

County of Orange
Contract Change Order Study (CCO)
Submitted September 16, 2010

Background

In mid 2009, OC Public Works was directed by the CEO to conduct a review of CCOs related to road and flood control capital projects that were managed by the department's OC Construction Section (since renamed OC Inspection). An independent consultant, LMS Consulting, was retained to conduct a study and report back with findings and recommendations. The study captures five calendar years, 2004 through 2008, which were reviewed to identify the frequency and magnitude of cost changes that occurred in the projects. As an adjunct to this report, the other 57 California counties were asked to provide some basic CCO information for the same period.

LMS Study Findings

The good news is that over the five year study period, LMS found that OC Inspection's change orders were about 5 percent of overall contract value; placing them in the good to excellent performance range.

OC Inspection has historically estimated construction contingencies at about 10 percent of total contract cost. LMS reported that their review of the data showed that OC Inspection's change orders for the five year period totaled much less than the 10 percent estimated; in fact, the total contract dollar amount for change orders studied during the five year period, amounted to \$4 million out of an \$80 million total contract value, or about 5 percent; with road projects incurring about 7 percent and flood projects about 3 percent of total contract costs.

The report defines 15 factors as the underlying causes of CCOs. Two categories, "Errors and Omissions in Plans, Specifications, and Estimates (PS&Es)", and, "Non-Discretionary Changes" represented roughly 47 percent of the five percent of CCOs. At first glance, it may appear that CCOs could be avoided if "perfect plans" were in place; however, the report goes on to point out that the additional time and resources required to complete a flawless set of documents can be cost prohibitive and counter productive, and at times, result in increased costs for extra design hours, project cost increases, and schedule slippage.

Contract Change Order Comparison with Surrounding Counties

OC Public Works wanted to provide a general comparison of OC Inspection's CCOs with other public works agencies in the state as a companion piece to this study. Through the California State Association of Counties (CSAC), a brief survey was forwarded to all 57 counties to obtain volume of contract awards during the same five year period, and those counties' qualitative opinion as to the range of CCOs that would define excellent, good, fair, and poor performance. Eleven counties, roughly 20 percent responded. A summary of the responses received is attached.

For OC Public Works' purposes, the five counties in the Southern California region: Los Angeles, Riverside, San Bernardino, San Diego, and Ventura, are considered the most useful for comparison as they are in the same general marketplace as Orange County, and are doing similar types of road and flood construction. For the five year period, the combined CCOs of these five counties ranged from 4.49 percent to 9 percent (of total contract value) for road projects; and 3.46 percent to 11.0 percent (of total contract value) for flood projects.

Once again, Orange County compared well with neighboring counties at 7 percent for road, and 3 percent for flood; and finally, a majority of the public works agencies responding to the survey indicated that OC Inspection's combined road and flood CCO history of 5 percent was in the good to excellent range.


OC PUBLIC WORKS

Construction Contract Change Order Study

February 2010

By Larry M. Seigel
LMS CONSULTING

Submitted by:


Pamela E. Seigel, Owner
LMS Consulting

Date: *February 24, 2010*

LMS CONSULTING

I. Project Description/Executive Summary

In mid 2009, LMS Consulting (LMS) was engaged to conduct a review of contract change orders related to the OC Public Works (OCPW) road and flood control projects which were managed by the Department's Construction Division. Road and flood projects were combined for the purposes of this analysis.

Calendar Years 2004 through 2008 were reviewed in their entirety to identify the frequency and magnitude of cost changes that occurred in the projects. Project data was collected by OC PW and provided to LMS for analysis. The elements of work and cost impact were examined for each project which was completed during the five year period. Cases of more significant cost change were further detailed for cause and justification. The total five year change amounted to a net amount of about \$4 million out of a total contract value of about \$80 million, or about 5%, with road projects incurring about 7% and flood about 3%. For reference, management and staff at OC Public Works have historically estimated construction contingencies at 10% and view 5% as a better than average performance for construction change orders on the combined road and flood control program.

Overall, OCPW's performance is within the bounds of expectation and some projects were actually more financially successful than planned. Based on LMS Consulting's experience in the past twenty years, a 5 (five) percent overrun due to change orders is considered exceptional by the project management community.

Although this report does not recommend any changes in planning, design, inspection, or contract management processes; LMS does recommend the incorporation of a new data base to categorize and track contract change orders to assist OCPW management and the Board in tracking individual projects and evaluating change order trends. The benefits to the new data base will include:

- A. Defining trends for change
- B. Recognizing employee training needs based on change order trends within specific areas of project planning, design, and construction
- C. Evaluating OCPW's processes based on change order trends
- D. Using both positive and negative change order trends in employee performance plans and consultant evaluations

II. Project Objective

Concerns have been expressed by the Board of Supervisors and others regarding the costs and processes by which OCPW road and flood control construction contracts have been modified via contract change orders. The objective of this review was to focus on addressing these concerns by examining recent historical data and answering the following questions:

1. Are change orders to construction contracts typical of industry practice?
2. Could the level, timing, and usefulness of change order data provided to the Board and OC Public Works management be improved?
3. Has OC Public Works change order experience been reasonable for a public agency involved in road and flood control construction?

III. OCPW Road and Flood Control Change Orders (2004-2008)

A. Consistency of the Level of Construction Change Amounts

The size and volume of projects were very different from year to year. The following summarizes the number of projects each year, the total dollar value of the contracts and dollar amounts (net) of the change orders.

Heading	2004	2005	2006	2007	2008
Number of Projects	13	7	13	11	12
Total Dollar Value of Contracts	\$19.6 M	\$8.16 M	\$20.06 M	\$18.54M	\$14.47M
Total Dollar Value of Change Orders	\$472,858	\$517,558	\$966,940	\$1,607,234	\$490,545
Percentage of Value Amended	2.40%	5.50%	5.28%	8.52%	3.39%
Number of Change Orders	38	30	56	46	19
Total Time Extended As % of Original Times	17%	42%	11%	24%	13%

We examined the change order and contract processing records by year (Exhibit A – Contract Change Order Project Information) to identify potential patterns leading to changes. An analyst might assume that bigger dollar contract values would incur more frequent and larger dollar and time escalation; this was the not case with the results we saw. A couple of larger projects did incur significant costs/delays, but the amounts and frequency were not predictable. The following table summarizes the contracts by year with the largest % and \$ changes.

Heading	2004	2005	2006	2007	2008
Largest Contract (\$)	\$6.99M	\$5.60M	\$5.74M	\$6.10M	\$7.99M**
Contract with Largest Change	\$226,588	\$5.60M	\$5.74M	\$5.21M	\$639,994*
Largest Changes in \$	\$142,075	\$195,694	\$210,153	\$363,332	\$170,203
Project Type	Flood	Road	Flood	Road	Road
Number of Change Orders	9	11	12	16	6

* Note: 9 of the smaller contracts exceeded the largest for changes in 2007

** Note: the largest contract had no changes

As this table shows, the predictability of requiring time or dollar changes has no clear relationship to the size of original contract.

B. Detailed Analysis of Attributes of Change Orders

Some projects experienced no change requests and a couple had ten or more. Only change orders subject to Board approval are documented for Board submission. This accounted for about 10 of the 56 contracts. OCPW subjected the contracts and change orders to an unusual analysis of the potential factors to which the changes orders could be attributed (Exhibit B – Contract Change Order Details). In many cases, OCPW had to allocate a change order to several underlying reasons and attributes portions of the changes. These factors provided reasons for time and expenses alterations, but also for time and dollar reductions that were applied to the contract final amount as credits. LMS found this analysis sufficiently insightful and informative that OC Public Works and the Board of Supervisors should consider seeking this type of explanation for changes subject to Board approval.

