



U.S. Department
of Transportation
**Federal Highway
Administration**

DEC 12 2011

1200 New Jersey Ave., SE
Washington, D.C. 20590

In Reply Refer To:
HOTO-1

Mr. Jerry Kotzenmacher
Signals/ITS Section
Minnesota Department of Transportation
Via email: jerry.kotzenmacher@state.mn.us

Dear Mr. Kotzenmacher:

Thank you for your email of November 18 to Mr. Scott Wainwright of our staff requesting an Official Interpretation of the Manual on Uniform Traffic Control Devices (MUTCD) regarding whether a shared left-turn signal face may be used for a shared left-and-through lane in a variable mode left-turn operation. Specifically, "split-phase" operation would be used during the peak periods and protected-permissive or permissive-only left-turn mode (with flashing yellow arrow as the permissive turn display) would be used in off-peak periods, while the lane-use would remain constant. The shared signal face would consist of five sections and be capable of displaying a total of six indications, via a "dual arrow" section that can alternate between steady green left-turn arrow and flashing yellow left-turn arrow.

We have reviewed the animations of the signal sequences that were included with your request. It is our Official Interpretation that, when variable-mode left-turn phasing is used for an approach with a shared left-and-through lane and flashing yellow arrow is used as the permissive turn display, a 5-section "shared left-turn signal face" containing both circular and arrow indications may be used in combination with one or more separate left-turn signal faces for the exclusive left-turn lane(s) on the same approach. Under these phasing and lane-use conditions, the shared face may be used despite certain language in Sections 4D.17 through 4D.20 that would seem to preclude such use. The shared face shall in this case be comprised of five sections and be capable of displaying a total of six indications, via a "dual arrow" section that can alternate between steady green left-turn arrow and flashing yellow left-turn arrow. Our reasoning for this interpretation is as follows:

When the left-turn lanes on an approach are all exclusive turn lanes, meeting the provisions of Sections 4D.17 through 4D.20 applicable to the displays for each mode used in a variable mode operation is straightforward and can generally be met with a four-section all-arrows signal face for each exclusive turn lane. However, with a shared left-and-through lane, providing the signal indications applicable to both of the allowable movements in that lane during the multiple modes would necessitate either two signal faces (one for left turns and one for the through movement) for that one lane or a single shared face containing indications applicable to both movements (circular and arrows.)

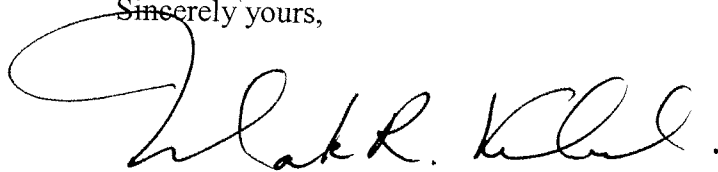
Providing two signal faces for the shared left-and-through lane is undesirable because of the small lateral separation between them in a typical overhead mounting and because the unconventional multiple-face display for a single lane could be confusing. A single shared face for the shared left-and-through lane is the most reasonable and practical display for the condition, even though it would violate certain provisions in Sections 4D.17 through 4D.20. Those sections were written without taking into account the conditions present in a variable mode operation with a shared left-and-through lane. Our review of your animations indicates that the shared face display would not present a confusing situation for road users under these conditions. Further, your correspondence indicated that you have had this type of display in operation at a variable mode shared left-and-through lane location for several months without any observable issues.

In Section 4D.17, paragraph 8 does recognize that variable mode left-turn operation can make it necessary to compromise some of the specific provisions applicable to the displays that are required for individual non-variable modes. We believe that the five-section shared face for the shared left-and-through lane is a reasonable compromise to provide clear and unmistakable indications to drivers making both movements from the shared lane in a variable mode operation.

The limitation of a maximum of five sections in any signal face can create challenges for providing the specific signal indications needed for multiple modes. Use of a “dual arrow” section capable of alternately displaying steady green arrow and flashing yellow arrow indications is the appropriate solution. This type of dual arrow display is also allowed under other special conditions, such as outlined in Section 4D.25 for the special case of a shared left-right lane with no through lane, and when height limitations make a four-section all-arrows face impractical (Section 4D.20, paragraph 3, item H).

Thank you for bringing this matter to our attention. Please note that we have assigned your request the following official interpretation number and title: “4(09)-15 (I) - Variable Mode Left-Turn Display (Shared Lane).” Please refer to this number in any future correspondence regarding this issue.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Mark R. Kehrl". The signature is fluid and cursive, with a large initial "M" and a distinct "K".

Mark R. Kehrl
Director, Office of Transportation
Operations