CITY OF PORT COQUITLAM

City of Port Coquitlam Asset Management Strategy

March 2019

Acknowledgements

Kerr Wood Leidal Associates (KWL) gratefully acknowledges the assistance, key information and input provided by the City of Port Coquitlam's staff, including but not limited to the Asset Management Team and Steering Committee, representing diverse perspectives and insights from across departments (corporate support, development services, engineering and public works, finance, fire and emergency services, and recreation including the Corporate Management Team).

Statement of Limitations

This document has been prepared by Kerr Wood Leidal Associates Ltd. (KWL) for the exclusive use and benefit of City of Port Coquitlam for the City of Port Coquitlam's Asset Management Strategy. No other party is entitled to rely on any of the conclusions, data, opinions, or any other information contained in this document.

This document represents KWL's best professional judgement based on the information available at the time of its completion and as appropriate for the project scope of work. Services performed in developing the content of this document have been conducted in a manner consistent with that level and skill ordinarily exercised by members of the engineering profession currently practising under similar conditions. No warranty, express or implied, is made.

Copyright Notice

Part 4 - Strategy

Figures

Part 1 - Introduction

Part 2 - Current Practices

Part 3 - Current State of Assets

Part 4 - Strategy

Tables

Part 2 - Current Practices

Part 3 - Current State of Assets

Part 4 - Strategy

Appendices

Executive Summary

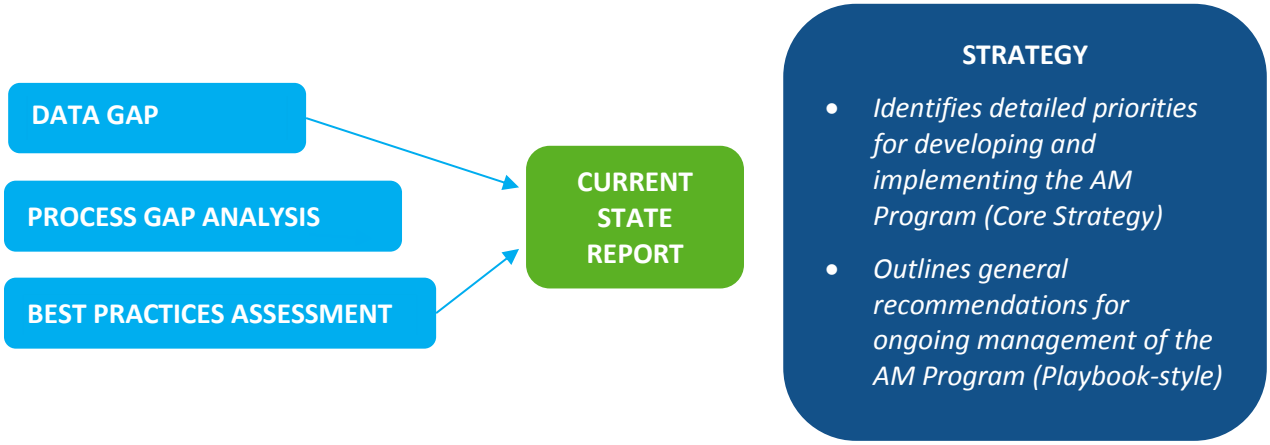
Asset management is a strategic priority for the City of Port Coquitlam. The City is working towards strengthening the organization by embarking on the first year of a formal, organization-wide asset management journey. This Strategy Report lays the groundwork for the development of an Asset Management Policy; it also supports the development of Asset Management Plan(s) in 2019 and subsequent priority actions for an asset program beyond that. The overall purpose of implementing asset management is to enable informed decision making that will lead to maximizing the value derived from the City's assets while minimizing costs over their lifecycle.

The first half of this report focuses on addressing 4 of the 7 core elements of asset management (as described in the InfraGuide on Managing Infrastructure Assets) by answering, or beginning to answer, the following questions:

- **What do you own?**
- **What are your assets worth?**
- **What is the condition of your assets?**
- **When do you need to maintain/renew/replace assets?**

The Current State of the City's assets and asset management practices were assessed, providing a baseline for informing immediate and longer term priorities.

The second half of this report focuses on a framework for ongoing development, as well as implementation, of Port Coquitlam's asset management journey. It includes a clear and concise roadmap for delivering sustainable infrastructure services into the future.



Our Current Practices

Asset management is not new to the City. Staff have been practicing some aspects of asset management and sustainable service delivery as part of regular decision-making processes but have not linked these actions to a City-wide program. There is a solid base of long term staff knowledge, with useful tools in place to support decision-making. Staff generally feel that the City is responsive to community needs, with excellent customer service ratings.

The City has established an Asset Management Team and Steering Committee for the implementation of the asset management program. The Asset Management Team is comprised of managerial staff from all departments and the Steering Committee includes the City's CAO and departmental Directors. These teams represent the 'bottom-up' and 'top-down' aspects of asset management, respectively.

Baseline Benchmarking

Information about the City's current asset management practices was gathered through interviews with Port Coquitlam staff and several workshops with the Asset Management Team. Assessments of the City's current asset management practices and readiness were benchmarked against the following best practices:

- **Asset Management for Sustainable Service Delivery: A BC Framework** – the City is in the "Assess" stage;
- **Union of BC Municipalities' AssetSMART 2.0** – the City is at an overall "Level 2" of four levels (Fair Capability); and
- **Federation of Canadian Municipalities' Asset Management Readiness Scale** – the City has completed Level 1 (of five) in four of five competency areas.

The best practices listed above provide standardized measures of asset management progress and capabilities. Other best practices available include Asset Management BC's Asset Management Roadmap. The City is at the expected level for embarking on its asset management journey and has some advanced capabilities in information management and service level definition. As the City advances in its asset management program these benchmarks can be used to gauge progress. Overall, the City has a solid foundation for launching its asset management initiatives.

Process Gap Analysis

Through the interviews, interactive workshops, and best practices evaluations, a gap analysis of current versus desired capabilities was completed. Capabilities to be developed are summarized as follows:

- **Awareness & Priorities** – document asset management principles and build awareness throughout the organization and with the public.
- **Information** – develop a coordinated strategy for records management, systems integration and work orders. Information on asset condition, risks and long-term capital needs can be centralized.
- **Team** – having established an Asset Management Team and Steering Committee, the City should establish a clear mandate and define roles and responsibilities. This should extend throughout the organization such that staff understand the 'big picture'.
- **Internal Systems & Processes** – through this initial phase of the asset management program, an Asset Management Policy and Strategy will be developed. This will guide the development of a roadmap for detailed actions to build the systems and processes needed to support asset management.
- **Financial –** extending the current capital planning horizon from 2 years to 10+ years will allow the City to better-assess its financial capability to deliver sustainable services. A consistent budgeting and prioritization process should be applied across all departments.

Our Assets

Key available asset information has been quantified and assessed as it relates to supporting long term decision-making, with information gaps noted.

Information Accessibility, Quality and Reliability

Overall, there is sufficient high quality and reliable basic physical data for all asset categories to support initial asset management decisions. Where data gaps exist, assumptions can be made as a placeholder until additional information can be collected. Information accessibility for asset life expectancy, replacement costs and risks are key focus areas for information system improvements over time.

Inventory

The City's primary sources for infrastructure information are CityWide (Tangible Capital Asset Register), and the Geographic Information System (GIS) database. CityWide currently holds the financial information used in asset management and the GIS is primarily used for supporting engineering operations. There are links between the databases, with good records agreement across most asset classes.

Value

The City's infrastructure assets represent a total estimated replacement value of approximately $1.3 billion according to the Citywide inventory. Linear assets including water, sewers, drainage and road systems comprise almost 90% of the City's total asset replacement value. The remainder includes buildings, parks, vehicles and equipment. Valuations should be reviewed in detail during the next phase in the Program.

Condition and Remaining Service Life

There is currently limited condition data in GIS or CityWide, although some condition assessment data is available in other formats such as consultant reports. At this stage no overall condition ratings were assigned for the City's infrastructure, but this should be a key focus area for the second phase of the Asset Management Program. Gaps in condition data should be filled through inspections prior to completing asset management plans where practicable.

The CityWide database includes expected remaining lifespans and install dates for infrastructure, with an average of 40 years lifespan across all asset categories. There is approximately 42% of the City's overall infrastructure life remaining on average, which suggests an average capital re-investment need of $25 million to $50 million per year over the next 20 years. This is a calculated value based on standard life expectancies but provides a rough estimation. Over time, condition and risk data will be used to refine the expected capital needs.

Service Levels

Most staff seem to have a clear picture of the services they provide. The City is farther ahead in defining and measuring public-facing operational service levels compared to the average community undertaking asset management in BC. It should be noted that internal, technical service levels have not yet been documented in a consistent manner.

Our Strategy

Port Coquitlam's Asset Management Strategy is a foundational document for building an asset management program. It is informed by organizational strategic plans, supported by policy, and used to inform the development of asset management plans which are directly linked to operational strategies. There are two very distinct but related components to the Strategy's action plan:

1. A prioritized list of actions to guide the continued *development* of Port Coquitlam's Asset Management Program (the Roadmap)
2. An ongoing cycle of actions to guide the *implementation* of Port Coquitlam's Asset Management Program (ongoing Governance)

Both of these components have been structured to align with an Asset Management Framework developed for the City of Port Coquitlam.

Vision

Port Coquitlam's draft vision for asset management is that **"Port Coquitlam is a livable City, where core infrastructure services are sustainable over time at the lowest practical lifecycle cost. This is achieved through informed, functionally integrated and prioritized decision-making."**

A series of objectives have been developed to support achieving this vision.

Guiding Principles

Four guiding principles were identified to provide an overarching philosophy for the City with respect to successful implementation of asset management. These principles are intended to hold true across all phases of the Asset Management Program. The guiding principles are as follows:

- Full Lifecycle Costs are Considered in Decision-Making;
- Infrastructure Investments are Driven by Value to the Community;
- Data is Used to Inform Decision-Making; and
- A Collaborative Approach is taken.

Framework

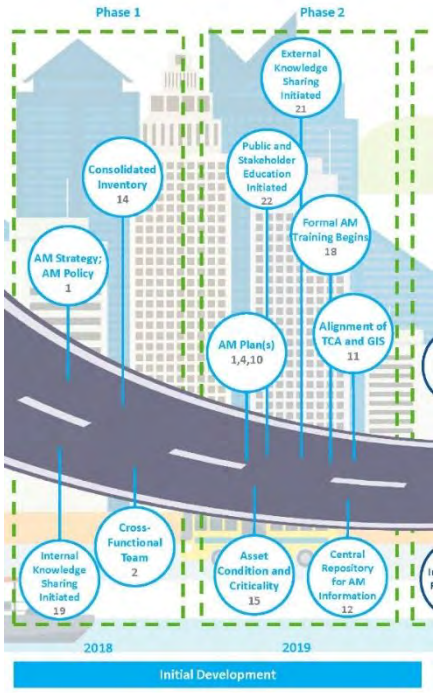
Port Coquitlam's Asset Management Framework is the first step in formalizing asset management governance. It reflects the City's current processes, using best practices to establish a clear direction forward. The Framework is intended to support a phased in approach to developing Port Coquitlam's asset management program. It is also intended for use in implementing the City's program through an ongoing governance model. The Framework is made up of seven decision streams:

- **Leadership** – the overall approach for the asset management program including establishing and monitoring policies, the strategy, a corporate levels of service framework, corporate reporting, and a corporate framework for asset management plans.
- **Asset Planning** – documenting and standardizing how the organization sets priorities and budgets, conducts capital planning (annual, five year, and long term), documents levels of service by area, oversees the preparation of detailed asset management plans, and develops the corporate long term financial plan.

- **Project Delivery** – processes for capital project delivery including initiation, planning, project implementation, and integration with corporate systems and practices upon close out. This stream is also responsible for monitoring and updating unit costs.
- **Operations** – Corporate approach to condition assessments, as well as ongoing operations and maintenance of infrastructure across all asset categories. This directly affects the services the City is providing, and the level at which these services can be delivered.
- **Financial Management** – decision making and reporting as part of the TCA reconciliation, the annual budget, and audited financial statements. This stream is closely linked with the asset planning group.
- **Data Management** – using data about assets, performance and finance to support effective planning and decision-making. This includes upkeep of the consolidated inventory (including quality assurance/quality control and inventory management).
- **Knowledge** – internal and external awareness, including staff training and development, public and stakeholder education, and knowledge sharing.

Action Plan

An action plan was developed, along with a 5 year roadmap, to incorporate both the priority initiatives and associated actions which provide immediate direction, as well as a longer term perspective for moving the City's Asset Management Program forward.



Immediate priorities for 2018/9 include:

- Developing an Asset Management Policy;
- Assessing the condition of critical assets;
- Initiating the process of preparing an Asset Management Plan (or series of plans);
- Beginning public and stakeholder education regarding asset management;
- Participating in regional and/or national asset management knowledge sharing;
- Starting a formal asset management training process for staff;
- Aligning the TCA and GIS inventories; and
- Creating a central repository for asset management information.

Governance

Port Coquitlam's governance structure will be developed iteratively, using the seven streams in Asset Management Framework to structure decision-making. The first layer of this governance structure has been created; it is the front end that sets the stage for the City's ongoing asset management related business processes. Resource requirements have been outlined for both the Action Plan and Governance Structure.

Summary

The City is in its early stages of asset management implementation, and all the elements are in place to move ahead with an asset management program. The City's assets and staff are currently able to meet service level expectations, but as the asset base ages this will become more challenging. The Asset Management Program will need to place priorities on completing condition assessments and developing long-range capital plans to determine whether current financial and staff resources are sufficient to provide sustainable services to the community.

Part 1 - Introduction

The City of Port Coquitlam is responsible for $1.3 B in infrastructure assets that enable the delivery of a broad range of services to approximately 60,000 people. This infrastructure provides a foundation upon which the community can continue to grow, supporting the small town charm and a sense of community that makes Port Coquitlam unique.

> "If you want to build a solid, durable home, you start with a strong frame and foundation." (John Leeburn, CAO; 2017 Annual Report).

The City has identified infrastructure as one of the community's top three priorities and has taken proactive steps to save for the future with an annual 1% tax increase that commenced in 2010. Continuing with the 2017 theme of "Building Our Community", the City is working towards strengthening the organization by embarking on the first year of a formal, organization-wide asset management journey.

Much of the City's infrastructure was built during the 1960s and 1980s/1990s, and is beginning to show signs of aging, or in some cases will no longer meet current expectations for service levels. New infrastructure such as Blakeburn Lagoons Park – the largest addition to the City's Parks network in decades – and the Community Recreation Complex – which broke ground earlier this year – are salient examples of how the City has the opportunity to implement asset management from day one to attain the most value from community investments.

1. Asset Management in Port Coquitlam

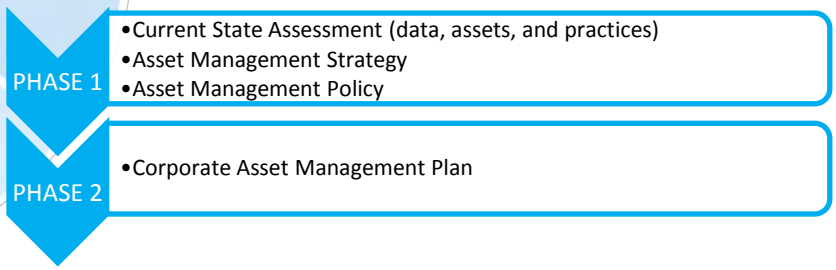
The City of Port Coquitlam recognizes the need to proactively manage its municipal assets. Creating and implementing an Asset Management Program is a step-by-step journey that takes time and resources. Recognizing that there is a limited flow of funding each year, the approach will be strategic and guided by three core principles:

- **Start basic:** aim to develop basic information on all assets, rather than exhaustive information on a few;
- **Build complexity over time:** build on information we have each year to develop a robust Plan over time; and,
- **Stay focused:** there are a variety of models, approaches and software for asset management; follow the plan to address high priority needs first and avoid getting off track.

The purpose of the Asset Management Program is to develop a systematic, viable and intelligently structured approach for managing infrastructure in order to derive the highest value from assets at the lowest total lifecycle cost. Phase 1 of this Program is currently underway, with completion expected by the end of 2018.

1.1 Our Asset Management Journey

The City of Port Coquitlam plans to develop its Asset Management Program over two phases. Further details on these two phases are summarized below.



Phase 1 Overview

Assessing and documenting the current state of the City's assets and asset management practices involves a thorough gap analysis with two components: an evaluation of existing data and an evaluation of current processes. More details on the process are described in Section 1.2 Report Scope below, and outcomes in Parts 2 and 3 of this Report.

The Asset Management Strategy was prepared following the Current State Assessment and includes a roadmap and action plan to guide development of the City's Asset Management Plan(s). It provides direction for addressing key deficiencies and for pursuing opportunities as the community grows. More details on outcomes in Part 4 of this Report.

The Asset Management Policy to be prepared following the Asset Management Strategy will formalize the City's commitment to asset management, outlining the principles to support decision-making and the approach to develop and implement asset management across the organization. The policy will also provide a link between community objectives/plans and the actions of the asset management team.

Achieving Phase 1 objectives will prepare the City for development of a corporate Asset Management Plan (or series of system plans) in Phase 2.

Phase 2 Overview

Phase 2 of the City's Asset Management Program will focus on developing a basic Asset Management Plan. This will be a corporate Asset Management Plan, or a series of system-level plans, that utilize a consistent format and approach. Phase 2 is scheduled to commence in 2019, following completion of the Phase 1 work.

An Asset Management Plan is a tactical document that identifies the gaps between the current and desired state of assets and services, and then defines the activities needed to close those gaps. It provides clear direction on what to do, when to do it and how much it will cost as well as the consequences of not taking action.

The Plan will provide the basis for developing long term financial plans leading to greater stability in financial and capital planning. The Plan will also support the City in more informed decision making regarding investment in assets and enhanced interdepartmental and inter-jurisdictional collaboration on projects that involve asset management.

1.2 Report Scope

This report addresses the first two items in Phase 1 of the Asset Management Program: Current State Assessment and Strategy. Figure 1-1illustrates the flow of information through these steps.

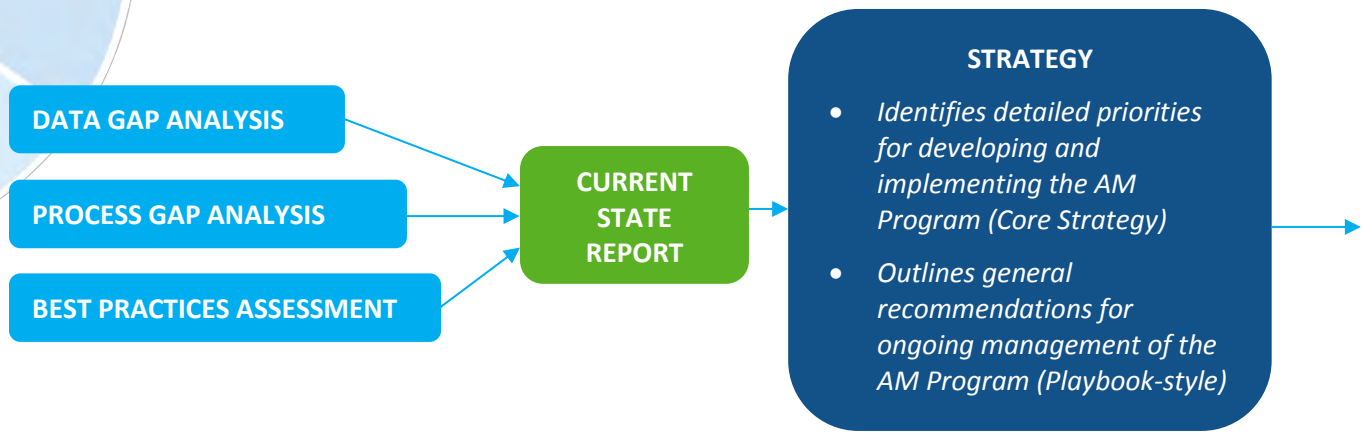


Figure 1-1: Information Flow

Current State Assessment

First, the current state of assets and asset management practices within the City of Port Coquitlam was prepared by:

- Summarizing the City's infrastructure assets and their relationship to delivering core services;
- Quantifying key information to support long term asset management decision-making;
- Documenting the corporate asset management status of the City which can be used as a benchmark for tracking progress over time.

The assessment involved two workshops with City staff:

1. An *Introduction to Asset Management* with select staff from across departments; and,
2. *Documenting Existing Asset Management Practices* through a workshop with the Asset Management Team.

Ten group interviews were held to understand how the City delivers services, management of asset information, relationships and communication, and decision-making processes. An analysis was undertaken of both asset management related information and existing processes in comparison with local, national and international best practices.

The outcome of the Current State Assessment is intended to support and expedite the City's strategic goals with respect to developing and implementing priority areas of the asset management journey. Actions identified through this assessment will be incorporated into the City's Asset Management Strategy and Policy, and ultimately a clear and concise roadmap for delivering sustainable infrastructure services within the City of Port Coquitlam. The current state assessment can also be used to help the City identify where to focus efforts in building a strong Asset Management Plan (or series of plans) in Phase 2.

Strategy

Second, an Asset Management Strategy for the City of Port Coquitlam was prepared by:

- Creating an asset management vision and objectives;
- Clarifying the roles and responsibilities of the asset management team;
- Preparing a roadmap of City priorities and resource requirements for delivering sustainable infrastructure services into the future; and,
- Outlining a framework for planning asset management business processes.

Developing the Strategy involved a *Visioning* workshop with the Asset Management Team and Steering Committee. The results were also informed by input provided in the other workshops and interviews held as part of the Current State Assessment. The Data Gap Analysis, Process Gap Analysis and Best Practice Assessment used to inform the Current State Report were also integral to informing Strategy direction. The Strategy is also directly aligned with the Port Coquitlam's Vision2020.

There are two very distinct but related components to the Strategy's action plan:

3. A prioritized list of actions to guide the continued *development* of Port Coquitlam's Asset Management Program (the Roadmap)
4. An ongoing cycle of actions to guide the *implementation* of Port Coquitlam's Asset Management Program (ongoing Governance)

Actions identified through the Current State Assessment have been incorporated into the Strategy to determine where to focus efforts in building a strong Asset Management Plan (or series of plans) in Phase 2, and ultimately to provide a clear and concise roadmap for both developing and implementing asset management within the City of Port Coquitlam.

1.3 Asset Categories

The City of Port Coquitlam's infrastructure assets have been categorized for the purposes of this report as follows:

- Water System;
- Sanitary Sewer System;
- Drainage System;
- Transportation
- Buildings and Facilities;
- Parks;
- Fleet and Equipment;
- Information Services.

Land and any capital works in progress are not considered infrastructure assets and are therefore out of scope for the initial phase of the City's Asset Management Program. They have not been included this report or the supporting analysis.

2. Elements of Asset Management

At its core, asset management is about the optimized delivery of essential services to those that live and work in a community. It's about having a coordinated set of activities to maximize the lifecycle value from City infrastructure assets, while achieving organizational objectives.

*Asset Management is an **integrated process** for making **informed decisions,** considering the **present and future** needs of users and the **services** being **provided.***

Asset management is more than a project or plan – it's a journey and a mindset that persists and is built on over the long term. It includes tools and systems to change how people – staff, Council, and the public – think about municipal assets. Asset management supports optimized decision-making to enable the best return on investment by making more *efficient* use of existing resources (people and money) rather than simply cutting costs. A well-planned Asset Management Program enables a City to make investment decisions that are sustainable over the long term, supporting resilience in the face of future changes.

2.1 What is Asset Management

There are seven core elements of asset management. These are typically presented as questions which relate to key components of any community's asset management program and have been adapted from the federal InfraGuide on Managing Infrastructure Assets (Federation of Canadian Municipalities and National Research Council, 2005). Figure 2-1 describes these elements.

• What do you own? →	Inventory
• What is it worth? →	Valuation
• What is its condition? →	Condition Assessment
• What needs to be done? →	Level of Service/AM Plans
• When do you need to do it? →	Life Exp./Risk/ Prioritize
• How much will it cost? →	Revenue Requirements
• How will you pay for it? →	Long Term Financial Plan

Figure 2-1: 7 Elements of Asset Management

This report focuses on answering four of these questions:

- **What do you own?** The City's infrastructure inventory includes the assets that are owned, operated and maintained including the attributes related to each of these assets that are used to support decision-making. Highlights of this inventory have been included in the sections below for the City as a whole, and for each asset subcategory.
- **What are your assets worth?** In other words, what would it cost to replace these assets in today's dollars? The City has made significant investments in order to enable service delivery, so understanding the cost implications today allows staff and Council to plan effectively for the future.
- **What is the condition of your assets?** The condition of existing infrastructure, particularly as it approaches its estimated useful life, tells us when and where immediate action may be needed, and where resources can likely be diverted.

- **When do you need to maintain/renew/replace assets?** The focus is on life expectancy, and ultimately the expected remaining service life of assets individually and grouped which is used to inform how investments can be prioritized, risks minimized, and funds spent cost effectively.

2.2 Why Practice Asset Management

Asset management provides tools, systems, and processes to enable organizations, such as local governments, to make informed decisions about their infrastructure. Understanding critical information about city assets, such as what you have, where it's located, what condition it's in, and what it will cost to replace will help the City make decisions about how to prioritize infrastructure investment over the short and long term. Think of asset management as a business case – presenting key information and rationale for decisions in a transparent and defensible way.

By taking a proactive approach to investment planning, asset management helps communities maximize the value of their assets while minimizing lifecycle costs across the organization. This helps the City continue to meet established service level goals and make decisions about spending priorities in alignment with the community vision and objectives. A summary of key benefits is presented in Figure 2-2.

Key benefits of asset management include:

- Accurate and accessible information about assets
- Support informed decision-making and ultimately service delivery
- Interdepartmental and interjurisdictional collaboration
- Develop a systematic, viable, and intelligently structured approach for decision-making
- Balance trade-offs for asset investment decisions
- Derive the highest value from our assets at the lowest lifecycle cost
- Increased stability in financial and capital planning

Figure 2-2: Key Benefits of Asset Management

Developing the City of Port Coquitlam's Asset Management Program will help the City achieve sustainable objectives and goals for service delivery.

During the Documenting Existing Asset Management Practices workshop to assess the City's current asset management capacity as part of this project, City staff also indicated a desire for more City-wide collaboration across departments. The Asset Management Team provides a structure for collaboration, with members from Asset Planning, Capital Projects, GIS, Public Works, Facilities, Finance, Accounting, IT, and Fire Services.

Part 2 - Current Practices

Asset management is not new to the City of Port Coquitlam. Staff have been practicing some aspects of asset management and sustainable service delivery as part of their regular decision-making processes but have not linked these actions to a City-wide program. Some significant milestones have been achieved to date related to asset management which should be recognized and celebrated as the first phase in Port Coquitlam's formal program is implemented.

For example, the City is well ahead of most other communities in the Province with documenting service levels and linking budgets directly to service delivery objectives. Furthermore, staff feel that the City is a lean and efficient organization with strong team cohesion. There is a solid base of long term staff knowledge, with useful tools in place to support decision-making. Staff generally feel that the City is responsive to community needs, with excellent customer service ratings.

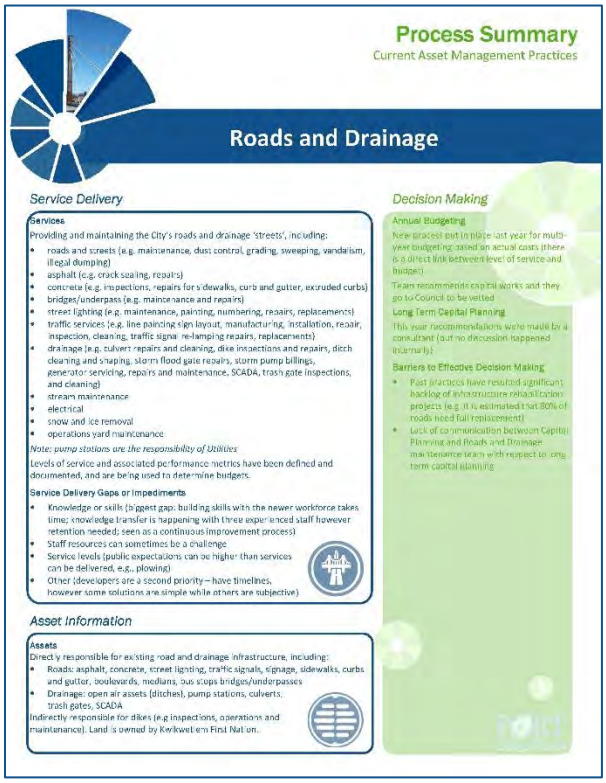
A successful asset management program should build on existing practices, developing structures and processes that fill gaps in order to support sustainable service delivery. Understanding where the City is at with respect to asset management is essential for creating a roadmap to achieve long term goals and objectives.

1. Methodology

Information about the City's current asset management practices was gathered through interviews with Port Coquitlam staff and a workshop with the Asset Management Team.

1.1 Interviews

Port Coquitlam staff across key disciplines, including Facilities, Recreation, Parks, Finance, Accounting, GIS, IS, Asset Planning, Capital Projects, Planning, Development Services, Roads, Drainage, Water, Storm, Sanitary Services were interviewed. The interviews were organized by categories of assets and shared decision making rather than by organizational structure. During these interviews, staff provided input on a series of questions around the delivery of services, management of asset information, relationships and communication, and decision-making processes.


Process Summary
Current Asset Management Practices

Roads and Drainage

Service Delivery

Services
Providing and maintaining the City's roads and drainage 'streets', including:
- roads and streets (e.g. maintenance, dust control, grading, sweeping, vandalism, illegal dumping)
- asphalt (e.g. crack sealing, repairs)
- concrete (e.g. inspections, repairs for sidewalks, curb and gutter, excruded curbs)
- bridges/undergass (e.g. maintenance and repairs)
- street lighting (e.g. maintenance, painting, numbering, repairs, replacements)
- traffic services (e.g. line painting sign layout, manufacturing, installation, repair, inspection, cleaning, traffic signal re-lamping repairs, replacements)
- drainage (e.g. culvert repairs and cleaning, dike inspections and repairs, ditch cleaning and shaping, storm flood gate repairs, storm pump billings, generator servicing, repairs and maintenance, SCADA, trash gate inspections, and cleaning)
- stream maintenance
- electrical
- snow and ice removal
- operations yard maintenance

Note: pump stations are the responsibility of Utilities

Levels of service and associated performance metrics have been defined and documented, and are being used to determine budgets.

Service Delivery Gaps or Impediments
- Knowledge or skills (biggest gap: building skills with the newer workforce takes time; knowledge transfer is happening with three experienced staff however retention needed; seen as a continuous improvement process)
- Staff resources can sometimes be a challenge
- Service levels (public expectations can be higher than services can be delivered, e.g., plowing)
- Other (developers are a second priority – have timelines, however some solutions are simple while others are subjective)

Asset Information

Assets
Directly responsible for existing road and drainage infrastructure, including:
- Roads: asphalt, concrete, street lighting, traffic signals, signage, sidewalks, curbs and gutter, boulevards, medians, bus stops bridges/underpasses
- Drainage: open air assets (ditches), pump stations, culverts, trash gates, SCADA

Indirectly responsible for dikes (e.g inspections, operations and maintenance). Land is owned by Kwikwetlem First Nation.

Decision Making

Annual Budgeting
New process put in place last year for multi-year budgeting; based on actual costs (there is a direct link between level of service and budget)
Team recommends capital works and they go to Council to be vetted

Long Term Capital Planning
This year recommendations were made by a consultant (but no discussion happened internally)

Barriers to Effective Decision Making
- Past practices have resulted significant backlog of infrastructure rehabilitation projects (e.g. it is estimated that 80% of roads need full replacement)
- Lack of communication between Capital Planning and Roads and Drainage maintenance team with respect to long term capital planning

1.2 Workshop

The City's Asset Management Team participated in a workshop to document the City's existing asset management practices. During the workshop, Asset Management Team members assessed the City's asset management capacity using interactive polling and activities according to core competencies. The focus was on documenting the City's current status according to both regional (AssetSMART 2.0) and national (Asset Management Readiness Scale) measures.

1.3 Best Practice Assessment

A number of frameworks have been developed locally, nationally, and internationally that outline key competencies and provide guidance to support municipal organizations in building asset management capacity. These frameworks are centred around the key elements that make up an asset management program. During the Documenting Existing Asset Management Practices Workshop, the City was assessed according to two best practice frameworks/assessments that are recognized locally, regionally, and nationally:

- AssetSMART 2.0, by the Union of BC Municipalities (UBCM); and
- Asset Management Readiness Scale, by the Federation of Canadian Municipalities (FCM).

The City's progress in asset management has also been assessed against Asset Management BC's (AMBC) Sustainable Services Delivery Framework, which serves as an important guideline for asset management practices in BC and is the foundation on which AssetSMART 2.0 was developed.

1.4 Process Gap Analysis

Results from the interviews, workshop, and best practice assessment were compared against the two best practices to identify gaps in current practice. Current practices have been grouped into five high-level categories of asset management competency:

1. Awareness & Priorities;
2. Information;
3. Team;
4. Internal Systems & Processes; and
5. Financial.

These five categories draw together the key themes represented in each of the two best practices. The gaps that the City would need to fill in order to reach the highest assessment standards level have been identified for each core practice area, accompanied by details on the staff source or standard that references the asset management practice.

2. Current Practices

Current asset management practices in the City of Port Coquitlam are administered and supported through several tools and resources, including the City's Geographic Information System (GIS) and CityWide Program, with direction from the newly formed Asset Management Team. These existing resources will continue to be a critical foundation for building future elements of the City's Asset Management Program.

2.1 Asset Management Team

The City has established an Asset Management Team of staff to guide development of the Asset Management Program and implementation across the City over the short and long-term. Team members provided key information about the City's current asset management practices used in the Best Practice Assessment and Process Gap Analysis outlined in this section of the Current State Report. The Asset Management Team will guide development of subsequent phases of the City's asset management journey.

Port Coquitlam's Asset Management Team is made up of staff from departments across the organization to ensure the Program reflects the needs of each department and ensure a City-wide approach to managing assets and service delivery.

The current Asset Management Team members include:

- Asset Planning: Manager of Asset Planning and Civil Engineer;
- Capital Projects: Manager of Capital Projects;
- GIS: GIS Coordinator;
- Public Works: Manager of Public Works, Section Manager Streets, Section Manager Utilities, Section Manager Fleet and Solid Waste, Section Manager Parks;
- Accounting: Manager of Accounting;
- Facilities: Manager of Facilities;
- Finance: Manager of Finance;
- Fire Services: Deputy Fire Chief; and
- Information Services: Director of Corporate Support.

2.2 Steering Committee

The Asset Management Team has been selected by the Steering Committee. The Steering Committee is made up of directors (the Corporate Management Team) who will provide strategic guidance throughout the lifetime of the Asset Management Program. Their role is to review deliverables and information prior to Council, make corporate level decisions when required.

2.3 GIS

Geographic Information Systems are used as the primary source of information for asset management work in the City. They store, manage, analyze, and track spatial assets, serving as a repository of location information and asset details. The City stores spatial data for its parks, water, sanitary, drainage, and road infrastructure in GIS. Many of these assets also have associated details on sizing, asset type and material.

The City's GIS information is accessed and maintained by GIS personnel. A view-only version of the data is hosted on the City's web-based mapping site PoCoMAP, which is available to other staff and the public.

2.4 CityWide

CityWide Asset Manager (CityWide AM) is a web-based enterprise asset management solution and asset register that stores condition assessments, lifecycle, levels of service and financial accounting data. Port Coquitlam's CityWide AM holds valuation and replacement cost information for the City's buildings, land acquisition, vehicles and equipment, information services, water, drainage, sanitary, and road infrastructure.

CityWide AM provides specialized tools for project and financial planning that is complimentary to the City's GIS. There is seamless integration between both systems and together they create a comprehensive inventory of the City's infrastructure.

3. Best Practice Assessment Summary

Results from the Port Coquitlam asset management assessment modelled alongside contemporary best practices indicate that the City of Port Coquitlam is in the early stages of asset management. These best practices emphasize that:

- Successful asset management requires engaging many disciplines and integrating decision-making processes across the entire organization;
- Infrastructure provides a foundation for delivering core community services and meeting local needs; and
- Sustainable service delivery enables a community to continue growing both economically and socially.

A summary of the City's current state according to the Sustainable Service Delivery Framework, AssetSMART 2.0, and the Readiness Scale is outlined below. Many other international and national best practices exist, including InfraGuide, the New Zealand Asset Management Support (NAMS), International Infrastructure Management Manual (IIMM), ISO 55000 Standard for Asset Management, and Asset Management BC's Asset Management Roadmap. These additional best practices are founded on similar principles and may be drawn on for additional guidance in future phases on the City's Asset Management Program.

3.1 Best Practice 1 - Sustainable Service Delivery Framework

About the Best Practice

The Asset Management for Sustainable Service Delivery: A BC Framework was developed in partnership between UBCM, the Province of British Columbia (Ministry of Community, Sport and Cultural Development), and AMBC. This Framework reflects current best practices and aligns with internationally accepted best practices such as IIMM and the ISO 55000. It focuses on the 'why' and 'what' of asset management, but not the 'how'.

The Framework, presented in Figure 3-1, outlines three primary phases for asset management practice that occur on an iterative cycle:

1. Assess capacity, demand and results
2. Plan what needs to be done
3. Implement plans

The emphasis is on a continuous quality improvement process, based on an incremental and scalable approach.

Figure 3-1: Sustainable Service Delivery Framework

The Framework also notes the core elements of asset management being about assets, information, finances and people. At the centre of the Framework is sustainable service delivery and recognizing that asset management is critical to achieving informed decision-making and sustainably delivering services.

Assessment Results

Based on the Phase 1 Asset Management scope of work, the City is currently in the **Assess** phase according to the **Sustainable Service Delivery Framework** and will progress to the **Plan** phase before the end of the year through completion of an Asset Management Strategy and Policy. Planning will continue in 2019 as part of Phase 2 in the City's Program with development of Asset Management Plan(s).

3.2 Best Practice 2 – AssetSMART 2.0

About the Best Practice

UBCM's AssetSMART 2.0 is a tool local governments use to assess their asset management capacity according to the four "primary areas" outlined in the Sustainable Service Delivery Framework:

1. Assets;
2. Information;
3. Finances; and
4. People.

Each of these four primary areas has been further defined according to a list of detailed "capacity areas" for asset management practice. Completing the AssetSMART 2.0 Assessment involves determining what "capacity level" the organization is on a scale from 1 to 4, where:

- Level 1: Very low capacity
- Level 2: Fair capacity
- Level 3: Good Capacity
- Level 4: High Capacity

A description of the capacities that make up each primary area of the tool is summarized below:

Assets

1. **Location –** Is accurate spatial information is available for all community assets?
2. **Key Attribute Data –** Is accurate information available on the characteristics (e.g. quantity, length, material) of all community assets?
3. **Install Data –** Is the date of installation known for all community assets?
4. **Historic Cost –** Is accurate information about construction and maintenance costs known for all assets?
5. **Natural Assets –** Does the organization identify, value, and document natural assets such as creeks and wetlands?

Information

1. **Policy** – Does the organization have clear, Council-approved policies in place to guide sustainable service delivery?
2. **Strategy –** Does the organization have a strategy or framework in place that identifies service delivery goals and a plan to achieve these goals over time?
3. **Level of Service –** Are service levels defined, documented, and understood by staff and the public?
4. **Risk –** Are risks to community assets understood, documented, and do risks inform decision-making?
5. **AMP - Asset Replacement Plans –** How far into the future does the organization plan for the replacement of assets (e.g. 0, 20, 75 years)?
6. **AMP – Long Term Capital Plan –** How far into the future does the organization plan for capital spending (e.g. 0 – 10 years)?
7. **Climate Change –** To what degree does the organization consider climate change impacts in risk assessment and decision-making?

Finances

1. **Long Term Financial Plan** – How far into the future does the organization plan for financing, including revenue, funding sources, and capital spending needs?
2. **Revenue** – Are annual revenues sufficient, predictable, and stable for long term capital needs?
3. **Reserves** – Are reserve funds in place and adequate for long term capital needs?
4. **Debt** – Are debt levels reasonable and aligned with the long term financial plan?

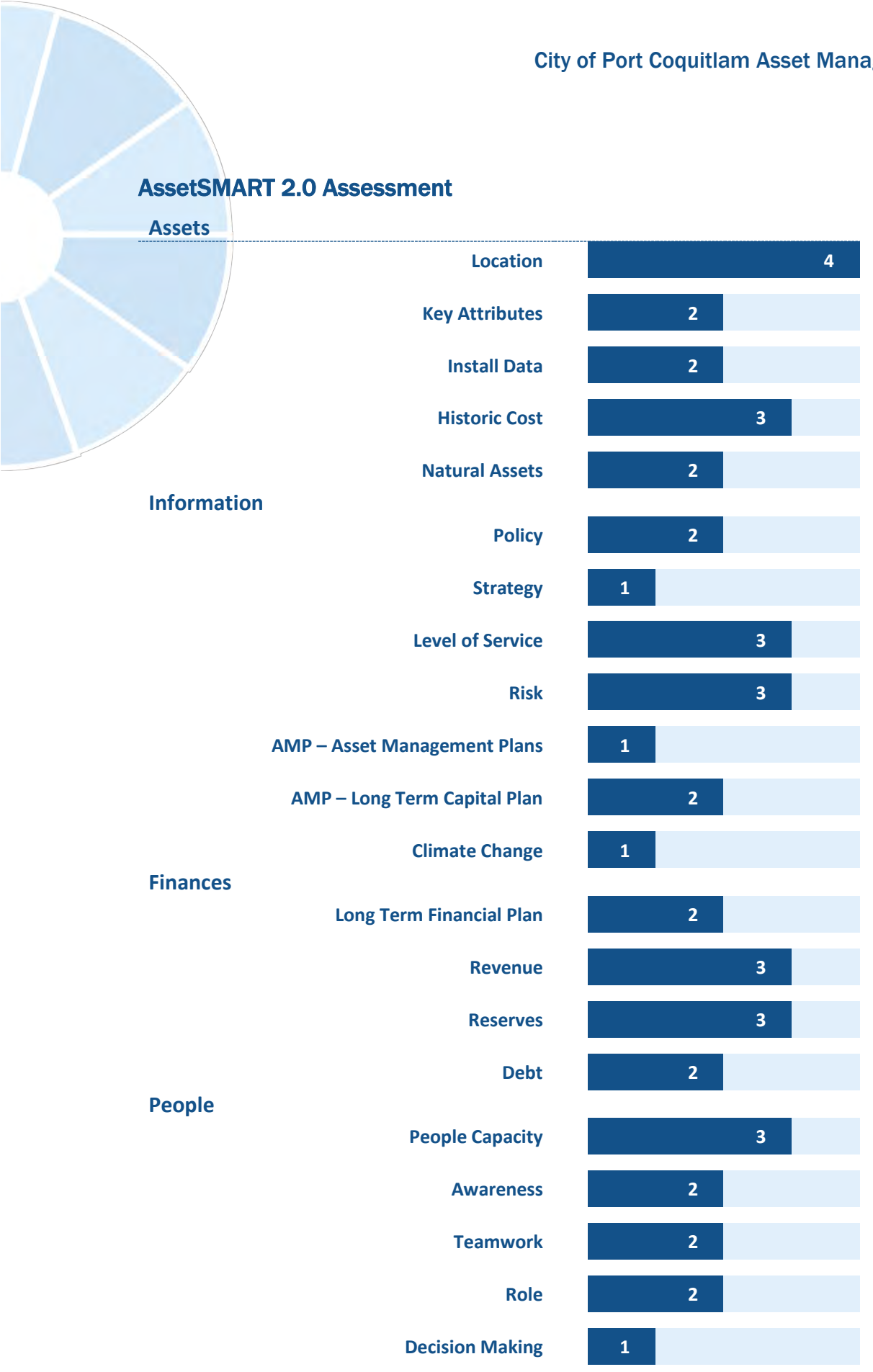
People

1. **People Capacity –** To what degree do staff have the necessary time, knowledge, skills, and capacities to implement the asset management program as part of their jobs?
2. **Awareness –** To what degree do staff and the public understand the objectives of the asset management program?
3. **Teamwork –** Is a cross-functional team in place for implementing the asset management program across the organization?
4. **Role –** Do staff and Council understand their role in implementing the asset management program?
5. **Decision-Making** – Is decision-making informed with appropriate and timely information, transparent, and aligned with community priorities?