OCPW developed a listing of 15 potential cost categories or costing factors (identified in the Exhibits as a. through o.) which could define the underlying factors for possible change order requests. This number could be reduced to 10 or so through combining some, but we kept all of them for the current analysis. LMS also included positive impact adjustment factors as well as potential savings categories. The factors and a brief explanation of each follow:

- a. Changed condition—subsurface or latent physical condition differing materially from what is shown on the plans or ordinarily encounter in the type of work being performed
- b. Discretionary changes—not required for job completion but requested by County staff at extra cost
- c. Discretionary changes—not required for job completion but requested by County staff to reduce costs
- d. Non-discretionary changes necessary for project completion which increase project costs
- e. Non-discretionary changes necessary for project completion which reduce project costs
- f. County caused delays and claimable contractor damage
- g. No cost changes—administrative, time extensions, etc
- h. Errors or omissions in plans or specifications
- i. Errors on the part of the County in managing or inspecting the contract or work
- j. Changes requested by the contractors—no cost increases are permitted
- k. Value engineering—proposals by contractor to encourage cost savings
- l. Claims resolution—settlement of claim deferred to future to allow for current completion of work
- m. Changes anticipated in the contract but not included in the bid proposal—example is material testing and supplemental design which is not determinable until work begins
- n. Site condition deterioration—during contract period conditions may deteriorate from what was shown on the approved plans resulting in additional work
- o. Miscellaneous fees—plan/inspection fees paid to other agencies

LMS analyzed each of the contracts and change order along the guidelines of the 15 factors. While some judgment was required in assigned primary causes, the approach worked well. The total of 56 active contracts during the five year study period represented a total of 190 change orders. Within the 190 change orders, almost 400 specific issues leading to changes are included. For example in 2004, the Huntington Beach Channel Project incurred six change orders leading to a project reduction of \$67,733. The six change orders covered 10 changeable issues representing 6 multiple cost items (some more than once) and affected total cost 11 times. Time adjustment of 9 days was allowed.

Another project in 2007, the Warner Avenue Bridge Project incurred 16 change orders netting a cost increase of about \$375,000. The 16 approved change orders included:

1. 10 different categories of change request reasons
2. Cost request adjustments varying from -\$775 to +\$116,000
3. Four changes due to time were accepted for a total of 55 days and the attributed cost to the time changes was allocated over 11 time related events
4. The change factors included: claims resolution time and cost, errors and omissions in plans and specifications, and addition of changes requested by the County outside the original contract

The Exhibits to this report were prepared by OCPW. The Exhibits contain the details of this and the full analysis by each year, contract and factor. The following table represents a summary of the overall analysis (Exhibit C – Contract Change Order Summary by Underlying Cause) of the 56 contracts and almost 200 change orders. The total value of the five years of change orders is just over \$4 million including the net offsets which were recognized.

Category	\$ Net Change
A. Condition changes	\$639,256
B. Discretionary change charge	\$625,996
C. Discretionary change savings	-\$515,671
D. Non-discretionary; County request	\$940,961
E. Non-discretionary—County saving	-\$ 28,276
F. County caused delays	\$335,423
G. No cost administrative charge	0
H. Errors/omissions in P&S	\$976,734
I. Errors in management/inspection of contracts	\$103,674
J. Changes requested by Contractor	-\$18,976
K. Value engineering (one instance)	-\$49,730
L. Claims resolution	\$445,559
M. Anticipated changes to contract	\$346,777
N. Site condition deterioration	\$230,023
O. Miscellaneous Fees	\$23,385
Total	\$4,055,135

In order to make this information more useful, LMS consolidated a number of the categories provided by OCPW. This allows the reader to focus on the types of issues that constitute the primary causes of change orders as shown in following table:

Category	Cost	%
Errors/Omissions in PS&E (beyond normal standard of care)	\$976,734	24.0
Non-Discretionary Changes (required to complete project)	\$912,685	22.5
Changed Condition (physical conditions differing from the plans-usually subsurface)	\$639,256	15.8
Claims Resolution	\$445,559	11.0

Change Anticipated at Contract Award (not included in original PS&E)	\$346,777	8.6
Agency Caused Delays	\$335,423	8.3
Miscellaneous	\$288,376	7.1
Discretionary Changes	\$110,325	2.7
Total	\$4,055,135	100.0

IV. Conclusions and Recommendations

As stated in the Section II. “Project Objective” it was the intention of this report to respond to several areas of concern by answering the following questions:

1. Are change orders to construction contracts typical of the industry practice?

Yes. Despite considerable preparation in the planning and design of projects, very few projects can be completed without change orders. It is normal and should be expected to discover factors that create additional (sometimes less) work than anticipated or contracted. Trying to achieve “perfect” plans and specifications during the design phase would not be cost or time effective. In addition, this opinion is also based on the following factors:

- a. By law, public works construction contracts are typically awarded to the lowest bidder which creates an environment that promotes open and competitive bidding (and presumably lower award costs). To help insure the lowest bids are received, the contracts provide equitable methods (change orders) for contractors to recover costs for unplanned work or items of work and services which are not contractually covered. In most cases, change orders do not mean that contractors are taking advantage of the public agency.
- b. Some actions by the contracting agency (OC Public Works or other county agencies) may directly contribute to time or cost impacts independent of the contractor.
- c. In some instances, a delay or cost impact may incur due to shared fault on both parties.

Considering these factors, few or no processes could reasonably be developed which would lead to ending all change orders.

2. Could the timing and usefulness of change order data provided to the Board and OC Public Works management be improved?

Yes. The exact timing of the discoveries and actions regarding changes could not be readily determined from the records without exhaustive research, due to all the possible reasons for the change requested and the interaction of the timing of those changes. For that reason in order to provide better information for OCPW management and the Board, we recommend that change orders and supporting documents use a modified analysis (simplified to fewer change categories) similar to that used for this project (Section II. B.) to identify track and

record the incidence of change orders. These changes should be tracked electronically with dollar amount, reason for change, and effect on project schedule

Automating the change order history will provide a number of benefits for the Department. The Exhibits that were prepared for this review were created for a one time basis based on the information and experience from OCPW's actual experience on the projects. If the change order history is automated, OCPW will have the information readily available along with the following additional benefits:

- a. Defining trends for change orders including the following factors:
 - i. Design errors and omissions
 - ii. Board requests
 - iii. Changed conditions
 - b. Recognizing employee training needs based on change order trends within specific areas of project planning, design, and construction
 - c. Evaluating OCPW's processes based on change order trends
 - d. Using both positive and negative change order trends in employee performance plans and consultant evaluations
3. Has OC Public Works change order experience been reasonable for a public agency involved in road and flood control construction?

Yes. It is not uncommon to see a problem (or projects) with some exceptional issues arising from 60 projects over 5 years of effort. The Department made reasonable efforts to identify changes and costs. LMS reviewed a number of documents supporting the change requests and the documents varied in form and detail. The material was summarized, but LMS's understanding is that the assigned managers could provide oral responses and additional supporting facts to support cost adjustments should it be necessary.

Overall, OCPW's performance is within the bounds of expectation and some projects were actually more financially successful than planned. Based on LMS Consulting's experience in the past twenty years, a 5 (five) percent overrun due to change orders is considered exceptional by the project management community.

EXHIBIT A
Contract Change Order
Project Information

Project Name	Project No.	Project Type	Award Amount	Original Contract Time (days)	Number of CCO's	Approved Value of all CCO's	Approved Value of all CCO's as a % of Award Amount	Time Extension by CCO's	Final Cost of CCO	Final Cost of CCO's as a % of Final Project Cost	Final Project Cost	Total CCO Time Extensions as a % of Original Contract Time
Chapman Avenue Resurfacing	ER20342	Road	\$258,653.60	15	0	\$0.00	N/A	N/A	N/A	N/A	\$227,198.41	N/A
Cypress Acres Street & Storm Drain Improvements	EC03345	Road	\$394,577.00	65	3	\$5,535.00	1.40%	32	\$4,575.00	1.16%	\$393,630.57	49.20%
El Toro Road Resurfacing	ER20344	Road	\$285,910.10	15	1	\$8,947.00	2.20%	0	\$8,947.00	3.25%	\$275,330.96	0.00%
HB Channel Atlanta Avenue to Indianapolis Avenue	EF07373	Flood	\$2,971,437.00	200	6	\$84,759.54	2.85%	4	\$85,271.54	2.78%	\$3,062,339.48	2.00%
HB Channel Magnolia to U/S of Newland	EF07372	Flood	\$6,992,813.60	250	6	-\$67,732.68	-0.97%	9	-\$79,023.00	1.17%	\$6,769,906.13	3.60%
Irvine Boulevard Asphalt Overlay	ER20493	Road	\$269,256.00	15	1	\$4,785.00	1.78%	0	\$4,785.00	2.14%	\$224,040.59	0.00%
Lincoln Avenue Asphalt Overlay	ER20345	Road	\$247,327.90	15	2	\$45,740.00	18.49%	14	\$45,740.00	16.88%	\$270,940.24	93.33%
Magnolia Avenue Asphalt Overlay	ER20343	Road	\$169,325.10	15	0	\$0.00	N/A	N/A	N/A	N/A	\$146,749.89	N/A
Riverside Drive Drainage	EC41204	Flood	\$39,500.00	30	2	\$5,600.00	14.17%	3	\$5,125.00	11.48%	\$44,625.67	0.00%
San Diego Creek Emergency Repair	EF27682	Flood	\$1,873,250.00	90	3	\$109,867.40	5.86%	35	\$54,434.00	4.61%	\$1,179,635.42	38.88%
Segunda Deshecha Canada Channel	EF07328	Flood	\$5,742,493.54	200	4	\$132,801.48	2.31%	0	\$135,199.00	0.22%	\$6,038,478.31	0.00%
Serrano Creek Habitat Restoration	EF07382	Flood	\$226,587.50	45	9	\$142,075.00	62.74%	76	\$125,535.00	41.79%	\$300,424.41	168.88%
Chapman and Nearing Traffic Signal	ER10165	Road	\$127,366.49	50	1	\$480.00	0.38%	0	\$480.00	0.38%	\$125,805.47	0.00%
2004 Totals			\$19,598,497.83	1005	38	\$472,857.74	2.40%	173	\$391,068.54	2.05%	\$19,059,105.55	17.21%

