

Memorandum

*Making Conservation
a California Way of Life.*

To: DEPUTY DISTRICT DIRECTORS, Construction
DEPUTY DIVISION CHIEF, Structure Construction
CONSTRUCTION MANAGERS
SENIOR CONSTRUCTION ENGINEERS
RESIDENT ENGINEERS

Date: March 4, 2019

File: Division of Construction
CPD 19-6


From: BOB FINNEY, Acting Chief
Division of Construction

Subject: **HOT MIX ASPHALT PAVEMENT SMOOTHNESS**

The California Department of Transportation (Caltrans) is implementing an incentive and disincentive specification for hot mix asphalt pavement smoothness. The pavement smoothness contract requirements will be based on recognition of the preexisting pavement smoothness. This new specification will allow contractors to take a payment disincentive for 0.1-mile segments that do not meet the specified full pay mean roughness index (MRI) requirement. The new specification will also pay an incentive for pavements that are smoother than the specified target MRI requirement. This new pavement smoothness incentive and disincentive specification cannot be implemented on-going projects because it changes the basis on which the projects were bid.

This directive allows for change orders on projects without the smoothness incentive and disincentive specification that have pavement smoothness of 0.1-mile segments that exceed the contract MRI requirement; Caltrans will grant contractor requested payment deductions to avoid and reduce corrective grinding. Change orders allowing deductions take into consideration the constructability issues that drove the specification change but do not allow a payment incentive. Change orders allow for a payment deduction instead of grinding for 0.1-mile pavement segments that do not meet the specified target MRI plus MRI disincentive range. For example, the new specification MRI_{TARGET} of 75 has a 5 MRI no-pay adjustment range above 75 MRI, and a 10 MRI disincentive range, so the change order has a 15 MRI deduction range. The payment smoothness deductions are based on either the target 60 MRI or target 75 MRI depending on the thickness of the hot mix asphalt overlay.

The criteria for allowing a deduction is based on Caltrans Pavement Program, *Guidelines for the Design of Asphalt Concrete Smoothness*. These guidelines base pavement smoothness design for existing pavement on the MRI_{EXIST}; which is the MRI value of the existing surface prior to being overlaid. For existing pavement, the design guidance sets the limit for an overlay less than 0.30 foot at MRI 135 inches per mile with a target MRI of 75 inches per mile. For an existing pavement MRI greater than 135 inches per mile the target MRI requirement is based on a percent improvement. The design guidance sets the limit for existing pavement MRI for an overlay greater than or equal to 0.30 foot at MRI 165 inches per mile with a target MRI of 60 inches per mile. For an existing pavement MRI greater than 165 inches per mile the target MRI requirement

is based on a percent improvement. For existing pavements that require prepping grinding or structural repairs, such as, remove and replacement asphalt or leveling courses, the pavement inertial profile taken after prepping work is used as the baseline for the existing pavement.

For an overlay specified to meet a 75 MRI this directive allows a payment deduction to be taken for not meeting the pavement smoothness requirement. The pavement smoothness deduction for change orders is based on target MRI 75 plus 15 MRI with a maximum deduction of \$1,350 per 0.1-mile. Therefore, for an existing pavement with MRI_{EXIST} less than 135 inches per mile the no correction deduction range is 75.1–90 MRI. Mandatory corrections are required for MRI values greater than 90 MRI. For an existing pavement segment that exceeds 135 inches per mile MRI the new target MRI will be based on a percent improvement formula and the deduction range established based on the new target MRI plus 15 MRI. Mandatory corrections are required for MRI values greater than $MRI_{TARGET} + 15$ MRI.

For an overlay specified to meet a 60 MRI this directive allows a payment deduction to be taken for not meeting the pavement smoothness requirement. The pavement smoothness deduction for change orders is based on target MRI 60 plus 20 MRI with a maximum deduction of \$2,850 per 0.1-mile. Therefore, for an existing pavement with MRI_{EXIST} less than 165 inches per mile the no correction deduction range is 60–80 MRI. Mandatory pavement smoothness corrections are required for MRI values greater than 80 MRI. For an existing pavement segment that exceeds 165 inches per mile MRI the new target MRI will be based on a percent improvement formula and the deduction range established based on the new target MRI plus 20 MRI. Mandatory corrections are required for MRI values greater than $MRI_{TARGET} + 20$ MRI.

There should be no contract time extension for implementing the contractor requested change order. Attached to this directive are a sample change order memorandum, sample change order, and a Federal Highway Administration (FHWA) blanket prior approval for allowing deductions for 0.1-mile segments that do not meet the specified MRI requirement for pavement smoothness. This directive serves as the delegation of authority from the Division of Construction and approval from FHWA for change orders implemented under its requirements.

If you have questions or comments regarding this directive, please contact Pete Spector, Division of Construction, at Pete.Spector@dot.ca.gov or (916) 227-7306.

Attachments:

1. Sample Form CEM-4903, “Change Order Memorandum”
2. Sample Form CEM-4900, “Change Order”
3. FHWA “Record of Blanket Prior Approval for Major Contract Change Order”