

August 1, 2005

REVISION OF SECTION 104  
VALUE ENGINEERING CHANGE PROPOSALS

## NOTICE

This is a standard special provision that revises or modifies CDOT's *Standard Specifications for Road and Bridge Construction*. It has gone through a formal review and approval process and has been issued by CDOT's Project Development Branch with formal instructions for its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by the Standards and Specifications Unit of the Project Development Branch. The instructions for use on CDOT construction projects appear below.

Other agencies which use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

**Instructions for use on CDOT construction projects:**

Use this standard special provision in all projects.

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Section 104 of the Standard Specifications is hereby revised for this project as follows:

Delete subsection 104.07 and replace with the following:

**104.07 Value Engineering Change Proposals by the Contractor.** The Contractor is encouraged to develop and offer proposals for improved construction techniques, alternative materials and other innovations. Proposals must provide a project comparable to the CDOT's original design either at lower cost or improved quality, or both. No proposals will be accepted that lowers the quality of the intended project. Bid prices shall not be based on the anticipated approval of a Value Engineering Change Proposal (VECP). Proposals shall be submitted only by the successful bidder after contract award. If a VECP is rejected, the work shall be completed in accordance with the Contract at contract bid prices. Any delay to the project due to a VECP submittal and review shall be considered within the Contractor's control and will be non-excusable with the exception of those delays that are approved as part of the VECP.

Proposals shall be categorized as VECP (Category A) or VECP (Category B).

VECP (Category A)s will be all proposals that involve the design and construction of a structure including but not limited to a bridge, retaining wall, concrete box culvert, or building. A VECP (Category A) will also include any proposal that would result in a change of original bid items that totals over \$250,000. Alternatives investigated and not selected in the project Structural Selection Reports may be presented in a VECP, if significant benefits can be demonstrated to the Engineer. In addition, any design criteria and constraints listed in the Structural Selection Report can not be modified or relaxed as part of a VECP unless significant and previously unknown benefits can be proven to the Engineer. Experimental or demonstration-type design concepts, products, structures, or elements that have not been pre-approved by CDOT, in writing, for general use will be considered a VECP (Category A). Category A proposals will also result in a realized and shared cost savings to CDOT. Cost savings generated to the Contract as a result of VECP offered by the Contractor and accepted by the CDOT shall be shared between the Contractor and the CDOT.

All other VECPs that do not meet the previous requirements will be classified as a VECP (Category B).

Net cost savings on VECPs that are less than \$25,000 can be kept by the Contractor. Net cost savings greater than \$25,000 shall be split equally between the Contractor and CDOT as defined in the Basis of Payment section of this specification.

Both VECP (Category A) and VECP (Category B) will produce savings to the CDOT or provide improved project quality without impairing essential functions and characteristics of the facility. Essential functions include but are not limited to: service life, requirements for planned future development, prior commitments to governmental agencies or the public, corridor requirements, economy of operation, ease of maintenance, desired appearance, safety, and impacts to the traveling public or to the environment during and after construction.

The Contractor may submit either a full VECP or a preliminary Conceptual VECP, followed by a full proposal. These proposals are subject to rejection at any time if they do not meet the criteria outlined in this subsection.

- (a) *Submittal of Conceptual Proposal.* For a VECP (Category A) that requires a significant amount of design or other development resources, the Contractor may submit an abbreviated Conceptual Proposal for preliminary evaluation. The Engineer will evaluate the information provided. The Contractor will then be advised in writing if any conditions or parameters of the Conceptual Proposal are found to be grounds for rejection. Preliminary review of a conceptual proposal reduces the Contractor's risk of subsequent rejection but does not commit the CDOT to eventual approval of the full VECP. The following information shall be submitted for each Conceptual Proposal:

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- (1) Statement that the proposal is submitted as a Conceptual VECP
  - (2) General description of the difference between the existing Contract and the proposed change, and the advantages and disadvantages of each, including effects on service life, requirements for planned future development, prior commitments to governmental agencies or the public, corridor requirements, economy of operation, ease of maintenance, desired appearance, safety, and impacts to the traveling public or to the environment during and after construction. The Contractor shall request in writing the necessary information from the Engineer.
  - (3) One set of conceptual plans and a description of proposed changes to the Contract specifications
  - (4) Estimate of the anticipated cost savings or increase
  - (5) Statement specifying the following:
    - (i) when a response to the conceptual proposal from the CDOT is required to avoid delays to the existing contract prosecution
    - (ii) the amount of time necessary to develop the full Proposal
    - (iii) the date by which a Contract Modification Order must be executed to obtain maximum benefit from the Proposal
    - (iv) the Proposal's impact on time for completing the Contract
- (b) *Submittal of Full Value Engineering Change Proposal.* The following materials and information shall be submitted for both a Category A and VECP (Category B):
- (1) A statement that the proposal is submitted as a VECP:
  - (2) A description of the difference between the existing Contract and the proposed change, and the advantages and disadvantages of each, including effects on service life, requirements for planned future development, prior commitments to governmental agencies or the public, corridor requirements, economy of operation, ease and cost of maintenance, desired appearance, safety, and impacts to the traveling public or to the environment during and after construction. . The Contractor shall request in writing the necessary information from the Engineer.
  - (3) A complete set of plans and specifications showing the proposed revisions relative to the original Contract. This portion of the submittal shall include design notes and construction details. The proposed plans and specifications shall be signed and sealed by the Contractor's Engineer.
  - (4) A cost comparison, summarizing all of the items that the proposed VECP replaces, reduces, eliminates, adds, or otherwise changes from the original Contract work, including all impacts to traffic control, detours and all other changes. The cost comparison shall not include cost savings resulting from purportedly decreased inspection or testing requirements, or CDOT overhead; All costs and proposed unit prices shall be documented by the Contractor.
  - (5) A statement specifying the date by which a Contract Modification Order must be executed to obtain the maximum cost reduction during the remainder of the Contract and the date when a response from the CDOT is required to avoid delays to the prosecution of the Contract.

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- (6) A statement detailing the effect the Proposal will have on the time for completing the Contract.
  - (7) A description of any previous use or testing of the proposed changes and the conditions and results. If the Proposal was previously submitted on another CDOT project, the proposal shall indicate the date, Contract number, and the action taken by the CDOT.
  - (8) An estimate of any effects the VECP will have on other costs to the CDOT.
  - (9) A statement of life cycle costs, when appropriate. Life cycle costs will not be considered as part of cost savings but shall be calculated for additional support of the Proposal. A discount rate of four percent shall be used for life cycle calculations.
- (c) *Evaluation.* VECP will be evaluated by CDOT in accordance with the CDOT Construction Manual.

Additional information needed to evaluate Proposals shall be provided in a timely manner. Untimely submittal of additional information will result in rejection of the Proposal. Where design changes are proposed, the additional information shall include results of field investigations and surveys, design and computations, and changed plan sheets required to develop the design changes.

1. The Engineer will determine if a Proposal qualifies for consideration and evaluation. The Engineer may reject any Proposal that requires excessive time or costs for review, evaluation, or investigation. The Engineer may reject proposals that are not consistent with the CDOT's design and criteria for the project.
2. VECP, whether or not approved by the CDOT, apply only to the ongoing Contracts referenced in the Proposal and become the property of the CDOT. Proposals shall contain no restrictions imposed by the Contractor on their use or disclosure. The CDOT has the right to use, duplicate and disclose in whole or in part any data necessary for the utilization of the Proposal. The CDOT retains the right to utilize any accepted Proposal or part thereof on other projects without obligation to the Contractor. This provision is subject to rights provided by law with respect to patented materials or processes.
3. If the CDOT is already considering revisions to the Contract or has approved changes in the Contract that are subsequently proposed in a VECP, the Engineer will reject the Proposal and may proceed to implement these changes without obligation to the Contractor.
4. The Contractor shall have no claim against the CDOT for additional costs or delays resulting from the rejection or untimely acceptance of a VECP. These costs include but are not limited to: development costs, loss of anticipated profits, increased material or labor costs, or untimely response.
5. Proposals will be rejected if equivalent options are already provided in the Contract.
6. Proposals that only reduce or eliminate contract pay items will be rejected.
7. The cost savings and other benefits generated by the Proposal must be sufficient to warrant review and processing, as determined by the Engineer.
8. A proposal changing the type or thickness of the pavement structure will be rejected.
9. No VECP proposal can be used to alter incentive and disincentive rates and maximums on A+B projects.

