Cariboo Regional District
Asset Management Strategy

June 2025

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Executive Summary

The Cariboo Regional District (CRD) has completed an assessment of its asset management maturity and developed a three-year strategy (2025–2027) to improve how infrastructure is planned, maintained, and funded. Currently rated at a "Basic" level of maturity, CRD's practices are often informal and reactive. This strategy provides a roadmap to move toward a more structured, coordinated, and sustainable approach to asset management. There are opportunities to modernize systems, clarify decision-making, and improve long-term planning to better serve residents and protect critical infrastructure.

Strategic Focus Areas

The strategy focuses on improvements that can be made across seven key areas:

- Organization and People: Clarify roles, train staff, and strengthen internal coordination.
- Asset Information: Consolidate data, fill gaps, and improve data accuracy.
- Strategy and Planning: Align asset decisions with long-term community goals.
- Decision-Making: Use formal criteria to evaluate and prioritize investments.
- Risk Management: Identify and proactively address infrastructure risks.
- Levels of Service (LOS): Define, track, and communicate service standards.
- Financial Management: Strengthen long-term financial planning for sustainable service delivery.

Implementation Plan

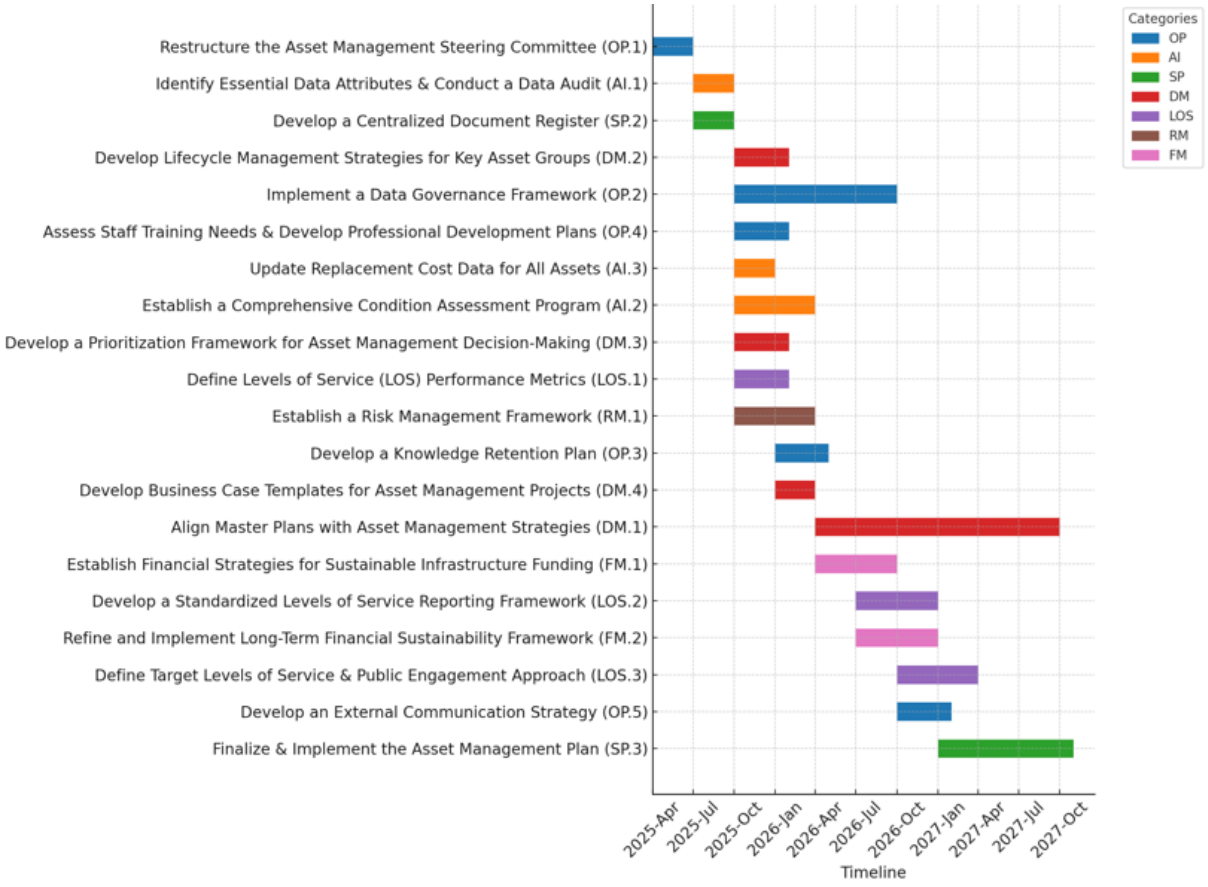
The strategy includes 20 initiatives spread across a 3-year implementation period. Priority actions include forming an Asset Management Steering Committee, auditing existing data, launching condition assessments, and aligning financial strategies with renewal needs. These foundational steps will lead to the creation of a comprehensive, data-driven Asset Management Plan (AMP) by the end of 2027.

Resource Implications

Many actions are designed to build on existing roles and processes. Additional internal capacity will be essential to maintain momentum and avoid overburdening staff. Successful implementation will require approximately 3,000 staff hours over two-and-a-half years, targeted training, technical expertise, and strategic use of consultants and grant funding.

Risks such as limited staff capacity, data gaps, change resistance, and funding uncertainty will be mitigated through staged implementation and strong governance. Political support and organizational efforts towards long-term financial planning and a strong communications strategy will be essential for successful implementation of this strategy.

Figure 1: Visual Timeline of Key Strategy Outcomes



Outcome and Benefits

By following best practices from peer regional districts, the CRD will improve decision-making, manage infrastructure risks proactively, deliver reliable services, and build public trust through transparency and long-term planning.

Methodology and Scope

In October 2024, we engaged and consulted with staff who manage the CRD's asset portfolio or have knowledge of current practices, processes, procedures, and asset datasets. This included multiple meetings related to analyzing the current asset management level of maturity at the organization. Structured Technical Surveys were conducted and analyzed prior to the meetings.

Structured Technical Surveys

PSD's Asset Management Self-Assessment Tool, or AMSAT, is a technical survey that covers seven core elements of an industry standard asset management program, defined in Table 1. The survey consists of 55 questions across each of the seven elements and is designed to assess the asset management maturity level of an organization. The results were then evaluated with staff for further insights. The results of this survey can be found in Appendix A.

Table 1 Seven Key Elements of Asset Management

7 Key Elements of Asset Management		
1	Organization and People	Review of existing organizational capacity and culture for asset management
2	Asset Information	Asset data completeness, management strategy, standards, and systems
3	Strategy & Planning	Alignment between asset management activities and corporate or strategic objectives, and long-term planning
4	Asset Management Decision-making	Approach to lifecycle activities, including maintenance and rehabilitation, and project prioritization
5	Risk Management	Identification, understanding, and management of economic, financial, environmental and climate change related, social, and reputational risks
6	Levels of Service	Existing approach to the development and application of levels of service frameworks and their ongoing monitoring and review
7	Financial Management	The feasibility of current financial strategies to maintain a practical asset management program, and support current and proposed levels of service

Recommendation Prioritization

To guide implementation, each recommendation in this strategy has been assessed using a structured three-part prioritization framework. This framework considers:

- **Urgency** – How immediate the need is for action, based on alignment with project timing, dependencies, and organizational risks.
- **Impact** – The extent to which the initiative will contribute to the CRD's asset management maturity and performance objectives.
- **Resource Intensity** – The level of effort, cost, and coordination required to implement the initiative.

Each of these dimensions is rated as **High**, **Moderate**, or **Low**.

Urgency

- **High**: Initiatives that must be undertaken in the near term to support foundational activities, meet critical deadlines, or mitigate organizational risks. These may also be preconditions for other time-sensitive projects.
- **Moderate**: Initiatives that are important but can be planned for upcoming phases. Their value is clear, but they are not immediately pressing.
- **Low**: Initiatives that are important but can wait until after other work is completed. Many of these have *high impact*, but their timing is intentionally delayed to align with prerequisites or to coincide with other deliverables.

Impact

- **High**: Initiatives that significantly advance the CRD's asset management capabilities. These typically improve decision-making, resource optimization, service delivery, risk management, or community trust.
- **Moderate**: Initiatives that improve performance in specific focus areas (e.g., training, planning) or set the stage for broader improvements.
- **Low**: Initiatives with limited standalone value but often required to support more impactful efforts. These are still important within the overall strategy.

Resource Intensity

- **High**: Initiatives that require a substantial investment of time and resources.
- **Moderate**: Initiatives that are manageable within current capacity but may still require planning, new processes, or staff coordination.
- **Low**: Initiatives that can be implemented using existing resources.

Element 1: Organization and People

The 'Organization and People' element considers the CRD's general ability to support and maintain an asset management program. Key components include team makeup, staff knowledge and capacity, processes and practices, communication, and how asset management is prioritized across the organization, at the Board, senior management, and departmental levels.

Current Practices and Maturity Level

The CRD's asset management knowledge ranges from **basic to intermediate**. Most management and operations staff demonstrate basic to intermediate levels of proficiency. Asset management is a **medium priority** for the CRD, with strong support from management and the Board. However, limited staffing, resources, and pushback on asset replacement hinder full integration into daily operations. While there are asset management coordinators across departments, their part-time or split roles, along with insufficient human resource capacity, limit the effectiveness of these efforts. Additionally, the lack of a comprehensive asset management plan and reliance on reactive maintenance further hinder progress.

Internal communication about asset management is primarily conducted through interdepartmental discussions and senior management teams, but these conversations often focus more on the need for change rather than specific actions or outcomes. External communication is limited, with public engagement typically occurring during events like referendums.

Recommendations

1.1 Restructure the Asset Management Committee

1. **Define its role and objectives:** Develop a term of reference which outlines the Committee's role, membership, and what it is expected to achieve.
2. **Establish meeting frequency and communication protocols** to ensure that key staff and decision-makers are kept informed.
3. **Develop an agenda for meetings** including key items for decision-making.
4. **Implement asset management initiatives** based on the decisions and guidance provided by the new role.
5. **Monitor progress and report regularly** on the status of asset management initiatives. This will help to keep initiatives on track and address issues swiftly.
6. **Evaluate its effectiveness and adjust as needed.** Continuously improve the Committee's processes and effectiveness to ensure success.

Table 2 – Recommendation 1.1 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Steering	All	**High**	**Moderate-High**	**Moderate**	2025 – Q2	< 3-Months

Urgency Level: High

The high urgency level underscores the immediate need to address the current inefficiencies within the Asset Management Steering Committee. This restructuring is vital to improve the strategic oversight and coordination of asset management activities across all departments. The urgency is driven by the need to align the committee's roles and objectives with the CRD 's broader asset management goals, ensuring that the committee can effectively lead and support these initiatives.

Impact Level: Moderate-High

The impact of restructuring the Asset Management Steering Committee is anticipated to be moderate to high. A well-structured steering committee is pivotal for fostering a unified approach to asset management, enhancing decision-making processes, and ensuring that asset management practices are consistently applied across all departments. The improved governance and oversight can lead to more strategic asset management, potentially resulting in significant long-term benefits for the CRD, including enhanced efficiency, cost savings, and improved service delivery.

Resource Intensity: Moderate

The resource intensity is considered moderate. Restructuring the committee will require a significant investment in terms of time and effort from key interested parties. This includes the time needed to identify and select committee members, redefine roles and objectives, and establish new operating procedures. Additionally, this initiative will require ongoing effort and time commitment from its members. However, because this is optimizing existing structures rather than creating new ones, the resource requirements are not as extensive as they could.

Implementation:

- Lead Role: Asset Management Initiative Lead
- Supporting Roles: Department Managers, CFO, IT/GIS, and Clerical support
- Estimated Staff Time: 90–135 hours annually (10–15 hours per participant)
- 3rd Party Support Options: Not required.

