
ASSET MANAGEMENT FOR SOLID WASTE SERVICES

Effective Date: May 24, 2019

Approved By: GVS&DD Board

Policy No. FN-029

PURPOSE

To establish asset management principles and a framework that balance asset performance, risk, and cost that supports the long-term provision of solid waste services.

POLICY

Metro Vancouver is responsible for long term planning and disposal of waste generated by residents and businesses in the region, guided by our vision and mission. This Policy outlines Metro Vancouver's commitment and methodology to manage solid waste assets in a manner that minimizes the risk of asset failure and optimizes the life cycle of assets. The *Asset Management for Solid Waste Services Policy* guides the department to meet asset performance targets within a specified budget and enable evidence based decision making to maintain the long-term efficiency of the solid waste system.

ASSET MANAGEMENT PRINCIPLES

The following principles guide the methodology for managing Solid Waste Services assets:

- a) Integrated: a comprehensive approach that examines the combined implications of managing all aspects of the asset life cycle. This includes interdependencies of assets or asset systems.
- b) Risk-based: manage asset risk relative to defined performance targets and asset criticality and focus expenditures and priorities based on risk and associated cost and benefit.
- c) Sustainable: a long-term approach to estimating asset investment and activities, which will better enable assets to meet future challenges, including changing demographics, legislative requirements and technological, financial and environmental factors.
- d) Fiscally responsible: ensure activities and decisions are aimed at reducing the life cycle cost of asset ownership, while achieving defined asset performance targets.
- e) Systematic: a formal, consistent, repeatable and methodical approach to the management of assets.
- f) Innovative: continuous improvement in asset management by examining new tools, technologies, practices and solutions.

ASSET CLASSES

This Policy is applicable to the management of each Solid Waste Services asset in the following four asset classes:

- Transfer Stations
- Coquitlam Landfill
- Waste-to-Energy Facility
- Weigh Scales

ASSET DATA AND INFORMATION

To measure performance of GVS&DD assets, Solid Waste Services will maintain an asset registry with comprehensive and accurate asset data and information. Data will be organized in a structured manner so that it can be stored, analyzed and reported at an adequate level for different business needs. Integrity of the data shall be constantly monitored, updated and maintained to provide accurate asset information.

The Solid Waste Services asset registry will include at a minimum, the following:

- Asset class
- Asset grouping (e.g., building element)
- Asset location (e.g., site)
- Asset details (e.g., make, model, material, size, install date, expected service life)
- Asset criticality and risk information
- Financial information (e.g., acquisition and disposal costs, estimated replacement cost, operations & maintenance costs)
- Asset condition and/or estimated remaining service life

ASSET PERFORMANCE AND LIKELIHOOD OF FAILURE

Solid Waste Services will manage and renew each asset in accordance with clearly defined asset performance metrics and targets.

Performance Category	Performance Criteria Definition	Key Performance Indicator (KPI)	Performance Target
Condition (individual assets)	Physical Condition of assets (excluding buildings)	Condition score (see table below)	Condition score is 3 (Fair) or better.
Condition (buildings)	Physical Condition of building assets	Facility Condition Index (FCI)	Condition score is equivalent to 4 (Poor) or better as defined in the table below.
Maintenance Costs	Cost to maintain the asset (e.g., labour, parts)	Annual asset maintenance costs	Annual asset maintenance cost <10% of replacement
Obsolescence	Asset is obsolete; technology is no longer supported and cannot be maintained or replaced	Assets with obsolete technology	No assets with obsolete technology that cannot be maintained or replaced
Functionality	Current functionality of the asset (e.g., capacity, velocity, safety)	Asset functionality vs as-designed functionality	Asset functioning as designed

BOARD POLICY

For all individual assets, excluding buildings, Solid Waste Services will use a 1 to 5 condition scoring system in accordance with the general table below. When condition information is not available, an age-based remaining service life will be used as a proxy for asset condition.

Condition Score	Description
1 Very Good	New or excellent condition, no apparent defects.
2 Good	Asset is in good state of repair, possible minor defects that do not detract from functionality.
3 Fair	Asset is operational, but non-critical defects are apparent.
4 Poor	Asset requires replacement or major repair, functionality is affected and failure is possible.
5 Critical	Asset is past the point of economic repair, is defective, or non-functional, and should be replaced, repaired, decommissioned, or removed.

ASSET CRITICALITY AND CONSEQUENCE OF FAILURE

Asset criticality is a measure of the asset’s relative consequence of failure. It is considered in planning asset replacement, rehabilitation, operations and maintenance strategies as well as alternative risk mitigation strategies (e.g., emergency preparedness and response planning). High criticality asset elements (e.g., compactors, roofing) have the potential for significant impact on services if they fail. Failure of low criticality assets will have low impact on services. As there is less tolerance for asset failure of high criticality assets, they will be monitored more frequently and have higher priority for asset inspection and improvement work than medium or low criticality assets.

The criteria outlined below will be considered when determining asset criticality:

Consequences of Failure Criteria (Criticality)	
Worker and Public Safety	Injuries from infrastructure failure
Ecological & Public Health	Waste-to-Energy Facility Operational Certificate compliance, reportable discharges, waste handling capability
Social	Disruption to solid waste services
	Availability of recycling services
	Facility noise and odour
Economic	Incremental operating and maintenance costs
	Economic impact to third parties and penalties

ASSET RISK AND LIFECYCLE MANAGEMENT STRATEGIES

Managing risks associated to the assets is essential for maintaining expected service levels. Risk is the combination of likelihood and consequence of a failure event occurring.

Risk = Likelihood x Consequence

Key performance indicators and asset performance targets will be monitored to identify the likelihood of failure of an asset. When asset data and information indicates that an asset is failing to meet performance target(s), Solid Waste Services staff will identify the relative consequence if the asset fails (asset criticality), assess the risk and identify options to address the risk. Risk mitigation options could include asset replacement, rehabilitation, modified operations and maintenance strategies.

In evaluating different options, economic, social and environmental benefits will be considered. Total asset life cycle costs including capital investment and expenditures related to operations and maintenance of the asset will be considered. Where major capital investment is required, Solid Waste Services will evaluate opportunities to address other needs or future requirements (e.g., capacity increase, seismic resiliency, new diversion initiatives) to ensure that the best long-term solution is considered and achieved prior to major capital investment.

ASSET MANAGEMENT PLANS

Solid Waste Services will have Asset Management Plans to summarize asset performance data and information, including a summary of performance risks. The Asset Management Plans will be organized by facility and asset class and will outline the risk mitigation strategies, including capital investments, operating and maintenance strategies and emergency response strategies.

Solid Waste Services will have four program level Asset Management Plans as follows:

- Transfer Stations
- Coquitlam Landfill
- Waste-to-Energy Facility
- Weigh Scales

Asset Management Plans will be updated on a regular schedule, at a minimum every 5 years. Information from the program level Asset Management Plans will be aggregated and summarized to prepare a departmental *Solid Waste Services Asset Management Plan*.

CONTINUOUS IMPROVEMENT

Solid Waste Services will examine, monitor, identify and address asset management improvement opportunities to enhance asset management tools, technologies and business practices. Staff will be properly trained to support asset management activities from assessing asset condition to renewing assets to improve asset performance.