



***Professional Traffic Operations Engineers™ Certification Program
Refresher Course***

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PD-021B

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**MODULE 1
TRAFFIC ENGINEERING STUDIES**

- Page 7, part 6a(1) Mean (average) speed,

$$\bar{u} = \frac{\sum f_i u_i}{\sum f_i}$$

- Page 9, part 7a, f = side friction factor ($f = 0.27$ at 20 mph to 0.08 at 80 mph)
- Page 20, references:
 1. W. Homburger, et.al. *Fundamentals of Traffic Engineering*, 15th Edition. University of California Berkeley, 2000.

**MODULE 2
TRAFFIC OPERATIONS ANALYSIS**

- Page 44, part 2, change publication reference to *Trip Generation Manual, 7th Edition*
- Page 45, part 3c, change publication reference to *Trip Generation Manual, 7th Edition* (two locations)
- Page 51, references:
 3. McShane, et.al. *Traffic Engineering*, 3rd Edition. Upper Saddle River, New Jersey: Prentice Hall, 2004.
 5. American Association of State Highway and Transportation Officials. *A Policy on Geometric Design of Streets and Highways*. Washington, DC: AASHTO, 2004.
 10. Stover, V.G. and F.J. Koepke. *Transportation and Land Development*. Washington, DC: ITE, 2002.
 11. Institute of Transportation Engineers. *Trip Generation, 7th Edition*. Washington, DC: ITE, 2003.



**MODULE 3
OPERATIONAL EFFECTS OF GEOMETRIC DESIGN**

- Page 76, references:
 1. American Association of State Highway and Transportation Officials. *A Policy on Geometric Design of Streets and Highways*. Washington, DC: ITE, 2004.

**MODULE 4
TRAFFIC SAFETY**

- Page 77, part 3, change to:

“Since 1980, the highway fatality rate has declined from 2.0 to 0.9 fatalities per 100 million vehicle kilometers of travel (3.3 to 1.46 fatalities per 100 million vehicle miles of travel).”

- Page 78, part 3c, change:

The following three types of crashes account for 91 percent of fatalities:

<u>Crash Type</u>	<u>Fatal Crashes Per Year</u>	<u>Percentage of Total</u>
Road Departure	25,321	59%
Intersection	9,213	21%
Pedestrian	4,749	11%

- Page 96, references
 2. safety.fhwa.dot.gov

**MODULE 5
TRAFFIC CONTROL DEVICES**

- Page 100, part 2a, change:

“PIEV times range from 2.5 sec. for general warning signs to 14.5 sec. for signs requiring a high degree of judgment from the driver.”
- Page 101, part 2c, fourth bullet item, change:

“Where a lane is dropped, the warning sign location should provide drivers with 14 to 14.5 sec. of PIEV time.”
- Page 102, part 5d, change:

“Letter sizes in the MUTCD are predicated on the criterion of 40 ft. (12 m) of legibility for each 1 inch (25 mm) of letter height.”



INSTITUTE OF TRANSPORTATION ENGINEERS PUBLICATIONS ERRATA

- Page 104, part 5, change:
“The MUTCD restricts the use of the diamond symbol only to HOV lanes.”
- Pages 105 and 106, part 5, change:
“At least one, and preferably both of these signal faces shall be at least 40 ft (12 m) beyond the stop line and not more than 180 ft (55 m) beyond the stop line (unless a supplemental near-side signal face is provided), and as near as practical to directly in line with the drivers’ normal view.”
- Page 119, references:
 1. *Manual on Uniform Traffic Control Devices for Streets and Highways*. Washington, DC: U.S. Department of Transportation, 2003.

HOME STUDY QUESTIONS

- Page 142, Question 66, change:
Of the following potential safety improvements, which is likely to have the HIGHEST benefit-cost ratio in terms of fatal and injury crash reduction relative to implementation costs?
 - A. New railroad flashing lights and gates.
 - B. Upgraded traffic signals.
 - C. New roadway lighting.
 - D. Upgraded pavement markings and delineators.
- Page 157, answer to Question 66, change:
The correct answer is “C. New roadway lighting.” This is supported by the data in Table 3–3 on page 45 of the ITE *Traffic Safety Toolbox* (1999).