Capital Cost Database – Purpose and Suggested Use

Purpose

The Federal Transit Administration's (FTA's) Capital Cost Database (CCD) is a Microsoft Access application developed to support the following uses:

Cost Database
- Document "as-built" costs for a sample of light and heavy rail projects completed within the last 40 years, with project costs and unit quantities recorded at the SCC level of detail.
- Conduct historical cost analysis based on the project costs recorded in the database.

Cost Model
- Develop conceptual, "order-of-magnitude" cost estimates for a proposed new project (not intended for detailed cost estimation).

Best Practices in Capital Cost Database Use

CCD users should be aware of the following when using the tool to conduct cost analysis:

Order-Of-Magnitude Cost Estimates
- The CCD's cost model is only intended to provide order-of-magnitude cost estimates for proposed transit projects in the early phases of development (e.g., Alternatives Analysis or Project Development (PD)).
- It is not designed or intended for the development of detailed project cost estimates.
- As such, the tool's cost model is of most value for (1) developing quick, "order-of-magnitude", estimates of conceptual projects prior to Alternatives Analysis or (2) to assess whether existing cost estimates for projects in PD or Engineering phase are reasonable.
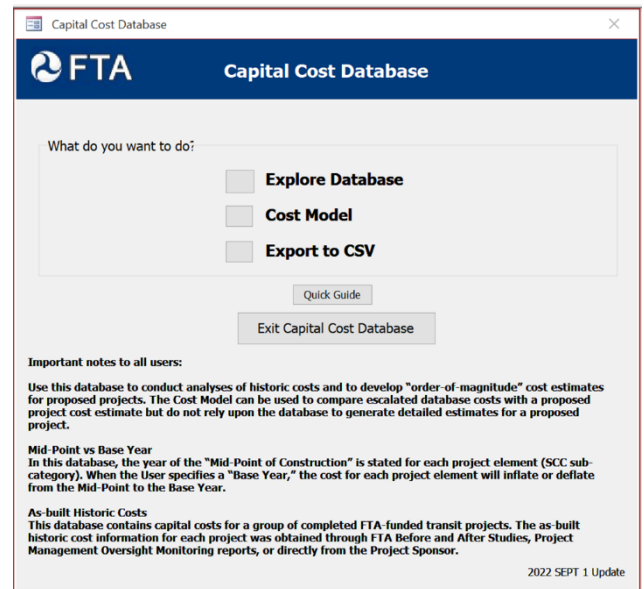
Cost Basis Development
- Cost estimates produced by the tool's Excel export can be sensitive to the cost data included in the user developed "cost basis." Users are therefore cautioned to take care in developing the cost basis, which should always be tailored to the specific characteristics of the project under analysis. For example, the selected basis costs should be obtained from completed projects with similar location context (e.g., Central Business District (CBD) vs. suburban), station design, and mix of vertical grades to the project under analysis.
- The project description data recorded in the database is intended to help the user build a cost basis using those database projects that best match the characteristics of the project under analysis.
- Users are strongly advised to prepare multiple cost basis prior to identifying a preferred cost basis best suited to their analysis needs (as a means of assessing the impacts of alternatives cost basis on cost estimates).

Unit Cost Variability
- There can be significant variability in unit cost values across projects recorded in the CCD's database, even for projects of the same mode. Users should review costs using the tool's reporting and cost basis development functions prior to making selections for specific cost analyses.
- To help mitigate potential variability within their cost samples, Users should (1) avoid selecting costs from only a small sample of projects and (2) work to exclude unit costs perceived as "outliers" from their cost analysis.

Maintaining Multiple Copies of the CCD
- The CCD is a Microsoft Access file that Users can download to their own computer. The current size of the CCD tool and its Excel export are such that the User can store multiple copies of the CCD and Excel export on their hard drive as a means of maintaining a record of past work.

Key Features

The CCD provides the following features and functionality:

Project Dataset
- The CCD contains cost data for 54 projects - 5 BRT, 3 Commuter Rail, 1 Streetcar, 27 LRT and 18 HRT projects - completed between 1983 and 2015.
- FTA intends to expand the number of database projects through regular updates.

User Customized Reports
- The Capital Cost Database includes customizable reports on the as-built costs of projects documented in the database.
- Report topics range from listings of as-built costs to the calculation of unit costs averages for selected database projects.

Custom Cost Baseline Definition
- The CCD allows the User to define a customized "cost basis" for use in developing conceptual cost estimates.
- The cost basis is developed through User selected historic costs from the tool's cost database.

Cost Model Excel Export
- The CCD cost model is exportable to Microsoft Excel to facilitate analysis of multiple scenarios and file sharing with other Users.
- All reports can be exported to Microsoft Excel as well.

Open and Downloadable Application
- The CCD is an "open" application such that Users proficient in Access can develop their own data queries and reports.
- The CCD can be downloaded from the public FTA website by any User.

User Comments to FTA

FTA intends to regularly expand the CCD database and improve the tool's functionality and usefulness to transit industry Users. Towards this end, FTA is interested in obtaining User feedback on potential improvements for future releases of this tool. Please contact Lisa Gavin, 202-366-9291 or lisa.gavin@dot.gov with any comments, questions, or suggestions for improvement.

Sample Cost Model Output

Total Cost Comparisions: By Category
Project vs Estimator Total Cost Estimates