

Date: September 18, 2020

To: Natalie Porter, PE, TE
Senior Traffic Engineer
El Dorado County - Community Development Services

From: Jason Jurrens, PE
Project Manager
Quincy Engineering

Subject: 2020 El Dorado County Traffic Impact Mitigation Fee Update
Cost Estimate Methodology

Ms. Porter,

This memorandum provides information on the methodology that will be used by Quincy Engineering to prepare project cost estimates in support of the 2020 CIP Traffic Impact Mitigation Fee Update.

PROJECT ESTIMATING APPROACH

Unit Costs

While unit costs can vary widely from project to project based on market trends, fuel costs, project location, project size, and complexity, best engineering judgement will be used in order to identify common project improvement cost items and to develop associated unit costs that are accurate when compared to recent bid data on CIP projects in El Dorado County.

Quincy has established unit costs that will be applied uniformly to all project estimates (local roads and auxiliary lanes) to be included with the 2020 TIM Fee Update. The unit costs have been developed by utilizing a combination of recently advertised and awarded CIP projects in El Dorado County, as well as the Caltrans Construction Cost Index (CCCI).

Preference in establishing unit costs for the 2020 update will be given to El Dorado County bid data, as that provides a direct comparison with anticipated bid unit costs. For items that do not have a correlating item of work from established bid data, unit costs from the 2016 update will be escalated in accordance with CCCI data from August 2016 and August 2020. The Caltrans Construction Cost Index can be viewed at the following link:

<https://www.dgs.ca.gov/RES/Resources/Page-Content/Real-Estate-Services-Division-Resources-List-Folder/DGS-California-Construction-Cost-Index-CCCI>

The escalation rate applied to unit costs will be 12%. The attached Unit Cost Index illustrates the construction items, their 2016 unit costs, an applied cost increase of 12% from the CCI, comparable CIP bid data, and the unit cost being applied to the 2020 TIM Fee Update. The index is color coded to indicate which criteria was used to establish the 2020 unit costs.

Right of Way

Right of way costs for the local road segments will be based on a square foot area for developed or undeveloped areas. Where existing parking will be impacted, costs per parking stall taken will be included. The road segment estimates will include an additional 10% for right of way acquisition support.

Earthwork and Drainage

Earthwork/Grading Factors will be applied to the roadway excavation quantity based on the grading difficulty of the terrain from 1 to 5; 1=5%, 2=30%, 3=90%, 4=150% and 5=220%.

Drainage will be estimated at 15% of the earthwork and structural section quantity totals which is a close approximated average for actual constructed projects.

Supplemental Items (Local Road Estimates Only)

Traffic Management Plan/Traffic Control will be estimated at 4% of the total roadway construction cost.

Construction Contingency will be estimated at 25% of the total roadway construction cost.

Capital Support

Each estimate includes items that were measured or otherwise quantified, however there are other items associated with each project that were not separately measured but nonetheless likely to be required. Therefore, the support costs and contingencies provided in each estimate will represent project components not specifically measured, either due to the preliminary nature of the project, or presently known work items that typically fall within a percentage range of project construction costs. The following support costs and contingency values will be added to the estimated construction as defined below:

- *Project Report/Environmental Document (Preliminary Design, Preliminary Engineering, Project Management)* at 10% of the total construction cost; addresses the project development support costs required to complete the Environmental Document milestone.
- *Final Design- Plans, Specifications & Estimate* at 20% of the total construction cost; addresses the project design phase support costs required to complete construction contract documents.
- *Construction Management* at 15% of the total construction cost; addresses the project construction phase support costs required to administer the construction contract.

Should there be any further information required for approval of our cost estimating methodology, please let us know.

