



Updates on ODOT implementation of Highway Safety Manual & 2009 MUTCD

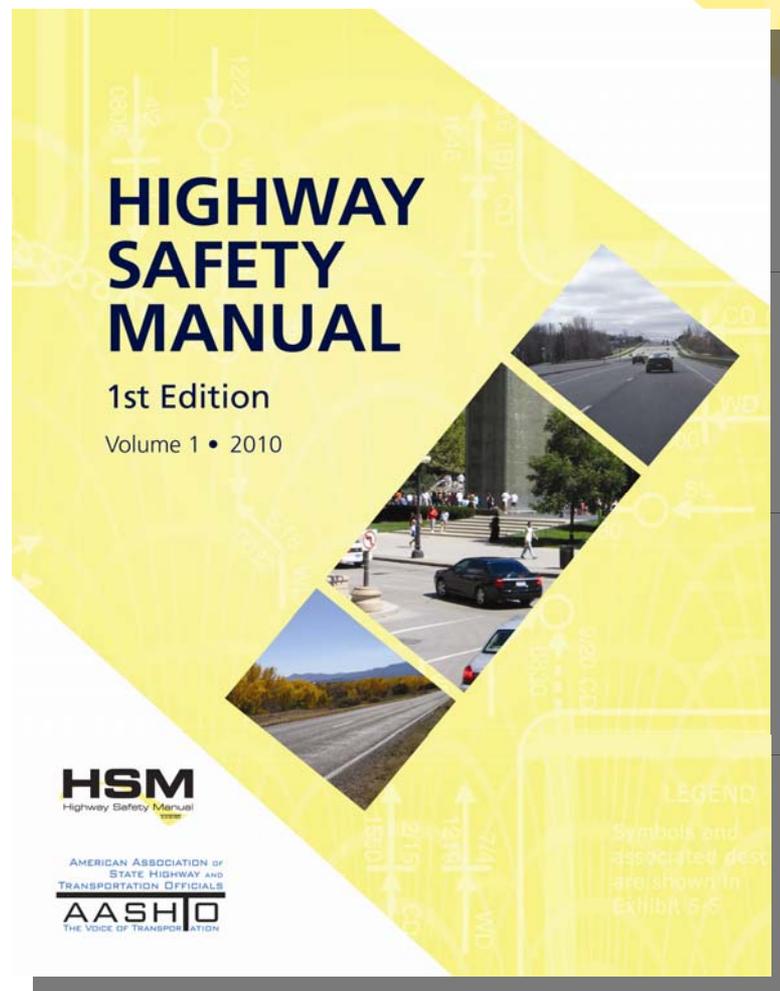
Kevin J. Haas, P.E.

ODOT Traffic Investigations Engineer



HIGHWAY SAFETY MANUAL

“Road safety management is in transition. The transition is from action based on experience, intuition, judgment, and tradition, to action based on empirical evidence, science, and technology...”





