

Life Cycle Costing

Regional Roads	4,905,923	2,943,554	1,208	14%
Water Treatment	1,400,000	1,400,000	575	7%
Wastewater Treat.	1,380,000	1,380,000	567	6%
Water Management	3,621,000	2,172,600	892	10%
Schools	7,966,938	7,966,938	3,271	37%
Municipal Facilities	0	0	0	0%
Transit Services	2,302,020	1,381,212	567	6%
Fire Services	138,852	138,852	57	1%
Police Services	73,080	73,080	30	0%
Infrastructure Items	0	0	0	0%
Un-Defined Costs	0	0	0	0%



Source | CMHC



TOOL DESCRIPTION

Life cycle costing estimates the capital and operating costs of an entire development over a period of time. It can include an assessment of both public and private costs, and can be defined in financial, social, and environmental terms. They can be used to assess development projects at any scale.

A life cycle costing assessment holistically assesses proposed development. It examines not only the capital cost of certain features, but also the cost over their life span, including maintenance and their potential to be adapted to different uses in the future. While these analyses are commonly applied to corporate or civic development, they can be used effectively for greenfield residential and mixed used development.

Cost Estimates

A life cycle cost assessment can include capital and operating cost estimates for:

- › hard infrastructure (e.g., roads water, sewers)
- › municipal services (e.g., transportation, fire, police, waste management)
- › private costs (e.g., commuting/transportation, home heating)
- › costs of externalities (e.g., air pollution, motor vehicle accidents).

Cost Assumptions

Costs are calculated based on certain assumptions. These include:

Costing and revenue variables

- › Unit costs associated with different components of a development (e.g., the cost per meter of a two-lane collector road).
- › Revenue sources (e.g., property taxes generated, development fees)

Physical design elements

- › Land use distribution and density
- › Street types and lengths
- › Transit infrastructure

Demographics

- › Household size and composition
- › Household income

Tool Intent

To estimate the major public and private costs of a development over the long term, and to identify potential cost savings.



Source | greenvalues.cnt.org

USERS

Municipal Officials

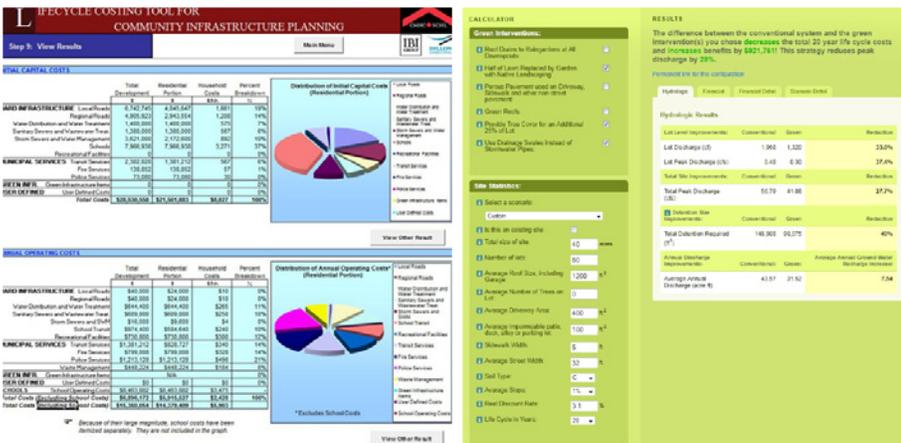
- ✓ Municipal Planning Staff
- ✓ Planning + Design Professionals
- ✓ Engineers
- ✓ Land Developers
- Landowners
- Community Members

Life cycle costing models allow different development scenarios to be compared quantitatively over time. Where a basic cost-benefit analysis or development pro-forma may only examine costs in the short term, life cycle costing shows how costs and benefits could change for the development over time.

WHEN IN THE PROCESS IT IS USED?

Life cycle costing is an evaluative tool. Its primary role is in the assessment of site plans and development programs, and it can reveal whether proposal results in acceptable long-term costs, both public and private. If a standard life cycle costing model is adopted for use by a municipality, targets or maximums for certain costs can guide the design process or serve as a means of assessing new development proposals during the review and approvals process.

There is a role for these results in the marketing of a new community. Potential homeowners may be interested to know about long-term costs of ownership and potential savings from owning property in a development that uses more cost-effective infrastructure and building construction methods.



CMHC Life Cycle Costing Tool
Source | www.cmhc-schl.gc.ca

CNT Stormwater Management Calculator
Source | greenvalues.cnt.org

BEST PRACTICES CMHC Life Cycle Costing Tool

Description:

The Canada Mortgage and Housing Corporation (CMHC) has developed a spreadsheet-based “Life Cycle Costing Tool for Community Infrastructure Planning,” which is publicly available on the CMHC’s website (<http://www.cmhc-schl.gc.ca>).

“The Life Cycle Costing Tool for Community Infrastructure Planning (the Tool) was created to allow a user to estimate the major costs of community development, particularly those that change with different forms of development (for example, linear infrastructure), and to compare alternative development scenarios. The Tool is geared towards estimating planning level costs and revenues associated with the residential component of a development, although financial impacts of commercial and other types of development can be incorporated provided that infrastructure requirements are specified correctly. The Tool is well suited to assessing development projects ranging in size from a collection of houses to a block-by-block infill development to an entire subdivision. A good measure of the applicability of the Tool to a given project is whether or not alternatives can be conceived that would result in significantly different densities or infrastructure requirements, or make use of different green infrastructure alternatives”

Source | www.cmhc-schl.gc.ca

Center for Neighborhood Technology Green Values Stormwater Management Calculator

Description:

The Center for Neighborhood Technology (CNT) has developed a web-based stormwater infrastructure life-cycle costing calculator for planners, engineers, and municipal staff, which is publicly available on CNT’s website (<http://greenvalues.cnt.org>). The tool provides users with the option to specify twenty development parameters, including the general development typology, lot sizes, tree coverage, street widths, and life cycle time horizon. The results provide summary estimates of the difference in hydrologic function, capital costs, and life cycle costs between conventional pipe and ecological infrastructure-based non-pipe storm water management solutions.

Source | greenvalues.cnt.org

RELATED TOOLS

Build-Out Analysis

Low-Impact Development + Green Infrastructure

ADDITIONAL RESOURCES

CMHC Life Cycle Costing Tool for Community Infrastructure Planning (<http://www.cmhc-schl.gc.ca/en/inpr/su/sucopl/licycoto/index.cfm>)

Center for Neighbourhood Technology Storm Water Management Calculators (<http://greenvalues.cnt.org/>)