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Aliso Creek Channel Repair	EF27684	Flood	\$327,737.50	40	1	\$65,622.19	20.00%	30	\$65,622.19	16.86%	\$389,119.69	75.00%
Crown Valley Parkway	EC28120	Road	\$5,600,400.81	250	11	\$195,693.62	3.50%	33	\$173,156.28	3.01%	\$5,751,669.66	13.20%
Federal Storm Channel	EF27694	Flood	\$159,702.00	20	0	\$0.00	N/A	N/A	N/A	N/A	\$189,479.00	N/A
Moulton Parkway Widening	ER08404	Road	\$494,885.00	90	7	\$114,845.31	3.57%	162	\$17,692.56	3.70%	\$478,612.96	180.00%
Skyline Storm Drain Phase I	ER20470	Road	\$633,874.00	90	4	\$17,692.56	18.21%	22	\$119,815.31	15.88%	\$754,338.62	24.44%
Slurry Seal various streets 2004-2005	ER20509	Road	\$943,317.50	50	1	\$55,000.00	5.83%	0	\$50,139.00	4.89%	\$1,024,448.83	0.00%
Slurry Seal various streets 2003-2004	ER20348	Road	\$561,635.25	55	6	\$68,704.00	12.23%	5	\$83,420.00	13.47%	\$619,191.01	9.09%
2005 Totals			\$8,159,916.81	595	30	\$517,557.68	5.50%	252	\$509,845.34	5.54%	\$9,206,859.77	42.35%

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Asphalt Overlay Resurfacing 2003-2004	ER20495	Road	\$623,029.00	30	3	\$79,258.66	12.72%	0	\$82,904.66	12.66%	\$654,709.58	0.00%
Asphalt Overlay Resurfacing 2004-2005	ER20510	Road	\$683,394.50	40	3	\$51,257.90	7.50%	20	\$51,527.90	8.39%	\$614,042.63	50.00%
Atwood Channel Emergency Repair	EF27751	Flood	\$829,066.00	45	4	\$101,908.00	12.29%	28	\$101,534.04	10.62%	\$955,696.02	62.22%
El Modena Alley Rehabilitation	EC41229	Road	\$86,846.00	40	1	\$5,400.00	6.22%	0	\$5,400.00	5.55%	\$97,221.80	0.00%
Glassell Street Bridge Widening	ER08933	Road	\$5,666,668.00	320	13	\$186,817.06	3.30%	-10	\$159,280.37	2.73%	\$5,826,206.16	3.13%
Sunset Beach Walkway	ER09042	Road	\$185,829.21	40	3	\$28,843.38	15.52%	7	\$28,843.38	13.51%	\$213,541.69	17.50%
Cathodic Protection System for Huntington Beach Channel	EF07371	Flood	\$1,199,240.00	220	0	N/A	N/A	N/A	N/A	N/A	\$1,199,240.01	N/A
Huntington Beach Channel	EF03560	Flood	\$5,739,418.00	200	12	\$210,153.28	3.66%	72	\$112,358.05	1.90%	\$5,906,902.85	36.00%
Overhill Drive Emergency Reconstructing	ER27725	Road	\$610,950.00	90	2	\$25,880.00	4.23%	4	\$25,880.00	3.99%	\$648,291.67	4.44%
Santiago Canyon Road Drainage Repair	ER20301	Road	\$273,826.50	50	1	\$5,339.48	1.95%	0	\$5,339.48	1.92%	\$278,398.36	0.00%
Skyline Drive Storm Drain Phase II	ER20469	Road	\$1,508,300.00	120	5	\$84,050.00	5.57%	0	\$77,248.34	4.79%	\$1,611,275.95	0.00%
Slurry Seal of Various Street 2005-2006	ER20525	Road	\$834,639.00	40	1	\$37,652.56	4.51%	0	\$37,660.31	4.33%	\$870,392.18	0.00%
Tustin Avenue Widening	ER08930	Road	\$1,765,700.00	200	8	\$150,379.20	8.51%	37	\$141,628.41	7.42%	\$1,908,715.31	19.50%
2006 Totals			\$20,006,906.21	1435	56	\$966,939.52	5.28%	158	\$829,604.94	3.99%	\$20,784,634.21	11.01%

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Brenan Way Drainage Improvements	ER20507	Road	\$468,978.00	120	2	\$48,940.95	10.44%	0	\$48,424.43	9.79%	\$494,425.14	0.00%
Fairhaven Avenue Overlay	ER20518	Road	\$511,645.00	40	3	\$154,727.55	30.24%	10	\$154,517.33	24.60%	\$628,130.03	25.00%
Hewes Street Overlay	ER20516	Road	\$200,220.00	20	1	\$19,976.48	10.00%	10	\$19,976.48	10.22%	\$195,425.95	50.00%
Orange Park Acres Storm Drain	ER20475	Road	\$1,191,991.50	60	2	\$90,444.53	7.59%	28	\$88,036.88	6.68%	\$1,317,151.96	46.67%
Oso Parkway Widening	ER08945	Road	\$2,363,278.56	115	5	\$175,954.50	7.45%	31	\$157,322.07	6.39%	\$2,460,280.43	36.52%
Peters Canyon Channel Trail	EF07385	Flood	\$6,102,769.00	200	2	\$30,801.50	0.05%	47	\$29,310.88	0.05%	\$6,291,986.78	23.50%
Randall Street Storm Drain	ER20486	Road	\$716,041.00	60	5	\$145,434.54	20.31%	35	\$115,562.76	14.00%	\$824,976.16	58.33%
San Diego Creek Vegetation/Sediment Removal	EF03303	Flood	\$487,265.00	35	1	\$286,489.72	58.80%	10	\$286,489.72	37.09%	\$772,429.72	28.57%
SCE Bridge	ER08946	Road	\$332,300.00	60	3	\$38,609.40	11.62%	8	\$38,609.40	10.41%	\$370,909.40	6.67%
Slurry Seal of various streets 2006-2007	ER20366	Road	\$1,267,424.00	60	6	\$252,522.84	19.92%	24	\$252,522.84	16.54%	\$1,526,871.91	30.00%
Warner Avenue Widening	ER08941	Road	\$5,211,111.11	320	16	\$363,332.18	6.97%	55	\$374,983.43	6.69%	\$5,608,209.49	17.19%
2007 Totals			\$18,853,023.17	1090	46	\$1,607,234.19	8.52%	258	\$1,565,756.22	7.64%	\$20,490,796.97	23.76%

