

CR-1 COST CALCULATION GUIDANCE

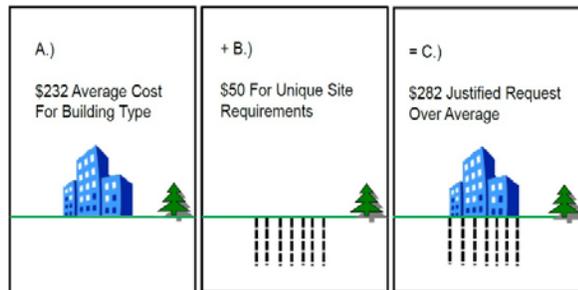
In January 2018, DEB (then BCOM) released the [CR-1 Project Planner](#) (see [Newsletter #37](#)) in order to simplify and facilitate the capital budget development process for other state agencies. The form allows agencies to enter construction and soft costs to produce a complete project budget, and identify building attributes and architectural program. The following is an example of how the individual costs that make up the project budget, were calculated in the [CR-1 Example](#) project entitled the [East Trail Complex](#). It is important to note that every project is unique and there are a number of factors that affect costs including; site conditions, program, location, size, phasing, security, and other factors. The calculations included are specific to the example outlined in the [East Trail Complex CR-1 Example](#). The order of Guidance document mirrors the CR-1.

Site Acquisition:

Contact the [DREFM](#) Division of DGS to establish the appropriate amount to include for site acquisition. Site acquisition costs are not escalated in the CR-1.

Construction:

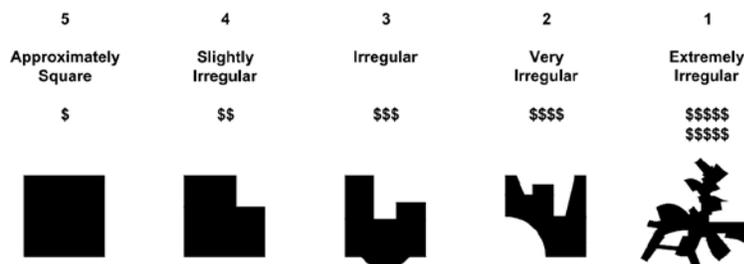
Cost Review methodology for substantiating construction costs.



Design:

Per CPSM section 6.1.2.5: The A/E shall design the project to achieve the highest Design Efficiency Rating as practical for the intended purpose and avoid unnecessary design premiums such as pulled-in corners, curved, or angled wall where possible.

Design Efficiency Ratings:



Design & Related Services:

- Factors and Resources: Project complexity, size, site conditions, renovation unknowns, and schedule. Form [CO-3a](#).

- Common Cost Range: 5% to 12%.
- East Trail Complex calculation detail: \$1,200,000 for the new construction portion, \$500,000 for the renovation, and \$700,000 for the new parking structure.

A/E Additional Services - Additional Services: Services required by the contract to be performed by the A/E that are in addition to those services required under Section 42 of the CO-3A "A/E Basic Services".

A/E Reimbursable Expenses – Reimbursed at actual cost and are subject to audit.

Specialty Consultants –As required for the certain project systems.

CM Design Phase Services:

- Factors and Resources: [CO-9CM](#)
- Common Cost Range: 1% of the estimated value of construction.
- East Trail Complex calculation detail: 1% of the estimated value of construction.

Subsurface Investigation (Geotech, Soil Borings):

- Factors and Resources: Site size, topography, and other factors.
- Common Cost Range: \$10,000 to \$50,000
- East Trail Complex calculation detail: \$5,000 per acre.

Land Surveys:

- Factors and Resources: Site size, topography, and tree density.
- Common Cost Range: \$3,000 to \$6,000 per acre
- East Trail Complex calculation detail: Site size (in acres) x \$4,000.

Archeological Survey:

- Factors and Resources: Calculate based on land disturbed, not total acreage.
- Common Cost Range: \$10,000 to \$40,000.
- East Trail Complex calculation detail: Not included.

Hazmat Survey & Design:

- Factors and Resources: Age of building, accessibility to surveyor.
- Common Cost Range: \$1 to \$4 per sq. ft.
- East Trail Complex calculation detail: \$2 per sq. ft. for the renovation portion of the project only.

Value Engineering (VE) Services:

- Factors and Resources: Budget goals, site and building complexity.
- Common Cost Range: \$40,000 to \$60,000.
- East Trail Complex calculation detail: \$0. Included in CM preconstruction services.

Cost Estimating Services

- Factors and Resources: New vs. renovation, complexity, size.
- Common Cost Range: \$1.00 to \$2.00 per sq. ft.
- East Trail Complex calculation detail: \$0. Included in CM preconstruction services and A/E.

Inspection & Testing Services:

Project inspectors (in-house or consultant):

- Factors and Resources: Required on state projects per CPSM.
- Common Cost Range: \$2,000 to \$6,000 per month.
- East Trail Complex calculation detail: Inspection: 24 month duration x 173 hours per month x 50% of project inspector's time x \$50 per hour - \$104,040.

Project Testing Services (conc. Steel, roofing, etc.):

- Factors and Resources: Categories and materials that require testing per CPSM.
- Common Cost Range: 30¢ to \$1.10 per sq. ft. per trade.
- East Trail Complex calculation detail: Testing: Concrete, Steel, Fireproofing, and Roofing for the new construction, Fireproofing for the renovation, and Concrete for the parking deck.

