles
Tasks added or eliminated for a position?	Yes • New tasks will be added to some roles		• Communicate: Added or eliminated task(s) for roles
Requires a change in behavior or culture?	Minor • Ownership of AM program implementation remains with the Departments	Medium	• Communicate: How the AM Governance Model will impact the work the Region does

Category / Criteria	Assessment	Rating	Mitigation Strategy
	• Minimal change in behavior or culture if AMO is perceived as guiding development of standard tools and templates for implementation and application by Departments		
Requires significant training to learn how to perform the activity	Considerable • Requires training to learn how to perform new tasks		• Leverage capacity, skills and knowledge in HR for training to support the AMO • Training: How to access curriculum and course info
Process			Communicate: Benefits of new process
Change in the way the work gets done?	Moderate • Requires change in the way work is performed including formalization of existing processes and modification to include leading practices and to standardize processes across the Region • No anticipated changes to the volume of work		• Leverage capacity, skills and knowledge in ICOP for business process improvements to support the AMO • Communicate: New processes • Training: How to access curriculum and course info
Change in the frequency of performance of an activity?	Minor		
Change in the length of time required to perform an activity?	Minor	Medium	• Communicate: Roles, responsibilities and time commitments to enable staff to understand the impacts
Change in data sources or inputs?	Moderate • May require change in data sources		• Communicate: New data sources that result from process changes
Change in reports or outputs?	Moderate • May require change in reporting		• Communicate: New reports or outputs that result from process changes
Change in communication / interaction required to complete an activity	Minor		• Leverage capacity, skills and knowledge in HR for communications to support the AMO

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Asset Management Governance

Change Management, Communications & Training Plan

The Regional Municipality of Niagara

December 2018

Table of Contents

1. Executive Summary

The first part of the Asset Management (AM) Governance initiative has recommended creating a formal AM Governance Model with a clear organizational structure and appropriate authority, roles and responsibilities to support the development and implementation of leading asset management practices. The AM Governance Model recommendations include a three step implementation plan, as shown below (with timing).

Table 1.1   Recommended AM Governance Model Implementation

1. Corporate (Immediate)	2. Department (Short Term)	3. Department (Medium Term)
1.1 Create a Corporate AM Steering Team		
1.2 Create (new) a formal Corporate AM Office (AMO): • Director of AMO • AM Manager & Analyst: Strategy & Integrated Planning • AM Manager & Analyst: Asset Integrity & Productivity • AM Manager & Analyst: Asset Performance & Asset Knowledge [1]	**2.1 Create (rebrand and augment) formal Departmental AM Responsibilities:** • Dept AM Managers **2.2 Establish AM Practice Networks across the Departments:** • AM Planning Network • AM Productivity Network • Asset Knowledge & Performance Management Network	**3.1 Create (rebrand and augment) formal Departmental AM Responsibilities:** • Dept Planner Schedulers • Dept Technology Analysts • Dept Reliability Analysts • Dept Process Analysts

[1] **_Note_** _that the AM Manager: Asset Performance & Asset Knowledge has the responsibility to lead the development of the AM Communication and Training programs._

With the implementation of the recommended AM Governance Model, many Region staff members will be required to adopt some form of change to their day-to-day work. Effective communication will be critical to successfully manage the change related to implementing the AM Governance Model.

In this part of the AM Governance initiative, a Change Management and Communications Plan has been developed to assist in the implementation of the AM Governance Model and, more broadly, the AM Strategy. This Leading Change Plan is comprised of four steps to support the change process through communications, as shown in the following table:

Table 1.2   Communication in Support of Change

Step	Change Process	Communications Plan
1: Prepare	• Create the Governance structure to guide the change (Completed) • Develop the vision and the culture change required (Completed) • Ensure all stakeholders understand the need and urgency for making the change • Identify and manage resistance	• Communicate details of the change • Communicate the vision and the culture change required • Communicate the need and urgency for making the change • Communicate to address resistance to change
2: Plan	• Develop the strategy and plan for implementation (Completed) • Form the working groups required for implementation • Continue to communicate on a regular basis	• Communicate the Leading Change Plan • Communicate signing the Charter and presenting the benefits • Communicate the Governance Model and accountabilities
3: Implement	• Identify where staff are in the change transition process • Enable people to take action • Create short term wins • Continue to communicate for buy-in • Don't let up	• Communicate the Leading Change Plan status updates • Communicate through meetings and workshops • Communicate and celebrate Leading Change Plan wins • Communicate for obtaining support for buy-in
4: Coach	• Ensure the new ways of behaving and work processes succeed, until they become a part of the culture of the Region	• Communicate to celebrate the New Beginnings • Communicate to reinforce the New World

An AM Training Plan is also provided to enhance AM technical skills of staff to support AM Strategy implementation, the broader AM Program and compliance with *O.Reg. 588/17 AM Planning for Municipal Infrastructure*. The general approach for the AM Curriculum is to provide three categories or levels of training: AM Policy and Framework Orientation, AM Framework Overview Training, and AM Practices Training.

This Change Management, Communications and Training Plan is a "living document" in that the contents of the Plan will be modified as feedback is obtained by the organization on past effectiveness, current concerns, and potential future concerns. It should also be operationalised into the overall corporate training plan for the Region.

2. Introduction

2.1 Background

The Region of Niagara has embarked on a multi-year phased Asset Management (AM) Program that is focused on improving the Region's overall efficiencies and effectiveness in delivering sustainable services through the development and implementation of leading asset management practices.

The first phase of the Region's Asset Management Program, which was completed in 2017, included the development of an Asset Management Strategy that measured the Region's asset management system maturity and outlined an AM Roadmap of initiatives to achieve efficiency and effectiveness in service delivery across the Region. The supporting services recommendations in the AM Strategy included initiative SS1: Develop and Implement an AM Governance Model.

The first part of the AM Governance initiative has reviewed various AM governance models and identified a clear structure with appropriate authority, roles and responsibilities to support the development and implementation of leading asset management practices at the Region. The organizational structure considers the needs for corporate standardization and consistency in asset management and also provides the flexibility for implementation unique to the asset class and operating environment.

In this next part of the AM Governance initiative, a Change Management and Communications Plan has been developed to assist in the implementation of the identified AM Governance Model. This document will identify key obstacles that could hinder the implementation of the AM Governance Model and other AM practice enhancements and barriers or organizational elements that are not congruent with the AM Governance Model vision and strategy (e.g. gaps in skills, training requirements). It will then define communication and training requirements and responsibilities for Region stakeholders to help overcome key identified obstacles.

Although this Change Management and Communications Plan is written specifically for the implementation of the AM Governance Model, it is also intended to be used as a platform to facilitate the implementation of other AM Strategy initiatives.

