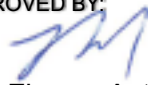


<b>MANUAL CHANGE TRANSMITTAL</b>		NO. <b>18-8</b>
TITLE: Department of Transportation <i>Construction Manual</i>	APPROVED BY:  Bob Finney, Acting Chief Division of Construction	DATE ISSUED: <b>11-16-2018</b>
SUBJECT AREA Section 5-3	ISSUING UNIT Division of Construction	
SUPERSEDES  CM Sections 5-3 of July 2017	DISTRIBUTION  All Requested Manual Holders	

The purpose of this manual change transmittal is to announce updates and corrections to the Caltrans *Construction Manual*. The following section has been updated to reflect new policy and supersedes the corresponding section of the *Construction Manual* as previously published. Updated sections are available at <http://www.dot.ca.gov/hq/construc/constmanual/> and are indicated by the date listed in the right-hand column on that page. Changes are identified by a change bar in the left margin.

### Section 5-3, “Change Orders”

Updates include updated citations and a clarifications for time adjustments:

- Updates link in Section 5-302, “Change Order Policy,” to <https://admin.onramp.dot.ca.gov/deputy-directives>
- In Section 5-306C (3a), “Extra Work at Agreed Prices,” and 5-306C (3b), “Extra Work at Force Account,” deletes reference to specific change order examples for flagging or increased bid item quantities.
- In Table 5-3.2, “Specification of Physical Asset (Character 2),” updates Code H to *Standard Specification* 5-1.36C, “Nonhighway Facilities,” to conform to updated specifications and the *Project Delivery Procedures Manual* and updated *Standard Specifications*.
- In Section 5-308A, “Projects of Division Interest,” updates the link to the *Stewardship and Oversight Agreement*.
- In Section 5-311A, “Division of Construction Approval,” clarifies that a change resulting in a time adjustment of working days should read, “10 percent or more than 19 working days of original working days, whichever is greater.”
- Updates Section 5-313, “Executed Change Order Copy Distribution,” to include current name and link for *Desk Guide for the Electronic Distribution of Approved Contract Change Orders*.
- Updates Section 5-314, “Value Engineering Change Proposals,” reference to Section 3-405, “Value Engineering,” of this manual.

## Section 3 Change Orders

### 5-301 General

### 5-302 Change Order Policy

### 5-303 Purpose of Change Orders

### 5-304 Initiation of Change Orders

### 5-305 Preliminary Considerations

### 5-306 Change Order Content

#### 5-306A Specifications

#### 5-306B Description of Work

#### 5-306C Methods of Payment

##### *5-306C (1) Increases and Decreases in Bid Items at Bid Item Unit Prices*

##### *5-306C (2) Payment Adjustment*

###### 5-306C (2a) Adjustments for Increased or Decreased Quantities

###### 5-306C (2b) Adjustment Calculations Involving Hot Mix Asphalt Dikes and Miscellaneous Areas

###### 5-306C (2c) Deferred Bid Item Adjustments

###### 5-306C (2d) Exemption from Adjustment

###### 5-306C (2e) Adjustments for Work-Character Changes

##### *5-306C (3) Extra Work*

###### 5-306C (3a) Extra Work at Agreed Prices

###### 5-306C (3b) Extra Work at Force Account

#### 5-306D Adjustments to Time of Completion

#### 5-306E Change Order Standard Clauses

#### 5-306F Work Designated as Extra Work in the Specifications

#### 5-306G Change Order Format

### 5-307 Change Order Memorandum

#### 5-307A Contents of the Memorandum

#### 5-307B Change Order Category Codes

##### Table 5-3.1 Change Order Type (Character 1)

##### Table 5-3.2 Specification or Physical Asset (Character 2)

##### Table 5-3.3 Source Document (Characters 3 and 4)

##### Table 5-3.4 Dispute Disposition (Characters 3 and 4)

#### 5-307C Coordination and Concurrence by Others

##### *5-307C (1) Project Development*

##### *5-307C (2) Project Management*

##### *5-307C (3) Structures*

##### *5-307C (4) Materials*

##### *5-307C (5) Traffic*

- 5-307C (6) *Maintenance*
- 5-307C (7) *Right of Way*
- 5-307C (8) *Environmental*
- 5-307C (9) *Locally Funded Projects*

## **5-308 Federal Highway Administration Change Order Requirements**

### 5-308A Projects of Division Interest

- 5-308A (1) *Federal Highway Administration Approval Requirements—Major Change Orders*
- 5-308A (2) *Federal Highway Administration Approval Requirements—Minor Change Orders*
- 5-308A (3) *FHWA Denial*

### 5-308B Delegated Projects

- 5-308B (1) *Federal Highway Administration Involvement Requirements—Major Change Orders*

### 5-308C All Federally Funded Projects

## **5-309 Federal Segregation Determination on Change Orders**

## **5-310 Locally Funded State Highway Projects**

## **5-311 Change Order Approval Process**

### 5-311A Division of Construction Approval

- 5-311A (1) *Change Order Determinations*

Table 5-3.5 Division of Construction's Change Order Direction

### 5-311B District Approval Limitations

### 5-311C Prior Authorization to Proceed

## **5-312 Substantiation**

### 5-312A Engineering Analysis

### 5-312B Contractual Analysis

### 5-312C Cost Analysis

### 5-312D Time Impact Analysis

## **5-313 Executed Change Order Copy Distribution**

## **5-314 Value Engineering Change Proposals**

Figure 5-3.1 Change Order Decision-Making Concept Flowchart

## Section 3 Change Orders

## Section 3 Change Orders

### 5-301 General

A change order is a legally binding document used to make changes to the contract. Form CEM-4900, “Change Order,” is used for change orders. Form CEM-4903, “Change Order Memorandum,” must be prepared for each change order.

### 5-301 General

This section describes the use of Forms CEM-4900 and CEM-4903, describes California Department of Transportation (Caltrans) policies for change orders, and provides guidelines for writing change orders and memorandums.

### 5-302 Change Order Policy

The authority for Caltrans to make changes to a contract is in Section 3-403, “Changes and Extra Work,” of this manual. Work that is outside the scope of an existing contract should be done in a separate contract. However, in special situations it may be added to an existing contract if:

### 5-302 Change Order Policy

- A director’s order has been approved for the new work in accordance with Deputy Directive 26-R2, “Use of Director’s Orders,” dated July, 2009, available at:  
<https://admin.onramp.dot.ca.gov/deputy-directives>
- The Division of Construction chief concurs with adding new work to the existing contract by co-signing the director’s order.
- On all federal-aid projects, the Federal Highway Administration (FHWA) transportation engineer approves the change as outlined in Section 5-308, “Federal Highway Administration Change Order Requirements,” of this manual.
- On locally funded state highway projects, the contributing agency agrees to the change as outlined in Section 5-310, “Locally Funded State Highway Projects,” of this manual.
- The contractor agrees to the change.

District construction personnel should consider the following in determining if the proposed change is within the scope of the original contract. Answering “yes” to any of the following questions indicates that the new work may be outside the scope of the original contract:

- Is the type of work for the proposed change significantly different from other types of work within the original contract?
- Is it necessary for the prime contractor or a subcontractor to mobilize specialized forces and equipment to perform the work of the proposed change?
- Will the estimated cost of the proposed work, when combined with all other changes, be outside the approved contract allotment?
- Does the proposed change represent a significant deletion to the original contract?

- Does the proposed change significantly delay completion of the contract when compared to the number of original contract working days?
- Is the proposed change outside the original contract limits?
- Can the project be completed as contemplated at the time of bid without the proposed change?

Answering the previous questions assists in determining if a proposal is within the scope of the existing contract. However a complete analysis of all the facts and circumstances surrounding the proposed change or new work is required to make a final determination. When district construction is uncertain if the new work is within the scope of the original contract, the district construction deputy director must consult the appropriate Division of Construction field coordinator for determination.

When new work resulting from the director's order may be accomplished best by adding to an existing contract, the district submits a request to the Division of Construction chief to co-sign the order. After the director's order is approved, district personnel may process a change order incorporating the new work, in accordance with the procedures described in Section 5-311, "Change Order Approval Process," of this manual.

### **5-303 Purpose of Change Orders**

#### **5-303 Purpose of Change Orders**

Use change orders to change any part of the original contract. In addition, change orders are used for administrative and other purposes. The following are some of the reasons for writing change orders:

- To change contract plans, specifications, or both.
- To describe the work and method of payment for work stipulated in the contract to be paid as extra work.
- To authorize an increase in extra work funds necessary to complete a previously authorized change.
- To make payment adjustments.
- To implement a value engineering change proposal or a construction evaluated research proposal. Refer to Section 3-5, "Control of Work," of this manual for a discussion of value engineering change proposals.
- To clarify terms of the contract.
- To resolve disputes or potential claims prior to the proposed final estimate, or exceptions (claims) after the proposed final estimate, and to pay for contract claim determinations. For the use of change orders in the dispute resolution process, refer to Section 5-4, "Disputes," of this manual.

### **5-304 Initiation of Change Orders**

#### **5-304 Initiation of Change Orders**

The resident engineer usually determines the need for and initiates a change order. However, the contractor, other Caltrans units, or outside agencies or individuals may request changes. Other Caltrans units requesting a change order must clearly document the need for the change and provide information sufficient to demonstrate that the requested change meets Caltrans policy for making changes to the contract. For all changes requested by any person except the contractor, indicate "Change Requested by Engineer" on Form CEM-4900, "Change Order."