Design



Existing Conditions



Alternative 1

Alternative 1



Alternative 2

Alternative 2



Alternative 3

Alternative 3

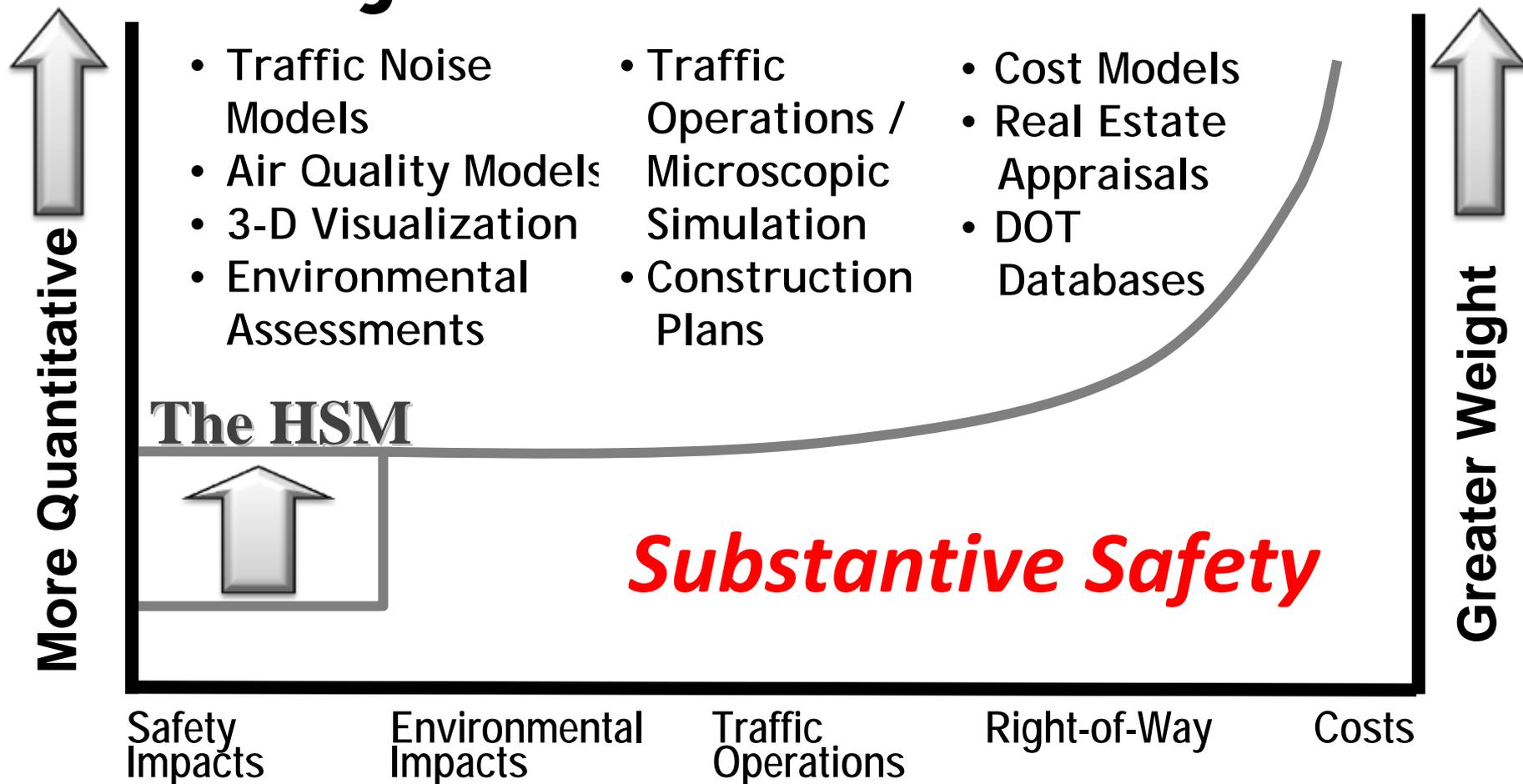


Highway Safety has Two Dimensions



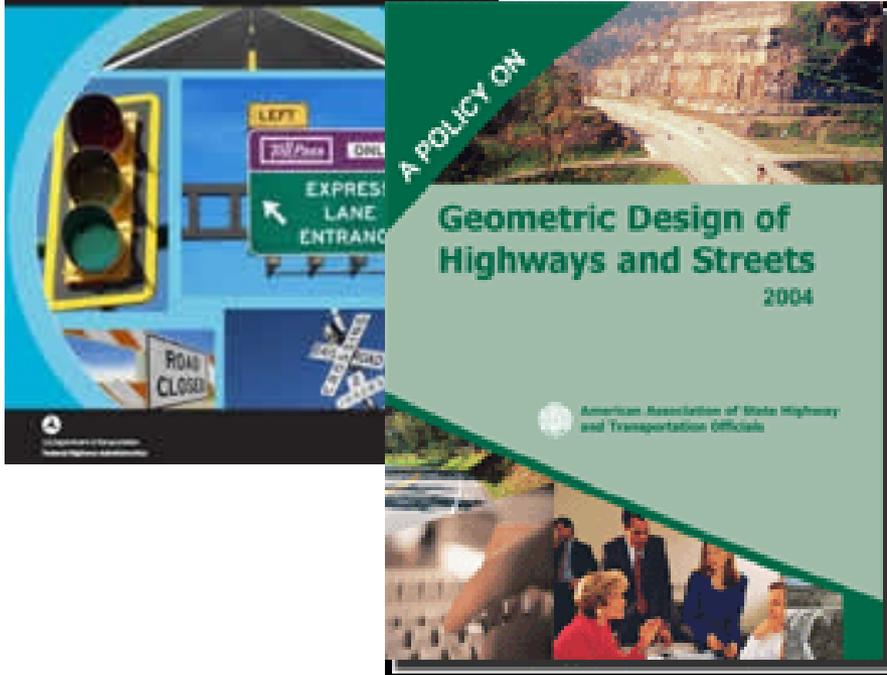


Common Impacts for Project Level Decisions?