1.2 Implement a Data Governance Framework

1. **Define the scope** of the framework, identifying the types of data included within the centralized inventory with priority for data crucial for the CRD 's effective operation. This will encompass the identification of data sources and the systems impacted by this policy.
2. **Identify key interested parties** involved in the data lifecycle, including data owners, custodians, and users. Assign clear roles and responsibilities for data acquisition, updates, and communication.
3. **Develop data quality standards**[1] focusing on accuracy, completeness, and validity, supported by procedures for routine data validation, correction, and cleansing to uphold these standards.
4. **Develop data acquisition and entry protocols** into the centralized system, addressing standardized data collection, input, and verification processes to ensure consistency across all data points.
5. **Create data storage and maintenance protocols** for the secure storage and ongoing maintenance of data, including backup and recovery, version control, and archiving procedures. Assign responsibility for these tasks to ensure data is securely managed and readily accessible.
6. **Data Update Procedures**: Institute regular processes for data updates and corrections to maintain data relevancy and accuracy. This involves outlining specific responsibilities for updating data fields, rectifying inaccuracies, and ensuring data consistency across systems.
7. **Change Communication Protocols**: Implement clear procedures for notifying interested parties about inventory changes, updating relevant documentation, and conducting necessary training. This ensures all involved parties are informed and equipped to manage and utilize the updated data effectively.
8. **Monitoring and Reporting Mechanisms**: Establish ongoing monitoring and reporting procedures to assess data quality and the effectiveness of the governance framework. Responsibilities for identifying and addressing data quality issues should be clearly defined.
9. **Review and Update Cycle**: Initiate a regular review cycle for the data governance policy and its associated procedures to ensure they remain aligned with the CRD 's evolving needs and technological advancements.

[1] An initial review has been conducted by PSD Citywide.

Table 3 Recommendation 1.2 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Data Management	All	**Moderate - High**	**Moderate - High**	**High**	2025 – Q4	6-12 Months

Urgency Level: Moderate - High

The moderate to high urgency reflects that delays in implementing a data governance framework does not immediately threaten business continuity or compliance. This initiative is essential for long-term operational integrity and efficiency but may not demand immediate action over more critical operational or compliance-related tasks.

Impact Level: Moderate - High

The impact is rated moderate to high as it serves as a foundation for better knowledge retention, data quality, and decision-making across the organization. While it might not have the immediate, visible impact of direct revenue-generating projects or critical infrastructure changes, its long-term benefits in ensuring reliable data management and supporting informed decision-making processes are substantial. The framework is pivotal for mitigating risks associated with data mismanagement and for leveraging data as a strategic asset.

Resource Intensity: High

The categorization of resource intensity as moderate is attributed to the need for a balanced allocation of time, expertise, and financial resources to develop and implement the framework. This initiative requires the involvement of interested parties from across departments to ensure the framework is comprehensive and aligned with organizational needs. While it does not necessitate the extensive resources required for large-scale technological deployments, it does require sustained effort in policy development, staff training, and system adjustments to embed data governance principles within existing processes.

Implementation:

- Lead Role: IT / Data Governance Lead
- Supporting Roles: All departments contributing data
- Estimated Staff Time: 180–240 hours
- 3rd Party Support Options: Yes; consultants

1.3 Develop a Knowledge Retention Plan

1. **Define the scope of the plan**, including what knowledge is critical to the organization's operations, what sources of knowledge will be used, and what types of systems will be affected by the plan.
2. **Identify interested parties and their roles**, including subject matter experts, team leaders, and other relevant staff members. Define their roles and responsibilities in the process of retaining knowledge and transferring it to other staff members.
3. **Develop a knowledge transfer strategy** between staff members, including procedures for mentoring, coaching, job shadowing, and knowledge transfer sessions. Define the roles and responsibilities for knowledge transfer and ensure that staff members have the necessary resources and support to effectively transfer knowledge.
4. **Establish procedures for capturing and storing knowledge**, including procedures for documentation, indexing, and archiving. Define the roles and responsibilities for knowledge capture and storage and ensure that knowledge is captured in a consistent and standardized manner.
5. **Develop a training and development program** for staff members, including procedures for onboarding, job training, and ongoing professional development. Define the roles and responsibilities for training and development and ensure that staff members have the necessary skills and knowledge to effectively transfer knowledge.
6. **Establish a review and update process** for the knowledge retention plan to ensure that it remains relevant and effective.
7. **Incorporate the knowledge retention plan into the data governance policy**, and that it complements the policy's procedures for acquiring, storing, and updating data.
8. **Monitor and evaluate the effectiveness of the plan**, using metrics such as knowledge retention rates, staff feedback, and operational performance. Use this information to continuously improve the plan and ensure that it remains effective over time.

Table 4 Recommendation 1.3 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Knowledge Retention	All	**Moderate**	**Moderate - High**	**High**	2026 – Q1	4 Months

Urgency Level: Moderate

The urgency for developing a knowledge retention plan is marked as moderate. While it is not an immediate operational necessity, it plays a crucial role in the medium to long term by safeguarding against the loss of critical knowledge and ensuring staff can effectively manage and utilize data. Prioritizing this initiative within a reasonable timeframe can significantly aid in the seamless transition of roles and responsibilities, preventing potential disruptions in data management and utilization.

Impact Level: Moderate - High

The impact of a knowledge retention plan is moderate to high. By facilitating the effective transfer of data and expertise among staff, it contributes to enhancing operational efficiency, decision-making quality, and staff empowerment. It supports the building of a resilient organizational culture that values and manages its knowledge assets. The strategic benefit of such a plan extends to improved public trust and engagement, as it ensures that the organization can consistently deliver high-quality services and respond to public needs with informed precision.

Resource Intensity: High

Developing and implementing a knowledge retention plan is considered to have high resource intensity. It requires a thoughtful allocation of human and financial resources to design and execute training programs, documentation processes, and possibly technology platforms that facilitate knowledge sharing. While not as resource intensive as major infrastructure projects, it demands dedicated effort in planning, content development, and staff engagement to be successful.

Implementation:

- Lead Role: Human Resources
- Supporting Roles: All departments with specialized roles
- Estimated Staff Time: 80–100 hours
- 3rd Party Support Options: Yes; succession planning consulting

1.4 Identify Staff Knowledge & Training Requirements

1. **Identify key roles and responsibilities**: Identify the key roles and responsibilities within the department, and the knowledge and skills required to perform those roles effectively.
2. **Assess current knowledge and skills**: Assess the current knowledge and skills of staff members, to identify any gaps or areas for improvement.
3. **Identify software tools and other technologies**: Identify any software tools or other technologies that staff members are required to use and assess their proficiency in using these tools.
4. **Develop training and development plans**: Develop training and development plans for each staff member, which include specific training and development opportunities to address any identified gaps in knowledge and skills. This can include both internal training and development opportunities, as well as external training and professional development opportunities.
5. **Incorporate plans into work plans and budgets**: Incorporate the training and development plans into the annual departmental work plan and budget, ensuring that there is adequate funding and resources available to support these activities.
6. **Monitor progress**: Monitor progress against the training and development plans and adjust plans as necessary to ensure that staff members are receiving the necessary knowledge and skills to perform their roles effectively.
7. **Evaluate effectiveness**: Evaluate the effectiveness of the training and development activities, using metrics such as staff feedback, performance metrics, and other relevant data. Use this information to continuously improve the training and development plans and ensure that staff members are receiving the necessary knowledge and skills to perform their roles effectively.

Table 5 OP.4 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Training	All	**Moderate-High**	**Moderate - High**	**Low-Moderate**	2025 – Q4	4 Months

Urgency Level: Moderate - High

The CRD suggested that there are very few personnel equipped to utilize the software and data effectively, indicating a need for more comprehensive training from a data perspective. There may also be a need for dedicated personnel to conduct data governance. The initiative to identify staff knowledge and training requirements holds moderate to high urgency. While it may not directly address an immediate operational crisis, it is crucial for the strategic development of the workforce's capabilities, particularly in the effective use of software tools essential for asset management. Prioritizing this initiative aligns with the organization’s long-term objectives to enhance efficiency and competency in asset management practices.

Impact Level: Moderate - High

The potential impact of systematically identifying training requirements and embedding professional development opportunities into departmental planning is considered moderate to high. By doing so, the organization is better positioned to build a workforce that is adaptable, skilled, and capable of leveraging technology to meet evolving asset management needs. This proactive approach to workforce development can lead to improved operational performance, higher staff engagement, and, over time, increased public trust and satisfaction through enhanced service delivery.

Resource Intensity: Low - Moderate

The resource intensity for this initiative is estimated to be low to moderate. It focuses more on planning and administrative processes rather than direct financial investment in new technologies or infrastructural changes. However, it requires a dedicated effort to assess training needs, plan professional development activities, and allocate budgetary resources accordingly. While the financial implications might vary based on identified needs, the emphasis is on integrating these activities into existing budgetary and planning cycles, mitigating the need for substantial additional resources.

Implementation

- Lead Role: Human Resources
- Supporting Roles: All Department Managers
- Estimated Staff Time: 100–120 hours
- 3rd Party Support Options: Yes; AM training providers and industry associations can help

1.5 Develop an External Communications Strategy

1. **Define the scope and goals**: Define the scope of the external communication strategy, including the types of information that will be communicated to the public, and the goals of the strategy, such as building public trust, increasing awareness of asset management initiatives, and gathering feedback from the public.
2. **Identify interested parties and their needs**: Identify key interested parties, such as community members, businesses, and other organizations, and determine their needs and expectations for communication about asset management.
3. **Develop key messages and channels** that will be used to communicate with the public, such as social media, public meetings, or press releases.
4. **Determine the frequency and timing** of communication, including how often information will be shared and the timing of major announcements or events.
5. **Develop feedback mechanisms** to collect public feedback.
6. **Establish roles and responsibilities** for implementing the external communication strategy..
7. **Develop a monitoring and evaluation plan** to assess the effectiveness of the external communication strategy, including metrics such as engagement rates, public feedback, and changes in public perception.
8. **Continuously improve the strategy** using the feedback gathered from the public, ensuring that it remains effective and relevant over time.

Table 6 Recommendation 1.5 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Training	Communication	**Low**	**Moderate - High**	**Low-Moderate**	2026 – Q4	4 Months

Urgency Level: Low

The urgency for developing a medium- to long-term external communication strategy is classified as low. While crucial for long-term organizational success and public engagement, it does not address immediate operational or compliance issues. However, its role in fostering public awareness and trust in asset management initiatives is essential for achieving broader organizational objectives over time, meriting strategic prioritization within a reasonable timeframe.

Impact Level: Moderate - High

The impact of a well-crafted external communication strategy on the organization's performance is anticipated to be moderate to high. Effective communication can significantly elevate public trust and understanding of asset management practices, leading to increased community support and engagement. Furthermore, soliciting and incorporating public feedback into decision-making processes can enhance the relevance and effectiveness of asset management initiatives, potentially improving the organization's reputation and the satisfaction of the community it serves.

Resource Intensity: Low - Moderate

The resource intensity for developing and implementing an external communication strategy is estimated to be low to moderate. While it may not necessitate substantial financial outlays, the initiative requires targeted investment in communication channels, tools, and possibly external expertise to craft and disseminate the message effectively. Leveraging existing resources and experiences from previous projects can optimize the cost and effort involved, making it a strategically feasible initiative.

Implementation

- Lead Role: Communications Manager
- Supporting Roles: All departments providing services and Finance
- Estimated Staff Time: 100–120 hours
- 3rd Party Support Options: Yes; communications firms can assist with messaging and public materials

Element 2: Asset Information

The 'Asset Information' element considers the CRD 's current asset related data, and data management practices and processes—including how staff collect, store, analyze, and link data to their decision processes. Standardized, complete, and accurate information contributes to better decisions, and in the long-term, can help organizations stop the reactive maintenance loop and implement proactive strategies.

Current Practices and Maturity Level

The maturity level of asset information within the CRD is currently considered basic, with substantial gaps in critical data attributes. Primary asset data such as historical cost, replacement cost, estimated useful life (EUL), and condition assessments are incomplete or missing for many assets. Respondents have expressed low confidence in the completeness and quality of the asset datasets, citing concerns about outdated records, lack of as-built documents, and inadequate record-keeping practices. Asset management relies on inconsistent methods, including manual systems and basic tools like Excel, without a centralized or integrated system. This results in fragmented practices, impeding effective decision-making, as key areas such as lifecycle data, risk modeling, and condition assessments lack formal processes or consistency.

Secondary data attributes, such as physical properties and location, also show a similar level of maturity, with missing information for many assets. The asset data management practices are largely ad hoc and reactive, with no standardized process for updating key attributes such as replacement costs. The condition assessment program is fragmented, and data governance procedures are inconsistent, with no clear strategy across departments. While some advanced tools like BC Asset Manager and GIS are used in certain areas, their application is not CRD wide. Overall, asset management practices require substantial improvement in integration, standardization, and formalization to support more effective decision-making and reliable asset management.