### **5-305 Preliminary Considerations**

When preparing to write a change order, consider the following:

- Is the proposed change order necessary to complete the work as contemplated at the time the plans and specifications were approved?
- What is the overall impact on the planned work?
- Are there sufficient unobligated contingency funds? If additional funds are required, can they be obtained soon enough to prevent delays? Refer to Section 5-2, “Funds,” of this manual for the procedure for obtaining additional funds.
- Will the contract time be affected?
- What are the impacts of adjusting contract time?
- When a project is nearing completion, give careful consideration to the effect the change will have on the time of completion. Changes near the end of a contract tend to extend the time of completion more than changes made earlier. Late changes may adversely affect the contractor’s schedule, delay public use of the facility, and disrupt the planned use of Caltrans personnel.
- If the adjustment of time of completion is deferred, how will the adjustment be determined?
- Will the proposed change order affect or change the contractor’s planned method of performing the work?
- Is the proposed work already covered in the contract?
- Will the ordered change cause a work-character change?
- If a payment adjustment resulting from a work-character change is deferred, how will the adjustment be determined?
- Is timely coordination with other affected Caltrans units possible? Does the proposed change adhere to existing permit conditions, environmental mitigation requirements, local agency and utility obligations, and right-of-way agreements? Does the proposed change require new coordination, permits, or agreements?
- Will the contractor cooperate in providing timely cost estimates for extra work at agreed price and cost information for payment adjustments? Should you make cost estimates and determinations and present them to the contractor?
- Will the ordered change require a Cost Effectiveness/Public Interest Finding for the use of patented or proprietary materials or equipment; or mandatory use of a borrow or disposal site?
- What methods of payment should be used?

To avoid misunderstanding and obtain full agreement, discuss with the contractor all elements of a change, including the method of compensation and the effect on time. Failure to identify elements requiring consideration may lead to protest.

### **5-306 Change Order Content**

The change order must be clear, concise, and explicit. When appropriate, it must include the following:

- What is to be done

### **5-305 Preliminary Considerations**

### **5-306 Change Order Content**

- Location and limits of proposed work
- Any applicable specification changes and references to specifications
- The proposed change order's effect on time of completion
- Method and amount of compensation

#### 5-306A Specifications

The specifications for bid item work already included in the contract will apply to added bid item work. You do not need to repeat or reference specifications for added work that is clearly shown to be bid item work.

In the change order, completely describe extra work. Include directly or by reference the specifications for extra work, whether paid for at agreed price or at force account. The contractor must complete this extra work exactly as it is specified in the change order.

The contract will include some supplemental work specifically designated as extra work. For an example, refer to Sections 12-1.01, "General," 12-1.03, "Construction," and 12-1.04, "Payment," of the *Standard Specifications*.

#### 5-306B Description of Work

The change order must clearly describe added work or other changes to the contract. Include appropriate references to special provisions, contract plans, *Standard Plans*, or *Standard Specifications*. Decide whether a written statement clearly defines the proposed change or if plans or drawings need to be included.

The contractor normally chooses the method of performing extra work, subject to the resident engineer's approval for labor, equipment, and materials for force account work. If, for any reason, the engineer wants to control the method of performing the work, the method must be specified in the change order.

On plans attached to a change order, show pertinent dimensions and the scale or label the plans "not to scale." Plainly mark reduced reproductions "Reduced Plans, Scales Reduced Accordingly." When using existing plan sheets, clearly show the difference between new work, work already included in the contract, and changed or eliminated work. A simple sketch on a letter-sized sheet will more clearly depict the change than an obscure revision to an existing sheet of the original plans. An 8.5-by-11 inch attachment is always preferable to a full-size contract plan sheet.

Section 6735, "Preparation, signing, and sealing of civil engineering documents," of California's Professional Engineers Act, requires that all civil engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. All final civil engineering calculations and reports shall bear the signature and seal or stamp of the licensee, and the date of signing and sealing or stamping. Plans or specifications attached to a proposed change order must meet this requirement, with the exception that a licensed civil engineer does not need to sign revisions already covered by *Standard Plans*, *Standard Specifications*, standard special provisions, previously engineered drawings, or minor changes not requiring calculations or determinations by a licensed engineer.

Show the Caltrans contract number, sheet number, and change order number on plans or other documents made a part of a change order. Include all attachments with each distributed copy of a change order.



## 5-306C Methods of Payment

When writing a change order, the resident engineer often can choose the payment method for added or changed work. The following lists, in order of preference, the payment methods:

1. Bid item unit prices; refer to Section 5-306G, “Change Order Format,” of this manual.
2. Bid item unit prices with a payment adjustment at agreed unit price or lump sum; refer to Sections 5-306C (2), “Payment Adjustment”; 5-306C (2a), “Adjustments for Increased or Decreased Quantities”; 5-306C (2b), “Adjustment Calculations Involving Hot Mix Asphalt Dikes and Miscellaneous Areas”; and 5-306C (2c), “Deferred Bid Item Adjustments,” of this manual.
3. Payment adjustment at agreed unit price or lump sum; refer to Sections 5-306C (2e), “Adjustments for Work-Character Changes”; 5-306C (3), “Extra Work”; and 5-306C (3a), “Extra Work at Agreed Prices,” of this manual.
4. Force account; refer to Section 5-306C (3b), “Extra Work at Force Account,” of this manual.

When a bid item has a work-character change, the resident engineer may delete the entire bid item, or the portion of it affected by the change, and pay for the entire work at force account. A preferred choice is to determine a correct and equitable payment adjustment to the bid item unit price. A payment adjustment providing for increased or decreased costs due to the work-character change allows the contract price to remain unchanged. Before resorting to force account payment, resident engineers must make every effort to make payment adjustments or negotiate agreed prices.

Refer to Section 3-901, “General,” of this manual for methods of payment. Section 3-904, “Payment Adjustments,” of this manual describes how the various methods of payment are used in change orders.

### *5-306C (1) Increases and Decreases in Bid Items at Bid Item Unit Prices*

Changes in planned work or adding or decreasing work will often result in increases or decreases in bid item quantities. Except for bid items designated in the Bid Item List as final pay quantities, show changes in bid item quantities as estimates on a change order. Calculate the estimated increases or decreases that will result from the work as changed by the change order. The actual quantity paid for each bid item will be determined by the method specified for measuring each bid item quantity. For guidelines on measuring bid item quantities, refer to Section 3-9, “Payment,” of this manual.

Show changes in the quantity of bid items that are designated as final pay quantities as fixed amounts added to the quantity shown in the Bid Item List. If a portion of a final pay item quantity is eliminated, the final pay quantity will be revised in the amount represented by the eliminated portion of the item of work quantity. For a standard clause for revised final pay quantities, refer to “Change Order Standard Clauses” at:

<http://www.dot.ca.gov/construction/change-order/standard-clauses.html>

For the method of indicating changes in bid item quantities, refer to Section 5-306G, “Change Order Format,” of this manual and the change order examples at:

<http://www.dot.ca.gov/construction/change-order/examples.html>



Increases and decreases or estimated increases or decreases in bid items at contract prices may be executed unilaterally or with the contractor's agreement.

#### 5-306C (2) *Payment Adjustment*

For the definition of payment adjustments, refer to Section 3-904, "Payment Adjustments," of this manual. Section 3-4, "Scope of Work," of this manual discusses payment adjustments for increased or decreased quantities and for work-character changes.

Payment adjustments usually involve estimating the cost of work or determining the actual cost of work performed. The following explains how to estimate or determine such costs.

Verify the contractor's records of item cost by comparing labor and equipment charged to the item by the contractor to the labor and equipment shown on the daily reports. Charge equipment to the item cost in accordance with the force account method. Exclude down time, and apply the correct force account rental rates. Exclude any overhead costs and any items that should be charged to other work.

Sometimes a contractor may submit cost estimates based on the billing from a specialist plus a markup. When the work is of such a nature that it would qualify under Section 9-1.05, "Extra Work Performed by Specialists," of the *Standard Specifications*, calculate the adjustment on this basis. Check that the specialist rate or billing is in line with the firm's usual charges.

For bid item overrun and underrun adjustments, when the contractor does not furnish sufficient and timely cost information, issue a unilaterally approved change order adjusting the item. Base the adjustment on your cost determination. This approved change order establishes the time allowed for protest and helps avoid delays.

Even though the contractor may have agreed to pay a fixed price to others for an item of work, use a force account based adjustment of the item price. Use a force account cost determination even when the work is subcontracted unless the item of work was performed by a specialist, as defined in Section 9-1.05, "Extra Work Performed by Specialists," of the *Standard Specifications*.

For large and complex adjustments, request auditing assistance from the Independent Office of Audits and Investigations through the Division of Construction. Refer to procedures in Section 5-410, "Audits," of this manual.

#### 5-306C (2a) *Adjustments for Increased or Decreased Quantities*

As soon as it is known that a bid item quantity will vary from the Bid Item List by more than 25 percent, consider the method of adjustment that will be used. Make daily reports for the item with the same degree of detail used in force account daily reports. Doing so will facilitate determining any necessary adjustment. When required, make payment adjustments for increased or decreased quantities as soon as the contractor completes work on a bid item. Refer to Section 3-904, "Payment Adjustments," of this manual.

You may calculate adjustments by analyzing the performance of a portion of an item, provided the portion is typical of the item as a whole.

Verify a contractor's records by comparing them with Caltrans records. Where more extensive auditing is required, request the assistance of the Independent Office of Audits and Investigations. When examining the contractor's records to determine the cost of equipment used, consider only the hours worked. Force account equipment rental rates

must be used regardless of what rate the contractor may have used. When verifying the contractor's records, eliminate supervision and overhead costs and any costs properly chargeable to other work.

