

## ITEM 665

### WORK ZONE PAVEMENT MARKINGS

665.1 Description. This Item shall govern for the placement and maintenance of work zone pavement markings, of the colors, types and sizes as shown on the plans.

665.2 General. Work zone pavement markings shall consist of guidemarks, short term markings and/or standard pavement markings. All roadways to be opened to traffic shall be marked with short term markings or standard markings, as shown on the plans, at the end of each day's operation.

When inclement weather prohibits the application of short term markings or standard markings as called for on the plans, upon approval by the Engineer, guidemarks may be considered as temporary short term markings for asphaltic surfaces. The placement of pavement markings as shown on the plans may be delayed until such time that weather permits application of pavement markings.

665.3 Materials. Unless otherwise shown on the plans, materials used for work zone pavement markings shall be paint and beads, raised pavement markers, prefabricated pavement marking material, temporary flexible-reflective roadway marker tabs or other materials approved by the Engineer.

Paint and beads shall not be used for removable markings.

Unless otherwise shown on the plans, temporary flexible-reflective roadway marker tabs shall be used as short term work zone pavement markings for surface treatments.

Unless otherwise shown on the plans, the Contractor shall have the option to use raised pavement markers to simulate standard markings in accordance with the plans. However, the Contractor shall be required to use temporary raised pavement markings (buttons) where application of temporary markings is to be on permanent pavement surfaces. Longitudinal lines wider than four (4) inches may be simulated by the side-by-side placement of markers to increase the apparent line width in multiples of four (4) inches.

Unless otherwise shown on the plans, removable work zone pavement markings on final pavement surfaces shall be removable tape conforming to Texas Department of Transportation (TxDOT) Materials Specification D-9-8241. When raised reflective pavement markers are required by the plans to supplement the removable pavement markings, a marker shall be applied to the top of the tape at the approximate mid-length of tape used for broken lines and at approximately 20 foot spacings for solid lines.

Unless otherwise shown on the plans, raised pavement markers will not be allowed for words, symbols, and shapes, diagonal or transverse lines.

Unless otherwise shown on the plans, paint shall be water-based. Paint shall conform to Item 676, "Traffic Paint (Water Based)". Beads shall conform to Item 662, "Glass Reflective Spheres for Traffic Paint".

665.4 Performance Requirements. Markings in construction areas shall remain in proper alignment and shall be distinctly visible when dry from a minimum distance of 300 feet in daylight conditions and from a minimum of 160 feet when illuminated by automobile low-beam headlights at night. Visibility distances will be determined when viewed from an automobile traveling on the roadway.

The daytime color as well as the nighttime reflected color of the markings shall be distinctly white or yellow as shown on the plans. The markings shall exhibit uniform retroreflective characteristics.

665.5 Construction Methods.

1. Placement and Maintenance. The Contractor shall exercise diligence in the selection of materials and placement of work zone pavement markings. Work zone pavement markings shall be maintained, in accordance with this Item, by the Contractor and at the expense of the Contractor to the satisfaction of the Engineer.

Unless otherwise approved in writing by the Engineer, all concrete surfaces shall have standard markings in place prior to opening to traffic.

All asphaltic surfaces which are to be opened to traffic shall be marked with guidemarks immediately following placement and final rolling of any course. Guidemarks shall consist of a single temporary flexible-reflective roadway marker tab or a single temporary construction raised reflective pavement marker at 40 foot spacings.

Guidemarks shall be placed in proper alignment with the final location of future standard markings. Any guidemarks not in alignment with standard markings shall be removed by the Contractor at the Contractor's expense.

Standard pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.

Surfaces to receive surface treatments shall be marked in accordance with the plans. Unless otherwise shown on the plans, standard pavement markings in accordance with the TMUTCD shall be placed

no sooner than three (3) days nor later than two (2) weeks after the placement of the surface treatment.

When short term markings are required by the plans, short term markings shall conform with the TMUTCD and details as shown on the plans. Unless otherwise shown on the plans, short term markings shall be removed immediately prior to placement of final pavement markings.

2. Marking Removal. Work zone pavement markings placed by the Contractor that conflict with any succeeding work zone markings shall be removed by the Contractor at the Contractor's expense in accordance with Item 674, "Removing Pavement Striping and Markings", except for measurement and payment.

Removable marking materials, when removed, shall have minimal evidence of the marking having been in place.

665.6 Measurement. This Item will be measured by the linear foot of standard marking or short term marking, by each guidemark, by each word, shape or symbol, by each temporary flexible-reflective roadway marker tab on surface treatments or by any other unit as shown on the plans. Raised pavement markers used to simulate a stripe will be measured by the linear foot of simulated stripe or each raised pavement marker as shown on the plans. Where double stripe are placed, each stripe will be measured separately.

665.7 Payment. The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Work Zone Pavement Markings (Removable)", "Work Zone Pavement Markings (Non-removable)", "Work Zone Pavement Markings (Short Term)" and "Work Zone Pavement Markings (Guidemark)" of the width, color and type shown on the plans. This price shall be full compensation for furnishing all materials, labor, tools, equipment and incidentals necessary to place, maintain and remove, when required, the markings, except as shown below.

Where temporary raised pavement markers (buttons) are installed, they shall be paid for by "each".

Removal of existing markings will be paid for under Item 674, "Removing Paint Striping and Markings".

Final work zone pavement markings (paint and beads) which will be used within 30 calendar days after application as a sealer for Type I pavement markings will not be paid for under this Item, but will be paid for under Item 660, "Reflectorized Pavement Markings".

END OF ITEM 665