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Asphalt Overlay & Resurfacing 2006-2007	ER20349	Road	\$1,593,153.00	55	1	\$60,105.05	3.77%	0	\$60,105.05	4.38%	\$1,371,286.71	0.00%
Edinger Avenue Bridge	ER03584	Road	\$159,990.00	45	1	\$3,750.00	2.34%	0	\$3,750.00	2.33%	\$160,740.00	0.00%
EGG Wintersburg Emergency	EF27718	Flood	\$7,999,050.00	75	0	N/A	N/A	N/A	N/A	N/A	\$8,014,906.55	N/A
El Toro Materials Conveyor Bridge	ER08949	Road	\$150,250.00	30	1	\$8,935.98	5.95%	0	\$8,935.98	5.61%	\$159,185.98	0.00%
Huntington Beach Channel Phase II	EF07390	Flood	\$845,985.00	120	2	\$93,667.50	11.07%	0	\$93,667.50	10.00%	\$936,058.80	0.00%
In-Road Crosswalk Lighting	ER10169-70	Road	\$128,860.00	40	1	\$9,188.00	7.10%	0	\$8,742.22	6.34%	\$137,912.22	0.00%
Laguna Coast Multi-use Trail	ER08946	Road	\$534,700.00	40	2	\$52,693.01	9.85%	10	\$52,693.01	8.91%	\$591,257.01	25.00%
Santiago Canyon Road Asphalt Overlay Resurfacing	ER20521	Road	\$192,433.50	30	N/A	N/A	N/A	N/A	N/A	N/A	\$202,818.96	N/A
Santiago Canyon Road Bridge Barrier Replacement	ER09338	Road	\$518,171.00	100	3	\$64,732.13	12.49%	33	\$64,036.19	11.00%	\$582,239.19	33.00%
Santiago Canyon Road Asphalt Overlay Resurfacing	ER20520	Road	\$346,000.00	30	0	N/A	N/A	N/A	N/A	N/A	\$343,252.92	N/A
Slurry Seal Various Streets 2007-2008	ER20371	Road	\$1,362,160.00	65	2	\$27,270.00	2.00%	0	\$22,732.22	1.64%	\$1,388,267.17	0.00%
Yellowpine Lane Storm Drain	ER20353	Road	\$639,994.00	60	6	\$170,203.40	26.59%	37	\$170,203.40	21.01%	\$810,186.48	61.66%
2008 Totals			\$14,470,746.50	690	19	\$490,545.07	3.39%	80	\$484,865.57	3.30%	\$14,698,111.99	13.18%

Contract Change Order Details

Project Name	CCO No.	Total Estimated Cost of CCO	Total Final Cost of CCO	Approval Authority (B or D)	Time Impact	Number of Separate Issues Covered by CCO	Underlying Cause for Each CCO	Approved Cost of Each CCO by Category	Actual Cost of Each CCO by Category		Underlying Causes Legend
El Toro Road	1	\$8,947.00	\$8,947.00	Department	0	4	h	\$13,954.00	\$13,954.00	a	Changed Condition (subsurface or latent physical condition differing materially from what was shown on the plans or ordinarily encountered in the type of work being performed)
							c	-\$8,030.00	-\$8,030.00		
							b	\$2,940.00	\$2,940.00		
							m	\$83.00	\$83.00		
Total CCO	1	\$8,947.00	\$8,947.00		0	4		\$8,947.00	\$8,947.00	b	Discretionary changes (not necessary to complete the project) requested by County increasing project cost
HB Channel	1	\$0.00	\$0.00	Department	0	1	j	\$0.00	\$0.00		Discretionary changes (not necessary to complete the project,) requested by County decreasing project cost
Magnolia to Newland	2	-\$76,900.00	-\$76,900.00	Department	0	1	c	-\$76,900.00	-\$76,900.00	c	
	3	\$15,325.00	\$5,838.51	Department	+3	1	d	\$15,325.00	\$5,838.51		
	4	-\$9,310.00	-\$9,310.00	Department	0	1	c	-\$9,310.00	-\$9,310.00		
	5	\$8,000.00	\$6,195.70	Department	0	1	h	\$8,000.00	\$6,195.70	d	
	6	-\$4,847.68	-\$4,847.68	Department	+6	5	h	-\$20,000.00	-\$20,000.00		
							j	-\$9,600.00	-\$9,600.00	e	Non-discretionary changes (necessary to complete the project) requested by County decreasing project cost
							h	\$11,678.34	\$11,678.34		
							h	\$9,224.82	\$9,224.82		
							h	\$3,849.16	\$3,849.16	f	
Total CCO	6	-\$67,732.68	-\$79,023.47		+9	10		-\$67,732.68	-\$79,023.47	g	No cost administrative changes in the contract (time extensions, modification in contract language, etc.)
Cypress Acres S.D.	1	-\$975.00	-\$975.00	Department	0	1	c	-\$975.00	-\$975.00	h	Errors/Omissions in the P&S
	2	\$1,350.00	\$0.00	Department	+1	1	h	\$1,350.00	\$0.00	i	Errors in management/inspection of the contract
	3	\$5,160.00	\$5,550.00	Department	+31	1	d	\$5,160.00	\$5,550.00	j	Changes requested by Contractor
Total CCO	3	\$5,535.00	\$4,575.00		+32	3		\$5,535.00	\$4,575.00	k	Value Engineering
										l	Claims resolution
Irvine Blvd Overlay	1	\$4,785.00	\$4,785.00	Department	0		b	\$4,785.00	\$4,785.00	m	Changes anticipated in the contract but not included in the bid proposal
San Diego Creek Emergency	1	\$80,000.00	\$27,241.00	Department	+35	3	i	\$50,000.00	\$15,733.00	n	Site Condition Deterioration
							d	\$15,000.00	\$7,982.00	o	Misc. Fees
							d	\$15,000.00	\$3,526.00		
	2	\$10,000.00	\$7,326.00	Department	0	1	b	\$10,000.00	\$7,326.00		
	3	\$19,867.40	\$19,867.40	Department	0	2	d	\$17,501.00	\$17,501.00		
							d	\$2,366.40	\$2,366.40		
Total CCO	3	\$109,867.40	\$54,434.40		+35	6		\$109,867.40	\$54,434.40		
Lincoln Avenue Overlay	1	-\$8,000.00	-\$8,000.00	Department	+10	3	a	\$500.00	\$500.00		
							a	\$2,100.00	\$2,100.00		
							c	-\$10,600.00	-\$10,600.00		
	2	\$53,740.00	\$53,740.00	Board	+4	2	h	\$16,120.00	\$16,120.00		
							a	\$37,620.00	\$37,620.00		

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Total CCO	2	\$45,740.00	\$45,740.00		+14	5		\$45,740.00	\$45,740.00						
HB Channel	1	\$711.70	\$711.70	Department	0	1	b	\$711.70	\$711.70						
Atlanta to Indianapolis	2	\$17,552.00	\$16,852.00	Department	0	2	a	\$3,052.00	\$3,052.00						
							a	\$14,500.00	\$13,800.00						
	3	\$23,700.00	\$24,858.00	Department	+4	3	h	\$12,000.00	\$12,439.00						
							a	\$8,900.00	\$9,619.00						
							a	\$2,800.00	\$2,800.00						
	4	\$12,061.00	\$12,061.00	Department	0	1	h	\$12,061.00	\$12,061.00						
	5	\$34,514.84	\$34,514.84	Department	0	1	h	\$34,514.84	\$34,514.84						
	6	-\$3,780.00	-\$3,780.00	Department	0	1	e	-\$3,780.00	-\$3,780.00						
Total CCO	6	\$84,759.54	\$85,217.54	Department	+4	9		\$84,759.54	\$85,217.54						
Chapman @ Nearing Signal	1	\$480.00	\$480.00	Department	0		h	\$480.00	\$480.00						
Serrano Creek Habitat	1	\$4,975.00	\$4,975.00	Department	0	1	d	\$4,975.00	\$4,975.00						
	2	\$43,000.00	\$43,000.00	Board	0	1	d	\$43,000.00	\$43,000.00						
	3	\$7,000.00	\$8,335.00	Department	0	1	b	\$7,000.00	\$8,335.00						
	4	\$22,500.00	\$27,162.00	Department	+10	1	a	\$22,500.00	\$27,162.00						
	5	\$19,000.00	\$15,698.00	Department	+26	2	b	\$14,000.00	\$12,848.00						
							b	\$5,000.00	\$2,850.00						
	6	\$8,000.00	\$4,254.00	Department	+9	1	d	\$8,000.00	\$4,254.00						
	7	\$24,000.00	\$10,900.00	Department	0	1	d	\$24,000.00	\$10,900.00						
	8	\$7,400.00	\$5,076.00	Department	0	1	d	\$7,400.00	\$5,076.00						
	9	\$6,200.00	\$6,135.00	Department	+31	1	d	\$6,200.00	\$6,135.00						
Total CCO	9	\$142,075.00	\$125,535.00		+76	10		\$142,075.00	\$125,535.00						
Segunda Deshecha Channel	1	\$3,550.00	\$3,550.00	Department	0	1	a	\$3,550.00	\$3,550.00						
	2	\$96,900.00	\$96,900.00	Department	0	1	a	\$96,900.00	\$96,900.00						
	3	\$30,351.48	\$33,094.48	Department	0	4	h	\$23,214.00	\$25,173.00						
							a	\$1,000.00	\$977.00						
							h	\$1,000.00	\$1,807.00						
							b	\$5,137.48	\$5,137.48						
	4	\$2,000.00	\$1,655.00	Department	0	1	h	\$2,000.00	\$1,655.00						
Total CCO	4	\$132,801.48	\$135,199.48		0	7		\$132,801.48	\$135,199.48						
Riverside Drive	1	\$4,500.00	\$4,146.00	Department	0	2	a	\$3,600.00	\$3,288.00						
							b	\$900.00	\$858.00						
	2	\$1,100.00	\$979.00	Department	0	1	a	\$1,100.00	\$979.00						
Total CCO	3	\$5,600.00	\$5,125.00			3		\$5,600.00	\$5,125.00						