When making adjustments, use Caltrans records to determine the amounts of labor, equipment, and materials. The verified contractor's records may supplement the Caltrans records, or in some instances, you may need to use only the verified contractor's records. The resident engineer must use good judgment when reconciling differences between the contractor's and the engineer's records to arrive at a reasonable and equitable adjustment.

An item that has been adjusted under the provisions of Section 4-1.05B, "Work-Character Changes," of the *Standard Specifications*, may later become eligible for further adjustment under Section 9-1.06, "Changed Quantity Payment Adjustments," of the *Standard Specifications*. In making the quantity payment adjustment, deduct or add payments made in making the work-character change adjustment to determine the contractor's total cost of the work.

#### 5-306C (2b) Adjustment Calculations Involving Hot Mix Asphalt Dikes and Miscellaneous Areas

The bid item "Place HMA (hot mix asphalt) Dike" is paid for by the ton of HMA and by the linear foot for HMA dike. The bid item "HMA (miscellaneous areas)" is paid for by the ton of HMA and by the square yard for HMA (miscellaneous areas). The specifications do not exactly separate the work covered under each bid item. Carefully separate the items when it is necessary to adjust either the HMA dike bid item or the HMA (miscellaneous areas) bid item.

The following is the recommended procedure to determine the costs for computing adjustments of HMA dike and HMA (miscellaneous areas):

1. Subtract the estimated normal haul and placing unit cost for HMA used in paving from the bid item unit price to determine the cost of manufacturing HMA. Also, consult the contractor for an accurate estimate for comparison purposes. For commercial plants, you may use published price lists to determine the cost of manufacturing HMA.
2. To obtain the total cost of manufacturing HMA used in dikes or miscellaneous areas, multiply the actual mass of HMA used for dikes or miscellaneous areas by the unit cost of manufacturing HMA as determined above.
3. To obtain the total force account cost of dikes or miscellaneous areas, add to the total cost of manufacturing HMA the total force account haul and placing costs for HMA used in dikes or miscellaneous areas.
4. Calculate the force account unit cost of the dike or miscellaneous areas item and proceed as with any bid item increase or decrease adjustment.

To some extent, this procedure constitutes an adjustment in the HMA item as well as in the items for HMA dike or HMA (miscellaneous areas) paid by linear foot or square yard. However, this statement is true only for the HMA used on that portion of the dike or miscellaneous areas in excess of 125 percent of the Bid Item List. Also, an overrun or underrun in HMA dike or HMA (miscellaneous areas) will usually have little effect on the overall quantity of HMA.

#### 5-306C (2c) Deferred Bid Item Adjustments

Upon completion of the changed work, promptly resolve all deferred item adjustments.

If a bid item adjustment will not be made, you do not need to write a supplemental change order. In this case, a letter from the contractor is sufficient. File a copy of the contractor's letter with the original change order that deferred the adjustment.

#### 5-306C (2d) Exemption from Adjustment

Unless requested in writing by the contractor, do not adjust a bid item when the total pay quantity is less than 75 percent of the Bid Item List. You also do not need to adjust, unless requested in writing by the contractor, if the value based on the contract price for the units of work in excess of 125 percent is less than \$5,000, as shown in Section 9-1.06B, "Increases of More than 25 Percent," of the *Standard Specifications*. As soon as a final bid item quantity is known, decide whether to make the adjustment. Unless an obvious imbalance exists between the bid item unit price and actual cost, do not make the adjustment. Inform the contractor in writing whether Caltrans will adjust the bid item price.

#### 5-306C (2e) Adjustments for Work-Character Changes

Section 3-403A, "Work-Character Changes" of this manual defines work-character changes.

Payment adjustments for work-character changes may be unit or lump sum adjustments. Normally, a lump sum adjustment is only applied to a lump sum bid item.

A work-character change payment adjustment requires a force account determination of the cost of an entire item as changed and a force account estimate of the cost of the work as planned.

When only a portion of the work has changed, separate the changed portion of the work from the unchanged portion. Perform a force account analysis of the cost of the changed portion, and make payment at the contract price plus a separate payment for the added work or credit for any deleted work.

Do not eliminate a bid item and pay for the work at agreed price or force account unless the change is so extensive that the original item no longer applies.

There can be no work-character change unless there was an executed change order. At times, it will not be possible to come to an immediate agreement with the contractor regarding an adjustment in compensation. You may need to complete the entire item before adjusted costs can be determined. In such cases, provide for payment at bid item prices, and defer adjustment in the initial change order. Include an appropriate deferment clause.

#### 5-306C (3) Extra Work

For the definition of extra work and guidelines for using extra work in change orders, refer to Section 3-4, "Scope of Work," of this manual. Before designating additional work as extra work, make sure that it cannot be paid for as a bid item, a combination of bid items, or a bid item with a payment adjustment.

#### 5-306C (3a) Extra Work at Agreed Prices

For guidelines for determining and paying for extra work at agreed price, refer to Section 3-9, "Payment" of this manual.

File with the contract records any calculations made to determine extra work at agreed price. These calculations are subject to audit and must be in such a form that they clearly substantiate and justify the amount paid for extra work. In lieu of showing all the calculations necessary to substantiate extra work at agreed price in the change order memorandum, you may include a statement that such calculations are on file in the project records.

When a subcontractor is to perform extra work at agreed price, include the subcontractor markup in the agreed price calculations. For subcontractor markup guidelines, refer to Section 3-9, "Payment," of this manual.

Agreed prices may be unit prices or lump sum. Before an agreed price may be used to pay for extra work, the resident engineer and the contractor must agree on compensation. The contractor must execute the change order providing for extra work at agreed price.

After the extent of extra work has been determined, ask the contractor to submit a proposed agreed price. Analyze the contractor's proposed price using the force account method. You may also initially determine a proposed agreed price based on a force account analysis and present it to the contractor. When you have reached agreement, process the change order and retain in the project files the records fully justifying the agreed price.

Ensure that payments of agreed lump sum prices do not exceed the amount authorized on the change order. Agreed unit prices can be applied to an estimated number of units in the change order. Although the unit price remains fixed, the number of units paid may vary from the estimated number.

When extra work consists entirely of work that neither the contractor nor any of the subcontractors would normally perform, the work is considered "specialist work," and the contractor should obtain three bids for the extra work. Determine the agreed price by taking the lowest bid and adding the markup, as described in Section 9-1.05, "Extra Work Performed by Specialists," of the *Standard Specifications*.

When this method is used, verify that the work is accurately and completely described when bids are solicited. The same description of the work must be used in the change order. If the contractor or a subcontractor includes a bid along with independent firms, you must make an analysis using the force account method. The contractor's or subcontractor's bid will be acceptable only if the analysis can justify it. If the contractor or a subcontractor is capable of performing the extra work, the work is not considered "specialist work."

For examples of change orders with extra work at agreed price, refer to the change order examples at:

<http://www.dot.ca.gov/construction/change-order/examples.html>

#### 5-306C (3b) Extra Work at Force Account

Pay for extra work at force account under the following conditions:

- When the work cannot be estimated within reasonable limits of accuracy.
- When the resident engineer and the contractor are unable to agree on a unit or lump sum price for the work.
- When the contractor refuses to sign a change order.

For guidelines for paying for extra work at force account, refer to Section 3-9, “Payment,” of this manual. For examples of change orders with extra work paid for on a force account basis, refer to the change order templates at:

<http://www.dot.ca.gov/construction/change-order/examples.html>

#### 5-306D Adjustments to Time of Completion

For a discussion of time of completion and adjustments to time, refer to Section 3-804, “Time,” of this manual.

A change order may specify a positive, negative, or no adjustment to time of completion.

Whenever you can estimate an adjustment to time with reasonable accuracy, try to reach agreement with the contractor. Enter the amount of the time adjustment on the change order (including when there is no adjustment). Regardless of the amount of time actually required to perform the changed work, the agreed adjustment becomes binding on both parties. File with the contract records the calculations and other data used to determine adjustments to time.

If you cannot determine or agree on an adjustment of time in the initial change order, you may defer the adjustment. When doing so, write “deferred” on the time adjustment line and include a time adjustment deferred clause in the change order.

As soon as the change order work is completed, determine the appropriate time adjustment. If you cannot reach agreement with the contractor, issue a unilaterally approved supplemental change order adjusting time.

On contracts with internal time limits or multiple time limits, make sure that any change order that includes a time adjustment contains a statement that identifies the applicable time limits of the adjustment. If an internal milestone date will change, but total time remains unaffected, specify the new date in the change order and indicate there is no time adjustment because of the change.

Periodically during the progress of the change order work, resolve deferred time adjustments. Do so by issuing a supplemental change order covering time allowable. If it is an extensive deferment, resolve the time allowed to a current date, with part of the deferment continued for subsequent work. Your objective is to resolve deferred time adjustments as soon possible. Timely resolution of time deferments allows the contractor to efficiently schedule remaining work to complete the project within the time limits.

The resident engineer may not unilaterally decrease time unless this is permitted by the specifications. Otherwise, the contractor must agree to changes that reduce time. Without this agreement, you can do one of two things:

1. Do not recommend approval of the change if no benefit exists for Caltrans.
2. If substantial benefits exist for Caltrans, issue a unilaterally approved change order with no time adjustment.

#### 5-306E Change Order Standard Clauses

Information on change order standard clauses is available at:

<http://www.dot.ca.gov/construction/change-order/standard-clauses.html>

The examples show standard clauses for specific situations found in various types of change orders. Customize standard clauses to read what is appropriate for the change order being written.

