4. **Managing asset lifecycles**
    a) **Asset condition**

The condition of an asset is a measure of its physical state and provides indication as to whether or not service levels are being attained. Tracking the condition of an asset will help your municipality:

- Analyze the rate of deterioration;
- Identify the appropriate remedy and timing;
- Support more accurate estimates for remaining useful life; and
- Plan accordingly, thus decreasing the risk of unavoidable and unprepared expenditures.

There are three key steps to identifying and recording asset condition:

1. Review current inventory: it is essential to begin recording your asset condition by reviewing your current assets and their current condition.
2. Determine appropriate condition data: secondly, you need to determine what condition data, for new and old assets, needs to be recorded. Certain arrears to consider are:
    - The most appropriate condition to measure;
    - How condition data should be recorded, including a rating system that is suitable for your municipality;
    - How often measured data should be collected;
    - Who should be responsible for tracking condition data;
    - How it should be analyzed; and
    - How to create an interconnection between work history records and asset records.
3. Implement and monitor: lastly, one you have established a system suitable to your municipality's needs, you should implement and continue to monitor your assets, completing at minimum, quarterly reviews/updates.

Best practice: A checklist of information that needs to be determined and documented in regard to your assets

Current Condition	Condition Rating	Condition Monitoring	Deterioration Modeling	Work History Tracking
There are two basics steps to tracking asset condition: 1. Is the current condition of the asset	Two key questions: 1. Is the condition represented as a comparable	Continual condition assessments and inspection records allow your municipality to compare progress or	Knowing the rate of deterioration and/or the failure or success patterns of your assets, will assist your municipality in making	Tracking work history, such as the repairs, and maintenance that have been completed on the asset component, is an

known? 2. Is it recorded?	rating score or as a description only? 2. And it if is a comparable score, what scoring system or standards were used? Inspections completed according to a recognized standard, and derived from a measurement are more reliable than those based solely from observations.	failure over time and to identify infrastructure gaps as well as adequate solutions.	informed predictions and decisions in relation to asset management.	important indicator of asset condition. Tracking work history will equally provide insight into infrastructure planning, particularly in regards to maintenance versus replacement costs.

b) Critical Assets and Level of service

<u>Critical Assets</u>

Every asset carries the risk of failing; however, not every asset presents the same failure risk, or is equally critical to your infrastructure operations. Therefore, it is vital to know which assets are required to sustain system operations. Critical assets are those that have an increased risk of failing and have major consequences if they do fail, such as major expenses, system failures, and public safety concerns. Ranking your assets based on how critical they are to your community and infrastructure operations is a proactive solution that will assist your municipality in planning, rehabilitating and replacing infrastructure.

- How can and how do assets fail?
- What are the likelihoods and consequences of asset failure?
- What does it cost to repair the asset?
- What are other costs (social, environmental etc.) that are associated with asset failure?

Best practices include:

- Listing assets according to how critical they are to system operations;
- Conducting a failure analysis, including root cause analysis and failure mode analysis;

- Determining the probability of failure and listing assets by failure type;
- Studying failure risk and consequences;
- Using asset decay curves; and
- Reviewing and updating your system's vulnerability.

Level of Service

Knowing the service life and life cycle costs of each asset is a key component in understanding and developing sustainable levels of service. The service life refers to the period that an asset provides an acceptable level of service. The economic service life is when the current worth of the future maintenance costs is equivalent to the current worth of its replacement.

Moreover, tracking required and sustainable levels of service will help you develop an asset management program and communicate to stakeholders what your municipality is planning. Quality, quantity, reliability, and environmental standards are some elements that can define levels of service and associated performance goals, both short- and long-term. While developing levels of service requirements, you can use information about customer demand, data from utility commissions or boards, and information from other stakeholders.

When defining acceptable levels of service, it is important to consider the following questions:

- What level of service do my stakeholders and customers demand?
- What do the regulators require?
- What is my actual performance?
- What are the physical capabilities of my assets?

Definitions

Current levels of service

This refers to a detailed inventory list that provides insight into the quality and reliability of the service being provided and the associated costs of that service. When determining levels of service, your municipality should consider when and where a service is available, how much of the service is being providing (quantity) and to what standard (quality). When analyzing the quality of service being provided, it is vital to consider current legislative requirements and organizational goals, in addition to criteria/standards relevant to each individual asset.

Costs of current levels of service

Once existing levels of service are established, the next step is to understand the relevant service/cost relationships to ensure that the current level of service being provided is affordable and sustainable long-term. This will assist your municipality in identifying potential consequences and suitable alternatives.

Desired levels of service

This refers to a comprehensive list that provides details about the desired quality and reliability of the service being provided and the desired cost to provide that service, while taking into account public feedback and legislation requirements/standards. Having a detailed financial report will assist your municipality in developing levels of service that are immediately feasible and sustainable long-term.

Example: Levels of service for roads

Gravel road graded once every week	Increased level of service	Increased costs
Gravel road graded once every two weeks	Current level of service	Current costs
Gravel road graded once every three weeks	Decreased level of service	Decreased costs

Best practices include:

Current levels of service should be tracked and recorded on a regular basis. They provide an illustration of what value for money is being provided to the municipality, they optimize operational activity to match required standards, identify areas for reducing service levels for cost-related reasons and they identify improvement gaps.

Defining service levels is unique to each municipality; however, here are a few things to consider:

- Desired service levels should take into account the related costs of service and sustainability issues;
- Level of service statements that can't be verified by a standard measurement, is unable to be proven or disproven;
- Public consultations are an important component of defining service levels; however, the public should not be consulted until the current level of service and associated costs are well understood;
- Writing and communicating to the public a level of service 'agreement' that describes your community's performance targets;
- When consulting the public on defined levels of service, the language must be in 'everyday' language in order for the public to understand and to make informed decisions;
- First level of service should define what is currently being provided; and

- Second level of service definitions should identify through consultation, what the desired levels of service should be, thus highlighting the improvement gap for your municipality.

Example: Basic approach for levels of service

Quantity	Location	Availability	Quality
• What and how much asset is associated with each service? • Which quantity measures apply to the service being provided, such as hectares of trees, water, storage and/or traffic volume?	• What is the geographical location of the service? • Are there any restrictions or physical location restraints for the service? • Who accesses and/or is dependent on the service being provided?	• When and how often is the service being provided? For example: is it offered 24 hours/7 days a week? • Are there any seasonal restrictions that should be considered? • Under what conditions is the service available?	• Safety and health standards • Legislative compliance • Condition • Responsiveness/Customer service • Scope of services • Other indicators relevant to the asset