Recommendations

2.1 Conduct an Asset Data Audit

1. **Define the purpose and scope:** Define the purpose and scope of the inventory data, including the types of assets that will be included and the goals of the inventory data. This will help to identify the data attributes that are most essential to include.
2. **Identify data attributes:** Identify the data attributes that are essential to include in the inventory data, such as asset type, location, condition, maintenance history, and other relevant data.
3. **Assess existing data:** Assess existing data to determine the extent to which the identified data attributes are already included. Identify any gaps or inconsistencies in the data and determine the causes of these gaps or inconsistencies.
4. **Develop a data audit plan:** Develop a plan for conducting a data audit to resolve any remaining data gaps. This plan should include the specific data attributes that need to be audited, the methods that will be used to audit the data, and the roles and responsibilities of staff members involved in the audit.
5. **Conduct the data audit:** Conduct the data audit according to the plan developed in step 4. This may involve reviewing existing data, conducting site visits, or gathering additional data from external sources.
6. **Update inventory data:** Use the results of the data audit to update the inventory data, including adding any missing data attributes and correcting any inconsistencies or errors.
7. **Develop data management processes:** Develop processes for managing the inventory data over time, including processes for updating the data, ensuring data accuracy and completeness, and addressing any future data gaps or inconsistencies.[2]
8. **Monitor and evaluate**: Monitor and evaluate the effectiveness of the inventory data over time, using metrics such as data accuracy and completeness, to ensure that the inventory data remains effective and relevant over time.

[2] As part of a data governance framework.

Table 7 Recommendation 2.1 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Data	Asset Owners	**High**	**High**	**High**	2025 – Q3	3 Months

Urgency Level: High

Given its foundational role in bolstering subsequent asset management efforts, the urgency of the above initiative is considered high. This initiative is not merely a preparatory step; it is critical for unlocking potential across various facets of the organization's asset management practices. Accurate and comprehensive inventory data is vital for effective decision-making, strategic planning, and operational efficiency, directly impacting the success of other projects and initiatives within the organization.

Impact Level: High

The execution of the above initiative is anticipated to have a high impact, fundamentally transforming asset performance monitoring, risk management, financial oversight, and employee engagement. By ensuring the integrity and completeness of inventory data, the organization is positioned to make more informed decisions, optimize resource allocation, and enhance the overall management of its assets.

Resource Intensity: High

The initiative's resource intensity is assessed as high. Selecting key data attributes and conducting a comprehensive audit will require an investment of financial, human, and technological resources. The initiative's inclusion in the project scope—particularly the commitment to an initial update—promises a focused and efficient utilization of these resources.

Implementation

- Lead Role: GIS/Data Management
- Supporting Roles: All departments providing asset data
- Estimated Staff Time: 120–160 hours
- 3rd Party Support Options: Yes; data consultants

2.2 Establish a Condition Assessment Program

1. **Define the scope** of the condition assessment and data capture programs, including the asset categories that will be included, the data attributes that will be captured, and the goals of the programs.
2. **Identify data attributes** that are essential to include in the condition assessment and data capture programs, such as asset type, location, condition, maintenance history, and other relevant data.
3. **Develop assessment protocols** that will be used to assess the condition of the assets and capture the essential data attributes. These protocols should include clear instructions for assessing asset condition, identifying data attributes, and recording data.
4. **Train staff** on the assessment protocols, including how to properly assess asset condition and capture data accurately.
5. **Conduct assessments** according to the protocols developed in step 3. This may involve site visits, inspections, and other data collection methods.
6. **Capture the data** for the attributes identified in step 2, ensuring that the data is accurate, complete, and consistent.
7. **Analyze the data** to identify any trends or patterns in asset condition and maintenance needs. Use this information to inform decision making and asset management activities.
8. **Develop data management processes** for managing the data collected through the condition assessment and data capture programs, including processes for updating the data, ensuring data accuracy and completeness, and addressing any future data gaps or inconsistencies.[3]
9. **Monitor and evaluate** the effectiveness of the condition assessment and data capture programs over time, using metrics such as data accuracy and completeness, to ensure that the programs remain effective and relevant over time.

Table 8 Recommendation 2.2 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Data	Asset Owners	**Moderate - High**	**Moderate**	**Moderate**	2025 – Q4	6 Months

[3] As part of a data governance framework.

Urgency Level: Moderate - High

The urgency of this initiative is considered moderate – high since it is a foundational step toward enhancing future asset management processes. This acknowledges the initiative's significance in preparing for more in-depth and sophisticated asset management activities. The timing is strategically chosen to allow for meticulous planning and seamless integration of these programs, aligning them with upcoming inspection schedules and broader goals.

Impact Level: Moderate

Despite the moderate impact, the potential impact of developing and implementing these condition assessment and data capture programs is deemed moderate. The initiative is pivotal in generating deeper insights into the condition and performance of assets, which will support improved maintenance strategies, financial planning, and risk management efforts in the long term. The initiative is expected to propel the organization towards adopting more proactive and predictive approaches, significantly enhancing operational effectiveness and the durability of assets.

Resource Intensity: Moderate

The initiative requires a moderate level of resources, involving significant investments in technology, training, and financial resources. This encompasses adopting new data capture technologies, educating staff on innovative assessment protocols, and embedding these processes within the existing asset management framework. This deliberate allocation of resources is designed to optimize the utility and relevance of the data collected for future asset management endeavors.

Implementation

- Lead Role: Utilities Manager
- Supporting Roles: GIS/Data Management
- Estimated Staff Time: 150–200 hours
- 3rd Party Support Options: Yes; condition assessments often rely on 3rd Party inspectors or engineers

2.3 Update Asset Replacement Cost Data

1. **Identify assets** that will be included in the update, ensuring that all assets are accounted for and none are missed.
2. **Gather all relevant data** on each asset, including asset type, age, condition, and other relevant data. This data can be obtained through site visits, inspections, and other data collection methods.
3. **Determine industry standard costing references** that will be used to update replacement costs. This may include industry databases, market surveys, and other sources of data such as in-house procurement data.
4. **Adjust for local market pricing:** Adjust industry standard costing references for local market pricing differences using local market data to adjust for regional pricing differences, labor costs, and other local factors.
5. **Update replacement costs:** Use the industry standard costing references and local market pricing adjustments to update asset replacement costs.
6. **Review and validate:** Review and validate the updated replacement costs to ensure that they are accurate and complete. This may involve checking for consistency, accuracy, and completeness of the data.
7. **Document and maintain:** Document the updated replacement costs for each asset and maintain accurate and up-to-date records. This will help to ensure that the replacement costs remain accurate over time and can be used to inform future asset management activities.

Table 9 Recommendation 2.3 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Data	Asset Owners	**Moderate - High**	**Moderate-High**	**Moderate**	2025 – Q4	3 Months

Urgency Level: Moderate - High

This initiative is classified with a moderate - high urgency level, acknowledging its pivotal role in enhancing the financial accuracy of the asset management database. Accurate and current replacement cost data are foundational for strategic asset management decisions, maintenance planning, and financial forecasting. The initiative influences the organization's ability to undertake budgeting, financial planning, and lifecycle management of assets with up-to-date financial insights.

Impact Level: Moderate - High

The potential impact of this comprehensive update is estimated to be moderate to high. By ensuring that replacement costs are reflective of the latest industry standards and adapted to current local market conditions, the organization can significantly improve the quality of its asset data. This improvement is crucial for facilitating strategic, informed decision-making across various levels of the organization, optimizing maintenance and replacement strategies, and enhancing the overall safety, reliability, and longevity of assets.

Resource Intensity: Moderate

Implementing this initiative involves a moderate level of resource commitment, spanning financial, human, and technological domains. Detailed planning, development of update protocols, and the incorporation of expert insights to align with industry benchmarks and market realities are essential components of this effort. The strategic allocation of these resources is aimed at achieving a comprehensive and accurate reflection of asset replacement costs within the organization's asset management system.

Embedded in the current work scope, this initiative will ensure that the organization's asset management and financial planning practices are based on robust and realistic data. By updating replacement costs to reflect current standards and market conditions, the organization is positioned to make more strategic, data-informed decisions that enhance its asset management efficacy and financial sustainability.

Implementation:

- Lead Role: Finance
- Supporting Roles: Utilities
- Estimated Staff Time: 100–150 hours
- 3rd Party Support Options: Yes; 3rd Party cost databases or engineers.

Element 3: Strategy and Planning

Asset management is only meaningful if it aligns with the CRD ’s overarching strategic direction as informed by Board’s priorities. This ‘line of sight’ approach ensures that all expenditures on infrastructure programs advance the community’s long-term objectives. In the ‘Strategy and Planning’ element, we evaluated how closely the CRD’s asset management program is linked with its corporate goals.

Current Practices and Maturity Level

The maturity level of strategy planning within the CRD is intermediate, with some areas progressing and others needing improvement. The 2022-2026 strategic plan aligns with the CRD’s mission, and most respondents are familiar with it. However, demand forecasting for capital assets and services varies, with some departments using advanced methods and others relying on basic practices, highlighting the need for a more consistent approach.

Service demand planning relies on a mix of master plans, external studies, and ad hoc analyses, with limited public consultation. While service goals are often defined in strategic documents, some are unclear or absent. The CRD would benefit from a more structured, standardized approach to planning and goal-setting to improve alignment with overall objectives.

Recommendations

3.1 Review the Asset Management Policy[4]

1. **Preliminary Assessment:** Conduct an initial review to evaluate the current Asset Management Policy's alignment with modern practices, regulatory requirements, and the regional CRD’s evolving needs.
2. **Scope Definition for Revision:** Define the specific objectives and boundaries of the policy revision. This includes determining which aspects of the policy are most critically in need of updates or complete overhauls to meet current and future asset management challenges.
3. **Comprehensive Information Gathering:** Collect and analyze data on the latest asset management standards, best practices, and legislative changes. Review existing documentation and conduct stakeholder interviews to understand the practical challenges and gaps in the current policy.

[4] Completed.

4. **In-depth Gap Analysis:** Perform a detailed gap analysis to pinpoint specific areas where the existing policy falls short of current standards, fails to address new challenges, or lacks clarity and effectiveness in its directives.
5. **Revision of Key Policy Elements:** Update the essential elements of the policy, including its objectives, scope, defined roles and responsibilities, performance metrics, and risk management strategies, ensuring they reflect contemporary asset management principles and practices.
6. **Development of Updated Framework:** Revise the policy's framework to incorporate modern asset management methodologies, improved governance structures, and enhanced performance and risk management approaches.
7. **Drafting and Refinement:** Produce a draft of the revised policy, ensuring the document is clear, comprehensive, and actionable. Review and refine the draft to address any inconsistencies or oversights.
8. **Final Review and Approval:** Submit the refined draft for final review and approval, ensuring it aligns with regional CRD objectives, legal requirements, and stakeholder expectations.
9. **Implementation and Communication Strategy:** Develop a strategy for communicating the revised policy across the organization and among external interested parties. Outline a clear plan for policy implementation, including training, procedural updates, and monitoring mechanisms.
10. **Ongoing Evaluation and Adaptation:** Establish a process for continuous monitoring of the policy's effectiveness, with provisions for regular reviews and updates to adapt to new challenges, technological advancements, and changes in regulatory and operational environments.

Table 10 Recommendation 3.1 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Political	All	**High**	**Moderate**	**Low - Moderate**	2024 – Q4	Completed[5]

As this recommendation has already been actioned, there is no further analysis of its urgency, impact, or resource intensity.

[5] A comprehensive review of the CRD's Asset Management Policy has been completed. Moreover, it will require continuous monitoring, and a 4-5 year review.

3.2 Develop a Key Document Register

1. **Define the scope:** Define the scope of the document register, including the key areas of asset management that will be covered and the types of documents that will be included.
2. **Identify key documents:** Identify the key documents related to each area of asset management, including master plans, external engineering or economic studies, modeling, policies, and public consultation results.
3. **Collect documents:** Collect copies of all identified documents, including electronic and hard copies.
4. **Organize documents:** Organize the documents in a systematic manner that is easy to navigate and search. This may involve categorizing the documents by type, date, or subject matter.
5. **Create a document register:** Create a document register that includes a list of all documents included in the register, as well as key details such as the document title, author, date, and location.
6. **Update the register:** Regularly update the document register as new documents are added or existing documents are revised or replaced.
7. **Make the register accessible:** Ensure that the document register is accessible to all relevant staff and interested parties, and that procedures are in place to allow staff to request access to specific documents as needed.
8. **Review and maintain the register:** Regularly review and maintain the document register to ensure that it remains up-to-date and relevant to the needs of the CRD.