#### 5-306F Work Designated as Extra Work in the Specifications

The *Standard Specifications* and the special provisions describe certain work and specify that it is to be paid for as extra work. In some cases, supplemental funds are set aside to pay for this extra work. Make an independent cost estimate of the work for which the supplemental funds were provided. This estimate must be as accurate as possible.

Refer to the specific section of the specifications that identifies the extra work for the change order. Also, describe the exact work to be performed.

Traditionally, Change Order No. 1 provides for extra work specified for public traffic and public convenience. This change order must be limited to the following:

- Work designated as extra work in the specifications
- Work related to the needs of public traffic or for public convenience

Refer to the change order template “Maintain Traffic” at:

<http://www.dot.ca.gov/construction/change-order/templates.html>

This change order indicates the method for incorporating specified extra work into a change order. Note that the change order template is written as extra work at force account. You may also pay for specified extra work as extra work at agreed price if the extent of the work can be accurately determined. This approach is illustrated in the change order template, “Flaggers,” which provides for payment for flaggers at an agreed unit price. Payment for flaggers at an agreed price may be written as a separate change order or combined with the other traffic related work paid for as extra work at force account.

#### 5-306G Change Order Format

The example change orders at the Division of Construction’s website follow the generally accepted format for writing change orders. The following describes the format:

- Describe the work or change that will cause increases and decreases to bid item quantities. Refer to any attached drawings or documents (sheets \_\_ and \_\_ of \_\_). If the bid item work cannot be described separately from other work, describe the entire work at this stage. Describe work paid for by other methods in the appropriate sections of the change order. The intent is that the change order clearly specifies the work paid for by each payment method.
- Show the increases and decreases in bid item quantities. Include the percent of the Bid Item List represented by this change. Also show the accumulated percent change to date from the original quantity in the Bid Item List.
- Write clauses for situations resulting from increases or decreases or estimated increases or decreases in bid item quantities (deferred adjustments or actual payment adjustments for overruns or underruns).
- Write clauses for adjustments or deferred payment adjustments due to any cause. Describe the work or change causing the adjustment or deferred adjustment. Show the amounts of adjustments if not deferred.
- Describe work to be paid for as extra work at agreed price. Show the price as agreed. Agreed prices may be fixed unit prices and an estimated or actual number of units, or agreed prices may be fixed lump sums.

- Describe the work to be paid for as extra work at force account. Show the estimated cost of the extra work.
- Write time deferment or time adjustment clauses.

## **5-307 Change Order Memorandum**

### **5-307 Change Order Memorandum**

Include with all change orders sufficient documentation to explain the scope and reasons for the change. For this purpose, use Form CEM-4903, “Change Order Memorandum,” with any necessary attachments. The memorandum is intended for interdepartmental use only. Do not send the memorandum to the contractor.

The memorandum must be sufficiently complete to enable a person unfamiliar with the details of the project to review the change order and understand the justification for the work, the reasonableness of the compensation, and the time adjustment provisions.

#### 5-307A Contents of the Memorandum

Include the following in the memorandum:

- State what the change order provides. Supplemental change orders should also include a description of the original change order.
- Explain the need for the change, including the contractual basis of the change. When another Caltrans unit requests a change, the correspondence requesting the change should also justify the need for the change. Attach supporting letters to the memorandum.
- State the reasons a particular method of payment was chosen. Include a complete cost analysis, or state that the cost analysis is on file with the project records. The statement should include the method used in making the cost analysis.
- Explain the reasons the ordered change causes any change in the character of the work. To substantiate any additional compensation due, you may need to provide a summary of events leading up to the change.
- State the extent of coordination and concurrence. If agreement with any district unit cannot be obtained, then indicate specific discussions that would influence a decision for approval. Refer to Section 5-307C, “Coordination and Concurrence by Others,” of this manual.
- If prior approval of the change order has been obtained, state the name of the person who granted prior approval and the date.
- Show the unobligated balance of funds available to finance the change order. The resident engineer must verify the available funds are not exceeded. For obtaining additional funds, refer to Section 5-2, “Funds,” of this manual.
- Show the total authorized funds to date, as well as the dollar amount of a supplemental change order.
- Indicate when funds for supplemental work shown in the detail estimate of job cost are used in the change order.
- For major changes on federal high-profile projects, indicate the name and date of discussion and concurrence, if any, by the FHWA transportation engineer. Refer to Section 5-308, “Federal Highway Administration Change Order Requirements,” of this manual. For details relating to federal funding to be shown on the change order



memorandum, refer to Section 5-309, “Federal Segregation Determination on Change Orders,” of this manual.

- For change orders involving participation by local agencies, identify the portion of the work that is applicable to the contributing agency.
- For a change order that is to be unilaterally approved, explain why the contractor will not sign or why the contractor’s signature is not required. Attach a copy of any correspondence from the contractor regarding the change order.
- Include justification for a time adjustment. Describe the method used to determine time adjustments. State the controlling activity during the delay period. Whenever possible, and when resolving a previously deferred time adjustment, indicate the specific working days in which there were delays and represent the period of the time adjustment. By indicating the specific working days, you ensure other time adjustments do not cover the same time period.
- Indicate the cumulative time adjustments and total number of change orders with unreconciled deferred time.

#### 5-307B Change Order Category Codes

The resident engineer is responsible for assigning a four-letter code to every change order to indicate the main reason for the change. Preferably, there should only be one issue per change order. For change orders with multiple distinct issues, assign the coding based on the one issue that has the greatest impact to the project. Assign the coding according to the reason for the change, not according to how the problem was corrected. To determine the code, the resident engineer may use the “CCO Code Generator” from the following Division of Construction intranet website:

<http://construction.onramp.dot.ca.gov/contract-administration>

The resident engineer should enter this code on Forms CEM-4903, “Change Order Memorandum,” and CEM-4901, “Change Order Input.”

The change order code will identify one or more discrete pieces of information about the change:

1. The type of change order (first character).
2. The specification that authorizes the change, or the physical asset affected by the change (second character).
3. The source document that led to the need for a change (third and fourth characters).
4. The disposition of a dispute resolution (third and fourth characters).

Administrative types of change orders (accelerations, and changes that are anticipated and authorized by existing administrative specifications) require only minimal coding information. Consequently, extra coding positions will be assigned a default character placeholder, the letter Z. Assign characters from left to right, as subsequent character code selection is dependent on the preceding characters.

Character 1: Change Order Type:

Use the codes in Table 5-3.1, “Change Order Type (Character 1),” to categorize the change order according to its general type; for example, administrative or dispute resolution. Coding for dispute resolution takes precedence over coding for any other

potential scenario. After selecting the first character code, use the corresponding directions on Table 5-3.1 to complete the coding for the remaining three characters.

#### Character 2: Specification or Physical Asset:

Next, based on your selection for the first character code, and using the directions within Table 5-3.2, “Specification or Physical Asset (Character 2),” select the code that most accurately identifies the appropriate administrative specification, or the affected physical asset. Enter this code as the second character. In the case of a change order that is strictly for acceleration, with no physical change in the planned work (the first character code is a B); then the second character code is defaulted to a placeholder Z character.

#### Characters 3 and 4: Source Document or Dispute Disposition:

If the change order is needed to bring about a plan or specification change (the first character code is C or D), use Table 5-3.3, “Source Document (Characters 3 and 4),” to identify the pair of character codes that together best describe the original document that created the need for the change order. The reason for the change may be from:

- Constructability issues, errors, conflicts, or inconsistencies.
- The introduction of improved products, means, or methods.
- Any other reason, provided that the change will affect some physical aspect of the planned work.

If the change order is for a dispute resolution (first character code from Table 5-3.1 is E, F, G, or H), use Table 5-3.4, “Dispute Disposition (Characters 3 and 4),” to assign the third and fourth characters. Begin by selecting the code for the third character that most closely identifies the time frame *before* the dispute was resolved. The milestones for the third character are listed chronologically. For the fourth character, choose a code from Table 5-3.4 that most accurately explains how the dispute was resolved (entitlement, negotiated settlement, and arbitration award, full or partial resolution.)

If the change order type was administrative (first character code is either A or B), then the third and fourth character codes are defaulted to Zs.

#### General Examples:

Change orders that are strictly for constructive accelerations when there is no change to the final configuration of a planned permanent physical asset are all coded “BZZZ.” No additional coding information is necessary.

When a change order resolves a dispute based on contract administration, and there was no change to the planned work on some permanent physical asset:

1. The first character will be either E or G (refer to Table 5-3.1).
2. The second character represents the disputed administrative specification. Choose this character from the upper portion of Table 5-3.2.
3. The third and fourth coding characters are selected depending on when and how the dispute was resolved. Choose these characters from Table 5-3.4, “Dispute Disposition.”

When a change order is authorized by an administrative specification and there is no formalized dispute involved:

1. The first character will be A (refer to Table 5-3.1).
2. Select the second character from the upper portion of Table 5-3.2.

3. The third and fourth characters will both default to the placeholder letter Z. No other coding information is necessary in this particular example.