The proposed structure for AM Governance must be flexible to grow and change in an appropriate manner while ensuring strong leadership at the Niagara Region as it progresses and develops on the asset management maturity scale detailed in the AM Strategy Roadmap. This Change Management and Communications Plan will be a "living" document that is updated over time as required to support the growth and change in the AM Governance Model.

The recommended strategy for implementing the AM Strategy Roadmap is a hybrid of practice-based and departmental implementation. The recommended strategy focuses on implementation for one asset type, with AM preparation teams established for all other asset types that can start some of the preparatory work while major implementation is occurring at other asset types.

2.2 Methodology for Communicating During Change

This Leading Change Plan was developed to enable effective communications related to the AM Governance Model and follows the Five P's of communication, as shown in the following table.

The Leading Change Plan is also based on the Four-Cs: Clear, Constant, Consistent, and Caring. Caring means that each audience is thought about individually and the message targeted to their needs and concerns. During implementation, it is important to set up regular delivery channels and processes for on-going communication. Even communicating "we don't know" or "there is nothing new to communicate since last time" is important.

Table 2.1   Communication in Support of Change

Step	Change Process	Communications Plan	Five Ps of Communication
1: Prepare	• Create the Governance structure to guide the change (Completed) • Develop the vision and the culture change required (Completed) • Ensure all stakeholders understand the need and urgency for making the change • Identify and manage resistance	• Communicate details of the change • Communicate the vision and the culture change required • Communicate the need and urgency for making the change • Communicate to address resistance to change	• **PROBLEM:** What is the problem that the change is trying to solve? Why is not changing not an option? What has changed in our environment that makes change essential? What is the purpose of this change? • **PICTURE:** What is the big picture? What will things look like when change is fully implemented? What will we stop doing? Start doing? Keep doing? If you could fast forward to 12 months from now – when the change is fully implemented – what would be the picture that you would see in the workplace?
2: Plan	• Develop the strategy and plan for implementation (Completed) • Form the working groups required for implementation • Continue to communicate on a regular basis	• Communicate the Leading Change Plan • Communicate signing the Charter and presenting the benefits • Communicate the Governance Model and accountabilities	• **PLAN:** What is going to be happening this month? Next month? The month afterwards? What are all the steps that are being taken to ensure change is fully implemented? What is the change plan?

Step	Change Process	Communications Plan	Five Ps of Communication
3: Implement	- Identify where staff are in the change transition process - Enable people to take action - Create short term wins - Continue to communicate for buy-in - Monitor and report on implementation successes - Don't let up	- Communicate the Leading Change Plan status updates - Communicate through meetings and workshops - Communicate and celebrate Leading Change Plan wins - Communicate for obtaining support for buy-in	**PART:** Who is responsible for doing what by when to ensure this change is fully implemented? What is your part? What is the part that you need your direct reports to play in implementing this change? How can others get involved in defining parts of the picture? Parts of the plan?
4: Coach	Ensure the new ways of behaving and work processes succeed, until they become a part of the culture of the Region	- Communicate to celebrate the New Beginnings - Communicate to reinforce the New World	**PROGRESS:** How will you know if the change has been successfully implemented? How will we know if the change was effective in solving the problem in the first place? What will be monitored? Who will do the monitoring? How often will we receive a progress update to let us know how well we are doing implementing the change? Making the change work?

2.3 Stakeholders

The Region's internal and pollical stakeholders are listed in the table below together with their interest in Asset Management (taken from the AM Governance Model report).

Table 2.2 Asset Management Stakeholders

Type	Stakeholder	Interest in Asset Management
Internal	Staff	• Adequate resources to manage assets (do the right thing) • Adequate processes to manage projects (do things right) • Improved collaboration & coordination • Reduced risk taking • Quality service delivery • Customer satisfaction
	Middle Management	• Effective planning (growth, renewal/replacement & maintenance) • Adequate resources to manage assets (do the right thing) • Improved collaboration & coordination • Regulatory compliance • Reduced risk taking • Quality service delivery • Customer satisfaction
	Senior Leadership	• Confidence that budget requests are realistic • Fiscal responsibility in delivery of service • Minimum cost of asset ownership • Managed risk • Quality service delivery • Regulatory compliance • Customer satisfaction
Political	Regional Council	• Confidence that budget requests are realistic • Minimum cost of asset ownership • Managed risk • Quality service delivery • Customer satisfaction

Note that each stakeholder identified in this Plan should be an enabler of change. Obtaining the sponsorship and commitment from management and staff alike is critical to the successful implementation of the AM Governance Model. Implementation success will be commensurate with the Region's willingness to embrace change.

2.4   Conflict Resolution

To assist the Region in managing conflict that may arise during the implementation of the AM Governance Model, the following information is provided. As conflict is usually customised to specific issues and individuals, this information highlights underlying sources of conflict and potential resolution strategies to apply. These strategies will need to be tailored to specific conflict issues and individuals.

Table 2.3   Potential Sources of Conflict and Resolution Strategies

Conflict Source	Resolution Strategies
Fear	Fear is about the future, the unknown. • Messages must be openly communicated to illustrate a clear direction. • If the direction is driving the fear, benefits specific to individuals must be clearly demonstrated and documented. • Fear fades when faced with facts.
Force	Force refers to doing something you may not want to do. • To overcome this type of conflict, building trust is crucial. • Do not rush the process or the participants. • Provide advanced warning of the change to facilitate communication between participants prior to commencement. • Present a strong case for the change, i.e. the benefits.
Fair	• Demonstrate fairness throughout the implementation process, i.e. let individual staff members know that they are not the only ones being affected. • Communicate and collaborate to build a sense of ownership of the change and reinforce that staff are part of the solution.
Funds	In the context of the AM Governance Model, funds refer to the cost of implementation and resultant outputs. • Transparently communicate to all staff the operational cost benefits of implementing the identified AM Governance Model and leading AM practices. • Demonstrating tangible cost benefits will assist in reducing conflict in other areas.

3. Change Process

3.1 Step 1: Prepare

3.1.1 Overview

This section of the communication plan is to address:

- Why undertake the AM Strategy and the AM Governance initiative?

- What does success look like for the Region?

- What has been completed in Phase 1 of the AM Program with the gap analysis and AM Plan?

- The establishment of the governance structure and their accountabilities.

The change tasks include:

- Ensure all stakeholders understand the need and urgency for making the change

- Communicate the Governance structure to guide the change

- Develop the vision

- Identify the culture change required

- Identify potential resistance and develop strategies to manage any resistance.

During this step of the change process, communications will focus on the following:

- Problem

  - What is the problem that the change is trying to solve?
  - Why is no change not an option?
  - What has changed in our environment that makes change essential now?
  - What is the purpose of this change?