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10. Right of Way cannot be bought as part of a VECP to eliminate phasing on a project.
11. A VECP changing the design of a structure may be considered by the CDOT, if the design meets the following conditions:
  - (1) The design shall not involve detouring of traffic onto local roads or streets to an extent greater than the original plans, unless previously approved by the affected local agencies
  - (2) The design has the same roadway typical section as the original plans
  - (3) The design meets or exceeds the benefits of the construction-handling or traffic phasing scheme shown in the original plans
  - (4) The design meets or exceeds all environmental commitments and permit requirements of the original Contract.
  - (5) The design shall not increase environmental impacts beyond those of the original Contract.
  - (6) The design meets or exceeds the vertical and horizontal clearances and hydraulic requirements shown in the original plans
  - (7) The design has the same or greater flexibility as the original design to accommodate future widening
  - (8) The design shall not change the location of the centerline of the substructure elements, without demonstrating substantial benefits over the original plans
  - (9) The design shall not change the grade or elevation of the final riding surface, without demonstrating substantial benefits over the original plans
  - (10) The design shall match corridor future development plans, architectural, aesthetic and pavement requirements, if applicable
  - (11) The design shall not adversely impact the CDOT's Bridge Inspection, maintenance or other long-term costs or operations.
  - (12) The design shall meet all CDOT design standards and policies
  - (13) The design shall include all additional costs and coordination necessary to relocate utilities
  - (14) Major structure designs provided by the Contractor shall include an independent plan review and design check by a Professional Engineer registered in the State of Colorado and employed by a firm other than the engineer-of-record. This design review will be performed at no additional cost to CDOT and shall be included in the Contractor's engineering costs.
  - (15) The Contractor shall provide CDOT with all design calculations, independent design check calculations, a rating package for each bridge prepared in accordance with the current CDOT Bridge Rating Manual, and a record set of quantity calculations for each structure.
12. The Engineer will reject all or any portion of the design or construction work performed under an approved VECP if unsatisfactory results are obtained. The Engineer will direct the removal of such rejected work and require construction to proceed under the original Contract requirements without reimbursement for work performed under the proposal, or for its removal.

If a structure design VECP meets these and all other requirements, the CDOT may, at its sole option, accept or reject the proposal.

- (d) **Basis of Payment.** If the VECP is accepted, a Contract Modification Order will authorize the changes and payment. Reimbursement will be made as follows:

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1. The changes will be incorporated into the Contract by changes in quantities of unit bid items, new agreed unit price items, lump sum or any combination, as appropriate, under the Contract. Unless there is a differing site condition as described in subsection 104.02, the Contractor shall not receive additional compensation for quantity overruns, design errors, supplemental surveys, geotechnical investigations, additional items or other increases in cost that were not foreseen in the accepted VECP, unless otherwise approved by the Engineer.

2. For all VECPs, the incentive payment shall be calculated as follows:

$(\text{gross cost of deleted work}) - (\text{gross cost of added work}) = (\text{gross savings})$

$(\text{gross savings}) - (\text{Contractor's engineering costs}) - (\text{CDOT's engineering costs}) = (\text{net savings})$

Any net savings less than \$25,000 can be kept by the contractor.

If the net savings are greater than \$25,000 then the amount over \$25,000 will be shared equally with CDOT and calculated as follows:

$(\text{net savings}) - \$25,000 = \text{shared savings}$

$\text{Contractor's total incentive} = (\text{shared savings}) / 2 + \$25,000$

The Contractor's engineering costs will be reimbursable only for outside consultant costs that are verified by certified billings. CDOT's engineering costs shall be actual consultant costs billed to CDOT and extraordinary in-house personnel labor costs. These labor costs will be calculated at the fixed amount of \$50.00 per hour per employee. Project personnel assigned to the field office or who work on the project on a regular basis shall not be included in CDOT's portion of the cost.

3. At the completion of the VECP design work, the Contractor shall furnish the CDOT any additional documentation such as surveys, geotechnical reports, documentation or calculations and shop drawings required to complete the work.

At the completion of the project, the Contractor shall furnish the CDOT with PE-stamped Record sets, and As-Constructed plans showing the VECP work.

- (e) *Contractor Appeal Process.* Appeals can only be made on VECP (Category A)s. The Prime Contractor submitting the VECP may file a one-time appeal to the Region Transportation Director (RTD) on the denial of any VECP (Category A). The Contractor must have a valid reason for the appeal and the decision of the Region Transportation Director will be final.