Assessment Results

Input provided by the AM Team during the Documenting Existing Asset Management Practice Workshops was used to assess the City's level across each of the 21 capacity areas. Results from this workshop suggest that City is, on average, at a **Level 2** overall, though levels range from 1 – 4 across the capacity areas. The results from the AssetSMART Assessment are shown below.

AssetSMART 2.0 Assessment



Assets

Location	The City is in the process of developing an Asset Management Policy and has established a TCA Policy, Financial Management Policy, and a policy to address the infrastructure gap.
Key Attributes	The City's inventory includes basic attribute information, but information is not complete, and some asset categories have more information than others (e.g. good information for facilities and traffic systems, gaps in pipe material and pump stations).
Install Data	See comment above.
Historic Cost	Most assets have a historical cost, but the exact accuracy is unknown (e.g. floodboxes show a historical cost of $0)
Natural Assets	Natural assets have been documented but their value has not been defined.

Information

Policy	The City is in the process of developing an Asset Management Policy and has established a TCA Policy, Financial Management Policy, and a policy to address the infrastructure gap.
Strategy	The City is in the process of establishing an Asset Management Strategy that will guide next steps for developing and implementing the Asset Management Program.
Level of Service	Levels of service have been established but not tracked for all major asset categories.
Risk	Up-to-date condition data is available (e.g. reports) but information is not communicated or accessible across the organization.
AMP – Asset Management Plans	There is an opportunity to develop a City-wide process for assessing infrastructure-related risks and prioritizing infrastructure, and to communicate these processes across departments.
AMP – Long Term Capital Plan	A long-term capital plan is in place for facility assets and there is an opportunity to develop long-term capital plan for other asset categories.
Climate Change	Climate change-related impacts have not been assessed

Finances

Long Term Financial Plan	The City has a 10 year capital plan for facility assets only.
Revenue	City revenue is considered, predictable, and stable in funding long term service delivery.
Reserves	Reserves are in place, but it is unclear whether reserves will be adequate over the long term.
Debt	The City used to be debt free, though debt levels are currently at $20 million, with an additional $52 million being issued to fund the new recreation complex.

People

People Capacity	Asset Management Team members feel their knowledge and skills are sufficient to participate in the AM Program. Expressed challenges with capacity for AM (people, tools, and financial resources). In particular, tools are needed to support AM implementation.
Awareness	Not all staff across the organization have an awareness of asset management.
Teamwork	A cross-departmental Asset Management Team has been recently established and is working on developing a collaborative approach to working together.
Role	Roles and responsibilities related to managing community infrastructure are understood in some areas (e.g. by senior staff), but there is room to more clearly define roles and responsibilities.
Decision Making	The City makes decisions based on a 2 year time horizon. Some departments (e.g. facilities) have longer term plans and decision-making processes.

3.3 Best Practice 3 - Asset Management Readiness Scale

About the Best Practice

The FCM Asset Management Readiness Scale measures progress of local governments as they adopt asset management practices across five "competencies":

- **Policy and Governance –** Putting in place policies and objectives related to asset management, bringing those policies to life through a strategy or framework, and then measuring and monitoring implementation over time.
- **People and Leadership –** Setting up cross-functional groups with clear accountability and ensuring adequate resourcing and commitment from senior management and elected officials to advance asset management.
- **Data and Information –** Using asset data, performance data, and financial data to support effective asset management planning and decision-making.
- **Planning and Decision-making –** Documenting and standardizing how the organization sets priorities, conducts capital and operations and maintenance (O&M) planning, and decides on budgets.
- **Contribution to Asset Management Practice -** Training and staff development, sharing knowledge internally and participating in external knowledge sharing.

An organization's asset management capacity is assessed according to each of these five competencies on a scale from 1 to 5, where Level 1 is beginner, Level 3 is advanced, and Level 5 is exceptional. Each level is considered "complete" only when all components for that competency have been achieved. This means that, even if an organization has achieved the *majority* of goals described for a level, the should remain assessed at the previous level until all components of the next level have been achieved. The City of Port Coquitlam's assessment according to the Data and Information competency, as an example of the Readiness Scale, is shown in Table 3-1 with a yellow highlight showing elements outstanding.

Table 3-1: Assessment According to the Data and Information Competency of the Readiness Scale

ASSET MANAGEMENT READINESS SCALE

Competency: DATA AND INFORMATION

*This competency involves using **asset data**, **performance data** and **financial data** to support effective asset management (AM) planning and decision-making*

	1		2	3	4	5
	Working on Level 1 ☐	Completed Level 1 ☑	Completed Level 2 ☐	Completed Level 3 ☐	Completed Level 4 ☐	Completed Level 5 ☐
Readiness Level	We have inventory data and financial data, aligned with minimum reporting requirements for tangible capital assets.		We have basic inventory data for major assets, including some condition and performance data. We have detailed financial data for some of our assets.	We have basic inventory data for all our assets, with some level of service information and standardized condition ratings. We have linked AM and financial information for our major assets.	We have expanded inventory data on major assets, including condition and performance information. We have basic forecasts and risk assessments for some assets. We have a long-term community financial plan in place.	We have expanded inventory data on all assets. We have performance forecasts and risk assessments in place for most assets.

Assessment Results

Input provided by the Asset Management Team during the Documenting Existing Asset Management Practice Workshop indicates that the City has **completed Level 1** for almost all competencies and is **working on Level 1** for People and Leadership. Figure 3-2 illustrates results from the Readiness Assessment, based on FCM's assessment format in Table 3-1 (previous page) and adjusted to a graphic design unique to the City. More details are provided in the Process Gap Memo in Appendix A.

Asset Management Readiness Scale

Figure 3-2: Readiness Assessment Results

4. Process Gap Analysis Summary

Looking forward, staff have identified valuable opportunities for improvement from their perspective at a departmental level as well as organization-wide. Outcomes from the process gap analysis revealed several areas for improvement or investment as part of building the City's asset management capacity. A summary of current practices and opportunities for improvement are summarized in the section below for each of the five areas of asset management: Awareness & Priorities, Information, Team, Internal Systems & Processes, and Financial. Decisions regarding how to prioritize and address these process gaps will be addressed as part of the Asset Management Strategy.

4.1 Awareness & Priorities

Current Practice

Staff input during interviews and the Documenting Existing Asset Management Practices workshop indicated that, while Council has an awareness of asset management, there is room for increased awareness among staff across the organization and communicating out to the public. Council has made asset management a priority for the City and has set objectives for the program. Staff across the organization understand their own responsibilities, but not all staff across the organization have an awareness of asset management. The Asset Management Team noted that staff may understand the current state of City infrastructure in their own department, but not for the City as a whole.

Process Gaps

Process gaps identified for the City are summarized below:

- Document asset management principles;
- Look at best practices (vs. accepting today's approach as the best way to do work);
- Build staff awareness of asset management across the organization;
- Improve continuity and consistency of information for Council; and
- Build public awareness of asset management.

4.2 Information

Current Practice

The City's existing inventory is area-dependent, unconsolidated, and the level of detail varies. City staff have a good handle on what asset information exists and where to find the information they need to do their job, but there is a strong desire to consolidate and make existing information more universally accessible, both across and within departments. The City has a decentralized IT system with strong GIS capabilities and an array of tools (e.g. work queue, CityWide) that are continuously being improved. There is an opportunity for a more coordinated approach and staff noted that some clarification is needed regarding Department 'ownership' and maintenance of assets, and some minor assets are 'unassigned' due to recent reorganization.

The City's inventory includes basic attribute information, but some information is not complete, and some asset categories have more information than others (e.g. good information for facilities and traffic systems, gaps in pipe material and pump stations).

Some other inventory notes include:

- Up-to-date condition data is generally available (e.g. reports) however not communicated or accessible across the organization;
- High pressure watermains need more frequent condition assessments (high consequence of failure);
- Some natural assets have been documented but their value has not been defined and climate change-related impacts have not been assessed;
- Replacement cost data should be refined at an asset by asset level as part of Phase 2 work;
- Infrastructure data is regularly maintained and updated;
- Historical cost data for tangible capital assets is available as part of PS-3150 reporting; and
- Asset management plans have not been completed for core services.

Process Gaps

Process gaps identified for the City of Port Coquitlam are summarized below:

- Improve records management (more communication desired and a central location for digital documents);
- Develop a consolidated inventory that includes basic information and detailed financial data about major assets (encompasses recently unassigned assets);
- Provide additional Citywide training to maximize use of the tool;
- Synchronize information and make linkages between financial and non-financial information (e.g. condition assessments, TCA);
- Implement a centralized maintenance management system or process, including a framework for work orders and tracking replacement of assets/major maintenance;
- Establish a standardized condition rating system and a process for updating condition information for most asset categories (include public art);
- Improve information sharing between Public Works and Engineering, and coordinate operation and maintenance of assets with long term capital planning;
- Develop a strategic approach to maintenance management to streamline processes and work tasks with less duplication of effort (e.g. process for tracking the replacement and major maintenance of major assets and keeping information up to date);
- Make the consolidated inventory easily accessible to staff across the organization (include consolidating maintenance information that is there, but difficult to find);
- Create a more coordinated approach for the City's IT system and GIS capabilities;
- Document the value of natural assets as part of the City's asset inventory;
- Clarify Department ownership and maintenance of assets;
- Assess climate change-related impacts to assets; and
- Develop asset management plans for all asset categories.

4.3 Team

Current Practice

City-wide collaboration was recognized by staff across departments to be a major accomplishment, with significant progress made in the last 1-2 years. Staff have a fairly clear understanding of information and decision flows across departments and teams which is supported by a recent shift towards cross-department collaboration. The City recently established a cross-departmental Asset Management Team and team members feel that their knowledge and skills are sufficient to participate in the City's Asset Management Program. However, there is the potential through the development of asset management plans to better coordinate operation and maintenance activities with long term planning and capital work for the replacement of assets. Specifically, all staff expressed a desire to have the tools and information necessary to better make informed and coordinated decisions about how and when to repair assets and when to replace them.

Roles and responsibilities related to managing community infrastructure are understood in some areas (e.g. by more senior staff), but there is room for further clarity. Managers within each department meet regularly to discuss department needs and identify priorities (i.e. a pre-planning request for budget as well as checking back on spending throughout year).

Communication and collaboration between some departments is being done very well, while work in other departments is happening in silos. Some Public Works staff expressed a desire for more coordination between operations/maintenance activities and long term capital planning activities. Staff also expressed an interest in continuing to increase cross-department information sharing and collaboration. Challenges were identified by staff regarding having the capacity (e.g. people, tools, and financial resources) to implement an asset management program, with a particular need expressed for tools. There has been high staff turnover and restructuring in the last 7-8 years.

Succession plans for planning and knowledge transfer have been established in some departments and the City is currently developing Standard Operating Procedures to extend succession planning

Process Gaps

Process gaps identified for the City of Port Coquitlam are summarized below:

- Develop tools to support implementation of the Asset Management Program and Policy;
- Continue to provide opportunities and pathways for cross-departmental collaboration;
- Increase cross department information sharing and coordination, such as coordinating the operations and maintenance activities of Public Works staff with the development of long term capital planning activities;
- Establish a clear mandate for the Asset Management Team that clearly outlines roles and responsibilities (e.g. Terms of Reference);
- Incorporate asset management roles and responsibilities into staff job descriptions;
- Establish a basic program for asset management training for staff across the organization;
- Encourage staff to learn about the roles of their colleagues in order to share knowledge;
- Ensure staff understand the bigger picture (i.e., extending service life) by educating staff at different levels on why we are doing what we do;
- Involve field staff more in the development of capital planning and budgeting decisions

- Increase collaboration between Public Works and Development Services (to assess the impact of planning decisions on asset maintenance and renewal needs);
- Extend succession planning (e.g. job shadowing, standard operating procedures) across the organization to facilitate knowledge transfer (underway);
- Become involved in industry groups or events to share knowledge and experience in Asset Management; and
- Improve continuity and consistency of information for Council (to gain buy-in).

4.4 Internal Systems & Processes

Current Practice

The City is in the process of developing an Asset Management Policy and has established a TCA Policy, Financial Management Policy, and a policy to work towards addressing the infrastructure gap. There is an opportunity to update existing policies to ensure future alignment with the Asset Management Program. The Asset Management Strategy will guide next steps for developing and implementing the Asset Management Program.

Decision-making about service delivery and infrastructure is generally transparent and there are many initiatives to engage with the public (e.g. website, surveys). Levels of service have been established for all major asset categories and are reported out to Council as part of the annual budgeting process. .

Performance is tracked for some, but not all, asset categories (e.g. through PM Expert for preventative maintenance and Tempest for public service calls for facilities and recreation services). There are also some gaps in responsibilities (e.g. condition assessments and replacement planning for some assets). Some Public Works staff believe that there is a significant backlog of infrastructure rehabilitation projects.

Prioritization of infrastructure and capital projects currently takes place as part of an iterative, multi-utility capital planning process. The process involves Asset Planning working with department managers to develop a draft city-wide capital plan. The plan is then refined with the Directors and Finance Department, and approved by Council to establish two-year capital plans. Staff feel that there is an opportunity to further communicate infrastructure prioritization processes across departments. In addition, staff indicated that a city-wide standard process for assessing infrastructure related risks, beyond having assessed the criticality of infrastructure, is lacking. This is supported by the outcomes of the Data Gap Analysis.

Process Gaps

Process gaps identified for the City of Port Coquitlam are summarized below:

- Develop an Asset Management Policy that is endorsed by Council and Senior Management;
- Develop an Asset Management Strategy that documents system plans and objectives for the coming year;
- Establish a roadmap with detailed actions for AM implementation;
- Establish performance measures for monitoring AM Program progress;
- Update existing Asset Management related policies to ensure future alignment;
- Improve level of service tracking through online services (e.g. measuring wait times);
- Create an audit process for evaluating established Levels of Service;
- More proactive decision making based on condition and operations data;

- Establish a city-wide process for assessing infrastructure condition and risks, and for prioritizing infrastructure needs;
- Establish a process for knowledge transfer and business continuity planning; and,
- Establish a structured investment planning approach based on both short- and long-term issues and priorities.

4.5 Financial

Current Practice

The City's capital planning horizon is 2 years, and staff feel that the current process is quite efficient. There is a desire for clearer budget delineation for resources used across departments. There is also a desire for further consideration of lifecycle costing to help make infrastructure investment decisions, which came up repeatedly in the workshops and interviews.

A long-term capital plan, long term financial plan, and lifecycle renewal plan is in place for facility assets (20-year) and there is an opportunity to develop long-term capital and financial plans for other asset categories.

City revenue is considered, predictable, and stable. The development and integration of asset management plans with long term financial plans will assess whether revenue is sufficient to fund long term service delivery. Staff see the Asset Management Program as an opportunity to determine if an additional 1% per year contribution to renewal reserves will be adequate over the long term. The City's historical practices were to remain debt free. This perspective has recently shifted; current debt levels are at $20 million, with an additional $52 million being issued to fund the new Recreation Complex.

Process Gaps

Process gaps identified for the City of Port Coquitlam are summarized below:

- Establish long term (10+ year) capital and financial plans for remaining asset categories;
- Assess whether reserve funding levels will be adequate over the long term;
- Define asset lifecycle costs to inform infrastructure decision-making;
- Increase staff engagement in the budgeting and prioritization process;
- Establish a strategy to pay down debt levels over time; and
- Reduce impact of securing funding on ultimate delivery of asset management activities.

Part 3 – Current State of Assets

1. Community-Wide Summary

The City of Port Coquitlam is responsible for assets that provide a broad range of essential community services, including but not limited to clean water, sanitation, flood protection, transportation, and recreation.

The infrastructure and services support the City's Vision of being a happy, vibrant, safe community with healthy, engaged residents and thriving businesses, supported by sustainable resources and services. At its core, asset management is about sustainable service delivery, which directly affects quality of life.

Vision 2020
Port Coquitlam is a happy, vibrant, safe community with healthy, engaged residents and thriving businesses, supported by sustainable resources and services.

1.1 Data Gap Analysis

A Data Gap Analysis was undertaken by KWL to evaluate Port Coquitlam infrastructure data based on the following information provided by the City:

- CityWide Database (primary source);
- GIS data (primary source);
- Technical Memorandums and Reports; and
- Excel lists (inventories, levels of service, etc.).

The Data Gap Analysis details are provided in Appendix B. Results have been summarized in the subsequent sections for the City and according to each asset category. A complete list of sources used in the analysis is included in Appendix C.

A three point scale (0, 1, 2) was used to rate the infrastructure data for each major asset category based on availability, quality and reliability as it relates to supporting asset management decision-making.

Rate	Availability Rating	Quality Rating	Reliability Rating
2	all necessary data is available	excellent quality data	all necessary data is reliable
1	some data is available	good quality data	some necessary data is reliable
0	little or no data available	data quality needs improvement	data is generally unreliable

Availability ratings were assigned according to attribute information as categorized below:

- Length or quantity;
- Diameter, width, area or size;
- Material or type;
- Installation, construction or purchase year;
- Estimated replacement year;
- Replacement cost;
- Location;
- Unique asset ID;
- Condition;
- Level of service; and
- Risk.

Quality ratings are an overall measure of the completeness of the available data. They were assigned to each asset subcategory as the average of its availability ratings, ignoring criteria where no data is available.

Reliability ratings are an overall measure of how trustworthy an asset's data sources are. For simplicity, it is solely based on the age of the data source. A '2' rating was given to asset subcategories with recent data sources created (post-2012). All GIS datasets, which are assumed to be constantly maintained, were given this rating. A '1' rating was given to asset subcategories with data sources created between 2008 and 2012. Finally, a '0' rating was given to asset subcategories with sources created prior to 2008. If an asset subcategory had numerous data sources, the lowest reliability rating was assigned.

1.2 Information Accessibility, Quality and Reliability

Staff feel that they generally have a good handle on information that exists and where to find, particularly with respect to their own departments. There is, however, a strong desire to consolidate and generally make existing information more accessible across teams and more broadly across the organization. Some select staff identified a need to clarify department 'ownership' of assets compared to maintenance responsibilities. Furthermore, some minor assets need reassignment as they are currently 'unassigned'.

Overall, based on the Data Gap Analysis, there is sufficient, high quality, reliable basic physical data for all asset categories in the City to support initial asset management decisions. Where data gaps exist, assumptions can be made as a placeholder until such time as additional information can be collected. Highlights are as follows:

- Information is generally of excellent quality;
- Unique IDs have been assigned for most assets (i.e. those in GIS);
- Location information is generally documented, or easily accessible;
- Length/quantity is available for all asset categories;
- There is limited attribute information across most asset categories with respect to diameter, material, installation date, estimated replacement year, and replacement cost;
- Some condition information is available for key asset categories (including a significant amount of sanitary and storm piping condition data in GIS); however further effort is required to incorporate all condition data into GIS or CityWide;
- Technical Levels of service in Public Works (for outward-facing services) have been documented for many asset categories, with performance measures and benchmarks identified;
- Risk information is available for critical assets as part of the criticality assessment. No other risk analysis information was available; however, this can be addressed for individual asset categories as part of developing Asset Management Plans; and
- Information is generally reliable, however staff noted that in some areas there are attributes such as pipe material particularly for some older infrastructure, that are unreliable compared to field checks.

A summary of the Data Gap Analysis, according to each asset category, is included in Table 1-1 below. The detailed spreadsheet with ratings at an asset subcategory level is included as Appendix B, with a series of system level matrices describing recommended actions for closing gaps provided in Appendix E.

Table 1-1: Data Gap Analysis Summary by Major Asset Category

	Availability											Quality	Reliability	Overall
	Length or Quantity	Diameter, Width, Area or Size	Material or Type	Installation/ Construction/ Purchase Year	Estimated Replacement Year	Replacement Cost	Location	Unique Asset ID	Condition	Level of Service	Risk	Quality Rating	Reliability Rating	Overall Quality + Reliability
Water	2	2	2	2	2	2	2	2	0	1	1	2	2	2
Sanitary	2	2	2	2	1	1	2	2	1	1	1	2	2	2
Drainage	2	2	1	1	1	2	2	2	1	1	0	2	2	2
Transportation	2	2	2	2	1	1	2	2	1	0	1	2	2	2
Parks	1	N/A	1	1	1	1	1	1	1	1	0	1	2	2
Facilities	2	N/A	2	1	1	1	1	1	1	1	1	1	2	2
Fleet/Equipment	2	N/A	2	2	2	2	2	2	0	0	0	2	2	2
Information Services	2	N/A	0	2	2	2	1	2	0	0	0	2	2	2
Summary	2	2	2	2	1	2	2	2	1	1	1	2	2	2

Rate	Availability Rating	Quality Rating	Reliability Rating
2	all necessary data is available	excellent quality data	all necessary data is reliable
1	some data is available	good quality data	some necessary data is reliable
0	little or no data available	data quality needs improvement	data is generally unreliable

Following the Data Gap Analysis, KWL completed a review of the City's asset inventory based on data provided from two key sources: CityWide database export and GIS database. Only GIS assets categorized as existing were included in the inventory assessment. All provided CityWide data was assumed to be for existing assets. More details on the inventory are discussed in the section below.

1.3 Inventory

This section addresses the question 'What do you own?' by providing a highlight of community-wide infrastructure owned, operated and maintained by the City.

The City's primary repository for linear engineering infrastructure inventory is GIS. CityWide is the primary repository for Buildings and Facilities, Fleet and Equipment, and additional reports, spreadsheets, and other information is used to fill gaps as needed. Both Citywide and GIS were found to be fairly complete with mostly minor quantity discrepancies where the two have overlapping data. While more asset information is available in GIS, additional detail is available in CityWide (eg. replacement cost, in-service date). A detailed comparison of available asset information in GIS and Citywide is presented in Appendix D.

An Asset is: A **physical component** which has **value, enables services** to be provided, and has an **economic life of greater than 12 months.** This is also referred to as a tangible capital asset (TCA).

1.4 Value

This section addresses the question 'What is it worth?' Because asset management is forward-looking, the value is based on what it would cost to replace all of the City's infrastructure assets in today's dollars.

The City's infrastructure assets represent a total estimated replacement value of approximately $1.3 billion as shown in Figure 1-1. This works out to approximately $22,000 per capita. Land and work in progress amount to an additional $215 million. Drainage and transportation are the largest asset categories by value, each making up approximately 1/3 of the City's total replacement value.

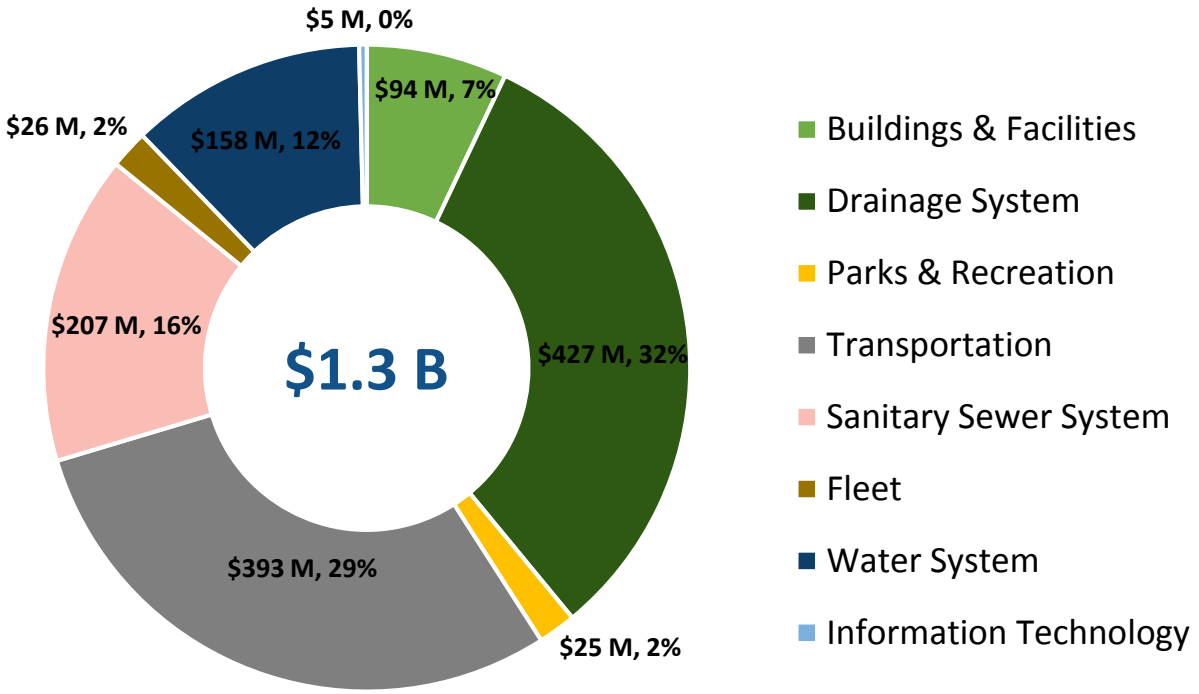


Figure 1-1: City of Port Coquitlam Replacement Value by Category

1.5 Condition

This section addresses the question 'What is its condition?' Because available condition information was limited to reports and some GIS data for linear sanitary and drainage piping as opposed consolidated GIS or CityWide information, no overall condition rating was able to be assigned for the City's infrastructure assets at this time.

The collection of condition data is typically included with asset management planning work (currently scheduled for Phase 2 work starting in 2019). Calculated remaining life has been used as a placeholder until such time as condition information is translated into a format that can be used to inform more accurate remaining life estimates.

1.6 Remaining Service Life

This section addresses the question 'When do you need to do it?' For the City's purposes, the average remaining life of the City's infrastructure has been calculated based on standard life expectancies according to available information in CityWide. In other words, this is currently a financial estimate as opposed to being field-verified at this time.

There is approximately 42% of the City's infrastructure life remaining, on average, with details by asset category presented in Figure 1-2. This can be updated to reflect more realistic condition-adjusted remaining service lives in future iterations of this report, and also as part of developing asset management plans for individual systems. However, calculated remaining service life is a common starting point for communities when initiating asset management.

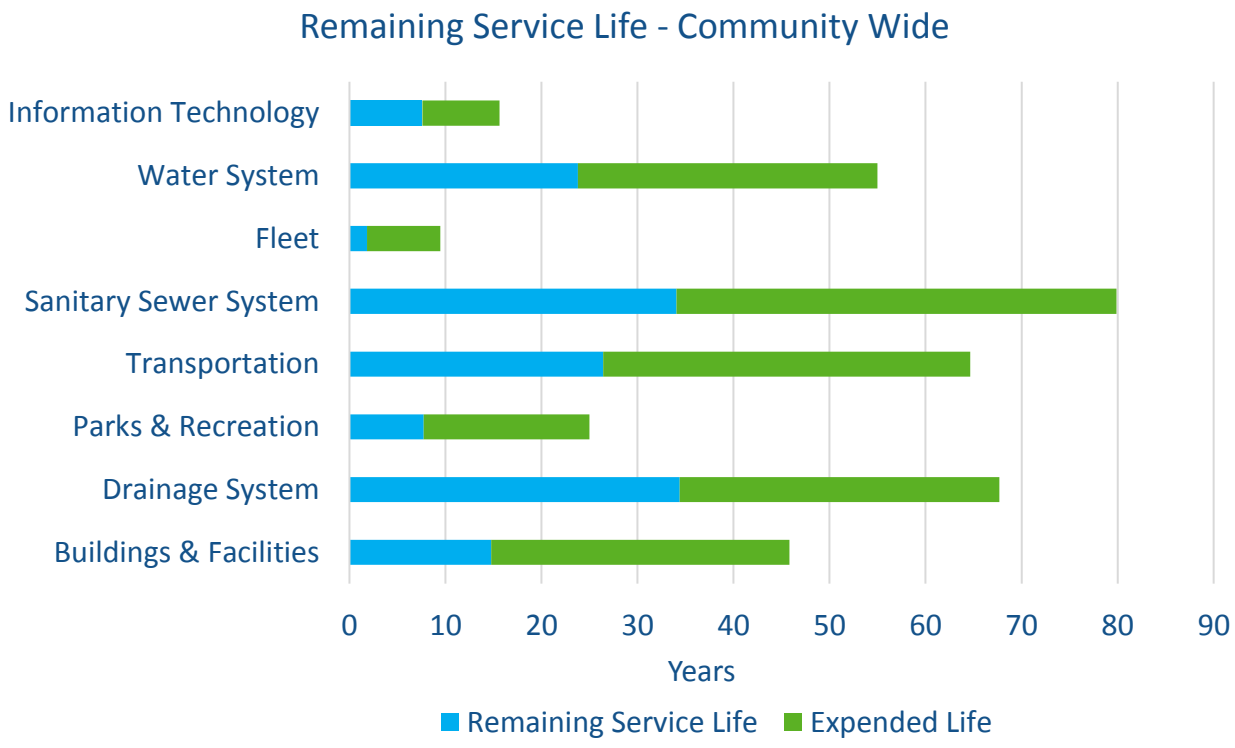


Figure 1-2: Remaining Life by Asset Category

1.7 Service Levels

Defining service levels is key to both asset management and financial planning. In some cases, service levels have regulated minimums (such as water quality requirements) while in other cases service levels are based on customer demand (e.g. some community facilities or programs). In all cases, service levels are flexible and can be used to modulate the relationship between an asset management plan and financial plan.

When asked about service delivery, staff from public facing departments seem to have a clear picture of the services they provide. The City is far ahead in defining and measuring public-facing operational service levels (e.g. Public Works services) compared to the average community undertaking asset management in BC. However, technical service levels for other assets have not yet been documented. Customer levels of service have also not yet been established but typically come later in the asset management planning process. Across departments, staff indicated that primary gaps or impediments to delivering community services are:

- Staff time;
- Knowledge and skills;
- Budget;
- Information; and
- Decision-making processes/authority.

They have also recognized that succession planning is needed before long term staff retire (some processes are in place to start addressing this).

A system perspective review of service levels was completed and has been summarized in the subsequent sections of the report. A compiled summary of levels of service are provided in Appendix G.

1.8 Decision-Making Processes

Staff have been informally practicing aspects of asset management and sustainable service delivery into their regular decision-making processes but have not linked these actions to a City-wide program. Some significant milestones have been achieved to date related to asset management which should be recognized and celebrated as the first phase in Port Coquitlam's formal program is implemented. For example, the City is well ahead of most other communities in the Province as it relates to documenting service levels and linking budgets directly to service delivery objectives. Furthermore, staff feel that the City is lean and efficient" organization with strong team cohesion. There is a solid base of long term staff knowledge, with useful tools in place to support decision-making. Staff generally feel that the City is responsive to community needs.

Assessment of Practices

Based on the Phase 1 Asset Management scope of work, the City is currently in the **Assess** phase according to the **Sustainable Service Delivery Framework** and will progress to the **Plan** phase before the end of the year. Planning will continue as part of Phase 2 in the City's Program.

A recent assessment of where the City is at with respect to asset management, according to the Asset Management Team, indicates that Port Coquitlam has generally **completed Level 1** according to the **FCM's Asset Management Readiness Scale**, and is **approximately at Level 2** (City capacity ranges from 1 – 4 across the 21 capacity levels) according to **UBCM's AssetSMART 2.0 scale**.

Furthermore, information gathered to date indicates that the City is working primarily on the **Basic** blocks according to the **AMBC Asset Management Roadmap**.

Looking forward, staff have also identified valuable opportunities for improvement from their perspective at a departmental level as well as organization-wide. Outcomes from the process gap analysis revealed a number of areas for improvement or investment as part of building the City's asset management capacity.

The results of the Analysis inform the roadmap within the City's Asset Management Strategy.

Decision Making

The City's capital planning horizon is 2 years, and staff feel that the current process is quite efficient. Staff feel that there is an opportunity to further communicate infrastructure prioritization processes across departments. In addition, staff indicated that a City-wide standard process for assessing infrastructure related risks, beyond having assessed the criticality of infrastructure, is lacking. This is supported by the outcomes of the Data Gap Analysis. There is also a desire for further consideration of lifecycle costing to help make infrastructure investment decisions, which came up repeatedly in the workshops and interviews.

Relationships and Communication

City-wide collaboration was recognized by staff across departments to be a major accomplishment, with significant progress made in the last 1-2 years. Staff have a fairly clear understanding of information and decision flows across departments and teams which is supported by a recent shift towards cross-department collaboration. There remains a desire for further inter-departmental collaboration (e.g. knowledge and information sharing).

2. Water System

The water system provides potable water and fire protection to the residents and businesses of Port Coquitlam. The City receives bulk water supply from Metro Vancouver through eight pressure-reducing valve (PRV) stations, which feed the City's transmission mains (i.e. larger diameter and higher pressure). The City's water distribution system includes several pump stations to boost the flow and pressure of water to residents. In lower lying areas, PRV stations limit the distribution system pressure to avoid damage to building plumbing systems.

Fire protection is provided by fire hydrants and standpipes that are distributed throughout the City. Isolation valves are placed at regular intervals to stop flow in the event of planned maintenance or pipe breaks. Water quality is monitored from multiple sampling stations throughout the City.

2.1 Information Availability, Quality and Reliability

Core water system information is available, however staff indicated that there is a small subset of pipe material data that has not been field verified. Some basic attribute information could be refined and minor assets have information gaps. Based on the spatial coverage of assets and relatively close match between GIS and CityWide records, the water inventory is considered complete except for the service connections, and is **sufficient for supporting current asset management decision-making**. A matrix summarizing attribute information in more detail is provided in Appendix E.

The primary source for storing water infrastructure information is GIS. Some reconciliation of records is required and the GIS data also contains some records that may not be considered tangible capital assets but are important for operational planning.

No condition information is available. Replacement decisions currently rely on age, material and maintenance information. Technical levels of service have been documented for major asset subcategories, along with performance measures and benchmarks. Critical assets have been identified as part of the City-wide assessment, however there is no other formal risk assessment process in place.

2.2 Inventory

The water system is made up of subcategories classified according to linear and vertical components as summarized in Table 2-1.

A map of the system is provided in Appendix F, based on available GIS data.

Table 2-1: Water System Asset Inventory

Assets	Quantity/Length
Pipes	210 km
Service Connections	112 km
Hydrants	1,137
Valves	4,406
Pump Stations	2
Other	103

2.3 Value

The replacement value of the water system is estimated to be approximately $158 million. Pipes make up the largest portion of the system by value.

There are six subcategories in the system missing historic and replacement cost data. These assets represent less than 0.1% of the total inventory.

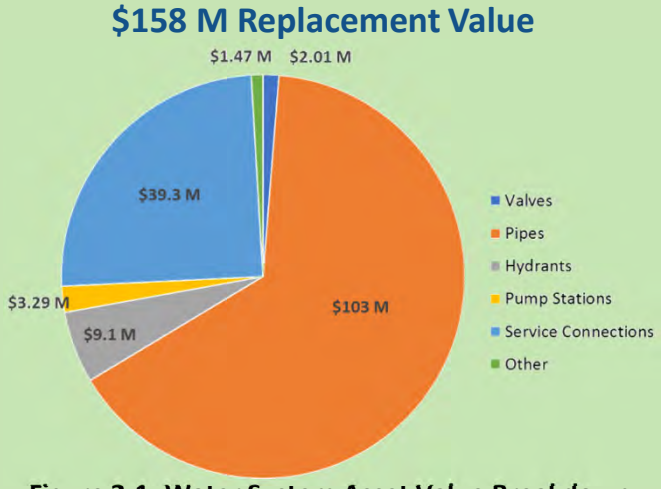


Figure 2-1: Water System Asset Value Breakdown

2.4 Condition

Detailed information on the condition of the water system was not available at the time of this report.

2.5 Remaining Service Life

The water system has a replacement value-weighted average remaining service life of 15 years. The overall breakdown of estimated remaining service life is shown in the following graph.

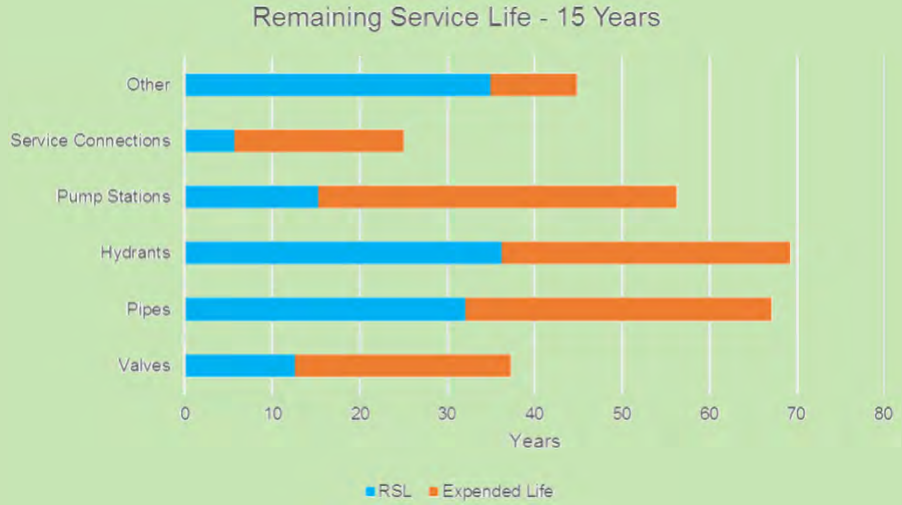


Figure 2-2: Remaining Service Life of Water System Components

2.6 Service Levels

The City has documented service levels for planned and reactive maintenance of all water system components. Overall, the City maintains a very high level of service and reliability in the water system, which is critical to protection of public health and safety. The City's documented service levels relate to the following areas:

- **System reliability** – avoiding loss of service due to mechanical failures of pumps and valves, and watermain breaks; number of breaks, type of material, and age of pipe are used to make decisions about when to replace watermains
- **Water quality** – adherence to the Canadian Guidelines for Drinking Water Quality and associated best practices;
- **Fire protection** – ensuring adequacy of fire flow and reliable fire hydrant operation; and
- **Water conservation** – minimizing leakage, metering and consumer education to reduce overall water consumption.

A summary of levels of service are provided in Appendix G.

2.7 Decision-Making Processes

Staff identified the following barriers to effective utility (water, sanitary and drainage) decision making:

- High staff turnover in the last 7-8 years and restructuring, lack of succession plan
- Work is happening in silos; need a focused effort on collaboration
- High pressure watermains are in need of more frequent condition assessment (high consequence of failure)
- Minimal involvement of field staff in long term and capital project planning

Opportunities were also identified by staff to support improved decision-making:

- More field staff involvement
- Learn about other people (their roles) in order to share knowledge
- Succession planning to facilitate knowledge transfer
- Develop centralized maintenance management system
- Improve department to department communication
- More proactive decision making based on condition and operations data
- Coordinate pipe upgrades with other capital projects

The priority process gaps for the water system are:

1. **Having updated condition information for all assets**
2. **Maintenance management information system**

3. Sanitary Sewer System

The sanitary sewer system is vital to public health and safety as well as preventing environmental pollution. The sanitary sewer system is comprised of over 190 km of gravity mains/forcemain and 26 pump stations and nearly 16 km of force mains. The system drains to Metro Vancouver's McLean Pump Station, which pumps sewage to the Annacis Island Wastewater Treatment Plant.

3.1 Information Availability, Quality and Reliability

Core sanitary sewer system information is available pipe materials are not available for some assets. Some basic attribute information could be refined and minor assets have gaps. The sanitary inventory is mostly complete but would benefit from database reconciliation between GIS and Citywide. It is **sufficient for supporting current asset management decision-making**. A matrix summarizing attribute information in more detail is provided in Appendix E.

The primary source for storing sanitary sewer infrastructure information is GIS. The total number of assets for force mains, gravity mains, pump stations and manholes are a relatively close match between GIS and Citywide records. Service connection information in Citywide should be checked (i.e. services may be grouped, or under reported).

Condition information is available for some sanitary mains, however unavailable for other subcategories within the system. An annual CCTV program is collecting data, and there is a plan to upload a backlog of data to GIS next year. Technical levels of service have been documented for major asset subcategories, along with performance measures and benchmarks. Critical assets have been identified as part of the City-wide assessment, however there is no other formal risk assessment process in place.

3.2 Inventory

The sanitary system is made up of subcategories classified according to linear and vertical components as summarized in Table 3-1.

A map of the system is provided in Appendix F, based on available GIS data.

Table 3-1: Sanitary System Asset Inventory

Assets	Quantity
Pipes	192 km
Service Connections	96 km
Manholes	2,737
Pump Stations	26
Other	281

$207 M

3.3 Value

The replacement value of the sanitary system is estimated to be approximately $207 million. Pipes make up the largest portion of the system by value.

There are few assets in the sanitary system missing historic and replacement cost data. These assets represent less than 0.1% of the total inventory.

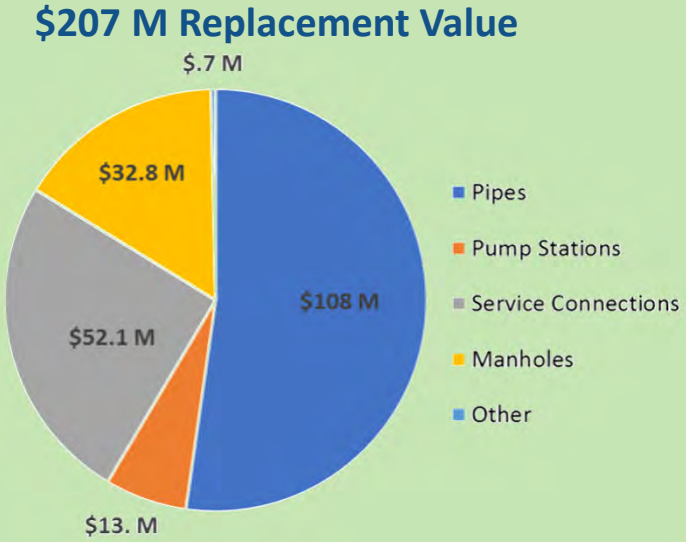


Figure 3-1: Sanitary System Asset Value Breakdown

3.4 Condition

While some condition information is available for the sanitary system, the majority of this data was not in a digital format suitable for summarizing as part of this report.

37 Years

3.5 Remaining Service Life

The sanitary system has a replacement value-weighted average remaining service life of 37 years. The overall breakdown of estimated remaining service life is shown in the following graph.

