

Agenda – Standing Policy Committee on Finance – December 8, 2020

REPORTS

Item No. 5 Lifecycle Costing for Infrastructure Investment

WINNIPEG PUBLIC SERVICE RECOMMENDATION:

That this report be received as information.

ADMINISTRATIVE REPORT

Title: Lifecycle Costing for Infrastructure Investment

Critical Path: Standing Policy Committee on Finance

AUTHORIZATION

Author	Department Head	CFO	CAO
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EXECUTIVE SUMMARY

This report outlines information on how the City tracks and reports asset lifecycle costing for the purposes of monitoring the city's infrastructure needs and overall deficit.

It is intended that this information be integrated into the City's Financial Management Plan update and Infrastructure Plan on an annual basis. This will specifically address Goal #5 of the Financial Management Plan to "Build, Maintain, and Enhance Infrastructure Assets."

The City's Asset Management Policy (FI-011) defines asset management as an integrated set of business processes used to minimize the lifecycle costs of owning, operating and maintaining assets, at an acceptable level of risk, while continuously delivering established levels of service. In short, the City uses lifecycle costing during the annual investment planning cycle.

The City's Asset Management Program provides the necessary processes and tools to effectively execute the policy requirements and address total lifecycle costs using a Net Present Value (NPV) analysis. This analysis considers the total expenditures required to sustain levels of service over the life of the asset and provides decision-makers with additional insights beyond the initial capital investment.

RECOMMENDATIONS

That this report be received as information.

REASON FOR THE REPORT

On March 16, 2020, the Standing Policy Committee on Finance directed the Public Service to report back to the Standing Policy Committee on Finance by the end of 2020 on lifecycle costing for infrastructure investment as it relates to the Financial Management Plan.

IMPLICATIONS OF THE RECOMMENDATIONS

There are no direct implications to receiving this report as information. Total lifecycle cost for capital infrastructure investments will be documented in both the Financial Management Plan update and Infrastructure Plan as it relates to the City's Infrastructure Deficit. The information will be used to support decision making during the annual Investment Planning cycle and Multi-Year Budget process.

HISTORY/DISCUSSION

On November 8, 2019, delegations at the Standing Policy Committee on Finance meeting suggested that the City's Financial Management Plan implement a metric and associated target that tracks infrastructure investments using a full lifecycle cost analysis.

On March 16, 2020, the Standing Policy Committee on Finance directed the Public Service to report back to the Standing Policy Committee on Finance by the end of 2020 on lifecycle costing for infrastructure investment as it relates to the Financial Management Plan.

The City's Asset Management Policy (FI-011) defines asset management as an integrated set of business processes used to minimize the lifecycle costs of owning, operating and maintaining assets, at an acceptable level of risk, while continuously delivering established levels of service.

The City has a well-established Asset Management Program that provides the necessary manuals, procedures and templates to effectively execute the policy requirements and specifically address total lifecycle costs through a Net Present Value (NPV) analysis. Refer to Attachment 1 for an example of the NPV template.

An NPV analysis considers the total capital and operating expenditures needed to sustain target levels of service over the entire useful life of an asset. This information provides decision-makers with additional insight beyond the initial, up-front capital investment which only accounts for approximately 20-25% of the lifecycle cost of owning and operating an asset.

Total lifecycle costs account for the capital and operating expenses incurred during all the stages of asset ownership including; planning/acquisition, construction, operating & maintenance and decommissioning/divestment.

Lifecycle cost analysis is especially useful when project alternatives that fulfill the same performance requirements, but differ with respect to initial costs and operating costs, have to be compared in order to optimize investment benefits and maintaining levels of service.

Figure 1, below, is illustrative and demonstrates when an initial capital investment is approved, strong consideration must be given to the on-going future costs needed to operate and maintain the asset.

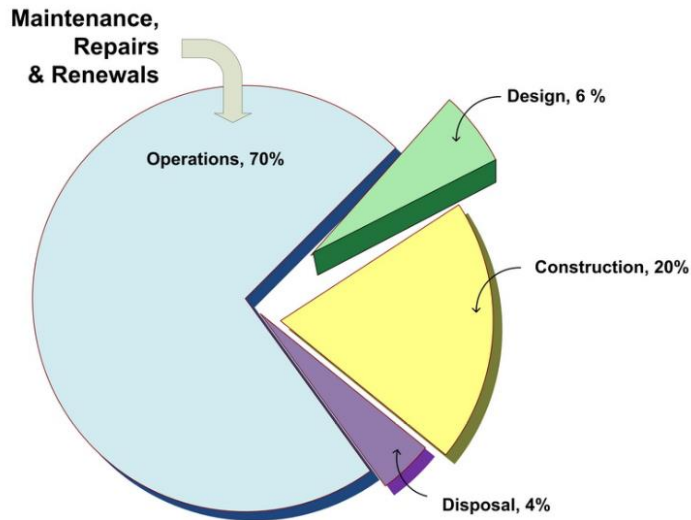


Figure 1: Total cost of asset ownership distributed by lifecycle stage for a typical infrastructure project. (Source: Asset Insight Management Ltd., 2020)

Full life benefits can only be realized if the lifecycle costs are approved to ensure asset performance and service delivery are sustained over the asset's entire useful life.

Deciding on whether to acquire a new asset, repair or replace an existing asset and the timing of when the investment is made can be facilitated through a lifecycle cost analysis. Having a holistic overview of the total cost of owning an asset helps optimize the organization's ability to financially support and receive full value from the asset and the services it provides.

During the November 8, 2019 delegations, one of the proposed metrics brought forward was to establish a ratio between the City's assessment base (income) and the total replacement value of the City's assets.