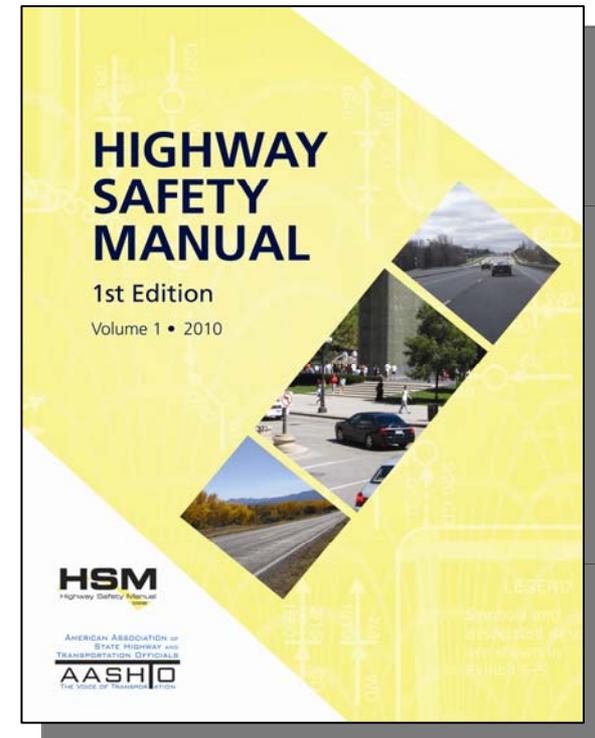




The HSM and Other Documents



Versus





Legal Context

Protected
Under
Federal Law
23 USC 409





The HSM Does NOT

- Establish a legal standard of care
- Create a public duty
- Set requirements or mandates
- Establish design/operation best practices
- Contain warrants or standards
- Supersede other publications

Professional Support

- TRB/AASHTO Joint Subcommittee
- HSM Task Force
- Thousands of volunteer hours
- NCHRP, AASHTO, FHWA resources





VS



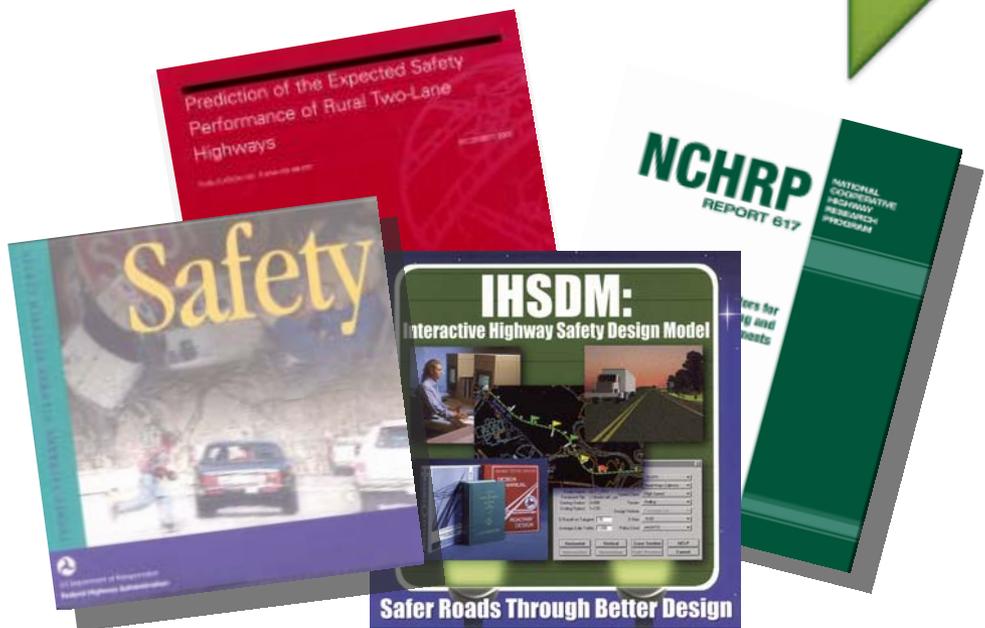


Advance Safety Knowledge

Descriptive



Predictive



Safer Roads Through Better Design



Vol. 1 (Part A)

