

Appendix H – Method for Calculating Benefit to Existing (BTE)

Benefit to Existing Calculations Water and Sanitary Projects Revised: July 7, 2023

“Benefit to Existing” (BTE) refers to the benefit that growth-related infrastructure projects provide to existing residents, expressed as a percentage of the overall project cost. The BTE portion of a project is funded by City rate budgets.

The approaches described below will be used to determine BTE contributions to new projects identified in the 2024 Infrastructure Master Plan (IMP) and the 2024 Development Charges Background Study (DC) and By-law. These approaches would also be used to determine growth and non-growth allocations for projects identified through other means such as the proposed Infrastructure Capacity Management Program in the draft IMP (which may not rely on Development Charges as the funding mechanism), and local servicing requirements negotiated through the development approvals process.

There may be rare cases where none of the following methods are considered appropriate for a newly identified project. In such cases, cost sharing, including alternative cost sharing mechanisms, will be negotiated between the City and the affected developers.

1. Flow Ratio Approach

Applies to projects involving construction of “new” infrastructure only (pipes and facilities):

- Applicable to water and sewer projects but does not apply to growth projects sized to accommodate existing development on private services (see method 2);
- Based on City’s modelled data.

Exceptions:

- Will not apply to: upgrade of existing infrastructure (see method 2); sewer twinning; diversion sewers; diversion pump stations and forcemains; sewer surcharge pump stations (see method 4).

Calculation:

$BTE = \text{Existing flows} / (\text{growth flow} + \text{existing flows})$

- Calculation rules would vary depending on the type of project, as follows:
 - peak capacity increase project: use design peak existing and design peak future flows or demands

- Reliability-related projects, including forcemain twinning and watermain projects that provide looping to existing development¹ relying on a single feed: use daily average existing and daily average future demands, except as noted below.

Watermain projects that provides looping to existing development, where the existing properties that rely on a single feed is less than or equal to the equivalent of 50 dwelling units: BTE = 5%.

2. Oversizing Approach

Applies to Projects involving replacement of an existing pipe:

- Where there is a plan to replace an existing pipe based on the City's 5-year renewal plan (condition driver), or other City projects that are otherwise not driven by growth;
- Where there is a future growth requirement creating a need for upsizing;
- Growth-driven projects sized to accommodate existing development on private services.

Exceptions:

- Where the project also provides a "modified service level" benefit (see method 4)

Calculation:

- For projects that are City-driven, growth will pay only for the incremental cost associated with the oversizing. BTE = 95%;
- For projects that are growth driven, where the existing pipes have no existing condition or performance concerns and are not scheduled to be renewed based on the City's 5-year renewal plan. BTE = 5%;
- For projects that are growth-driven, where infrastructure is sized to accommodate existing development on private services, the BTE cost will be based on any incremental over-sizing or over-deepening costs.

The City will review and update the BTE allocation for all growth-driven pipe replacement projects at the time of any future DC Background Study updates. If the project appears in the most current 5-year renewal plan, then the funding sources and development charge calculations will be updated accordingly within the background study.

¹ Existing development in an intensification context is not just the proposed parcel to be redeveloped but the street and/or adjacent streets that rely on the same single watermain feed.

3. Existing Facility Approach

Applies to existing facilities such as pumping stations and storage facilities.

- The City does not have available, for the IMP or next DC Background Study, sufficient information regarding condition-based renewal costs for existing facilities;
- The gross project cost, including any condition-based renewal costs over and above what is included in the DC Study will be determined at the functional design stage.

Exceptions:

- Where the project provides a “modified service level” benefit (see method 4).

Calculation:

- The costs included in the IMP for DC recovery will be based solely on the **incremental need** arising from development. BTE = 0%.
- City renewal funding for the project will be through a separate City account and approved as part of the City's annual Rate Supported Capital Budget;

4. Modified Service Level Approach

Applies to projects potentially improving service levels in existing development areas that will experience further development, including redevelopment and intensification.

- These projects could include: sewage pipe twinning or diversion; or
- sewer surcharge pump station; or
- upgrade of existing sewers that are operating under surcharge; or
- water projects that provide an increase pressure in existing development areas that do not meet current design guideline pressures

Calculation:

- BTE = 5% where:
 - there are no historical flooding issues, and none are predicted for existing conditions based on extreme event modelling (relevant to twinning and diversion projects); or
 - there are no water pressure guideline deficiencies within the existing service area.
- BTE = 20% where:
 - there are no historical flooding issues, but flooding is predicted for existing conditions based on extreme event modelling; or
 - there are water pressure guideline deficiencies within the existing service area that the project would resolve but the City has no plans to address without growth. The number of existing serviced units that benefit is less than benefitting growth units.

- BTE = 40% where:
 - there is a history of minor flooding that the project would resolve but the City had no plans to address without growth; or
 - there are water pressure guideline deficiencies within the existing service area that the project would resolve but the City has no plans to address without growth. The number of existing serviced units that benefit is more than benefitting growth units.
- BTE = 80% where:
 - there is a history of flooding that the project will resolve, and a business case for the project does exist without growth.
 - there are water pressure guideline deficiencies within the existing service area and a business case for the project does exist without growth.

5. Treatment Plants

- Development charges for projects that include a growth component at the City's water purification plants, and the ROPEC sewage treatment plant are to be determined through on-going plant development plan projects, but consideration should be given to aligning with the above.

6. Post-period Capacity Benefit

- Percentage determined by incremental cost of oversizing project compared to project sized for OP horizon (aligns with draft IMP policies).