Exhibit B Contract Change Order Details

Project Name	CCO No.	Total Estimated Cost of CCO	Total Final Cost of CCO	Approval Authority (B or D)	Time Impact	Number of Separate Issues Covered by CCO	Underlying Cause for Each CCO	Approved Cost of Each CCO by Category	Actual Cost of Each CCO by Category	Underlying Causes Legend	
Crown Valley Bridge	1	\$25,500.00	\$20,587.36	Department	0	2	a	\$7,500.00	\$3,305.57	a Changed Condition (subsurface or latent physical condition differing materially from what was shown on the plans or ordinarily encountered in the type of work being performed) b Discretionary changes (not necessary to complete the project) requested by County increasing project cost c Discretionary changes (not necessary to complete the project,) requested by County decreasing project cost d Non-discretionary changes required by County increasing project cost e Non-discretionary changes (necessary to complete the project) requested by County decreasing project cost f County caused delay damages g No cost administrative changes in the contract (time extensions, modification in contract language, etc.) h Errors/Omissions in the P&S i Errors in management/inspection of the contract j Changes requested by Contractor k Value Engineering l Claims resolution m Changes anticipated in the contract but not included in the bid proposal n Site Condition Deterioration o Misc. Fees	
							b	\$18,000.00	\$17,281.79		
	2	\$18,900.00	\$16,090.80	Department	+14	3	h	\$11,000.00	\$9,347.95		
							a	\$7,500.00	\$6,129.69		
								h	\$400.00		\$613.16
	3	\$25,000.00	\$9,306.53	Department	0	1	h	\$25,000.00	\$9,306.53		
	4	\$5,900.00	\$3,843.71	Department	0	2	a	\$7,000.00	\$6,243.71		
							c	-\$1,100.00	-\$2,400.00		
	5	\$14,650.00	\$14,650.00	Department	0	2	h	\$12,010.00	\$12,010.00		
							d	\$2,640.00	\$2,640.00		
	6	\$6,800.00	\$6,464.56	Department	0	4	a	\$250.00	\$224.73		
						a	\$750.00	\$738.98			
						h	\$300.00	\$255.11			
						h	\$5,500.00	\$5,245.74			
7	\$9,000.00	\$9,442.81	Department	0	1	h	\$9,000.00	\$9,442.81			
8	\$12,870.00	\$15,696.89	Department	+19	5	d	\$750.00	\$741.12			
						a	\$1,100.00	\$821.58			
						b	\$1,020.00	\$1,014.83			
						d	\$9,000.00	\$12,347.33			
						h	\$1,000.00	\$772.03			
9	\$3,245.00	\$3,245.00	Department	0	1	a	\$3,245.00	\$3,245.00			
10	-\$1,171.38	-\$1,171.38	Department	0	1	e	-\$1,171.38	-\$1,171.38			
11	\$75,000.00	\$75,000.00	Department	0	1	l	\$75,000.00	\$75,000.00			
Total CCO	11	\$195,693.62	\$173,156.28		+33	23		\$195,693.62	\$173,156.28		
Skyline Drive Storm Drain	1	\$24,020.00	\$28,942.00	Department	+6	5	b	\$12,702.00	\$12,702.00		
							b	\$1,818.00	\$1,818.00		
								a	\$5,000.00	\$4,404.00	
								a	\$2,000.00	\$4,274.00	
								a	\$2,500.00	\$5,744.00	
	2	\$26,070.00	\$26,519.00	Department	+6	6	b	\$5,570.00	\$5,570.00		
							h	\$6,000.00	\$6,000.00		
							a	\$2,500.00	\$3,222.00		
							a	\$1,500.00	\$1,635.00		
							b	\$9,500.00	\$9,150.00		
						d	\$1,000.00	\$942.00			
3	\$38,077.39	\$38,077.39	Department	0	1	a	\$38,077.39	\$38,077.39			
4	\$26,677.92	\$26,276.92	Department	+10	12	c	-\$2,454.36	-\$2,454.36			

Exhibit B Contract Change Order Details

Project Name	CCO No.	Total Estimated Cost of CCO	Total Final Cost of CCO	Approval Authority (B or D)	Time Impact	Number of Separate Issues Covered by CCO	Underlying Cause for Each CCO	Approved Cost of Each CCO by Category	Actual Cost of Each CCO by Category	Underlying Causes Legend
Atwood Emergency Channel	1	\$48,530.00	\$48,530.00	Department	+5	1	h	\$48,530.00	\$48,530.00	a Changed Condition (subsurface or latent physical condition differing materially from what was shown on the plans or ordinarily encountered in the type of work being performed)
	2	\$4,925.00	\$4,920.04	Department	+2	4	d	\$1,100.00	\$1,096.17	
							b	\$140.00	\$135.02	
							b	\$3,300.00	\$3,300.00	
							b	\$385.00	\$388.85	b Discretionary changes (not necessary to complete the project) requested by County increasing project cost
3	\$8,850.00	\$8,481.00	Department	+9	1	d	\$8,850.00	\$8,481.00		
	4	\$39,603.00	\$39,603.00	Department	+12	1	d	\$39,603.00	\$39,603.00	
Total CCO	4	\$101,908.00	\$101,534.04		+28	7		\$101,908.00	\$101,534.04	c Discretionary changes (not necessary to complete the project.) requested by County decreasing project cost
Glassell Bridge	1	\$1,298.56	\$1,298.56	Department	0	1	o	\$1,298.56	\$1,298.56	d Non-discretionary changes required by County increasing project cost e Non-discretionary changes (necessary to complete the project) requested by County decreasing project cost f County caused delay damages g No cost administrative changes in the contract (time extensions, modification in contract language, etc.) h Errors/Omissions in the P&S i Errors in management/inspection of the contract j Changes requested by Contractor k Value Engineering l Claims resolution m Changes anticipated in the contract but not included in the bid proposal n Site Condition Deterioration o Misc. Fees
	2	\$13,700.00	\$4,424.78	Department	0	3	b	\$1,200.00	\$372.92	
							h	\$1,000.00	\$934.30	
							b	\$11,500.00	\$3,117.56	
	3	-\$49,730.00	-\$49,730.00	Board	-20	1	k	-\$49,730.00	-\$49,730.00	
	4	\$100,000.00	\$87,711.05	Department	0	1	b	\$100,000.00	\$87,711.05	
	5	\$5,104.00	\$3,215.00	Department	0	4	c	-\$12,742.00	-\$12,742.00	
							b	\$4,500.00	\$2,611.00	
							d	\$10,176.00	\$10,176.00	
							a	\$3,170.00	\$3,170.00	
	6	\$18,961.50	\$16,637.80	Department	0	6	o	\$1,161.50	\$1,161.50	
						d	\$6,500.00	\$6,182.13		
						a	\$1,000.00	\$770.11		
						a	\$2,300.00	\$2,216.81		
						h	\$3,000.00	\$1,777.40		
						a	\$5,000.00	\$4,529.85		
	7	\$37,360.95	\$37,360.95	Department	0	1	a	\$37,360.95	\$37,360.95	
	8	\$2,297.76	\$2,297.76	Department	0	1	h	\$2,297.76	\$2,297.76	
	9	\$13,721.25	\$11,961.43	Department	+4	2	c	-\$2,278.75	-\$4,905.57	
							d	\$16,000.00	\$16,867.00	
	10	\$22,824.71	\$22,824.71	Department	+6	1	d	\$22,824.71	\$22,824.71	
	11	-\$850.00	-\$850.00	Department	0	1	j	-\$850.00	-\$850.00	
	12	\$47,222.35	\$47,222.35	Department	0	1	h	\$47,222.35	\$47,222.35	
	13	-\$25,094.02	-\$25,094.02	Department	0	3	h	\$2,690.00	\$2,690.00	
							i	\$1,867.98	\$1,867.98	
							c	-\$29,652.00	-\$29,652.00	
Total CCO	13	\$186,817.06	\$159,280.37		-10	26		\$186,817.06	\$159,280.37	
AC overlay 03/04	1	\$52,598.66	\$52,598.66	Board	0	1	f	\$52,598.66	\$52,598.66	