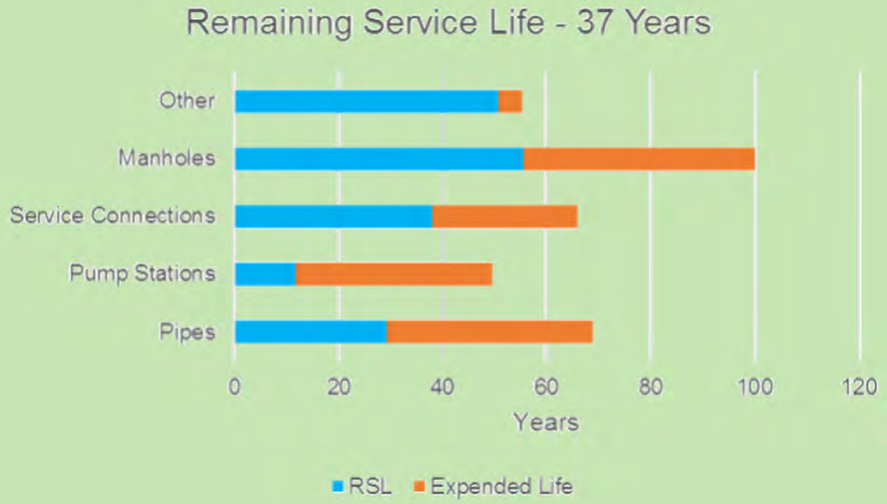


Figure 3-2: Remaining Service Life of Sanitary System Components

3.6 Service Levels

This City has established service levels for planned and reactive maintenance of all sewer system components. The City's documented service levels relate to the following areas:

- **System reliability** – avoiding loss of service due to blockages (roots, debris, grease), structural failures, power outages and risk to environment through proactive maintenance and video inspection programs, generator servicing and alarm communication systems; and
- **Staff safety** - replacing or adjusting castings, lids, ladder rungs, or benching in manholes.

A summary of levels of service are provided in Appendix G.

3.7 Decision-Making Processes

See Section 2.7 for the barriers to effective utility (water, sanitary and drainage) decision making, opportunities to support improved decision-making, and the priority process gaps identified by staff.

4. Drainage System

The City's drainage system conveys stormwater away from roads and properties and prevents floodwaters entering the floodplains. Much of the City is within the 200-year floodplains of the Coquitlam, Pitt and Fraser Rivers. The upland areas are primarily served by an enclosed storm sewer system and lowland areas are served by open ditches and culverts. Dikes, pump stations and floodgates provide flood protection.

The City has several natural creek systems that provide outlets for stormwater and provide important habitat for terrestrial and aquatic species.

4.1 Information Availability, Quality and Reliability

Primary drainage system information is available, however pipe materials are not available for some assets. Some basic attribute information could be refined and minor assets have gaps. The drainage inventory is mostly complete but would benefit from database reconciliation between GIS and Citywide. **It is sufficient for supporting current asset management decision-making.** A matrix summarizing attribute information in more detail is provided in Appendix E.

The primary source for storing drainage infrastructure information is GIS. The GIS and Citywide datasets for the drainage system show a difference in the number of assets. The same issue regarding the service connections in the water and sanitary systems occurs in the drainage system. A closer inspection of the datasets should be done to identify how to best reconcile the drainage data.

Condition information is available for some drainage mains and culverts, however unavailable for other subcategories within the system. An annual CCTV program is collecting data, and there is a plan to upload a backlog of data to GIS next year. Technical levels of service have been documented for major asset subcategories, along with performance measures and benchmarks. There is no formal risk assessment process in place.

4.2 Inventory

The drainage system is made up of subcategories classified according to linear and vertical components as summarized in Table 4-1.

A map of the system is provided in Appendix F, based on available GIS data.

Table 4-1: Drainage System Asset Inventory

Assets	Quantity
Pipes	206 km
Service Connections	82 km
Manholes	3,300
Pump Stations	33
Catch Basins	5,175
Culverts	2,674 m
Open Channels	63,662 m
Dikes	18.5 km
Other	230

4.3 Value

The replacement value of the drainage system is estimated to be approximately $427 million. Pipes make up the largest portion of the system by value.

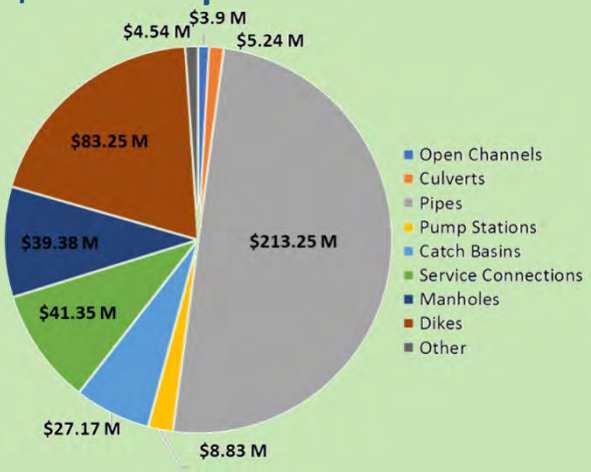


Figure 4-1: Drainage System Asset Value Breakdown

4.4 Condition

While some condition information is available for drainage mains and culverts, the majority of this data was not in a digital format suitable for summarizing as part of this report.

4.5 Remaining Service Life

The drainage system (incl. flood protection) has a replacement value-weighted average remaining service life of 28 years. The overall breakdown of estimated remaining service life is shown in the following graph.

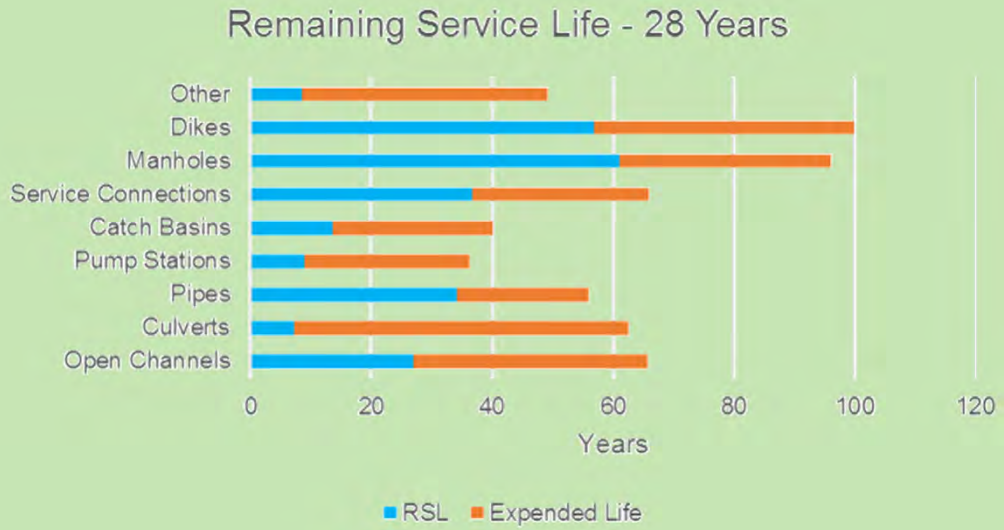


Figure 4-2: Remaining Service Life of Drainage System Components

4.6 Service Levels

The City's documented service levels related to the following areas:

- **System Reliability** – maintain infrastructure to prevent flooding, blockages, and failures though inspections, maintenance programs (debris/silt removal, bed deepening, relocation of beavers and removal of dams), and mitigate risk of liability; and
- **Environmental Protection** – ensure protection of natural stream assets through maintenance permitting, monitoring, and reporting, as well as minor funding for the research or stewardship of best practice.

A summary of levels of service are provided in Appendix G.

4.7 Decision-Making Processes

See Section 2.7 for the barriers to effective utility (water, sanitary and drainage) decision making, opportunities to support improved decision-making, and the priority process gaps identified by staff.

5. Transportation

Residents and business rely on public transit, walking, cycling and driving to travel around the City and region. In fact, making the City more walkable, cyclable and pedestrian friendly is a priority.

5.1 Information Availability, Quality and Reliability

Transportation information is generally available, with the biggest gap being replacement costs. Some basic attribute information could be refined and minor assets have gaps. The transportation inventory is mostly complete but would benefit from database reconciliation between GIS and Citywide, particularly in areas where there are some significant differences (eg. street lighting and bike racks). A further review over the datasets should be performed to identify the best approach for addressing gaps, however existing information is **sufficient for supporting current asset management decision-making**. A matrix summarizing attribute information in more detail is provided in Appendix E.

The primary source for storing transportation information is GIS, however spreadsheets are used to track some assets such as the electrical inventory.

Condition information is available for major asset subcategories including roads, sidewalks and bridges, however there is no documented condition information for the other asset subcategories. Similarly, some technical levels of service have been documented, along with performance measures and benchmarks. Critical assets have been identified as part of the City-wide assessment, however there is no other formal risk assessment process in place.

5.2 Inventory

The road and transportation system is made up of subcategories classified according to linear and vertical components as summarized in Table 5-1.

A map of the system is provided in Appendix F, based on available GIS data.

Table 5-1: Roads/Transportation Asset Inventory

Assets	Quantity
Road Surface	449 km
Road Base	507 km
Road Edge	422 km
Sidewalks	153 km
Bridges	28
Railway Crossings	5
Street Lighting	3,416
Traffic Infrastructure, Signs, and Signals	121
Retaining and Sound Barrier Walls	139
Other	50

$393 M

5.3 Value

The replacement value of the roads and transportation systems are estimated to be approximately $393 million. Roads make up over half of the network, based on asset value. The values shown are preliminary, to be updated as identified in the gap analysis.

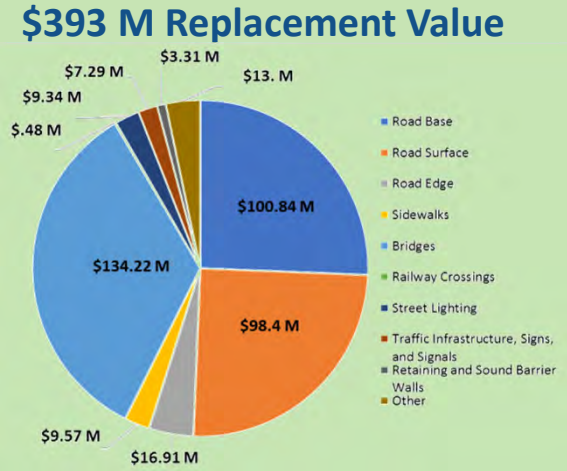


Figure 5-1: Roads/Transportation Asset Value Breakdown

5.4 Condition

While some condition information is available for roads and bridges, the majority of this data was not in a digital format suitable for summarizing as part of this report. Visual inspections of sixteen bridges were last completed in February of 2016. The bridges were reported to be fair condition, with one asset reported as poor with extensive corrosion and sections of complete loss noted in isolated areas.
A pavement network condition report was completed in October of 2013 and a management plan in December of 2015. New pavement data is being picked up in 2018. The overall road network was assessed to be in fair condition with roughness and rutting within the range normal for a municipal network.

28 Years

5.5 Remaining Service Life

The transportation system has a replacement value-weighted average remaining service life of 28 years. The overall breakdown of estimated remaining service life is shown in the following graph.

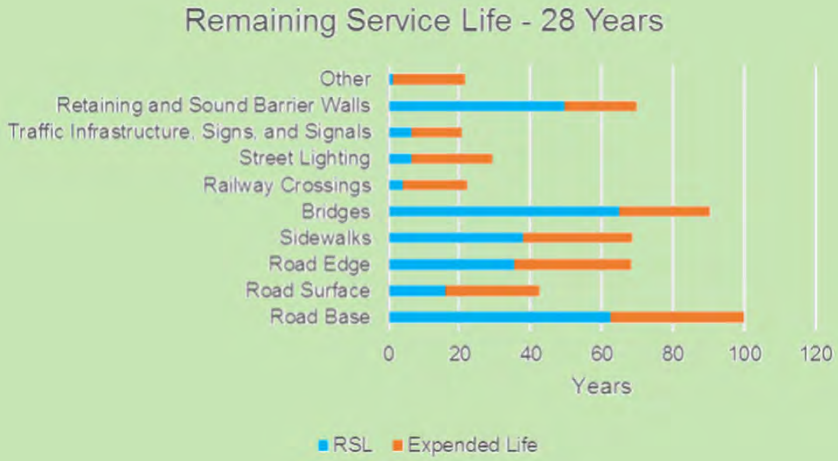


Figure 5-2: Remaining Service Life of Roads/Transportation Assets

5.6 Service Levels

The City's documented service levels related to the following areas (Appendix G):

- **System reliability** – avoiding loss of service due to road structure failure (sinkholes, potholes, cracks), snow and ice hazards, obstructions (overhanging or downed trees, illegal dumping) through inspections and maintenance programs (paving and patching, sweeping, dust control, plowing, sanding, de-icing); and
- **Safety** – avoiding incident and improving safety for emergency services providers, transit operations pedestrians and motorists through maintenance programs to ensure operation of traffic signals and railway crossings, visible road marking and signage, removal of sidewalk trip hazards.

A summary of levels of service are provided in Appendix G.

5.7 Decision-Making Processes

Staff identified the following barriers to effective transportation decision making:

- A backlog of infrastructure rehabilitation projects
- Need to better coordinate operation and maintenance activities with long term planning and capital work for the replacement of assets.

Opportunities were also identified by staff to support improved decision-making:

- Increase cross-departmental information, knowledge sharing, and collaboration
- Develop process for tracking replacement of assets/major maintenance (i.e. keeping information up-to-date)
- Need planning tools to make better informed and coordinated decisions about how and when to maintain assets vs. replace them. Need this information available to both public works (who operate and maintain existing assets) and engineering staff (who plan for and construct replacements of existing assets and new assets).
- Look at best practices (vs. accepting today's approach as the best way to do work)
- Consolidate existing maintenance information that is difficult to find

The priority process gap for transportation are: tracking the replacement of assets with major maintenance activities, coordinating maintenance activities with long term planning decisions, and increasing cross-departmental information, knowledge sharing and collaboration.

6. Building and Facilities

The Facilities department is responsible for maintaining the City's over 52 buildings and facilities that support city services (civic, fire and emergency services, and operations), in addition to parks and public art.

6.1 Information Availability, Quality and Reliability

No building and facilities data existed in GIS, and the primary inventory is housed in spreadsheets. This information generally includes detail on each major building broken down into its component parts, however it excludes building size information. It is determined that the Citywide database is complete for City buildings and facilities, and **sufficient for supporting current asset management decision-making**. A matrix summarizing attribute information in more detail is provided in Appendix E.

Condition information is available for major buildings, and there is a robust preventative maintenance program in place. Levels of service have not been formally documented and there is no formal risk assessment process in place.

6.2 Inventory

The City's buildings and facilities consist of the following list of assets shown in Table 6-1. There are a total of 52 City-owned buildings.

Table 6-1: Buildings and Facilities Asset Inventory

Assets	Quantity
Civic Buildings	8
Fire Hall Buildings	4
Operations Building	12
Parks Buildings	17
Recreational Buildings	11
Total	**52**

6.3 Value

The replacement value of buildings and facilities is estimated to be approximately $94 million, although this may not represent the cost of modern buildings.

Recreational buildings make up nearly half of this category by value, and this is expected to increase significantly as the new Recreation Centre Complex is built.

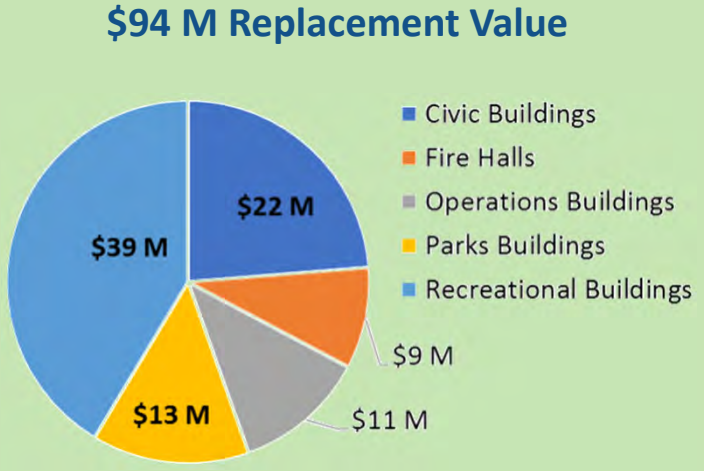


Figure 6-1: Buildings and Facilities Asset Value Breakdown

6.4 Condition

Information on anticipated maintenance actions for each building was provided by the City in an excel spreadsheet. While condition information is available for major buildings, the majority of this data was not in a digital format suitable for summarizing as part of this report.

Condition assessment work is generally contracted out for all major buildings. The last round was completed in 2013/2014, and there are plans to update these assessments imminently.

6.5 Remaining Service Life

The buildings and facilities in Port Coquitlam have a replacement value-weighted average RSL of 15 years, not including the Lions Park washrooms and picnic shelter. The overall breakdown of estimated remaining service life is shown in the following graph.

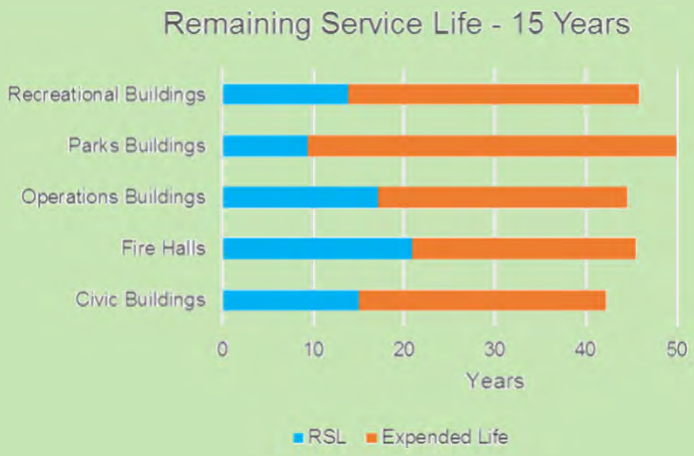


Figure 6-2: Remaining Service Life of Building and Facility Assets

6.6 Service Levels

The City has some service levels, however further work is required to formalize these practices and ensure consistency with other city departments. The City's documented service levels relate to building maintenance and repairs of park washrooms, shelters, change rooms, grand stands and field houses. A summary of levels of service are provided in Appendix G.

6.7 Decision-Making Processes

Staff identified the following barriers to effective facilities and recreation decision making:

- Scheduling issues
- Inconsistencies with budget management
- Exterior of pump stations is not being addressed by any department

Opportunities were also identified by staff to support improved decision-making:

- Develop framework for work orders
- Continue to bring recommendations forward
- Improve records management (more communication desired and a central repository for digital documents)
- Improve continuity and consistency of information for Council (to gain buy-in)
- Shuffle how work is completed

The priority process gap for facilities and recreation has been identified by staff as records management, and specifically having a central location for digital documents.

7. Parks

The Parks department provides primarily outdoor spaces and recreation services. The City maintains a total of 266 hectares of parkland and natural areas, as well as park sites, playgrounds, cemetery, sport fields, tennis courts, sport courts, outdoor pools, urban and park trees, flower beds and baskets, fences, furniture, and 46km of trails, including the 25-km Traboulay PoCo Trail.

7.1 Information Availability, Quality and Reliability

A more detailed review of the parks system is required since it appears that assets are being recorded either in GIS or CityWide, but not defined consistently in both. It is recognized that the inventory is currently being transitioned into GIS from previous excel and word-based sources. There is **sufficient data for supporting current asset management decision-making**. A matrix summarizing attribute information in more detail is provided in Appendix E.

Condition information is partially available for parks benches, signs, and tables. It is complete for playground equipment, however unavailable for other subcategories within the system. Levels of service have been documented for the majority of subcategories. Although performance measures and benchmarks. There is no formal risk assessment process in place.

7.2 Inventory

The park network consists of the following list of assets shown in Table 7-1.

A map of the system is provided in Appendix F, based on available GIS data.

Table 7-1: Parks Asset Inventory

Assets	Quantity
Utility Services (on-site)	74
Sports Surfaces	61
Outdoor Pools	5
Playgrounds	35
Pathways	420 m
Park Equipment	101
Lighting	15
Field Equipment	13
Fencing	292 m
Other Parks	19

7.3 Value

The replacement value of the park is estimated to be approximately $25 million. The values shown are preliminary, to be updated as identified in the gap analysis. Sports surfaces make up approximately half of this category by value.

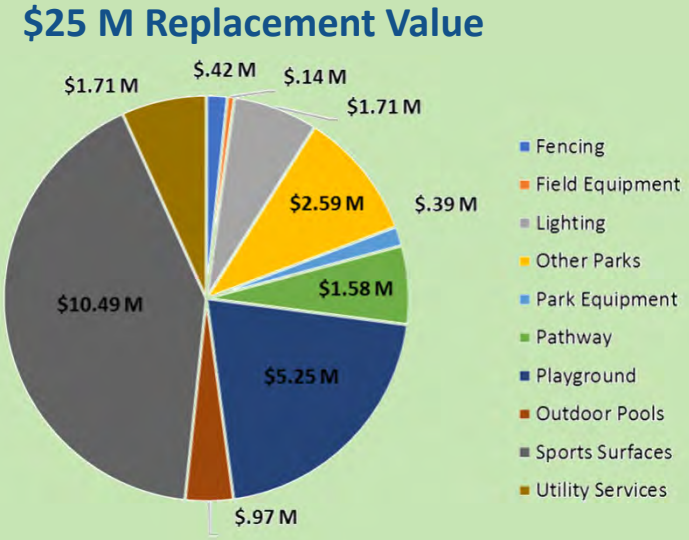


Figure 7-1: Parks Asset Value Breakdown

7.4 Condition

Detailed information on the condition of park assets is being tracked by staff in-house. However, it was not in a digital format suitable for summarizing as part of this report.

7.5 Remaining Service Life

The park assets have a replacement value-weighted average remaining service life of 7 years. The overall breakdown of estimated remaining service life is shown in the following graph.

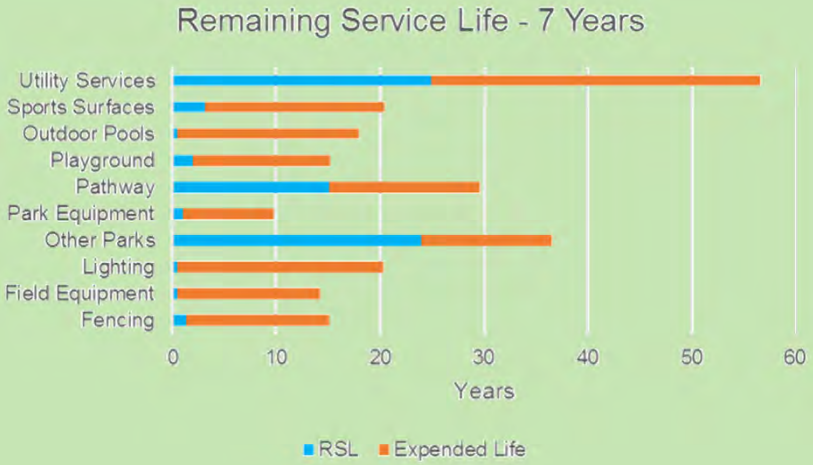


Figure 7-2: Remaining Service Life Parks Assets

7.6 Service Levels

The City's documented service levels related to the following areas:

- **Cemetery Services** – provide memorial or internment options for residents, and maintenance of plots, while ensuring adherence to the Cemetery and Funeral Services Act through the Office of the Attorney General – Department of Consumer Affairs and Services and the City of Port Coquitlam.
- **Safe Recreation** – maintain safe, quality sport surfaces, trails and park equipment and ensure adherence to CSA guidelines under the Canadian Playground Safety Institute standards for playgrounds and outdoor exercise equipment, benches, and picnic tables; and,
- **Green/Natural Space Conservation and Accessibility** – increase accessibility, visibility and public safety through the maintenance of natural spaces for residents and businesses to enjoy free of obstructions (invasive weeds, litter and garbage, vandalism and graffiti) through inspection and maintenance programs (brushing, clearing, planting, pruning, watering, removals).

A summary of levels of service are provided in Appendix G.

7.7 Decision-Making Processes

Staff identified the following barriers to effective parks decision making:

- Information gaps – bigger picture connectivity is missing (e.g. need for Parks Master Plan)
- Communication and collaboration across departments – it is not always clear what other teams are working on
- Communication and collaboration across departments – it is not always clear what other teams are working on and there can be conflicting spending priorities
- Service delivery is strongly influenced by the public

Opportunities were also identified by staff to support improved decision-making:

- Develop contingencies for internal estimates for contracted services
- Allocate resources to address under resourced items e.g. invasive species management, planning, public perspective re: ball fields.
- Implement the new operating procedures and structures that are currently being developed

The priority process gap for parks is to shift thinking to consider full lifecycle costing, as opposed to dictating infrastructure renewal and operations and maintenance activities under the available budget. It will also be important to build continuity into service delivery for City parks.

8. Fleet and Equipment

The City owns and maintains a fleet of vehicles, mobile equipment and stationary machinery and tools. These assets are operated and maintained primarily by Public Works.

8.1 Information Availability, Quality and Reliability

All of the City's fleet and equipment are non-spatial and therefore the Citywide database is considered complete and **sufficient for supporting current asset management decision-making**. Relevant basic attribute information is available, however condition, level of service and risk are generally not being tracked. A matrix summarizing attribute information in more detail is provided in Appendix E.

8.2 Inventory

The City's vehicles, machinery and equipment consists of the following list of assets shown in Table 8-1. The majority of the City's fleet assets are purchased (i.e. very few are leased).

Examples of assets included in these categories are:

- Recreation Equipment – ice re-surfacers, audio systems, scoreboards, cardio and weight room equipment
- Parks Equipment – turf aerator, re-seeder
- Fire Equipment – generator set, oxygen compressors, thermal cameras
- Operations Equipment – portable generators, pumps, vehicle accessories, weigh scales, lift trucks

Table 8-1: Fleet and Equipment Asset Inventory

Assets	Quantity
Waste Carts	6
Vehicles	234
Recreation Equipment	7
Parks Equipment	10
Operations Equipment	39
Fire Equipment	16

8.3 Value

The replacement value of fleet and equipment is estimated to be approximately $25 million. Vehicles make up approximately three quarters of this category by value.

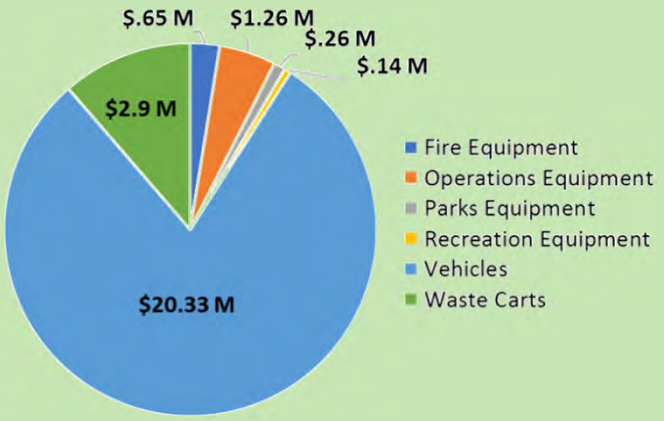


Figure 8-1: Fleet and Equipment Asset Value Breakdown

8.4 Condition

While some condition information is tracked for fleet and equipment through the work order system, this data was not in a digital format suitable for summarizing as part of this report.

8.5 Remaining Service Life

The fleet and equipment assets have a replacement value-weighted average remaining service life of 1 years. The City has maintained these assets in a manner that has extended the effective lifespan, so not all fleet and equipment need to be replaced immediately.

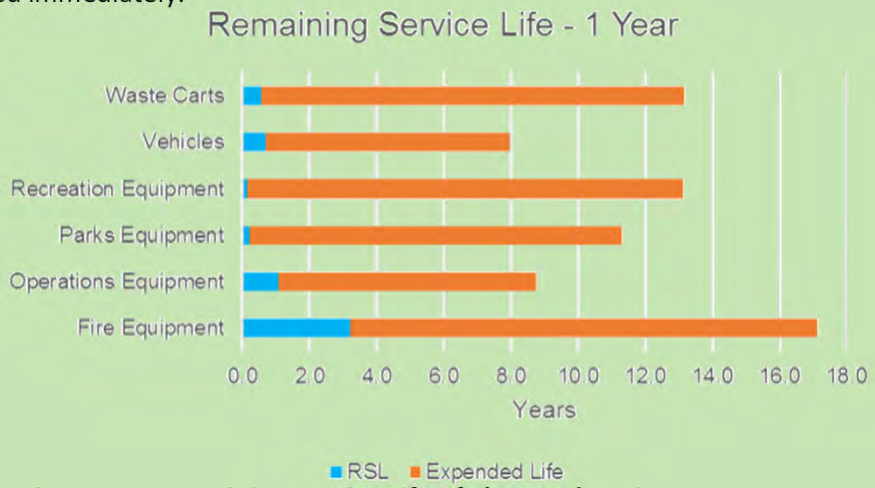


Figure 8-2: Remaining Service Life of Fleet and Equipment Assets

8.6 Service Levels

The City does not have established service levels for planned or reactive maintenance of vehicles, machinery and equipment. However, trip counts are available and can be used as a measure. A summary of levels of service are provided in Appendix G.

8.7 Decision-Making Processes

Staff identified the following barriers to effective fleet and equipment decision making, many of which were already identified by an earlier continuous improvement assessment:

- Charge-out rate is set for the whole lifecycle of the asset but does not account for fuel, insurance and maintenance increase over time independent of the asset renewal cost
- Need for clear budget delineation for resources used across departments
- Need to account for small equipment in planning
- Inventory tracking for carts is a challenge, which means that contamination (and repeat offenders) are not tracked
- Full costs (incl. outfitting) for solid waste vehicles have not been adequately reflected in the past

Opportunities were also identified by staff to support improved decision-making:

- Desire to centralize data
- Re-instate cart inventory tracking to address solid waste contamination issues
- Consider adjusting approach to charge-out rates to include more adaptability in addressing increasing fuel, insurance and maintenance increase over asset lifecycles independent of the asset renewal cost

The priority process gap for fleet and equipment is a fleet management system and centralizing data that already exists.

9. Information Services

The City's information systems are critical to operations in every department. They include hardware, software, and a fibre optic network. Information systems are of particular importance for asset management due to a heavy reliance on data. The GIS and CityWide systems are the most important for asset management.

9.1 Information Availability, Quality and Reliability

Most of the City's information systems assets are non-spatial and therefore the Citywide database is considered complete and **sufficient for supporting current asset management decision-making**. The fibre optic system has GIS records. Relevant basic attribute information is available, however condition, level of service and risk are generally not being tracked. A matrix summarizing attribute information in more detail is provided in Appendix E.

9.2 Inventory

Typical information system assets include computers, software, mobile devices and peripheral devices. The fibre optic system is approximately 10 km long and includes duct work, junction boxes and cabling.

Table 9-1: Information Services Asset Inventory

Assets	Quantity
Fibre Optic	10,910 m
Hardware	60
Software	9

Note: Hardware consists of pooled (groups of) assets

9.3 Value

The replacement value of information systems is estimated to be approximately $5 million. Hardware makes up approximately half of this category by value.

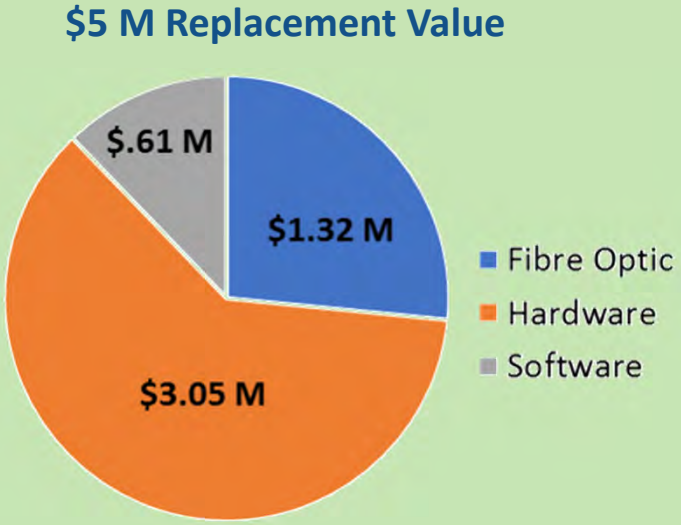


Figure 9-1: Information Services Asset Value Breakdown

9.4 Condition

Condition data was not provided for information systems, and is not relevant for most IS assets as hardware and software tend to be replaced due to obsolescence as opposed to asset mortality. The fibre optic network has a longer lifespan and condition assessments should be conducted periodically.

9.5 Remaining Service Life

The information system assets have a replacement value-weighted average remaining service life of 7 years, though this is largely weighted by the fibre optic systems. The software and hardware systems are fully-amortized, but can likely support current service levels for the near future. The AM strategy may identify new needs for information services.

7 Years

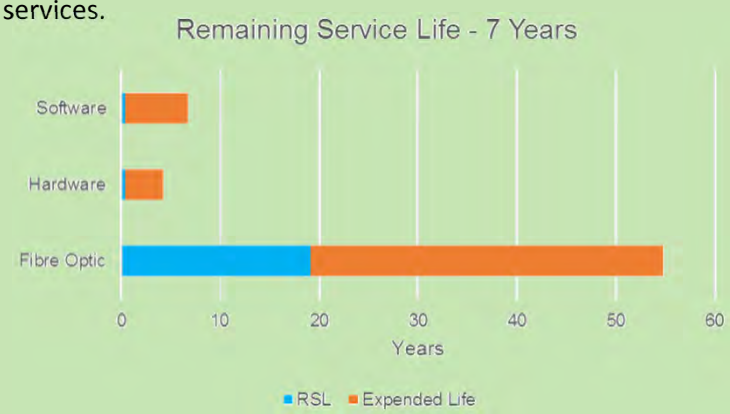


Figure 9-2: Remaining Service Life of Information Services Assets

9.6 Service Levels

The City does not have established service levels for information systems, however, IS service is cost-effective and the PoCoMap corporate GIS has near-zero downtime. A summary of levels of service are provided in Appendix G.

9.7 Decision-Making Processes

Staff identified the following barriers to effective information systems decision making:

- The GIS team does not make decisions about infrastructure, but supplies much of the critical decision-making data. There are some gaps in infrastructure data that need to be filled through the implementation of the asset management program, which may require some additional investments in GIS or other information systems.

Opportunities were also identified by staff to support improved decision-making:

- Desire to centralize data and extend availability, particularly for key asset management information such as remaining service life and replacement value
- Connectivity between information systems (e.g. GIS and CityWide) could be improved to reduce duplication of effort and increase reliability and data distribution.
- More detailed data and inventory for IS assets.

Because the state-of-the-art for information systems changes rapidly, there are trade-offs in ensuring staff have access to sufficient computing capabilities while maintaining prudent levels of investment. Introducing new systems also can result in short-term losses in productivity as staff adapt to new processes.

Part 4 – Strategy

Asset management is a strategic priority for the City of Port Coquitlam. The City is working towards strengthening the organization by embarking on the first year of a formal, organization-wide asset management journey. This will enable the City to address aging infrastructure and ensure expectations for service levels can be met into the future. It is also an opportunity to be deliberate and consistent across the organization in proactively managing new infrastructure from the day it is constructed.

The following figure illustrates the hierarchy of an asset management program, as depicted in the Federation of Canadian Municipalities' guidebook: How to develop an asset management policy, strategy and governance framework. This framework, which was prepared according to best practices from 17 municipalities across Canada, is also aligned with international standards (ISO 55000).

Hierarchy of an Asset Management Program

Like other municipalities implementing asset management, Port Coquitlam's Asset Management Strategy is a foundational document for building an asset management program. It is informed by organizational strategic plans, supported by policy, and used to inform the development of asset management plans which are directly linked to operational strategies.

An Asset Management Strategy, often referred to as a strategic asset management plan, defines at a high level what the City intends to achieve along with an action plan for both developing and implementing the asset management program.

An Asset Management Strategy is important because it:

- Involves a **diagnosis of challenges** the City is intending to overcome;
- Identifies key initiatives, resources and timelines, that support **delivery** of the asset management **policy;**
- Promotes **coordinated decision-making** to achieve the City's strategic goals and objectives; and,
- **Tracks progress** on core asset management competencies.

The Strategy can drive real and tangible improvements to decision-making. It provides a clear line of sight between corporate strategic plans and objectives and daily asset management decisions.

1. Methodology

The Current State Assessment (Parts 2 and 3 of this Report) presents where the City is at with respect to asset management and has laid the groundwork for creating a roadmap to achieve long term goals and objectives.

This Asset Management Strategy (Part 4 – this section – of the Report) is centred around building the roadmap, or action plan to achieve long term sustainable service delivery. It is directly aligned with the Port Coquitlam's Vision2020 and outcomes of the Current State Assessment. The Strategy provides direction for addressing priority deficiencies and for pursuing opportunities as the community grows. It is a forward-looking perspective towards delivering services in a sustainable manner into the future.

There are two very distinct but related components to the Strategy's action plan:

1. A prioritized list of actions to guide the continued *development* of Port Coquitlam's Asset Management Program (the Roadmap).
2. An ongoing cycle of actions to guide the *implementation* of Port Coquitlam's Asset Management Program (ongoing Governance).

Both components have been structured to align with an Asset Management Framework developed for the City.

Information used to inform the Strategy was gathered through a workshop with the Asset Management Team and Steering Committee and from the outcomes of the Current State Assessment (which also included workshops). Priorities have been presented based on the gaps and needs identified by staff.

1.1 Workshop

The City's Asset Management Team and Steering Committee participated in a workshop to inform a shared vision, objectives, and key messages for the City's asset management program. During the workshop, participants developed a series of potential vision statements through a group activity. They shared thoughts regarding objectives for developing the Asset Management Program over the short, medium, and long term. And finally, they developed potential key messages around asset management tailored to different audiences: the public, Council and staff. The outcomes from the workshop informed the development of the City's Asset Management Strategy and will provide information and advice to Council as the Policy is developed.

1.2 Current State Assessment

Assessments of the City's current asset management practices and readiness were benchmarked against key local and national best practices as summarized in the Current State Assessment. Capabilities for further development were summarized according to:

- Awareness and Priorities;
- Information;
- Team;
- Internal Systems and Processes; and
- Financial.

Key available asset information was quantified and assessed as it relates to supporting long term decision-making, with information gaps noted. Current states were documented according to:

- Information Accessibility, Quality and Reliability
- Inventory
- Remaining Service Life
- Service Levels

- Value
- Condition
- Decision-Making Processes

The result was a clear understanding of departmental as well as organization-wide achievements, gaps, and opportunities for taking clear steps in raising Port Coquitlam's competency levels with respect to asset management according to both local and national best practices. Challenges, priorities and specific actions from the Current State Assessment have been used to inform the City's Strategy.

2. Vision for Asset Management

The City's Vision for Asset Management is made up of two components: a vision statement and a series of objectives for achieving the vision.

2.1 Draft Vision Statement

A vision paints an inspirational picture of what an organization desires to achieve; in this instance, through the City's Asset Management Program. This vision is intended to be a broad statement about the future of asset management in Port Coquitlam, supported by the objectives described below, the Policy that will be developed, and action items in this roadmap. It is also intended to seamlessly link with the City's broader Vision 2020. This draft vision was created based on content developed by staff in a visioning workshop, through the evaluation of key words and consolidation of five draft vison statements. It was also informed by staff input from developing Phase 1 of the Asset Management Program and from other workshops held earlier this year.

Port Coquitlam is a livable City, where core infrastructure services are sustainable over time at the lowest practical lifecycle cost. This is achieved through informed, functionally integrated and prioritized decision-making.

2.2 Objectives

Objectives are the stepping stones for achieving the vision, by outlining the results that an organization is aiming for. Asset Management objectives guide decision-making in each service area and aid the City in defining what is being achieved with Port Coquitlam's assets. The objectives were developed from direction provided by staff during the visioning workshop.

In developing and implementing this Strategy, and the Asset Management Vision, Port Coquitlam seeks to achieve the following strategic asset management objectives:

- Establish a City-wide **sustainable funding model** for service delivery;
- Work **collaboratively** across City departments to prioritize projects and make decisions;
- **Define and document** asset management decision-making **processes, tools and scales** that can be applied consistently across the organization;
- Consider the **full lifecycle cost** of infrastructure when evaluating options for adding to the existing asset base;
- Establish realistic, long term infrastructure **renewal targets;**
- Deliver infrastructure services in a way that **meets established levels of service;**
- **Assess** whether **current levels of service** are affordable, realistic and aligned with community expectations over the long term;
- **Develop** and regularly **update** basic **asset management plans** for all service areas that are informed by condition, risk and level of service assessments;
- **Extend the horizon** for capital and financial planning **from** a **short** (2-5 years) **to** a **long term** (10-20 years);

- Undertake **a proactive approach to maintaining** and rehabilitating existing assets;
- Ensure **optimal maintenance practices** are in place to meet levels of service;
- **Report** out regularly to **Council and citizens** on the status of the asset management program, and the state of the City's infrastructure;
- Continue to **save for the future**, setting aside reserves for the ongoing renewal of our infrastructure;
- **Consolidate and centralize the** asset **inventory** to enable a comprehensive asset profile;
- **Streamline** planning **data and analysis**; and
- Ensure **information** remains **accurate and up-to-date.**

3. Guiding Principles

Guiding principles are used to help achieve the vision by articulating fundamental values to guide decision making. They provide an overarching philosophy for the City with respect to successful implementation of asset management. These principles are intended to hold true across all phases of the Asset Management Program; they will be a touch point for the Asset Management Team as well as Council when making tough decisions. Guiding principles were developed based on what staff (including the Asset Management Team, Steering Committee and others) feel are most important to guide infrastructure decision-making, as identified in an introductory asset management workshop.

The City's asset management guiding principles are as follows:

- **Full Lifecycle Costs are Considered in Decision-Making** – to achieve financial sustainability, the highest value is being sought while considering the full cost of assets (as opposed to only capital costs): from planning and design to construction, operations and maintenance, and ultimately renewal or decommissioning.
- **Infrastructure Investments are Driven by Value to the Community** – the best interest of the whole community is considered, with priority given to maintaining existing infrastructure over building new assets and ensuring health and safety; infrastructure is designed with resilience in mind.
- **Data is Used to Inform Decision-Making –** to the greatest extent possible, accurate, reliable and current information is being used to support evidence-based outcomes.
- **A Collaborative Approach is Taken** – resources are being shared, and input is being gathered jointly, whether it is staff recommendations, input from Council, or public consultation.

Priority should be given to the Lifecycle Costing principle; decisions should be made first and foremost by considering the full lifecycle cost of assets.

Figure 3-1: Prioritized Principles from Staff Workshop

4. Drivers of Change

As noted in Part 2 of this Report, staff have been informally practicing asset management and ingrained components of sustainable service delivery as part of their regular decision-making processes, with some significant milestones achieved to date. There is a clear desire to formalize and enhance these processes as part of the City's asset management program in order to address gaps in current practices while aligning future approaches with best practices for successful implementation.

Furthermore, the public supports addressing the infrastructure gap to meet future needs. This is demonstrated by the City's proactive steps in 2010 to save for the future with an annual 1% tax increase. However, it is unclear at this time whether reserves will be adequate over the long term.

4.1 Strategic Drivers

This Strategy is aligned with a variety of existing policies, processes and plans that reflect and articulate the strategic direction of the City. Port Coquitlam's current corporate Strategic Plan, is particularly important for guiding infrastructure investments.

Of the top seven corporate challenges identified in the strategic plan, two are directly related to service delivery and can be addressed through a robust asset management program:

- **Public demand for services at affordable rates** – with cost increases for new and aging infrastructure compared to public expectations to keep taxes down, this is becoming increasingly difficult for the City.
- **Creating financial stability** – currently, service costs for citizens are less than Metro Vancouver averages, however the full cost of service delivery has not been adequately funded in the past which has resulted in infrastructure assets being depleted without funding in place for their replacement. The funding gap noted in Vision2020 is estimated at $320 million.

The City of Port Coquitlam is committed to making balanced decisions in alignment with the municipal mandate of core service provision, ensuring that the community benefits, that risk is mitigated, that legal obligations are met, and that decisions and actions are cost-effective.

The Strategic Plan identifies five outcomes to achieve the City's vision, with the *Sustainable Future* outcome being the most directly relevant to Port Coquitlam's asset management journey. Developing and implementing an asset management plan is a key initiative to be undertaken by 2020 and is to be complimented by achieving lifecycle costing benefits for the provision of municipal services. *Strategic Service Delivery* and *Community Well-Being* outcomes are also directly relevant.