Although this would not directly reflect the degree to which infrastructure investments are made to addressing needs, it suggests a possible way to demonstrate how affordable the City's infrastructure investments are to residents.

However, the main concern with using the assessment base to total replacement value is that the valuation of the assessment base does not necessarily reflect the city's economic output and thus the ability of residents and businesses to invest and maintain infrastructure. This is due to the fact that the valuation of land and structures across cities can vary significantly, and this variation does not always reflect a city's economic capacity to pay for public goods. For example, based on 2016 census data from Statistics Canada, in neighborhoods where homes were valued at approximately \$400,000, the estimated average household income of homeowners in Winnipeg was approximately \$127,000 whereas in Calgary it was \$112,000 (12% lower), in Toronto it was \$81,000 (36% lower) and in Vancouver it was \$55,000 (57% lower).¹

These examples suggest that the valuation of properties across cities is not always reflective of homeowner's ability to pay since incomes vary significantly for the same property value across

¹ Source: Statistics Canada. 2016 Census of Population; City of Winnipeg Economic Research calculations.

cities. Therefore, using the valuation of the City’s assessment base does not reflect the economic capacity of the City to maintain or invest in infrastructure. Rather, a more reflective metric should take into account other indicators tied to the economy, such as local Gross Domestic Product (GDP) or local aggregate earnings from employment.

Further, the dollar amount of investment in infrastructure that may be considered appropriate or sufficient is going to be subjective and vary from person to person depending on their preferences. Some individuals may wish to see higher levels of expenditure on public assets in return for a higher quality or standard, whereas others may wish to see lower levels of expenditure in return for a lower standard or quality product (e.g. adding a more costly interchange to a major road network versus a less costly intersection with traffic signals). Given the variation in opinion among residents, it might be suggested that the appropriate level of infrastructure investment is the one that is determined via the democratic will of residents that is ultimately reflected in the decisions made by City Council.

Based on information from the 2018 City Asset Management Plan, the amalgamation of each departments’ spending plans and needs over a 10-year period was used to calculate the city’s infrastructure deficit. Total capital investment needs for each department were formulated from a 10-year horizon and included both existing and new infrastructure. The gap between total capital investment requirements and estimated future capital funding resulted in an approximately \$6.9 billion deficit.

Infrastructure Deficit = \$10,922 M (total needs) - \$4,039 M (future funding) = \$6.9 Billion

The Public Service will continue to use its established methodology for tracking infrastructure investments through on-going assessments of the Infrastructure Deficit as shown in Figure 2, below.

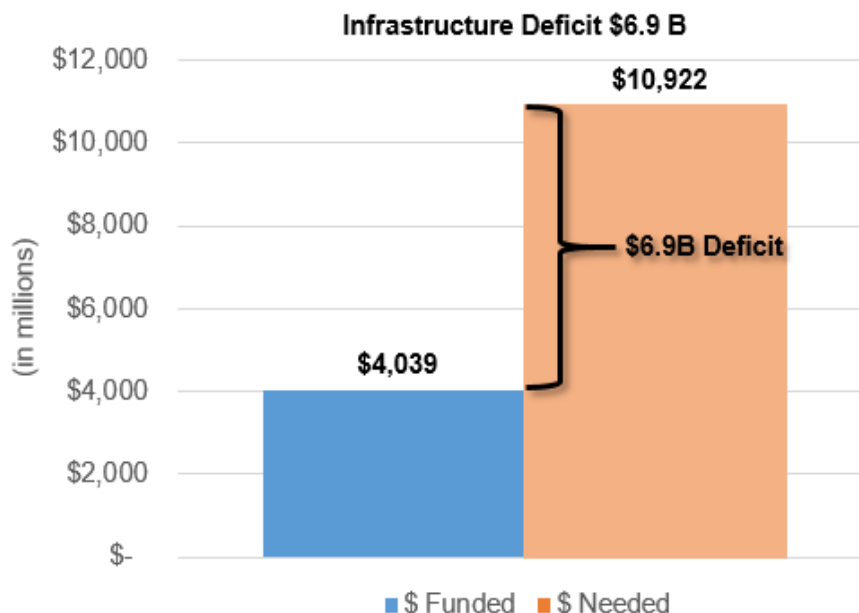


Figure 2: Infrastructure Deficit presented as the difference between total infrastructure needs and future funding over a 10-year period. Refer to Attachment 2 for a breakdown by Service Area.

FINANCIAL IMPACT

Financial Impact Statement

Date: October 22, 2020

Project Name: Lifecycle Costing for Infrastructure Investment

COMMENTS:

There are no financial implications to the recommendations of this report.

original signed by T. Yanchishyn

Tanis Yanchishyn
Manager of Finance (Campus)
Corporate Finance Department

CONSULTATION

This Report has been prepared in consultation with:
Corporate Finance
All Department Directors and Departmental Asset Management Offices

OURWINNIPEG POLICY ALIGNMENT

01-3 Prosperity – Direction 1 – Provide Efficient and Focused Civic Administration and Governance

This report supports the demonstration of accountability through reporting and to continuously pursue innovative, streamlined service delivery and decision-making processes.

WINNIPEG CLIMATE ACTION PLAN ALIGNMENT

Action 1.2 Incorporate climate action priorities into the annual budget process to ensure the City has resources to implement priority projects.

SUBMITTED BY

Department: Office of the Chief Administrative Officer
Division: Infrastructure Planning Office
Prepared by: Chris Klos, Manager, Corporate Asset Management Office
Date: Nov 3, 2020
File No: n/a

Attachment 1:

Winnipeg's Net Present Value template (NPV)

Attachment 2:

Breakdown of Infrastructure Deficit by Service Area