- Picture

  - What is the big picture?
  - What will things look like when change is fully implemented?
  - What will we stop doing? Start doing? Keep doing?
  - If you could fast forward to 12 months from now – when the change was fully implemented – what would be the picture that you would see in the workplace?

3.1.2 Communication Plan Specifics

The following communications will be required to support this step of the change process:

- Communicate details of the change
- Communicate the vision and the culture change required
- Communicate the need and urgency for making the change
- Communicate to address resistance to change.

3.1.3 Communicate to Address Resistance to Change

There are three main reasons that people resist change, they include:

- Intellectual Resistance: "I don't get it!"
- Cultural/Personal Resistance: "I don't like it!"
- Core Resistance: "I don't agree."

The chart below illustrates what each of these resistances might look like along with strategies to overcome the resistance.

Table 3.1   Addressing Resistance to Change

Conflict Source	INTELLECTUAL I don't get it!	CULTURAL / PERSONAL I don't like it!	CORE I don't agree!
Signs of Resistance	- No strong need or urgency - People don't see the purpose/benefits to change - Question or oppose the idea - Are satisfied with the status quo - Not clear how the change is supposed to work or the desired future state - Too many unanswered questions	- Previous organizational change efforts failed - Norms, values, reward and punishments favor status quo - Loss of status, respect, position, relationships, competence - Prevailing attitudes of distrust, fear or rigidity - People don't see management "walking the talk"	- People are experiencing major loss and don't see what's in it for them - Distrust is deeply entrenched - Change violates individual values, beliefs, visions - People are feeling outside their comfort and competence zones
Strategies to Reduce Resistance	- Create opportunities to communicate regularly about the changes - Increase your efforts to create sufficient understanding of why the change is necessary, what the desired change goals are and what the plan is for moving forward	- Involve staff in deciding matters that concern them - Build trust by informing them about who will be involved in making decisions, the principles being used to guide decision making and how they will be informed, consulted and involved - Provide opportunities for them to express their feelings of loss - Listen respectfully, stay flexible and adapt your plans to the full extent possible - Identify competencies and behaviors required in the new environment	- Develop a plan to show that the change is happening - Identify the influential change leaders, build their support and commitment, and identify what behaviors and actions they must role model to support the change (do things dramatically differently) - Support all efforts by removing barriers and rewarding those who exemplify the new behaviors - Provide forums to bring together groups and individuals who are leading the way to share ideas and learning - Implement pilot projects and develop plans to get all relevant stakeholders involved

Conflict Source	INTELLECTUAL I don't get it!	CULTURAL / PERSONAL I don't like it!	CORE I don't agree!
			• Use multiple leverage points – leadership, teamwork, decision making, rewards
Communication Should Include	• Why is there a need for this change? • What is our vision and strategy for moving forward? • What is the roadmap for change and how will I be involved? • What do you like about the change? • What is missing? • What change supports do you need?	• How will I be involved in deciding matters that concern me personally? • What are the avenues I can use to express my opinions and share my needs? • Who is representing the interests of my unit and/or professional group? • What new competencies will be required?	• Who is running this change initiative? • Why are they credible and deserving of my trust? • Do they have the best interests of the organization in mind? • Have they done their homework? Do they have the right strategy? • Are they honoring our past, our values, and our culture?

3.2 Step 2: Plan

3.2.1 Overview

This section of the communication plan is to address:

- The detailed plan for implementation of the AM Governance Model, with key milestones and includes a high level view of the AM Strategy, asset management planning and business frameworks, data registry and standards, and asset management plans

- This will include an explanation of how, when and who will be involved in the working groups required for the implementation of the AM Governance Model.

The change tasks include:

- Develop the strategy and plan for change
- Identify all the stakeholders impacted by the change
- Communicate on a regular basis.

During this step of the change process, communications will focus on the following:

- Plan (Initiative Updates)
  - What is going to be happening this month? Next month? The month afterwards?
  - What are all the steps that are being taken to ensure change is fully implemented?
  - What is the change plan?
- Part (Roles)
  - Who is responsible for doing what by when to ensure this change is fully implemented?
  - What is your part?
  - What is the part that you need your direct reports to play in implementing this change?
  - How can others get involved in defining parts of the picture? Parts of the plan?

3.2.2 Communication Plan Specifics

The following communications will be required to support this step of the change process.

- Communicate the Leading Change Plan
- Communicate signing the Charter and presenting the benefits
- Communicate the Governance Model and accountabilities.

3.3 Step 3: Implement

3.3.1 Overview

This section of the communication plan is to address:

- The development of the organization as recommended in the AM Governance Model to support the development and implementation of leading asset management practices.

- This is a multi-step implementation.

The change tasks include:

- Identify where staff are in the transition process

- Identify the current tasks that staff complete relating to asset management, the time commitments and the work flow of these tasks to establish a current state picture of the work performed relating to asset management, and validate the current state picture with staff

- Enable people to take action

- Create short term wins

- Continue to communicate for buy-in

- Communicate the approved organizational model

- Develop and implement new competencies for asset management

- Develop and implement training programs to support staff with their competency development

- Provide details of implementation timelines

- Get feedback on impacts (this is the fifth P: Progress)

  – How will you know if the change has been successfully implemented?

  – How will we know if the change was effective in solving the problem in the first place?

  – What will be monitored? Who will do the monitoring?

  – How often will we receive a progress update to let us know how well we are doing implementing the change? Making the change work?

- Make adjustments and readjustments.

3.3.2 Communication Plan Specifics

The following communications will be required to support this step of the change process:

- Communicate the Leading Change Plan status updates
- Communicate through meetings and workshops
- Communicate and celebrate Leading Change Plan wins
- Communicate for obtaining support for buy-in.

3.4 Step 4: Coach

3.4.1 Overview

The change tasks include ensuring that the new ways of behaving and work processes succeed, until they become a part of the culture of the group.

During this step of the change process, communications will focus on establishing guiding principles for how work is performed in the "new world".

3.4.2 Communication Plan Specifics

The following communications will be required to support this step of the change process:

- Communicate to Reinforce the New World
- Communicate to Celebrate the New Beginnings.

3.5 Communication Reporting

Information exchange is crucial for successful communication. Information exchange through communication reporting not only formalizes communication protocols, but also provides a vehicle for all internal stakeholders to document their say (both positive and negative) as well as monitor and report on implementation successes.

The use of the following communication reporting tools and processes are recommended to facilitate the communication and implementation of the AM Governance Model outcomes.

3.5.1 Niagara Region Communication Systems

To enable exchange of information and to communicate implementation success, existing Niagara Region communication systems should also be used. Specifically:

- **Internal Intranet:** The Intranet can be used to report on project information such as implementation progress, successes, and success indicators. This responsibility should lie with the Director of the AMO.