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	2	\$25,700.00	\$29,346.00	Department	0	2	b	\$3,600.00	\$7,246.00						
							b	\$22,100.00	\$22,100.00						
	3	\$960.00	\$960.00	Department	0	1	h	\$960.00	\$960.00						
Total CCO	3	\$79,258.66	\$82,904.66		0	4		\$79,258.66	\$82,904.66						
AC Overlay 04/05	1	\$1,332.50	\$1,332.50	Department	0	1	b	\$1,332.50	\$1,332.50						
	2	\$43,079.00	\$43,079.00	Department	+20	2	h	-\$8,227.50	-\$8,227.50						
							i	\$51,306.50	\$51,306.50						
	3	\$6,846.40	\$6,846.40	Department	0	1	d	\$6,846.40	\$6,846.40						
Total CCO	3	\$51,257.90	\$51,257.90		+20	4		\$51,257.90	\$51,257.90						
El Modena Alley	1	\$5,400.00	\$5,400.00	Department	0	1	b	\$5,400.00	\$5,400.00						
Sunset Beach Walkway	1	\$11,000.00	\$11,000.00	Department	+7	1	h	\$11,000.00	\$11,000.00						
	2	\$3,200.00	\$3,200.00	Department	0	1	f	\$3,200.00	\$3,200.00						
	3	\$14,643.38	\$14,643.38	Department	0	1	h	\$14,643.38	\$14,643.38						
Total CCO	3	\$28,843.38	\$28,843.38		+7	3		\$28,843.38	\$28,843.38						
Santiago Canyon Road	1	\$5,339.48	\$5,339.48	Department	0	4	a	\$5,404.35	\$5,404.35						
							a	\$8,917.50	\$8,917.50						
							b	\$1,625.63	\$1,625.63						
							h	-\$10,608.00	-\$10,608.00						
Total CCO	1	\$5,339.48	\$5,339.48		0	4		\$5,339.48	\$5,339.48						
Skyline Drive	1	\$44,650.00	\$37,848.34	Department	0	7	a	\$14,738.66	\$10,321.00						
							h	\$14,000.00	\$11,616.00						
							h	-\$11,700.00	-\$11,700.00						
							c	-\$7,600.00	-\$7,600.00						
							c	-\$2,320.00	-\$2,320.00						
							b	\$26,840.00	\$26,840.00						
							d	\$10,691.34	\$10,691.34						
	2	\$19,500.00	\$19,500.00	Department	0	6	a	\$900.00	\$900.00						
							b	\$600.00	\$600.00						
							a	\$5,000.00	\$5,000.00						
							b	\$11,000.00	\$11,000.00						
							a	\$1,500.00	\$1,500.00						
							a	\$500.00	\$500.00						
	3	\$16,400.00	\$16,400.00	Department	0	7	a	\$850.00	\$850.00						
							i	\$500.00	\$500.00						
							d	\$575.00	\$575.00						
							a	\$10,700.00	\$10,700.00						
							b	\$3,100.00	\$3,100.00						
							h	\$175.00	\$175.00						
							j	\$500.00	\$500.00						

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	4	\$17,500.00	\$17,500.00	Department	0	1	b	\$17,500.00	\$17,500.00						
	5	-\$14,000.00	-\$14,000.00	Department	0	1	c	-\$14,000.00	-\$14,000.00						
Total CCO	5	\$84,050.00	\$77,248.34		0	22		\$84,050.00	\$77,248.34						
HB Channel	1	\$99,000.00	\$6,280.52	Department	0	1	m	\$99,000.00	\$6,280.52						
	2	\$7,987.48	\$7,987.48	Department	0	6	c	-\$3,000.00	-\$3,000.00						
							c	-\$3,000.00	-\$3,000.00						
							c	-\$1,648.00	-\$1,648.00						
							d	\$6,815.00	\$6,815.00						
							d	\$5,219.48	\$5,219.48						
							b	\$3,601.00	\$3,601.00						
	3	\$2,925.00	\$2,583.75	Department	0	2	b	\$925.00	\$925.00						
							a	\$2,000.00	\$1,658.75						
	4	\$0.00	\$0.00	Department	0	1	g	\$0.00	\$0.00						
	5	\$40,000.00	\$36,034.30	Department	0	1	b	\$40,000.00	\$36,034.30						
	6	\$6,938.63	\$6,938.63	Department	0	3	b	\$788.63	\$788.63						
							d	\$1,310.00	\$1,310.00						
							d	\$4,840.00	\$4,840.00						
	7	\$15,000.00	\$14,231.00	Department	0	1	b	\$15,000.00	\$14,231.00						
	8	\$0.00	\$0.00	Department	0	1	g	\$0.00	\$0.00						
	9	-\$241,246.00	-\$241,246.00	Board	+72	1	c	-\$241,246.00	-\$241,246.00						
	10	\$53,318.87	\$53,319.07	Department	0	7	j	-\$8,203.50	-\$8,203.50						
							j	-\$608.81	-\$608.81						
							b	\$9,297.77	\$9,297.77						
							b	\$45,980.00	\$45,980.00						
							h	\$953.70	\$953.70						
							d	\$4,992.90	\$4,992.90						
							a	\$906.81	\$906.81						
	11	-\$31,913.50	-\$31,913.50	Department	0	2	e	-\$14,080.00	-\$14,080.00						
							c	-\$17,833.50	-\$17,833.50						
	12	\$258,142.80	\$258,142.80	Board	0	1	l	\$258,142.80	\$258,142.80						
Total CCO	12	\$210,153.28	\$112,358.05		+72	27		\$210,153.28	\$112,358.05						
Overhill Emergency	1	\$14,746.20	\$14,746.20	Department	0	5	b	\$2,070.00	\$2,070.00						
							m	\$3,277.50	\$3,277.50						
							b	\$1,539.85	\$1,539.85						
							b	\$358.85	\$358.85						
							b	\$7,500.00	\$7,500.00						
	2	11133.8	\$11,133.80	Department	+4	1	b	\$11,133.80	\$11,133.80						
Total CCO	2	\$25,880.00	\$25,880.00		+4	6		\$25,880.00	\$25,880.00						
Slurry Seal 05/06	1	\$37,652.56	\$37,660.31	Department	0		m	\$37,866.06	\$37,873.81						
							j	-\$213.50	-\$213.50						
Total CCO	1	\$37,652.56	\$37,660.31		0			\$37,652.56	\$37,660.31						

Exhibit B Contract Change Order Details

Project Name	CCO No.	Total Estimated Cost of CCO	Total Final Cost of CCO	Approval Authority (B or D)	Time Impact	Number of Separate Issues Covered by CCO	Underlying Cause for Each CCO	Approved Cost of Each CCO by Category	Actual Cost of Each CCO by Category		Underlying Causes Legend	
Brenan Way	1	\$35,750.95	\$35,750.95	Department	0	5	h	\$47,047.00	\$47,047.00	a	Changed Condition (subsurface or latent physical condition differing materially from what was shown on the plans or ordinarily encountered in the type of work being performed)	
							h	-\$3,600.00	-\$3,600.00			
							h	-\$1,600.00	-\$1,600.00			
							e	-\$4,025.01	-\$4,025.01			
	2	\$13,190.00	\$12,673.48	Department	0	4	h	-\$2,071.04	-\$2,071.04	b	Discretionary changes (not necessary to complete the project) requested by County increasing project cost	
							d	\$5,000.00	\$4,552.74			
							a	\$1,500.00	\$1,466.80			
							a	\$1,900.00	\$1,864.69	c	Discretionary changes (not necessary to complete the project,) requested by County decreasing project cost	
							a	\$4,790.00	\$4,789.25			
Total CCO	2	\$48,940.95	\$48,424.43		0	9		\$48,940.95	\$48,424.43			
										d	Non-discretionary changes required by County increasing project cost	
Fairhaven Overlay	1	\$30,380.00	\$30,380.00	Department	+10	1	h	\$30,380.00	\$30,380.00		Non-discretionary changes (necessary to complete the project) requested by County decreasing project cost	
	2	\$22,800.00	\$22,589.78	Department	0	1	h	\$22,800.00	\$22,589.78	e		
	3	\$101,547.55	\$101,547.55	Board	0	1	d	\$101,547.55	\$101,547.55			
Total CCO	3	\$154,727.55	\$154,517.33		+10	3		\$154,727.55	\$154,517.33		f	County caused delay damages
Hewes Overlay	1	\$19,976.48	\$19,976.48	Department	+10	5	b	\$4,832.17	\$4,832.17	g	No cost administrative changes in the contract (time extensions, modification in contract language, etc.)	
							a	\$3,084.33	\$3,084.33			
							h	\$9,977.58	\$9,977.58	h		Errors/Omissions in the P&S
							a	\$522.14	\$522.14	i		Errors in management/inspection of the contract
							b	\$1,560.26	\$1,560.26	j		Changes requested by Contractor
Total CCO	1	\$19,976.48	\$19,976.48		+10	5		\$19,976.48	\$19,976.48		k	Value Engineering
										l	Claims resolution	
Orange Park Acres	1	\$31,710.00	\$29,302.35	Department	+14	3	a	\$25,000.00	\$22,692.33	m	Changes anticipated in the contract but not included in the bid proposal	
							a	\$2,200.00	\$2,100.02			
	2	\$58,734.53	\$58,734.53	Department	+14	5	h	\$4,510.00	\$4,510.00	n	Site Condition Deterioration	
							b	\$1,844.96	\$1,844.96	o	Misc. Fees	
							d	\$33,689.60	\$33,689.60			
							h	\$11,240.25	\$11,240.25			
							h	-\$1,040.28	-\$1,040.28			
							h	\$13,000.00	\$13,000.00			
Total CCO	2	\$90,444.53	\$88,036.88		+28	8		\$90,444.53	\$88,036.88			
Oso Parkway	1	\$25,887.44	\$25,887.44	Department	+6	1	h	\$25,887.44	\$25,887.44			
	2	\$67,733.44	\$65,091.48	Department	+25	8	h	\$7,150.00	\$7,150.00			
							h	\$17,582.65	\$17,582.65			
							d	\$7,078.29	\$7,078.29			
							h	\$8,597.50	\$8,597.50			