**Introduction
Human Factors
Fundamentals**

Vol. 3 (Part D)

**Crash Modification
Factors (CMFs)**



Vol. 1 (Part B)

**Roadway Safety
Management
Process**

Vol. 2 (Part C)

Predictive Method

ODOT next steps

- Buy copies of the HSM for your office so you can become familiar with its contents
 - CAUTION: It's expensive - \$325 per copy
- Take advantage of HSM training opportunities
 - OSU continuing education through Kiewit Center
 - ODOT 1-day training being rolled out to Region Technical Centers



HSM Resources & Contacts

- HSM Website www.highwaysafetymanual.org
- ODOT
 - Kevin Haas: Kevin.J.Haas@odot.state.or.us
 - Doug Bish: Douglas.W.Bish@odot.state.or.us
- OSU & PSU Faculty involved in the HSM
 - Karen Dixon, OSU, Karen.Dixon@oregonstate.edu
 - Chris Monsere, PSU, monsere@pdx.edu

2009 MUTCD

Update on Oregon Implementation

Manual on Uniform Traffic Control Devices

for Streets and Highways

2009 Edition



ODOT Roadway Conference – April 26, 2011

Kevin J. Haas, P.E. – ODOT Traffic Investigations Engineer

Federal rules & Oregon statutes governing the MUTCD



ORS 810.200



(Traffic Control Devices)

810.200 Uniform standards for traffic control devices; uniform system marking and signing highways. (1) The Oregon Transportation Commission has the following authority with respect to the marking, signing and use of traffic control devices in this state:

(a) The commission shall adopt a manual and specifications of uniform standards for traffic control devices consistent with the provisions of the vehicle code and specifications of uniform standards for traffic control devices upon highways in this state.

OAR 734-020-0005



734-020-0005

Manual on Uniform Traffic Control Devices

(1) In accordance with ORS 810.200, the **2003 Edition of the Manual on Uniform Traffic Control Devices** with Revision no. 1 dated November 2004 (U.S. Department of Transportation, Highway Administration) is hereby adopted by reference and specifications of uniform standards for traffic control devices upon highways within this state.

(2) The **Oregon Supplement to the Manual on Uniform Traffic Control Devices** dated July 2005 is hereby adopted by reference.



18 Each Section is comprised of one or more paragraphs. The paragraphs are indented and are identified by a number. Paragraphs are counted from the beginning of each Section without regard to the intervening text headings (Standard, Guidance, Option, or Support). Some paragraphs have lettered or numbered items. As an example of how to cite this Manual, the phrase “Not less than 40 feet beyond the stop line” that appears in Section 4D.14 of this Manual would be referenced in writing as “Section 4D.14, P1, A.1,” and would be verbally referenced as “Item A.1 of Paragraph 1 of Section 4D.14.”

Standard:

