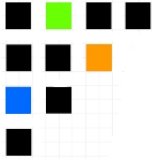

UNIT COST ANALYSIS



Technical Memorandum

Date: January 27, 2010

Project Name: City of Oroville

Prepared By: Tamara Miller

Subject: Unit Cost Analysis

These unit costs were revised using additional local data available from the City of Chico. The additional data comes from three recent sewer projects. Overall the data set covers the last ten 10 years and includes 19 projects. The set of data used was inclusively from public projects with prevailing wages. A list is provided for reference. Although this data set is small, it reflects the local area and the local contractors. Costs have declined locally. The recommended unit costs are for use in the City of Oroville Sewerage Disposal Master Plan are shown in the table below. The table below shows both the original recommendation and the revised recommendation.

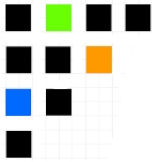
The unit cost data include traffic control, clearing and grubbing, storm water pollution prevention programs, pavement replacement, shoring, overhead and profit.

**Pipeline Unit Costs
Sewerage Disposal Master Plan
City of Oroville**

Pipe Diameter (inches)	Oct-08	Jan-10	Recommended	Change (\$/lf)
	Unit Cost (1) (\$/lf) (4)	Unit Cost (2) (\$/lf) (4)	Jan-10 Unit Cost (3) (\$/lf) (4)	
4	104	99	104	0
6	116	110	112	-4
8	128	121	120	-8
10	140	133	128	-12
12	152	144	135	-17
15	170	161	147	-23
18	188	178	159	-29
21	206	195	170	-36
24	224	212	182	-42

Notes:

- (1) Unit costs from indexed to ENR CCI 20-city average of 9150 (March 2008)
- (2) October 2008 costs indexed to ENR CCI 20-city average of 8,641 (December 2009).
- (3) Revised Analysis with additional local area construction costs indexed to 8,641 (December 2009).
- (4) \$/lf = unit cost per lineal foot. Unit costs include pipe and pipe installation, manhole and appurtenances, excavation and backfill, pavement removal and replacement, limited sheeting, dewatering and shoring, and contractor overhead and profit. Cost does not include construction contingency or administrative costs.



A simple statistical analysis of the data was done. Dropping some of the outlying data points achieved a higher R value. It was this adapted data set that was used to make the recommendations. The average plus the upper confidence interval is the basis for these recommendations. It is further recommended that 25% contingency be added for construction and 25% added for engineering and administrative overhead.

The City of Chico projects analyzed are listed below.

Project Name	Project Year	Sanitary Sewer Pipe Size
NAP Esplanade	2009	8", 10"
NAP Lassen	2009	8"
NAP Cohasset	2009	8"
Cohasset Widening	2008	30' PVC
5th Avenue	2008	8"
Manzanita	2006	8"
Forest Avenue Reconstruction	2005	8"
West 8 th Ave Reconstruction	2004	8", 10"
Esplanade Yellowstone	2003	10", 12"
Notre Dame Blvd, Humboldt to Little Chico Creek	2003	8"
East/Esplanade	2003	8"
East Avenue Reconstruct	2003	8"
Posada Way	2002	8"
Fair Street	2002	15"
East Avenue Reconstruct	2000	15"
Lassen Avenue – Sanitary Sewer Extension	2000	8", 10", 10"F, 12", 15"
Rancheria	1999	8"
East Park	1998	18"
Cohasset Lane	1998	8"