Table 11 Recommendation 3.2 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Data	All	**High**	**Moderate-High**	**Low**	2025 – Q3	6 Months

Urgency Level: High

Developing a document register encapsulating all master plans, external engineering or economic studies, models, policies, and results from public consultations, holds a high urgency. This stems from the imperative need to systematically organize and centralize documentation critical to various facets of asset management, including condition assessment, risk management, and financial planning.

Impact Level: Moderate - High

Anticipated to exert a moderate to high impact, this initiative is pivotal in enhancing the CRD's asset management framework. By creating a centralized document register, the CRD ensures that vital information is readily accessible, fostering informed decision-making, strategic planning, and efficient policy implementation. Furthermore, such a register promotes transparency and facilitates more effective stakeholder engagement by making relevant information easily available.

Resource Intensity: Low

The development of a document register is characterized by a low level of resource intensity. While it requires meticulous planning and coordination to compile and organize the diverse range of documents, the financial implications are minimal. The primary investments involve staff time for the organization and categorization of documents and the potential use of existing IT infrastructure to host the register, enhancing its accessibility.

Implementation

- Lead Role: Records Management[6]
- Supporting Roles: All departments with asset reports and records
- Estimated Staff Time: 240-300 hours
- 3rd Party Support Options: Yes; records management or AM consultants can assist in organization

3.3 Develop the Asset Management Plan

Once the desired level of data maturity is achieved, the CRD will need to begin developing its Asset Management Plan. This document will need to integrate master plans, external engineering or economic studies, modeling, policies, and public consultation results.

1. **Review existing documentation:** Review the document register developed in the previous step, along with any other relevant documents, to gain a comprehensive understanding of the CRD's assets, their condition, and the risks associated with them.
2. **Conduct data analysis:** Analyze the data collected to identify trends, gaps, and opportunities for improvement.
3. **Develop performance objectives:** Develop performance objectives based on the analysis of data and input from key interested parties, including residents, staff, and elected officials.

[6] To be assigned by the CRD.

4. **Develop strategies:** Develop strategies for achieving the performance objectives, considering available resources, risk management considerations, and other relevant factors.
5. **Develop an implementation plan:** Develop an implementation plan that outlines the specific actions and timelines for implementing the strategies.
6. **Monitor and evaluate progress:** Implement the plan and monitor and evaluate progress regularly to ensure that the CRD is meeting its objectives.
7. **Review and update the plan:** Regularly review and update the Asset Management Plan as new information becomes available, changes in circumstances occur, or as required by legislation or policy.

Table 12 Recommendation 3.3 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Data	All	**Low**	**High**	**High**	2027 – Q1	10 Months

Urgency Level: High

The urgency for developing the CRD's Asset Management Plan is considered low, indicating that the commencement of this initiative is contingent upon reaching a desired level of data maturity. This strategic approach ensures that foundational data quality and completeness are established, providing a solid basis for the plan's development.

Impact Level: High

The impact of formulating a comprehensive Asset Management Plan is assessed as high. This pivotal document, by encompassing master plans, external engineering or economic analyses, modeling efforts, policy considerations, and outcomes from public consultations, will significantly enhance the CRD's ability to manage its assets effectively. The plan aims to optimize asset lifecycle management, risk management strategies, and financial planning, contributing to improved service delivery and infrastructure resilience.

Resource Intensity: High

The initiative is marked by high resource intensity, reflecting the extensive planning, coordination, and analytical work involved. Developing the Asset Management Plan requires a substantial investment of staff time, expertise, and potentially, external consultancy resources to incorporate a wide array of data sources and stakeholder inputs. The effort also involves leveraging advanced modeling techniques and integrating comprehensive public feedback, necessitating a considerable allocation of technological and financial resources.

Implementation

- Lead Role: Asset Management Lead
- Supporting Roles: All departments
- Estimated Staff Time: 200–250 hours
- 3rd Party Support Options: Yes; AM consultants can support integration, finalization, and quality control

Element 4: Asset Management Decisions

In 'Asset Management Decisions', we evaluate how the CRD prioritizes specific projects and spending decisions. It is closely linked to the 'Strategy and Planning' element, which focuses on broader trends and corporate goals. With a focus on individual projects, it is more tactical in nature.

Current Practices and Maturity Level

The maturity level of asset management decision-making in the CRD is basic, with inconsistent approaches to infrastructure planning and budgeting. While some use formal infrastructure master planning, many rely on decentralized methods or are unsure if a formal process exists. There is also uncertainty about whether growth projects are consistently included in long-term asset management budgets. Decision-making processes are varied, with some using structured methods like risk assessments and financial analysis, while others rely on informal practices. This mix of formal and informal approaches indicates the need for a more consistent, standardized decision-making process across the CRD.

Recommendations

4.1 Align master plans with asset management strategy

1. **Identify Integration Points:** Begin with a clear identification of where service master plans intersect with asset management objectives. This involves pinpointing services critical to community well-being that directly rely on physical assets managed by the CRD.
2. **Assess Current and Future Needs:** Perform an assessment to understand both the current state and future expectations for service delivery and infrastructure resilience. This dual focus ensures that service master plans are developed with a comprehensive view of asset utilization and lifecycle management.
3. **Vision and Goals Alignment:** Develop a unified vision and set of goals that align the aspirations of service master plans with the strategic objectives outlined in the asset management plans. This alignment ensures that efforts are synergized towards common outcomes, such as sustainability, efficiency, and resilience.
4. **Strategy Formulation and Evaluation:** Create strategies within service master plans that are informed by and supportive of asset management principles. Evaluate these strategies to ensure they maximize asset

performance, meet service delivery standards, and are financially sustainable.

5. **Developing Integrated Plans:** Draft integrated plans that clearly articulate how service delivery goals will be achieved through effective asset management. These documents should outline key actions, resource allocations, timelines, and responsible parties, ensuring a holistic approach to CRD infrastructure and services.
6. **Engage Interested parties for Consensus:** Conduct comprehensive stakeholder engagement to gather input, build consensus, and validate the integrated approach. This includes internal interested parties (across departments) and external ones (community members and service users) to ensure broad-based support.
7. **Implementing and Monitoring Progress:** Proceed with the implementation of the integrated plans, prioritizing initiatives that offer tangible benefits in service improvement and asset optimization. Establish robust monitoring mechanisms to track progress, adapt to changing circumstances, and continuously refine the integration of service master plans with asset management strategies.
8. **Review and Continuous Improvement:** Regularly review the integrated plans against performance metrics and stakeholder feedback. Use these insights to make iterative improvements, ensuring the CRD's infrastructure and services evolve in alignment with community needs and asset management best practices.

Table 13 Recommendation 4.1 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Data	Asset Owners	**Moderate**	**High**	**High**	2026 – Q1	18 Months

Urgency Level: Moderate

The urgency of updating the master plans before developing an asset management plan is considered key. This approach allows for the strategic and thoughtful alignment of the CRD 's overarching goals with specific asset management objectives. Updating the master plans first ensures that all future asset management initiatives are grounded in the latest strategic directions and service expectations.

Impact Level: High

The strategic update of master plans prior to the formulation of an asset management plan carries a high impact potential. This preparatory step is critical for embedding a

cohesive, strategic vision into the asset management framework, enabling enhanced decision-making, optimized asset performance, and improved service delivery that aligns with community needs and expectations.

Resource Intensity: High

Embarking on the process of updating master plans entails a significant commitment of resources, categorized as high due to the extensive stakeholder engagement, data collection, and analysis required. The comprehensive revision of master plans, prior to asset management planning, demands dedicated efforts from CRD staff and, potentially, external consultants to incorporate the latest insights, technologies, and methodologies.

Implementation

- Lead Role: Planning / Utilities
- Supporting Roles: All strategic plan owners
- Estimated Staff Time: 180–220 hours
- 3rd Party Support Options: Yes; strategic advisors or integrated planning consultants can support alignment

4.2 Develop lifecycle management strategies

1. **Identify Asset Groups:** Select asset groups to focus on for lifecycle management strategies.
2. **Define Lifecycle Activities:** Define the lifecycle activities for each asset group, including acquisition, maintenance, operation, rehabilitation, and disposal.
3. **Identify Triggers:** Identify triggers for each lifecycle activity, such as maintenance schedules, replacement cycles, and regulatory requirements.
4. **Assess Impacts:** Assess the post application impact, including added life, enhancements in condition etc.
5. **Evaluate Costs:** Evaluate the costs associated with each lifecycle activity, including capital expenses, operational expenses, and disposal expenses.
6. **Develop strategies** for each asset group that optimize lifecycle activities to reduce costs. Examples include:
7. **Implement the selected strategies**, incorporating necessary resources and tools, and communicate the changes to interested parties.
8. **Monitor and Evaluate:** Monitor and evaluate the effectiveness of the lifecycle management strategies, using key performance indicators (KPIs)

such as energy consumption, carbon emissions, waste generation, maintenance costs, and disposal costs. Use these insights to refine and adjust the strategies as necessary.

Table 14 Recommendation 4.2 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Frameworks	All	**Moderate - High**	**Moderate - High**	**Moderate - High**	2025 – Q4	4 Months

Urgency Level: Moderate - High

The urgency for establishing lifecycle management strategies is moderate - high, given its pivotal role in enhancing the CRD 's asset management capabilities. Timely development is crucial to align with project milestones and objectives.

Impact Level: Moderate - High

The potential impact of deploying comprehensive lifecycle management strategies is rated as moderate to high. By adopting a systematic approach, the CRD can make more informed decisions, leading to optimized resource allocation and improved asset performance.

Resource Intensity: Moderate - High

Developing and applying lifecycle management strategies entail a moderate to high level of resource commitment, including extensive data gathering, risk and cost analysis, and collaboration across departments. Technical resources and dedicated personnel are essential for successful implementation and ongoing refinement.

Implementation

- Lead Role: Utilities
- Supporting Roles: Finance, GIS, Procurement
- Estimated Staff Time: 150–200 hours
- 3rd Party Support Options: Yes; AM consultants can help with strategy templates and costing

4.3 Develop A Prioritization Framework

1. **Define the scope:** Define the scope of the prioritization framework by identifying the asset categories or services to be prioritized.

2. **Identify and gather data:** Identify and gather the relevant data for each asset category or service, including the cost estimates, risk assessments, and LOS requirements.

3. **Determine weights:** Determine the appropriate weighting for each factor (cost, risk, and LOS) based on the CRD's goals and objectives.

4. **Develop a scoring system**: Develop a scoring system that incorporates the weighting for each factor and assigns a score to each asset category or service.

5. **Rank asset categories/services:** Rank the asset categories or services based on their scores to establish a priority list.

6. **Review and update:** Continuously review and update the prioritization framework to ensure it remains relevant and effective.

Table 15 Recommendation 4.3 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Frameworks	All	**Low**	**High**	**Moderate**	2027 – Q1	6 Months

Urgency Level: Low

The urgency of this initiative is low as it should be concurrent with the development of the asset management plan in 2027. Integrating the prioritization framework with the asset management plan ensures consistency and alignment in decision-making processes, enhancing the overall effectiveness of both initiatives.

Impact Level: High

The development of a prioritization framework incorporating costs, risk assessment, and LOS considerations will have a significant impact on decision-making processes. It will provide decision-makers with a structured approach to evaluate and prioritize projects based on their alignment with organizational goals, risk factors, and service level requirements. This, in turn, will lead to more efficient resource allocation, improved asset management practices, and better overall organizational performance.

Resource Intensity: Moderate

Developing a prioritization framework requires moderate resources, including time and expertise to gather relevant data, conduct risk assessments, and define the criteria for evaluating projects. While the initial investment may be significant, the long-term benefits, such as improved decision-making and resource optimization, justify the resource allocation.