Port Coquitlam's Asset Management Program is helping directly achieve priority initiatives under three of the City's Strategic Plan Pillars:
Sustainable Future | Strategic Service Delivery | Community Well-Being

4.2 Operational Drivers

Operational drivers were identified through the Current State Assessment based on the perspective of staff from across City departments. When asked what challenges they have observed or experienced in how decisions are made about the City's infrastructure investments, the following themes emerged:

- **Limited or unclear strategic direction –** with the prioritization of projects, different or changing priorities, lack of policy guidance, and limited understanding of needs and political processes (e.g. election cycles, political drivers)
- **Challenges with available information –** making decisions before having all information, data accessibility/outdated/lack, not consulting key stakeholders
- **Cost-related challenges –** increasing replacement costs, uncertain costs, limited funding resources, investing in new vs. upkeep of existing
- **Process-related challenges –** different processes in each department, challenges meeting timelines; more long term planning

Key opportunities regarding Port Coquitlam's practices and assets are detailed in the Current State Assessment. Of these, the three top opportunities identified by staff were:

1. Centralizing information;
2. Improving education and communication with staff about the bigger picture; and
3. Developing processes for: lifecycle costing, succession planning/knowledge transfer, decision-making, and condition assessments.

4.3 Priorities

The City of Port Coquitlam is in its early stages of asset management implementation, and all the elements are in place to move ahead with an asset management program. The City's assets and staff are currently able to meet service level expectations, but as the asset base ages this will become more challenging.

Recognizing the challenges and opportunities identified at a strategic and operational level, a series of priorities have been identified as presented in Figure 4-1. They represent the *immediate* next steps for the asset management program within a 1-5 year horizon. In other words, what actions will both bring Port Coquitlam to the next level in our asset management journey while also addressing key challenges? These priorities have been structured to address challenges and are supported by specific actions. The challenges, identified from a strategic and operational perspective, and each series of associated priorities are presented in Figure 4-1 in relation to the three relevant Strategic Outcomes.

The priorities were used to inform more detailed actions through the Action Plan and the roadmap presented in Section 8.

	CHALLENGES	PRIORITY INITIATIVES
SUSTAINABLE FUTURE	**Public demand for services at affordable rates / cost-related challenges**	• Establish a long term, City-wide capital plan and process • Adapt the annual budgeting process by working towards an annual reassessment of current risks and needs over the long term
	Creating financial sustainability	• Develop and implement an asset management plan (or series of plans) • Initiate the long term financial planning process
STRATEGIC SERVICE DELIVERY	**Limited or unclear strategic direction**	• Establish asset management-related policies and a governance framework • Set up a cross-functional team with clear accountability, adequate resourcing, and a commitment to advance asset management • Document existing practices regarding project delivery, and integrate key milestones into City-wide asset management systems and processes • Support asset management training and development for staff • Collaborate across departments, focusing on linkages between maintenance and long term planning
	Processes-related challenges	• Develop City-wide systems and processes to support decision-making • Undertake a proactive approach to maintaining and rehabilitating existing assets by shifting the percentage of preventative v. reactive maintenance effort • Align annual asset management milestones with developing audited financial statements • Formalize succession planning • Adjust frequency and consistency of condition assessment practices
COMMUNITY WELL-BEING	**Challenges with availability of information**	• Link asset management and financial information • Use asset data to support effective asset management planning • Use performance data to support effective asset management planning • Use financial data to support effective asset management planning • Establish a coordinated information management approach • Encourage internal knowledge sharing (with City staff and Council) • Promote external knowledge sharing and contributions to the broader asset management practice (ie. Regional and national) • Initiate an ongoing program of public and stakeholder education about asset management

Figure 4-1: Challenges, Identified from a Strategic and Operational Perspective

5. Framework

Seven decision streams have been identified for structuring the City of Port Coquitlam's asset management journey. Each stream represents a core component of the City's decision-making processes as it relates to service delivery, with leadership as the overarching driver for successful program implementation. Led by the Asset Management Team and Steering Committee, the leadership stream is the strategic umbrella and the other streams will be made up of sub-teams assembled according to expertise.

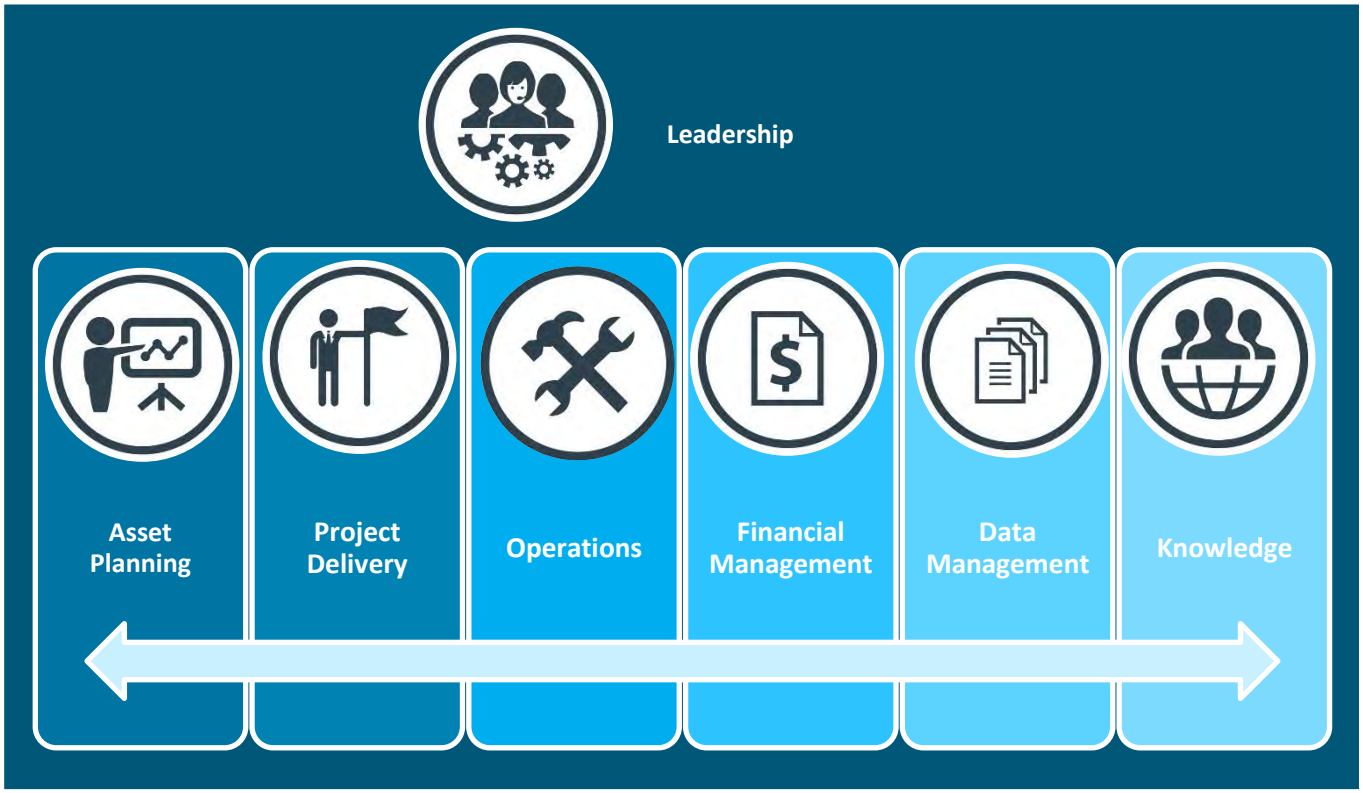


Figure 5-1: Port Coquitlam's Asset Management Decision Streams

This Framework is the first step in formalizing asset management governance within Port Coquitlam. It reflects the City's current processes, using best practices to establish a clear direction forward. The Framework is intended to support a phased in approach to developing Port Coquitlam's asset management program. It is also intended for use in implementing the City's program through an ongoing governance model.

Key members, and the lead, for each decision stream are presented in Table 5-1. These key players will be involved regardless of whether its for program development or implementation. This is intended to be a starting point and will likely evolve with time.

The details regarding each stream are explained further in the following sections, along with a categorized list of the priorities identified in Section 4.3.

Table 5-1: Key Staff and Leads by Decision Stream

Leadership	**Key Members:** Asset Management Team, Steering Committee **Lead:** Manager of Infrastructure Planning
Asset Planning	**Key Members:** Infrastructure Planning Division, Asset Management Team **Lead:** Manager of Infrastructure Planning
Project Delivery	**Key Members:** Deputy Fire Chief, Manager of Facilities, Manager of Capital Projects **Lead:** Manager of Capital Projects
Operations	**Key Members:** Deputy Fire Chief, Manager of Facilities, Manager of Public Works, Section Manager Streets, Section Manager Utilities, Section Manager Fleet and Solid Waste, Section Manager Parks **Co-Leads:** Manager of Facilities, Manager of Public Works
Financial Management	**Key Members:** Finance Department **Lead:** Manager of Financial Planning
Data Management	**Key Members:** All Departments **Co-Leads:** GIS Coordinator, Manager of Financial Planning
Knowledge	**Key Members:** All Departments **Co-Leads:** Manager of Infrastructure Planning, Manager of Communications and Administrative Services

5.1 Leadership

Leadership	The overall approach for the asset management program including establishing and monitoring policies, the strategy, a corporate levels of service framework, corporate reporting, and a corporate framework for asset management plans.

Priorities for the Leadership decision stream are centred around establishing a clear mandate and defining roles and responsibilities for both the Asset Management Team and the Steering Committee. Messaging should extend throughout the organization such that staff understand the 'big picture'.

Priority initiatives are as follows:

- Establish asset management-related policies and a governance framework;
- Set up a cross-functional team with clear accountability, adequate resourcing, and a commitment to advance asset management; and
- Develop City-wide systems and processes to support decision-making.

More detailed actions related to each priority initiative are detailed in Table 8-3.

5.2 Asset Planning

Asset Planning	Documenting and standardizing how the organization sets priorities and budgets, conducts capital planning (annual, five years, and long term), documents levels of service by area, oversees the preparation of detailed asset management plans, and develops the corporate long term financial plan.

Priorities for the Asset Planning decision stream are centred around developing an Asset Management Policy and Strategy, including a roadmap (this year), extending the current capital planning horizon from short to long term, and applying a consistent budgeting and prioritization process across all departments.

Priority initiatives are as follows:

- Develop and implement an asset management plan (or series of plans);
- Establish a long term, City-wide capital plan and process; and
- Initiate the long term financial planning process.

More detailed actions related to each priority initiative are detailed in Table 8-3.

5.3 Project Delivery

Project Delivery	Processes for capital project delivery including initiation, planning, project implementation, and integration with corporate systems and practices upon close out. This stream is also responsible for monitoring and updating unit costs.

Priorities for the Project Delivery decision stream are centred around documenting and streamlining existing practices across departments. Aligning these practices to the other decision streams, particularly with respect to timing of key milestones, will be essential.

Priority initiatives are as follows:

- Document existing practices regarding project delivery and integrate key milestones into City-wide asset management systems and processes.

More detailed actions related to this priority initiative are detailed in Table 8-3.

5.4 Operations

Operations	Corporate approach to condition assessments, as well as ongoing operations and maintenance of infrastructure across all asset categories. This directly affects the services the City is providing, and the level at which these services can be delivered.

Priorities for the Operations decision stream are centred around shifting to a more proactive approach to maintenance management in order to ensure field staff are able to make the best use of their limited resources and have the highest impact on long term outcomes.

Priority initiatives are as follows:

- Undertake a proactive approach to maintaining and rehabilitating existing assets by shifting the percentage of preventative v. reactive maintenance effort;
- Collaborate across departments, focusing on linkages between maintenance and long term planning; and
- Adjust frequency and consistency of condition assessment practices.

More detailed actions related to this priority initiative are detailed in Table 8-3.

5.5 Financial Management

Financial Management	Decision making and reporting as part of the TCA reconciliation, the annual budget, and audited financial statements. This stream is closely linked with the asset planning group.

Priorities for the Financial Management decision stream are centred around alignment between the CityWide inventory (Tangible Capital Asset Register) and the GIS database.

Priority initiatives are as follows:

- Link asset management and financial information;
- Adapt the annual budgeting process by working towards an annual reassessment of current risks and needs over the long term; and
- Align annual asset management milestones with developing audited financial statements.

More detailed actions related to each priority initiative are detailed in Table 8-3.

5.6 Data Management

Data Management	Using data about assets, performance and finance to support effective planning and decision-making. This includes upkeep of the consolidated inventory (including quality assurance/quality control and inventory management).

Priorities for the Information decision stream are centred around developing a coordinated strategy for records management, systems integration and work orders. Information on asset condition, risks and long-term capital should be centralized.

Priority initiatives are as follows:

- Use asset data to support effective asset management planning;
- Use performance data to support effective asset management planning;
- Use financial data to support effective asset management planning; and
- Establish a coordinated information management approach.

More detailed actions related to each priority initiative are detailed in Table 8-3.

5.7 Knowledge

Knowledge	Internal and external knowledge, including staff training and development, public and stakeholder education, and knowledge sharing.

Priorities for the Knowledge decision stream are centred around documenting asset management principles and building knowledge throughout the organization and with the public.

Priority initiatives are as follows:

- Support asset management training and development for staff;
- Encourage internal knowledge sharing (with City staff and Council);
- Formalize succession planning;
- Promote external knowledge sharing and contributions to the broader asset management practice (i.e. regional and national); and
- Initiate an ongoing program of public and stakeholder education about asset management.

More detailed actions related to each priority initiative are detailed in Table 8-3.

6. Action Plan

An action plan, with a 5 year roadmap for Port Coquitlam, has been developed to incorporate both the priority initiatives and associated actions which provide immediate direction, as well as a longer term perspective for moving the City's Asset Management Program forward. The roadmap is presented in Figure 8-1, with a detailed list of actions and resource requirements present in Table 8-3. More detail on the actions underway as part of the City's initial asset management program development (Phases 1 and 2 which are being undertaken in 2018 and 2019 respectively) are described in sections below.

6.1 Asset Management Strategy

This document makes up the Asset Management Strategy, including Current Asset Management Practices. It addresses actions 1.1, 1.4, 1.5 and 1.6, in Table 8-3.

6.2 Asset Management Policy

The Asset Management Policy, which is the immediate next step in implementing this year's actions, is intended to articulate Council's commitment to asset management and provide direction for staff in carrying out all elements of the City's asset management program. Having an asset management policy is critical to ensuring effective long-term implementation of asset management. The policy sets out clear guidance for Council and staff for undertaking the asset management process, as well as the connection between community objectives and the management of infrastructure assets. It broadly outlines the principles, and guides the development and implementation of, asset management across the organization in a systematic and coordinated way, consistent with the organization's plans.

At a minimum, it should include the following components:

- Purpose;
- Policy Statements;
- Context & Integration; and
- Responsibilities for Managing the Policy.

Once complete and passed by Council, the Policy will address actions 1.2 and 1.3, in Table 8-3.

6.3 Cross-Functional Team

Planning and deployment of the Asset Management Program is guided by a cross-functional Asset Management Team. The City has established an Asset Management Team and Steering Committee to guide development of the Asset Management Program and implementation across the City over the short and long-term. The Asset Management Team is comprised of managerial staff from all departments and the Steering Committee includes the City's CAO and departmental Directors. These teams represent the 'bottom-up' and 'top-down' aspects of asset management, respectively.

The City's Asset Management Team is made up of a cross-functional group of staff spanning the organization to ensure the Program reflects the needs of each department and ensure a City-wide approach to managing assets and service delivery. To provide clarity on the roles and responsibilities of the asset management team, a Terms of Reference (TOR) has been created. This TOR includes include the mandate of the team, decision-making process, meeting procedure and frequency, and roles of each member as described in Appendix H.

The Asset Management Team has been selected by the Steering Committee. The Steering Committee is made up of directors (the Corporate Management Team) who will provide strategic guidance throughout the lifetime of

the Asset Management Program. Their role is to review deliverables and information prior to Council, and make corporate level decisions when required.

The cross-functional team addresses actions 2.1 and 2.2, with additional actions to be addressed over time.

6.4 Asset Management Plan(s)

An asset management plan is a document that describes how one or more groups of assets are to be managed over a period of time in order to deliver an agreed upon standard of service. It is a tactical document that identifies the gaps between the current and desired state of assets and services, and then defines the activities needed to close those gaps. It provides clear direction on what to do, when to do it and how much it will cost, as well the consequences of not taking action. The Plan also provides the basis for developing long term financial plans.

The flow chart illustrated in Figure 6-1 shows the key components of an asset management plan. This can be used as a guide when developing a corporate approach to preparing asset management plans. It illustrates key inputs and decision points, with the ultimate objective of presenting a long term financial plan that is both practical and affordable. The asset management planning process is iterative and requires significant involvement and collaboration of staff for a high quality outcome.

This is next year's priority for the City and will be addressed as either a corporate Asset Management Plan, or a series of system-level plans that utilize a consistent format and approach to being developed. The major sections (or plans) should be organized according to the 8 asset categories as follows:

1. Water System
2. Sanitary Sewer System
3. Drainage System
4. Transportation
5. Buildings and Facilities
6. Parks
7. Fleet and Equipment
8. Information Services

More specific details regarding the next steps for achieving infrastructure related outcomes have been organized by asset category in Appendix J, based on the Current State Assessment. Once complete, the asset management plan(s) will address actions 1.7 and 5.1-5.8.

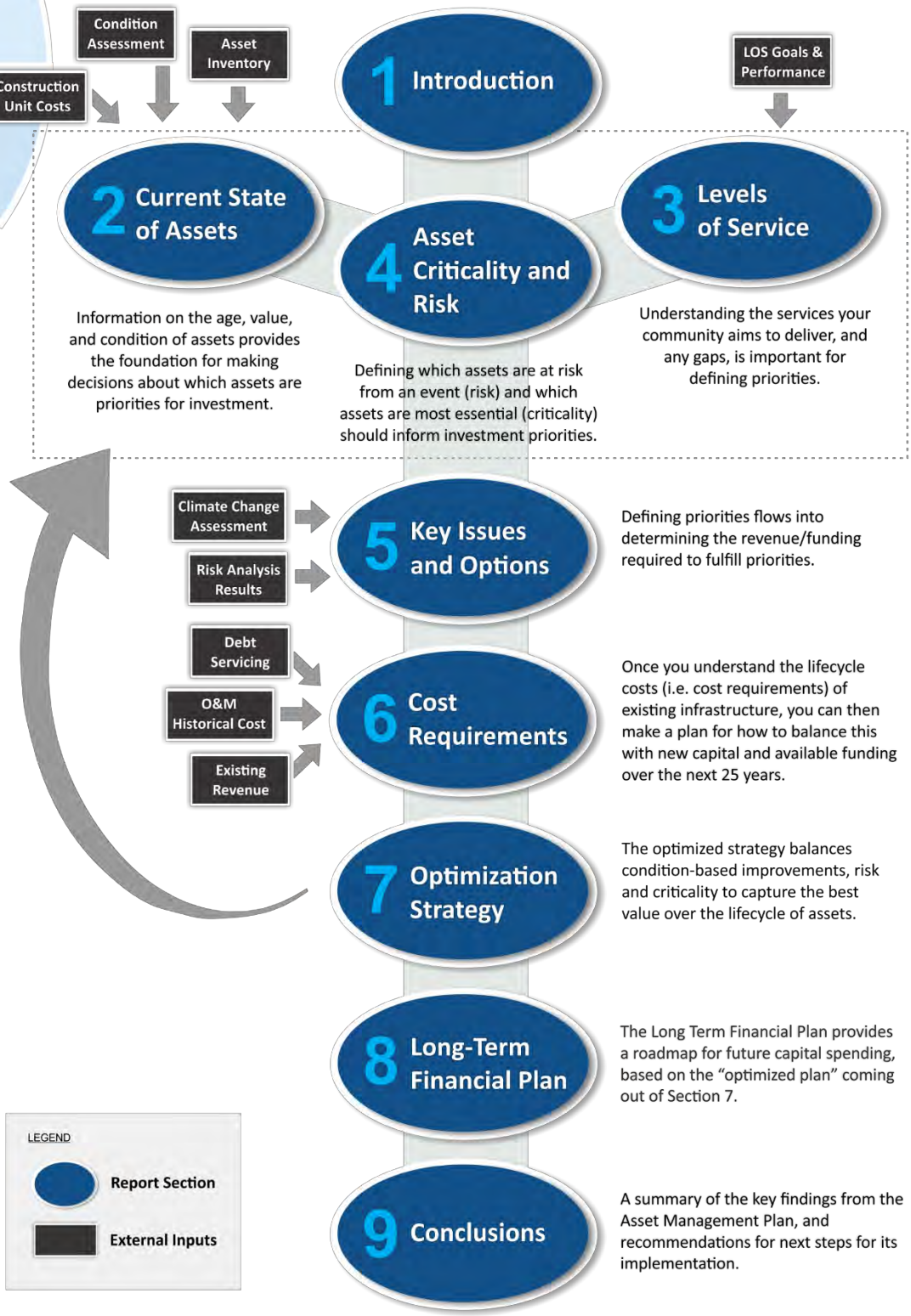


Figure 6-1: Asset Management Plan Flow Chart

7. Governance

Setting up an asset management governance system involves packaging the processes required to enable implementation of sustainable service delivery across the City. Governance, in this case, is really about operationalizing asset management in a way that enables the whole organization to be more effective and efficient, in an iterative way; it's about making asset management part of everyday business.

7.1 Transitioning to Implementation

The transition from developing an Asset Management Program to implementing one requires shifting from a project-based mindset to a governance one. This typically occurs after core Asset Management Plans have been completed.

The Framework of seven decision streams presented in Section 5 of this Strategy establishes the structure for both the development and ongoing implementation of the City's Asset Management Program. The reality is that the City will likely be developing the more advanced aspects of it's Program at the same time as implementing core components. Because each stream represents a core component of the City's decision-making processes, the Framework enables consistent teams, aligned processes, and a complete understanding of the resources required to move forward with achieving sustainable service delivery.

The Asset Management Team, through the strategic umbrella of the leadership stream, can be empowered to use the Framework as a practical governance tool for structuring deliberate, consistent decision-making across the organization. It can also be a reference for each department for how to effectively implement asset management.

7.2 Governance Structure

Establishing a governance structure for asset management can be done iteratively, using the Framework. Think of the governance structure like a series of layers. The first layer, which has been created as part of this Strategy, is the front end that introduces the Framework of the City's asset management related business processes. The framework is made up of a series of seven decision streams, which are the core from which all subsequent decision-making processes will be built.

The second level of layers will include a sheet for each decision stream. These sheets should be developed by the Asset Management Team, and can be informed by the stream descriptions, roles and responsibilities, staff resources and investments proposed in this Strategy. The intention is to confirm the proposed streams, make adjustments as required, and build buy-in from across departments for how to most effectively implement asset management in the City.

Over time, a third level can be developed for each decision stream to guide inter-departmental coordination of ongoing asset management efforts such as updating the inventory, undertaking condition assessment, and regularly updating the asset management plans. Many of these processes already exist either corporately or at a department level, in which case the next steps involve documenting and confirming what is already being done. Where processes are missing, they can be established in a consistent manner according to the priorities for implementation. It's important to note that developing the third level is an iterative and ongoing process. Think of it like adding pages to a binder or replacing them as the program evolves. They will be a series of living documents. In fact, the core components of this governance structure could form part of the Asset Management Team's Terms of Reference.

Asset Management Playbook

The Playbook is a sample governance framework for implementing Asset Management, and an excellent case study for Port Coquitlam to consider as the program transitions from *development* into *implementation*.

While every community will likely have a different name, structure and look, all of them should clearly illustrate the key actions required to translate your strategy into action. The "Playbook" theme and name may not resonate with every team or community, but the concepts for organizing asset management governance and mapping processes together using visuals should be universal.

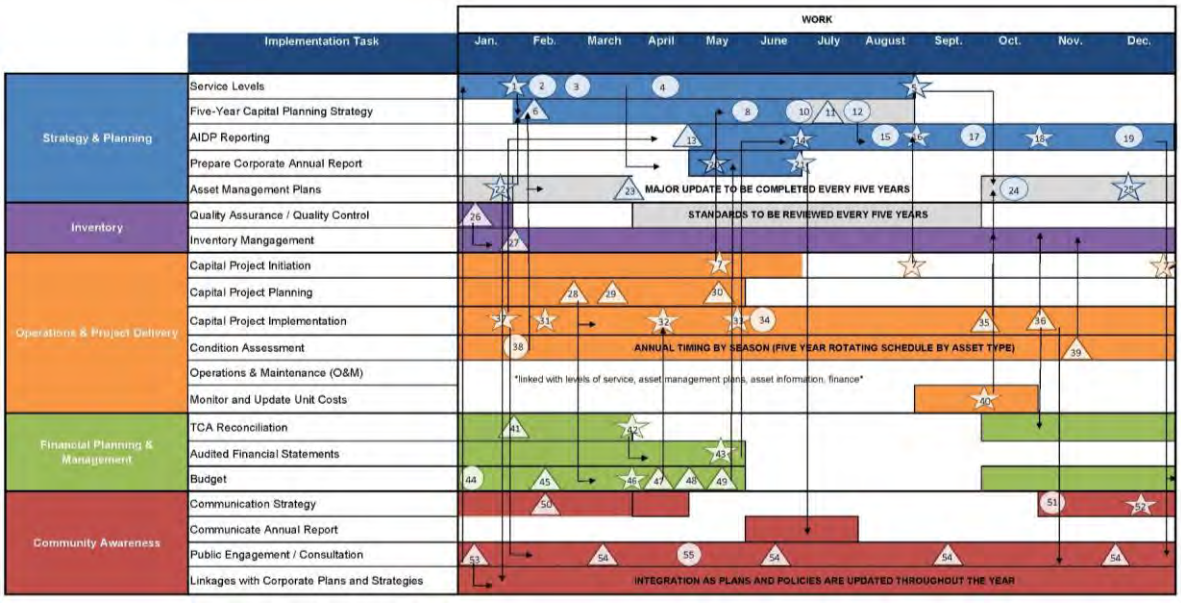
Northern Rockies Regional Municipality (NRRM) developed their governance framework around the Playbook. They initiated the process following completion of their core Asset Management Plans. This Playbook concept – which was raised by NRRM's Director of Finance during a strategy planning workshop – resonated with the team and became the basis for filling an operational gap in their asset management program.

At its core, the "Playbook":

- is a central tool for asset management implementation
- outlines asset management business processes
- maps roles and responsibilities with actions and timeframes
- is used for inter-departmental coordination
- is set up as a living document

It is centred around a flowchart-based document for inter-departmental business planning. It is used by the asset management team as well as and others across the organization that deal with sustainable service delivery.

Playbook Implementation Schedule



Legend					
Five-Year Process	▭	Milestones	△	Meeting	○
Process end	▮	Deliverables	☆		

7.3 Next Steps

Specific next steps for the City to consider as operationalizing occurs include:

- Coordination of departmental roles or sub-teams (according to the seven decision streams) via the Asset Management Team or Steering Committee;
- Development of the second layer of sheets (one for each decision stream);
- Documentation of existing, relevant processes;
- Defining the scope of each task, specific requirements for meetings, deliverables, timing/ dependencies;
- An annual calendar that identifies tasks, timing and dependencies between sub-team activities; and
- Identification of who is responsible for the task.

Think of the governance structure as an ongoing resource for every asset management team member, and others across the organization that deal with sustainable service delivery.

A preliminary annual calendar is included in Appendix I for the Asset Management Team to use as a starting point in this operationalization process.

8. Resource Requirements

Ensuring dedicated, and available staff resources, during both the development and implementation of the Asset Management Program, will be essential for successful implementation.

8.1 Program Development

The following table summarizes estimates of key resources (staff and financial) required to proceed with development of the City's Asset Management Program, including Phase 2 (2019) and continuous improvement (2020 onward) in accordance with the Action Plan. Additional details regarding resources associated with each action are included in Table 8-3.

Table 8-1: Estimated Key Resources to Develop the City's Asset Management Program

	Resources by Action:	
 **Leadership**	80 – 250hr	1. Establish asset management-related policies and a governance framework
	15hr	2. Set up a cross-functional team with clear accountability, adequate resourcing, and a commitment to advance asset management
	638hr + $105k	3. Develop City-wide systems and processes to support decision-making
 **Asset Planning**	**Resources by Action:**	
	730hr + $790k	1. Develop and implement an asset management plan (or series of plans)
	350hr	2. Establish a long term, City-wide capital plan and process
	341hr + $175k	3. Initiate the long term financial planning process
 **Project Delivery**	**Resources by Action:**	
	60hr + $20k	1. Document existing practices regarding project delivery, and integrate key milestones into City-wide asset management systems and processes
 **Operations**	**Resources by Action:**	
	200hr	1. Undertake a proactive approach to maintaining and rehabilitating existing assets by shifting the percentage of preventative v. reactive maintenance effort
	100hr	2. Collaborate across departments, focusing on linkages between maintenance and long term planning
	Incl. in program implementation budget	3. Adjust current condition practices

 **Financial Management**	**Resources by Action:** 470hr + $50k 150hr 10hr	1. Link asset management and financial information 2. Adapt the annual budgeting process by working towards an annual reassessment of current risks and needs over the long term 3. Align annual asset management milestones with developing audited financial statements
 **Data Management**	**Resources by Action:** 400hr 250hr 100hr 570hr + $150k	1. Use asset data to support effective asset management planning 2. Use performance data to support effective asset management planning 3. Use financial data to support effective asset management planning 4. Establish a coordinated data management approach
 **Knowledge**	**Resources by Action:** 300hr + ~$1k 130hr + $45k 100hr Included in program implementation budget 370hr+$80k	1. Support asset management training and development for staff 2. Encourage internal knowledge sharing (with City staff and Council) 3. Formalize succession planning 4. Promote external knowledge sharing and contributions to the broader asset management practice (i.e. regional and national) 5. Initiate an ongoing program of public and stakeholder education about asset management

8.2 Program Implementation

The following table summarizes annual estimates of key staff resources required to proceed with implementation of the City's Asset Management Program, based on the Annual Calendar in Appendix I. This will need to be refined as the City's governance model evolves.

Table 8-2: Estimated Key Resources to Implement the City's Asset Management Program

 **Leadership**	**Staff Resources:** <50-150hr	Including somewhere between annual and quarterly meetings (depending on the year) to monitor policies, strategy progress and plan progress and to oversee corporate reporting. This includes initiating and overseeing updates that will happen on a 5 year basis to the Asset Management Plans, Policies, Strategy and corporate frameworks.
 **Asset Planning**	**Staff Resources:** <50hr	Including monthly meetings to promote increased collaboration across departments and continue to review documented standards annually. Most of this time investment is for work already being undertaken by this group.

 **Project Delivery**	**Staff Resources:** > 150hr	Including 1 annual meeting to integrate all projects; and, staff deliverables at each stage of a project's life (for each project). The majority of this time investment is for work already being undertaken by this group.
 **Operations**	**Staff Resources:** > 150hr	Including 1 annual meeting to engage and update staff about bigger picture changes; and, staff activities to assemble condition data; and, the ongoing operations and maintenance of infrastructure. The majority of this time investment is for work already being undertaken by this group.
 **Financial Management**	**Staff Resources:** 50-150hr	Including 1 staff meeting and 1 presentation to Council annually; and, staff activities to reconcile and report on the TCA annually, finalize the 5 year financial plan and budget, and prepare audited financial statements. Much of this time investment is for work already being undertaken by this group.
 **Data Management**	**Staff Resources:** <50hr	Including ongoing and as-needed updates to the consolidated inventory, with 1 annual check of the inventory to confirm that all updates have been made. Much of this time investment is for work already being undertaken by this group.
 **Knowledge**	**Staff Resources:** > 150hr	Including 1 internal and 1 public meeting annually; quarterly public communication initiatives; and staff activities to confirm communication objectives, review the communication strategy and compile customer feedback from the previous year

Port Coquitlam's Asset Management Roadmap

Phase 1

Phase 2

We are here

Consolidated Inventory 14

AM Strategy; AM Policy 1

Internal Knowledge Sharing Initiated 19

Cross-Functional Team 2

External Knowledge Sharing Initiated 21

Public and Stakeholder Education Initiated 22

AM Plan(s) 1,4,10

Formal AM Training Begins 18

Alignment of TCA and GIS 11

Asset Condition and Criticality 15

Central Repository for AM Information 12

City-Wide Systems and Processes 3

Communications Strategy 22

Short and Long Term Capital Plan 5

Infrastructure Report Cards 19

Emergency Response 4

1st Iteration of Long Term Financial Plan 6

Align O&M and Capital Planning 6

Link Asset and Financial Information 11

Information Management 17

City-Wide Succession Planning 20

City-Wide Levels of Service 3

Lifecycle Costing 5

Align AM Milestones with Financial Statements 13

Climate Risks 4

Job Descriptions 3

Natural Assets 11

Clarify Asset Ownership 17

Assess Reserves 6

City-Wide Systems and Processes 3

Borrowing Strategy 11

Long Term Financial Plan Policies 6

City-Wide Training 18

Budgeting Process 12

Maintenance Management Framework 3, 17

2018 2019 2020 2021 2022 2023

Initial Development

Continuous Improvement

= Action (#) = Reference # in detailed in Table 6-1: Action Plan

Figure 8-1: Roadmap

Table 8-3: Action Plan

Actions	Staff Lead(s)	Timing							Resource Requirements		Source
		2018	2019	2020	2021	2022	2023	>2023	Staff (h)	External ($)	
LEADERSHIP											
1. Establish asset management-related policies and a governance framework	Manager of Infrastructure Planning, Civil Engineer, Manager of Financial Planning								80-250h	--	
.1 Document asset management principles		✓	(this document)						Included in current scope		Workshop; Readiness Scale
.2 Draft an asset management policy		✓									Phase 1 Scope; Readiness Scale; AssetSmart
.3 Gain senior management and Council endorsement of the policy		✓									Readiness Scale
.4 Collect baseline data on our current asset management practices (i.e. current state assessment)		✓	(this document)								Phase 1 Scope; Readiness Scale
.5 Establish a roadmap that outlines the City's asset management objectives and deployment of a strategy for the next 1-3 years		✓									Phase 1 Scope; Readiness Scale
.6 Prepare a strategy for the asset management program that documents, at a minimum, system plans and objectives for the coming year		✓									Phase 1 Scope; Readiness Scale; AssetSmart, AMBC Roadmap
.7 Prepare a corporate structure and reporting format for documenting outputs for asset management plans (to guide development of a consistent set of individual plans)			✓						Basic: 80h Detailed: 250h		Phase 2 Scope; Readiness Scale; AssetSmart
2. Set up a cross-functional team with clear accountability, adequate resourcing, and a commitment to advance asset management									15h	--	
.1 Formalize a Team commitment to guide the planning for, and implementation of, an asset management program	Manager of Infrastructure Planning, Civil Engineer, Manager of Financial Planning	✓	(this document)						Included in current scope		Readiness Scale; AssetSmart
.2 Establish a clear mandate and terms of reference for the Asset Management Team		✓									Readiness Scale
.3 Ensure the Team is accountable to senior management		✓									Readiness Scale
.4 Lead, communicate and support asset management improvement and change management across the organization	Manager of Infrastructure Planning	↻							Included in program implementation budget		Readiness Scale; AssetSmart
.5 Build Council buy-in and support for asset management through approved funding for priority improvements			✓						15h		Readiness Scale
3. Develop City-wide systems and processes to support decision-making									638h	$105,000	
.1 Establish performance measures for monitoring Asset Management Program progress	Manager of Infrastructure Planning			✓					50h	$15,000	Readiness Scale
.2 Develop a corporate condition rating scale and a process for updating condition information for major asset categories			✓						8h	$15,000	Interviews; Readiness Scale; AMBC Roadmap
.3 Document a process for collecting and monitoring the performance of critical assets				✓					50h	$15,000	Data Gap Analysis; Readiness Scale
.4 Standardize the process for assessing infrastructure condition and risks, and for prioritizing infrastructure needs				✓					15h	$30,000	Workshop; Readiness Scale, AssetSmart; AMBC Roadmap
.5 Standardize the approach to documenting technical levels of service and benchmarks across the organization				✓					15h	$30,000	AssetSmart
.6 Align measurement and annual reporting on the performance of technical levels of service across departments					✓				50h		KWL
.7 Create an audit process for evaluating established levels of service consistently across departments					✓				50h		Workshop; Readiness Scale; AssetSmart; AMBC Roadmap
.8 Develop a strategic approach to maintenance management to streamline processes and work tasks with less duplication of effort (e.g. process for tracking the replacement and major maintenance of core assets and keeping information up to date)						✓			150h		Interviews
.9 Incorporate asset management roles and responsibilities into staff job descriptions						✓			100h		Readiness Scale; AssetSmart
.10 Update existing asset management and finance-related policies to ensure future alignment								✓	50h		Workshop; Readiness Scale
.11 Establish a process for business continuity planning that addresses current challenges due staff retirements, transitions, and departures						✓			100h		Interviews

Actions	Staff Lead(s)	Timing							Resource Requirements		Source
		2018	2019	2020	2021	2022	2023	>2023	Staff (h)	External ($)	
ASSET PLANNING											
4. Develop and implement an asset management plan (or series of plans)	Manager of Infrastructure Planning								730h	$790,000	Phase 2 Scope; Readiness Scale; AssetSmart
.1 Initiate the planning process for each asset category			✓						100h	$525,000	Readiness Scale
.2 Refine replacement cost values for each asset category using an asset by asset perspective			✓						50h		Readiness Scale
.3 Developing a consistent, structured approach to evaluating investment needs across all departments			✓						50h		Readiness Scale
.4 Include forecasted financial needs (5 year, 20 year and lifecycle) based on estimated data			✓						15h		Readiness Scale; AssetSmart
.5 Establishing a short term approach to addressing assets nearing the end of their estimated service lives (eg. annual condition assessments, immediate replacement or renewal plans, deliberate run to failure)				✓					15h		Data Gap Analysis
.6 Assessing existing technical levels of service					✓				100h	$15,000	AssetSmart
.7 Consider emergency response needs				✓					200h	$75,000	KWL
.8 Asses the risk of climate change impacts on critical assets and new infrastructure						✓			50h	$75,000	AssetSmart
.9 Expand climate risk assessment to all existing infrastructure and preparing plans to manage risks						✓			50h	$100,000	AssetSmart
5. Establish a long term, City-wide capital plan and process									350h	--	
.1 Define asset lifecycle costs to inform infrastructure decision-making					✓				150h		Workshop; Interviews; Readiness Scale
.2 Expand the short term capital planning horizon to 5 years across all asset categories				✓					50h		AssetSmart
.3 Establish a long term capital plan, spanning all asset categories, with a 20 year horizon				✓					50h		Workshop; Readiness Scale; KWL
.4 Reduce the impact of securing funding on ultimate delivery of asset management activities							✓		50h		Interviews
.5 Use performance data (risk, levels of service, operations) to inform the capital planning process in a proactive, consistent manner								✓	50h		AssetSmart
6. Initiate the long term financial planning process									341h	$175,000	
.1 Establish a structured investment planning approach (revenue requirements for renewal and new capital) based on both short- and long-term issues and priorities				✓					50h		Readiness Scale; AssetSmart
.2 Formalize the City's financial planning approach to reflect required revenue and available funding			✓						100h		Readiness Scale; AssetSmart
.3 Prepare the first iteration of the City's long term financial plan, with a 20 year horizon (and a lifecycle perspective considered), that evaluates expenses (capital, operations and maintenance) against available revenue				✓					50h	$100,000	Workshop; Readiness Scale; AssetSmart; KWL
.4 Assess whether reserve funding levels will be adequate over the long term						✓			16h	$25,000	Workshop; AssetSmart
.5 Coordinate operation and maintenance of assets with long term capital planning				✓					100h		Interviews
.6 Develop policies to inform the long term financial planning process in a consistent manner							✓		25h	$50,000	KWL
PROJECT DELIVERY											
7. Document existing practices regarding project delivery, and integrate key milestones into City-wide asset management systems and processes	Manager of Capital Projects								60h	$20,000	
.1 Develop a multi-year project delivery Gantt chart that reflects desired practices and timing from project initiation to close-out								✓	10h	$20,000	KWL
.2 Ensure consistency across departments with project delivery practices								✓	50h		Interviews
.3 Document infrastructure unit rates from capital projects during close-out in a central location								✓	Incl. in program implementation budget		Workshop; Interviews

Actions	Staff Lead(s)	Timing							Resource Requirements		Source
		2018	2019	2020	2021	2022	2023	>2023	Staff (h)	External ($)	
OPERATIONS											
8. Undertake a proactive approach to maintaining and rehabilitating existing assets by shifting the percentage of preventative v. reactive maintenance effort	Manager of Facilities, Manager of Public Works								200h	--	Interviews
.1 Deliver infrastructure services in a way that meets established levels of service							✓		Incl. in program implementation budget		KWL
.2 Ensure optimal maintenance practices are in place and aligned to existing levels of service								✓	200h		KWL
9. Collaborate across departments, focusing on linkages between maintenance and long term planning									100h	--	
.1 Coordinate the operations and maintenance activities of Public Works staff with the development of long term capital planning activities							✓		50h		Workshop; Interviews; AMBC Roadmap
.2 Increase collaboration between Public Works and Planning with respect to assessing the impact of planning decisions on asset maintenance and renewal needs							✓		50h		Workshop; Interviews; AMBC Roadmap
10. Adjust frequency and consistency of condition assessments practices									--	--	
.1 Undertake more frequent condition assessments on select assets with a high consequence of failure (eg. high pressure watermains), as identified in each System Information Matrix				🔁					Incl. in program implementation budget		Data Gap Analysis; Readiness Scale
.2 Undertake condition assessments on select assets as part of developing initial Asset Management Plans for the asset categories identified in relevant System Information Matrices				🔁					Incl. in program implementation budget		Data Gap Analysis
FINANCIAL MANAGEMENT											
11. Link asset management and financial information	Manager of Financial Planning								470h	$50,000	
.1 Reconcile the CityWide replacement values with the consolidated asset management inventory				✓					250h		Readiness Scale
.2 Document the value of natural assets and include these assets as part of the City's asset inventory						✓			200h	$35,000	Workshop; AssetSmart
.3 Establish a strategy to ensure prudent, reasonable and relatively stable debt levels that align with the long term financial plan							✓		20h	$15,000	Workshop; AssetSmart
12. Adapt the annual budgeting process by working towards an annual reassessment of current risks and needs over the long term									150h	--	
.1 Prepare annual capital and operating budgets based on a mix of historical values and new priorities			✓	🔁					Incl. in program implementation budget		Readiness Scale; AssetSmart
.2 Establish a consistent budgeting process to improve understanding across departments and enable more access to reliable information							✓		50h		Interviews
.3 Increase staff engagement in the budgeting and prioritization process, for example involving field staff more in the development of complete decision packages (i.e. in the budgeting process)							✓		100h		Interviews
13. Align annual asset management milestones with developing audited financial statements									10h	--	Readiness Scale
.1 Understand the timelines and complimentary resources required throughout the year					✓				10h		KWL
DATA MANAGEMENT											
14. Use asset data to support effective asset management planning	GIS Coordinator, Manager of Financial Planning								400h	--	
.1 Consolidate all asset inventory information, including basic attribute information such as size, material, location, installation date, replacement cost			✓						100h	--	Workshop; Interviews; Readiness Scale; AssetSmart; AMBC Roadmap
.2 Address inventory-related data gaps identified for each system, beginning with high priority areas for each system as identified in the System Information Matrices	GIS Coordinator, Manager of Financial Planning			🔁					Incl. in program implementation budget		Data Gap Analysis
.3 Align the CityWide TCA register and GIS database			✓						100h		Data Gap Analysis
.4 Improve records management (more communication desired and a central location for digital documents)							✓		150h		Interviews
.5 Reinstate garbage, recycling and compost cart inventory tracking to address solid waste contamination issues				✓					50h		Interviews

Actions	Staff Lead(s)	Timing							Resource Requirements		Source
		2018	2019	2020	2021	2022	2023	>2023	Staff (h)	External ($)	
15. Use performance data to support effective asset management planning							✓		250h	--	
.1 Consolidate and translate existing condition information into a consistent format for including in initial Asset Management Plans for each asset category			✓						200h		Data Gap Analysis
.2 Confirm critical assets, looking beyond an emergency planning perspective			✓						50h		Data Gap Analysis; Readiness Scale
.3 Update remaining service life estimates based on condition data as it becomes available			⟲						Incl. in program implementation budget		Data Gap Analysis
16. Use financial data to support effective asset management planning									100h	--	
.1 Capture, in a central location, major capital renewal, and operating and maintenance expenditure data for key assets			✓						100h		Readiness Scale
17. Establish a coordinated information management approach (data governance program)									570h	$150,000	
.1 Ensure asset management data is centrally located (eg. consolidated inventory, maintenance information) so it is universally accessible both across and within departments			✓						20h		Workshop; Readiness Scale; AssetSmart; AMBC Roadmap
.2 Standardize processes across departments, particularly in support of Asset Management Team decision-making					✓				100h		AssetSmart
.3 Clarify department ownership and maintenance of assets and asset data where currently 'unassigned'						✓			50h		Workshop; AMBC Roadmap
.4 Synchronize information across departments (e.g. condition assessments and how they are translated in a consistent manner and incorporated into the consolidated inventory).						✓			50h		Interviews
.5 Implement a centralized maintenance management system or process, including a framework for work orders and tracking replacement of assets/major maintenance;							✓		200h	$150,000	Interviews
.6 Create a more coordinated approach for the City's IT system and GIS capabilities					✓				100h		Workshop; AMBC Roadmap
.7 Improve information sharing between departments (eg. Public Works and Engineering)							✓		50h		Interviews
KNOWLEDGE											
18. Support asset management training and development for staff	Manager of Infrastructure Planning, Manager of Communications and Administrative Services								300h	~$1,000	
.1 Establish a basic program for training staff from across the City about asset management concepts (eg. NAMS IPEWA Program)			✓						50h pp +	$500-3,000 pp	Readiness Scale
.2 Prepare a current and desired corporate map of how information flows and decisions are made between departments with respect to infrastructure, based on the outcomes from the Interviews, using the result to educate staff				✓					50h		Interviews; Workshops
.3 Have managers and/or directors identify and address short term needs			✓						50h		Readiness Scale
.4 Continue to provide opportunities and pathways for cross-departmental collaboration and communication							⟲		Incl. in program implementation budget		Interviews
.5 Provide additional CityWide training to maximize use of the tool	Manager of Infrastructure Planning, Manager of Communications and Administrative Services						✓		100h	$15,000	Interviews
19. Encourage internal knowledge sharing (with City staff and Council)									130h	$45,000	Interviews
.1 Develop key messages for staff and Council awareness-building focusing on who, what, when and how information should be communicated			✓						50h	$30,000	Workshop; AssetSmart
.2 Undertake asset management awareness initiatives targeted for across the organization (i.e. helping staff understand the bigger picture such as why we are doing what we do, for example extending service life)			⟲						Incl. in program implementation budget		Workshop; Interviews; AssetSmart
.3 Build a shared understanding the current state of City-owned infrastructure across the Asset Management Team		✓	(based on current deliverables)						30h		Interviews
.4 Encourage staff to learn about the roles of their colleagues in order to share knowledge			⟲						Incl. in program implementation budget		
.5 Improve continuity and consistency of information for Council, beginning with annual infrastructure report cards				✓					50h	$15,000	Interviews

Actions	Staff Lead(s)	Timing							Resource Requirements		Source
		2018	2019	2020	2021	2022	2023	>2023	Staff (h)	External ($)	
20. Formalize succession planning									100h	--	
.1 Improve record keeping, transferring successful practices within select departments across the City					✓				50h		Asset Management Team
.2 Extend current departmental practices (e.g. job shadowing, standard operating procedures) across the organization to facilitate knowledge transfer and further mitigate the risk of losing information held in the minds of long term staff					✓				50h		Workshop; Interviews; Readiness Scale
21. Promote external knowledge sharing and contributions to the broader asset management practice (i.e. regional and national)									--	--	
.1 Support staff and/or elected officials to attend, and where possible present at, asset management events (eg. AMBC, CNAM)		✓	↻						Incl. in program implementation budget		Readiness Scale
.2 Become involved in industry groups or events to share knowledge and experience in Asset Management			↻								Readiness Scale
22. Initiate an ongoing program of public and stakeholder education about asset management									370h	$80,000	Workshop; Interviews
.1 Share basic information on all current capital projects with the public			✓						100h		Readiness Scale
.2 Develop key messages, focusing on who, what and how information should be communicated			✓						50h		Asset Management Team
.3 Prepare a communications strategy				✓					20h	$30,000	KWL
.4 Identify customer levels of service in consultation with Council and the public								✓	200h	$50,000	Readiness Scale; AssetSmart
.5 Deliver awareness-building initiatives in alignment of the communications strategy			↻						Incl. in program implementation budget		Workshop; AssetSmart

Part 5 - Closing

At its core, asset management is about strategic, sustainable service delivery, which directly affects quality of life. Successful asset management requires an approach that is tailored to a community's unique context and structured to achieve its highest priorities. Understanding the current state of the City's assets and asset management practices is an important initial step in establishing a direction for making informed decisions in a coordinated way as the City's asset management journey progresses.

