



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Design Memorandum No. 18-16 Technical Advisory

August 6, 2018

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

FROM: /s/ Elizabeth W. Phillips
Elizabeth Phillips
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Bridge Design Division

SUBJECT: *Indiana Design Manual Rewrite*

REVISES: *Indiana Design Manual Chapter 48*

EFFECTIVE: Stage 1 submittal on or after September 1, 2018

Indiana Design Manual Chapter 48, interchanges has been rewritten. The chapter number remains unchanged. Guidance should be considered for use on projects currently beyond the effective date.

The revised chapter is available from the *Design Manual* webpage at http://www.in.gov/indot/design_manual/design_manual_2013.htm, Part 3, Chapter 306. Notable revisions are summarized on the following page.

The Interstate Access Programmatic Agreement and Interstate Access Request Procedures are available on the Designers webpage at <https://www.in.gov/indot/2731.htm>, under Road Design.

Contact John Wright with question and comments regarding Interchange geometric design at jwright@indot.in.gov.

Contact Dan McCoy with question regarding Interstate Access Request procedures at dmccoy@indot.in.gov.

Section	Title	Revision Description
48-1.0	Interchanges	Revised section to reflect the Programmatic Agreement for Interstate Access Requests between the FHWA and INDOT.
48-2.02	Interchange Type	Added discussion on interchange types in Indiana.
48-2.02(01)	Diamond Type Interchanges	Discusses 6 types of Diamond Types of Interchanges: Conventional, Compressed, Diverging Diamond, Single Point, Roundabout and Three Level
48-2.02(02)	Cloverleaf	Discussion on two lane loops
48-2.02(03)	Partial Cloverleaf	Defines the five types of partial cloverleaf type interchanges: ParClo-A, ParClo-B, ParClo-AB, ParClo-AB (Two Quad), Single-Loop ParClo
48-3.03	Weave Analysis	Discussion on HCM 2010 Weave Analysis procedure.
48-3.08	Auxiliary Lanes	Combined Sections 48-3.07 Auxiliary Lanes and 48-4.03 Continuous Auxiliary Lanes.
48-3.11	Testing For Ease of Operation	Revised to be in accordance with AASHTO.
48-4.01(03)	Divergence Angle	Defines service interchange divergence angle on single and multi-lane exit ramps.
48-4.01(04)	Deceleration	Defines AASHTO Green Book policy deceleration length on the initial curve.
48-4.01(05)	Sight Distance	Sight Distance approaching the gore nose should exceed Stopping Sight Distance (SSD) by 25% to be in compliance with AASHTO Green Book .
48-4.01(07)	Cross Slope Rollover	At freeway entrances and exits, the maximum algebraic difference between adjacent lanes and gore areas should not exceed 5%.
48-4.01(09)	Exit Gore Area	Gore nose width is a minimum of 20 ft. Slotted drains should not be used in gore areas.
48.4.02(02)	Merge Taper Rates	Merge taper rates on entrance ramps should be 50:1 unless high truck volume, then 70:1.
48-4.02(03)	Acceleration	Entrance ramps have been modified to include the curve approaching the acceleration as part of the acceleration length. Tapered entrance ramps not allowed where high truck volumes exist.
48-4.02(06)	Cross Slope Rollover	At freeway entrances and exits, the maximum algebraic difference between adjacent lanes and gore areas should not exceed 5%.
48-4.03	Multi-Lane Terminals	Discussion on multi-lane taper exit ramp with option lane
48-4.04	Major Fork/Branch Connections	Discussion on Branch Connections merge and lane drop considerations.
48-5.02	Cross Section	For all superelevated ramps, the entire ramp width including shoulders should have the same cross slope.
48-5.02	Cross Section	Curbs may be placed at the edge of roadway of a ramp on a low speed facility if approved by the Department.
48-5.02	Shoulder Width	To allow the reversing of the left and right shoulder widths to provide sight distance on tight curves to the left.
48-5.03(01)	Theoretical Basis	Spiral transitions may be considered on ramp designs only if steep grades, high volumes and sharp curves with maximum super elevation are req'd.
48-5.06	Ramp Locations on a Curve	Considerations for when ramp terminal/junctions are located on a horizontal curve.
48-6.02	Freeway Lane Drops	Deleted Section 48-3.09 Lane Reduction is included in this section. Gives consideration for left side merges in rural section where predominant traffic in right lanes typically are trucks.
48-6.06	Access Control	Revised considerations for access control at interchange terminals with crossroads.