Implementation

- Lead Role: Utilities
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 100–140 hours
- 3rd Party Support Options: Yes; consultants can facilitate

4.4 Develop business case templates

1. **Determine the purpose and scope:** Determine the purpose and scope of the business case template: This should include what types of projects the template will cover, who the intended audience is, and any specific requirements or guidelines to follow.
2. **Identify the key sections of the template:** Identify the key sections that the business case template will include. This should include sections for the project description, objectives, options analysis, whole life costs, risks, and LOS impacts.
3. **Define the contents:** Define the contents of each section. For example, the project description section should provide a detailed overview of the proposed project, while the options analysis section should include an evaluation of different options and their associated costs, risks, and benefits.
4. **Identify Data Sources Requirements:** Identify the data sources that will be required to complete each section. This may include data on current asset conditions, historical maintenance costs, projected service demands, and any relevant regulations or policies.
5. **Develop a standardized format:** Develop a standardized format for the business case template, including headings, subheadings, and any required tables or figures.
6. **Pilot test** the business case template on a sample project to identify any issues or areas for improvement.
7. **Refine the business case template** based on feedback from the pilot test.

8. **Train staff** on how to use the template and provide ongoing support to ensure that the template is being used consistently and effectively.
9. **Regularly review and update** the business case template to ensure that it remains relevant and aligned with best practices in asset management.

Table 25 Recommendation 4.4 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Frameworks	All	**Low**	**High**	**Moderate**	2027 – Q4	4 Months

Urgency Level: Low

The urgency for this initiative is low as it is planned to be carried out after the adoption of the asset management plan. Once the plan is in place, the development of business case templates will serve as a complementary effort to enhance decision-making processes and ensure consistency in evaluating proposed projects.

Impact Level: High

The development of business case templates that incorporate whole life costs, risks, and LOS impacts will have a high impact on decision-making processes. These templates will provide decision-makers with a structure to assess proposed projects, enabling them to make informed choices that align with organizational objectives, mitigate risks, and address service level requirements effectively.

Resource Intensity: Moderate

Developing business case templates requires a moderate allocation of resources, including time and expertise to define the template structure, gather relevant data, and establish criteria for evaluating projects. While there may be initial resource investments involved, the long-term benefits, such as improved decision-making and alignment with organizational goals, justify the allocation.

Implementation

- Lead Role: Procurement
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 80–100 hours
- 3rd Party Support Options: Yes; standard templates can be sourced and adapted with external help

Element 5: Risk Management

The level of risk an asset carries determines the degree to which it is proactively managed through lifecycle activities, and the level of investment it requires. Risk is a function of an asset's probability of failure and the consequences of that failure event. The likelihood that an asset will fail can be based on many factors, including its age, condition, design, and the level of its exposure to deterioration accelerators, e.g., extreme weather events.

An asset failure event can have many different consequences, each with its own weighting. These can include economic, financial, social, health and safety, environmental, and even political or reputational consequences. Using the probability and consequence, asset risk frameworks can be developed. These frameworks can provide strong guidance on prioritizing projects.

Current Practices and Maturity Level

The CRD's risk management maturity is considered basic, with a limited, informal understanding of economic, financial, social, and environmental risks related to its assets. Risk assessments are largely ad-hoc, relying on paper and digital records, with some use of centralized asset inventories and maintenance systems. There are few formal risk models in place, and risk management processes are mostly based on departmental input and operator recommendations.

The use of risk matrices for project prioritization is still in the early stages, with many respondents unsure or indicating that the process is not formally established. While risk matrices are used to inform lifecycle activities, their implementation varies, and the process is not consistently applied across the CRD. Overall, risk management practices need more formalization and standardization to improve effectiveness and integration into decision-making.

Recommendations

5.1 Develop a risk framework

1. **Identify asset categories and subcategories:** Identifying the asset categories and subcategories that will be included in the risk framework.
2. **Determine specific risks:** Determining the specific risks associated with each asset category and subcategory, considering financial, social, health & safety, and environmental factors.
3. **Establish risk likelihood and impact criteria:** Establishing criteria for risk likelihood and impact, such as low, medium, and high.
4. **Develop a rating system:** Developing a rating system that assigns a score to each asset category and subcategory based on likelihood and impact.
5. **Create a risk matrix:** Creating a risk matrix that visualizes the likelihood and impact of each asset category and subcategory.
6. **Determine risk treatment options:** Determining risk treatment options for each asset category and subcategory based on the risk matrix, including risk mitigation, risk transfer, risk acceptance, and risk avoidance.
7. **Assign risk management responsibilities:** Assigning responsibilities for risk management activities to appropriate staff members.
8. **Develop and implement risk management plans:** Developing and implementing risk management plans for each asset category and subcategory, including actions, timelines, and resources required for risk treatment options.
9. **Monitor and evaluate risk management plans:** Monitoring and evaluating the effectiveness of risk management plans, updating the risk framework as needed.

Table 16 Recommendation 5.1 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Frameworks	All	**Moderate - High**	**Moderate - High**	**Moderate**	2025 – Q4	4 Months

Urgency Level: Moderate - High

Given the critical nature of risk management in asset management, the urgency for this is moderate-high. Developing a risk framework is essential to proactively identify and mitigate risks associated with asset failure. By modeling the probability of asset failure and assessing various financial, social, health & safety, and environmental

risks, the CRD can make informed decisions to ensure the reliability, safety, and sustainability of its assets. Addressing this initiative promptly aligns with the CRD's goals of enhancing asset management practices and minimizing potential risks.

Impact Level: Moderate - High

The impact of developing a risk framework is moderate to high. Implementing a comprehensive risk framework enables the CRD to conduct qualitative risk analysis and model the probability of asset failure effectively. This empowers decision-makers to prioritize asset maintenance, allocate resources efficiently, and minimize disruptions due to asset failures. Furthermore, by considering various risks associated with asset failure, the CRD can enhance its resilience to unforeseen events, improve service delivery, and protect public welfare and environmental interests.

Resource Intensity: Moderate

Developing a risk framework requires a moderate resource intensity. It involves allocating resources such as time, expertise, and potentially external consultation to design and implement a robust framework. While the initial investment may be significant, the long-term benefits, including improved risk management practices and optimized resource allocation, justify the resource allocation. Additionally, investing in risk management contributes to the CRD 's overall financial stability and operational effectiveness in the long run.

Implementation:

- Lead Role: Asset Management Lead
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 150–200 hours
- 3rd Party Support Options: Yes; risk management specialists

Element 6: Levels of Service

Levels of service (LOS) measure the quality, function, and capacity of an asset class or service area. They include technical and customer-oriented metrics and key performance indicators (KPIs) and are used to monitor performance. LOS should balance performance, risk, and overall program costs for an asset class. Defining current and proposed LOS for all asset classes is critical for asset management.

Current Practices and Maturity Level

The CRD's approach to LOS is inconsistent, with many respondents unsure about the analysis and documentation process. There is a basic or intermediate understanding of legislated and regulatory requirements.The CRD does not consistently report LOS goals, and many are unsure whether KPIs are tracked. While technical metrics are sometimes gathered through systems like SCADA and field assessments, community metrics are linked to informal sources like public engagement. Despite the lack of formal reporting, service metrics occasionally inform project prioritization and financial analysis.

Recommendations

6.1 Develop a levels of service register

1. **Define the scope** of asset programs that require LOS and KPIs to be established.
2. **Identify interested parties** that need to be engaged in the process, including the internal team, community members, and external partners.
3. **Identify KPIs** that will measure whether the strategic priorities of the CRD are being achieved. Consider both qualitative and quantitative measures that are meaningful to interested parties.
4. **Establish measurement methods** for each KPI. Identify the data collection methods, analysis processes, and reporting mechanisms.
5. **Implement and monitor** the LOS register and KPIs over time. Adjust as necessary based on changes in strategic priorities, community needs, and other factors.
6. **Communicate** the LOS and KPIs to internal and external interested parties, as well as the public. This will ensure that everyone is aware of the CRD's priorities and progress toward achieving them.

Table 17 Recommendation 5.1 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Frameworks	All	**Moderate - High**	**Moderate**	**Moderate**	2026 – Q1	3 Months

Urgency Level: Moderate - High

The urgency of the above initiative, which involves developing a LOS register and collecting KPIs, is assessed as moderate to high. While establishing this framework is essential for assessing organizational objectives and strategic priorities, it may not demand immediate attention compared to more critical or time-sensitive initiatives. However, addressing this initiative in a timely manner is crucial to ensure that the organization can effectively monitor its performance and make informed decisions based on accurate data.

Impact Level: Moderate

Developing a LOS register and collecting KPIs will have a moderate impact on the organization. This initiative will provide valuable insights into the organization's performance against established objectives, enabling better decision-making and resource allocation. By systematically assessing whether strategic priorities are being achieved, the organization can identify areas for improvement and ensure that resources are allocated effectively to meet its goals.

Resource Intensity: Moderate

The resource intensity for the above initiative is moderate. While developing the LOS register and collecting KPIs will require a significant allocation of resources, including time and expertise, it is not expected to be overly burdensome. This initiative will involve defining organizational objectives, selecting appropriate KPIs, establishing data collection methods, and implementing systems for monitoring and reporting. While there may be some initial investment required, the long-term benefits in terms of improved performance measurement and strategic alignment justify the resource allocation.

Implementation:

- Lead Role: Asset Management Lead
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 120–160 hours
- 3rd Party Support Options: Yes; external support can help align metrics with national standards

6.2 Establish a levels of service framework

1. **Identify the relevant legislative requirements** related to asset management and LOS that the CRD must comply with. This may include national or regional laws and regulations, industry standards, and any agreements or contracts that the CRD is party to.
2. **Review strategic planning documents** such as the long-term strategic plan, asset management policy, and master plans for the essential infrastructure service areas. Identify any strategic priorities or commitments related to LOS, such as targets for service delivery or customer satisfaction.
3. **Research trends and best practices** in LOS for similar CRDs, local governments, and organizations. This may include reviewing industry publications, attending conferences or workshops, or consulting with experts.
4. **Develop a framework** for LOS that considers legislative requirements, strategic priorities, and best practices. This framework should include definitions of KPIs, target LOS, and methods for measuring and reporting on performance.
5. **Engage with interested parties**, including internal staff, external partners, and members of the community, to gather feedback on the proposed LOS framework. Incorporate this feedback into the framework as appropriate.
6. **Implement the framework** once the LOS framework has been developed and approved. This may involve establishing KPI tracking and reporting systems, training staff on the new framework, and communicating the framework to interested parties.
7. **Monitor and evaluate performance** against the KPIs established in the LOS framework. Use this information to adjust the framework as needed to ensure that strategic priorities are being achieved, and legislative requirements are being met.

Table 18 LOS.2 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Frameworks	All	**Moderate**	**High**	**High**	2026 – Q2	4 Months

Urgency Level: Moderate

The urgency for this initiative is classified as moderate. While it is important to establish a LOS framework for decision-making, addressing this initiative may not require immediate attention compared to more pressing priorities. However,

initiating this process in a timely manner is crucial to ensure that the organization can effectively integrate LOS considerations into its decision-making processes.

Impact Level: High

Developing a LOS framework for decision-making will have a high impact on the organization. This initiative will provide a structured approach for evaluating performance against organizational objectives, thereby enhancing the organization's ability to achieve its strategic goals and optimize resource allocation. By incorporating LOS considerations into decision-making processes, the organization can improve service delivery and stakeholder satisfaction.

Resource Intensity: High

The resource intensity for this initiative is high. Developing a comprehensive LOS framework will require significant resources, including time, expertise, and financial investment. This initiative will involve conducting thorough assessments, defining appropriate performance metrics, and establishing processes for monitoring and evaluating performance against the framework. Despite the high resource intensity, the long-term benefits in terms of improved decision-making and strategic alignment justify the investment.

Implementation:

- Lead Role: Asset Management Lead
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 120–160 hours
- 3rd Party Support Options: Yes; dashboard or software developers may assist

6.3 Engage the public to determine service level expectations

1. **Identify the service areas and services** to engage the public on for service level expectations.
2. **Identify interested parties** who are likely to be impacted by the service and whose opinions are important for the decision-making process. This may include residents, business owners, community groups, etc.
3. **Develop an engagement plan** that outlines the objectives, timeline, methods of engagement, and communication strategies.
4. **Choose engagement methods** that are appropriate for the interested parties and the service being considered.
5. **Notify interested parties** about the engagement, including the purpose of the engagement, the timeline, and how their input will be used.

6. **Implement engagement activities** according to the engagement plan, ensuring that interested parties have access to the methods chosen.
7. **Collect and analyze feedback** looking for common themes, areas of agreement, and areas of disagreement.
8. **Develop service level expectations** based on the feedback received and the objectives of the service.
9. **Communicate the results** of the engagement process, including the service level expectations developed, to interested parties and the public.
10. **Review and update** the service level expectations periodically to ensure that they reflect current needs and are consistent with strategic priorities.