This Current State Assessment presents a snapshot of the City's assets and asset management practices both corporately and from the perspective of individual service areas. Key available asset information has been quantified and assessed as it relates to supporting long term decision-making, with information gaps noted. Existing asset management practices have also been documented and assessed; achievements, gaps and opportunities were noted based on input from staff from across departments. The City's corporate asset management status was evaluated according to best practices to establish benchmarks for tracking progress over time.

Port Coquitlam's Asset Management Strategy is a foundational document for building an asset management program. It is informed by organizational strategic plans, supported by policy, and can be used to inform the development of asset management plans which are directly linked to operational strategies. The Asset Management Strategy identifies what the City intends to achieve along with an action plan for both developing and implementing the asset management program.

Strategic Service Delivery Outcome

The City delivers municipal services essential to maintaining residents 'quality of life. Because fluctuations in service delivery may adversely impact the community, the environment, and the economy, strength in leadership and operational expertise is vital to ensuring that services are maintained without compromise. Furthermore, it is necessary to ensure costs to deliver services remain affordable to the community.

This Report provides a baseline as well as clear direction for the City as it embarks on the first phase of a formal asset management journey. It also provides the groundwork for developing an Asset Management Policy which is the immediate next step in this phase of Port Coquitlam's Asset Management Program development.

9. Next Steps

These outcomes will be used as the frame and foundation for transitioning the City from an informal approach to delivering services and managing associated infrastructure, to a strategic approach that can be deliberately applied according to available resources and community needs.

9.1 Phase 1

The next and final step in Phase 1 is preparation of the City's Asset Management Policy. Having an asset management policy is critical to ensuring effective long-term implementation of asset management. The policy sets out clear guidance for Council and staff for undertaking the asset management process, as well as the connection between community objectives and the management of infrastructure assets. It broadly outlines the principles, and guides the development and implementation of, asset management across the organization in a systematic and coordinated way, consistent with the organization's plans.

9.2 Phase 2

Phase 2 will focus on developing the Asset Management Plan(s). This will be a corporate Asset Management Plan, or a series of system-level plans that utilize a consistent format and approach to being developed. An Asset Management Plan is a tactical document that identifies the gaps between the current and desired state of assets and services, and then defines the activities needed to close those gaps. It provides clear direction on what to do, when to do it and how much it will cost as well the consequences of not taking action. The Plan also provides the basis for developing long term financial plans.

9.3 Continuous Improvement

Following phase 2 of program development, other actions will be required to move the City's current asset management practices forward through program development. The action plan, and 5 year roadmap for Port Coquitlam, incorporates both the priority initiatives and associated actions for moving the City's Asset Management Program forward. This is a continuous improvement process.

9.4 Implementation

Operationalizing asset management is an ongoing process and will be guided by the City's Governance Structure. The City will likely be developing the more advanced aspects of it's Program at the same time as implementing core components. The Framework of seven decision streams outlined in the Strategy establishes the structure upon which the City can build complexity over time, adding layers of information and processes in a deliberate and measured manner.

Specific next steps for the City to consider as operationalizing occurs include:

- Coordination of departmental roles or sub-teams (according to the seven decision streams) via the Asset Management Team or Steering Committee;
- Development of the second layer of sheets (one for each decision stream);
- Documentation of existing, relevant processes;
- Defining the scope of each task, specific requirements for meetings, deliverables, timing/ dependencies;
- An annual calendar that identifies tasks, timing and dependencies between sub-team activities; and
- Identification of who is responsible for the task.

Think of the governance structure as an ongoing resource for every asset management team member, and others across the organization that deal with sustainable service delivery.

Appendix A

Process Gap Analysis

CITY OF PORT COQUITLAM

Process Gap Analysis Memorandum

August 2018

1. Introduction

The City of Port Coquitlam contracted Kerr Wood Leidal Associated (KWL) and Innova Strategy Group (ISG) to support the City in developing Phase 1 of its asset management program. Phase 1 entails assessing the City's existing processes, data, and asset management capacity in a Current State Report, and developing an Asset Management Strategy and Policy.

This memorandum provides a summary of current processes in place at the City to manage infrastructure and deliver community services. Process gaps within the City are identified as they relate to asset management best practices. Theses recommended actions for addressing identified gaps can be used to inform the Asset Management Strategy, which will be developed in Fall, 2018.

1.1 Methodology

Information about the City's current asset management practices was gathered through interviews with Port Coquitlam staff and a workshop with the Asset Management Team.

Interviews

Port Coquitlam staff across key disciplines, including Facilities and Recreation, Parks, Finance and Accounting, GIS and IT, Infrastructure and Capital Projects, Planning and Development, Roads and Drainage, and Water, Storm and Sanitary Services. During these interviews, staff provided input on a series of questions around the delivery of services, management of asset information, relationships and communication, and decision-making processes. The results from these interviews were summarized in Process Sheets attached.

Workshop

The City's Asset Management Team participated in a workshop to document the City's existing asset management practice. During the workshop, Asset Management Team members assessed the City's asset management capacity using interactive polling and activities according to core competencies. The focus was on evaluating the City's current status according to both regional (AssetSmart 2.0) and national (Readiness Scale) scales.

Gap Analysis

Results from the interviews and workshop have been compiled and compared against a range of existing asset management standards to identify gaps in current practice. Current practices have been grouped into five high-level categories of asset management competency:

- Awareness & Priorities
- Information
- Team
- Systems & Processes
- Financial

These five categories draw together the key themes represented in existing asset management standards, including the Readiness Scale, AssetSmart 2.0 Scale, Sustainable Service Delivery Framework, and Asset Management Roadmap. The gaps that the City would need to fill in order to reach the highest level of each of these assessment standards have been identified for each core practice area, accompanied by details on the staff source or standard that referenced the asset management practice. A summary of the City's existing asset management practices and identified gaps are summarized for each of the five categories of practice, below.

2. Assessment Summary

Results from the process gap analysis indicate that the City of Port Coquitlam is in the early stages of asset management according to existing asset management standards. A summary of the City's current state according to each standard is outlined below. The detailed assessments are attached.

2.1 Asset Management Readiness Scale

The Federation of Canadian Municipality's (FCM) Readiness Scale measures progress of local governments as they adopt asset management practices across five "Competencies":

- Policy and Governance
- Data and Information
- Planning and Decision-making
- Contribution to Asset Management Practice
- People and Leadership.

Input provided by the AM Team during the Documenting Existing Asset Management Practice Workshop indicates that the City has **completed Level 1** for almost all competencies and is **working on Level 1** for People and Leadership.

2.2 Sustainable Service Delivery Framework

The Union of BC Municipality's (UBCM) Sustainable Asset Management for Sustainable Service Delivery: A BC Framework reflects current best practices and aligns with internationally accepted best practices such as the International Infrastructure Management Manual and the ISO 55000 Standard for Asset Management. The Framework outlines three primary phases for asset management practice that occur on an iterative cycle:

- Assess
- Plan
- Implement

The City is currently in the **Assess** phase according to this Framework.

2.3 AssetSmart 2.0

UBCM's AssetSmart 2.0 is a tool for local governments to use to assess their asset management capacity according to the four primary areas outlined in UBCM's Sustainable Service Delivery Framework:

- Assets
- Information
- Finances
- People

Input provided by the AM Team during the Documenting Existing Asset Management Practice Workshop was used to assess the City's capacity across each of the 21 competencies. Results from this workshop suggest that City capacity ranges from 1 – 4 across the 21 competencies, and lands, on average, at **Level 2** overall.

2.4 AMBC Roadmap

The Asset Management Roadmap by Asset Management BC (AMBC) is designed to support organizations in documenting progress in implementing asset management across six areas of practice:

- Know your assets
- Know your financial situations
- Understand decision-making
- Manage your asset lifecycle
- Know the rules
- Sustainability monitoring

Each area of practice outlines competencies considered to be at the level of basic, intermediate, or advanced asset management practice. Results from staff interviews and workshop indicate that the City is currently working on developing the components for a **basic level** asset management program.

3. Awareness & Priorities

3.1 Current Practice

Staff input during interviews and Workshop #2 indicated that, while Council has an awareness of asset management, there is room for increased awareness among staff across the organization and communicating out to the public. Council has made asset management a priority for the City and has set objectives for the program. Staff across the organization understand their own responsibilities, but not all staff across the organization have an awareness of asset management. The AM Team noted that staff may understand the current state of City infrastructure in their own department, but not for the City as a whole.

3.2 Process Gaps

Gaps in awareness and priority setting processes were identified based on interview responses and discussion during Workshop #2. This input has been analyzed through comparison to the competencies listed under asset management standards. Process gaps identified for the City of Port Coquitlam are summarized below:

Process Gap	Reference / Standard (associated level)
- Document asset management principles.	Workshop #2, Readiness Assessment (Policy and Governance – Level 2)
- Build staff awareness of asset management across the organization.	Workshop #2, AssetSmart 2.0 (Awareness – Level 2)
- Build public awareness of asset management.	Workshop #2 AssetSmart 2.0 (Awareness – Level 4)

4. Information

4.1 Current Practice

The City's existing inventory is area-dependent, unconsolidated, and the level of detail varies. City staff have a good handle on what asset information exists and where to find the information they need to do their job, but there is a strong desire to consolidate and make existing information more universally accessible, both across and within departments. The City has a decentralized IT system with strong GIS capabilities and an array of tools (e.g. work queue, Citywide) that are continuously being improved. There is an opportunity for a more coordinated approach and staff noted that some clarification is needed regarding Department 'ownership' and maintenance of assets, and some minor assets are 'unassigned' due to recently reorganization.

The City's inventory includes basic attribute information but some information is not complete and some asset categories have more information than others (e.g. good information for facilities and traffic systems, gaps in pipe material and pump stations).

- Up-to-date condition data is generally available (e.g. reports) however not communicated or accessible across the organization.
- Some natural assets have been documented but their value has not been defined and climate change-related impacts have not been assessed.
- Replacement cost data is available but lacks lifecycle costing. Infrastructure data is regularly maintained and updated.
- Asset management plans have not been completed for core services.

4.2 Process Gaps

Gaps in asset information management were identified based on interview responses and discussion during Workshop #2. This input has been analyzed through comparison to the competencies listed under asset management standards. Process gaps identified for the City of Port Coquitlam are summarized below:

Process Gap	Reference / Standard (Level if Gap Filled)
- Improve records management (more communication desired and a central repository for digital documents).	Facilities and Recreation Process Sheet *Priority Process Gap*
- Develop a consolidated inventory that includes basic information and detailed financial data about major assets (encompasses recently unassigned assets).	Fleet and Solid Waste Process Sheet/Infrastructure and Capital Project Sheet **Priority Process Gap**; Workshop #2, Readiness Scale (Data and Information – Level 2), AssetSmart (Location – Level 4, Key Attribute Data – Level 2, Install Data – Level 2), AMBC Roadmap (1.1 Basic Inventory)
- Provide additional Citywide training to maximize use of the tool.	Finance and Accounting Process Sheet
- Synchronize information (e.g. facilities) and make linkages between financial and non-financial information (e.g. condition assessments, TCA).	Facilities and Recreation Process Sheet, Finance and Accounting Process Sheet **Priority Process Gap**
- Implement a central work order management system or process, including a framework for work orders.	Facilities and Recreation Process Sheet

Process Gap	Reference / Standard (Level if Gap Filled)
- Establish a standardized condition rating system and a process for updating condition information for most asset categories (include public art).	Facilities and Recreation Process Sheet, Utilities Process Sheet **Priority Process Gap**, Readiness Scale (Data and Information – Level 3), AMBC Roadmap (4.1 Asset Condition)
- Improve internal discussion regarding capital planning (e.g. condition and priority check-ins quarterly).	Roads and Drainage Process Sheet **Priority Process Gap**
- Develop a strategic approach to maintenance management to streamline processes and work tasks with less duplication of effort (e.g. process for tracking the replacement and major maintenance of major assets and keeping information up to date).	Roads and Drainage Process Sheet/Utilities Process Sheet **Priority Process Gap**
- Make the consolidated inventory easily accessible to staff across the organization.	Workshop #2, AssetSmart (Location – Level 4, Key Attribute Data – Level 2, Install Data – Level 2), AMBC Roadmap (1.5 Data Accessibility)
- Create a more coordinated approach for the City's IT system and GIS capabilities.	Workshop #2, AMBC Roadmap (1.3 Current Data, Software and Tools)
- Document the value of natural assets as part of the City's asset inventory.	Workshop #2, AssetSmart (Natural Assets – Level 3)
- Clarify Department ownership and maintenance of assets.	Workshop #2, AMBC Roadmap (5.5 Ownership, AMBC Roadmap (1.4 Data Management)
- Assess climate change-related impacts to assets.	AssetSmart (Climate Change – Level 2)
- Develop asset management plans for all asset categories.	Workshop #2, Readiness Scale (Planning and Decision-Making – Level 3), AssetSmart (Asset Replacement Plans – Level 2), AMBC Roadmap (3.3 Prioritized Improvement Plan)

5. Team

5.1 Current Practice

There is a fairly clear understanding of information and decision flows across departments and teams. The City recently established a cross-departmental Asset Management Team and team members feel that their knowledge and skills are sufficient to participate in the City's Asset Management Program. There is a desire for a City-wide approach to asset management including further collaboration and knowledge sharing.

Roles and responsibilities related to managing community infrastructure are understood in some areas (e.g. by more senior staff), but there is room for further clarity. Managers within each department meet regularly to discuss department needs and identify priorities (i.e. a pre-planning request for budget as well as checking back on spending throughout year).

Communication and collaboration between staff (e.g. between Finance and Public Works) is being done very well, and there is an interest in continuing to support and increase cross-department communication (e.g. with Engineering). Staff expressed challenges with having the capacity (e.g. people, tools, and financial resources) to implement to asset management program, with a particular expressed need for tools. Succession plans for planning and knowledge transfer have been established in some departments and the City is currently developing Standard Operating Procedures to extend succession planning across the organization.

5.2 Process Gaps

Gaps in team resources and capacity were identified based on interview responses and discussion during Workshop #2. This input has been analyzed through comparison to the competencies listed under asset management standards. Process gaps identified for the City of Port Coquitlam are summarized below:

Process Gap	Reference / Standard (Level if Gap Filled)
- Develop tools to support implementation of the Asset Management Program and Policy.	Workshop #2, Readiness Assessment (Policy and Governance – Level 4)
- Continue to provide opportunities and pathways for cross-departmental collaboration.	Workshop #2, AMBC Roadmap (3.4 Collaboration / Integration Plan)
- Establish a clear mandate for the AM Team that clearly outlines roles and responsibilities (e.g. Terms of Reference).	Readiness Assessment (People and Leadership – Level 2)
- Incorporate asset management roles and responsibilities into staff job descriptions.	Readiness Assessment (People and Leadership – Level 3)
- Establish a basic program for asset management training for staff across the organization.	Readiness Assessment (Contribution to AM Practice – Level 3)
- Ensure staff understand the bigger picture (i.e., extending service life) by educating staff at different levels on why we are doing what we do.	Infrastructure and Capital Project Sheet **Priority Process Gap**
- Involve staff in the field more in the development of complete decision packages (i.e. in the budgeting process).	Utilities Process Sheet
- Increase collaboration with Development Services (e.g. make sure that plans don't cause trouble with maintenance and renewal needs in the future).	Development Services Process Sheet
- Extend succession planning (e.g. job shadowing, standard operating procedures) across the organization to facilitate knowledge transfer (underway).	Workshop #2, Utilities Process Sheet, Readiness Assessment (Contribution to AM Practice – Level 2)
- Become involved in industry groups or events to share knowledge and experience in AM.	Readiness Assessment (Contribution to AM Practice – Level 2/3)
- Improve continuity and consistency of information for Council (to gain buy-in)	Facilities and Recreation Process Sheet

6. Internal Systems & Processes

6.1 Current Practice

The City is in the process of developing an Asset Management Policy and has established a TCA Policy, Financial Management Policy, and a policy to address the infrastructure gap. There is an opportunity to update existing policies to ensure future alignment.

Decision-making about service delivery and infrastructure is generally transparent and there are many initiatives to engage with the public (e.g. website, surveys). Levels of service have been established for all major asset categories and are reported out to Council as part of the annual budgeting process. Performance is tracked for some, but not all, asset categories (e.g. through PM Expert for preventative maintenance and Tempest for public service calls for facilities and recreation services).

Prioritization of infrastructure and capital projects currently takes place as part of the multi-utility capital iterative planning process. The process involves working with Finance, the CMT and Council to establish two-year capital plans. There is an opportunity to develop a City-wide process for assessing infrastructure-related risks and prioritizing infrastructure, and to communicate these processes across departments. There is also a desire for further consideration of lifecycle costing when making infrastructure decisions. The City is in the process of establishing an Asset Management Strategy that will guide next steps for developing and implementing the Asset Management Program.

6.2 Process Gaps

Gaps in internal systems and processes were identified based on interview responses and discussion during Workshop #2. This input has been analyzed through comparison to the competencies listed under asset management standards. Process gaps identified for the City of Port Coquitlam are summarized below:

Process Gap	Reference / Standard (Level if Gap Filled)
- Develop an AM Policy that is endorsed by Council and Senior Management.	Readiness Assessment (Policy and Governance - Level 2), AssetSmart (Policy – Level 2)
- Develop an AM Strategy that documents AM system plans and objectives for the coming year.	Readiness Assessment (Policy and Governance - Level 2), AssetSmart (Policy – Level 2), AMBC Roadmap (3.2 Improvement Plan and Process)
- Establish a roadmap with detailed actions for AM implementation.	Readiness Assessment (Policy and Governance – Level 3)
- Establish performance measures for monitoring AM Program progress.	Readiness Assessment (Policy and Governance – Level 3)
- Update existing AM-related policies to ensure future alignment.	Workshop #2, Readiness Assessment (Policy and Governance – Level 5)
- Improve level of service tracking through online services (e.g. measuring wait times).	Finance and Accounting Process Sheet
- Create an audit process for evaluating established Levels of Service.	Workshop #2, Readiness Assessment (Data and Information – Level 4), AssetSmart (Levels of Service – Level 4), AMBC Roadmap (4.2 Levels of Service)
- Establish a City-wide process for assessing infrastructure-related risks and prioritizing infrastructure/needs.	Workshop #2, Readiness Assessment (Data and Information – Level 4), AssetSmart (Risk – Level 4), AMBC Roadmap (3.3 Prioritized Improvement Plan)

Process Gap	Reference / Standard (Level if Gap Filled)
- Establish a process for business continuity planning.	Fire and Emergency Services Process Sheet
- Establish a structured investment planning approach based on both short- and long-term issues and priorities.	Readiness Assessment (Planning and Decision-Making – Level 3), AssetSmart (AMP – Level 2),

7. Financial

7.1 Current Practice

The City administers an efficient capital planning process over a two-year planning horizon and budgeting is dictated by service levels for outward facing services. Capital and operating expenditures are documented and budgeted for all departments two years out. A run to failure approach is implemented (e.g. for Fire and Emergency Services). Works are prioritized annually based on available budget, with individual requests made to Council for large capital renewal requests.

A long-term capital plan, long term financial plan, and lifecycle renewal plan is in place for facility assets (20-year) and there is an opportunity to develop long-term capital and financial plans for other asset categories. Budget is available for scheduled capital however, there are no allowances for unplanned failures (e.g. Fire and Emergency Services).

City revenue is considered sufficient, predictable, and stable to fund long term service delivery. Reserves are in place to meet long term requirements, but Asset Management Team staff were unsure if 1%/year contribution will be adequate over the long term. The City used to be debt free, though debt levels are currently at $20 million, with an additional $52 million being issued to fund the new recreation complex.

7.2 Process Gaps

Gaps in financial planning were identified based on interview responses and discussion during Workshop #2. This input has been analyzed through comparison to the competencies listed under asset management standards. Process gaps identified for the City of Port Coquitlam are summarized below:

Process Gap	Reference / Standard (Level if Gap Filled)
- Establish a consistent budgeting process to improve understanding and access reliable information (e.g. Fire and Emergency Services).	Fire and Emergency Services Process Sheet
- Increase engagement in budgeting and prioritization process.	Fire and Emergency Services Process Sheet
- Establish long term (10+ year) capital and financial plans for remaining asset categories.	Workshop #2, Readiness Assessment (Data and Information - Level 4), AssetSmart (Long Term Financial Plan – Level 3; Long Term Capital Plan – Level 3)
- Assess whether reserve funding levels will be adequate over the long term.	Workshop #2, AssetSmart (Reserves – Level 4)
- Establish a strategy to pay down debt levels over time.	Workshop #2, AssetSmart (Debt – Level 3)
- Define asset lifecycle costs to inform infrastructure decision-making.	Workshop #2, Parks Process Sheet, Readiness Assessment (Data and Information – Level 3)

Process Gap	Reference / Standard (Level if Gap Filled)
- Reduce impact of securing funding on ultimate delivery of asset management activities.	Fire and Emergency Services Process Sheet
- Develop annual capital and operating budgets based historical values and new priorities.	Readiness Assessment (Planning and Decision-Making – Level 2)

8. Looking Forward

City staff have a lot to celebrate about existing asset management practices, including:

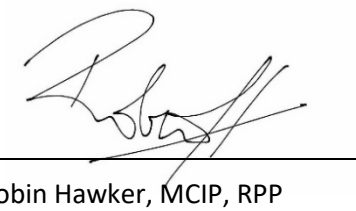
- City-wide collaboration
- Strong team cohesion
- Well-documented external service levels linked to budgets
- Excellent customer service ratings
- "Lean and mean" organization

Opportunities identified for improving asset management practices include:

- Centralizing information
- Improving education and communication with staff about the bigger picture
- Developing processes for: lifecycle costing, succession planning/knowledge transfer, decision-making, and condition assessments

KERR WOOD LEIDAL ASSOCIATES LTD.

Prepared by:



Robin Hawker, MCIP, RPP
Planner

Reviewed by:

Catherine Simpson, MCIP, RPP
Project Manager & Asset Management Specialist

Attachments Process Sheets
AssetSMART 2.0
AssetSMART Summary
Municipal Asset Management Program – Asset Management Readiness Scale

Statement of Limitations

This document has been prepared by Kerr Wood Leidal Associates Ltd. (KWL) for the exclusive use and benefit of the City of Port Coquitlam for Phase 1 – Asset Management Program. No other party is entitled to rely on any of the conclusions, data, opinions, or any other information contained in this document.

This document represents KWL's best professional judgement based on the information available at the time of its completion and as appropriate for the project scope of work. Services performed in developing the content of this document have been conducted in a manner consistent with that level and skill ordinarily exercised by members of the engineering profession currently practising under similar conditions. No warranty, express or implied, is made.

Copyright Notice

Revision History

Revision #	Date	Status	Revision	Author
A	July 24, 2018	DRAFT	Preliminary Draft	RNH
B	August 1, 2018	DRAFT	Draft for Client Review	RNH

Attachment 1

AssetSMART 2.0

AssetSMART 2.0

A Tool to Assess Your Community's Asset Management Practices

What is AssetSMART?

AssetSMART is a tool that local governments can use to assess their capacity to manage their assets. This tool has been designed to help local governments:

- ◊ Evaluate their asset management practices in a comprehensive way
- ◊ Identify particular areas of strength and areas for improvement
- ◊ Establish priorities
- ◊ Build awareness of the many dimensions of asset management
- ◊ Generate productive discussion across departments
- ◊ Measure progress over time
- ◊ Benchmark against other communities
- ◊ Set short-, mid-, and long-term objectives in specific areas

Which communities should use AssetSMART?

AssetSMART has been specifically designed to reflect the unique challenges that local governments face in managing their assets. This tool is intended to be used by any local government, of any size, and at any stage of implementing an asset management program. Whether your community is in the initial or advanced stages of asset management, AssetSMART can help your organization take stock of where it is today and plan for the future.

DATE _____

NAME _____

ORGANIZATION _____

The Framework

AssetSMART uses Asset Management for Sustainable Service Delivery: A BC Framework (the Framework) as a foundation. The Framework establishes a high-level, systematic approach that supports local governments in moving toward service, asset and financial sustainability through an asset management process.

The Core Elements of Asset Management

People, Information, Assets, and Finances are considered the core elements of asset management. Each of these elements are necessary for sustainable service delivery. Success requires the integration of these four elements throughout the process of asset management. The four core elements form the AssetSMART assessment categories.

VERSION 2.01

Using AssetSMART 2.0

Step 1 Assess Current Capacity

For each of the rows, choose the cell that most closely describes your organization's capacity today (simply check the appropriate box). If you feel that your organization falls between two cells, choose the line between the two cells. Add comments as needed in the adjacent column.

The assessment matrix is organized into the five core capacity areas (rows), and by capacity level (columns). Capacity increases from left to right as follows:

Level (1) Very low capacity
Level (2) Fair capacity
Level (3) Good capacity
Level (4) High capacity

Step 2 Identify Desired Capacity

For each of the rows, choose the cell that most closely describes the level of capacity that you would like your organization to have in the future. You may want to indicate desired capacities for a given timeframe, as your organization may have different short-, mid-, and long-term objectives.

Defining "desired capacity levels" will likely be more difficult than identifying "current capacity levels", and will require organization-wide discussion to establish attainable objectives. It is not suggested that all communities aim for Level (4) capacity on all components – targets will need to reflect the specific circumstances of each community.

Who should fill in the self-assessment?

Effectively managing a community's assets will require the participation of many individuals and groups from across the organization. At a minimum, personnel responsible for the following functions should be invited to participate in the self-assessment:

- Engineering (transportation, water, sanitary, stormwater)
- Facilities
- Parks and Recreation
- Operations
- Planning (current and long-range)
- Finance

How should the self-assessment be completed?

Local governments can opt to fill in the self-assessment in a number of ways, such as:

A group (whole organization)
Local governments may choose to complete the assessment together as a group in workshop format, to help ensure that all participants are on the same page. This approach can effectively build buy-in from the entire group, but may not highlight significant differences in understanding across the organization.

Individually
Alternatively, local governments may choose to ask each participant to complete the assessment independently, and then meet as a group to review the results. Providing respondents with the assessment prior to meeting as a group can help ensure that individual input is fully explored, and bring to light any significant differences in understanding across the organization.

Business units
Other local governments may choose to complete the assessment first by business unit or department, and then discuss the results as an entire organization.

Local governments will need to choose an approach that makes the most sense for their organization. However, it is recommended that local governments always include plenty of time for discussion about assessment results. **The discussion is the most valuable part of the exercise.** Local governments may also find it helpful to have an outside asset management expert facilitate the discussion. Involving an objective third-party can help ensure that issues are discussed fairly and comprehensively.

How can the assessment results be used?

Completing AssetSMART is an important first step in developing an asset management strategy. Next steps include:

Prioritizing gaps
For most local governments, it will not be reasonable to expect to build capacity in all areas at once. Local governments will need to choose which capacity gaps to address first. Some capacity gaps will be more significant than others. This will all depend on the local government's unique circumstances.

Developing implementation strategies
The next step will be to develop detailed implementation strategies to fill the most significant capacity gaps.

AssetSMART helps frame the discussion on prioritizing gaps and developing implementation plans, but it is does not provide pre-packaged solutions. Local governments will need to look carefully at their specific circumstances, evaluate available options, and decide for themselves the best way forward.

Glossary

ASSET

A physical component of a system that has value, enables services to be provided, and has an economic life of greater than 12 months.

ASSET MANAGEMENT

Systematic and coordinated activities and practices through which an organization manages its assets, their associated performance, risks and expenditures over their life cycles.

ASSET MANAGEMENT PLAN

Document specifying activities and resources, responsibilities and timescales for implementing the asset management program.

ASSET MANAGEMENT PROGRAM

A program to identify asset management needs, set up longer term financing means, and regularly schedule maintenance, rehabilitation and replacement works for the long term sustainability of the asset.

ASSET RENEWAL

Works to upgrade, refurbish or replace existing facilities with facilities of equivalent capacity or performance capability.

GIS

Geographic Information System.

INFRASTRUCTURE DEFICIT

A cumulative shortfall of required asset renewal.

LEVEL OF SERVICE

The defined quality for the provision of a particular service. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability, and cost.

LIFE CYCLE

The life of an asset, from the point when a need for it is first established, through its design, construction, acquisition, operation and any maintenance or renewal, to its disposal.

LIFE CYCLE COST

The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation, and disposal costs.

LOCAL GOVERNMENT

Municipalities and regional districts.

LONG-TERM FINANCIAL PLAN

Funds the long term investment plan.

LONG-TERM INVESTMENT PLAN

A long-term multi-asset renewal plan (e.g. 20 years).

MAINTENANCE

All actions necessary for retaining an asset as near as practicable to its original condition, but excluding rehabilitation or renewal.

ASSETS

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	EVIDENCE / NOTES
1 Location	Accurate location data is available for fewer than half of the assets and is in a format or location that is generally inaccessible to those who need it. ☐	Accurate location data is available for at least 50% of the assets. ☐	Complete and accurate data is available for most assets, including all critical assets. Data is easily accessible to all who require it. ☐	Complete and accurate data is available for all assets, including new assets. Data is easily accessible to all who require it. ☑	The City's inventory includes basic attribute information and excellent GIS capabilities.
2 Key Attribute Data	Accurate attribute data is available for fewer than half of the assets and is in a format or location that is generally inaccessible to those who need it. ☐	Accurate attribute data is available for at least 50% of the assets. ☑	Complete and accurate data is available for most assets, including all critical assets. Data is easily accessible to all who require it. ☐	Complete and accurate data is available for all assets, including new assets. Data is easily accessible to all who require it. ☐	The City's inventory includes basic attribute information but information is not complete and some asset categories have more information than others (e.g. good information for facilities and traffic systems, gaps in pipe material and pump stations).
3 Install Data	The installation date is available for fewer than half of the assets and is in a format or location that is generally inaccessible to those who need it. ☐	Asset installation date is available for at least 50% of the assets. ☑	Accurate install date is available for most assets, including all critical assets. Data is easily accessible to all who require it. ☐	Complete and accurate data is available for all assets, including new assets. Data is easily accessible to all who require it. ☐	See comment above.
4 Historic Cost	Accurate historic cost data is available for fewer than half of the assets and is in a format or location that is generally inaccessible to those who need it. ☐	Accurate historic cost data is available for at least 50% of the assets. ☐	Complete and accurate historic cost data is available for most assets, including all critical assets. Data is easily accessible to all who require it. ☑	Complete and accurate historic cost data is available for all assets, including new assets. Data is easily accessible to all who require it. ☐	Most assets have a historical cost but the exact accuracy is unknown (e.g. floodboxes show a historical cost of $0)
5 Natural Assets	No consideration is given to natural assets in planning for sustainable service delivery. ☐	There is general awareness of the services provided by natural assets, but natural assets are not included in planning or decision making. ☑	Some natural assets have been identified and the value of service is partially understood. ☐	All significant natural assets have been identified and the value of service they provide is understood. This value is considered in decision making and planning. ☐	Natural assets have been documented but their value has not been defined.

URBAN systems

INFORMATION

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	EVIDENCE / NOTES
6 Policy	No policies are in place related to sustainable service delivery. ☐	Some policies related to sustainable service delivery are in place, but there are significant gaps or policies are not actionable. ☑	Good policies are in place related to sustainable service delivery, but they are not all referenced for decision making. ☐	Policy(ies) adopted by council that are understood and provide clear direction on how the community will achieve sustainable service delivery. Policies are a regular reference for guiding decisions. ☐	The City is in the process of developing an Asset Management Policy and has established a TCA Policy, Financial Management Policy, and a policy to address the infrastructure gap.
7 Strategy	No strategy is in place. ☐	Components of a strategy or framework are in place, but there are significant gaps in providing direction for sustainable service delivery and the linkage of plans and initiatives. ☐	A strategy / framework is in place that identifies specific sustainable service delivery goals, the approach to achieving them, and identifies how organizational plans or initiatives fit together to inform decision making and achieving the goals. The strategy is not being widely implemented. ☐	A strategy / framework is in place that identifies specific sustainable service delivery goals, the approach to achieving them, and identifies how organizational plans or initiatives fit together to inform decision making and achieving the goals. The strategy is being implemented. ☐	The City is in the process of establishing an Asset Management Strategy that will guide next steps for developing and implementing the Asset Management Program.
8 Level of Service	The levels of service currently delivered are not consistently understood by the public or documented. ☐	In some of the core service areas, the current level of service is understood and documented, and the desired level of service has been defined. ☐	In all service areas, the current level of service is understood and documented, and service targets have been set. ☑	Current and desired levels of service, and trade offs between costs and services are well understood by both staff and the public. ☐	Levels of service have been established but not tracked for all major asset categories.

INFORMATION

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	EVIDENCE / NOTES
9 Risk	Risks to assets and service levels are not understood or documented	Asset risk is estimated according to asset remaining life only, condition assessment information is not available. Broader service delivery risks have not been considered.	Estimated remaining life is known for all assets and is supported by a condition assessment for critical assets or assets nearing replacement. Risk assessments consider the consequence of failure. Some 'big-picture' risks to service delivery for the organization are understood at a corporate level. ☑	Asset risks are well understood and documented based on evidence of the probability and the consequence of failure. High-level organizational risks to service delivery are well understood throughout the corporation.	Up-to-date condition data is available (e.g. reports) but information is not communicated or accessible across the organization. There is an opportunity to develop a City-wide process for assessing infrastructure-related risks and prioritizing infrastructure, and to communicate these processes across departments.
10 AMP - Asset Replacement Plans	No Asset Replacement Plan exists to show the theoretical timing for asset replacement. ☑	Parts of an Asset Replacement Plan exist (e.g. for some asset categories, for a duration <20 years, etc.) but it is not consolidated into an organizational long term view.	An Asset Replacement Plan has been developed, but it is either <20 years in scope or does not include all assets.	A long term (75+ year) plan is in place that illustrates the timing of expenditure to replace all existing assets, the current infrastructure deficit, and the average annual sustainable funding level.	Asset management plans have not been completed for core services.
11 AMP - Long Term Capital Plan	No long term (10 year) capital plan is in place.	A ten year capital plan is in place but it is limited to new projects and it does not reflect anticipated asset renewal. ☑	A ten year capital plan is in place that reflects new capital projects for growth or regulatory compliance, and the replacement of existing assets to manage risk and deliver an appropriate level of service.	A ten year capital plan is in place that is current, informed by level of service targets, risk to service delivery. The capital plan is integrated with the long term financial plan, and is being followed and tracked.	A long-term capital plan is in place for facility assets and there is an opportunity to develop long-term capital plan for other asset categories.

12 Climate Change

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	EVIDENCE / NOTES
Climate change is not considered in service delivery risk or long term asset replacements. ☑	Probable local impacts of climate change have been identified and are considered in some organizational plans. ☐	An assessment of risk to some critical existing infrastructure has been conducted. Design and construction of new assets consider climate change. ☐	An assessment of risk to existing infrastructure has been conducted, and plans are in place to manage this risk. Design and construction of new assets consider climate change. ☐	Climate change-related impacts have not been assessed, as this is not a priority for Council.

FINANCES

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	EVIDENCE / NOTES
13 Long Term Financial Plan	No long term financial plan is in place. ☐	A financial plan is in place but it covers <10 years or does not reflect the future costs of replacing existing assets. ☑	A long term (10+ years) financial plan is in place that reflects the revenue required and funding sources to fund new assets and asset replacements, but the plan is not being followed or updated. ☐	A comprehensive long term financial plan exists and is based on up to date information. The plan looks forward 10 years or more and is integrated with long term capital plan. The plan is being tracked and followed. ☐	The City has a Long Term Financial Plan (10 years) for facility assets only.
14 Revenue	Revenue is year to year and there is no linkage between revenues and long term requirements. Revenues are not sufficient to meet needs without reliance on grants or subsidies. ☐	Revenue is sufficient and reliable to fund the requirements for the next 5 years, but there is a significant gap between revenues and sustainable funding levels for later years. ☐	Revenue is sufficient and reliable to fund the requirements in the 10 year capital plan, but there is still a gap between revenues and sustainable funding levels for the long term. ☐	Revenues are sufficient, predictable, and stable to fund long term sustainable service delivery in alignment with the long term financial plan and the asset replacement plan. ☑	City revenue is considered sufficient, predictable, and stable to fund long term service delivery.
15 Reserves	No reserves are in place. ☐	Minimal reserves are in place that can buffer short term fluctuations in revenue (e.g. 6 weeks operating expenses). ☐	Reserves are in place to buffer short term revenue fluctuations. There are dedicated reserves for future capital renewal, but do not meet the levels required as identified in the financial plan. ☑	Reserves are held at levels established in accordance with the financial plan in order to meet long term requirements. ☐	Reserves are in place (1%/yr) but it is unclear whether reserves will be adequate over the long term.
16 Debt	Debt levels are high (at or very near the maximum), limiting capacity for additional borrowing and no plan is in place to reduce debt. ☐	Debt levels higher than desired and debt management strategy is being considered. ☑	Debt levels are reasonable but is trending upward and are not aligned with the long term financial plan. ☐	Debt levels are prudent and reasonable. Debt levels are in line with the long term financial plan and relatively stable. ☐	The City used to be debt free, though debt levels are currently at $20 million, with an additional $52 million being issued to fund the new recreation complex.

