INDIANA DEPARTMENT OF TRANSPORTATION

INTER-DEPARTMENT COMMUNICATION
*Standards Section **C** Room N642*

Writer's Direct Line
232-6775

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DESIGN MEMORANDUM No. 02-07
POLICY CHANGE

TO: **All Design, Operations, District Personnel, and Consultants**

FROM: ***/s/ Anthony L. Uremovich***
Anthony L. Uremovich
Acting Design Policy Engineer
Contracts and Construction Division

SUBJECT: **Effects of 2001 AASHTO *Policy on Geometric Design of Highways and Streets* ("Green Book") on *Indiana Design Manual*, Part V, Road Design**

EFFECTIVE: **See Below**

INTRODUCTION

The 2001 "Green Book" has been issued. Its revisions have had notable effects on the *Design Manual*. Hardcopy revisions of the affected portions of the *Design Manual* have been developed to complement the Green Book changes. When incorporating the new sheets into your copy of the Manual, *do not discard the sheets they supersede,* as they may still be effective for certain design considerations.

These revisions to the *Manual* are effective for new projects with a Start Plan Development date on or after September 1, 2002. For active projects, the less stringent requirements may be used. Existing designs that meet current design criteria need not be changed.

ENGLISH UNITS PROJECTS

Projects developed in English units should continue to be designed in accordance with the criteria shown in Design Memorandum 01-13 Technical Advisory. The memorandum should be used as guidance in determining English equivalents of revised metric values shown in the *Design Manual*.

It is not necessary to obtain a design exception for an element if all of the following criteria are met.

1. Plan development using English units began before September 1, 1995.

2. Design Criteria, excepting intersection sight distance:

   a. 4R. The appropriate design criterion in English units in the 2001 AASHTO "Green Book" is met.

   OR

   b. 3R. The appropriate design criterion in English units in Road Memorandum 95 dated January 2, 1991, is met. Road Memorandum 95 is the English-units equivalent of Design Manual Chapter 55.

3. The designer discloses, in writing, the elements that do not meet the criteria in Design Memorandum 01-13 Technical Advisory, and identifies the relevant criteria in the 2001 "Green Book," including page number references, or Road Memorandum 95. The designer should forward this information to the INDOT reviewer for concurrence. A Design Section Manager must also concur.

SPECIFIC EFFECTS ON DESIGN MANUAL

The following is a listing of the more significant changes.

The passenger car eye height is essentially unchanged from 1.07 m to 1.08 m (3.5 ft). The truck eye height is lowered from 2.45 m (8 ft) to 2.33 m (7.6 ft). The object height for stopping sight distance is raised from 150 mm (6 in.) to 600 mm (24 in.) Longer stopping sight distances are required. The cumulative result of higher object height and longer stopping sight distances is the need for longer sag vertical curves and the permission of shorter crest vertical curves. The required passing sight distance is changed "3%, depending upon design speed. ***Affects tables and text in Chapter 42, "Sight Distance."***

The cross slope of the high-side shoulder of superelevated sections is to be based upon the superelevation rate of the curve, instead of the radius. Regardless of truck counts, the maximum superelevation rate, e_{max}, for low-speed [$\leq$ 70 km/h (45 mph)] urban streets is to be 4% or 6%. *This is less stringent than the existing requirements.* ***Affects curve radii in superelevation tables in Chapter 43, "Horizontal Alignment."***

Different performance curves for trucks are required. The truck power rating is changed from 180 kg/kW (300 lb/hp) to 120 kg/kW (200 lb/hp). This permits longer upgrades and decreases the need for climbing lanes. *This is less stringent than the existing requirements.* ***Affects performance curves diagrams in Chapter 44, "Vertical Alignment."***

Longer intersection sight distance is required where stop control is present for design speed of less than 50 km/h (30 mph). Shorter intersection sight distance is required where stop control is present for design speed of 50 km/h (30 mph) or greater. The intersection sight distance required will be the same for 4R and 3R projects. The difference between the 4R and 3R criteria is the location of the "eye" from edge of the through lane. For 4R projects it is 5.4 m. For 3R projects it is 4.4 m. The designer should always check intersection sight distance for passenger cars and single-unit trucks. In some cases, the designer should also check for combination trucks. ***Affects tables and text in Chapter 46, "Intersections At Grade."***

Control radius at median openings is tightened. Tighter radius effects shorter median opening. ***Affects diagrams in Chapter 46, "Intersections At Grade."***

In the geometric design criteria, reference to DHV is eliminated, AADT ranges are changed, and stopping sight distances are revised due to changed object height. ***Affects tables and text in Chapter 53, "Geometric Design Tables;" Chapter 54, "Geometric Design of Existing Freeways;" and Chapter 55, "3R Non-Freeway Projects."***

SUMMARY

These are general summaries of the Green Book affects on *Design Manual* Part V. The designer is responsible for more closely comparing revised and existing specific information to determine which is the less stringent requirement.

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