- **eDoc Electronic Filing System :** The Vine filing system can be used to centrally store all project communication information such as meeting minutes, progress reports, Communication Plans, Training Strategy, consultant deliverables etc. Information relating to the AM Governance Model implementation should be made available to all internal stakeholders.

3.5.2 Departmental/Management Meetings

Departmental and Management Meetings are crucial to communicating important project information. The implementation of the AM Governance Model initiative outcomes should be a standing item on all future Departmental and Management Meeting agendas. Appropriate actions and outcomes of these meetings should be clearly and transparently communicated to staff via the Region's communication systems.

4. Communications Plan

Implementing the identified AM Governance Model will mean more than a change in organizational structure. This Communications Plan aims to identify and address key stakeholder issues that could hinder the implementation of the identified AM Governance Model. It identifies stakeholders, the benefits expected from implementation of the AM Strategy and AM Governance Model, potential concerns, as well as communication needs and communications responsibilities.

The Region should view the identified concerns as improvement opportunities. Acting on these opportunities will ultimately improve service delivery for the Region's customers. This Communications Plan is a "living document" in that the contents will be modified to support the four steps in the change process and the feedback obtained on effectiveness of past communication, current concerns, and potential future concerns.

Table 5.1   Communications Plan

Who?	Benefits of AM We can expect:	Potential Concerns However, we may also be:	Communications Needs Therefore, we should:	Communications Responsibilities By Whom, How, When?
Regional Council and Committees	• Confidence that budget requests are realistic • Minimum cost of asset ownership • Managed risk • Quality service delivery • Customer satisfaction	• Uncertain of the short, medium and long term benefits of the AM Program as it is a significant initiative with no "concrete" assets created or new services provided	• Explain the need for change and tangible future benefits of the AM Program and supporting AM Governance Model in a clear and simple way • Demonstrate that public funds are being spent wisely	• By Senior Leadership • Through the use of interim success factors that demonstrate progress • AM Program and AM Governance updates at regular intervals throughout the term of Council
Senior Leadership	• Confidence that budget requests are realistic • Fiscal responsibility in delivery of service • Minimum cost of asset ownership • Managed risk • Quality service delivery • Regulatory compliance • Customer satisfaction	• Uncertain of the required changes and associated risks and costs to implement AM practices, including work processes and supporting technology and human resources enablers (I.e. the AM Governance Model initiative) • Uncertain of the human resources impacts related to the AM Governance Model including organization structure changes, job description changes, job classification changes, union implications, and retraining needs • Uncertain of Council's acceptance of adding extra FTE's	• Explain the need for change and tangible future benefits of the AM Program and supporting AM Governance Model in a clear and simple way • Demonstrate that public funds are being spent wisely • Assess and address the impact of the AM Governance initiative on people across the organization (e.g., excessive workloads may dictate the need for additional resources, change in responsibilities may necessitate training)	• By AMO through the AM Steering Committee • Through short, medium and long term success factors for both efficiency (on scope, on time, on budget) and effectiveness to demonstrate that the AM Strategy and AM Governance initiative deliverables are being met • AM Program and AM Governance updates at regular intervals
Corporate Asset Management Office (AMO)	• Effective planning (optimization of decision making, quantification of the impact of work not done) • Confidence that budget requests are realistic and support affordable and achievable levels of service	• Uncertain that the Departments will fully cooperate with the centralized AMO • Uncertain that the AM Governance Model initiative will be fully funded and achieve its potential	• Lead and facilitate top down involvement and instill the notion that the AM Governance Model is critical to success of the AM Strategy implementation at the Region • Facilitate top down involvement and support for the AM	• By Senior Leadership through the AM Steering Committee • Through demonstrated leadership throughout the organization and provision of appropriate funding of the AM Governance initiative

Who?	Benefits of AM We can expect:	Potential Concerns However, we may also be:	Communications Needs Therefore, we should:	Communications Responsibilities By Whom, How, When?
	• Improved collaboration and coordination • Regulatory compliance of the AM Plan		Governance Model through the implementation of the Steering Committee Team Charter • Stimulate participation in the AM Governance initiative by engaging personnel from all levels within the Departments and communicating the benefits of the AM Governance Model to Managers and Staff specific to their day to day tasks • Ensure AMO is adequately trained in technical and cultural requirements enabling them to lead	• Continue the communications process on an ongoing basis
Middle Managers	• Effective planning (growth, renewal/replacement and maintenance) • Adequate resources to manage assets (do the right thing) • Improved collaboration & coordination • Regulatory compliance • Reduced risk taking • Quality service delivery • Customer satisfaction	• Uncertain of how Departmental staff will react to integration of common Corporate asset management leading practices with current Department practices • Uncertain of the human resources impacts related to the AM Governance Model including organization structure changes, job description changes, job classification changes, union implications, and retraining needs • Uncertain that the AM Governance Model initiative will be fully funded and achieve its potential (i.e. existing staff will be expected to take on more volume of work) • Uncertain how Departmental staff and/or the union will react to the need to develop additional skills or knowledge, including those required	• Stimulate participation in the AM Governance initiative by ensuring that Manager know they are key to the successful implementation of the AM Governance Model • Explain the need for change and tangible future benefits of the AM Program and supporting AM Governance Model in a clear and simple way • Provide feedback on AM Governance Model successes and areas for improvement so that they may be addressed through the departments • Provide awareness training and messaging that focuses on the non-technical components of the implementation such as responsibilities, communication and departmental culture	• By Senior Leadership through the AM Steering Committee, AMO and HR • Through demonstrated leadership throughout the organization, provision of appropriate messaging for the AM Governance initiative, and feedback on areas for improvement • Continue the communications process on an ongoing basis

Who?	Benefits of AM We can expect:	Potential Concerns However, we may also be:	Communications Needs Therefore, we should:	Communications Responsibilities By Whom, How, When?
		to help subordinates adapt to the new practices		
Staff	• Adequate resources to manage assets (do the right thing) • Adequate processes to manage projects (do things right) • Improved collaboration & coordination • Reduced risk taking • Quality service delivery • Customer satisfaction	• Uncertain of the impact of the recommended AM Governance Model on work life including organization structure changes, job description changes, job classification changes, union implications, and retraining needs • Overwhelmed by the capacity to complete the current workload and anxious about taking on more work • Fearful of new asset management practices including what is done and/or the way it is done – including the tasks themselves, means of communication with others, and the data and systems used to support work • Resentful of centralization of AM practices and unwilling to integrate common Corporate asset management best practices with current Department practices • Lacking in skills and/or knowledge to take on new responsibilities • Frustrated by the amount and rate of change	• Explain the need for change and tangible future benefits of the AM Program and supporting AM Governance Model in a clear and simple way • Clarify the implementation plan and impact of the recommended AM Governance initiative on the specific roles, responsibilities and day to day tasks of departmental staff • Identify credible champions within each business unit, brief them on the importance of their support, and enroll them in delivering messages • Identify implementation issues/risks as they surface and address them proactively in an open and accountable manner • Provide feedback on AM Governance Model successes and areas for improvement to Managers	• By Middle Managers with support from Senior Management and AMO • Through individual reach outs, Emails highlighting benefits of change, and Intranet posts • Continue the two-way communications process on an ongoing basis