PEOPLE

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	EVIDENCE / NOTES
17 People Capacity	Staff have no time for asset management. ☐	Some staff time could be made available for asset management, but staff have limited or no knowledge of the tasks and processes required to meet asset management outcomes. ☐	Staff are investing some time in asset management and are working to build the capacities, knowledge, and systems needed. ☑	Staff have the necessary time, knowledge, skills, and capacities to achieve asset management outcomes and are implementing asset management as part of their jobs. ☐	Asset Management Team members feel their knowledge and skills are sufficient to participate in the AM Program. Expressed challenges with capacity for AM (people, tools, and financial resources). In particular, tools are needed to support AM implementation.
18 Awareness	There is no awareness of the needs to manage assets and sustainably deliver services among staff, elected officials, or members of the public. ☐	Staff are generally aware of the major issues related to Asset Management and service sustainability in the community, and what is needed to address these issues. ☑	Staff members and elected officials are aware of community issues and future risks related to sustainable service delivery. ☐	Members of the public are aware of the issues related to sustainable service delivery, and there is evidence these issues are considered in public decision making. ☐	Not all staff across the organization have an awareness of asset management.
19 Teamwork	No cross functional team is in place to manage assets. There are significant siloes in the organization that prevent information from being shared and used in decision making. ☐	A cross functional team is in place, but siloes among departments or staff positions (e.g. between operations and management) still prevent information from being shared. ☑	A cross functional team is in place that is effectively bridging siloes in the organization. ☐	There is no perception of siloes across departments at all levels of the organization. There is a strong culture of teamwork and information is readily and consistently shared through formal and informal channels. ☐	A cross-departmental Asset Management Team has been recently established and is working on developing a collaborative approach to working together.
20 Role	People do not understand their role in asset management or sustainable service delivery which hinders the ability to manage assets. ☐	A small group of people understand their role as it relates to sustainable service delivery, but there are some significant gaps causing things to fall through the cracks. ☑	Most people in the organization understand their role as it relates to sustainable service delivery. ☐	Roles are clearly understood by everyone, including council, resulting in nothing 'falling through the cracks'. ☐	Roles and responsibilities related to managing community infrastructure are understood in some areas (e.g. by senior staff), but there is room to more clearly define roles and responsibilities.

PEOPLE

21 Decision Making

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	EVIDENCE / NOTES
Decisions are made based on a short term frame or reactive in nature and in isolation of appropriate information. ☑	Decision making based on a long term frame, but are informed only by incomplete or anecdotal information. ☐	Decision making is based on the long term and incorporates appropriate information. ☐	Decision making about assets and service delivery is informed with appropriate and timely information, is transparent, and is aligned with community priorities and long-term sustainable service delivery. ☐	The City makes decisions based on a 2 year time horizon. Some departments (e.g. facilities) have longer term plans and decision-making processes.

Attachment 2

Municipal Asset Management Program
Asset Management Readiness Scale

FCM FEDERATION OF CANADIAN MUNICIPALITIES FÉDÉRATION CANADIENNE DES MUNICIPALITÉS

Municipal **Asset Management** Program

Asset Management Readiness Scale






Table of Contents

The Municipal Asset Management Program is a new five-year, $50-million program designed to help municipalities make informed decisions about infrastructure investment. The program is offered by the Federation of Canadian Municipalities and funded by the Government of Canada.

Canada

The Asset Management Readiness Scale

What is a readiness scale?

Readiness scales are widely accepted for a number of different uses. This readiness scale measures progress of local governments as they adopt asset management practices. Readiness scales provide a common method for assessing progress, or level of adoption, across diverse groups. They allow individuals or organizations to assess their current state against a progressive scale.

How can you use the Asset Management Readiness Scale?

The needs of municipalities vary widely, and the approaches to implementing asset management differ in communities across the country. The Asset Management Readiness Scale will allow you to measure your progress along a common scale regardless of the implementation framework you choose. This document is meant to complement any asset management approach being implemented in any jurisdiction across Canada. It is applicable to any municipality or local government organization.

The scale shows that creating and implementing an asset management system is a step-by-step process that takes time and resources and does not happen overnight. It is meant to structure the asset management journey and provide an objective means of evaluating progress.

How does this readiness scale work?

This scale describes five asset management "competencies":

- **Policy and governance:** Putting in place policies and objectives related to asset management, bringing those policies to life through a strategy or framework, and then measuring and monitoring implementation over time.
- **People and leadership:** Setting up cross-functional groups with clear accountability, and ensuring adequate resourcing and commitment from senior management and elected officials to advance asset management.
- **Data and information:** Using asset data, performance data, and financial data to support effective asset management planning and decision-making.
- **Planning and decision-making:** Documenting and standardizing how the organization sets priorities, conducts capital and operations and maintenance (O&M) planning, and decides on budgets.
- **Contribution to asset management practice:** Training and staff development, sharing knowledge internally and participating in external knowledge sharing.

For each asset management competency, there are five levels. The five levels form a progressive scale, from initial investigation to adoption and, eventually, full integration of asset management practices into daily routines. The "outcomes" described at each level show, in practical terms, what it means to be at that level. This information can help you set goals and objectives, and design initiatives that you may wish to have funded through the Municipal Asset Management Program.

If you are new to asset management, or need an introduction to key asset management terms, read the "Introduction to Asset Management" section on the next page before using the readiness scale to conduct a self-assessment.

Self-assessment instructions

1. Bring a group of cross-functional staff together to conduct the self-assessment — this should not be done by one person in isolation.
2. For each asset management competency, read through the descriptions and outcomes for each level.
3. Discuss and evaluate your organization's current state.
4. Assign your organization the level for which it has completed the corresponding outcomes.
5. On the "notes" page, document why you chose this level. What specific actions has your municipality taken that correspond with this level?

Tips

- When self-assessing, choose the level that describes your achieved outcome. (The exception would be Level 1, at which point you may be in the process of getting started.) If you are still working on a specific level, assign yourself the previous level.
- You need not progress through the five competencies in any particular order. Where you focus your efforts is entirely up to you and will depend on your local needs and priorities.


Introduction to asset management and key terms

What is asset management?

Any organization that owns physical assets (such as property, equipment or technology) engages in some form of **asset management** when caring and planning for those assets. Municipalities and local governments must manage publicly owned assets as part of their mandate to provide services to communities. In some cases, natural assets such as aquifers also provide critical municipal services and should be considered when managing assets.

> *... Assessing the health of municipal infrastructure is necessary if Canada is to ensure that the services, quality of life and economic growth provided by this infrastructure can be sustained over the long term.*
>
> — Canadian Infrastructure Report Card, 2016

Municipalities and local governments with an asset management **program** have chosen a structured approach to asset management — a specific way of doing business that continually balances expenditure with performance and risk. The ultimate aim is to ensure that they invest resources well, meet customer service levels and achieve the **organizational strategic plan** effectively and efficiently.

Asset management also provides a means for elected officials and municipal administrators to demonstrate the value of infrastructure planning and maintenance while balancing social, environmental and economic factors.

To support effective asset management planning and decision-making, an organization must establish an **asset management system** — a set of interrelated elements including governance, people, processes, data and technology. Once your asset management system is established, you will be able to say the following:

> *Our organization uses a **formalized and holistic approach** to ensure that our resources are invested wisely over the **long term**, continually balancing operations, risks and costs in a way that provides our community with the **right service** at the **optimal cost** — not just today but with our **community's future needs in mind**.*

How are asset management systems governed and implemented?

Municipalities and local governments use specific governance tools to control and direct asset management. These include a **policy, strategy, framework, roadmap** and **plans**, as well as clear roles and responsibilities.[1]

An organization's asset management **policy** outlines its commitment and mandated requirements for asset management. The policy is linked to the organization's strategic objectives and is shaped by the organization's values and priorities.

An asset management **strategy** outlines the **framework** and approach for implementing the asset management policy. This framework is the conceptual structure for the asset management system. It defines the system's internal makeup and its interactions with external practices or functions.

The asset management strategy also identifies **objectives** (specific, measurable outcomes required of assets and asset management) and reporting requirements. These include **service objectives** (the desired level of service to the community).

[1] The figure above is adapted from The Institute of Asset Management's diagram from BSi, PAS 55-1:2008, Figure 5, Page 10. www.theIAM.org

The step-by-step plan for implementing the strategy is the asset management **roadmap**. It identifies actions, responsibilities, resources and timescales. An organization will also have one or more **asset management plans** that outline more specifically how the asset management system will create, maintain and renew infrastructure and other assets. To create an asset management plan, an organization first does a needs assessment (looking at the current and future gaps in asset service and performance). This needs assessment forms the justification for an asset investment plan, which outlines how and where money will be spent to address the gaps. The asset investment plan is accompanied by a **financial plan** that identifies the source of funds.

For example, the **capital plan** outlines the scope, cost and schedule of investments in new infrastructure or infrastructure renewal (financed from a capital budget). The **operations and maintenance (O&M) plan** describes the scope, frequency and cost of operation and maintenance activities (financed from an operating budget).

What kind of data and information is used in asset management?

Assets are generally grouped together based on the service function they provide. Major **asset groups** contribute to the delivery of essential municipal services, such as water, wastewater and transportation. Minor asset groups contribute to non-essential services, such as recreation. Effective asset management relies on information about specific assets and asset groups, including the following types of data:

- Basic inventory data includes general asset properties such as size, material, location and installation date.
- Pooled inventory data is basic inventory data organized by asset group.
- Expanded inventory data includes additional, supplementary information on the asset (e.g. design criteria, installation method), its location (coordinates, connectivity) or its role in service delivery (e.g. function, relative importance).
- Financial data includes tangible capital asset inventories and valuations, lifecycle costs, and budgets related to operation and maintenance and capital expenditures.
- Service adequacy or effectiveness is measured as a level of service. Levels of service are evaluated from various perspectives: corporate, end-user and asset or operational.

How can training, development and knowledge sharing support asset management?

Introductory training on asset management includes asset management **awareness training**, which may focus on the concepts, organizational context and value of asset management, as well as its impact on people and processes. Advanced asset management training includes additional concepts specific to one's roles and responsibilities. Asset management requires both hard skills (such as the analysis of financial, demand, geospatial and asset data) and soft skills (such as stakeholder engagement, communicating horizontally and vertically across silos, and teamwork).

Part of having an effective asset management program is the ongoing development of **organizational capacity**. This includes participation in **asset management organizations** — industry groups and communities of practice that promote and support effective asset management through training, networking and knowledge sharing amongst leaders and practitioners. Asset management organizations can be global, national or regional. Examples include Asset Management British Columbia (AMBC), the Canadian Network of Asset Managers (CNAM) and the Institute of Asset Management (IAM).

ASSET MANAGEMENT READINESS SCALE

Competency: POLICY AND GOVERNANCE

This competency involves putting in place policies and objectives related to asset management (AM), bringing those policies to life through a strategy and framework, and then measuring and monitoring implementation over time.

	1		2	3	4	5
	Working on Level 1 ☐	**Completed Level 1** ☑	**Completed Level 2** ☐	**Completed Level 3** ☐	**Completed Level 4** ☐	**Completed Level 5** ☐
Readiness Level	We have set expectations for our AM program. We have the support we need to begin work on an AM policy.		We have drafted an AM policy and strategy and have developed a framework for our AM system.	We are using our AM policy to guide our actions. We have created a roadmap and have established performance measures.	We have a fully functional AM system. We are using performance measures to track progress and outcomes.	We are continually improving the AM system. Our AM objectives and roadmap are refined based on the evolving needs of our community.
Outcomes	**You have achieved a specific readiness level when you can demonstrate the corresponding outcomes below.**					
Policy and Objectives	• Senior management has committed to formalizing an AM program.		• We have drafted an AM policy. • Senior management and council have endorsed the AM policy.	• We are starting to use AM policy objectives to guide our actions.	• We are managing assets and services in accordance with AM policy and organizational objectives.	• We are validating and refining corporate, service and AM objectives based on the evolving needs of our community.
Strategy and Framework	• We have drafted a basic set of objectives that will guide the development of our AM system.		• We have completed the strategy and framework for our AM system.	• We have established a roadmap to guide the detailed actions surrounding our AM strategy deployment.	• We are achieving our AM policy objectives through a fully functional AM system. Necessary workflows, documents and reporting tools are in place. We are updating our roadmap to address evolving needs.	• We are following our roadmap in continually improving the AM system and in documenting the improvements.
Measurement and Monitoring	• We have defined the expected AM system benefits and outcomes.		• We have documented our AM system plans and our objectives for the coming year.	• We have established performance measures to monitor AM system progress and its outcomes and benefits to our community.	• We are using performance measures to monitor progress and AM system outcomes and benefits.	• We are monitoring performance and using the feedback to prioritize and make ongoing refinements and improvements.

ASSET MANAGEMENT READINESS SCALE

Competency: PEOPLE AND LEADERSHIP

*This competency involves setting up **cross-functional groups** with clear **accountability**, and ensuring adequate **resourcing and commitment** from senior management and elected officials to advance asset management (AM).*

	1		2	3	4	5
	Working on Level 1 ☑	**Completed Level 1** ☐	**Completed Level 2** ☐	**Completed Level 3** ☐	**Completed Level 4** ☐	**Completed Level 5** ☐
Readiness Level	We have council support to establish a cross-functional AM team to explore AM needs and develop a plan for improving our AM system.		We have a clear mandate for our AM team, and council has approved funding for priority improvements to our AM system.	Our AM team has clear responsibility for improving our AM system. Council champions AM as a core business function.	Our AM team is responsible for guiding and supporting AM on an ongoing basis. AM system roles and responsibilities are operationalized.	Our council's commitment drives continuous improvement of the AM system. Roles and responsibilities evolve to meet ongoing needs.
Outcomes	**You have achieved a specific readiness level when you can demonstrate the corresponding outcomes below.**					
Cross-Functional Groups	• We have appointed resources to investigate our community's AM requirements and to define and introduce an appropriate AM system.		• We have formed a cross-functional AM team* to guide and oversee AM system planning and deployment.	• The AM team* works within our organization to lead, communicate and support AM improvement and change management.	• Our AM team* has been made permanent and tasked with guiding and supporting the AM function across the organization on an ongoing basis.	• The AM team* guides and supports the ongoing improvement of the AM system within the organization.
Accountability	• Appointed resources have been mandated to investigate and assess our AM needs planning, documented by a draft terms of reference.		• Our AM team* has been made accountable for guiding AM development, with a documented mandate and terms of reference.	• Our AM team* has been made accountable for AM implementation and we have added AM system roles and responsibilities to staff job descriptions.	• We have operationalized AM system roles and responsibilities across our organization.	• We are documenting changes to AM system roles and responsibilities as needed to support our evolving requirements.
Resourcing and Commitment	• Council is aware of the resourcing and funding dedicated to exploring AM system requirements and to proposing an AM roadmap.		• Council demonstrates buy-in and support for AM and has approved funding for priority improvements.	• Council champions AM as a core business function and has approved funding to continue AM roadmap activities.	• Council has approved funding for ongoing AM system monitoring and enhancement.	• The AM team measures and monitors progress. Council is committed to ongoing improvement of the AM system.

* *Note: Larger organizations may have both an AM team responsible for implementation and an AM steering committee to provide direction and oversee the work. Smaller organizations may group these functions together. This outcome may be better suited to an AM team or an AM steering committee, depending on the organization.*

ASSET MANAGEMENT READINESS SCALE

Competency: DATA AND INFORMATION

*This competency involves using **asset data**, **performance data** and **financial data** to support effective asset management (AM) planning and decision-making.*

	1		2	3	4	5
	Working on Level 1 ☐	**Completed Level 1** ☑	**Completed Level 2** ☐	**Completed Level 3** ☐	**Completed Level 4** ☐	**Completed Level 5** ☐
Readiness Level	We have inventory data and financial data, aligned with minimum reporting requirements for tangible capital assets.		We have basic inventory data for major assets, including some condition and performance data. We have detailed financial data for some of our assets.	We have basic inventory data for all our assets, with some level of service information and standardized condition ratings. We have linked AM and financial information for our major assets.	We have expanded inventory data on major assets, including condition and performance information. We have basic forecasts and risk assessments for some assets. We have a long-term community financial plan in place.	We have expanded inventory data on all assets. We have performance forecasts and risk assessments in place for most assets.
Outcomes	**You have achieved a specific readiness level when you can demonstrate the corresponding outcomes below.**					
Asset Data	• We have pooled inventory data, including approximate quantities of assets within most asset groups.		• We have basic inventory data for most major assets, including information on general asset properties such as size, material, location and installation date.	• We have basic inventory data for all assets. We have defined life cycle investment requirements for some assets.	• We have expanded inventory data, and have evaluated the relative risks and life cycle investment requirements associated with major assets.	• We have expanded inventory data and have evaluated the relative risks and life cycle investment requirements associated with most assets.
Performance Data	• We have informal or anecdotal approaches for measuring asset condition or performance. Some age information exists.		• We have some information on asset condition and performance for major assets, collected from a variety of sources.	• We use standardized condition rating systems for most asset groups. Some level of service measures have been defined and data has been captured.	• We have defined and measured levels of service for most assets. We have introduced basic needs forecasting and risk management strategies for most assets.	• We have completed needs forecasts and risk management strategies for most assets.
Financial Data	• We have financial data on our assets, supporting minimum PS-3150 reporting requirements.[2]		• We have captured capital and operating expenditure data for some assets. We have developed a strategy to link AM and financial information.	• We have captured capital and operating expenditure data for most assets. We have linked AM and financial information for all major assets.	• We have calculated the cost of service delivery for all major assets. We have developed a long-term (at least 10-year) financial plan.	• We understand the trade-offs between investment and the quality of the front-line services we deliver and we use this to refine our financial plans.

[2] PS-3150 is the Public Sector Accounting Board's standard guiding the treatment of tangible capital assets.

ASSET MANAGEMENT READINESS SCALE

Competency: PLANNING AND DECISION-MAKING

*This competency involves **documenting and standardizing** how the organization sets asset management (AM) priorities, conducts **capital and operations and maintenance (O&M) planning**, and decides on **budgets**.*

	1		2	3	4	5
	Working on Level 1 ☐	**Completed Level 1** ☑	**Completed Level 2** ☐	**Completed Level 3** ☐	**Completed Level 4** ☐	**Completed Level 5** ☐
Readiness Level	Our asset investment plans address basic needs and respond to known problems. We evaluate priorities based on experience, council and management input and available information.		Our asset investment plans address observed short-term issues. We evaluate each need individually, and teams set priorities independently of each other, based on objectives and criteria representing the needs of their departments.	Our asset investment plans manage short-term risks and service impacts. We set priorities based on common organizational goals and objectives. We have drafted preliminary AM plans.	Our asset investment plans balance short-term service objectives (our desired level of service) with longer-term goals and risks. Planning is carried out using our AM system and kept up to date via normal business.	Our asset investment plans are integrated to address risks to both service and business goals. We have detailed AM plans for all services. We are continually improving our approach.
Outcomes	**You have achieved a specific readiness level when you can demonstrate the corresponding outcomes below.**					
Documentation and Standardization	• Our approach to asset investment planning varies across the organization.		• Our departments follow a similar but informal asset investment planning approach. • We evaluate investment needs and priorities based on a mix of structured and ad-hoc practices and criteria.	• We have developed a structured asset investment planning approach but application is inconsistent. • We set priorities using similar criteria based on organizational goals and objectives.	• We employ our structured asset investment planning approach across our core services. • We set priorities using criteria which are fully aligned with our organizational goals and objectives.	• We employ our structured asset investment planning approach across all services. • We adapt our planning approach and criteria to align with evolving organizational goals and objectives.
Asset Investment Plans	• Our asset investment plans are typically reactive and focus on addressing basic needs (e.g. growth, regulations and known problems).		• Our asset investment plans are largely based on short-term asset, organizational and environmental issues. We do not have an AM plan.	• Our asset investment plans are based on short-term issues and priorities. We have drafted preliminary AM plans for priority services.	• Our asset investment plans are based on both short- and long-term issues and priorities. We have developed detailed AM plans for core services	• We have integrated and optimized asset investment plans. We have developed detailed AM plans for all services.
Budgets	• We prepare annual capital and operating budgets which are based on historical values. We deal with new needs reactively, as they occur.		• We prepare annual capital and operating budgets which are based on a mix of historical values and new priorities.	• We prepare an annual capital budget which is based on a fresh reassessment of current needs. Our operating budget is based on a mix of historical values and new priorities.	• We prepare annual needs-based capital and operating budgets which are based on a fresh reassessment of risks and current needs.	• We prepare multi-year needs-based capital and operating budgets which are based on our short- and mid-term needs. We take a structured approach to addressing in-cycle changes.

ASSET MANAGEMENT READINESS SCALE

Competency: CONTRIBUTION TO ASSET MANAGEMENT PRACTICE

This competency involves asset management (AM) ***training and developing*** *staff,* ***sharing knowledge internally*** *and participating in* ***external knowledge sharing****.*

	1	2	3	4	5
	Working on Level 1 ☐ / **Completed Level 1** ☑	**Completed Level 2** ☐	**Completed Level 3** ☐	**Completed Level 4** ☐	**Completed Level 5** ☐
Readiness Level	AM development is informal and largely driven by the personal initiative of team members.	Our organization has membership in one or more AM organizations and selected staff are trained on basic AM concepts.	Our organization is an active participant in industry events. All staff receive basic AM awareness training.	Our organization contributes to industry events and shares experience with peers. An AM training plan is in place for all positions	Our organization is viewed as a thought leader and coach. Select staff are trained as internal AM experts.
Outcomes	**You have achieved a specific readiness level when you can demonstrate the corresponding outcomes below.**				
Training and Development	• Our AM training and development approach is informal and largely driven by the personal initiative of staff. • Some staff conduct targeted research, seeking out basic information on AM concepts and techniques.	• Our AM training and development requirements are defined by management based on short-term needs. • Selected staff are trained on basic AM concepts.	• We provide all our staff with basic AM awareness training. • Some staff undergo training on advanced AM concepts specific to their roles and responsibilities.	• We have defined AM knowledge and skill requirements, and a training plan is in place for all positions. • Management and staff receive role-appropriate AM training to establish needed capacity across the organization.	• We train select staff members as internal experts to support the ongoing development of organizational capacity. • Proactive, role-based training serves as a support for career development and succession planning.
Knowledge Sharing — Internal	• We are mitigating the risk of losing information held in the minds of long-term staff, through improved record keeping.	• We have mitigated the risk of losing information held in the minds of long-term staff, through improved record keeping.	• A culture of knowledge sharing is taking root internally, supported by official initiatives. Our organization maintains AM knowledge resources (e.g. manuals, training, software). • We communicate the benefits of AM internally.	• There is a culture of knowledge sharing supported by official and informal initiatives. We maintain and disseminate AM knowledge resources (e.g. manuals, training, software).	• Knowledge is captured and flows freely throughout the organization. Staff are leveraging internal and industry knowledge and leading practice resources.
Knowledge Sharing — External	• We are in the process of investigating industry groups and resources.	• Staff or elected officials have attended AM-related events.	• We are members of one or more AM organizations and actively participate in industry events.	• We are actively involved in AM organizations and present at industry events. We have shared information with our peers on our experience, innovations and lessons learned.	• We are a thought leader within the industry. We are active in coaching others to improve the overall body of knowledge. • We communicate the benefits of our AM program to the public.

ASSET MANAGEMENT READINESS SCALE

NOTES:

Provide rationale for assigning each readiness level. What specifically have you done that puts you at the readiness level you have selected?

Competency	Readiness Level	Notes
Policy and governance Putting in place policies and objectives related to asset management, bringing those policies to life through a strategy and framework, and then measuring and monitoring implementation over time.	1 Complete	- Council is aware of AM and set it as a City priority. - Senior management has committed to formalizing an AM Program. - We have established objectives for our AM Program. - We have the support we need to begin working on an AM Policy and Strategy.
People and leadership Setting up cross-functional groups with clear accountability, and ensuring adequate resourcing and commitment from elected officials to advance asset management.	1 Working On	- Resources have been allocated to investigate the City's AM needs. - Roles and responsibilities are understood by some staff, but there is room for further clarity. - A Terms of Reference has not yet been established for the AM Team.
Data and information Using asset data, performance data and financial data to support effective asset management planning and decision-making.	1 Complete	- We have pooled inventory data, including approx. quantities for most assets. - We have anecdotal approaches for measuring asset condition or performance. - We have financial data on our assets that is aligned with minimum PS-3150 reporting reqts.
Planning and decision-making Documenting and standardizing how the organization sets priorities, conducts capital and operations and maintenance planning, and decides on budgets.	1 Complete	- Decision-making about service delivery and infrastructure is transparent. - Levels of service have been established but not tracked for all major asset categories. - There is a desire to consider risk and lifecycle costing when making infrastructure decisions. - The City is developing an AM Strategy.
Contribution to asset management practice Training and developing staff, sharing knowledge internally and participating in external knowledge sharing.	1 Complete	- AM training and development is informal and driven by individual staff. - An approach to succession planning is being developed organization-wide. - We are investigating external knowledge sharing opportunities.

FCM FEDERATION OF CANADIAN MUNICIPALITIES FÉDÉRATION CANADIENNE DES MUNICIPALITÉS

Subscribe to our e-bulletin to receive up-to-date information on FCM programs:

fcm.ca/fcmgreen

or visit our website:

fcm.ca/assetmanagementfunding

Appendix B

Data Gap Analysis

Data Gap Analysis

Availability Rating
2 all necessary data
1 some data available
0 no data available

Quality Rating
2 excellent quality data
1 good quality data
0 quality needs improvement

Reliability Rating
2 all necessary data is reliable
1 some reliable data
0 unreliable data

		Availability													Quality		Reliability		
	Replacement Value	Length or Quantity	Diameter, Width, Area or Size	Material or Type	Installation/Construction/Purchase Year	Estimated Replacement Year	Replacement cost	Location	Unique asset ID	Condition	Level of service	Risk	Rationale		Quality	Rationale	Reliability	Rationale	Source(s)
Water																			
Hydrant	$ 7,000,000	2	0		1	1	1	2	2	0	1	1	installation date, estimated replacement year and cost -> info available 10% of total hydrants, LOS summaries on hydrant painting/cleanup/replacement/servicing/valve installation for 2015-2017		1.4		2		GIS, 20100913_PocoWaterModelRPT-Final, 2015-02-19 KWL DCC_Modelling_TechMemo, Citywide_export, 911 UT Fire Hydrant Painting & Cleanup, 911 UT Fire Hydrant Replacement
Main	$ 75,000,000	2	2	2	2	2	2	2	2	0	1	1	estimated replacement year, replacement cost -> info available for ~90% of pipes in Citywide export, cost opinions for several pipes outlined in 2015-02-19_CoPQ_DCC_Modelling_TechMemo, LOS summaries for 2015-2017		1.8		2		GIS, 20100913_PocoWaterModelRPT-Final, 2015-02-19 KWL DCC_Modelling_TechMemo, Citywide_export, Service Level Summary Utilities, 910 UT Watermain Repairs
Air Blow Off Assemblies	$ 3,000,000	2			1	1	1	2	2	0	0	0			1.5		2		GIS
Stand Pipe Assemblies	$ 500,000	0			0	0	0	0	0	0	0	0							GIS
Meters	$ 500,000	2	0	2	1	1	1	2	2	0	0	0			1.6		2		GIS
PRV	$ 1,100,000	2	2		1	1	1	2	2	0	1	1	LOS summaries for 2015-2017		1.4		2		GIS, 20100913_PocoWaterModelRPT-Final, 2015-02-19 KWL DCC_Modelling_TechMemo, Service Level Summary Utilities, 910 UT PRV Electricity and Communication Billing, 910 UT PRV Inspection, Planned and Preventative Maint, 910 UT PRV Pump SCADA Alarms, 910 UT PRV Reactive Emergency Repairs
Pump Station	$ 2,000,000	2	2	2	2	2	2	2	2	0	1	1			1.8		2		GIS, 20100913_PocoWaterModelRPT-Final, 2015-02-19 KWL DCC_Modelling_TechMemo, Service Level Summary Utilities, Citywide_export, 913 UT Water Pump Electricity and Communication Billing, 913 UT Water Pump Inspection, Planed and Preventative Maint, 913 UT Water Pump SCADA Alarms, 913 UT Water Pump Stations Generator Servicing
Service Connection	$ 40,000,000	2	2	2	2	1	1	2	2	0	1	0	estimated replacement year and cost -> info available for ~5%, ICI service connections, from Citywide export, water turn on or off and repairs LOS summaries for 2015-2017		1.7		2		GIS, 20100913_PocoWaterModelRPT-Final, 2015-02-19 KWL DCC_Modelling_TechMemo, Service Level Summary Utilities, Citywide_export, 915 UT Water Service Turn On or Off, 910 UT Water Service Repairs
Valve (Gate/Blowoff)		2		2	0	0	0	2	2	0	1	0	LOS summaries on valve locating/adjusting/replacement/repairs for 2015-2017		1.8		2		GIS, 20100913_PocoWaterModelRPT-Final, 2015-02-19 KWL DCC_Modelling_TechMemo, 912 UT Water Valve Locating & Adjusting, 912 UT Water Valve Replacement & Repairs
Valve (Zone)	$ 1,600,000	2		2	0	0	0	2	2	0	1	0	LOS summaries on valve locating/adjusting/replacement/repairs for 2015-2017		1.8		2		GIS, 20100913_PocoWaterModelRPT-Final, 2015-02-19 KWL DCC_Modelling_TechMemo, 912 UT Water Valve Locating & Adjusting, 912 UT Water Valve Replacement & Repairs
Overall	**$ 130,700,000**	2	2	2	2	2	2	2	2	0	1	1			1.8		2		
Sanitary																			
IC (Inspection Chamber)	$ 300,000	0	0	0	0	0	0	2	2	0	0	0			2.0		2		GIS, POCO_SewerModel_FinalReport
Main	$ 65,000,000	2	2	2	2	2	2	2	2	1	1	1	POCO_SewerModel_FinalReport: level of service (figures) and LOS repair summary for 2015-2017, replacement year and costs for 5-year, 10-year, 15-year (177 pipes)		1.7		2		GIS, POCO_SewerModel_FinalReport, 960 CC Sanitary Main Repairs
Cleanout	$ 11,000	2	0	0	2	0	0	2	2	0	0	0			2.0		2		
Manhole	$ 8,600,000	2	0		2	0	0	2	2	0	1	0	LOS summaries for 2015-2017		1.8		2		GIS, POCO_SewerModel_FinalReport
Pump Station	$ 4,600,000	2	2	2	2	2	2	2	2	0	1	1	capacity, estimated replacement year and cost for Dominion PS (10-yr), LOS summaries for 2015-2017 and figures		1.8		2		GIS, POCO_SewerModel_FinalReport, 962 UT Sanitary Pump SCADA Alarms
Siphon	$ 200,000	0	0		0	0	0	0	0	0	0	0							
Monitoring Station	$ 40,000	2	0	0	2	0	0	2	2	0	0	0			2.0				
Service Connection	$ 60,000,000	2	2	2	1	1	1	2	2	0	1	0	LOS summaries for 2015-2017		1.6		2		GIS, POCO_SewerModel_FinalReport, 960 UT Sanitary Service Blockages, 960 UT Sanitary Service Repairs
Overall	**$ 138,751,000**	2	2	2	2	1	1	2	2	1	1	1			1.5		2		

		Availability												Quality		Reliability		
	Replacement Value	Length or Quantity	Diameter, Width, Area or Size	Material or Type	Installation/Construction/Purchase Year	Estimated Replacement Year	Replacement cost	Location	Unique asset ID	Condition	Level of service	Risk	Rationale	Quality	Rationale	Reliability	Rationale	Source(s)
Drainage																		
IC (Inspection Chamber)	$ 120,000	2	0	0	0	0	1	2	2	0	0	0		1.8		1		GIS, 2011-04-12 Maple_Draft_Report, POCO_StormModel_FinalReport_rev1
Dike	$ 28,000,000	2	2		0	0	2	2	2	2	0	0	LOS summaries for 2015-2017	2.0		2		GIS, Dike Inspection Map - May 2013, DIKE INSPECTION SECTION LIST, 821 PW Dike Inspections and Repairs
Ditch	$ 1,700,000	2	0		0	0	2	0	0	0	1	0	LOS summaries for 2015-2017	1.7		2		821 PW Ditch Cleaning and Shaping
Main	$ 85,000,000	2	2	2	2	2	2	2	2	1	1	0	98% of construction year entered, ~50% of replacement cost info provided in Citywide export, POCO_StormModel_FinalReport: hydraulic level of service for 10yr existing and future, capital works, class D cost estimates for undersized pipes	1.8		2		GIS, 2011-04-12 Maple_Draft_Report, POCO_StormModel_FinalReport_rev1, Citywide_export, 827 UT Storm Sewer Cleaning, 827 UT Storm Sewer Video Inspection, 826 CC Storm Main Repairs
Oil Grit Separator	$ 36,000	2	0		2	0	2	2	2	0	0	0		2.0		2		
Flood Box	$ 120,000	2	0		2	0	2	2	2	0	0	0		2.0		2		
Lawn Basin		2	0	0	2	0	0	2	2	0	0	0		2.0		2		
Catch Basin	$ 23,000,000	2	0	0	2	0	2	2	2	0	0	0		2.0		2		
Manhole	$ 10,000,000	2	0		2	0	2	2	2	0	1	0	LOS summaries for 2015-2017	1.8		2		GIS, 827 UT Locate and Adjust Storm Manholes
Pump Station	$ 9,000,000	2	0		2	2	2	2	2	0	1	0	info for installation year and replacement year/cost from Citywide export	1.9		2		GIS, 2011-04-12 Maple_Draft_Report, Citywide_export, 821 PW Storm Pump Electricity and Communication Billing, 821 PW Storm Pump Generator Servicing, 821 PW Storm Pump Planned Preventative Maintenance, 821 PW Storm Pump Reactive Emergency Repairs, 821 Pump SCADA Alarms
Service Connection	$ 45,000,000	2	2	2	1	1	1	2	2	0	1	0	<10% of info available for estimated replacement year and costs in Citywide export, LOS summaries for 2015-2017	1.6		2		GIS, 2011-04-12 Maple_Draft_Report, POCO_StormModel_FinalReport_rev1, Citywide_export, 827 UT Storm Service Repairs
Culvert	$ 5,100,000	1	1	1	0	1	1	1	1	1	1	0	rpt_poco_2016_culvert_insp_20170216_ta provides general condition/rehab info for 10 inspected culverts, undersized culverts along major creeks identified with info in 2004 Hyde Creek IWMP Report, LOS summaries for 2015-2017	1.0		1		rpt_poco_2016_culvert_insp_20170216_ta, 2004 Hyde Creek IWMP Report, 821 PW Culvert Repairs and Cleaning
Overall	**$ 207,076,000**	2	2	1	1	1	2	2	2	1	1	0		1.5		2		
Transportation																		
Bike Rack		2		2	0	0	0	2	0	0	0	0		2.0		2		GIS
Bridge	$ 110,000,000	2	2	2	2	1	1	2	2	1	0	1	condition/replacement recommendations for 50% of bridges	1.6		2		GIS, 2018-05-22 Kingsway-Westood and Pitt River Overpass Announcement, 2013 Master Transportation Plan, 2015 Bridge Inspection Report_v2 Final, GIS
Parking	$ 13,000,000	2	2	2	0	0	0	2	2	0	1	0	LOS summaries for 2015-2017	1.8		2		GIS, Public Works Service Levels Master List, 836 PW Downtown Parking Lots
Pedestrian Route		1	1	1	0	0	1	1	0	0	0	0	Estimated components and costs for new routes- Downtown Pedestrian Circulation Study	1.0		1		Downtown Pedestrian Circulation Study August 11
Retaining Wall	$ 4,000,000	2	2	2	2	0	0	2	2	0	0	0		2.0		2		GIS
Road Bulge		2	2	2	2	0	0	2	2	0	0	0		2.0		2		GIS
Road Edge	$ 17,000,000	2		2	2	1	1	2	2	0	0	0	~80% info available for replacement year and costs in Citywide export	1.7		2		GIS, Citywide_export
Road Base	$ 101,000,000	2	2	2	2	1	0	2	2	0	0	1	General road improvements, 5-10yrs, 2013 MTP Final Report - FINAL	1.8		1		GIS, 2014 Fremont Connector Route Assessment, 2008 Shaughnessy Prairie Area Transportation Study, 2013 Master Transportation Plan, 2007 Dominion Triangle Transportation Study, 2013 Pavement Network Condition
Road Surface	$ 100,000,000	2	2	2	2	1	2	2	2	2	1	1	General road improvements, 5-10yrs, 2013 MTP Final Report - FINAL, rehab recommendations and replacement costs in 2013 Pavement Network Condition Report and Tetra Tech Pavement Management Plan, LOS summaries for 2015-2017	1.7		1		GIS, 2014 Fremont Connector Route Assessment, 2008 Shaughnessy Prairie Area Transportation Study, 2013 Master Transportation Plan, 2007 Dominion Triangle Transportation Study, 2013 Pavement Network Condition Report, 2015-12-07 Tetra Tech Pavement Management Plan, Service Level Summary Streets, 838 PW Permanent Asphalt Repairs, 838 PW Crack Sealing
Sidewalk	$ 10,000,000	2	2	2	2	1	1	2	2	2	1	0	<10% info available for replacement year and costs in Citywide export, LOS summaries for 2015-2017	1.7		1		GIS, 2013 Master Transportation Plan, 2007 Dominion Triangle Transportation Study, Citywide_export, Service Level Summary Streets, 837 PW Sanding & Plowing Sidewalks and Trails, 839 TR Concrete Sidewalk Repairs, 839 TR Sidewalk Grinding, 839 TR Sidewalk Inspection
Sign	$ 27,000	2			0	0	0	2	2	0	1	0	LOS summaries for 2015-2017	1.8		2		GIS, Service Level Summary Streets, 835 TR Sign Installation & Repair, 835 PW Sign Inspection & Cleaning
Street Light	$ 10,000,000	2	1	2	1	0	0	2	2	0	1	0	LOS summaries for 2015-2017	1.6		2		GIS, Service Level Summary Streets, 834 PW Street Light Painting & Numbering, 834 PW Streetlight Bulb Replacement Program, 834 PW Streetlight Outages, 834 PW Streetlight Panel Repairs Replacement, 834 PW Streelight Pole Replacement
Street Light Duct		2	0	1	1	0	0	2	2	0	0	0		1.6		2		GIS

		Availability												Quality		Reliability		
	Replacement Value	Length or Quantity	Diameter, Width, Area or Size	Material or Type	Installation/Construction/Purchase Year	Estimated Replacement Year	Replacement cost	Location	Unique asset ID	Condition	Level of service	Risk	Rationale	Quality	Rationale	Reliability	Rationale	Source(s)
Traffic Light	$ 1,200,000	2		2	1	0	0	2	2	0	1	0	Intersection levels of service for Dominion Triangle Development Area, Shaughnessy Prairie Area, and Fremont Connector Route, LOS summaries for 2015-2017	1.7		1		GIS, 2007-11-15-Dominion Triangle Transportation Network Study, 2008 Shaughnessy Prairie Area Transportation Study, 2014 Fremont Connector Route Assessment, Service Level Summary Streets, 835 PW Traffic Signal Repairs General, 835 PW Traffic Signal Adjustments, 835 PW Traffic Signal Pole Replacements, 835 PW Traffic Signal Relamping
Overall	**$ 366,227,000**	2	2	2	2	1	1	2	2	1	0	1		1.6		2		
Parks																		
Gardenbed	$ 25,000	2	2	2	0	0	0	2	2	0	1	0	Service level description for 2016	1.8		2		GIS, Hort - Annual Beds, Hort - Annual Beds
Hanging Basket	$ 250,000	2			0	0	0	2	2	0	1	0	Service level description for 2016	1.8		2		GIS, Hort - Baskets
Irrigation Line	$ 250,000	2	0	2	0	0	0	2	2	0	1	0	Service level description for 2016	1.8		2		GIS, Turf - Irrigation
Irrigation Sprinkler		2		2	0	0	0	2	2	0	1	0	Service level description for 2016	1.8		2		GIS, Turf - Irrigation
Park Bench	$ 126,000	2	0	2	1	1	1	2	2	1	0	0		1.5		2		GIS, 2017 Parks Inventory
Park Sign		2			0	0	0	0	0	1	0	0		1.5		2		GIS, 2017 Parks Inventory
Park Table	$ 80,000	2	0	0	0	0	0	0	0	1	0	0		1.5		2		GIS, 2017 Parks Inventory
Park Tree		2		2	2	0	0	2	2	0	1	0	Service level description for planting/removal/watering/inspections in 2016	1.8		2		GIS, Park tree inventory.xlsx, Urban For - Tree Planing, Urban For - Tree Removals, Urban For - Tree Watering, Urban For - Tree Inspections
Sports Field		2	2	2	0	0	0	2	0	0	1	0	Service level description for 2016	1.8		1		2010 Sports Field Strategy, Turf-Sports Field
Trail		2			0	0	0	2	0	0	1	0	Service level description for trails and walkways in 2016	1.7		2		GIS, Urban For - Pathways and Walkway, Urban For - Trail Mtc and Inspection
Outdoor Pool	$ 725,000	0	0		0	0	0	0	0	0	0	0						
Playground Equipment	$ 1,400,000	2		1	2	2	1	2	1	2	1	0	Service level description for 2016	1.6		2		Playground Equipment Inventory, Playground Life expectancy, GIS, Citywide_export, Turf-Playgrounds
Overall	**$ 2,856,000**	1	0	1	1	1	1	1	1	1	1	0		1.0		2		
Facilities																		
Buildings	$ 70,000	2	0	2	1	1	1	1	1	1	1	1	Some info in Citywide export, 25-year plan for building component replacement and costs	1.2		2		Facitly Assesment 25 yr plan, Citywide_export
Overall	**$ 70,000**	2	0	2	1	1	1	1	1	1	1	1		1.2		2		
Fleet/Equipment																		
Vehicles, Machinery, Equipmer	$ 11,300,000	2		2	2	2	2	2	2	0	0	0	replacement year and cost estimates only available for fleet and larger equipment (not small, < $6000) in lists, but more comprehensive in Citywide	2.0		2		Equipment PRICE list, Asset List Complete Detail Export, Citywide export
Fire Equipment	$ 700,000	2		2	1	0	0	1	2	0	1	0	some location / installation data missing from Inventory AlphaFire, LOS summary for 2015-2017	1.5		2		Inventory AlphaFire, Asset List Complete Detail Export, Service Level Summary Utilities
Waste Cart	$ 3,000,000	1		0	1	1	1	0	1	0	2	0		1.2		2		Citywide export, 850 TR Solid Waste Cart Change Outs, 850 TR Solid Waste Cart Maintenance, 851 TR Garbage Collection, 851 TR Garbage Tipping Fees, 852 TR Green Waste Collection, 852 TR Green Waste Tipping Fee, 853 TR Recycling Collection, 857 TR Litter Collection
Solid Waste Vehicle		2		0	2	2	2	0	2	0	2	0		2.0		2		Citywide export
Overall	**$ 15,000,000**	2		2	2	2	2	2	2	0	0	0		2.0		2		
Information Technology																		
Fiber Optics	$ 1,500,000	2			2	2	2	2	2	0	0	0		2.0		2		GIS, Citywide export
Hardware	$ 3,100,000	2			2	2	2	0	2	0	0	0		2.0		2		Citywide export
Software	$ 700,000	2			2	2	2	0	2	0	0	0		2.0		2		Citywide export
Overall	**$ 5,300,000**	2			2	2	2	1	2	0	0	0		1.8		2		

Appendix C

Source Data Summary

Received Data Summary

Title	Format	Purpose	Produced By	Date Issued	Content
All Systems					
GIS Dump 18-05-07	GIS file collection	Reference	Assumed Port Coquitlam	2018/07/05	Database files, GIS files for: Drainage Parks Sanitary Transportation Water
Level of Service Descriptions	Reports	Summarize level of service, financial info, assets maintained, and performance measures of work orders	Port Coquitlam		Storm mains, catch basins, flood control, manholes, air valves, water services, flushing mains.
Public Works Budget Report	List	Reference	Assumed Port Coquitlam	March 7, 2018	Work orders
Asset Management Assessment, Strategy, and Policy	Report	Outline the phase 1 asset management work that will be completed in 2018.	K. Dixon, Port Coquitlam	May 1, 2018	Current state assessment, asset management strategy, asset management policy.
Asset Management Workshop Agenda	Agenda memo	Agenda	KWL	April 9, 2018	Agenda
Asset List Complete detail export	Excel List	Reference	Assumed Port Coquitlam		Asset list
Asses management report list	Excel List	Reference	Assumed Port Coquitlam		List of reports
City wide export	Excel List	Reference	Assumed Port Coquitlam	2018/07/09	List of assets
Water System					
DCC Modelling and Project Identification Report	Tech Memo	Update the hydraulic model for the City of Port Coquitlam water system and to use the updated model for Development Cost Charge project identification.	Jonathan Funk, EIT, KWL	February 19, 2015	Census population, Port Coquitlam water balance, base & seasonal demands, Official Community Plans, watermains, fire flows, transmission mains, cost rates.