Exhibit B Contract Change Order Details

							h	\$1,925.00	\$1,925.00					
							h	\$21,000.00	\$20,494.27					
							h	\$800.00	\$810.73					
							a	\$3,600.00	\$1,453.04					
	3	\$38,373.62	\$38,049.06	Department	0	8	h	\$660.00	\$660.00					
							d	\$2,400.00	\$2,327.98					
							a	\$2,200.00	\$2,101.03					
							b	\$2,850.00	\$2,783.21					
							d	\$7,100.00	\$7,013.08					
							h	\$20,181.62	\$20,181.62					
							h	\$2,730.00	\$2,730.83					
							b	\$252.00	\$251.31					
	4	\$40,960.00	\$25,294.09	Department	0	1	a	\$40,960.00	\$25,294.09					
	5	\$3,000.00	\$3,000.00	Department	0	1	a	\$3,000.00	\$3,000.00					
Total CCO	5	\$175,954.50	\$157,322.07		+31	19		\$175,954.50	\$157,322.07					
Peters Canyon	1	\$17,220.00	\$16,937.72	Department	0	3	h	\$5,720.00	\$5,720.00					
							b	\$5,000.00	\$4,966.46					
							h	\$6,500.00	\$6,251.26					
	2	\$13,581.50	\$12,373.16	Department	+47	2	h	\$6,581.50	\$6,581.50					
							h	\$7,000.00	\$5,791.66					
Total CCO	2	\$30,801.50	\$29,310.88		+47	5		\$30,801.50	\$29,310.88					
Randall Street	1	\$44,270.00	\$44,270.00	Department	+5	1	d	\$44,270.00	\$44,270.00					
Storm Drain	2	\$9,500.00	\$9,500.00	Department	0	1	d	\$9,500.00	\$9,500.00					
	3	\$13,339.54	\$3,632.37	Department	+30	2	b	\$8,602.94	-\$1,104.23					
							b	\$4,736.60	\$4,736.60					
	4	\$46,310.00	\$26,697.02	Department	0	4	h	\$7,300.00	\$7,300.00					
							b	\$4,300.00	\$0.00					
							b	\$4,710.00	\$4,686.94					
							b	\$30,000.00	\$14,710.08					
	5	\$32,015.00	\$31,463.37	Department	0	5	a	\$1,600.00	\$1,560.49					
							h	\$19,000.00	\$18,527.23					
							a	\$1,600.00	\$1,598.22					
							d	\$1,400.00	\$1,362.43					
							h	\$8,415.00	\$8,415.00					
Total CCO	5	\$145,434.54	\$115,562.76		+35	13		\$145,434.54	\$115,562.76					
San Diego Creek	1	\$286,489.72	\$214,189.17	Board	+10	2	f	\$214,189.17	\$214,189.17					
			\$72,300.55				d	\$72,300.55	\$72,300.55					
Total CCO	1	\$286,489.72	\$286,489.72		+10	2		\$286,489.72	\$286,489.72					
SCE Bridge	1	\$2,109.40	\$937.51	Department	+2	2	a	\$937.51	\$937.51					
			\$1,171.89				d	\$1,171.89	\$1,171.89					

Exhibit B Contract Change Order Details

	2	\$24,500.00	\$24,500.00	Department	+2	1	f	\$24,500.00	\$24,500.00						
	3	\$12,000.00	\$12,000.00	Department	+4	1	d	\$12,000.00	\$12,000.00						
Total CCO	3	\$38,609.40	\$38,609.40		+8	4		\$38,609.40	\$38,609.40						
Slurry Seal 06/07	1	\$0.00	\$0.00	Department	+2	1	g	\$0.00	\$0.00						
	2	\$74,820.00	\$74,050.00	Department	+4	2	m	\$74,050.00	\$74,050.00						
			\$770.00				a	\$770.00	\$770.00						
	3	\$14,685.11	\$13,000.00	Department	+18	2	m	\$13,000.00	\$13,000.00						
			\$1,685.11		0		b	\$1,685.11	\$1,685.11						
	4	\$58,811.50	\$58,811.50	Department	0	1	n	\$58,811.50	\$58,811.50						
	5	\$38,758.50	\$38,758.50	Department	0	1	n	\$38,758.50	\$38,758.50						
	6	\$65,447.73	\$116,333.42	Department	0	2	a	\$116,333.42	\$116,333.42						
			-\$50,885.69				c	-\$50,885.69	-\$50,885.69						
Total CCO	6	\$252,522.84	\$252,522.84		+24	9		\$252,522.84	\$252,522.84						
Warner Avenue Bridge	1	\$20,925.00	\$20,925.00	Department	0	1	o	\$20,925.00	\$20,925.00						
	2	\$1,200.00	\$437.68	Department	0	1	a	\$1,200.00	\$437.68						
	3	\$0.00	\$0.00	Department	0	1	g	\$0.00	\$0.00						
	4	\$12,000.00	\$3,712.18	Department	0	2	h	\$3,000.00	\$3,712.18						
			\$9,881.06				b	\$9,000.00	\$9,881.06						
	5	\$2,304.37	\$2,304.37	Department	0	1	h	\$2,304.37	\$2,304.37						
	6	\$1,200.00	\$0.00	Department	0	1	h	\$1,200.00	\$0.00						
	7	\$3,000.00	\$3,253.13	Department	0	1	f	\$3,000.00	\$3,253.13						
	8	\$25,206.91	\$24,534.67	Department	0	1	h	\$25,206.91	\$24,534.67						
	9	\$47,824.60	\$47,824.60	Department	0	1	h	\$47,824.60	\$47,824.60						
	10	\$7,917.86	\$5,616.66	Department	0	2	a	\$5,616.66	\$5,616.66						
			\$2,301.20				h	\$2,301.20	\$2,301.20						
	11	\$26,100.00	\$1,743.13	Department	0	5	a	\$3,000.00	\$1,743.13						
			\$1,212.81				h	\$800.00	\$1,212.81						
			\$3,293.00				d	\$3,300.00	\$3,293.00						
			\$10,414.05				h	\$10,400.00	\$10,414.05						
			\$8,586.33				d	\$8,600.00	\$8,586.33						
	12	\$116,400.00	\$115,320.00	Board	0	1	h	\$116,400.00	\$115,320.00						
	13	\$14,088.00	\$14,088.00	Department	+6	1	l	\$14,088.00	\$14,088.00						
	14	\$26,000.00	\$33,721.90	Department	+9	2	h	\$21,000.00	\$33,721.90						
			\$5,517.26				b	\$5,000.00	\$5,517.26						
	15	\$45,180.44	-\$775.00	Department	+4	4	h	-\$775.00	-\$775.00						
			\$29,610.00				d	\$29,610.00	\$29,610.00						
			\$13,845.44				h	\$13,845.44	\$13,845.44						
			\$3,681.17				b	\$2,500.00	\$3,681.17						
	16	\$13,985.00	\$857.44	Department	+36	4	b	\$850.00	\$857.44						
			\$11,464.79				b	\$11,520.00	\$11,464.79						
			\$534.72				f	\$535.00	\$534.72						
			\$1,077.84				n	\$1,080.00	\$1,077.84						

