
Technical Appendix 9 – Cost Methodology

1 Appendix Introduction

This Technical Appendix is intended to summarize the costing methodology used in the development of upgrade costs.

2 Project Costing

2.1 Unit Costs

Table 1 outlines the unit cost used to estimate the water system upgrade costs developed through the IAMAR and further refined in consultation with City Staff.

Table 1 - Costing Unit Prices

Unit	Unit Price
Close Existing Isolation Valve	\$500
Open Existing Isolation Valve	\$500
Install New “Boundary” Valve	\$20,000
Install New Isolation Valve	\$10,000
Install New Check Valve	\$50,000
New Watermains (≤300 mm)	\$650/m

2.2 Project Uplift Cost

In addition to the base unit cost, additional project uplift costs related to increased complexity and restoration costs, were applied based on the watermain location.

- +0% for local roads
- +20% for collector or arterial roads
- +40% for roads within Uptown core

2.3 Project Contingency and Allowance

Once the total base cost, including uplift cost, was estimated, the following project contingency and allowances were applied to determine the total project capital cost.

- 20% for Engineering and Design
- 20% for Construction Contingency

2.4 Example Project Cost Formula

The following two formulae outline the application of the Project Capital Cost.

- Base Construction Cost = (Unit Rate × # of Unit) + Uplift Cost
- Total Construction Cost = Base Construction Cost × 140%

3 Integration with Asset Replacement Program

For a recommended project with no identified growth targets, upgrades are expected to be aligned with the City's ongoing Asset Replacement Program. Under the City unit price framework, all watermains with diameters ≤ 300 mm carry the same unit cost. As such, for identified upsizing project with diameters ≤ 300 mm, the project cost is assumed to be covered by the City's current operations and maintenance budget, and any additional upsizing cost, above and beyond the current replacement program, are assumed to be negligible.