Received Data Summary

Title	Format	Purpose	Produced By	Date Issued	Content
Water System Modelling and Calibration	Final report	Develop a calibrated hydraulic computer model of the City of Port Coquitlam's water system and to assess required system improvements, including the location, pressure setting and sizing of two replacement PRV stations.	John Delver, P.Eng.	September 2010	Design criteria: pressure, fire flows, velocity, watermain length. Existing system: schematic, supply system, pressure zones, storage, inventory. Demand allocation, distribution system.
Sanitary System					
Sanitary Flow Monitoring Program	Tech Memo	Provide a summary of I&I results from the existing data to date.	Jason Vine, M.A.Sc, P.Eng. KWL	August 14, 2007	Groundwater infiltration, rainfall, flow monitoring.
POCO 3 I&I Summary report	Draft Tech Memo	Process and verify data quality, provide an updated I&I envelope, provide info used in assessing current condition.	Alan Tse, M.Eng., EIT KWL	February 21, 2013	Groundwater infiltration, rainfall, flow monitoring, sanitary sewer overflow analysis and planning, CCTV camera inspection.
Building and Calibrating Sanitary Sewer Model	Final report	Evaluate the existing system hydraulic performance, identify system constraints, and recommend upgrading requirements together with cost opinions to support the City's sanitary infrastructure short-term and long-term planning and Development Cost Charges.	Hua Bai, M.Eng., P.Eng. KWL	May 8, 2015	Recommendations on modelling platform selection, field survey, sewer model, flow monitoring, infrastructure priorities.
Sanitary Flushing & Video Plan	Map	Graphic aid		November 26, 2015	Flushing & video map
Drainage System (incl. Flood Protection)					
Hyde Creek Integrated Watershed Management Plan	Report	Provide for the orderly and cost-effective development of the watershed while protecting environmental and community values.	Michael MacLatchy, Ph.D, P.Eng. Associated Engineering LTD	April 2004	Flood protection, stormwater management, Water quality, Erosion & Sediment control, summer base flow protection, fish habitat, watershed health

Received Data Summary

Title	Format	Purpose	Produced By	Date Issued	Content
Hyde Creek Integrated Watershed Map	Map	Graphic aid		2004	Map of watersheds in Port Coquitlam and Coquitlam.
Maple Creek Integrated Watershed Management Plan Phase I - Reconnaissance	Draft Report	Protect aquatic resources, minimize risk to life and property. pollution prevention, stakeholder engagement,	KWL	April 2011	Drainage system, ecological health of watershed, stormwater infiltration, groundwater, land use, hydraulic model
Coquitlam River Flood Hazard Mitigation Review	Summary report	Investigate alternatives for flood hazard mitigation on the Coquitlam River	Ecoplan international inc.	May 2009	Review process, appendices containing: WUP, design flood assessment, EMBC proposal, Cost estimates, Burial site flood protection
Dike Inspection map	Map pdf	Visual aid / Dike inspection	Port Coquitlam	5/8/2013	Annual dike Inspection map
Dike inspection section list	List	Dike inspection	Assumed Port Coquitlam		11 sections that are inspected
Coquitlam River Dike Study Hockaday Street to Fraser River	Final report	Re-assess flooding and erosion hazards along the Coquitlam River.	Ken Rod Northwest Hydraulic Consultants	Mar 15, 2002	HEC-RAS model, summer & winter flood conditions, bank protection, erosion limit maps
Stormwater Hydraulic Model	Final report	Develop a storm sewer system hydraulic model and conduct a comprehensive assessment of the storm sewer system.	Bryce Whitehouse, B. Sc. KWL	August 2015	Field survey, storm sewer model, catchment boundaries, infrastructure requirements, Class D cost estimate, flow monitoring station. Culvert replacement
Culvert Inspection	Report	Routine visual inspections of nine of their Culverts.	Associated Engineering	February 2017	Culvert list, map, inspection procedure, results summary of condition
Stormwater treatment systems study	Report	Establish a policy for stormwater treatment using structural Best Management Practices.	Jason McCullough, Associated Engineering	February 2006	Plate separator, manhole sediment trap, grassed channel, concrete grid, modular pavers, bioretention, sand filter, proprietary systems, wet pond, engineered wetlands

Received Data Summary

Title	Format	Purpose	Produced By	Date Issued	Content
Roads and Transportation					
1976 Intermunicipal Roads Agreement	Report	Propose policy for division of responsibility for maintenance and improvement of inter-municipal boundary roads.	Assumed Port Coquitlam	March 19, 1976	Division of responsibility for maintenance and capital works.
1976 Intermunicipal roads map	Map	Graphic aid	Assumed Port Coquitlam	February 1976	Map of boundary roads in Port Coquitlam.
Dominion Triangle Development Area Transportation Network Study	Draft report	Determine the road network requirements based on proposed developments in the area. Road network requirements include intersection and corridor configurations, potential transit services, recommended pedestrian and bicycle route networks.	Urban Systems	Nov 5, 2007	Land use, roadway network, traffic characteristics, pedestrian/bicycle facilities, transit services
Shaughnessy-Prairie Area Transportation Study	Revised draft report	Address future land use changes in the Shaughnessy-Prairie Area using an area-wide approach.	Marcus Siu B. Sc., M. Sc., MCIP Opus Hamilton	September 2008	Phase 1: Inventory, data collection, initial review and problem identification Phase 2: Evaluate Alternative Solutions and Strategies Phase 3: Transportation plan
2013 Master Transportation Plan	Report	Provide the City of Port Coquitlam with a clear vision of the multi-modal transportation system to serve the residents and businesses of the community into the future.	Urban Systems	November 2013	Pedestrian Strategy Bicycle Strategy Transit Strategy Road Network Strategy
2013 Pavement Network Condition Report	Report	First step in providing the City with a full Pavement Management System.	EBA Engineering Consultants / Tetra Tech	October 2013	Current pavement condition, Recommendations for improvement, Roads & roadway structures, Replacement cost estimates.

Received Data Summary

Title	Format	Purpose	Produced By	Date Issued	Content
East of Fremont Route Study - Cedar Drive Hybrid Option Traffic Assessment	Memorandum	Evaluate the impacts of traffic growth on Cedar Drive, north of Prairie Road with and without the north segment of the Fremont Connector and identify what upgrades may be required and/or considered.	Elaine Lau P.Eng. Urban Systems	September 19, 2014	Existing conditions, Future conditions, alternate intersection evaluation.
Pavement Management Plan	Report	Provide a Pavement Management Plan for the City's paved road network as Phase 2 of a project that began with data collection in 2013.	EBA Engineering Consultants / Tetra Tech	December 7, 2015	Life cycle cost analysis, underground utilities, alternative budget scenarios.
2015 Bridge Inspection Report	Report	Present the results of inspection and assessment 16 structures.	Associated Engineering	February 2016	Overall structural condition, remaining useful life, recommended timeline for replacement, estimated replacement cost, prioritize action items, remedial work.
Downtown Pedestrian Circulation Study	Report	Build upon previous studies to show how new growth affects pedestrian movement, particularly between parks and recreation centers, greenways and the shopping district.	Van der Zalm + associates	2010	Pedestrian map, routes and nodes strategies, significant, primary, & major route and node, parks.
Downtown Street Beautification Plan	Report	Develop physical image and theme, establish templates for future street improvements, define a streetscape hierarchy	Urban Systems	February 1999	Cost estimates, phasing and implementation options, guidelines for application of streetscape concepts.

Received Data Summary

Title	Format	Purpose	Produced By	Date Issued	Content
Northeast Sector Area Transit Plan	Final report	Define a 30-year vision for transit that identifies the unique transportation needs of the Northeast Sector and recommend the services and infrastructure priorities needed in the next 10 years to begin achieving that vision.	Translink	June 2014	Stakeholder workshop results, online survey, infrastructure investments, future growth.
The Government of Canada invests in transportation infrastructure for the Port of Vancouver in British Columbia	News release	Four projects led by the Vancouver Fraser Port Authority that will help local businesses compete by moving local goods to market, and by making improvements to port infrastructure.	Government of Canada	May 17, 2018	Upgrade of the existing Westwood Street and Kingsway Avenue intersections. Design work to raise Pitt River Road and Colony Farm Road. Improvements at the existing Canadian National railway overpass at Mountain Highway.
2018 Lougheed B-Line	Report	Provide the Committee with information on the four Phase 1 B-Line bus routes to launch in 2019.	Jeff Derby, Assumed Translink	March 15, 2018	Proposed service plans, stop amenities, transit priority measures, implementation, public engagement.
Buildings and Facilities					
Facility Condition Assessment – The Gathering Place	Draft report	Assess the condition of The Gathering Place facility.	Cascade Facilities Management Consultants LTD	September 4, 2013	Action summary foundations, building structure, roof systems mechanical, electrical, elevator, safety suitability for current use,.
Facility Assessment 25 year plan	Excel list	Reference	Assumed Port Coquitlam		List of assets

Received Data Summary

Title	Format	Purpose	Produced By	Date Issued	Content
Parks					
2017 Parks Inventory	Excel List	Reference	Assumed Port Coquitlam		List of parks Inventory
Playground equipment inventory	Excel List	Reference	Assumed Port Coquitlam	January 16, 2018	Birchland, Birchwood, Cameron, Castle, Chelsea, Citadel heights, Coutts, Eastern Drive, Elk, Evergreen, Fortress, Imperial, Kroeker, Lions, McLean, McMitchell, Nacht, Pinemont, Robert Hope, Routely, Rowland, Settlers, Sun Valley, Wellington.
Playground life expectancy	Excel List	Reference	Assumed Port Coquitlam		Past life expectancy, playgrounds near replacement date, replacement dates.
Playground sign info	Excel List	Reference	Assumed Port Coquitlam		List of signs
Vehicles, Machinery and Equipment					
Equipment Price List	Excel List	Reference	Assumed Port Coquitlam		List of equipment

Appendix D

GIS and CityWide Database Comparison

Assets	City Wide Database			GIS Database		KWL Comments / Recommendations
	Number of Assets	Length (m)	Replacement Cost	Number of Assets	Length (m)	
Buildings						
Civic Buildings	20	0	$ 16,269,739	0	0	Consider adding building outlines to GIS
Fire Halls	8	0	$ 5,161,389	0	0	
Lions Park Picnic Shelter	1	0	$ -	0	0	
Lions Park Washrooms	1	0	$ -	0	0	
Operations Buildings	22	0	$ 5,140,260	0	0	
Parks Buildings	25	0	$ 2,106,928	0	0	
Recreational Buildings	25	0	$ 40,141,433	0	0	
Drainage						
Coquitlam River Dyke	2	0	$ 9,734,723	0	0	Missing length in Citywide
Dominion Drainage	1	0	$ 388,379	0	0	Needs descriptor, add to drainage section?
Pitt River Dyke	2	0	$ 18,751,355	0	0	Missing length in Citywide
Wetland	3	0	$ 3,410,838	0	0	Part of drainage?
Box Culvert	8	1855	$ 4,479,179	52	4499	Update Citywide quantity after verifying data
Catch Basin	5175	70	$ 22,532,145	5845	0	Update Citywide quantity after verifying data
Cleanout	15	0	$ 35,156	110	0	Update Citywide quantity after verifying data
Creek	81	7538	$ 214,391	149	12815	Review segments - creek may not be TCA under current definitions
Culvert	29	791	$ 586,506	118	2098	Update Citywide quantity after verifying data
Ditch	336	56120	$ 1,626,890	392	46648	Review accuracy of length records in Citywide (fewer assets / longer length)
Dike				19	18451	See under Land Improvements
Elliptical Culvert	1	28	$ 172,653	44	2591	Update Citywide quantity after verifying data
Flood Box	24	0	$ 116,911	7	0	Review GIS records
Floodgate	13	0	$ 56,497	0	0	Review GIS records
Main	3654	199670	$ 83,508,913	3793	197455	Very similar
Inlet	268	2	$ 1,077,878	194	0	Review GIS records
Inspection Chamber	55	0	$ 111,433	443	0	Both Citywide and GIS are probably under-reported
Lead	43	418	$ 83,122	0	0	See below - Main - Cb_Lead, both Citywide and GIS under-reported
Manhole	2783	40	$ 9,648,404	3319	0	Update Citywide quantity after verifying data
NA	6	0	$ 3,007	0	0	Missing description (under cap. threshold)
Oil Separator	4	0	$ 35,898	6	0	Very similar
Outlet	217	2	$ 809,699	153	0	Review GIS records
Perf Pipe	82	3248	$ 1,038,783	108	3804	Similar
Pooled Assets	6	0	$ 80,849	0	0	Missing description, exceeds cap. threshold
Pump Station	33	0	$ 8,832,875	11	0	May be number of pumps in Citywide vs. pump stations in GIS - should be broken down into sub-components for TCA
Service Connection	922	2841	$ 43,091,769	8257	82389	Both Citywide and GIS are probably under-reported
Stub	7	68	$ 44,022	15	116	Minor difference, exceeds cap. threshold
Unnamed Asset - Assembly	140	0	$ 455,859	0	0	Missing description, exceeds cap. threshold
Work In Progress	4	0	-$ 1	0	0	
Main - Arch culvert	0	0	$ -	1	11	Update Citywide quantity after verifying data
Main - Bio_swale	0	0	$ -	18	676	Update Citywide quantity after verifying data
Main - Cb_lead	0	0	$ -	1179	9731	Update Citywide quantity after verifying data
Main - Lb_lead	0	0	$ -	136	1332	Update Citywide quantity after verifying data
Node - Backflow Preventor	0	0	$ -	15	0	Update Citywide quantity after verifying data
Node - Cap	0	0	$ -	136	0	Update Citywide quantity after verifying data
Node - Flapgate Headwall	0	0	$ -	14	0	Update Citywide quantity after verifying data
Node - Hdwall_out_creek	0	0	$ -	100	0	Update Citywide quantity after verifying data
Node - Pipe Crossing	0	0	$ -	2	0	Update Citywide quantity after verifying data
Node - Soakaway	1	0	$ 16,648	9	0	Update Citywide quantity after verifying data
Land						
2011 Road Allowance	1	0	$ -	0	0	No Action
2012 Road Allowance	1	0	$ -	0	0	
2013 Road Allowance	1	0	$ -	0	0	
2014 Road Allowance	1	0	$ -	0	0	
2015 Road Allowance	1	0	$ -	0	0	
2016 Road Allowance	1	0	$ -	0	0	
2017 Road Allowance	1	0	$ -	0	0	
CMO Land	1	0	$ -	0	0	
Commercial Land	40	0	$ 50,319,131	0	0	
Greenbelt	1	0	$ -	0	0	
Industrial Land	9	0	$ 6,943,000	0	0	
Land	2	0	$ 1,349,000	0	0	
Park	2	0	$ -	0	0	
Prairie Intertidal	1	0	$ -	0	0	
Residential Land	1	0	$ 1,728,000	0	0	
Road/Road Allowance	146	0	$ 1,431,019	0	0	
Urban Park Land	109	0	$ 79,991,200	0	0	
Vacant Commercial Land	2	0	$ 152,000	0	0	
Vacant Industrial Land	3	0	$ 7,732,900	0	0	
Vacant Residential Land	152	0	$ 62,537,700	0	0	
Wildlands Land	2	0	$ 1,234,000	0	0	
Land Improvements						
Cemetry	2	0	$ -	0	0	Add layer in GIS
Parks						
Court - Tennis	1	0	$ -	0	0	**More detailed review needed for all Parks assets - seem to be recorded in either GIS or Citywide**
Field - All Weather (soccer & soft ball 2 backstops)	1	0	$ -	0	0	
Field - Artifical Soccer - Carpet only	1	0	$ -	0	0	
Field - Soccer	1	0	$ -	0	0	
Gardenbed	0	0	$ -	329	16100	
Grass Flailing	0	0	$ -	203	64912	Appears to be for maintenance - not a TCA?
Hanging Basket	0	0	$ -	65	0	Test for capitalization
Irrigation Area	0	0	$ -	18	10624	Not a TCA
Irrigation line	0	0	$ -	10	223	See Irrigation System
Irrigation Sprinkler	0	0	$ -	43	0	See Irrigation System
Park Bench	0	0	$ -	339	0	
Park Boundary	0	0	$ -	75	78796	Not a TCA (captured under Land)
Park Tree	0	0	$ -	2320	0	Natural asset
Street Tree	0	0	$ -	2262	0	Test for capitalization

Assets	City Wide Database			GIS Database		KWL Comments / Recommendations
	Number of Assets	Length (m)	Replacement Cost	Number of Assets	Length (m)	
Parks Infrastructure	0	0	$ -	0	0	
Artificial Turf Field	5	0	$ 449,696	0	0	
Band Shell	1	0	$ 1,409,830	0	0	
Baseball Diamond with backstop	1	0	$ 101,508	0	0	Consolidate definitions
Baseball Diamond with backstop & dugouts	6	0	$ 1,302,874	0	0	
Baseball Diamond with backstops & benches	1	0	$ 528,448	0	0	
Batting Cage	1	0	$ 53,516	0	0	
Bench	38	0	$ 125,107	0	0	Update Citywide quantity after verifying data
Bleacher on concrete pads	1	0	$ 8,154	0	0	Consolidate definitions
Bleacher Replacement - Aggie & Thompson Park	1	0	$ -	0	0	
Bleacher with pads	1	0	$ -	0	0	
Bleachers	7	0	$ 55,114	0	0	
Bleachers on gravel pads	1	0	$ 5,352	0	0	
Dog Park	2	0	$ 140,859	0	0	
Drainage	3	0	$ 308,846	0	0	
Equipment	1	0	$ 44,626	0	0	
Fence	38	292	$ 405,581	0	0	
Flower Bed	1	0	$ 33,836	0	0	See gardenbed above
Garbage Container	46	0	$ 57,712	0	0	
Garden Retaining Wall	1	0	$ -	0	0	
Gazebo	2	0	$ 130,210	0	0	
Grandstand	1	0	$ 21,374	0	0	
Green Gym	1	0	$ 32,239	0	0	
Hyde Creek - Lap Pool UV Filter Treatment	1	0	$ -	0	0	Belongs in Buildings?
Irrigation System	10	0	$ 244,942	0	0	
Lacrosse Box	3	0	$ 320,069	0	0	
Lacrosse Boxes	2	0	$ 266,826	0	0	
Landscaping	4	0	$ 640,351	0	0	
Lions Park Path & Plaza	1	0	$ 316,648	0	0	
Outdoor Pool	2	0	$ 724,395	0	0	
Parking Lot & Walkway Lighting	1	0	$ 44,075	0	0	
Pathway	49	420	$ 1,139,615	0	0	Overlap with Trail?
Picnic Area	1	0	$ -	0	0	
Picnic Table	14	0	$ 78,077	0	0	
Playground	29	0	$ 1,359,290	0	0	
RCWC Sound System	1	0	$ -	0	0	
Sanitary Main	1	0	$ 28,003	0	0	
Sanitary Service	16	0	$ 327,243	0	0	
Security Lighting	14	0	$ 1,662,711	0	0	
Sidewalk	1	0	$ 1,099	0	0	
Skateboard Bowl	2	0	$ 1,019,952	0	0	
Soccer Field	11	0	$ 1,783,814	0	0	
Softball Diamond	1	0	$ 794,635	0	0	
Softball diamond with backstop & dug outs	2	0	$ 429,682	0	0	
Softball Diamond with backstop & dugouts	4	0	$ 2,233,628	0	0	
Sports Court	20	0	$ 1,497,019	0	0	
Spray Park	1	0	$ -	0	0	
Storm Main	1	0	$ 28,255	0	0	
Storm Service	13	0	$ 374,295	0	0	
Trail	8	0	$ 156,156	0	0	
Volleyball Court	1	0	$ 26,968	0	0	
Wading Pool	2	0	$ 244,749	0	0	
Water Feature	2	0	$ -	0	0	
Water Service	30	0	$ 434,926	0	0	
Water Supply	1	0	$ 10,457	0	0	
Playground	5	0	$ 49,528	0	0	
Trail	0	0	$ -	405	57959	Not recorded in Citywide?
Road/Transportation						
Bike Rack	-	-	-	25	0	Update Citywide quantity after verifying data
Bridge	28	1293	$ 108,221,563	38	4762	Review GIS segmentation
Parking	41	2062	$ 12,032,869	41	10440	See Land Improvements
Pooled Assets	8	0	$ 869,215	0	0	Includes range of items
Railway Crossing	5	0	$ 479,542	0	0	Missing in GIS
Retaining Wall	138	4654	$ 3,243,548	196	6117	Update Citywide quantity after verifying data
Road Base	5493	526223	$ 100,836,456	5196	506508	Review GIS records
Road Edge	13101	421762	$ 16,911,372	12028	429681	Review GIS records
Road Surface	6350	591100	$ 98,399,909	5156	469935	Review GIS records
Sidewalk	6177	146254	$ 9,503,395	5912	151998	Review GIS records
Signalized Intersection	54	0	$ 5,738,848	0	0	Different definition than Traffic Signal in GIS?
Sound Barrier Wall	1	140	$ 69,290	0	0	Missing in GIS
Street Lighting	3416	0	$ 9,296,419	5222	0	Also in Pooled Assets
Street Light Duct	0	0	$ -	1821	131076	Unclear if available in CW
SW Bulge	31	0	$ 62,563	27	850	Similar
Traffic Sign	20	0	$ 26,883	5393	0	Under Pooled Assets in CW
Traffic Infrastructure	20		$ 32,472	0	0	Control Boxes and Junction Boxes
Dominion Land Improvements	1	0	$ 489,257	0	0	
Traffic Signal	27	0	$ 1,145,234	374	0	Part of Signalized Intersection in CW

Assets	City Wide Database			GIS Database		KWL Comments / Recommendations
	Number of Assets	Length (m)	Replacement Cost	Number of Assets	Length (m)	
Sanitary						
Air Valve	6	0	$ 11,410	5	0	Very similar
Chamber	2	0	$ -	9	0	Update Citywide quantity after verifying data
Cleanout	3	0	$ 10,532	141	0	Update Citywide quantity after verifying data
Force Main	57	15650	$ 3,604,953	62	15632	Very similar
Gravity Main	2979	190637	$ 60,959,948	3028	191550	Very similar
Inspection Chamber	117	0	$ 288,970	641	0	Both Citywide and GIS are probably under-reported
Manhole	2600	22	$ 8,519,183	2840	0	Update Citywide quantity after verifying data
Monitor Station	7	0	$ 38,374	2	0	Review GIS records
Overflow Main	2	12	$ 3,516	10	2720	May not need to be separate class
Pump Station - Superstructure	26	0	$ 406,120	26	0	Match
Pump Station - Electrical	38	0	$ 2,873,528	0	0	Non-spatial
Pump Station - Mechanical	29	0	$ 622,651	0	0	Non-spatial
Pump Station - Substructure	26	0	$ 648,754	0	0	Non-spatial
Pump Station - Genset	2	0	$ 38,718	0	0	Non-spatial
Service Connection	726	1209	$ 56,134,831	10426	95692	Both Citywide and GIS are probably under-reported.
Siphon Main	2	192	$ 122,094	2	192	Match
Unnamed Asset - Assembly	144	0	$ 284,025	0	0	
Main - Service Stub	0	0	$ -	11	141	Missing in CW (may be valued in Gravity Main class)
Node - Cap	0	0	$ -	68	0	Missing in CW (may be valued in Gravity Main class)
Node - Conn2gvrd	0	0	$ -	21	0	Missing in CW (may be valued in Gravity Main class)
Node - Gate_service	0	0	$ -	6	0	Missing in CW (may be valued in Force Main class)
Node - Gate_valve	0	0	$ -	7	0	Missing in CW (may be valued in Force Main class)
Node - Pipexing	0	0	$ -	35	0	Missing in CW (may be valued in Force Main class)
Node - Pseudonode	0	0	$ -	58	0	Not a TCA
Vehicles, Machinery, Equipment						
(EQ1235) EQ1253 Flat deck truck	1		$ -	0	0	Non-spatial
Backhoe	1		$ 132,563	0	0	Non-spatial
Car	3		$ 51,645	0	0	Non-spatial
Carts	1		$ 239,619	0	0	Non-spatial
Compressor	1		$ 12,976	0	0	Non-spatial
Cr-Trk	1		$ -	0	0	Non-spatial
Dump	1		$ -	0	0	Non-spatial
Emtrac Vehicle Traffic Signal	1		$ 14,704	0	0	Non-spatial
Equipment	55		$ 4,181,186	0	0	Non-spatial
Flail Mower	1		$ -	0	0	Non-spatial
Fork Lift	1		$ -	0	0	Non-spatial
Garbage Packer	1		$ 341,146	0	0	Non-spatial
Generator	1		$ -	0	0	Non-spatial
Hoe Pac	1		$ -	0	0	Non-spatial
Ice Machine	1		$ -	0	0	Non-spatial
ITS Trainers Package	1		$ 10,720	0	0	Non-spatial
Loader/Hoe	1		$ 142,105	0	0	Non-spatial
Machinery	17		$ 685,632	0	0	Non-spatial
M-Dump	4		$ 67,970	0	0	Non-spatial
Mini Van	1		$ 25,150	0	0	Non-spatial
Mower	5		$ 134,813	0	0	Non-spatial
Overseeder	1		$ 13,967	0	0	Non-spatial
P/U	4		$ 92,011	0	0	Non-spatial
Packer	6		$ 134,053	0	0	Non-spatial
Pickup	13		$ 299,817	0	0	Non-spatial
Pickup Cube	1		$ 23,968	0	0	Non-spatial
Pickup Ex Cab	4		$ 89,275	0	0	Non-spatial
Pumper	1		$ 357,087	0	0	Non-spatial
Pup Cex Cab	2		$ 26,253	0	0	Non-spatial
PW1521 Solid Waste Truck	1		$ -	0	0	Non-spatial
Roller	1		$ -	0	0	Non-spatial
S/A Dump	1		$ 171,395	0	0	Non-spatial
Skid-Steer Loader	1		$ 29,768	0	0	Non-spatial
SUV	1		$ 31,744	0	0	Non-spatial
SUV Hybrid	2		$ 56,947	0	0	Non-spatial
Sweeper	2		$ 49,913	0	0	Non-spatial
T/A Dump	2		$ 187,743	0	0	Non-spatial
Trailer	1		$ -	0	0	Non-spatial
Transit Van	1		$ 42,289	0	0	Non-spatial
Unnamed Asset	2		$ -	0	0	Non-spatial
Ute, W Van	1		$ 95,781	0	0	Non-spatial
Van	4		$ 46,462	0	0	Non-spatial
Vehicle	2		$ 39,673	0	0	Non-spatial
Vehicles	155		$ 6,751,669	0	0	Non-spatial
Verti-Core	1		$ 18,093	0	0	Non-spatial
W. Area Mower	1		$ -	0	0	Non-spatial
Water Pump	1		$ 95,053	0	0	Non-spatial
Water						
Air Valve	174	0	$ 688,366	173	0	Match
Blowoff Valve	282	0	$ 256,908	272	0	Very similar
Chamber	28	0	$ 520,460	2	0	Review GIS records
Distribution Main	3363	242387	$ 74,914,286	2955	226051	Very similar
Hydrant	1046	11	$ 6,809,803	1034	0	Very similar
PRV	26	0	$ 1,062,271	20	0	20 PRV stations throughout City
Pump Station - Superstructure	2	0	$ 296,882	2	0	Match
Pump Station - Electrical	2	0	$ 1,179,808	0	0	Non-spatial
Pump Station - Mechanical	2	0	$ 50,257	0	0	Non-spatial
Pump Station - Substructure	2	0	$ 98,823	0	0	Non-spatial
Service Connection	1351	9324	$ 37,538,080	10359	111874	Both Citywide and GIS are probably under-reported.
Well	2	0	$ 82,995	1	0	Review GIS records
System Meter	13	0	$ 434,620	11	0	Very similar
Test Station	14	0	$ 26,653	13	0	Very similar
Unnamed Asset	0	0	$ -	0	0	
Assembly	45	0	$ 426,455	0	0	No description available
Pooled Assets	1	0	$ -	0	0	
Node - Cap	0	0	$ -	114	0	Missing in CW (may be valued in Distribution Main class)
Node - Check	0	0	$ -	14	0	Missing in CW (may be valued in Distribution Main class)
Node - Gate	0	0	$ -	3898	0	Missing in CW (may be valued in Distribution Main class)
Node - Gate_closed	0	0	$ -	12	0	Missing in CW (may be valued in Distribution Main class)
Node - Pipeend	0	0	$ -	2587	0	Missing in CW (may be valued in Distribution Main class)
Node - Pipexing	0	0	$ -	99	0	Missing in CW (may be valued in Distribution Main class)
Node - Reducer	0	0	$ -	152	0	Missing in CW (may be valued in Distribution Main class)
Node - Sc_meter	0	0	$ -	7	0	Missing in CW (may be valued in Distribution Main class)
Node - Source_wtr	0	0	$ -	8	0	Missing in CW (may be valued in Distribution Main class)
Node - Zone	0	0	$ -	18	0	Missing in CW (may be valued in Distribution Main class)
Work In Progress						
Adaptive LED Streetlighting	1	0	$ -	0	0	Works-in-progress not reviewed
Automated Survey Total Station	1	0	$ -	0	0	

Assets	City Wide Database			GIS Database		KWL Comments / Recommendations
	Number of Assets	Length (m)	Replacement Cost	Number of Assets	Length (m)	
Balancing	1	0	$ -	0	0	
Barrier Fencing Replacement 2016	2	0	$ -	0	0	
Bear Proof Trash Cans	1	0	$ -	0	0	
Bear Proof Trash Cans/ hand dryers/ recycling containers	1	0	$ -	0	0	
Bench donations	1	0	$ -	0	0	
Benches	1	0	$ -	0	0	
Blakeburn Lagoons Community Park	1	0	$ -	0	0	
Broadway Reconstruction	1	0	$ -	0	0	
Broadway Road & Drainage Construction	1	0	$ -	0	0	
Burns Road	1	0	$ -	0	0	
Cedar Park Ball Field Reno	1	0	$ -	0	0	
Cemetry	1	0	$ -	0	0	
CMO Land	1	0	$ -	0	0	
Community Recreation Complex - Planning & Project Management	1	0	$ -	0	0	
C-R18	1	0	$ -	0	0	
Dominion	1	0	$ -	0	0	
Downtown Plan Implementation	1	0	$ -	0	0	
EQ9928 Touch Read - Utilities (EQ9918)	2	0	$ -	0	0	
Event Storage	1	0	$ -	0	0	
Evergreen Park	1	0	$ -	0	0	
Evergreen Park Ball Field Reno	1	0	$ -	0	0	
Fencing	1	0	$ -	0	0	
Fibre Optic	1	0	$ -	0	0	
Fibre Optic Network	1	0	$ -	0	0	
Fire Truck Deposit	1	0	$ -	0	0	
Gates Park #5 Drainage	1	0	$ -	0	0	
Gates Park Artificial Turf Field	1	0	$ -	0	0	
HP Water Main - Taylor: Connaught to Pooley	1	0	$ -	0	0	
Hyde Creek Envelope	1	0	$ -	0	0	
Kingsway Railway Crossing Mat Replacement	1	0	$ -	0	0	
LD: Coast Meridian Road South of Prairie Avenue	1	0	$ 23,321	0	0	
Lions Park - playground	1	0	$ 5,758	0	0	
Lions Park Path & Plaza	1	0	$ -	0	0	
Maple Creek Int. Watershed Plan & Pump Stn	1	0	$ 178,674	0	0	
Park Upgrading Non-Athletic - Downtown Plan	1	0	$ -	0	0	
Park Upgrading Non-Athletic - Shaughnessy Park - Dog Off Leash Park	1	0	$ -	0	0	
Parking Lot	1	0	$ 8,633	0	0	
Parks Buildings	3	0	$ -	0	0	
Patricia Trail	1	0	$ -	0	0	
Pitt River Road - Harbour to MH Bypass	1	0	$ -	0	0	
Playground Equip. - Birchwood Park	1	0	$ -	0	0	
Playground Equip. - Mclean Park	1	0	$ -	0	0	
Playground Retaining Wall & Fall Surface Replacement Evergreen Park	1	0	$ -	0	0	
Playground Retaining Wall Border Blakeburn Park	1	0	$ -	0	0	
POCO Trail Upgrading-Wellington to Coq. River Park	1	0	$ -	0	0	
Port Coquitlam Cemetry	1	0	$ 4,369	0	0	
PW1189 - Survey: P/UP	1	0	$ -	0	0	
PW2029-PW Mower	1	0	$ -	0	0	
RCWC Sound System	1	0	$ -	0	0	
Recreational Buildings	1	0	$ -	0	0	
Retaining Wall and Playground Perimeter Replacement Coutts Park	1	0	$ -	0	0	
Rowland & Minnekhada Lacrosse Boxes	1	0	$ -	0	0	
Sun Valley Park - Upgrade Spray Park	1	0	$ -	0	0	
Thompson Park Baseball Diamond	1	0	$ -	0	0	
Traboulay Trail	1	0	$ -	0	0	
Turf/Irrigation Vehicle	1	0	$ -	0	0	
Unnamed Asset	18	0	$ -	0	0	
West Side Coq. River Trail (upgrade/formalize trail)	1	0	$ -	0	0	
Wetland	3	0	$ 54,464	0	0	
Work In Progress	194	0	$ 1,364,528	0	0	
Information Technology						
Fibre Optic	216	10910	$ 1,323,820	215	11043	Slight discrepancy in length (minor)
Hardware	60	0	$ 3,053,671			
Software	9	0	$ 608,843			
Total	**63820**	**2437246**	**$ 1,162,267,149**	**111507**	**2977490**	

Appendix E

System Information Matrices

WATER SYSTEM SUMMARY

The water system is believed to be in good condition overall, although there is insufficient data to confirm this. Aging infrastructure will likely result in increasing O&M costs over time.

System risks associated with trunk infrastructure including transmission mains, PRV and pump stations have not been documented and a long-range capital plan is needed to address population growth and asset replacement/rehabilitation. This will need to be supported by a condition assessment program.

The City maintains a high level of service and there may be opportunities to optimize budgeting for some service levels. A detailed asset management planning process can be initiated once key condition assessments are completed.

	Inventory	Condition	Service Life	Operating Condition / Service Level	Criticality
Distribution Mains	Complete, material may not be accurate in GIS	Need to assess large diameter main condition	Long-range replacement plan recommended, track break occurrences in GIS	Review level of effort for flushing program	Assess risk levels for large diameter mains
Service Connections	Partially complete	Review expected lifespan	Map locations of recent service replacements to see if geographic trends exist	Track reasons for service replacement / leakage	Identify critical services (schools, large ICI, etc.)
System Valves	Complete	Analyze inspection records and track replacements	Run to fail, or replace opportunistically	Level of service information unavailable	Identify critical valves (large diameter, stream crossings, etc.)
PRV Stations	Complete	Conduct condition assessments in Phase 2 AMP	Approaching end of service life for some stations	Level of service information unavailable	Assess risk levels for all PRV stations
Pump Stations	Complete	Conduct condition assessments in Phase 2 AMP	Approaching end of service life	Level of service information unavailable	Assess risk levels for all pump stations
Fire Hydrants	Complete	Regular inspections and preventative maintenance in place	Replaced / rebuilt regularly	Long-term fire flow shortages in portions of City	Review hydrants in locations with fire flow deficiencies relative to critical services

SEWER SYSTEM SUMMARY

The sanitary sewer system is believed to be in good condition overall, although there is insufficient data to confirm this. Aging infrastructure will likely result in increasing O&M costs over time. System risks associated with trunk infrastructure including trunk sewers and pump stations have not been documented and a long-range capital plan is needed to address population growth and asset replacement/rehabilitation.

The City should consider an I&I management program given there are assets with insufficient capacity to meet a 5-year return period storm and that I&I exceeds Metro Vancouver's regional target of 11,200 L/h/day. Several areas of the City have insufficient gravity sewer capacity to handle a 5-year peak wet weather flow event.

	Inventory	Condition	Service Life	Operating Condition / Service Level	Criticality
Gravity Mains	Complete, material may not be accurate in GIS	Merge existing condition data with GIS, increase inspection frequency	Long-range replacement plan recommended, track break occurrences in GIS	Address capacity issues	Assess risk levels for large diameter mains
Force Mains	Complete, material may not be accurate in GIS	Develop condition assessment program	Long-range replacement plan recommended, track break occurrences in GIS	Level of service information unavailable	Assess risk levels for all forcemains
Manholes	Complete	Include MH condition assessment in future video contracts	Over 50 years average RSL	Level of service information unavailable	Low criticality
Service Connections	Partially complete	Inspect sewer service connections in I&I-prone areas	Map locations of recent service replacements to see if geographic trends exist	Track reasons for service replacement / blockage	Identify critical services (schools, large ICI, etc.)
Lift Stations	Complete	Conduct condition assessments in Phase 2 AMP	Approaching end of life (<5 years)	Review maintenance records	Assess risk levels for all pump stations

DRAINAGE SYSTEM SUMMARY

The City's urban drainage systems are believed to be in good condition, but large portions of the system cannot handle a 10-year return period storm event. Combined with increasing rainfall intensity and rising sea levels, the overall risks of flooding are heightened.

The City has opportunities to enhance the ecological function of the drainage system through low-impact development measures and projects such as the Blakeburn Lagoons.

The overall risks of widespread flooding are not documented, and the most recent assessments were completed in 2002 for the Coquitlam River and 2008 for the Fraser and Pitt rivers. An overall risk evaluation for flooding is considered a priority for asset management.

	Inventory	Condition	Service Life	Operating Condition / Service Level	Criticality
Storm Sewers	Complete	Merge existing condition data with GIS, increase inspection frequency	Long-range replacement plan recommended, track break occurrences in GIS	Many locations without sufficient capacity for a 10-year storm event	Assess risk levels for large diameter mains
Manholes	Complete	Include MH condition assessment in future video contracts	Over 50 years average RSL	Level of service information unavailable	Low criticality
Catch Basins	Complete	Run to Fail	Approaching end of life	Level of service information unavailable	Review flood-prone locations
Service Connections	Partially complete	Inspect sewer service connections in I&I-prone areas	Map locations of recent service replacements to see if geographic trends exist	Track reasons for service replacement / blockage	Identify critical services (schools, large ICI, etc.)
SWM Facilities	Not listed	Conduct condition assessments	Data unavailable	Not listed	Assess risk levels for SWM facilities

DRAINAGE – CONT'D

	Inventory	Condition	Service Life	Operating Condition / Service Level	Criticality
Ditches/ Channels	Complete	Data unavailable	Over 40 year average RSL	Level of service information unavailable	Review capacity assessments. areas prone to flooding
Culverts	Complete	Limited condition assessments completed	Approaching end of life	Some culverts under capacity	Review capacity assessments. areas prone to flooding
Pump Stations	Complete	Conduct condition assessments in Phase 2 AMP	Approaching end of life	Level of service information unavailable	Assess risk levels for all drainage pump stations
Dikes	Complete	Dikes would typically be inspected regularly and reported to Province	100+ year service life	Level of service information unavailable	Need to review dike height relative to climate change
Floodboxes / Flood Gates	Complete	Conduct condition assessments in Phase 2 AMP	Data unavailable	Level of service information unavailable	Assess risk levels for all flood boxes / gates

TRANSPORTATION SYSTEM SUMMARY

The City's road network is in overall good condition and the level of service is high. From a capacity perspective, Port Coquitlam is primarily challenged by regional commuter traffic moving through the community. The Master Transportation Plan identified several key strategies including improving walkability and alternative transportation, safety improvements, and capacity improvements. A pavement management plan is in place for resurfacing roads.

Asset management planning for transportation would primarily focus on prioritizing projects according to need and ensuring long-term capital replacement funding is in place.

	Inventory	Condition	Service Life	Operating Condition / Service Level	Criticality
Roads	Complete	Last condition assessment in 2013, likely needs update	~40 years average RSL	Level of service information unavailable	Master Transportation Plan and pavement management plans in place
Sidewalks	Complete	Program in place, but data unavailable for this report	~40 years average RSL	Level of service information unavailable	Prioritized inspections in place
Bridges	Complete	Recent (2016), in fair condition	RSL should be adjusted to reflect condition	Level of service information unavailable	Prioritized inspections in place
Rail Crossings	Complete	Condition reviewed with CP Rail	Approaching end of life (< 5 years)	Grade separation discussions ongoing	Critical points in road networks
Street Lighting	Review GIS vs Citywide records	Inspection, repainting and replacement program in place	Approaching end of life (<10 years)	Level of service information unavailable	Review safety issues / lighting levels
Traffic Signals and Signage	Review GIS vs Citywide records	Annual inspection and scheduled replacement program in place	Approaching end of life (<10 years)	Level of service information unavailable	Critical points in road networks
Walls	Review GIS vs Citywide records	Implement condition assessment program	> 50 years average RSL	Not identified	Review safety and noise level issues

BUILDINGS AND FACILITTIES SUMMARY

The City's existing facilities are in generally good condition based on the amount of forecast reinvestment, with the exception of the Rec Centre, which will be replaced in two years.

The City does not currently have documented service levels for buildings, so this is recommended as an outcome from the Phase 2 Asset Management Plan. Risks associated with buildings and facilities should also be identified.

The construction of the new Recreation Centre will have dramatic impacts on the City's operating budget. Over the next 10 to 20 years many of the City's other buildings may need to be replaced or refurbished.

	Inventory	Condition	Service Life	Operating Condition / Service Level	Criticality
Recreation	Detailed inventory in spreadsheet	Rec Centre being replaced	Between 10 and 20 years of average RSL		Complete overall risk evaluation
Parks		Minimal work identified in next 5 years			
Operations					
Fire Halls					
Civic		City Hall upgrades identified			

PARKS & RECREATION SUMMARY

Much of the City's park infrastructure is aging and may need replacement in the near term. One recent example is the deterioration of Thompson Park.

Port Coquitlam does not have a Parks Master Plan available to identify capital needs or service levels. This is recommended to be developed as part of asset management planning.

	Inventory	Condition	Service Life	Operating Condition / Service Level	Criticality
Sports Surfaces	Reconcile Citywide and GIS inventories, including standardizing asset definitions	Condition documented for some assets, mostly in fair to good condition. Complete inventory-wide condition assessments.	< 5 years RSL	Service levels documented but not costed.	Identify assets critical to sustaining parks operations.
Park Infrastructure			> 30 years RSL		
Lighting			< 5 years RSL		
Utilities			> 30 years RSL		
Pathways			~10 years RSL		
Playgrounds			< 5 years RSL		
Outdoor Pool			< 5 years RSL		
Equipment			< 5 years RSL		
Fences			< 5 years RSL		

FLEET AND EQUIPMENT SUMMARY

The majority of the fleet and equipment assets appear to be close to end of life. This suggests major reinvestment to purchase new vehicles and equipment may be needed.

