



Montana Department of Transportation

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VISION ZERO

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zero serious injuries

Memorandum

To: e-distribution
see listing below

From: Roy A. Peterson, P.E. *IBU for RAP*
Traffic and Safety Bureau Chief

Date: June 26, 2019

Subject: Pavement Marking Quantities

This design memo will update and replace the March 28, 2019 design memo titled "Pavement Marking Quantities".

Background

Interim and final Pavement Marking Quantities (PMQs) are provided by the Traffic Design Section for all MDT projects involving new roadway surfacing, from reconstruction to pavement preservation. Temporary pavement markings (temporary striping) are calculated by Road Design and are paid by the road mile. These quantities are included in the summary frames; Road Design is responsible for populating these frames and including the quantities in the cost estimate.

Issues

Interim and Final PMQs: Road Design and Construction staff determine construction sequencing, best practices, and the appropriate number of interim paint applications for each project. The iterative process of requesting additional applications of paint and corresponding quantities from the Traffic Signing staff causes unnecessary delays and at times confusion for designers and construction.

Temporary Striping: Temporary centerline striping is currently paid by the mile of stripe applied, measured once per application, and is independent of the striping configuration required. Conflicts arise when the striping configuration required by the EPM is different than that which the contractor assumed when bidding, resulting in more waterborne paint (or tape) per application than anticipated. This compounds if additional applications are required.

Solution

To provide flexibility and a single point of contact throughout the design and construction process, Traffic Signing will provide one application of interim and one application of final PMQs for every project. Road Design will then work with Construction to determine the appropriate number of applications for each project and will include the total final gallons in the summary sheet and cost estimate. The number of applications will be noted at the

bottom of the frame. As this change affects quantities only (not method of measurement), it is effective immediately.

Beginning with the November 2019 letting, Temporary Striping will be measured and paid for by the foot (meter) to accurately capture the quantity paid for when stripe configurations are changed during construction. It will be measured to the nearest foot (0.1 m) based on a 4" (100 mm) width. Stripes wider than 4" will be converted to the equivalent linear feet of 4" wide stripe. Traffic Signing staff will provide the lineal feet of 4" striping required for centerline and other lane divider markings based on the final pavement marking configuration. Road Design will remain responsible for providing temporary paint marking estimated quantities and costs. For calculating the lengths of temporary striping that is different than the final configuration, use the following formulas for each application:

Length of rural skip stripes (feet) = length of roadway segment (feet) x 0.25

Length of urban skip stripes (feet) = length of roadway segment (feet) x 0.375

Length of no passing one direction (ft) = length of roadway segment (ft) x 1.25

Length of no passing both directions (ft) = length of roadway segment (ft) x 2

Length of 8" lane divider (ft) = length of roadway segment (ft) x 2

For all projects bid with Temporary Striping measured by the foot, use the new bid item 620 012 955 TEMPORARY STRIPING. From conversion of recently awarded projects, the price per foot of stripe is estimated to vary from \$0.35 to \$0.70 per foot or more, depending on the total quantity. Until a bid history is established, an estimated cost per foot of around \$0.50 is reasonably close for all projects.

MDT's pavement marking frame, Road Design Manual, and Standard Specifications sections 618.05 620.04, and 620.05 will be modified to reflect these changes.

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