**Table 5-3.1. Change Order Type (Character 1)**

Change Order Type		Code	Description
Administrative	Contract or Supplemental Work	A	Change order used to pay for work or adjustments already authorized by specifications (supplemental work, quantity adjustments, and other).  (Use only the specification codes from the upper portion of Table 5-3.2 for the second character, and Zs for the third and fourth characters.)
	Acceleration	B	Change order used to accelerate certain planned work. Describe the reason for acceleration in the transmittal memo (public convenience, staging coordination, delay mitigation, and other).  (Use only Zs for subsequent code characters 2, 3, and 4.)
Plan or Specification Change	Non-VECP	C	Change order needed to change plans or specifications for reasons unrelated to a value engineering change proposal (VECP).  (Use only the physical asset codes from Table 5-3.2 for the second character, and Table 5-3.3 for the third and fourth characters.)
	VECP-Related	D	Change order needed to change plans or specifications due to a VECP.  (Use only the physical asset codes from Table 5-3.2 for the second character, and Table 5-3.3 for the third and fourth characters.)
Dispute Resolution	Potential Claim	E	Change order either fully or partially resolves certain potential claim records due to some dispute over contract administration.  (Use the specification codes from the upper portion of Table 5-3.2 for the second character, and Table 5-3.4 for the third and fourth characters.)
		F	Change order either fully or partially resolves certain potential claim records due to a dispute over an ordered change that affected some physical asset.  (Use either the physical asset codes from the lower portion of Table 5-3.2 for the second character, and Table 5-3.4 for the third and fourth characters.)
	Claim	G	Change order either fully or partially resolves certain contract claims due to some dispute over contract administration.  (Use the specification codes from the upper portion of Table 5-3.2 for the second character, and Table 5-3.4 for the third and fourth characters.)
		H	Change order either fully or partially resolves certain contract claims due to a dispute over an ordered change that affected some physical asset.  (Use the physical asset codes from the lower portion of Table 5-3.2 for the second character, and Table 5-3.4 for the third and fourth characters.)

**Table 5-3.2. Specification or Physical Asset (Character 2)**

	Code	Specification (use this portion of Table 5-3.2 only when the first character code is A, E, or G)
<b>Authorizing Specification Standard Specifications (No.) or Special Provision (SP)</b>	A	9-1.06: Changed Quantity Payment Adjustments
	B	7-1.04: Public Safety
	C	4-1.06: Differing Site Conditions (23 CFR 635.109)
	D	7-1.02K: Labor Code
	E	7-1.03: Public Convenience
	F	8-1.10: Liquidated Damages
	G	8-1.07: Delays
	H	5-1.36C: Nonhighway Facilities
	I	9-1.17C: Proposed Final Estimate
	J	12-1: Temporary Traffic Control - General
	K	80-15.02, 83-11.03B: Reconstruct Fences, Reconstruct Metal Bridge Railings
	L	4-1.05B: Work-Character Changes
	M	19-1.03B: Unsuitable Material
	N	19-2.03F: Slides and Slipouts
	O	20-1.03C: Roadside Clearing
	P	10-6, 87-21.03B: Watering, Maintaining Existing Electrical Systems
	Q	9-1.07: Payment Adjustments for Price Index Fluctuations
	R	5-1.43E(1)(c): Dispute Meetings
	S	9-1.03: Payment Scope
	T	4-1.07C: Value Analysis Workshop
	U	5-1.09: Partnering
	V	6-2 & 6-2.02: Quality Assurance, Quality Control
	W	SP: Other listed Supplemental Work (Describe in transmittal memo) (Use only if no other code describes this supplemental work)
	X	Other: Other (Describe the "other" specification in transmittal memo)
	Z	Default: (Use only when the first character is B)
	Code	Physical Asset (use this portion of Table 5-3.2 only when the first character code is C, D, F, or H)
<b>Affected Permanent Physical Asset</b>	A	Building (such as maintenance facilities, pump stations)
	B	Electrical (such as signals, lighting, communications, electrical systems)
	C	Drainage (such as culvert, subsurface, roadway drainage, gutters, lined ditches)
	D	Earthwork (such as excavation, embankment, soil stabilization, slope protection, erosion control)
	E	Landscaping (such as plants, irrigation)
	F	Materials (such as borrow or disposal sites, surplus, salvage)
	G	Property (such as fence, survey monument, easements, right-of-way obligations)
	H	Structure (vehicle or pedestrian)
	I	Base, subbase, shoulder backing
	J	Surfacing (pavement, pavement reinforcing, shoulders, sidewalks)
	K	Traffic control devices (such as barriers, railing, signing, delineation)
	L	Utility
	M	Wall (such as retaining, sound, aesthetic)
	X	Other (Describe the "other" affected permanent physical asset in transmittal memo)
	Z	Default (Use only when the first character is B)

**Table 5-3.3. Source Document (Characters 3 and 4)**  
(Use **Table 5-3.3** only when the first character code is *C* or *D* from **Table 5-3.1**)

Character 3 (General)		Character 4 (Specific)	
A	Agreement	A	Cooperative
		B	Permit
		C	Right-of-way obligation
C	Certificate	A	Environmental clearance
		B	Right-of-way clearance
G	Survey	A	Data/control
		B	Detailed cross-sections
M	Materials	A	Log of test borings
		B	Information handout, brochure
P	Plan	A	Construction detail
		B	Contour grading
		C	Electrical
		D	Elevation view
		E	Environmental mitigation
		F	Erosion control
		G	Foundation
		H	General cross-sections
		I	Irrigation
		J	Layout/plan view
		K	Mechanical
		L	Pavement delineation
		M	Planting
		N	Profile
		O	Schedule of materials
		P	Signage
		Q	<i>Standard Plans</i>
		R	Substructure
		S	Superelevation
		T	Superstructure
S	Specification	A	Special Provision
		B	<i>Standard Specifications</i>
T	Temporary Plan	A	Construction area signs
		B	Construction easements
		C	Construction staging
		D	Electrical
		E	Erosion control
		F	Environmentally sensitive area (ESA)
		G	Lane closure chart
		H	<i>Standard Plans</i>
		I	Water pollution control or prevention (WPCP or SWPPP)
		J	Traffic handling
		K	Traffic management plan
A,C,G,M, P,S,T	Any of Above	X	Other specific document (describe in transmittal memo)
X	Other	Y	Other (describe in transmittal memo)
Z	Default	Z	When the first character is either A or B

**Table 5-3.4. Dispute Disposition (Characters 3 and 4)**

(Use **Table 5-3.4** only when the first character code is *E, F, G, or H*, from **Table 5-3.1**, representing a Dispute Resolution)

Character 3 (Time Frame)		
Code		Chronological Milestone
<b>Potential Claims</b> (Use only when first character code from Table 5-3.1 is <i>E or F</i> )	A	Prior to a Differing Site Condition Management Review Committee (DSC-MRC) hearing
	B	Prior to a Dispute Review Board (DRB) hearing
	C	Prior to the Construction Contract Acceptance (CCA) date
	D	Prior to the Proposed Final Estimate (PFE) date
<b>Claims</b> (Use only when first character code from Table 5-3.1 is <i>G or H</i> )	E	Prior to a Board of Review (BOR) hearing
	F	Prior to an Arbitration Filing
	G	Prior to the Arbitration Hearing
	H	Prior to the Arbitrator's Decision
	I	After the Arbitrator's Decision
Character 4 (Resolution Authority)		
Code		Description
A		Entitlement, Partial Resolution (Describe unresolved issues in transmittal memo)
B		Entitlement, Full Resolution
C		Negotiated Settlement, Partial Resolution (Describe unresolved issues in transmittal memo)
D		Negotiated Settlement, Full Resolution
E		Arbitration Award, Partial Resolution (Describe unresolved issues in transmittal memo) (Use only when first character code from <b>Table 5-3.1</b> is <i>G or H</i> )
F		Arbitration Award, Full Resolution (Use only when first character code from <b>Table 5-3.1</b> is <i>G or H</i> )
X		Other (Describe in transmittal memo)



### 5-307C Coordination and Concurrence by Others

Secure recommendation or concurrence from affected functional units and other agencies. Concurrence is evidence of agreement but does not constitute approval of a change order. Process all change orders for approval as described in Section 5-311, “Change Order Approval Process.”

Use district procedures for circulating change orders for concurrence. If contacted parties are unresponsive, in the change order memorandum, state the facts of the circulation process to assure the proposed change is appropriate. Obtaining concurrence should not delay the project.

The following lists some of the Caltrans functional units and reasons for seeking their concurrence.

#### *5-307C (1) Project Development*

The project engineer must concur with all design-related change orders, including plan or specification changes and value engineering change proposals. You may obtain design assistance from the project engineer on some of the more complex design changes. Remember that the project engineer is the engineer of record, and unless the project engineer is consulted, the resident engineer may not know why some design decisions were made.

By coordinating with the project engineer on all design and specification change orders, a continuous and informal “constructability review” process develops. Cooperation between design and construction personnel will result in better plans and specifications and fewer change orders. Cooperation may also reduce potential for construction delays, effects on the contractor, and claims.

#### *5-307C (2) Project Management*

For change orders with the following conditions, obtain concurrence from the project manager:

- Potential for significant delays to the planned work.
- Unanticipated large project cost increases, including those requiring a request for additional funds.
- Changes that may be considered outside the scope or intent of the planned work.
- Changes that may require a Cost Effectiveness/Public Interest Finding.

The project manager’s duties relating to change orders include the following:

- Monitoring project costs.
- Expediting decisions by functional units as needed, so there is no delay or other adverse effect on the contractor’s activities.

#### *5-307C (3) Structures*

Where changes are to be made that involve structures, Structure Construction determines the need for the change, the intent or content of the change order, and any methods or restrictions in doing the work. The resident engineer is responsible for administration, including processing the change order for approval. The structure construction engineer and other personnel in the Division of Engineering Services may need to concur. For procedures for obtaining concurrence for structure change orders, refer to Section 7-0.0,

“Contract Change Orders,” of the *Bridge Construction Records and Procedures* manual, Vol. 1.