	Inventory	Condition	Service Life	Operating Condition / Service Level	Criticality
Vehicles	Vehicle and equipment inventories complete	Condition not reviewed.	Hardware and software fully-amortized	Service levels not reviewed.	Identify critical assets and determine suitable risk management requirements.
Waste Carts					
Operations Equipment					
Fire Equipment					
Parks Equipment					
Recreation Equipment					

Appendix F

System Maps

City of Port Coquitlam
Asset Management Assessment, Strategy and Policy

KERR WOOD LEIDAL
consulting engineers

N

Legend

- Municipal Boundary
- Pump Station
- Oil Separator
- Inlet
- Outlet
- Flood Box
- Inspection Chamber
- Manhole
- Catch Basin
- Lawn Basin
- Main
- Culvert
- Ditch
- Service Connection

CITY OF PORT COQUITLAM

Highway 7

Kingsway Ave

Mary Hill Bypass

Pitt River

Coordinate System: NAD 1983 UTM Zone 10N

Scale Disclaimer: The map scale of 1:15,000 is only valid on a 22"x34" print.

Project No.	646-038
Date	July 2018
Scale	1:15,000

Drainage System

City of Port Coquitlam
Asset Management Assessment, Strategy and Policy

KERR WOOD LEIDAL consulting engineers

N

Legend

- Municipal Boundary
- Park Tree
- Park Bench
- Trail
- Garden Bed
- Irrigation Area
- Park

CITY OF PORT COQUITLAM

Highway 7

Kingsway Ave

Mary Hill Bypass

Pitt River

Coordinate System: NAD 1983 UTM Zone 10N

Scale Disclaimer: The map scale of 1:15,000 is only valid on a 22"x34" print.

Project No.	646-038
Date	July 2018
Scale	1:15,000

Parks

City of Port Coquitlam
Asset Management Assessment, Strategy and Policy

KERR WOOD LEIDAL consulting engineers

N

Legend

- Municipal Boundary
- Pump Station
- Monitoring Station
- Inspection Chamber
- Clean Out
- Manhole
- Main
- Service Connection

CITY OF PORT COQUITLAM

Highway 7

Kingsway Ave

Mary Hill Bypass

Pitt River

Coordinate System: NAD 1983 UTM Zone 10N

Scale Disclaimer: The map scale of 1:15,000 is only valid on a 22"x34" print.

Project No.	646-038
Date	July 2018
Scale	1:15,000

Sanitary System

City of Port Coquitlam
Asset Management Assessment, Strategy and Policy

KERR WOOD LEIDAL
consulting engineers

N

Legend

- Municipal Boundary
- Bike Rack
- Traffic Light
- Street Light
- Sign
- Sidewalk
- Road
- Parking
- Bridge

CITY OF PORT COQUITLAM

Highway 7

Kingsway Ave

Mary Hill Bypass

Pitt River

permission of KWL is prohibited.
Coordinate System: NAD 1983 UTM Zone 10N

Scale Disclaimer: The map scale of 1:15,000 is only valid on a 22"x34" print.

Project No.	646-038
Date	July 2018
Scale	1:15,000

Roads and Transportation

Path: O:\0600-0699\646-038\430-GIS\MXD-Rp\646038_Fig2-1_Water.mxd Date Saved: 7/23/2018 11:58:00 AM | Author: TSoh

City of Port Coquitlam
Asset Management Assessment, Strategy and Policy

KERR WOOD LEIDAL consulting engineers

N

Legend

- Municipal Boundary
- Pump Station
- Monitoring Station
- Well
- PRV
- Meter
- Hydrant
- Air Blow Off Assembly
- Main
- Service Connection

CITY OF PORT COQUITLAM

Highway 1

Kingsway Ave

Mary Hill Bypass

Pitt River

Coordinate System: NAD 1983 UTM Zone 10N

Scale Disclaimer: The map scale of 1:15,000 is only valid on a 22"x34" print.

Project No.	646-038
Date	July 2018
Scale	1:15,000

Water System

Appendix G

Service Level Summary Tables by Asset Category

Water System Service Levels

Activity	Description	Service Goal
Air valve servicing	Air valves are checked and deficiencies repaired once per year	167 air valves
Alter Water System	Reactionary - as needed	The City's water system.
Water system adjustments	Reactionary minor alterations depending on water quality or model results	Guidelines for Canadian Drinking Water Quality
Flushing Mains & Blowoffs	Reactionary as required to address water quality issues	goal of 80 mains per year
Locating & Adjusting Water Services	Reactive – requests for leak repairs and service locates	respond within 1 day to leaks and as practicable for locates. 200 per year.
PRV Station Electricity and Communication Billings	administrative account used to pay for Hydro and Telus charges	20 PRV Stations
PRV – Inspection, Planned and Preventative Maintenance	Examination of flow-through diaphragm, cleaning screens, checking operation and scheduled rebuilds.	Every PRV inspected on 10-day cycle. Every PRV rebuilt every 5 years.
PRV SCADA / Alarms	Planned maintenance and reaction to alarms	20 PRV stations
PRV Emergency Repairs	Repairs to PRVs as needed	20 PRV stations
Unidirectional Flushing	Planned cleaning by increasing velocity	Clean all mains on 3-year cycle
Soil Disposal - Water	Reactionary - as needed	N/A
Water Quality Sampling and Testing	Maintain safe drinking water, contracted to Metro Vancouver	840 samples / year
Water Service Repairs	Repairs services as needed in event of leaks/faults	10,175 services / 100 repairs per year
Watermain Repairs	Immediate response and repair of water main breaks	# of main breaks (not tracked)
Fire Hydrant Painting & Cleanup	5-year maintenance cycle and reactive maintenance for vandalism	175 hydrants painted per year and 22 day response time
Fire Hydrant Replacement	Replacement as needed	4 replacements / year out of 978 hydrants
Fire Hydrant Servicing	Inspection, servicing and rebuilding fire hydrants	Each hydrant receives complete servicing over 2 years (BC Fire Code)
Fire Hydrant Valve Installation	Installation of temporary valves for Hydrant Use Permits	20 hydrant use permits per year
Water Valve Locating & Adjusting	Once per year all valves located and exercised	2240 valves
Water Valve Replacement and Repairs	Repairs identified from annual inspection program	As required (total not reported)
Water Pump Electricity and Communication Billings	administrative account used to pay for Hydro and Telus charges to run the City's water pump stations.	2 water Pump Stations
Water Pump – Inspection, Planned and Preventative Maintenance	Inspection, preventative work on pump mechanics	104 station inspections (2 stations x 52 weeks/year)
Water Pump SCADA / Alarms	Planned maintenance on alarms and controls, responses to alarms and faults	2 pump stations
Water Pump Stations Generator Servicing	Planned service for standby electrical generation and occasional repairs	service once per year for 2 stations
Water Pump Station Reactive Repairs	Reactive repairs for pump stations	2 pump stations
Water Meter Reading	Quarterly meter reading and response to billing disputes	2240 meter reads annually
Water Meter Repairs	Test large (>3" meters) every 2 years and based on service requests	84 replacements / repairs per year
Water Eco-Initiative Outreach	Public awareness through field work and outreach	3-5 days per week, May to September
Water Turn On/Off	Response to service requests	n/a
Culvert Repairs & Cleaning	Annual inspection, flushing, repairs and replacement	Approx. 250 culverts

Sanitary System Service Levels

Activity	Description	Service Goal
Eco-Initiative Outreach	3 – 5 days/week field work and outreach. As needed based on requests	N/A
Community Calendar	All customers receive mail out 1 X year	N/A
Solid Waste Cart New Customer Delivery & Change Outs	As needed, based on requests.	39,500 solid waste carts
Solid Waste Cart Maintenance	As needed, based on complaints, requests, and solid waste driver reporting	39,500 City Refuse Carts.
Garbage Collection	1x/2 weeks - all customers receive bi-weekly garbage pickup. As needed, in response to missed tips.	12,160 garbage carts 7 Automated Refuse Trucks
Garbage Tipping Fees	City pays fees to Metro Vancouver to dispose garbage at the regional disposal transfer station. City may be subject to additional charges if loads contain prohibited, banned or recyclable material.	N/A
Green Waste Collection	1x/week – May to November 1x/2 weeks – December to April Total of 41 tips/year Also as needed, in response to missed tips.	12,518 carts 7 Automated Refuse Trucks
Green Waste Tipping Fee	The City pays tipping fees to an organics processor to dispose organics waste. City may be subject to additional charges if loads contain contaminated material.	N/A
Glass Collection	Service location 2Xper week. Glass bins dumped weekly. As needed, to respond to abandon garbage complaints	7-3.5 yard bins. compactor
Recycling Collection	1x/2 weeks – all customers receive scheduled pick up. As needed, to respond to missed pick-ups.	14,900 carts 7 Automated Refuse Trucks
Litter Collection & Disposal	Daily visit and adjacent litter collection performed for each of the following 91 waste receptacles. Garbage is only changed if required. • 48 Tri-Cans • 37 Barrel Cans • 6 Street Pole Cans Reactive: • Abandon household garbage/litter • special events maintenance • As observed on 135kms Arterial boulevard/sidewalk network	91 waste receptacles 135kms arterial network
Sanitary Main Repairs	Preventative maintenance repairs to sanitary mains, as identified via CCTV inspection program. Emergent, time-sensitive repairs to sanitary mains, as needed.	181km of sanitary mains
Soil Disposal - Sewer	Reactionary - as needed	N/A
Sanitary Manhole Repairs	In response to service requests or deficiencies reported by City Sanitary Main Flushing program or CCTV inspection work.	2,697 sanitary manholes
Sanitary Service Blockages	In response to service requests, immediate response required.	10,362 sanitary sewer service connections
Sanitary Service Repairs	As needed. • Major breaks resulting in risk to environment or property will be corrected immediately. • Minor repairs where pipe is providing an acceptable serviced level will be repaired in less than 3 days.	10,362 sanitary sewer service connections
Sanitary Sewer Main Cleaning	10km of flushing sanitary sewer mains prior to CCTV inspections and an additional 15km of routine flushing annually. Quarterly cleaning of grit pits and cleaning of Flow monitor. Monthly inspection for grit pits. Annual grease cutting. Grease cutting 3 times/year for trouble spots (lions park, Patricia/cedar and Dominion). Check flow monitor monthly (Morgan). 2 times/year hot water flush. Responses to service requests. battery replacement in flow monitor.	181km of sanitary sewer main
Locate and Adjust Sanitary Manholes	Completed one time yearly in coordination with planned video inspection work. Repairs as required	2,697 sanitary sewer manholes
Sanitary Video Inspection	Performed on a 20 year cycle (~10km once per year) Addressing requests and complaints	181km of sanitary sewer main
Sanitary Lift Station - Inspection, Planned and Preventative Maintenance	Every 7-10 days pump is inspected, and general maintenance is performed (checklist). Once per year each pump is removed for a detailed inspection. Mixers inspected 2 times per year. Cleaning and vacuuming of stations 2 times/year.	21 Sanitary stations
Sanitary Lift Station Electricity and Communication Billings	administrative account used to pay for Hydro and Telus charges to run the City's Sanitary Lift stations.	21 Sanitary Lift Stations
Sanitary Lift Station Generator Servicing	Service and load bank test all generators once per year. Occasional repairs as needed in response to alarms.	21 generators
Sanitary Lift Station SCADA/Alarms	Annual maintenance on electrical equipment and associated controls. Respond to alarms, diagnose and repair electrical faults or equipment failures	21 Sanitary pumps stations
Sanitary Lift Station Reactive Emergency Repairs	Reactive-Pumps may require additional maintenance or may be pulled for repair, as needed.	21 Sanitary pump stations

Drainage System (incl. Flood Protection) Service Levels

Activity	Description	Service Goal
Beaver Dams	Monitoring of dam-building activity, beaver relocation and dam removal in all City water courses	Weekly visual inspection, notching of dams and trapping/relocation of beavers
Dike Inspections & Repairs	Annual inspection and repair prior to the freshet	17 km of dike
Ditch Cleaning & Shaping	Cleaning and reshaping based off annual ditch inspection. Work must be performed between July 15 to September 15	37.4 km of ditches
Storm Flood Gate Clearing & Repairs	Clear vegetation and debris to maintain flow through City storm pump stations	11 flood gates
Storm Pump Electricity and Communication Billings	Administrative account used to pay Hydro and Telus for services	9 storm pump stations
Storm Pump Generator Servicing	Maintenance servicing once annually	2 generators at storm pump stations
Storm Pump - Inspection, Planned Preventative Maintenance	Once per week each pump inspected for general maintenance. Once per year each pump removed for detailed inspection	9 storm pump stations
Storm Pump - Reactive Repairs	Unplanned, restorative inspection and repair work	9 storm pump stations
Storm Pump SCADA/Alarms	Responding to storm pump alarms and repairing electrical issues	9 storm pump stations
Trash Grate Inspection & Cleaning	Inspection and clearing as needed during heavy flow, and when rain is forecasted	129 trash grates
Stream Maintenance	Funding for stream maintenance, permitting, monitoring, reporting and research.	Approx. 15 km of fish bearing ditches
Storm Main Repairs	Preventative maintenance repairs to storm mains identified by CCTV inspection program	210 km of storm mains
Storm Service Repairs	Action as required by service requests	8127 storm service connections
Catch Basin Clearing	Every catch basin cleared on a 8-year cycle min. CBs on main roads cleaned every 4 yrs. CBs on Lougheed Hwy and Coast Meridian Overpass cleaned 6 times/yr. CBs on Shaughnessy underpass cleaned 3 times/yr	5356 catch basins
Catch Basin Repairs & Replacement	Reactionary - based on complaints or noticed outside of inspection (minor repairs)	5356 catch basins
Flood Control & Cleanup	Reactionary - as needed during severe weather conditions. Complaint based or when heavy rains forecasted	210 km of storm mains
Locate and Adjust Storm Manholes	Annual CCTV video inspection. Repairs as required	3303 storm manholes
Storm Sewer Cleaning	Flushed on an 8-year cycle or in response to service requests and blockages	210 km of storm mains
Storm Sewer Video Inspection	Inspected on a 20-year cycle and complaint based. Annual root cutting for problem areas	210 km of storm mains

Roads/Transportation Service Levels

Activity	Description	Service Goal
Boulevard and Median Maintenance	Annual weed control. Annual drainage inlet cleaning of concrete barriers on Lougheed Hwy. Responses to service requests	all City owned boulevards and medians
Bus Stop Maintenance	Annually inspect bus stops for defects. Responses to complaints	5 City owned bus shelters
Yard Maintenance	Cleaning of paved surfaces, wash bay, waste pit, traffic signs, traffic flashers, and maintenance of communications systems and radios	As required
Dust Control	Once per year all gravel lanes and parking lots sprayed for dust control in May following grading of gravel services. Responses to complaints	42.2 km of gravel lanes. 5 gravel parking lots (Reeve Park, 2 x Cedar Park, Chester & Welcher Dump, by Hazel Trembath School)
Grading	Graded twice a year in May and September. Responses to service requests	All gravel roads and shoulders. 42 km of gravel lanes. 5 gravel parking lots (Reeve Park, 2 x Cedar Park, Chester & Welcher Dump, by Hazel Trembath School)
Illegal Dumping on City Streets	100% complaint driven. 1 day to pick up roadway obstructions. 1 week to remove all other dumpings	All City owned property
Vandalism	Reactive - as needed, prioritized by urgency follwing request assesment	All City infrastructure assests exept parks and facilites
Street Sweeping	Downtown - weekly. Arterials - twice/month. Collectors - once/month. Residential - twice/year. 19 parking lots - monthly. Coast Meridian Overpass - weekly. Other vehicle bridges - bi-weekly Following snow/ice operations and special events	423 lane-kilometers of paved roads
City Bridge Maintenance and Repairs	Yearly visual inspection. Detailed visual inspection every 5 years. Annual monitoring of cobalt storage facility adjacent to the CMO. Repairs through inspections or public service requests.	31 bridges. Cobalt storage facility
Streetlight Pole Painting & Numbering	Non-galvanized poles and ornamental poles inspected once per year and prioritized for painting. Painting over vandalism	225 non galvanized and decorative City streetlight poles
Streetlight Bulb Replacement Program	Annual program to replace approx 800 street light bulbs by area	3377 City street lights
Streetlight Outages	Yearly inspection and replacement of burnt out bubs before Oct 31. Replaced as needed if burnt out	3377 City street Lights
Streetlight Panel Replacement	Yearly inspection of panels 10 years or older. Replacement of panel based off condition. Replacements in event of malfunctions	Approx 300 streetlight control panels
Streetlight Pole Replacement	Reactive - based on inspection following service request	3377 streetlight poles
Rail Crossing Maintenance	Costs from Canadian Pacific Railway charged to City for maintenance of three City owned rail crossings	three rail crossings: Lougheed Highway at Pitt River Road, Westwood Street at Davies Avenue, Westwood Street at Kingsway Avenue.
Sign Inspection & Cleaning	Inspection and cleaning all stop signs once/year. Cleaning of regulatory signs to maintain sign reflectivity. Inspection and cleaning as needed following complaints	Approx 7700 sign
Traffic Signal Adjustments	Annually identify proactive adjustments, and adjustments as needed following complaints.	54 traffic signals
Traffic Signal Pole Replacements	Yearly traffic pole/base inspections. Proactive replacement of 3-4 poles/year. Repairs for service requests	251 traffic poles
Traffic Signal Relamping	Replace all traffic signal lamps every seven years or when lamps fail	251 traffic poles
Traffic Signal Repairs General	Inspect all signals once/year. Proactive replacement of 1-2 traffic cabinets per year. Repair any malfunctions and valid service requests	251 traffic poles
Road Markings	Annual inspection of markings. Line/crosswalk painted done by contractor once/year. Painted road markings refreshed annually. Thermoplastic markings rfefreshed every eight years.	All City roadways exept provincial roads
Sign Installation and Repair	Installed as required by engineering. Repairs as a result for service requests.	7700 signs
Sign Layout and Manufacturing	Design, layout and manufacture of replacement traffic control signs. Sign requests from other departments in the city	7700 signs
Downtown Parking Lots	Annual inspection for defects and repair. Service request responses	Legion, Fraser Health, Wilson, Elks Parking lots
Sanding & Plowing Sidewalks and Trails	Sanding, de-icing and snow clearing of City sidewalks and trails in order of priority	Defined set of City sidewalks and trails (fronting municipally owned lots and public spaces).
Sanding & Plowing Streets	Initial and remedial snow clearing of City roads and streets in order of priority	202 km of City streets.
Crack Sealing	Individual cracks in roads sealed once annually to max of 31,000 m of total sealing	
Permanent Asphalt Repairs	Locations based on annual inspection program. As needed following assessment of complaints	All City ashpalt surfaces
Pothole Repairs	As needed, following assessment of complaints	225km of paved roads
Concrete Sidewalk Repairs	Annual inspection for repair by urgency. Annual pressure wash and seal half of the stamped concrete downtown on Shaughnessy Street. Service request repairs	66,000 square meters of concrete sidewalk
Curb and Gutter Repairs	Annual inspection for repair by urgency. Service request repairs. Ocasionally coordinate replacement of damaged curbs and gutter with other City works	203km of curb and gutter

Activity	Description	Service Goal
Extruded Curb Repairs	Annual inspection for repair by urgency. Service request repairs. Ocasionally coordinate replacement of damaged curbs and gutter with other City works	105 km of extruded curb
Sidewalk grinding	Annual inspection for repair by urgency. Service request repairs.	66,000 square meters of concrete sidewalk
Sidewalk Inspection	Inspection once per year – Commercial, School, Municipal Facility and Hospital. Inspection once every second year – Residential, (Light) Commercial and Industrial. Level 3 hazards are marked immediately during inspection Service request repairs	66,000 square meters of concrete sidewalk

Parks Service Levels

Activity	Description	Service Goal
Cemetery Interments	Reactive-Cremations and burials are performed as needed and as scheduled through City Hall Cemetery Services.	Port Coquitlam Cemetery
Cemetery Markers, Adjustments, Repairs	Scheduled marker and headstone placements. Reactive-Marker and headstone placements as requested Raise and level headstones as required/requested (surface level depths exceed 4 inches) Repair sunken graves as needed (depression exceeds 6 inches)	Port Coquitlam Cemetery
Fall/Winter Cleanup	Service Level A: Sports Fields, City Facilities and Hard Surface Pathways – 1st priority. Service Level B: Community Parks – 2nd priority. Service Level C: Passive Parks – 3rd priority.	City Parks (see Word document "Grass - Fall Cleanup" for list of parks by service level)
Grass Cutting	Service Level A: Sports Fields 2-3x/week - Mowing and trim 2.5” height Service Level B: Passive Areas - 1x/week – Mowing and trim 3” height. Sports Fields - 1-2x/week – Mowing and trim 2.5” height. Service Level C: 1x/3-4 weeks or as needed - Mowing and trim passive areas 3” height.	City Parks (see Word document "Grass - Grass Cutting" for list of parks by service level)
Special Events	Planned work based on event request	Events supported: PoCo Rec/Tri-Cities & Vancouver Real estate softball tournament, Soccer Jamboree, MEC 5/10K run, Cyclecross, Goddess Race, Up the creek Triathlon, Creek Classic Triathlon and MEC Triathlon
Horticulture - Annual bed	1x/week weeding and deadheading. 3x/week watering 1x/year bulb and annual planting	City Parks Civic Facilities Cemeteries Sports Parks (see Word document "Hort - Annual Beds" for list of assets maintained)
Hanging Baskets	4x/week – watering 2x/week – fertilizing 1x/2 weeks – deadhead and weed	City Parks Civic Facilities Streets (see Word document "Hort - Baskets" for list of assets maintained)
Horticulture - Shrub/Perennial Beds	Service Level A: 1x/week maintenance of beds, litter collection, weeding, pruning, mulching. 1x/week watering - irrigation 1x/year – fertilization and as needed, upon inspection of in-season plant performance. Service Level B: 1x/ 2weeks maintenance of litter collection, weeding pruning, mulching. As needed fertilizing, upon inspection of in-season plant performance. Service Level C: 1x/month and as needed.	City Parks (see Word document "hort - Shrub Perennial Beds" for list of parks by service level)
Overpass Banners	Based on banner request	Shaughnessy Street Overpass
Building Maintenance	As directed by City-wide facility services maintenance standards and repaired as required	Facilities and /or Buildings in City Parks
Christmas Decorating	Light and decoration installation for Christmas seasonal festivities in accordance with the annual lighting ceremony	City Parks Civic Facilities Streets (see Word document "Parks Mtc - Christmas Dec" for list of assets maintained)
Graffiti	Service Level A: 3x/week Inspection Service Level B: 1x/week Inspection Service Level C: As required As reported. Vulgar graffiti removed within 24 hrs of reporting	City Parks (see Word document "Parks Mtc - Graffiti" for list of parks by service level)
Illegal Dumping in Parks	As reported or observed	All City Parks and City property
Park Facilities Janitorial	Service Level A: 2-3x/day - 7/days week Service Level B: 1x/day - 7days /week	City Parks (see Word document "Parks Mtc - Janitorial" for list of parks by service level)

Activity	Description	Service Goal
	Service Level C: 1x/day-3-5 times /week	
Litter and Garbage	Service Level A: 1x/day, and as needed. Service Level B: 3-5x/week, and as needed. Service Level C: 1x/week, and as needed.	City Parks (see Word document "Parks Mtc - Litter and Garbage" for list of parks by service level)
Park Maintenance	Reactive - As identified through inspections or reported	City Parks, Facilities, Trails, Cemetery, Sport Parks, Joint Use Fields and Cul de sacs
Parks Inspections	Service Level A: Visual inspection min.3x/week Service Level B: Visual inspection min. 1x/week Service Level C: Visual inspection min. 1x/month	City Parks (see Word document "Parks Mtc - Pk Inspection" for list of parks by service level)
Vandalism	Reactive - As observed or reported	City Parks, Facilities, Trails, Cemetery, Sport Parks, Joint Use Fields and Cul de sacs
Ball Diamond Maintenance	Infield grading – 1x/week. Weekly field inspections and routine maintenance. Annual Infield/turf interface renovations including base lines, mounds and general field maintenance	City Parks Sports Parks School Fields (see Word document "Turf - Ball Diamond Mtc" for list of assets maintained)
Turf Irrigation	Service Level A: Sports Fields – daily service Service Level B: Facilities and Garden Beds - weekly service Service Level C: Passive Parks – every two weeks	City Parks (see Word document "Turf - Irrigation" for list of parks by service level)
Playground Maintenance, Inspections and repairs	Service Level A: 1x/month – written general inspection of playground 1x/year – detailed, documented inspection of playgrounds 1x/day inspection and raking of hard and soft safety surfacing 1x/year top up of surfacing 2-3x per season written inspection of all Shelter/Heavy Use Areas and site furnishings Service Level B: 1x/month – written general inspection of playground 1x/year – detailed, documented inspection of playgrounds 1x/month inspection and raking of surfacing of hard and soft safety surfacing 1x/year top up of surfacing 1x/season – written inspection of all site furnishings	Service Level A: Lions Park Service Level B: All other parks
Sport Court Maintenance	Service Level A: Daily litter collection Bi-weekly surface blowing Annual board and fencing repairs Service Level B: Weekly litter collection Bi-weekly surface blowing Annual board and fencing repairs	City Parks Sports Parks School Fields (see Word document "Turf - Sport Court Mtc" for list of assets maintained)
Sport Field Maintenance	Service Level A: Aeration/topdressing –1x/yr Aeroway – 2-4x/yr Overseeding – 2-3x/yr Fertilizing - monthly Service Level B: Aeroway–2-3x/yr Overseeding – 2x/yr Fertilizing – 6x/yr Service Level C: Aeroway –1x/yr Overseeding – 1x/yr Fertilizing – 2x/yr	Sports Parks School Fields (see Word document "Turf - Sport Field Mtc" for list of assets maintained)
Artificial Turf Maintenance	Deep grooming – 1x/yr Brooming/litter collection – 1x/month	Gates Park Artificial Turf
Brushing and Clearing	Service Level A: 2-3 cuts/year Service Level B: 1-2 cuts/year	City parks Civic facilities Trails Other (see Word document "Urban For - Brushing" for list of assets maintained)
Invasive Species	Service Level A: 2 applications/yr based on location, priority and species Noxious weeds (eg. knotweed, giant knotweed)	All City owned land and right-of-way

Activity	Description	Service Goal
	Service Level B: Identified invasive plants – as needed (through grant or volunteer efforts)	
Pathways & Walkway Inspection and Maintenance	Service Level A: 1x month inspection or as needed based on request Service Level B: Annual inspection or as needed based on request	Service Level A: Civic precinct Traboulay PoCo Trail Service Level B: All other locations
Trail Maintenance & Inspections	Service Level A: 1x/month – trail inspections 3-4/year – cleaning vegetation 1x/year repairing tread surface Service Level B: 1x/6 weeks – trail inspections 1-2x/year – cleaning vegetation 1x/year repairing tread surface Service Level C: 1x/8 weeks – trail inspections 1x/year – clearing vegetation 1x/year – repairing tread surface As needed, as identified through inspection	City Parks Trails (see Word document "Urban For - Trail Mtc and Inspection" for list of assets maintained)
Tree Maintenance & Pruning	1x/1-3 years (young) 1x/3-5 years(semi-mature) 1x/5-7 years(mature) As required through observation or service requests	All City owned trees-2371 Street trees/2372 Park trees
Tree Planting	Planting based on areas identified the previous year determined to need trees - Replacement trees that have been vandalized, damaged, or died the previous year and then underutilized/underdeveloped canopy areas	New assets
Tree Removal	As needed based on tree health and certified assessments	City owned trees
Tree Watering	Service Level A: New trees -1-2 yrs old - 1x week (June – September) Service Level B: 3 -5 yr old trees under duress - 1x week (June – September)	City planted trees 1-3 years old
Tree Assessments	Scheduled tree monitor list Resident request	City owned trees

Appendix H

Asset Management Team Terms of Reference

Terms of Reference – Asset Management Team

The City of Port Coquitlam launched its official Asset Management journey in 2018. During the initial phase in program development, an Asset Management Team and Steering Committee were assembled. Both groups are intended to remain in place during program development as well as implementation.

This Terms of Reference was prepared to guide how the Asset Management Team will function. The mandate of the Team, composition, basic meeting procedures, and a preliminary plan of action is described below.

Mandate

The Asset Management Team guides development and implementation of each phase in the City's asset management journey. They ensure that Port Coquitlam's Asset Management Vision, Policy and Strategy remains front and centre as decisions are made. They also provide advice and recommendations to the Steering Committee and ultimately Council on matters relating to strategic asset management.

The Asset Management Team is the coordinating group for asset management related initiatives, and is responsible for the following:

- Implementing the Asset Management Policy;
- Establishing long term policies, strategies, and the governance structure to carry them out;
- Decision-making about short and long term asset management planning and implementation (eg. programs, tools, projects and practices for continuous improvement and promoting long-term asset management growth)
- File/information management (integrity and security) related to community infrastructure; and,
- Internal and external information sharing about service delivery, community infrastructure and asset management;
- Overseeing all infrastructure assets including linear assets (water, sanitary sewer, transportation, and drainage) and vertical assets (buildings and facilities, parks and recreation, fleet and equipment, and information technology).

Short and long term actions will be dictated by the Asset Management Strategy.

Team Composition

Port Coquitlam's Asset Management Team was selected by the Steering Committee. It is made up of staff from departments across the organization to ensure the Program reflects the needs of each department and ensure a City-wide approach to managing assets and service delivery.

The Asset Management Team shall consist of the following 14 members:

- **Infrastructure Planning:** Manager of Infrastructure Planning, Civil Engineer
- **Capital Projects:** Manager of Capital Projects
- **GIS:** GIS Coordinator
- **Public Works:** Manager of Public Works, Section Manager Streets, Section Manager Utilities, Section Manager Fleet and Solid Waste, Section Manager Parks
- **Accounting:** Manager of Accounting
- **Facilities:** Manager of Facilities

- **Finance:** Manager of Finance
- **Fire Services:** Deputy Fire Chief
- **Information Services:** Director of Corporate Support

The Manager of Infrastructure Planning shall chair the Asset Management Team.

Member Responsibilities

Individual Asset Management Team Members will:

- Understand and implement the Asset Management Policy;
- Work towards achieving the Asset Management Vision, Objectives and Actions for Port Coquitlam;
- Act on opportunities to communicate positively about asset management across the organization;
- Actively participate in meetings through attendance, discussion, follow-up on action plans, and review of meeting minutes;
- Support open discussion and debate, and encourage colleagues on the Asset Management Team to voice their insights; and
- Provide advice and information on matters relevant to the effectiveness and success of asset management.

Chair Responsibilities

The Asset Management Chair will:

- Set the agenda for each meeting, or designate a lead;
- Manage the agenda, and keep the room on time;
- Encourage broad participation from members in discussion;
- Manage any issues with member attendance or replacement; and
- Speak on the Asset Management Team's behalf to the Steering Committee.

Decision Making

Decisions of the Asset Management Team shall be made by majority/through consensus. Temporary subgroups will be assembled as needed, with recommendations and outcomes presented back to the Asset Management Team during a scheduled meeting.

Permanent subgroups will be assembled, for continuous program development and ongoing implementation, in accordance with the Framework established through the Asset Management Strategy.

In some instances, the Asset Management Team may be asked to put forward a recommendation to the Steering Committee or Council. In such an instance, views will be collected and discussed at an Asset Management Team meeting. Where members agree, a single recommendation will be put forward. Where members do not agree, different viewpoints will be presented to the Steering Committee for consideration.

Authority

The Asset Management Team will report to the Steering Committee, presenting reports and making recommendations about strategic asset management issues and challenges.

The Steering Committee is made up of the corporate management team; it is made up of directors who will provide strategic guidance throughout the lifetime of the Asset Management Program. The Steering Committee will report to Council on asset management progress.

Meeting Procedures

The following meeting procedures have been identified to guide the Asset Management Team:

- Regular meetings shall be held a minimum of once each quarter;
- Meetings shall be held as needed to align with the asset management governance model;
- Additional meetings may be held at the discretion of the Chair, or at the request of a majority of its members;
- An agenda for each meeting shall be distributed, by the Chair or as agreed-upon by the Team, for comments one week prior to the meeting date;
- Meetings shall be led by the Chair unless:
  - the Team chooses to appoint a new leader; or
  - a designate is selected by the Chair.
- Minutes for the meeting shall be recorded
- Attendance at each meeting will be in person, with the option for members to join via teleconference as appropriate;
- Attendance at specific meetings may be requested for representatives beyond the Asset Management Team where a need exists for further input, insight or capacity building;
- The date for the next meeting shall be set (or confirmed) at the close of each current meeting;
- In order for a vote to be counted, a quorum of at least half, plus one, of the Team must be present; and,
- A summary report shall be presented to the Steering Committee and Council annually (at a minimum).

Information Sharing

Relevant information and resources, including all documents prepared for and by the Asset Management Team, will be stored in a centrally accessible location. This central repository will be administered by the Director of Corporate Support.

Amendments

These Terms of Reference are subject to annual review and approval by the Asset Management Team. They may be amended by agreement among the members of the Asset Management Team, with approval from the Steering Committee, at any time.

Appendix I

Annual Calendar

Governance System

	Implementation Action	Annual Work Flow											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Leadership													
Asset Planning													
Project Delivery													
Operations													
Financial Management													
Data Management													
Knowledge													

Legend	
Five-Year Process	
Milestone	△
Deliverable	☆
Meeting	👥

Details			
1	11		
2	12		
3	13		
4	14		
5	15		
6	16		
7	17		
8	18		
9	19		
10	20		

Appendix J

Asset Management Plan Outcomes

Asset Management Plan Outcomes

Water System

As identified in the Current State Assessment, there are key gaps in water system asset information that can be addressed through a Water System Asset Management Plan (or component of the plan):

Inventory

- Confirm asset subcategories (for roll-up of information in communications and benchmarking)
- Confirm and/or refine replacement cost and life expectancy information on an asset by asset basis

Condition

- Assess water system condition, starting with high pressure (large diameter) watermains. This should begin with a high-level cost-benefit assessment of available condition assessment methods as many technologies are expensive and/or may be limited by system accessibility.
- Conduct condition assessments for PRV stations and pump stations which are approaching the end of their service life in some cases. A visual assessment using standardized inspection methods is appropriate for this task.
- Conduct water loss assessments, which can be done on a zone-by-zone basis.
- Establish a strategy for ongoing assessments of water system condition, focusing on:
    - Review of expected lifespan of service connections (e.g. copper services in corrosive soil);
    - Analyzing inspection records and tracking replacements for system valves; and
    - Destructive testing of asbestos-cement watermains after replacement.

Service Life

- Track break occurrences in GIS, if this is not already being tracked.
- Map recent service connection replacements to see if a geographic trend exists with respect to service life.
- Consider a run to failure, or opportunistic replacement, of system valves.

Operating Condition / Service Level

- Review level of effort for watermain flushing program;
- Track reasons for service replacement/leakage;
- Evaluate level of effort to continue repairing system valves and PRV stations to determine if rehabilitation and replacement would be more cost effective;
- Evaluate options for addressing long term fire flow shortages in portions of the City;
- Explore options for a maintenance management system (applies to all Public Works); and
- Assess technical levels of service for all water assets. The City's hydraulic model and GIS database are sufficiently detailed to support this analysis.

Criticality

- Assess risk levels for pump stations, PRVs, and large diameter mains.
- Identify critical services (e.g. schools, large ICI customers) and valves (large diameter, stream crossings).
- Review hydrants in locations with fire flow deficiencies relative to critical services.
- Seismic vulnerability assessment.

Optional, or longer term, items to address include:

- Field verification of material for some distribution mains.
- Add water service connection data to inventory.
- Close information gaps for minor assets (e.g. placeholders for missing replacement cost data).
- Refine attribute information for some assets.
- Document customer levels of service for the water system.

Sanitary Sewer System

As identified in the Current State Assessment, there are key gaps in sanitary sewer system asset information that can be addressed through a Sanitary Sewer System Asset Management Plan (or component of the plan):

Inventory

- Confirm asset subcategories (for roll-up of information in communications and benchmarking).
- Confirm and/or refine replacement cost and life expectancy information on an asset by asset basis.

Condition

- Develop an annual CCTV inspection program for gravity sewers and include manholes in future contracts. An average cycle of 10 years is recommended.
- Develop a forcemain inspection program. Like watermains, sewer forcemains can be difficult to inspect while in service and inspection methods need to be carefully selected.
- Inspect sewer service connections in I&I-prone areas.
- Conduct condition assessments for lift stations, which are approaching the end of their service life in some cases. A visual assessment using standardized inspection methods is appropriate for this task.

Service Life

- Track gravity and forcemain break occurrences in GIS, if this is not already being tracked.
- Map recent service connection replacements to see if a geographic trend exists with respect to service life.
- Plan for imminent renewal of lift stations based on condition assessment results.

Operating Condition / Service Level

- Prepare a strategy for addressing gravity main capacity issues.
- Track reasons for service replacement/blockage.
- Review lift station maintenance records to inform operating condition.
- Assess technical levels of service for all sanitary sewer assets. The City's hydraulic model and GIS database are sufficiently detailed to support this analysis.
- Evaluate opportunities for I&I reduction.

Criticality

- Assess risk levels for large diameter mains, forcemains and lift stations.
- Identify critical services (e.g. schools, large ICI customers).

Optional, or longer term, items to address include:

- Field verification of material for some gravity and forcemains;
- Add sewer service connection data to inventory; and
- Document customer levels of service for the sanitary sewer system.

Drainage System

As identified in the Current State Assessment, there are key gaps in drainage system asset information that can be addressed through a Drainage System Asset Management Plan (or component of the plan):

Inventory

- Identify natural assets that are providing stormwater management services.
- Confirm asset subcategories (for roll-up of information in communications and benchmarking).
- Confirm and/or refine replacement cost and life expectancy information on an asset by asset basis.

Condition

- Develop an annual CCTV inspection program for gravity sewers and include manholes in future contracts. An average cycle of 10 years is recommended.
- Conduct condition assessments for pump stations and flood control infrastructure, which are approaching the end of their service life in some cases. A visual assessment using standardized inspection methods is appropriate for this task.
- Inspect sewer service connections in I&I-prone areas.
- Ensure regular inspection and reporting of dikes to Province.

Service Life

- Continue to track break occurrences in GIS.
- Consider a run to failure approach to catch basins which are approaching the end of their estimated useful life.
- Map recent service connection replacements to see if a geographic trend exists with respect to service life.
- Plan for imminent renewal of culverts and pump stations based on condition assessment results.

Operating Condition / Service Level

- Prepare a strategy for addressing storm sewer capacity which is insufficient in a 10-year storm event.
- Track reasons for service replacement/leakage.
- Assess technical levels of service for all drainage assets.

Criticality

- Assess risk levels for large diameter mains, SWM facilities, pump stations, and all flood boxes/gates.
- Review flood-prone catch basin, ditch/channels and culvert locations.
- Identify critical services (eg. schools, large ICI customers).
- Review dike height relative to climate change.

Optional, or longer term, items to address include:

- Add drainage service connection data to inventory;
- Conduct condition assessments on SWM facilities, and on culverts that haven't been assessed;
- Consider a strategy to address under capacity culverts;
- Document customer levels of service for the drainage system; and
- Review impacts of climate change/sea level raise on capacity of drainage facilities in flood plain

Transportation

As identified in the Current State Assessment, there are key gaps in transportation asset information that can be addressed through a Transportation System Asset Management Plan (or component of the plan):

Inventory

- Confirm asset subcategories (for roll-up of information in communications and benchmarking).
- Incorporate sidewalk condition data into consolidated inventory.
- Compare and align GIS vs. CityWide records for streetlights, traffic signals and signage and walls.
- Confirm and/or refine replacement cost and life expectancy information on an asset by asset basis.

Condition

- The City recently completed an assessment of bridge infrastructure. This included a prioritized action plan for repairs to bridge infrastructure.
- Consider the need for an updated road condition assessment.
- Implement a wall condition assessment program.

Service Life

- Plan for the imminent renewal of rail crossings based on condition assessment results (aligned with grade crossing discussion outcomes) or adjust remaining service lives in inventory accordingly.

Operating Condition / Service Level

- Develop a phased capital program to implement the Master Transportation Plan.
- Assess technical levels of service for all transportation assets.

Criticality

- Initiate preliminary design process for replacing the Lougheed Highway crossings of the Coquitlam River by 2024.
- Review safety issues and lighting levels for streetlights.
- Review safety and noise level issues regarding walls.

Optional, or longer term, items to address include:

- Document customer levels of service for the transportation network.

Buildings and Facilities

As identified in the Current State Assessment, there are key gaps in buildings and facilities asset information that can be addressed through a Buildings and Facilities Asset Management Plan (or component of the plan):

Inventory

- Confirm asset subcategories (for roll-up of information in communications and benchmarking).
- Confirm and/or refine replacement cost and life expectancy information on an asset by asset basis.

Condition

- Undertake updated condition assessments on all major buildings.

Operating Condition / Service Level

- Align approach to documenting technical levels of service with other City departments.
- Assess technical levels of service for all buildings and facilities assets.

Criticality

- Complete an overall risk evaluation, looking beyond emergency planning assessment.

Optional, or longer term, items to address include:

- Prepare a strategy for the renewal of buildings and facilities before their remaining service life becomes critical.
- Document customer levels of service for buildings and facilities.

Parks

As identified in the Current State Assessment, there are key gaps in parks and recreation asset information that can be addressed through a Parks and Recreation Asset Management Plan (or component of the plan):

Inventory

- Confirm asset subcategories (for roll-up of information in communications and benchmarking), using standardized asset definitions.
- Compare and align GIS vs. CityWide records for all parks and recreation assets.
- Confirm and/or refine replacement cost and life expectancy information on an asset by asset basis.
- Confirm whether outdoor pools should remain under parks or be moved to the Buildings and Facilities category.

Condition

- Complete condition assessments for all parks and recreation assets.

Service Life

- Plan for the imminent renewal of sports surfaces, lighting, playgrounds, outdoor pool, equipment and fences based on condition assessment results, or adjust remaining service lives in inventory accordingly.

Operating Condition / Service Level

- Identify costing related to providing services at current levels, at an asset subcategory level
- Assess technical levels of service for all parks and recreation assets.

Criticality

- Identify assets critical to sustaining parks operations.

Optional, or longer term, items to address include:

- Document customer levels of service for parks and recreation.

Fleet and Equipment

As identified in the Current State Assessment, there are key gaps in fleet and equipment asset information that can be addressed through a Fleet and Equipment Asset Management Plan (or component of the plan):

Inventory

- Confirm asset subcategories (for roll-up of information in communications and benchmarking).
- Confirm and/or refine replacement cost and life expectancy information on an asset by asset basis.

Condition

- Evaluate the condition of high value fleet and equipment assets nearing the end of their expected useful lives.

Operating Condition / Service Level

- Assess technical levels of service for all fleet assets.

Criticality

- Identify critical assets and determine suitable risk management requirements.

Optional, or longer term, items to address include:

- Undertake a rate structure study for internal and external fleet and equipment charge out rates
- Incorporate information collected for future fleet management system info, asset management planning and decision making
- Document customer levels of service for fleet and equipment.

Information Technology

As identified in the Current State Assessment, there are key gaps in information technology assets that can be addressed through an Information Technology Asset Management Plan (or component of the plan). Alternately, include Information Technology within the Fleet and Equipment Asset Management Plan.

Inventory

- Confirm asset subcategories (for roll-up of information in communications and benchmarking).
- Confirm and/or refine replacement cost and life expectancy information on an asset by asset basis.

Condition

- Explore the benefits of evaluating condition for fibre optic lines.

Service Life

- Plan for the imminent renewal of hardware and software, based on performance of these assets.
- Consider where run to failure versus proactive maintenance and replacement are appropriate with respect to major IT infrastructure, recognizing that replacement based on end of useful life as opposed to age has been the most effective practice to date.

Operating Condition / Service Level

- Assess technical levels of service for all information technology assets.

Criticality

- Incorporate and refine results from corporate criticality assessment into future asset management planning

Optional, or longer term, items to address include:

- Document customer levels of service for information technology
- Identify a strategy for addressing situations where departments purchase software and then ask IS for support