Exhibit B Contract Change Order Details

Project Name	CCO No.	Total Estimated Cost of CCO	Total Final Cost of CCO	Approval Authority (B or D)	Time Impact	Number of Separate Issues Covered by CCO	Underlying Cause for Each CCO	Approved Cost of Each CCO by Category	Actual Cost of Each CCO by Category		Underlying Causes Legend
AC Overlay 06/07	1	\$60,105.05	\$60,105.05	Department	0	3	n	\$40,046.55	\$40,046.55	a	Changed Condition (subsurface or latent physical condition differing materially from what was shown on the plans or ordinarily encountered in the type of work being performed)
							d	\$17,996.00	\$17,996.00		
							a	\$2,062.50	\$2,062.50		
Total CCO	1	\$60,105.05	\$60,105.05		0	3		\$60,105.05	\$60,105.05	b	Discretionary changes (not necessary to complete the project) requested by County increasing project cost
Edinger Brdige	1	\$3,750.00	\$3,750.00	Department	0	1	d	\$3,750.00	\$3,750.00		Discretionary changes (not necessary to complete the project,) requested by County decreasing project cost
El Toro Conveyor Belt	1	\$8,935.98	\$8,935.98	Department	0	1	b	\$8,935.98	\$8,935.98	c	
Huntington Beach Channel	1	\$44,212.50	\$44,212.50	Department	0	3	a	\$3,000.00	\$3,000.00		Non-discretionary changes required by County increasing project cost
							d	\$1,005.00	\$1,005.00	d	
							d	\$40,207.50	\$40,207.50		
Total CCO	2	\$49,455.00	\$49,455.00	Department	0	1	d	\$49,455.00	\$49,455.00	e	Non-discretionary changes (necessary to complete the project) requested by County decreasing project cost
	2	\$93,667.50	\$93,667.50		0	4		\$93,667.50	\$93,667.50		
In Road Flashers	1	\$9,188.00	\$8,742.22	Department	0	2	b	\$6,188.00	\$6,188.00	f	County caused delay damages
							h	\$3,000.00	\$2,554.22	g	No cost administrative changes in the contract (time extensions, modification in contract language, etc.)
Total CCO	1	\$9,188.00	\$8,742.22		0	2		\$9,188.00	\$8,742.22		
										h	Errors/Omissions in the P&S
Multi Use Trail	1	\$33,035.82	\$33,035.82	Department	+10	1	h	\$33,035.82	\$33,035.82	i	Errors in management/inspection of the contract
	2	\$19,657.19	\$19,657.19	Department	0	2	a	\$18,736.94	\$18,736.94	j	Changes requested by Contractor
							b	\$920.25	\$920.25	k	Value Engineering
Total CCO	2	\$52,693.01	\$52,693.01		+10	3		\$52,693.01	\$52,693.01	l	Claims resolution
										m	Changes anticipated in the contract but not included in the bid proposal
Santiago Canyon Barrier	1	\$37,832.13	\$37,832.13	Department	+12	1	h	\$37,832.13	\$37,832.13		Site Condition Deterioration
	2	\$7,100.00	\$6,404.06	Department	+1	1	h	\$7,100.00	\$6,404.06	n	
	3	\$19,800.00	\$19,800.00	Department	+20	1	f	\$19,800.00	\$19,800.00	o	
Total CCO	3	\$64,732.13	\$64,036.19		+33	3		\$64,732.13	\$64,036.19		
Slurry Seal 07/08	1	\$3,270.00	\$3,166.75	Department	0	2	b	\$2,070.00	\$2,070.00		
							a	\$1,200.00	\$1,096.75		
	2	\$24,000.00	\$19,565.47	Department	0	1	m	\$24,000.00	\$19,565.47		
Total CCO	2	\$27,270.00	\$22,732.22		0	3		\$27,270.00	\$22,732.22		
Yellowpine Storm Drain	1	\$6,204.36	\$6,204.36	Department	0	1	h	\$6,204.36	\$6,204.36		
	2	\$38,069.06	\$38,069.06	Department	+6	1	d	\$38,069.06	\$38,069.06		
	3	\$27,602.25	\$27,602.25	Department	+19	4	b	\$4,290.00	\$4,290.00		
							b	\$3,770.25	\$3,770.25		

EXHIBIT C

8/26/2009

Contract Change Order Summary by Underlying Cause

Year	Changed Condition	Discretionary changes County request increasing cost	Discretionary changes County request decreasing cost	Non-discretionary changes County request increasing cost	Non-discretionary changes County request decreasing cost	County caused delay damages	No cost admin change	Errors/Omissions in the P&S	Errors in management inspection of contract	Changes requested by Contractor	Value Engineering	Claims Resolution	Changes anticipated but not included in contract	Site Condition Deterioration	Misc Fees	Totals
	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	
2004	\$198,122.00	\$50,474.18	-\$105,815.00	\$163,927.40	-\$3,780.00			\$129,446.16	\$50,000.00	-\$9,600.00			\$83.00			\$472,857.74
2005	\$83,250.39	\$66,137.60	-\$15,544.36	\$24,582.56	-\$1,171.38	\$2,500.00		\$95,976.68				\$75,000.00	\$95,500.00	\$91,326.19		\$517,557.68
2006	\$113,070.47	\$356,318.03	-\$335,320.25	\$263,000.83	-\$19,300.00	\$70,898.66		\$122,956.69	\$53,674.48	-\$9,375.81	-\$49,730.00	\$258,142.80	\$140,143.56		\$2,460.06	\$966,939.52
2007	\$219,814.06	\$99,244.04	-\$50,885.69	\$338,967.88	-\$4,025.01	\$242,224.17		\$541,181.74				\$14,088.00	\$87,050.00	\$98,650.00	\$20,925.00	\$1,607,234.19
2008	\$24,999.44	\$53,822.48	-\$8,106.00	\$150,482.56		\$19,800.00		\$87,172.31				\$98,327.73	\$24,000.00	\$40,046.55		\$490,545.07
	\$639,256.36	\$625,996.33	-\$515,671.30	\$940,961.23	-\$28,276.39	\$335,422.83		\$976,733.58	\$103,674.48	-\$18,975.81	-\$49,730.00	\$445,558.53	\$346,776.56	\$230,022.74	\$23,385.06	\$4,055,134.20

**Contract Change Order Study
County Comparison Summary**

Exhibit D

COUNTY	Road		Flood		Evaluation Criteria* (shown as percentage)			
	Annual \$ (in millions)	%CCO	Annual \$ (in millions)	%CCO	Excellent	Good	Fair	Poor
Orange	\$8.0	7.0	\$8.0	3.0	<3.0	3.-5.	6.-7.	8.-over
Los Angeles	\$25.0	5.0	\$31.0	5.0	<5.0	5.-10.0	10.-15.0	>15.0
San Diego	\$7.0	9.0	\$0.4	11.0	<7.0	7.-9.0	9.-12.0	>15.0
San Bernardino	\$18.0	4.49	\$4.1	3.46	<2.0	2.-5.0	5.-8.0	>8.0
Riverside	\$26.0	6.24	No Flood	No Flood	<4.0	4.-10.0	10.-15.0	>15.0
Ventura	\$15.9	5.7	\$30.2	5.0	<3.0	3.-5.0	5.-10.0	>10.0
Sacramento	\$33.7	2.0	\$4.2	3.8	<6.0			
San Mateo	\$9.3	1.4	\$3.5	19.0	<3.0	3.-5.0	5.-10.0	>10.0
Fresno	\$16.0	1.98	No Flood	No Flood	<3.0	4.-7.0	8.-10.0	>11.0
Mariposa	\$2.6	3.0	\$2.1	0.0	No Response			
Plumas	\$0.4	9.0	\$0.1	1.0	<5.0	7.5	10.0	>15.0
Trinity	\$5.9	3.0	No Flood	No Flood	0.0	4.0	8.0	>12.0

Survey information requested:

- 1 Estimate the approximate annual value of awarded contracts in your County's capital improvement programs in both Road and Flood
- 2 Estimate the approximate number of contracts awarded in both Road and Flood
- 3 Estimate the percentage of contract change orders for Road and Flood projects over the 5 year period of 2004-2008
- 4 *Evaluation Criteria was a subjective opinion by each public works agency or the amount of range of contract change orders, as a percentage of contract award, that would represent the rating categories.

Compiled 042010