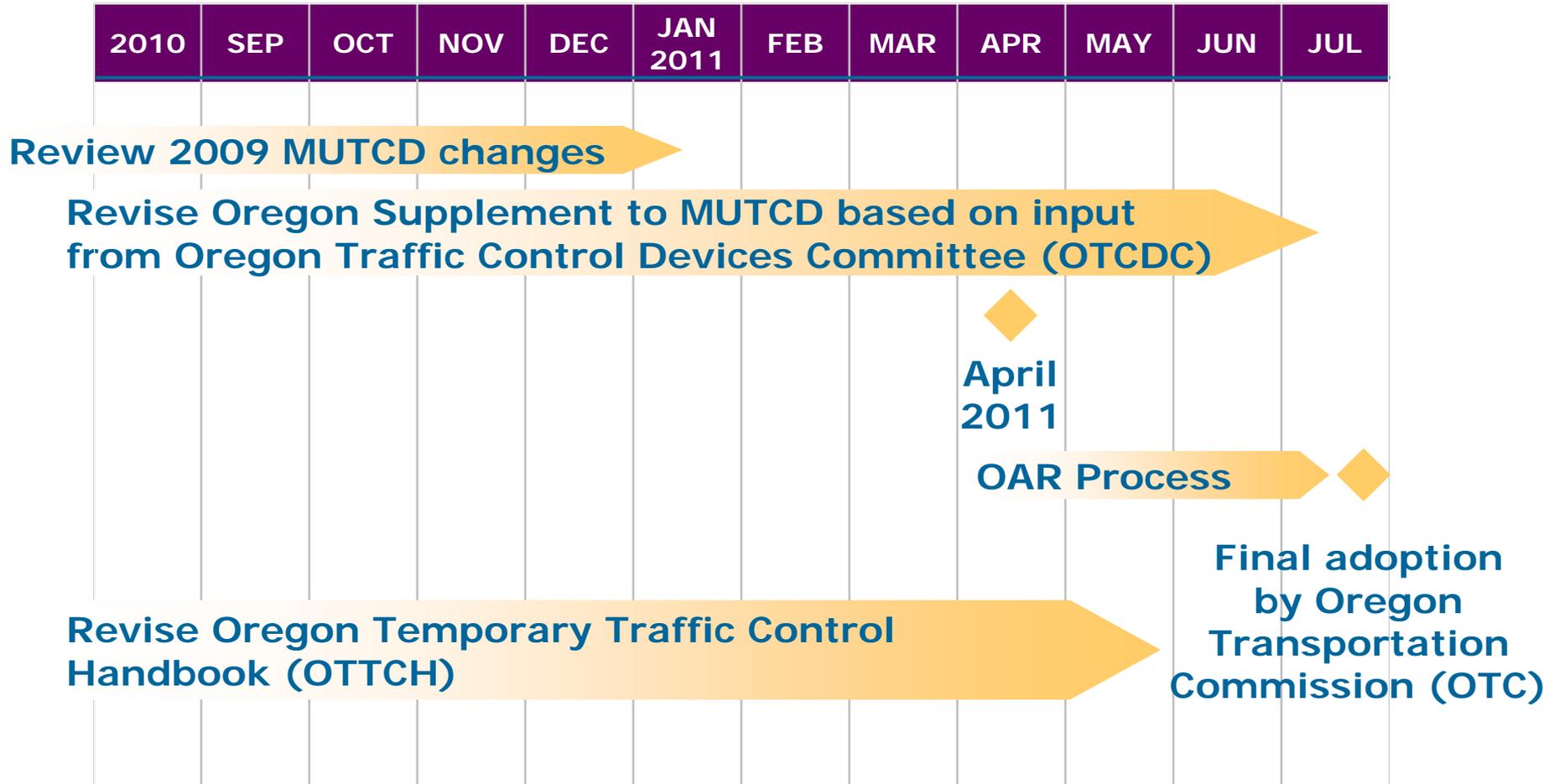
19 **In accordance with 23 CFR 655.603(b)(3), States or other Federal agencies that have their own MUTCDs or Supplements shall revise these MUTCDs or Supplements to be in substantial conformance with changes to the National MUTCD within 2 years of the effective date of the Final Rule for the changes. Substantial conformance of such State or other Federal agency MUTCDs or Supplements shall be as defined in 23 CFR 655.603(b)(1).**



Federal regulations require all States to adopt the 2009 MUTCD & Supplements within 2 years



Oregon Supplement to the 2009 MUTCD Timeline



Summary of major changes in the 2009 MUTCD



Paragraphs are numbered!

Guidance statements are *italicized*

Section 4B.01 General

Support:

- 01 Words such as pedestrians and bicyclists require sensitivity to these elements of “traffic.”
- 02 Standards for traffic control signals are based on the needs of a variety of road users, including those who are fatigued or distracted, or who are not expected to be

Section 4B.02 Basis of Installation or

Guidance:

- 01 *The selection and use of traffic control signals should be based on the basis of installation or other conditions.*

Support:

- 02 A careful analysis of traffic operations at locations of signalized and unsignalized locations, including warrants, described in Chapter 4C, that determine if traffic signals might be justified.