#### *5-307C (4) Materials*

The district materials engineer, as well as the project engineer, must concur with all change orders that change or modify material specifications. Also, seek concurrence from the district materials engineer for proposed changes in structural section, slope rates, installation of subsurface drains, removal of unsuitable material, erosion control, and repair of slides and slipouts.

#### *5-307C (5) Traffic*

Obtain concurrence from the appropriate traffic engineer in the district for change orders affecting traffic management plans, hours of work, detours, signing, delineation, highway lighting, traffic signals, illuminated signs, guardrail, barriers, or any other traffic control device or facility. Clear any proposed special sign with the district traffic design engineer.

#### *5-307C (6) Maintenance*

Obtain concurrence from the appropriate maintenance region manager or engineer for changes affecting maintenance facilities, lands and buildings, and maintenance activities. Concurrence from the appropriate maintenance manager or engineer is required for all change orders affecting the use of maintenance funds.

#### *5-307C (7) Right of Way*

Obtain concurrence from the district Right of Way Unit for any changes to right-of-way contracts or agreements, right-of-way fencing or alignment, or gates.

Contact the district Right of Way Unit for assistance with any required rights-of-entry permits, permanent or temporary construction easements, or agreements.

The district utility coordinator must concur with all changes involving utility work. The district utility coordinator must also make proposed revisions to Right of Way Form RW 13-04, “Notice to Owner.” For information about coordinating utility work, refer to Section 3-518C, “Nonhighway Facilities,” of this manual.

#### *5-307C (8) Environmental*

For environmental concerns and requirements, refer to Chapter 7, “Environmental Stewardship,” of this manual. Contact the district environmental unit for assistance and concurrence with any change affecting environmental considerations or requirements or affecting obligations or commitments to other agencies.

The environmental document on any project is valid only for the work described by the document and shown on the plans submitted for environmental approval. For any work proposed in addition to or as a deviation from the approved work, consult with the district Environmental Unit. Significant changes may require amended or additional environmental approval or permits. The types of changes that may require additional consultation and approval include the following:

- New materials sites
- New haul or access roads
- Previously unidentified clearing and grubbing and hazardous materials

- Increases in earthwork
- Unforeseen utility relocation
- Diversion or extraction of water from a stream not covered by a Lake and Streambed Alteration Agreement, more commonly known as a “1602 permit,” from the California Department of Fish and Wildlife
- Use of disposal sites not specified in the contract
- Revision to allowable work windows

#### *5-307C (9) Locally Funded Projects*

For guidelines for processing change orders on locally funded projects, refer to Section 5-310, “Locally Funded State Highway Projects,” of this manual.

### **5-308 Federal Highway Administration Change Order Requirements**

#### **5-308 Federal Highway Administration Change Order Requirements**

Change orders written for projects with federal funding participation must comply with the Code of Federal Regulations and FHWA contracting requirements.

##### 5-308A Projects of Division Interest

Projects of Division Interest (PODI) are subject to full FHWA oversight requirements. Refer to the *Stewardship and Oversight Agreement*, available at:

<http://www.dot.ca.gov/design/stp/index.html>

Early and frequent communication with the FHWA transportation engineer is essential to ensure full compliance with all federal requirements.

#### *5-308A (1) Federal Highway Administration Approval Requirements – Major Change Orders*

Major change orders require FHWA approval. The resident engineer must obtain approval before proceeding with a proposed change. The resident engineer may obtain same-day verbal approval by telephone upon furnishing the FHWA transportation engineer with the requested information. Following the verbal approval, the FHWA transportation engineer sends the written approval electronically (email, fax, or both). The district sends a copy of the change order and change order memorandum to the FHWA transportation engineer upon approval of the change order.

Written and signed FHWA approval is required for any of the following major change orders:

- Change order that would increase the cost greater than \$200,000.
- Change order that would increase the cost of anticipated supplemental work item listed in the detail estimate greater than \$200,000.
- Supplemental change order more than the \$200,000 threshold.
- Change in specifications (with the exception of lane requirements and hours of work charts).
- Change in method of payment.
- Change in material processing.
- Change in type or quantity of materials furnished (with the exception of minor building materials).

*Example:* The change order revises aggregate to an HMA material.

- Change in proprietary or sole source materials for which specific or blanket approval has not been previously given.
- Waiver to the Buy America requirements, above the minimal amount that is allowed in Section 3-604, “Buy America,” of this manual and the project special provisions.
- Value engineering change proposal.
- Experimental work plan.
- Change to federal environmental requirements such as:
  1. Environmental mitigation. Refer to the Mitigation Monitoring Reporting Record, if available.
  2. Permit conditions.
  3. Agreements with federal resource agencies.

*Example:* Revising sound walls—height, length, location, adding auxiliary lanes, and disturbing a site on or eligible for National Register of Historic Places

- Introduction of new social, environmental, or economic issues that need to be addressed under applicable federal laws
- Change to, or requiring of, mandatory disposal or borrow sites. (a Cost Effectiveness/Public Interest Finding and National Environmental Policy Act clearance may be needed.)
- Expansion of project limits beyond the limits set in the environmental document.
- Form of payment (not just a change order) to a contractor resulting from a claim, board of review, exception to proposed final estimate, district director determination or arbitration.
- Supplemental change orders to any of the above.
- Change resulting in a time adjustment of 20 or more working days. Additionally, if time is increased by more than 20 percent of the original working days, then that change and each subsequent change order that increases time.

#### *5-308A (2) Federal Highway Administration Approval Requirements—Minor Change Orders*

Change orders other than those listed above are considered minor. Although approval may be granted retroactively, minor change orders require written and signed FHWA approval. These approvals occur during FHWA construction reviews, or occur with final approval of the project by FHWA.

#### *5-308A (3) FHWA Denial*

When FHWA declines participation in a change order, the district can proceed with the change order by justifying it in the change order memorandum. The project manager must concur with the change in funding.

### 5-308B Delegated Projects

Projects not meeting criteria for PODI are considered delegated projects from FHWA. Caltrans is delegated the authority to administer these contracts. Resident engineers are not required to coordinate with the FHWA transportation engineer except for those instances described in the *Stewardship and Oversight Agreement*. However, discussions for technical guidance are encouraged. For delegated projects, FHWA will verify compliance with federal regulations with annual program and process reviews.

#### *5-308B (1) Federal Highway Administration Involvement Requirements—Major Change Orders*

There are several events that may make FHWA involvement necessary. The FHWA transportation engineer is contacted sufficiently in advance of the project event deemed necessary to allow participation. In all other cases, contact the FHWA transportation engineer as soon as practical to allow for federal concurrence and participation.

FHWA involvement is required for any of the following major change orders:

- Changes to federal environmental requirements:
  1. Environmental Mitigation. Refer to the Mitigation Monitoring Reporting Record, if available.
  2. Permit conditions.
  3. Agreements with federal resource agencies.

Example: Revising sound walls – height, length, location, adding auxiliary lanes, and disturbing a site on or eligible for the National Register of Historic Places.

- Introduction of new social, environmental, or economic issues that need to be addressed under applicable federal laws.
- Changes for mandatory disposal or borrow sites; Cost Effectiveness/Public Interest Finding and National Environmental Policy Act clearance may be needed.
- Waivers to Buy America requirements, above the minimal amount that is allowed in Section 3-604, “Buy America,” of this manual and the project special provisions.
- Expansion of project limits beyond the limits set in the environmental document.

### 5-308C All Federally Funded Projects

For each example listed in Sections 5-308A (1), “Federal Highway Administration Approval Requirements—Major Change Orders,” and 5-308A (2), “Federal Highway Administration Approval Requirements—Minor Change Orders,” of this manual, the resident engineer contacts the FHWA transportation engineer and provides documents as necessary. In addition to the major change orders listed above for PODI and delegated projects, there are several other issues or events that may invoke the involvement of the FHWA. Refer to Section 5-007 “Federal Highway Administration Involvement in Contract Administration,” of this manual.

For PODI, the FHWA transportation engineer should indicate concurrence on Form CEM-4903, “Change Order Memorandum,” by signature in the appropriate box in the “Concurred By” section of the form or by providing signature on an FHWA concurrence form. In the “Federal Participation” section, check the appropriate box and provide an explanation when required:

- Participating: Full federal participation.

- Participating in Part: Partial federal participation; provide explanation for this decision.
- None: No federal participation provided; not a federally funded project.
- Nonparticipating (Maintenance): Project Funded by Caltrans Maintenance; no federal participation provided.
- Nonparticipating: FHWA will not participate in the change order; provide explanation for this decision.

### **5-309 Federal Segregation Determination on Change Orders**

The resident engineer is responsible for managing project construction costs within the current construction allotment. Funds for a project may come from more than one source, such as from state highway funds, local funds, and federal funds. For a change order, the resident engineer must identify and segregate the funds required from each source. Show the proper distribution of change order funding on Form CEM-4903, “Change Order Memorandum.” For more information on project funding, refer to Section 5-2, “Funds,” of this manual.

At the beginning of the project, the resident engineer should receive the federal detail estimate with an estimate for each category of funds and the applicable limits of federal eligibility. If you do not receive this detail estimate, contact the project manager. In some cases the FHWA transportation engineer has a color-coded plan title sheet for more complex multiple-funded projects.

Funding sources for a change order may be different from the funding sources indicated in the detail estimate for a particular project. If the change order funding percentages are the same as the detail estimate, simply mark the “Change Order Funded Per Contract” in the “Federal Segregation” section on Form CEM-4903.