Table 19 LOS.3 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Frameworks	All	**Low**	**High**	**Moderate - High**	2026 – Q4	4 Months

Urgency Level: Low

The urgency for this initiative is classified as low. Engaging the public to determine service level expectations is an important aspect of strategic planning, but it may not require immediate attention compared to other pressing priorities. However, initiating this process in a timely manner is essential to ensure that the organization can effectively incorporate public feedback into its decision-making processes.

Impact Level: High

Engaging the public to determine service level expectations will have a high impact on the organization. This initiative will provide valuable insights into the community's needs and preferences, enabling the organization to align its service delivery with public expectations. By involving the public in the decision-making process, the organization can enhance transparency, accountability, and trust, ultimately leading to improved stakeholder satisfaction and community relations.

Resource Intensity: Moderate - High

The resource intensity for this initiative is moderate to high. Engaging the public requires significant resources, including time, personnel, and financial investment. This initiative will involve conducting outreach activities, such as surveys, public meetings, and focus groups, to gather input from a diverse range of interested parties. Additionally, the organization will need to analyze and synthesize the feedback received to inform decision-making effectively. Despite the resource

intensity, the long-term benefits of improved community engagement and stakeholder satisfaction justify the investment.

Implementation

- Lead Role: Asset Management Lead
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 140–180 hours
- 3rd Party Support Options: Yes; external engagement firms can support survey design and outreach

Element 7: Financial Management

This section focuses on how the CRD links its financial planning with asset management to ensure a sustainable service delivery model. Given the lengthy useful life of most capital assets, a long-term view to funding and financing is essential.

Current Practices and Maturity Level

The CRD's financial management maturity is basic, with inconsistent approaches to budgeting and limited collaboration across departments. Budgeting processes are ad hoc, and while factors like risk, renewal needs, and LOS are considered, there is a lack of integration with optimized lifecycle strategies. The analysis of capital and operating requirements varies, with some areas lacking comprehensive understanding or necessary analysis. Additionally, the alignment between the long-term budget and service targets is unclear, highlighting the need for a more structured, formalized approach to ensure financial sustainability and better alignment with strategic objectives.

Recommendations

7.1 Lifecycle cost financing strategy

1. **Identify asset categories** that require funding based on lifecycle needs.
2. **Define lifecycle needs** for each asset category, including acquisition, maintenance, operation, and disposal, and the associated costs.
3. **Determine whole life costs** for each asset category, including initial capital costs, ongoing operational and maintenance costs, and end-of-life costs.
4. **Identify funding sources** for each lifecycle need, including the capital budget, reserves, grants, and other sources.
5. **Develop funding strategies** that link the capital budgets to the lifecycle needs of each asset category, incorporating whole life costs and estimating the funding gap.
6. **Estimate the funding gap** for each asset category.
7. **Prioritize funding** based on the criticality of each asset category, its impact on service delivery, and the urgency of its lifecycle needs.
8. **Implement funding strategies** incorporating necessary resources and tools, and communicate the changes to interested parties.

9. **Monitor and evaluate** the effectiveness of the funding strategies, using KPIs such as budget variances, asset condition, and service delivery levels. Use these insights to refine and adjust strategies as needed.

Table 20 Recommendation 7.1 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Financial	All	**Moderate**	**High**	**Moderate**	2026 – Q4	6 Months

Urgency Level: Moderate

The urgency is considered moderate as it involves linking capital budgets to lifecycle needs, crucial for effective financial planning. While immediate action may not be imperative, addressing this initiative in a timely manner will enhance the alignment between capital budgets and lifecycle requirements, thereby optimizing resource allocation and long-term asset management strategies.

Impact Level: High

The impact of linking capital budgets to lifecycle needs is high. This initiative will enhance financial planning by ensuring that capital budgets adequately account for full lifecycle costs. This will allow the CRD to make more informed asset investment decisions, prioritize projects effectively, and mitigate risks associated with inadequate funding or unexpected expenses. This will lead to improved asset management practices, enhanced infrastructure resilience and greater fiscal sustainability.

Resource Intensity: Moderate

The resource intensity is moderate, requiring dedicated efforts to integrate lifecycle needs into capital budgets. While it involves initial investment of time and expertise to develop methodologies and processes, the long-term benefits justify the cost. The initiative may require collaboration among various departments to gather relevant data, analyze lifecycle costs, and incorporate them into budgetary planning. However, with efficient coordination and utilization of existing resources, the resource intensity can be managed effectively within the specified timeframe.

Implementation:

- Lead Role: Finance
- Supporting Roles: All asset-owning departments
- Estimated Staff Time: 140–180 hours
- 3rd Party Support Options: Yes; financial AM consultants can support funding scenario development

7.2 Long-Term Financial Sustainability Framework

1. **Identify service levels** that are critical for maintaining the CRD's infrastructure and achieving its strategic objectives.
2. **Define growth and service level needs** for each asset category, including acquisition, maintenance, operation, and disposal, and the associated costs.
3. **Determine financial scenarios** that align with the CRD's strategic objectives and account for growth and service level needs.
4. **Estimate the financial impacts** of each scenario, including the capital costs required to achieve the desired growth and service levels.
5. **Document service level implications** of each financial scenario, including the impact on the CRD's ability to maintain existing infrastructure.
6. **Link capital budgets** to the growth and service level needs, prioritizing funding based on the criticality of each asset category and its impact on service delivery.
7. **Communicate changes** in funding priorities to interested parties, including residents, businesses, elected officials, and CRD staff.
8. **Monitor and evaluate** the effectiveness of funding strategies, using KPIs like budget variances, asset condition, service delivery levels, and resident satisfaction. Use these insights to refine and adjust strategies as needed.

Table 21 Recommendation 7.2 Summary

Focus	Departments	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timeframe for Completion
Financial	All	**Low**	**High**	**High**	2027 – Q1	6 Months

Urgency Level: Low

The urgency for this initiative is considered low, as it is planned for implementation in 2027 – Q1, allowing sufficient time for preparation and execution. While it is important to link capital and operating budgets to growth and LOS metrics, the current circumstances do not necessitate immediate action. However, it remains crucial for the CRD to prioritize this initiative to enhance financial planning and service delivery effectiveness in the long term.

Impact Level: High

The impact of linking capital and operating budgets to growth and LOS metrics is deemed high. By establishing this linkage, the CRD will gain valuable insights into

the relationship between financial decisions and service levels. Documenting the service level implications of financial scenarios will enable decision-makers to make informed choices, prioritize investments, and allocate resources effectively. This will ultimately lead to improved service delivery, enhanced public satisfaction, and greater transparency in financial decision-making.

Resource Intensity: High

The resource intensity for this initiative is high, as it requires substantial efforts to establish a robust framework for linking budgets to growth and LOS metrics. Developing methodologies for documenting service level implications will demand dedicated time, expertise, and collaboration among various departments. Additionally, gathering and analyzing data related to growth and service levels, as well as incorporating them into budgetary planning, will necessitate significant resource allocation. However, with careful planning and effective coordination, the CRD can successfully implement this initiative within the specified timeframe, yielding long-term benefits for financial planning and service delivery.

Implementation:

- Lead Role: Finance
- Supporting Roles: All asset-owning departments
- Estimated Staff Time: 160–200 hours
- 3rd Party Support Options: Yes; financial planners or AM specialists can support scenario analysis

Implementation Timeline Summary

This structured implementation plan ensures a logical progression of initiatives, starting with governance, data improvements, and risk management, followed by financial sustainability, LOS tracking, and public engagement. Actions are prioritized based on their ratings for urgency, impact, and resource intensity, beginning with high-urgency, high-impact, and low-resource intensity initiatives. The actions outlined by this strategy will lead to a fully developed Asset Management Plan by the end of 2027.

Table 22 Recommendations Overview

#	Focus Area	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timing
1.1	Steering	**High**	**Moderate-High**	**Moderate**	2025 – Q2	<3 Months
2.2	Data	**Moderate - High**	**Moderate - High**	**High**	2025 – Q4	6-12 Months
1.3	Knowledge Retention	**Moderate**	**Moderate - High**	**High**	2026 – Q1	4 Months
1.4	Training	**Moderate - High**	**Moderate - High**	**Low - Moderate**	2025 – Q4	4 Months
1.5	Communications	**Low**	**Moderate - High**	**Low - Moderate**	2026 – Q4	4 Months
2.1	Data	**High**	**High**	**High**	2025 – Q3	3 Months
2.2	Data	**Moderate - High**	**Moderate**	**Moderate**	2025 – Q4	6 Months
2.3	Data	**Moderate - High**	**Moderate - High**	**Moderate**	2025 – Q4	3 Months
3.1	Policy	**High**	**Moderate**	**Low - Moderate**	2024 – Q4	Complete[7]
3.2	Data	**High**	**Moderate - High**	**Low**	2025 – Q3	6 Months
3.3	Data	**Low**	**High**	**High**	2027 – Q1	10 Months

[7] The Asset Management Policy was recently updated and adopted, and will require review every 5 years.

#	Focus Area	Urgency Level	Impact Level	Resource Intensity	Initiation Period	Timing
4.1	Data	**Moderate**	**High**	**High**	2026 – Q1	18 Months
4.2	Frameworks	**Moderate - High**	**Moderate - High**	**Moderate - High**	2025 – Q4	4 Months
4.3	Frameworks	**Low**	**High**	**Moderate**	2027 – Q1	6 Months
4.4	Frameworks	**Low**	**High**	**Moderate**	2027 – Q4	4 Months
5.1	Frameworks	**Moderate - High**	**Moderate - High**	**Moderate**	2025 – Q4	4 Months
6.1	Frameworks	**Moderate - High**	**Moderate**	**Moderate**	2026 – Q1	3 Months
6.2	Frameworks	**Moderate**	**High**	**High**	2026 – Q2	4 Months
6.3	Frameworks	**Low**	**High**	**Moderate - High**	2026 – Q4	4 Months
7.1	Financial	**Moderate**	**High**	**Moderate**	2026 – Q2	6 Months
7.2	Financial	**Low**	**High**	**High**	2027 – Q1	6 Months

2025 – Q3 (July – September)

1. Restructure the Asset Management Steering Committee (1.1)

- Objective: Establish a formal committee with clear objectives, meeting schedules, and organization-wide coordination.
- Lead Role: Asset Management Initiative Lead
- Supporting Roles: Department Managers, CFO, IT/GIS, and Clerical support
- Estimated Staff Time: 90–135 hours annually (10–15 hours per participant)
- 3rd Party Support Options: Not required.

2. Conduct an Asset Data Audit (2.1)

- Objective: Define key asset data attributes, centralize asset inventory, and identify & address gaps.
- Lead Role: GIS/Data Management

- Supporting Roles: All departments providing asset data
- Estimated Staff Time: 120–160 hours
- 3rd Party Support Options: Yes; data consultants

3. Develop a Centralized Document Register (3.2)

- Objective: Compile all relevant asset management documents, including master plans, policies, financial data, and public consultation reports.
- Lead Role: Records Management[8]
- Supporting Roles: All departments with asset reports and records
- Estimated Staff Time: 240–300 hours
- 3rd Party Support Options: Yes; records management or AM consultants can assist in organization

2025 – Q4 (October – December)

4. Develop Lifecycle Management Strategies for Key Asset Groups (4.2)

- Objective: Define asset lifecycle activities, triggers, and cost evaluations.
- Lead Role: Utilities
- Supporting Roles: Finance, GIS, Procurement
- Estimated Staff Time: 150–200 hours
- 3rd Party Support Options: Yes; AM consultants can help with strategy templates and costing

5. Implement a Data Governance Framework (1.2)

- Objective: Standardize data collection, entry, and update procedures to ensure consistency.
- Lead Role: IT / Data Governance Lead
- Supporting Roles: All departments contributing data
- Estimated Staff Time: 180–240 hours
- 3rd Party Support Options: Yes; governance frameworks can be developed with consulting support.

[8] To be assigned by the CRD.

6. Identify Staff Knowledge & Training Requirements (1.4)

- Objective: Identify knowledge gaps, plan targeted training, and integrate learning into departmental work plans.
- Lead Role: Human Resources
- Supporting Roles: All Department Managers
- Estimated Staff Time: 100–120 hours
- 3rd Party Support Options: Yes; AM training providers and industry associations.