5. Training Plan

5.1 Overview

Based on the recommended AM Governance Model, the following roles are to be created over a period of time:

- A new Corporate AM Office (AMO) that consists of a Director, and three AM Managers and three AM Analysts: one each for Asset Performance and Asset Knowledge [1], Strategy and Integrated Planning, and Asset Integrity and Productivity

- Rebranding of existing roles to create formal Departmental AM Managers

- Rebranding or augmentation of existing roles to create formal Departmental Planner Schedulers, Technology Analysts, Reliability Analysts and Process Analysts

   [1] *Note that the AM Manager: Asset Performance & Asset Knowledge has the responsibility to lead the development of the AM Communication and Training programs.*

In addition, to facilitate cooperation and consistency across the Region, the recommended AM Governance Model also includes AM Practice Networks across the Departments for AM Planning, AM Productivity, and Asset Knowledge & Performance Management.

Critical to the successful implementation of the AM Governance Model is the Region's willingness to embrace change. The initial step in establishing this willingness is ensuring all stakeholders are committed to the implementation requirements.

To instil this commitment, it is recommended the Region complete awareness training sessions with internal stakeholders including Senior Leadership, Middle Management and Staff. The training should focus on the non technical components of the implementation, such as responsibilities, communication and departmental culture.

The intent of the awareness training is to bring clarity to Middle Management and Staff on what they are meant to be doing on a day to day basis, and to communicate the importance and resultant benefits of the changes.

To avoid any perception of bias, an independent external facilitator should be engaged to complete the training. However the Awareness Training needs to be imparted by a senior manager at the beginning of the training sessions to instil the top down involvement to staff.

This training is part of the communication strategy and includes communication of the following messages:

- Building trust within all levels of the Region to overcome the fear of change.

- Department staff are part of the solution.

- Benefits of change (e.g. improved decision making, reduced frustrations, and improved business culture).

- Demonstration of strong leadership.

5.2 Training Approaches

There are many different ways to conduct job training. The most appropriate methods depend upon the needs of the organization and the trainee, and on the complexity of the tasks being performed. The method(s) selected should suit the audience, the content, the business environment and the learning objective. The following training approaches were considered:

- **Classroom Lecture:** A classroom lecture is the method learners most commonly associate with college and secondary education. Communication is primarily one-way: from the instructor to the learner. The instructor may use handouts, visual aids, question / answer, or posters to support the lecture.

  – Pros: Less time is needed for the instructor to prepare than other methods. It provides a lot of information quickly when it is less important that the trainees retain a lot of details.

  – Cons: Does not actively involve trainees in the training process. The trainees forget much information if it is presented only orally.

- **On-The-Job Training:** The manager shows the staff member how to do the job tasks using real on-the-job circumstances. To be successful, the training should be done according to a structured program that uses task lists, job breakdowns and performance standards as a lesson plan.

  – Pros: The training can be made extremely specific to the staff member's needs. It is highly practical and reality-based, and engages several senses: seeing, hearing, feeling, touching. This approach enables the manager to customize training to the staff member's needs.

  – Cons: Training is not standardized and therefore requires the manager to prepare and plan. If the manager is not skilled in how to coach or the task being taught, poor retention or work habits can result.

- **Computer-Based Training:** Content for the training experience comes primarily from a videotape or computer-based program.

  – Pros: It is easy to provide this training and the trainer can follow-up with questions and discussion. It is also easy to assure that the same information is presented to each trainee.

– Cons: It is expensive to develop. Most trainers choosing this option must purchase the training from an outside vendor, making the content less specific to their needs.

The recommended training method is a combination of classroom lecture to present technical information quickly and cost-effectively, and on-the-job training to provide individual or small group coaching. This training approach should be supported by a knowledge management database that provides ready reference to information on the AM Framework and associated processes and systems.

Manager-led training capitalizes on the positive influences that leadership has on the development of the attitudes and behaviours of staff during the implementation of new processes and practices. Manager-led training is an effective way to engage staff, while retaining control of the curriculum in-house. Managers leading these on-the-job training sessions will require support initially until they are familiar with the AM processes and concepts. The AMO Director and Managers will provide the training content and AM Manager: Asset Performance and Asset Knowledge and Corporate Human Resources will advise on training methodologies.

5.3   Training Processes

The following sections provide a description of training processes that should be considered prior to, during and after completing any training and is intended to assist in the implementation of the AM Governance Model.

Training consists of development, course preparation, creation, implementation and evaluation; each of which are described in the following sections.

5.3.1   Training Development

To decide whether training is the answer to improve performance, one basic question needs to be asked, "Does the team member know how to meet the required performance standards for an accountable task?" If the answer is "No", then training is needed. If the answer is "Yes", then the team member may not perform to standards due to time factors, quality of procedures, working conditions or a misunderstanding of the required standards, and a different action is needed. Some of these other actions might be counselling, job redesign, process improvement, or organizational development.

The following questions form the foundation of a checklist prior to developing or implementing a training course.

• What business need(s) will be met by this training course?

• What is the current standard of meeting this business need(s) from the participant(s)?

• What will the participant(s) do differently and better after attending the training course?

- How will you measure and document the changes and results of the training course?

- What is the participant(s) currently doing that they shouldn't be doing?

- What currently prevents you and/or the participant(s) from performing the prescribed task/job to standards?

- What job aids and resources are available for the completion of the job/task(s) and are they accurate? Are they being used correctly?

- What are the anticipated number of participants in this training course?

- What is the general education and direct experience of the participant(s)? How will this impact your training?

- Are there any language or cultural requirements for the participant(s)? If so, what are they and their possible impacts to the training course?

5.3.2 Training Course Preparation

The purpose of a training needs assessment is to identify performance requirements or needs within an organization to help direct resources to the areas of greatest need – those that closely relate to fulfilling the organisational goals and objectives, improving productivity, and providing quality products and services.

The needs assessment is the first step in the establishment of a training and development program. It is used as the foundation for determining instructional objectives, the selection and design of instructional programs, the implementation of the programs and the evaluation of the training provided. These processes form a continuous cycle which always begins with a needs assessment.

The following questions can be used to direct discussions regarding training or it can form the foundations of a checklist prior to preparing the training course.

