

Number: 25-01

Proposed Title: Improved Safety and Efficiency of Protected/Permitted Right-Turns in Oregon

1. Concisely describe the **transportation issue** (including problems, improvements, or untested solutions) that Oregon needs to research.

Permissive left turns that do not have a left turn only lane have only one approved signal head configuration that is acceptable as per the MUTCD section 4D.18 (a *shared* signal face with RED, YELLOW, GREEN circular balls). The flashing yellow arrow for a *separate* left turn signal face has proven to be more effective/intuitive for a driver making a permissive left turn (vs. the green circular ball with R10-12 yield on green ball sign), but there is no research on if a flashing yellow arrow in a shared signal face would provide the same benefits.

Current solutions to address yielding behavior concerns with an existing permissive left turn that does not have a left turn only lane are limited and are either very expensive (e.g., adding a left turn only lane) or can have unacceptable operational consequences (e.g. split phasing or prohibiting the left turn) which can lead to other safety concerns such as excessive queueing. Having an easy/low-cost solution to retain the permissive only phasing by using a more effective/intuitive signal head indication should help address yielding behavior safety concerns when other solutions are not feasible or will take an extended amount of time to implement.

2. Document how this **transportation issue** is important to Oregon and will meet the Oregon Research Advisory Committee Priorities

Traffic control devices that are intuitive and uniform improve safety (result in the correct driver response and a reduction in crashes/near-misses). Research to determine if the flashing yellow indication used in a shared signal face is more effective/intuitive than the current MUTCD section 4D.18 requirements would provide valuable information for developing future traffic signal indication standards. The proposal addresses the following proposal evaluation focus areas:

- Safety - Main goal is to determine if this signal head results in more correct driver responses than the current standard signal head, which in turn would reduce the number of crashes/near-misses.
- Cost reduction and saving to construction, operations, and asset maintenance – If this signal head performs favorably, the safety benefit/cost ratio of implementing it is high.
- Innovative technologies and systems – Oregon is a leader in using the flashing yellow arrow in signal head displays and our experiences have helped shape national policy (MUTCD). Evaluating this signal head would further shape ODOT’s policy and design standards as well as national policy.

3. What **final product or information** needs to be produced to enable this research to be implemented?

Need survey and driver simulator data/info about the effectiveness/intuitiveness of the following proposed new shared signal head (see figure 1 below showing “new type” of signal head). Does this signal head result in better yielding behavior of left turning vehicles vs. the current standard (see figure 2)? Possibly look at other shared signal head configurations using a flashing yellow arrow.

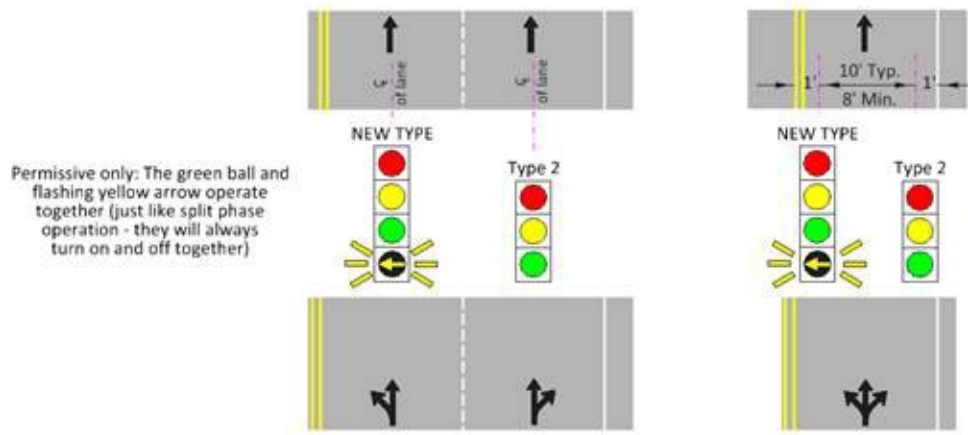


Figure 1 – proposed new type of signal head with flashing yellow arrow (permissive only left turn, no separate left turn lane).

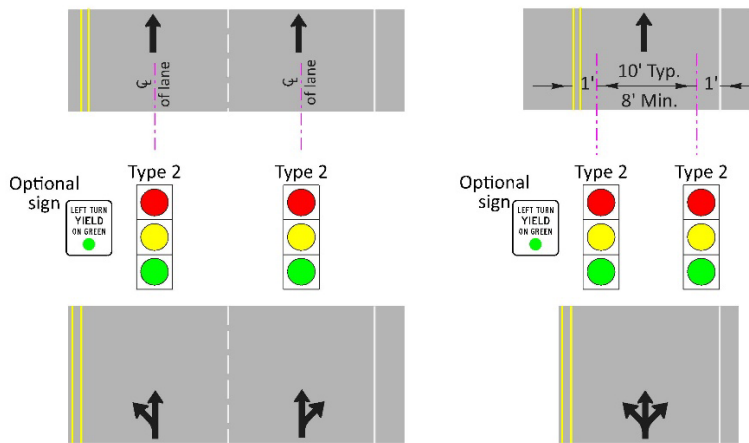


Figure 2 – Existing signal head standard (permissive only left turn, no separate left turn lane)

4. Are there any individuals in Oregon who will be instrumental to the success of implementing any solution that is identified by this research? If so, please list them below.

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5. Other comments:
N/A

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