7. Update Asset Replacement Cost Data (2.3)

- Objective: Conduct a comprehensive cost review using industry-standard references and local market adjustments.
- Lead Role: Finance
- Supporting Roles: Utilities
- Estimated Staff Time: 100–150 hours
- 3rd Party Support Options: Yes; 3rd Party cost databases or engineers.

8. Establish a Comprehensive Condition Assessment Program (2.2)

- Objective: Develop formal asset assessment protocols and establish data collection standards.
- Lead Role: Utilities Manager
- Supporting Roles: GIS/Data Management
- Estimated Staff Time: 150–200 hours
- 3rd Party Support Options: Yes; condition assessments often rely on 3rd Party inspectors or engineers

9. Develop a Prioritization Framework (4.3)

- Objective: Implement a structured prioritization model incorporating cost, risk, and LOS.
- Lead Role: Utilities
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 100–140 hours
- 3rd Party Support Options: Yes; consultants can facilitate

10. Define Levels of Service (LOS) Performance Metrics (6.1)

- Objective: Establish KPIs for service delivery.
- Lead Role: Asset Management Lead
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 120–160 hours
- 3rd Party Support Options: Yes; external support can help align metrics with national standards

11. Establish a Risk Management Framework (5.1)

- Develop structured risk assessment methodologies and integrate risk mitigation into decision-making.
- Lead Role: Asset Management Lead
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 150–200 hours
- 3rd Party Support Options: Yes; risk management specialists

2026 – Q1 (January – March)

12. Develop a Knowledge Retention Plan (1.3)

- Implement structured processes for knowledge transfer and retention.
- Lead Role: Human Resources
- Supporting Roles: All departments with specialized roles
- Estimated Staff Time: 80–100 hours
- 3rd Party Support Options: Yes; succession planning consulting

13. Develop Business Case Templates for Asset Management Projects (4.4)

- Standardize capital project evaluations with whole-life cost, risk, and service impact analysis.
- Lead Role: Procurement
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 80–100 hours
- 3rd Party Support Options: Yes; standard templates can be sourced and adapted with external help

2026 – Q2 (April – June)

14. Align Master Plans with Asset Management Strategies (4.1)

- Ensure infrastructure master plans are fully integrated with asset management objectives.
- Lead Role: Planning / Utilities
- Supporting Roles: All strategic plan owners
- Estimated Staff Time: 180–220 hours
- 3rd Party Support Options: Yes; strategic advisors or integrated planning consultants can support alignment

15. Lifecycle cost financing strategy (7.1)

- Objective: Align budgets with asset management priorities.
- Lead Role: Finance
- Supporting Roles: All asset-owning departments
- Estimated Staff Time: 140–180 hours
- 3rd Party Support Options: Yes; financial AM consultants

2026 – Q3 (July – September)

16. Establish a Levels of Service Framework (6.2)

- Objective: Create a structured process for tracking, evaluating, and reporting LOS.
- Lead Role: Asset Management Lead
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 200-250 hours
- 3rd Party Support Options: Yes; dashboard or software developers

17. Long-Term Financial Sustainability Framework (7.2)

- Objective: Develop financial forecasting tools and sustainable funding policies.
- Lead Role: Finance
- Supporting Roles: All asset-owning departments
- Estimated Staff Time: 160–200 hours
- 3rd Party Support Options: Yes; financial planners or AM specialists

2026 – Q4 (October – December)

18. Define Target Levels of Service & Public Engagement Approach (6.3)

- Objective: Establish clear level-of-service targets, integrate them into planning, and improve public communication on service expectations.
- Lead Role: Asset Management Lead
- Supporting Roles: All asset-owning departments and Finance
- Estimated Staff Time: 140–180 hours
- 3rd Party Support Options: Yes; external engagement

19. Develop an External Communication Strategy (1.5)

- Objective: Establish public engagement mechanisms to improve transparency in asset management decision-making.
- Lead Role: Communications Manager
- Supporting Roles: All departments providing services and Finance
- Estimated Staff Time: 100–120 hours
- 3rd Party Support Options: Yes; communications firms

2027 – Q1 (January – March)

20. Finalize & Implement the Asset Management Plan (3.3)

- Objective: Integrate all initiatives into a comprehensive, data-driven plan, incorporating financial sustainability, risk management, and LOS.
- Lead Role: Asset Management Lead
- Supporting Roles: All departments
- Estimated Staff Time: 200–250 hours
- 3rd Party Support Options: Yes; AM consultants

Final Summary

This step-by-step implementation timeline ensures that asset management efforts are developed logically and efficiently:

2025: **Focus on governance, data collection, lifecycle management, risk assessment, and service levels.**

2026: **Develop financial sustainability, service tracking, and strategic alignment of master plans.**

2027: Complete and implement the comprehensive Asset Management Plan.

This approach guarantees long-term financial sustainability, improved decision-making, and transparent public engagement, ensuring the CRD's assets are managed effectively.

Appendix A – Technical Survey Results

Element 1 – Organization and People

The table below summarizes the three maturity levels for the 'Organization and People' element and identifies key competencies typically found within each level.

Table 23 Defining Maturity Levels - Organization and People

Area of Analysis	Basic	Intermediate	Advanced
Level of Knowledge	**Minimal understanding of asset management concepts and principles among staff.**	**Some understanding of asset management concepts and principles among staff.**	Expert understanding of asset management concepts and principles among staff.
	Most management staff have an intermediate level of understanding, while the operations staff generally demonstrate a basic understanding of asset management. As a result, the overall level of knowledge can be assessed as ranging from basic to intermediate.		
Prioritization Level	Asset management is a low priority.	**Asset management is a medium priority.**	Asset management is a high priority.
	While asset management is included in the strategic plan and understood at a basic organizational level, the lack of dedicated staffing and limited support across departments suggests it is not yet fully integrated into daily operations. Limited resources, organizational capacity, and pushback on asset replacement and repairs indicate that asset management faces barriers to full implementation.		
Human Resource Capacity	**Absence of adequate human resource capacity for AM**	Adequate human resource capacity for AM	High human resource capacity for asset management, with dedicated staff.
	The current staffing model is split across multiple roles and departments through part-time or split-role coordinators. The overall human resource capacity for asset management is insufficient to effectively support a comprehensive program. Staff are overstretched and asset management is treated as a secondary task, which limits the impact of these coordinators. Past reliance on contracted services for asset management tasks highlights the ongoing need for specialized support and insufficient organizational capacity. The current model is not sufficient to fully implement and support a strong asset management program.		

Area of Analysis	Basic	Intermediate	Advanced
Processes and Tools	**Processes and tools do not facilitate AM Planning.**	Some or ad hoc processes or tools facilitate AM planning.	Processes and tools facilitate AM planning.
	There are mixed opinions on whether current tools and processes support asset management planning. GIS was the only tool consistently mentioned. The CRD develops five-year business, financial, and capital plans annually, but there is no asset management plan. Asset investments are often driven by failures, rather than proactive maintenance.		
Communications	**Lack of strategic communications on AM initiatives.**	Some or ad hoc communications related to AM initiatives.	Strategic communications on AM initiatives.
	Internal communication is insufficient, focusing more on the need for change than on setting priorities and sharing progress. Staff rely on ad hoc meetings and secondary channels to stay informed. Regular meetings and condition reporting have not been established. **External communication** is infrequent and only occurs due to health risks or specific events like referendums. There is limited ongoing communication with the public or interested parties. There is a need for a more proactive and holistic approach to enhance public awareness and engagement.		

Element 2 – Asset Information

The table below summarizes the three maturity levels for the 'Asset Information' element and identifies key competencies typically found within each level.

Table 24 Defining Maturity Levels - Asset Information

Area of Analysis	Basic	Intermediate	Advanced
Primary Data Attributes	Many gaps in primary datasets.	**Some gaps in primary datasets.**	Minimal gaps in primary datasets.
	Data attributes for assets are incomplete or not recorded for multiple primary asset attributes, including historical cost, replacement cost, estimated useful life, in-service date, and condition assessment data.		
Asset Data Confidence	**Low level of confidence in the asset datasets.**	Medium level of confidence in the asset datasets.	High level of confidence in the asset datasets.
	There is a low level of confidence in low confidence in asset databases and the data's completeness, accuracy, currency, verification, and management. Datasets are based on outdated or historical records and are inhibited by few as-built documents and poor record-keeping. Asset ledgers are maintained to meet PSAB 3150 requirements, but lack crucial information such as condition ratings, replacement costs, and expected service life.		
Secondary Data Attributes	Minimal secondary or attribute data, including physical properties, size, material	**Some secondary or attribute data, including physical properties, size, material**	Detailed secondary or attribute data, including physical properties, size, material
	The level of maturity of the secondary data attributes is considered intermediate as the data is incomplete.		

Area of Analysis	Basic	Intermediate	Advanced
Inventory Centralization	Inventory is decentralized across many systems.	**Inventory is centralized, but may not be fully accessible, current, accurate, completed, or verified.**	Inventory is highly centralized, accessible, current, accurate, verified, complete, linked to GIS
	The use of multiple software platforms and tools without an integrated system creates inconsistency. Staff rely on basic tools like Excel for critical asset data. Data management practices are fragmented with no clear, standardized process. Several key areas lack formal systems or consistent practices, and many staff use manual or disconnected methods like contractor-sent reports or inspection PDFs. Some advanced tools like BC Asset Manager and GIS are used, but their application is not consistent CRD wide.		
Replacement Costing Updates	**No established cycle for updating replacement costs.**	**Replacement costs are updated on an ad hoc basis.**	Replacements costs are updated on an established cycle.
	There is no established cycle for updating replacement costs. Updates occur ad hoc, typically during budget time or when a specific project is identified, often involving a consultant for a quantity survey. Replacement costs are reviewed every 1 to 5 years for insurance or capital planning purposes. Replacement costs are updated using several methods, including indexing to inflation, using procurement data, and considering local or prevailing market conditions. For specific projects, updates are based on procurement data. In a few cases, 3rd Party assessments or independent appraisals are used, particularly for insurance purposes. However, there is a lack of consistency in how updates are made and there is no defined process.		
Condition Assessments	**No strategic and scheduled condition assessment programs in place.**	Condition assessment program is scheduled but not strategic.	Strategic and scheduled condition assessment program is in place.
	The responses suggest that the condition assessment program is fragmented and lacks consistency across the CRD. While some assessments are updated cyclically, performed on a network-wide basis, and used to inform lifecycle decision-making, these practices are not universally applied. Many respondents noted that condition assessments are not stored or managed in a centralized system, and the information is often not readily accessible. For some respondents, assessments are accessible only because contractors provided reports after field studies, and in other cases, there is no clear system for managing or accessing this data. Overall, the condition assessment process lacks a formalized, systematic approach, and the data is not consistently used or stored to inform decision-making.		

Area of Analysis	Basic	Intermediate	Advanced
Data Governance	**Data governance is informal.**	Some elements of formal data governance and management are in place and documented, including data governance policies and procedures.	Most elements of formal data governance and management are in place and documented, including data governance policies and procedures.
	The responses highlight a lack of consistency and structure in both data governance and its procedures. Respondents provided mixed opinions on the presence of a corporate data governance policy or procedures. There is an understanding that data governance will be addressed in future projects along with documented procedures. Regarding data governance procedures, various systems and methods are in use, such as field inspections, asset inventory uploads, GIS management, maintenance management systems, financial systems, and reporting tools. However, these systems appear disjointed, with no clear integration or standardized approach across departments. Several respondents remain uncertain about the specific tools and systems being utilized. There is a need for a more unified, coordinated strategy for data governance to ensure consistency, quality, and accessibility of asset data.		

Element 3 – Strategy and Planning

The table below summarizes the three maturity levels for the 'Strategy and Planning' element and identifies key competencies typically found within each level.