- What are the core competencies and/or experiences of the participant(s) you wish to provide the training course for?

- What additional competencies and/or experiences would benefit the participant(s) and performance levels?

- What are the current competencies and/or experience levels of the participant(s) you wish to provide the training course for?

- What systems are available and/or will be used to assess current competency and skill levels for this role?

- Which resources and/or external elements will impact the performance of the participant(s) you wish to provide training for?

- What internal training and development support is already available to the participant(s)? How successful is this support?

- What access do you have to a training budget?

- Who are the current champions and/or subject matter specialists in your team or the organization?

5.3.3 Training Course Creation

Once the course plan is confirmed including outcomes/objectives, information/knowledge elements, activities (table group discussions, case studies, demonstrations etc.) and breaks, the next step is to write the content and gather all relevant resources.

The following questions can be used to direct discussions regarding training or it can form the foundations of a checklist prior to creating the training course.

- Who is best equipped to provide the information for this training course?

- Who is best equipped to develop and design the training course?

- What is this training course going to do for the participant(s), the organization, or other stakeholders?

- What are the legal and organizational procedures and protocols to consider when developing and designing the training course?

- Are there similar courses (past and present) available?

- Which other departments and groups within the organisation may benefit from this training course? What are the similarities between the groups, their competencies and skills, level of experience and expected output?

- What are the time frames around this training course? Duration of the course? Training to commence by? Training to be completed by?

- What resources and aids are required to successfully achieve the training course objectives?

5.3.4 Training Course Implementation

There are three factors for a successful learning experience to take place:

- **Knowledge:** The trainer must know the subject matter. The trainer also provides the leadership, models behaviour, and adapts to learning preferences.

- **Environment:** The trainer must have the tools to transfer the subject matter to the learners, i.e. computers and software for computer classes, adequate classroom space, courseware such as lesson plans and training aids, etc. The trainer must fuse these training tools with the learning preferences of the learners.

- **Involvement Skills:** The trainer must know the learners. What are their real goals for being in the classroom? What are their learning styles? What tools do they need

to help them succeed? What are some of the affective-tools that will help you to help your learners succeed in the learning environment you have been charged with? You must also coach the learners to become self-directed, intrinsically motivated, goal oriented, and open to learning.

The following questions can be used to direct discussions regarding training or it can form the foundations of a checklist prior to implementing the training course.

- Other than the actual course participant(s), who else should be fully informed about this training? Think of other team members and/or departments this training course will impact.

- What is the impact to client services and business outcomes while the participant(s) attends this training course?

- What are the differences and similarities in experience and professional background of the participant(s). How will this impact the training course?

- Who is going to manage the training administration of the course (including invitations, RSVP, catering, travel and accommodation, material production, attendance list, evaluations and feedback reports, etc)

- What type of environment will best suit the participant(s) in the training course?

- How do you expect the participant(s) to behave and respond during the training course?

- What information, materials, aids and/or equipment will be included in the course to support and promote these behaviour(s) and response(s)?

- What will be the overall style of the training course? Structured and formal? Structured and informal? Lecture style? Workshop style? Seminar style? Describe the style.

- What are the benefits to the participant(s) by choosing this style for the training course?

5.3.5 Training Course Evaluation

The final phase in the training and development program is evaluation of the program to determine whether the training objectives were met. The evaluation process includes determining participant reaction to the training program, how much participants learned and how well the participants transfer the training back on the job.

The following questions can be used to direct discussions regarding training or it can form the foundations of a checklist prior to evaluating the training course.

- Is this course going to be piloted within the business prior to the official launch? If so, who will be the best team/department to pilot this course?

- Who will be leading, collating and communicating the results of the evaluations to all stakeholders?

- What is your expectation or definition of a successful training course?

- How will you differentiate 'specific/high-priority' feedback ("the course activities were too long and complicated...") over 'general/low-priority' feedback ("the coffee was cold...."). How will this differentiation assist you in properly evaluating the course?

- How will you promote and set the expectation for honest, professional and high-priority feedback in the evaluations of the training course?

- What are the current protocols for professional feedback, course evaluations and confidentiality in your workplace?

5.4 Training Curriculum

5.4.1 Overview of AM Curriculum

The outcome of the AM Training plan will be enhanced AM technical skills of staff in support of the AM Framework. The general approach for the AM Curriculum is to provide three categories or levels of training, as outlined in the following table. All categories of training are to include requirements for compliance with O.Reg. 588/17 AM Planning for Municipal Infrastructure.

Table 3.1   AM Training Categories

Course Category	Description	Attendees	Training Intensity*
AM Policy and Framework Orientation	• To provide staff with an introduction to AM principles and the AM Policy and Framework; and to prepare staff for more advanced training • To bring all staff to a basic level of understanding of AM practices and establish a common AM language	All staff	Low
AM Framework Overview Training	• Develop knowledge of AM principles, processes, and the AM Policy and Framework • Designed to provide staff with an introduction to a specific AM competency and its associated AM processes; and to prepare staff for more advanced training	Relevant managers and staff involved in the AM processes	Medium
AM Practices Training	• Training focused on developing skills and knowledge required to successfully carry out AM activities • Designed to develop skills and knowledge of workflows and technical practices	All staff involved in the AM Activity	High

Training Intensity

*Training intensity refers to the time commitment required by participants, the level of difficulty and detail of the training materials

- Low intensity is categorized as orientation and provides an introduction to key subjects, it does not require prerequisite training, and represents a minimal time commitment (less than 2 hours)

- Medium intensity training provides focused training to enhance knowledge of AM concepts and required skills, these may require prerequisite training and will likely represent more than 4 hour time commitment by participants

- High intensity training requires a more significant commitment (full day, 8 hours) to cover in-depth skill development and detailed task oriented training. These sessions will require prerequisite training.

The following AM Training Curriculum provides a description of training modules that are required to support the AM Strategy implementation, the broader AM Program, and the AM training approach described above. The curriculum consists of training modules for each of the three categories of training, including the orientation module. The curriculum must also include requirements for compliance with O.Reg. 588/17 AM Planning for Municipal Infrastructure. It would be advantageous to track individual staff training needs and accomplishments in completing the AM Training curriculum.

