

## ATTACHMENT A

### **Proposed Changes to Allow Roadway Milling and Alternative Delineation in Wet Conditions Supplemental Information Related to the Application of Temp. Double Pavement Markings**

**Purpose:** The purpose of Attachment A is to provide supplemental information and guidance related to the application of temporary double markings as an alternative delineation during roadway milling in wet conditions. This document is intended to provide engineering guidance and serve as engineering justification for use in review of Contractor submittals of Temporary Traffic Control plans with temporary double pavement markings in select locations and select scenarios.

**Background:** Application of temporary double pavement markings on a roadway centerline is being proposed by Contractors on select projects as a preemptive measure that would allow for continued milling of the roadway in wet conditions. The general sequence of activities for this preemptive measure would be to identify potential weather days by utilizing National Oceanic & Atmospheric Administration (NOAA) resources, preemptively apply temporary pavement markings that are offset from the existing centerline prior to the start of inclement weather, followed by milling. The milling operation would then remove one set of the pavement markings, leaving the temporary markings in place.

It is recognized that halting or preventing milling in inclement weather has the potential to create construction delays on multiple projects. However, the safety of the workers and of the traveling public is of utmost importance and the use of alternative delineation, specifically the application of temporary double pavement markings must be done in a manner that maintains safe and consistent work zones. The State of Vermont has adopted the Manual on Uniform Traffic Control Devices (MUTCD) as its' standard in all facets of the use of traffic control devices.

The MUTCD defines a Temporary Traffic Control (TTC) Zone within Section 6C.02, stating that "a work zone is an area of a highway with construction, maintenance, or utility work activities," further stating that "a work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or high intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last TTC device." **The application of double markings will only be considered within a temporary traffic control zone as defined above.** The MUTCD within Chapter 6G. Types of Temporary Traffic Control Zone Activities presents several common typical applications of TTC zones; however, it is noted that "each TTC zone is different. Many variables, such as location of work, highway type, geometrics, vertical and horizontal alignment, intersection, interchanges, road user volumes, road vehicle mix (buses, trucks and cars), and road user speeds affect the needs of each zone. The goal of TTC in work zones is safety with minimum disruption to road users. The key factor in promoting TTC zone safety is proper judgement." The MUTCD provides further guidance noting that "typical applications should be altered, when necessary, to fit the conditions of a particular

TTC zone” and that “other devices may be added to supplement the devices shown in the typical applications, while others may be deleted...” These statements reinforce that there are numerous scenarios and site characteristics that impact TTC zones, and that Engineering Judgement must be utilized in layout as well as the selection of devices to ensure a safe TTC zone. Weather conditions are a factor that may be considered as a condition of a particular TTC zone. Section 6G.02 Work Duration defines five categories of work duration. **VTrans will limit the use of temporary double pavement markings to the timelines presented within this document for select intermediate-term stationary, short-term stationary, short duration, or mobile work duration categories.** The application of TTC double pavement markings is described within Section 6F.71 Pavement Markings and Section 6F.72 Temporary Pavement Markings, which indicates that “markings should be provided in intermediate-term stationary work zones” and notes that “pavement markings in the temporary traveled way that are no longer applicable shall be removed or obliterated as soon as practical...”

While the use of double pavement markings is not directly addressed within the MUTCD, VTrans has considered the language described above and the needs on the transportation network and will allow their use at select locations and within select scenarios as described previously and below. The MUTCD defines standard pavement markings and the prescribed meaning of those markings. The temporary pavement markings described below are not standard pavement markings however their temporary use will allow for continued delineation and conveyance of intent.

- The Contractor shall actively monitor weather forecasts utilizing NOAA resources and develop their milling and associated pavement marking plan accordingly. As noted above, markings that are no longer applicable shall be removed or obliterated as soon as practical. VTrans is defining “as soon as practical” as 48 hours maximum, meaning that temporary double markings should be applied as close to the milling operation as possible and may be in place for no more than 48 hours.
- The Contractor shall utilize temporary double pavement markings that resemble the existing striping in width, geometric layout, and configuration, meaning a **double yellow centerline must be recreated as a duplicate double yellow centerline.** In the event passing zones are present in **any two-lane sections, the existing dashed yellow lines which divide the direction of travel shall be covered with double yellows prior to any offset.**
  - In the event that a double yellow centerline cannot be applied due to restrictions in available width, painting of an additional single yellow centerline may be allowed so that after milling operations a double yellow marking remains. The remaining double yellow marking shall meet the requirements for that standard marking including marking width and marking gap. Width restrictions must be documented in the TTC plan submittal.

- The use of temporary double white dashed lane delineation may be allowed in select locations including lower traffic volume interstate and lower traffic volume divided and undivided multi-lane roadways.
- The lateral/offset spacing of any temporary markings installed shall be determined by the Contractor based on the available cross section of the project and anticipated milling pattern for the roadway. The marking offsets shall take into consideration the appearance of the markings at all stages of installation and removal where traffic may be operating on that portion of the roadway such that the markings are not ambiguous with regard to how many lanes are in operation and any/all other aspects of safe use of the roadway. While non-standard marking configurations may be allowed, clear communications with road users to ensure the safety of the roadway remains critical to the safety of the TTC plan.
- The use of **temporary double pavement markings will not be allowed through signalized intersections, other intersections with significant turning traffic, or on corridors/locations that have turning lanes or two-way left turn lanes.**

The use of temporary double pavement markings will be evaluated over the 2023 construction season and will inform content and requirements of future temporary traffic control plans. The Agency reserves the right to deny any requests based on road type, traffic volume, or other characteristics. Approval to utilize temporary double markings to allow milling in wet conditions shall not be construed as authorizing work when weather conditions make such work unsafe.