Attachments: Unit Cost Index for El Dorado County 2020 TIM Fee Update

El Dorado County - 2020 TIM Fee Update

Unit Cost Index



Item Description	Unit	2016 Unit Cost	CT Cost Index Increase (12%)	EDC Bid Data	Use for 2020 Estimates
Earthwork					
Roadway Excavation	CY	\$30.00	\$33.60	\$60.00	\$60.00
Existing Facilities					
Sawcut Existing Asphalt Concrete	LF	\$2.50	\$2.80		\$3.00
Removal of Striping	LF	\$1.25	\$1.40	\$1.50	\$1.50
Removal of Pavement Markings	SF	\$3.00	\$3.36	\$3.00	\$3.00
Relocate Existing Fence	LF	\$20.00	\$22.40	\$25.00	\$25.00
Structural Section					
Hot Mix Asphalt (Type A)	Ton	\$110.00	\$123.20	\$125.00	\$125.00
Class 2 Aggregate Base	CY	\$60.00	\$67.20	\$80.00	\$80.00
AC Overlay	Ton	\$110.00	\$123.20	\$125.00	\$125.00
Drainage & Utilities					
Drainage (15% of Earthwork & Struc Sec total)		15%	-		15%
Relocate Utility Pole	EA	\$7,500.00	\$8,400.00		\$8,500.00
Specialty Items					
Concrete Sidewalk	SF	\$10.00	\$11.20		\$12.00
Curb and Gutter	LF	\$30.00	\$33.60		\$33.00
Median Island Curb	LF	\$15.00	\$16.80		\$17.00
Median Island Flatwork	SF	\$8.00	\$8.96		\$9.00
Driveway	EA	\$4,000.00	\$4,480.00		\$5,000.00
Sidewalk Ramp	EA	\$2,500.00	\$2,800.00		\$3,000.00
Small Retaining Wall (0 to 5')	LF	\$200.00	\$224.00		\$250.00
Medium Retaining Wall (6 to 10')	LF	\$400.00	\$448.00		\$450.00
Large Retaining Wall (11' & up)	LF	\$550.00	\$616.00		\$620.00
Midwest Guardrail System	LF	\$200.00	\$224.00		\$225.00
Railroad Crossing Imp (Type 1)	LS	\$500,000.00	\$560,000.00		\$600,000.00
Railroad Crossing Imp (Type 2)	LS	\$650,000.00	\$728,000.00		\$730,000.00
Railroad Crossing Imp (Type 3)	LS	\$800,000.00	\$896,000.00		\$900,000.00
Landscaping					
Landscaping & Irrigation	SF	\$4.50	\$5.04		\$5.00
Median Treatment	SF	\$5.00	\$5.60		\$6.00
Traffic Items					
Street Lights and Pull Boxes	EA	\$4,000.00	\$4,480.00		\$5,000.00
Street Lights Conduit System	EA	\$25.00	\$28.00		\$30.00
Traffic Signal Modification (low)	LS	\$75,000.00	\$84,000.00		\$100,000.00
Traffic Signal Modification (high)	LS	\$170,000.00	\$190,400.00		\$200,000.00
Traffic Signal New (low)	LS	\$190,000.00	\$212,800.00		\$250,000.00
Traffic Signal New (high)	LS	\$290,000.00	\$324,800.00		\$350,000.00
Striping Imps (6 lanes)	LF	\$7.50	\$8.40		\$8.50
Striping Imps (4 lanes)	LF	\$6.00	\$6.72		\$7.00
Striping Imps (3 lanes)	LF	\$4.50	\$5.04		\$5.00
Pavement Markings	SF	\$5.00	\$5.60	\$6.00	\$6.00
Roadside Sign	EA	\$300.00	\$336.00	\$350.00	\$350.00
Supplemental Items					
Traffic Management Plan/Traffic Control		4%	-		4%
Construction Contingency		25%	-		25%
Right-of-Way¹					
Developed (parking)	Stall	\$2,500.00	\$2,800.00		\$3,000.00
Developed (landscaped)	SF	\$17.50	\$19.60		\$20.00
Developed (building)	SF	\$200.00	\$224.00		\$225.00
Undeveloped	SF	\$10.00	\$11.20		\$12.00
Right-of-way Acquisition Support		10%	-		10%
Capital Support (Note, reduced to 45% total for larger/interchange projects)					
PR/ED (PD,PE,PM)		10%	-		10%
PS&E (PS)		20%	-		20%
CONSTRUCTION (CM)		15%	-		15%

Note: EDC Bid Data utilized bid results from several projects bid between 2018 and 2020, most notably the Silver Springs Parkway South Segment and Diamond Springs Parkway

Note: Caltrans Construction Cost Index

<https://www.dgs.ca.gov/RES/Real-Estate-Services-Division-Resources-List-Folder/DGS-California-Construction-Cost-Index-CCC>