A change order may not be eligible for participation from one or more of the funding sources, depending upon the location and the work to be performed. In this case, mark the “Change Order Funded as Follows” box and indicate the percentage of each funding source’s participation in the appropriate box. If this box is left blank or is incorrect, Caltrans may lose federal funds that should have been secured on this project. For additional information on nonparticipating cost items refer to Change Order Information at:

<http://www.dot.ca.gov/construction/index.html>

For example, a change order written for a project funded from both federal and other sources may not be eligible for federal participation. In this case, the cost of the change order must be distributed between the other funding sources. In the box in the lower right-hand corner of Form CEM-4903, show the percentage of participation by each funding source.

### **5-310 Locally Funded State Highway Projects**

Generally, participation will be based on Caltrans’ original agreement with the contributing agency.

Before making changes that affect work for contributing agencies, verify that such changes are within the scope of the agreement. If not, take action (usually through the district local project’s unit) to have the agreement modified.

### **5-309 Federal Segregation Determination on Change Orders**

### **5-310 Locally- Funded State Highway Projects**

In the margin of the headquarters and district copies of change orders covering the work, obtain the signature of an authorized representative of the affected agency.

Include in the change order memorandum sufficient information to identify the portion of the work that is applicable to the contributing agency. As soon as the change order and memorandum are approved, send the Division of Accounting, Accounts Receivable and Program Accounting sections a copy.

## **5-311 Change Order Approval Process**

### **5-311 Change Order Approval Process**

Caltrans must approve a change order, and whenever possible, the contractor should sign it. When the contractor signs a change order, it is referred to as “executed.” If the contractor declines to sign the change order, then Caltrans may, in some cases, approve it unilaterally.

So that the contractor will execute the change order, make every effort possible to reach agreement. However, do not delay the work by waiting for the contractor to respond. If necessary, submit the change order for unilateral approval. Receipt by the contractor of an approved change order establishes a time for protest.

When the contractor does not agree with the method or amount of the payment and time adjustment, the resident engineer processes the change order using extra work at force account.

If the contractor disagrees with extra work at unit price, extra work at lump sum, or increase in contract items with a payment adjustment, the resident engineer writes the change order using extra work at force account. If the contractor declines to accept the change order within 7 working days, draft and process it unilaterally.

If the contractor agrees with the extra work unit of measurement and method of payment but disagrees with the effect on time proposed by the resident engineer, execute the change order using deferred time. Close out deferred time change orders within 21 working days of the completed change order work.

If the change order is not protested within the specified time, it is considered an executed change order. Refer to Section 5-1.06, “Protests,” of the *Standard Specifications* and Section 3-403, “Changes and Extra Work,” of this manual.

You may routinely submit for approval without the contractor’s signature any supplemental change orders written solely to increase force account funds. However, should the extent or type of work covered in the supplemental change order differ from that included in the original, consider writing a separate change order instead of a supplemental change order. If it is decided to write a supplemental change order, submit it to the contractor for acceptance.

On sensitive or complex change orders, districts are encouraged to submit a draft copy to the Division of Construction for review and recommendation before preparing the final version of the change order. In following this practice, however, discuss the work with the contractor in the usual manner.

Before issuance of the proposed final estimate, resolving entitlement for potential claims is delegated according to Table 5-4.2, “Delegation of Authority,” of this manual.



### 5-311A Division of Construction Approval

District construction personnel may approve all change orders, except those requiring Division of Construction approval. Division of Construction approval is required on the following types of change orders:

- Any change order that has a total absolute value exceeding \$200,000.

Example:

A change order containing a \$50,000 decrease of items, a \$20,000 increase of items, and \$150,000 of extra work at force account would require Division of Construction approval:

$$|-\$50,000| + |\$20,000| + |\$150,000| = |\$220,000|$$

- Any change order that increases the cost of anticipated supplemental work listed in the detail estimate by more than \$200,000.
- Once any of the above cost thresholds is reached, each associated supplemental change order will also require Division of Construction approval.
- Any change in the following:
  1. Method of payment
  2. Method of materials processing
  3. Type or quality of materials to be furnished, excluding those for minor changes to building facilities contracts
  4. Proprietary material for which specific or blanket approval has not been previously received
  5. Specifications, except as follows:
    - a. "Lane Requirements and Hours of Work" charts
    - b. Addition of approved standard special provisions
    - c. Any editing of an approved standard special provision, in accordance with its instructions.
- Any change resulting in a time adjustment of more than 10 percent of original working days or more than 19 working days, whichever is greater.
- Any change order that compensates the contractor for field or home office overhead costs as the result of a final audit report issued by the Independent Office of Audits and Investigations.

Before the contractor is allowed to commence work included in a nondelegated change order, the Division of Construction must approve the change order or grant prior authorization to proceed with the associated work.

#### *5-311A (1) Change Order Determinations*

The Division of Construction sometimes receives requests from the districts to review and approve change orders that contradict policy, delegation, and change order approval criteria. These requests are sometimes received after the district has approved the change order and the contractor has performed the work or the contract has been accepted. In each situation, the Division of Construction change order engineer issues a review determination. Additional criteria include:

1. Change order work started without the Division of Construction's authorization to proceed.
2. Change order not initiated by the district before the work has been completed.
3. Deferred time change orders not processed in a timely manner.

The Division of Construction will track these change orders and report performance to the Division of Construction chief. This information may be used to re-evaluate the appropriate level of change order delegation of authority to the district.

These change orders are divided into two categories: "ratify post performance" and "unauthorized direction," and are shown in Table 5-3.5, "Division of Construction's Change Order Direction." This table explains scope and subsequent actions for change orders that require Division of Construction approval. This direction is communicated in a written Division of Construction fax or email addressed to the district change order desk: [CCO.Desk.HQ@dot.ca.gov](mailto:CCO.Desk.HQ@dot.ca.gov).

**Table 5-3.5. Division of Construction's Change Order Direction**

Direction	Direction Scope	District Action
To Proceed with the Work	Division of Construction authorization to proceed is required for change order work authorized prior to full execution of the change order. This written work authorization by the engineer is to be used only in an extenuating circumstance exception basis. The authorization is complete and satisfactorily prepared by the district.	Authorize the change order work in writing in accordance with Section 4-1.05, "Changes and Extra Work.," of the <i>Standard Specifications</i> . Prepare change order and obtain Division of Construction's issue and approve direction within 7 working days. Execute the change order as soon as possible; no later than 21 working days.
To Issue and Approve	Division of Construction approval granted on the basis of a satisfactorily prepared change order and change order transmittal memorandum.	Approve the change order in accordance with Division of Construction direction including any required minor revisions or conditions designated by the Division of Construction fax or email.
To Revise - Not Authorized	Changes are required before Division of Construction approval will be granted.	Revise the change order in accordance with the Division of Construction direction. Submit for reconsideration or elevate the issue for resolution to the district construction division chief and the assistant Division of Construction chief.
To Process in the District	Division of Construction approval for this change order is not required. Authority to approve the change order has been delegated to the district.	Approve the change order in the district.
Ratify Post Performance	District administration of the change order committed the Division of Construction to a course of action without required approvals.	Review internal change order procedures and implement measures to assure future transgressions are prevented.
Request for Information	Additional information is required for the Division of Construction to evaluate the change order.	Collect the requested information and transmit it to the Division of Construction. The district may elect to revise the change order and resubmit it when the additional information is provided.
Void	Changes that are authorized or executed by the district outside their delegated authority and that are fatally flawed; including provisions that violate state law or federal law.	Void the change order.
Change Order Approved in Headquarters	Division of Construction originated and approved a change order without district involvement. Often used to expedite arbitration or other payments to the contractor.	Process the change order by entering it in the contract administration system (CAS) and flagging the change order for payment.
Unauthorized	The district exercised authority outside of policy or delegation. The change order contradicts policy, delegation, or approval criteria. The contractor may have performed the work without authorization to proceed. The district may not have initiated the change order before the work was completed.	Review internal change order procedures and implement measures to prevent future transgressions.
Other	Category used for all situations that cannot be classified above.	Division of Construction approval is not granted. District complies with instructions provided by the Division of Construction fax or email.

#### 5-311B District Approval Limitations

Districts may not delegate below the level of construction manager the “Approval Recommended” signatures on Division of Construction-approved change orders.

Only a district construction deputy director may approve change orders for value engineering change proposals. Approval authority is determined by considering each element of the value engineering change proposal in the context of the delegation criteria listed above. Project engineer concurrence for all revisions of standard or project specific design elements is required prior to approving change orders to implement all value engineering change proposals.

District approval of the following types of change orders may not be delegated below the level of a region construction division chief or district construction deputy director:

- Project limit modifications
- Acceleration of the contract work through a decrease of contract time
- Order of work revisions
- Revision of the contract staging requirements

District approval of the following types of change orders may not be delegated below the level of construction manager:

- Those that include deferred time
- “Lane Requirements and Hours of Work” charts
- Addition of approved standard special provisions
- Any editing of an approved standard special provision, in accordance with its instructions

District approval of other types of change orders may not be delegated below the level of senior-level resident engineer or construction engineer. Within this delegation, senior-level resident engineers or construction engineers may be given written authority to approve change orders that increase the contract cost or approved supplemental work by up to \$50,000.

#### 5-311C Prior Authorization to Proceed

A “prior authorization to proceed” with change order work should be issued only as an exception because of extenuating circumstances.

Whoever holds change order delegated authority as stated in this section must recommend approval for all change orders requiring prior authorization to proceed.