Guidance:

- 03 *Engineering judgment should be applied to determine if traffic signals are warranted.*



Compliance Dates

- New installations, replacements, rebuilds – must comply immediately
- New Table I-2 with specific compliance dates to retrofit or replace existing devices to meet 11 of the new Standards in the 2009 MUTCD

Table I-2. Target Compliance Dates Established by FHWA (Sheet 2 of 3)

2009 MUTCD Section Number(s)	2009 MUTCD Section Title	Specific Provision	Compliance Date
2C.50	Non-Vehicular Warning Signs	Elimination of crosswalk lines from crossing signs and use of diagonal downward pointing arrow (W16-7P) supplemental plaque if at the crossing (2003 MUTCD Section 2C.41)	January 17, 2011 (a)(b)
2C.61	PHOTO ENFORCED Plaque (W16-10P)	New plaque (2003 MUTCD Section 2C.53) (*)	December 22, 2013 (b)
2C.63	Object Marker Design and Placement Height	Width of stripes on Type 3 striped marker (2003 MUTCD Section 3C.01)	December 22, 2013 (b)
2D.43	Street Name Signs (D3-1 or D3-1a)	6-inch letter height for lettering on post-mounted Street Name signs (except on multi-lane streets with speed limits greater than 40 mph) (2000 MUTCD Section 2D.38)	January 9, 2012 (a)
2D.43	Street Name Signs (D3-1 or D3-1a)	8-inch letter height on post-mounted signs on multi-lane streets with speed limits greater than 40 mph and 12-inch letter height on overhead signs (2003 MUTCD Section 2D.38)	December 22, 2018 (b)
2D.44	Advance Street Name Signs (D3-2)	Requirements of new Section 2D.39 in the 2003 MUTCD	December 22, 2018 (b)
2D.45	Signing on Conventional Roads on Approaches to Interchanges	New requirement in the 2009 MUTCD for multi-lane approaches to interchanges to have guide signs to identify which direction of turn is to be made for access to each direction of the freeway or expressway	December 31, 2019

Previously-established dates

New compliance date in 2009 edition



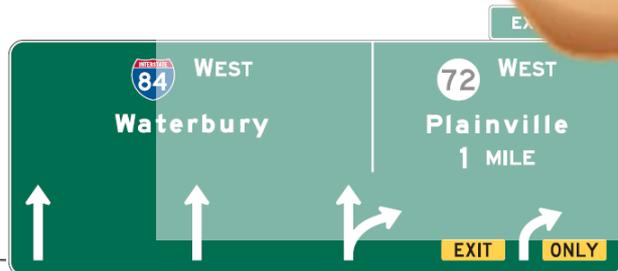
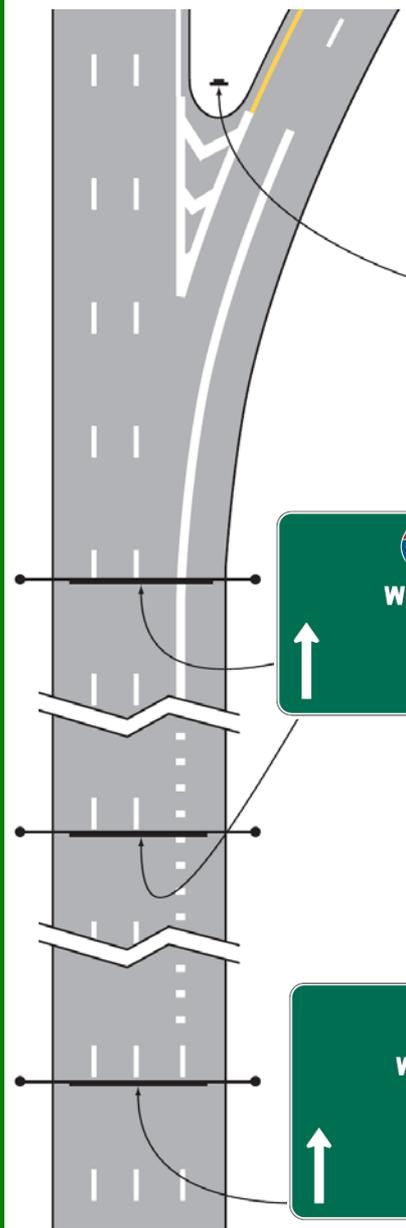
Application of horizontal alignment signs based upon curve differential speed