Table 3.2   AM Training Curriculum

AM Framework Component			Module		Objective (also: compliance with O.Reg. 588 AM Planning for Municipal Infrastructure)	Intensity	Prequal	Attendees
AM Policy & Framework (orientation)			AM 001	AM Framework Overview	Develop knowledge of AM concepts, principles and benefits Establish a common AM language Prepare staff for more advanced AM training	Low	None	All Staff
Planning			AM 101	AM Planning Overview	Develop an understanding of AM planning, its associated AM processes, and interface with other activities Learn how strategic planning, performance planning, master planning, renewal planning, maintenance planning, AM planning, capital programming, and operations planning contribute to enhanced AM Prepare staff for more advanced AM Planning training	Medium	AM 001	All Staff involved in AM Planning
Service Delivery			AM 102	Service Delivery Overview	Develop an understanding of AM service delivery, its associated AM processes, and interface with other activities Learn how asset acquisition, maintenance and operations contribute to and benefit from enhanced AM Prepare staff for more advanced AM Service Delivery training	Medium	AM 001	All Staff involved in AM Service Delivery
Performance Management			AM 103	Performance Management Overview	Develop an understanding of AM performance management, its associated AM processes, and interface with other activities Learn about Performance Management and the various inputs and outputs of a performance management program Learn how to develop asset service standards (or levels) Learn about reviewing service standards (or levels) to reflect changes in business drivers, programs or assets, and to improve effectiveness of performance management	Medium	AM 001	All Staff involved in AM Performance Mgmt
Delivery Support			AM 104	Support Services Overview	Develop an understanding of the role of delivery support in enhanced AM including financial management, human resources management, and data and systems management	Medium	AM 001	Staff involved with supporting HR, Finance, Data and Technology
Planning	Medium Term Plans	Performance Management Planning	AM 201	Performance Management Planning	Learn to develop service standards and performance indicators for key programs and assets that link all business drivers over the hierarchy of stakeholder needs Learn to review and update service standards and performance indicators to reflect changes in all business drivers	High	AM 001 AM 101	All Staff involved in Performance Mgmt Planning

AM Framework Component		Module		Objective (also: compliance with O.Reg. 588 AM Planning for Municipal Infrastructure)	Intensity	Prequal	Attendees
		Master Planning	AM 202 Master Planning	Learn how to review and update the supply and demand of services NOT REQUIRED	High	AM 001 AM 101	All Staff involved in Master Planning
		Renewal Planning	AM 203 Renewal Planning	Learn to identify failure modes, assess asset risk and identify end of life strategies for all asset types (i.e., (i) operate to failure or (ii) renew prior to failure) Learn to project end of life timing for assets using the Decision Support System (DSS) Learn to analyze all renewal options using benefit / cost analyses and document solutions including associated timing and cost	High	AM 001 AM 101	All Staff involved in Renewal Planning
		Asset Management Planning	AM 204 Asset Management Planning	Learn to develop AM Plans that meet O.Reg. 588/17 AM Planning for Municipal Infrastructure	High	AM 001 AM 101	All Staff involved AM Planning
		Maintenance Strategic Planning	AM 205 Maintenance Strategic Planning	Learn to develop and document maintenance strategies based on formal Failure Mode Effects and Criticality Analysis (FMECA) to optimize the blend of planned and unplanned maintenance	High	AM 001 AM 101	All Staff involved in Mtce Strategic Planning
		Consumables & Spares Management Planning	AM 206 Consumables & Spares Management Planning	Learn to develop a risk-based Consumables and Spares Management Strategy including business case by which the decision whether an item is held in stock is determined on the basis of a business case comparing the cost of holding the item and the risk negated by its immediate availability	High	AM 001 AM 101 AM 206	All Staff involved in Consumables & Spares Mgmt Planning
		Info Systems & Data Policy & Planning	AM 207 Info Systems & Data Policy & Planning	Learn the information technology, standards and policies, and data models to achieve enhanced AM	High	AM 001 AM 101	IT staff who support information systems and data
	Short Term Plans	10-Yr Capital Programming	AM 208 10-Yr Capital Programming	Learn to develop the 10-Year Capital Program based on a corporate capital programming framework and processes, including formal risk assessment, economic evaluation, and a confidence level approach To be delivered by Finance	High	AM 001 AM 101	All Staff involved in 10-Yr Capital Programming
		Annual Operating Planning & Budgeting	AM 209 Annual Operating Planning & Budgeting	Learn to develop the short term operating investment plans based on defined levels of service, failure mode analysis and risk analysis, and which are responsive to the prioritized needs of the Region and funding availability	High	AM 001 AM 101	All Staff involved in the development of operating and mtce budgets

AM Framework Component			Module		Objective (also: compliance with O.Reg. 588 AM Planning for Municipal Infrastructure)	Intensity	Prequal	Attendees
		Operational Standards & Specifications	AM 210	Operational Standards & Specifications	Learn to develop Operational Standards & Specifications based on the principles of formal risk assessment and economic evaluation	High	AM 001 AM 101	All Staff involved in setting Operational Stds & Specs
Service Delivery	Asset Creation & Renewal		AM 301	Asset Creation & Renewal	Learn the formal project delivery processes including how to manage projects, select consultants, administer consultant contracts, manage preliminary design, environmental assessments, detailed design, construction tendering, construction administration & inspection, commissioning, and asset handover To be delivered with / by the PMO	High	AM 001 AM 102	All Staff involved in Asset Creation and Renewal
	Asset Maintenance		AM 302	Asset Maintenance	Learn the CMMS information requirements and procedures necessary to support Maintenance Learn to plan, schedule, execute and complete the maintenance work using updated maintenance strategies and new / more robust CMMS	High	AM 001 AM 102	All Staff involved in Asset Maintenance and use of CMMS
	Operations		AM 303	Operations	Learn the CMMS information requirements and procedures necessary to support Operations Learn to plan, schedule and complete the operations work using new / more robust CMMS	High	AM 001 AM 102	All Staff involved in Operations and use of CMMS
	Work & Resource Management		AM 304	Work and Resource Management	Learn the CMMS information requirements and procedures necessary to support Work and Resource Management Learn to manage work and other resources using new / more robust CMMS	High	AM 001 AM 102	All Staff involved in Work & Resource Management and the use of CMMS
Performance Management	Monitoring & Reporting		AM 401	Monitoring & Reporting	Learn to monitor performance including capturing, entering and verifying data, and identifying gaps between actual and target, actual and benchmarks and actual over time Learn to report performance to meet the needs of all stakeholders including reporting for accountability/ legislative compliance and to focus continuous improvement by identifying performance gaps	High	AM 001 AM 103	All Staff involved in Performance Monitoring and Reporting
	Continuous Improvement		AM 402	Continuous Improvement	Learn the processes of programming and implementing continuous improvement projects to support enhanced AM	Medium	AM 401	All Staff involved in Continuous Improvement

AM Framework Component				Module	Objective (also: compliance with O.Reg. 588 AM Planning for Municipal Infrastructure)	Intensity	Prequal	Attendees
					Learn to program improvements including identifying improvement opportunities, defining and validating projects from the identified opportunities, prioritizing validated projects, and funding prioritized projects			Programming and Implementation
					Learn to implement the approved and funded program, including best practice program implementation and project delivery including tracking projects within the program, and initiating, planning, executing, monitoring and closing out each project in the program			

5.5 Training Implementation Strategy

5.5.1 Introduction

Employee training and job preparedness are critically important to the successful implementation of enhanced AM. Optimal outcomes will be achieved with staff being supported with their learning when they commence new tasks until the processes are embedded into practice.