Project Management & Other Costs:

Agency Project Management costs:

- Factors and Resources: Duration for design, construction, and warranty
- Common Cost Range: \$3,000 to \$7,000 per month.
- East Trail Complex calculation detail: 48 month duration x 173 hours per month x 50% of project inspector's time x \$60 per hour - \$249,696

Work by Owner should be quantified and estimates in a similar fashion to construction cost estimating.

DEB Services (permitting):

- Factors and Resources: Building size, complexity, number of trades.
- Common Cost Range: \$142 per hour per trade.
- East Trail Complex calculation detail: Calculated as a percentage of construction based on historical data from similar previous projects.

Advertisement:

- Factors and Resources: [eVA](#). Number of public solicitations required.
- Common Cost Range: \$4,000 and \$6,000 per project.
- East Trail Complex calculation detail: \$4,000. [eVA](#) utilized to a great extent.

Printing:

- Factors and Resources: ([EDR](#)).
- Common Cost Range: 25¢ to 50¢ per sq. ft. of building.

- East Trail Complex calculation detail: 15¢ - Agency will be submitting a majority of the documents electronically.

Moving Expenses:

- Factors and Resources: Number of occupants and equipment as well as the number of moves required.
- Common Cost Range: \$2.00 per sq. ft. per move for office environments.
- East Trail Complex calculation detail: Occupants in the new sq. ft. will be moved once, the renovation sq. ft. twice. Light tenant upfit is also included.

Data & Voice Communications - Structured cabling (A/V, IT, Telephone):

- Factors and Resources: Quantity, category of structured cable.
- Common Cost Range: \$6 to \$10 per sq. ft. or more depending on the category of cable and floor plan distribution (i.e. “drops”).
- East Trail Complex calculation detail: \$8 per sq. ft. for the new and renovated portion of the project.

Signage:

- Factors and Resources: Building traffic, ADA
- Common Cost Range: \$1.00 to \$3.00 per sq. ft.
- East Trail Complex calculation detail: \$1.50 for the new and renovation portion of the project with 15¢ included for the parking deck.

Demolition Costs are dependent on

- Factors and Resources: Building construction type, volume, location, work restrictions, required phasing, and the presence of hazardous materials.
- Common Cost Range: \$7 per sq. ft. interior gut, \$15 per sq. ft. building demo.
- East Trail Complex calculation detail: Not included.

Hazardous Material Abatement:

- Factors and Resources: If built prior to 1978 (when the use of asbestos was no longer permitted in the US), building size.
- Common Cost Range: \$1 to \$2 for design, \$8 to \$10 per sq. ft. for abatement.
- East Trail Complex calculation detail: \$10.00 per sq. ft. for the renovation portion only.

Utility Connection Fee:

- Factors and Resources: Local Department of Public Utilities to determine fees and responsibilities for new sanitary/storm/water hookups.
- Common Cost Range: Varies.
- East Trail Complex calculation detail: \$75,000 and was based on historical data for similar sized projects.

Utility Relocations:

- Factors and Resources: Site Utility Survey, Local Department of Public Utilities

- Common Cost Range: Varies greatly.
- East Trail Complex calculation detail: 2,000 LF x \$100 per LF = \$200,000.

Commissioning:

- Factors and Resources: Complexity of building systems and LEED goals.
- Common Cost Range: An average sized new construction project targeting VEES may cost \$3.00 per sq. ft. for non-enhanced commissioning. Larger project may cost less per sq. ft. and small projects more.
- East Trail Complex calculation detail: \$3 per sq. ft. for the conditioned space.

Value Engineering (or Value Analysis for CM projects):

- Factors and Resources: Procurement method. Site and building complexity.
- Common Cost Range: \$40,000 and \$70,000.
- East Trail Complex calculation detail: \$0. (provided by CM).

Telephone Equipment:

- Factors and Resources: Features, I.P. vs analog, reuse of existing equipment
- Common Cost Range: \$300 to \$600 per device
- East Trail Complex calculation detail: 650 locations at \$500 per device.

Temporary Swing Space:

- Factors and Resources: Costs may include rent, upfit (alterations), trailer rentals.
- Common Cost Range: \$0 to \$12 per sq. ft. per year + upfit.
- East Trail Complex calculation detail: 10 per sq. ft. of the renovation sq. ft.

FF&E

Furnishings:

- Factors and Resources: Use, program, and floor plan density.
- Common Cost Range: Office space: \$18 to \$25, libraries: \$30 to \$40, classrooms and dry labs: \$25 to \$35, wet labs: \$50 to \$100.
- East Trail Complex calculation detail: \$30 per sq. ft. for the occupied area.

Movable equipment

- Factors and Resources: Use, program, and floor plan density.
- Common Cost Range: Varies based on program.
- East Trail Complex calculation detail: \$300,000 lump sum for parking equipment

Construction Contingency:

- Factors and Resources: Risk based on procurement, renovation vs. new construction, and project size.
- Common Cost Range: 2% - 5%.
- East Trail Complex calculation detail: 2% (large size and low risk procurement).