Table 2C-5. Horizontal Alignment Sign Selection

Type of Horizontal Alignment Sign	Difference Between Speed Limit and Advisory Speed				
	5 mph	10 mph	15 mph	20 mph	25 mph or more
Turn (W1-1), Curve (W1-2), Reverse Turn (W1-3), Reverse Curve (W1-4), Winding Road (W1-5), and Combination Horizontal Alignment/Intersection (W10-1) (see Section 2C.07 to determine which sign to use)	Recommended	Required	Required	Required	Required
Advisory Speed Plaque (W13-1P)	Recommended	Required	Required	Required	Required
Chevrons (W1-8) and/or One Direction Large Arrow (W1-6)	Optional	Recommended	Required	Required	Required
Exit Speed (W13-2) and Ramp Speed (W13-3) on exit ramp	Optional	Optional	Recommended	Required	Required



Overhead Arrow-per-Lane



new or
 option
 ons (major
 changes, splits)
 • provide
 interim
 gore sig (on)



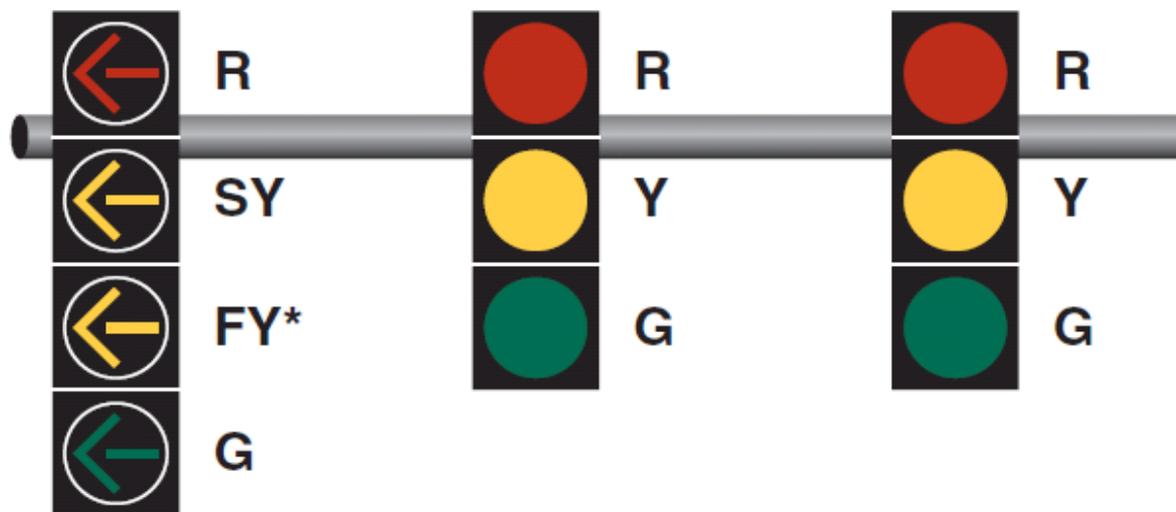


Installed on recent I-405 project in Portland

LEFT plaques required for numbered and non-numbered exits to the left

Chapter 4D

Optional use of flashing yellow arrow for permissive turns



Successfully being used
throughout Oregon

FYG color required for all school warning signs

School Advance Crossing Assembly



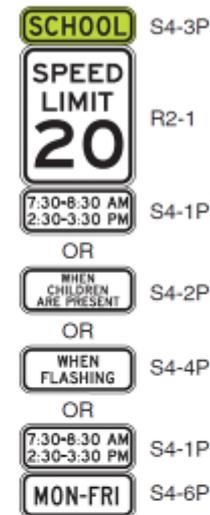
School Crossing Assembly



School Zone Sign



School Speed Limit Assembly



MUTCD Questions?

- **Contact your ODOT expert**
 - **General MUTCD Questions (Kevin Haas)**
 - **Part 2—Signs (Heidi Shoblom)**
 - **Part 3—Markings (Zahidul Siddique)**
 - **Part 4—Signals (Scott Cramer)**
 - **Part 6—Temporary Traffic Control (Scott McCanna)**
 - **Part 8—Highway-Rail/LRT (David Lanning)**