In addition to writing and dating the prior authorization to proceed, the engineer must include the following information:

- Change order number reserved for the work
- Estimated value of the work
- Proposed method of payment
- Estimated duration of the work
- Estimated contract time adjustment needed to perform the work
- Estimated time required to execute the associated change order

Document in the resident engineer's daily report the date, time, and name of the division change order engineer or whoever holds the district delegated authority who provided advance approval to issue the prior authorization to proceed. The change order that received the prior authorization to proceed should be submitted to the contractor for approval within 7 working days of the date of the prior authorization to proceed. If the contractor does not execute the change order within an additional 7 working days, a unilateral change order must be processed within 21 working days of the prior authorization to proceed.

The district should have procedures for prior authorization to proceed actions in accordance with this section. The district procedures should clearly designate the roles and responsibilities of the staff involved in preparing and approving change orders.

### **5-312 Substantiation**

Each change order must be carefully considered, analyzed, and documented in the project records. For things to consider when preparing to write a change order, refer to Section 5-305, "Preliminary Considerations," of this manual.

### **5-312 Substantiation**

#### 5-312A Engineering Analysis

Conduct an engineering analysis for each change to the contract plans and specifications. Consider the impact of each change on the entire project and related facilities.

Change orders must meet all engineering and design standards unless a design exception is approved by the Division of Design. The project engineer who stamped the project plans is the engineer of record for the project and must concur with all engineered changes.

#### 5-312B Contractual Analysis

Determine the contractual basis and authority to issue each change order. Include this information in the transmittal memorandum and change order. Use Figure 5-3.1, "Change Order Decision-Making Concept Flowchart," at the end of this section, to assist you in this determination.

#### 5-312C Cost Analysis

Prepare an independent force account or bid item cost analysis for comparison with the contractor's estimated cost. Accept the contractor's estimated cost only if it is justified by this analysis. Do not include costs for disputed work. Include subcontractor markups in the cost estimate when a subcontractor will be performing extra work paid for by unit price, payment adjustment, or lump sum. For subcontractor markup guidelines, refer to Section 3-9, "Payment," of this manual.

File in the project records any calculations made to determine extra work at unit price, payment adjustment, or lump sum. These calculations substantiate and justify the amount paid for extra work and are therefore subject to audit. Either show these calculations in the change order memorandum or include a statement that the calculations are on file in the project records.

#### 5-312D Time Impact Analysis

A time impact analysis (TIA) illustrates the impact of each change on the scheduled completion date or an internal milestone. The contractor submits a written TIA to the resident engineer with each time adjustment request. Review the TIA for logic and duration impacts to determine the time adjustment or construct an independent TIA to

determine the time adjustment. Refer to Section 8-1.02D (8), “Time Impact Analysis,” of the *Standard Specifications* for more information regarding TIA submittals. For an example of a TIA reference on a Change Order Memorandum, refer to the example “Compensation for Critical Delay (Payment Adjustment)” at:

<http://www.dot.ca.gov/construction/change-order/examples.html>

### **5-313 Executed Change Order Copy Distribution**

#### **5-313 Executed Change Order Copy Distribution**

For all contracts, one copy of each executed authorization to proceed, change order, and corresponding memorandum is electronically scanned and transmitted to the Division of Construction file server.

Combine each executed authorization to proceed or change order and change order memorandum for each contract change, supplemental change, and authorization to proceed into a single Adobe Acrobat file using the following filename convention:

Contract No. CCO No. or ATP No. Supplemental No. Approval Date

Examples:

04-012024 ATP 002 S00 11-20-06.pdf

04-012024 CCO 002 S02 11-27-06.pdf

Transmit the file directly to the Division of Construction file server using the centralized access provided to each district. Transmit approved change orders at least once a month.

Send an email notification to the change order engineer upon transfer of any information to the Division of Construction file server.

The *Desk Guide for the Electronic Distribution of Approved Contract Change Orders* to assist districts with this process is available on Division of Construction’s intranet page:

<https://construction.onramp.dot.ca.gov/contract-administration-information>

For PODI, districts are delegated authority to send one copy of each approved change order and corresponding change order memorandum directly to the FHWA field operations engineer delegated to the district or program administering the contract. The method of document transfer to the FHWA field operations engineer will be negotiated between the district and the FHWA field operations engineer on a case-by-case basis.

The FHWA field operations engineer:

- May issue a determination of funding ineligibility or modify the level of funding participation for any reviewed change order.
- Will communicate all funding eligibility findings by stamping the change order and returning it to the district.
- Will notify districts of all changes in federal participation prior to issuance of a final voucher.

Districts are responsible for updating CAS for federal participation information on change orders.

### **5-314 Value Engineering Change Proposals**

#### **5-314 Value Engineering Change Proposals**

For procedures for a value engineering change proposal, refer to Section 3-405, “Value Engineering,” of this manual.

Prepare value engineering change proposal change orders as a complete package, with no deferred time or deferred cost considerations.

Give careful attention to the clauses in the change order covering payment. Value engineering change proposal change orders may involve any combination of bid item work, payment adjustments, and extra work at agreed price.

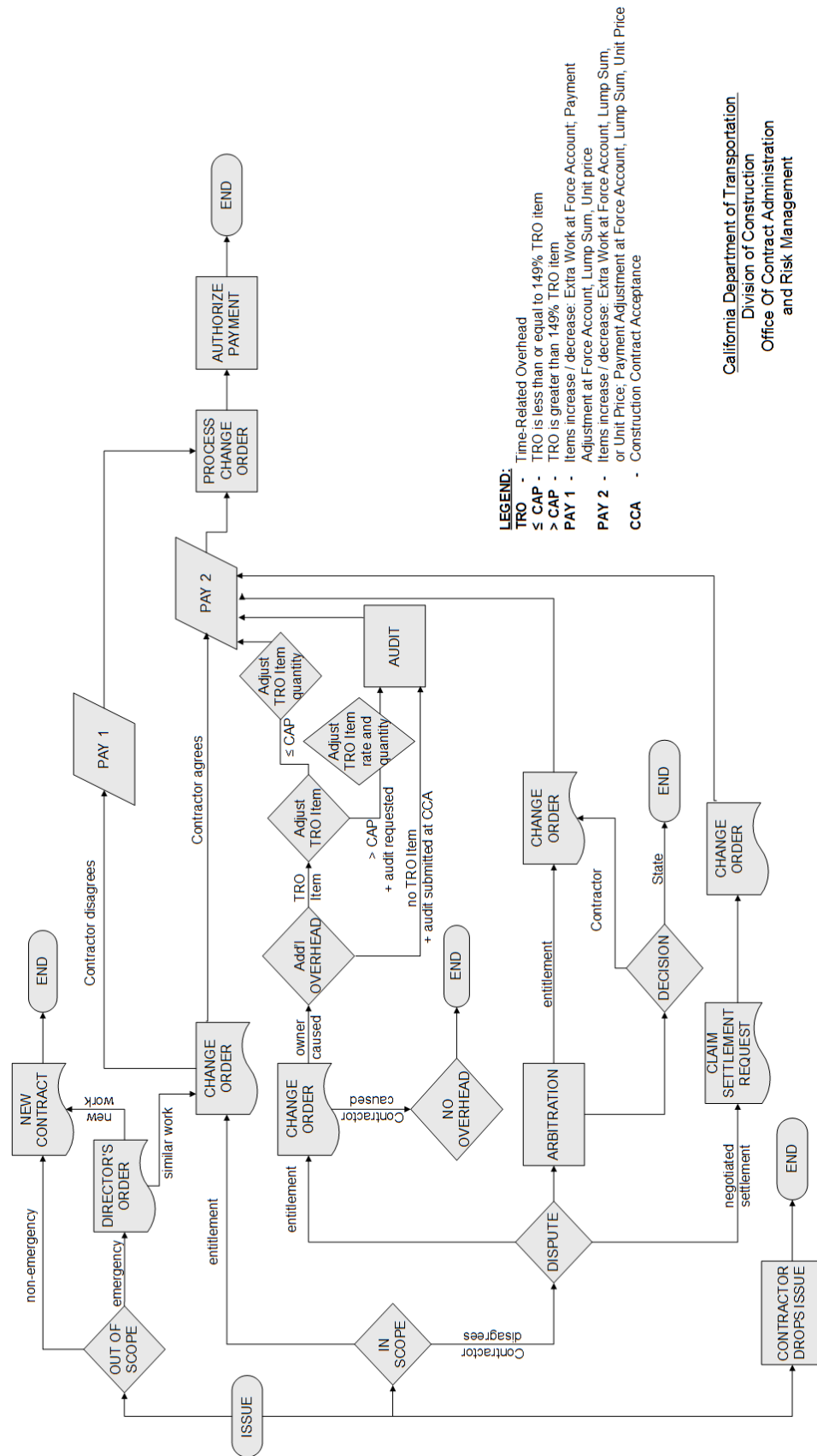
Prices for bid items might not represent the costs of doing either the planned or changed work as computed on a force account basis. In this case, in addition to increases and decreases at contract prices, include payment adjustments to reflect the actual force account cost of increases and decreases in bid item quantities. Also, in the analysis of cost savings, consider adjustments based on a 25 percent overrun or underrun.

Value engineering change proposal change orders must include a payment adjustment that returns either 50 or 60 percent of the savings to the contractor. Determine the adjustment in the following manner:

- Determine the total decrease in construction cost. This decrease will be the sum of increases and decreases in bid items at bid item unit prices, payment adjustments including work-character change adjustments, and extra work at agreed price.
- Provide for a payment adjustment to pay the contractor either 50 or 60 percent of the total decrease as allowed by the specifications.



Figure 5-3.1. Change Order Decision-Making Concept Flowchart



California Department of Transportation  
Division of Construction  
Office Of Contract Administration  
and Risk Management