The recommended AM Training Implementation Strategy consists of the following activities:

- Communications & Change Management (provided by the Region)

- Training Module Delivery

- The general introductory modules are described as orientation to AM, not formal training. For completeness they have been included in the AM Training Curriculum. Training will be a mixture of formal learning such as in the classroom or a workshop environment and then applying this learning in a supported environment on the job, with monitoring and continuous improvement required to continue to enhance the content.

Important considerations include:

- The scope of work for each of the AM Training Implementation activities, the schedule for implementation and resources for delivery.

- Governance for AM training is to be integrated with other Region training and human resources development noting that this is technical training with the AMO Director and Managers having key roles to provide the content.

The following table provides an overview of the scope of work for each of the AM Training Implementation activities, the schedule for implementation and resources for delivery.

Table 3.3   AM Training Implementation Strategy Summary

Activity	Scope	Schedule	Resources
Communications & Change Management	- Effective communication and coaching will be critical to successfully manage the change related to implementing AM best practices - Prepare: Plan communications related to training - Implement: Deliver communication prior to and during training and create	Ongoing	- Commissioners - AMO Director and Managers

Activity	Scope	Schedule	Resources
	and communicate short term wins • Coach: Reinforce the benefits of training and enhanced AM practices		
Training Module Delivery: AM Enhancement	• Staff will need to understand enhanced AM processes and how to apply supporting tools / systems • Assess AM enhancement training needs of each group of learners • Prepare and deliver training for each course category (i.e., AM Policy & Framework Training, AM Framework Overview Training, and AM Practices Training (emphasis on medium and short term planning and performance management in the near term)) • Evaluate learning and re-train, as required	• Ongoing in the following order: • AM Policy & Framework Training • AM Framework Overview Training • AM Practices Training	• AMO Director and Managers • External AM Consultant
On-the-Job Training	• Staff will need to trial and practice enhanced AM processes and supporting tools / systems • Assess AM enhancement on-the-job training needs • Prepare and deliver on-the-job training • Evaluate learning and retrain, as required	• Ongoing, but after AM Enhancement Module Delivery	• AMO Director and Managers
Monitoring & Continuous Improvement	• Monitoring and continuous improvement will be important to ensure that the AM Training program reflects the needs of AM Strategy implementation and the broader AM Program • Monitor the needs of the AM training approach and curriculum over time to support continuous improvement of the AM practice • Monitor the success of the AM Training Implementation Strategy in achieving the learning objectives	• Ongoing	• AMO Director and Managers • External AM Consultant

Activity	Scope	Schedule	Resources
	• Modify the AM training approach and curriculum and implementation strategy, as required		

The AM Training Implementation Strategy will likely extend over a **five year timeline** to match the AM Strategy implementation timeline and the needs for meeting the requirements of O.Reg. 588/17 AM Planning for Municipal Infrastructure. The table below describes the training plan continuous improvement process, including dependencies.

Table 3.4   Training Plan Implementation

Task	Description	Interdependencies	Source Document
1	Update the AM skills needs, curriculum and training plan	New processes and practices to be reflected in the skills and training plan	AM Strategy
2	Confirm roles with AM as part of the accountabilities	AM current state role conclusions	Job Descriptions
3	Develop AM competencies	HR policies and practice	
4	Complete a training needs analysis	HR policies and practice	
5	Prioritize the delivery of training to meet skill development needs of staff	AM Strategy	AM Strategy
6	Delivery of training program	AMO (content), Corporate HR (training methodology)	
7	Complete post training assessment of skill development	AM Strategy	
8	Update AM curriculum to meet ongoing needs	AM Strategy	Training Plan

To support the training development it is recommended that an AM competency matrix is developed, this competency framework is then applied as part of determining the priorities for AM training.

Post training assessments are to be completed to ensure the learning program is meeting the needs of the staff and their continual development of AM competence.

5.5.2   Delivery of AM training

Delivery of AM training will be facilitated and provided by the AMO Director and Managers to oversee the planning, delivery and evaluation of training modules and the on-the-job application of the learning.

- **Communications:** Manage the Communications & Change Management activity

- **Commissioners, Department Directors, AMO Director:** Deliver communications prior to and during training and reinforce benefits of training and achieving enhanced AM practices

- **AMO Director and Managers:** Assess AM enhancement on-the-job training needs, prepare and deliver on-the-job training, evaluate learning, and provide retraining as required

- **External AM Consultant:** Work with AMO Director and Managers to assess AM training needs of each group of learners, prepare and deliver training for each course category (i.e., AM Policy & Framework Training, AM Framework Overview Training, and AM Practices Training), evaluate learning and provide retraining as required.

AM training and professional development courses are available through several organizations, including the following:

- **The Institute of Asset Management (the IAM)** develops asset management knowledge and best practice, and generates awareness of the benefits of the asset management discipline for the individual, organisations and wider society. The IAM provides a knowledge base that includes ISO 55000 and PAS 55, and professional development training and certification.

- **Plant Engineering and Maintenance Association of Canada (PEMAC):** Provides education programs in both Maintenance Management and Asset Management that are offered in partnership with public, post-secondary institutions (e.g. Humber College). Also provides opportunities to connect with Maintenance, Reliability and Asset Management Professionals through a number of channels: conferences, chapter events, courses, and webcasts.

- **National Asset Management Strategy (NAMS) Canada** is a not-for-profit service arm of the Institute of Public Works Engineering Association (IPWEA) Australasia to provide access to IPWEA's asset management tools, publications and training. NAMS.PLUS is a subscription service providing a suite of tools, templates and other resources as a guided pathway to asset management planning. Provides IPWEA Professional Certificate in AM Planning through courses based on the International Infrastructure Management Manual (IIMM) and aligned with the ISO 55000 global AM standards. This initiative is delivered through the Municipal Asset Management Program, which is delivered by the Federation of Canadian Municipalities and funded by the Government of Canada.

- **Canadian Network of Asset Managers (CNAM)** is the association of public infrastructure asset management in Canada. Government and private sector members develop policy, tools and technologies which improve the level of service for public infrastructure assets in every province and territory. CNAM shares that knowledge with other members and stakeholders through a CNAMpedia online resource, an annual conference and various committees and events.

5.5.3 Governance & Integration

The establishment of a governance structure for AM training and its integration with other regional training and human resources development programs are important considerations. The AM training plan has a technical focus with the content being provided by the AMO Directors and Managers and Human Resources advising on training methodology.

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Advisory

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