Table 25 Defining Maturity Levels – Strategy and Planning

Area of Analysis	Basic	Intermediate	Advanced
Missing and Vision	No service mission, vision, or key objectives.	Service mission in place, but may lack vision, or key objectives.	**Service mission, vision, and key objectives in place.**
	The CRD's mission statement is: "Working in partnership with communities large and small, to make the Cariboo Chilcotin a socially, economically, and environmentally desirable region to live, work, and play." The 2022-2026 Strategic Plan outlines four key strategic priorities: Infrastructure & Asset Management, Enhanced Communications and Engagement, Effective & Responsive Land Use Planning & Development, and Relationships with First Nations. Most respondents are familiar with the strategic plan and its alignment with the CRD's mission.		
Asset Management Documents	No key asset management documents in place, such as an asset management policy, strategy, or up-to-date plan.	S**ome key asset management documents in place, such as an asset management policy, strategy, or up-to-date plan.**	An asset management policy, strategy, and up-to-date plan are in place.
	The 2020 Asset Management Report was prepared by True Consulting, while the 2022-2026 Strategic Plan was developed by BD Carruthers and Associates (BDCA). Several respondents mentioned the existence of an asset management policy; however, it does not appear to be publicly available on the CRD's website. The policy should be posted once finalized.		
Service Demand Planning	No formal service demand planning in place or done through ad hoc analyses.	**Service demand planning integrates some, but not all, elements, including master plans, external engineering or economic studies, modeling, policies, and public consultation.**	Service demand planning integrates most or all elements, including master plans, external engineering or economic studies, modeling, policies, and public consultation.

Area of Analysis	Basic	Intermediate	Advanced
	The CRD's approach to considering current and forecast demand for capital assets and services reflects mixed levels of maturity, with some respondents unsure or describing the process as basic, while others consider it more advanced. This variation indicates a need for a more consistent and standardized approach to demand forecasting across departments. Service demand planning is informed by a variety of methods, including master plans, external studies, and ad hoc analyses, with only 1 respondent mentioning public consultation. However, reliance on informal methods such as ad hoc analyses points to a lack of a formal, cohesive strategy, which could impact long-term planning and decision-making. Regarding service goals, many respondents noted that they are defined in strategic documents, though some indicated they are also outlined in bylaws or business plans. A few respondents mentioned the absence of clearly defined service goals. This suggests the need for clearer, more formalized goals to ensure alignment with the CRD's overall objectives and community needs.		

Element 4 – Asset Management Decision-Making

The table below summarizes the three maturity levels for the 'Asset Management Decisions' element and identifies competencies typically found within each level.

Table 26 Defining Maturity Levels – Asset Management Decision Making

Area of Analysis	Basic	Intermediate	Advanced
Asset Needs List	Asset needs lists are produced primarily based on age data.	**Assets needs lists are produced based on a combination of age data and condition assessments.**	Assets needs lists are produced based on a combination of age, condition assessment data, and recommendations from various technical or economic studies.
	The survey responses reveal a mixed approach to infrastructure master planning for coordinating growth and demand projects into budgets and capital plans. While a few respondents confirmed the use of a formal infrastructure master planning process, many others either do not use such a process or are unsure if one is in place. Some suggested that infrastructure planning is done on a more decentralized basis, focusing on individual service needs, with some relying on a "wants and needs" list before the budget is processed.		
Growth and Demand Projects	**Growth and demand projects not identified in long-term budgets.**	Growth and demand projects identified in long-term budgets.	Growth and demand projects identified in long-term budgets.
	The survey responses regarding the inclusion of growth and demand projects in the CRD's long-term budget reveal mixed perspectives. While many respondents confirmed that such projects are included, others indicated that they are not, with some citing limited growth in the region as a factor. Several respondents were unsure about whether these projects are considered in the budget, highlighting a lack of clarity or awareness on the matter.		
Master Planning	**No infrastructure master planning process to determine which growth and demand projects are coordinated into budgets.**	**An infrastructure master planning process determines which growth and demand projects are coordinated into budgets.**	An infrastructure master planning process determines which growth and demand projects are coordinated into budgets. Accounts for public affordability expectations.

Area of Analysis	Basic	Intermediate	Advanced
	The survey responses reveal a mixed approach to infrastructure master planning for coordinating growth and demand projects into budgets and capital plans. While a few respondents confirmed the use of a formal infrastructure master planning process, many others either do not use such a process or are unsure if one is in place. Some suggested that infrastructure planning is done on a more decentralized basis, focusing on individual service needs, with some relying on a "wants and needs" list before the budget is processed.		
Project Prioritization	**No formal project prioritization process to develop budgets and capital plans.**	A formalized project prioritization process is used to develop budgets and capital plans.	A formalized project prioritization process is used to develop budgets, and capital plans and includes lifecycle analysis, treatment options, and risk management.
	The responses reveal a mix of uncertainty and varying practices. A few respondents do acknowledge the use of annual business, financial, and capital plans to guide decision-making. Additionally, one respondent explained that budgets are developed based on the priority needs of individual services, as each service operates independently.		
	The capital investment prioritization process is best described as a set of informal recommendations.	The capital investment prioritization process is best described as a structured annual process.	The capital investment prioritization process is best described as a structured annual process identifying risks and benefits.
	The responses reveal a diverse range of approaches within the CRD. Many respondents identified the use of structured processes, with a focus on specific criteria such as risk assessment and financial analysis. However, several responses also indicated reliance on informal methods, such as departmental recommendations or assessments by operational staff. While some respondents mentioned established annual procedures for prioritization, others highlighted that decisions were based on evolving needs and the financial capacity of the services involved. Overall, the CRD's decision-making processes appear to vary, combining both formalized and informal practices.		

Element 5 – Risk Management

The Table below summarizes the three maturity levels for the 'Risk Management' element and identifies key competencies typically found within each level.

Table 27 Defining Maturity Levels – Risk Management

Area of Analysis	Basic	Intermediate	Advanced
Risk Models	**No documented understanding of the probability of asset failure, and the various financial, social, health & safety, and environmental risks associated with asset failure (risk frameworks).**	Some documentation on the probability of asset failure, and the various financial, social, health & safety, and environmental risks associated with assets.	Various financial, social, health & safety and environmental risks are well-documented for most or all assets. Probability of asset failure is also quantified. Detailed risk frameworks in place.
	The CRD has a basic understanding of the economic, financial, social, and environmental risks to its assets, though it is not formally documented. The CRD primarily relies on ad-hoc paper and digital records for risk assessment, with some respondents also mentioning the use of centralized asset inventories, maintenance management systems, and service request systems.		
Risk Models	**No quantitative models, scores, or risk matrices in place.**	Rudimentary risk models, scores, or matrices in place.	Advanced risk models in place, including numerical indices, informed by staff judgement and expert reports and studies.
	Limited risk models have been developed, with few formal processes in place. These models are informed by departmental input and operator recommendations but lack formal development, being mostly reliant on ad-hoc records and informal methods.		
Risk as a Prioritization Tool	**No formal and documented risk management process to prioritize infrastructure related spending.**	Formal risk management process to inform project prioritization and infrastructure related spending; may not be documented.	Formal, documented risk management process to determine project prioritization and infrastructure related spending.
	The CRD has a basic approach to using risk matrices for project prioritization and there is no established process. These risk matrices are considered to inform the type of lifecycle activities and strategies, although responses suggest that the implementation of this process varies.		

Element 6 – Levels of Service

The table below summarizes the three maturity levels for the 'Levels of Service' (LOS) element and identifies key competencies typically found within each level.

Table 28 Defining Maturity Levels – Levels of Service

Area of Analysis	Basic	Intermediate	Advanced
Levels of Service Analysis	**Minimal, or no documentation on current technical or customer-oriented LOS to track and monitor service delivery.**	Some documentation on current LOS, using customer and technical KPIs.	Detailed LOS framework for all asset classes illustrating current and proposed customer and technical LOS for all asset class.
	The survey reveals uncertainty and in the CRD's approach to LOS analysis, data management, and reporting. Most respondents were unsure about the analysis and documentation		
Levels of Service Data	**LOS data is managed primarily using non-structured methods, e.g., paper records, or disconnected sheets and databases**	LOS data is managed in centralized databases.	LOS data is managed in centralized databases and linked to assets/services within a software system.
	The survey reveals widespread uncertainty and in the CRD's approach to LOS analysis, data management, and reporting.		
Regulatory Requirements	**The CRD has a basic understanding of all legislated and regulatory requirements for its infrastructure assets.**	The CRD has an intermediate understanding of all legislated and regulatory requirements for its infrastructure assets.	The CRD has an advanced understanding of all legislated and regulatory requirements for its infrastructure assets.
	The survey responses reveal varying levels of awareness and maturity regarding the CRD's understanding of legislated and regulatory requirements for its infrastructure assets. Most respondents reported a basic or intermediate level of understanding, with a few indicating advanced knowledge. When it comes to compliance with these requirements, the responses were less clear, with many respondents uncertain about the CRD's compliance. Some suggested non-compliance, while others affirmed that compliance had been met.		

Area of Analysis	Basic	Intermediate	Advanced
Levels of Service Reporting	**No LOS reporting.**	LOS reporting is used for some, but not all of the following: set targets and trends for service delivery; prioritize capital projects; adjust operating practices; conduct financial analyses; inform public on the CRD ’s performance and discuss trade-offs;	LOS reporting is used for most or all of the following: set targets and trends for service delivery; prioritize capital projects; adjust operating practices; conduct financial analyses; inform public on the CRD ’s performance and discuss trade-offs;
	The CRD does not consistently report LOS goals, and many respondents were unsure whether KPIs are tracked. Some mentioned using technical reports, SCADA systems, and field assessments for technical metrics, while community metrics were linked to sources like public engagement and staff correspondence, though tracking remains uncertain. Despite the lack of formal reporting, service metrics are sometimes used for prioritizing capital projects and financial analysis. Overall, the absence of structured processes and widespread uncertainty indicates that LOS reporting is inconsistent across the CRD.		

Element 7 – Financial Management

The table below summarizes the three maturity levels for the 'Financial Management' element and identifies key competencies typically found within each level.

Table 29 Defining Maturity Levels – Financial Management

Area of Analysis	Basic	Intermediate	Advanced
Budget and Corporate Goals	**Minimal alignment of departmental budgets with corporate strategic goals. Infrastructure spending does not reflect long-term direction of the community.**	Some alignment of departmental budgets with corporate strategic goals. Some infrastructure spending aligned with long-term direction of the community.	Significant alignment of departmental budgets with corporate strategic goals. Infrastructure spending is required to be aligned with long-term direction of the community.
	The CRD's approach to budget and corporate goals reveals uncertainty and limited collaboration across departments. There are minimal or ad hoc meetings for determining priorities and budget allocations, with a few instances of strategic and scheduled meetings. Despite efforts to coordinate, a more structured and consistent approach may be needed. The CRD's budget appears to consider factors such as risk, forecasted renewal requirements, and LOS. However, responses also indicated gaps in considering optimized lifecycle strategies.		
Financial Requirements	Financial requirement analysis does not account for most of the following elements: operating and maintenance needs; principal and interest payments; future rehabilitation and renewal; inflation; service enhancements; growth elements; proposed LOS	**Financial requirement analysis accounts for some, but not all, of the following elements: operating and maintenance needs; principal and interest payments; future rehabilitation and renewal; inflation; service enhancements; growth elements; proposed LOS**	Financial requirement analysis accounts for most or all the following elements: operating and maintenance needs; principal and interest payments; future rehabilitation and renewal; inflation; service enhancements; growth elements; proposed LOS

Area of Analysis	Basic	Intermediate	Advanced
	The CRD's analysis of its short- and long-term requirements for its assets varies in maturity. While some respondents indicate a comprehensive understanding, others are uncertain or have not yet conducted the necessary analysis. The CRD's requirement analysis typically accounts for operating and maintenance costs, principal and interest payments, and inflation, with some responses also mentioning future rehabilitation and renewal, service enhancements, and growth elements. However, proposed LOS were less consistently included in the analysis. This suggests that while the CRD is considering some important financial factors, it needs to integrate proposed service levels into its financial planning to ensure long-term sustainability and avoid unforeseen costs		
Budgets and Asset Management	**Department budget developments are not well-aligned with departmental asset management strategies to determine optimal expenditures on assets, and do not consider most of the following: risk, LOS, optimized lifecycle strategies; forecasted renewal requirements; cross-departmental initiatives**	Departmental budget developments are aligned with departmental asset management strategies to determine optimal expenditures on assets, considering some, but not all the following: risk, LOS, optimized lifecycle strategies; forecasted renewal requirements; cross-departmental initiatives	Departmental budget developments are aligned with departmental asset management strategies to determine optimal expenditures on assets, considering most or all the following: risk, LOS, optimized lifecycle strategies; forecasted renewal requirements; cross-departmental initiatives
	Survey responses indicate uncertainty and inconsistency in aligning the CRD's long-term budget with proposed LOS targets. The budget's integration with the corporate strategic plan shows basic maturity, with one respondent noting that the plan does not fully address the services provided. There is also recognition that the budget may face challenges in fully meeting current and future asset management needs.		