Introduction

- Description of Terms
  - **Superelevation Transition Length** is the distance required to transition the roadway from a normal crown section to full superelevation. Superelevation transition length is the sum of the tangent runout (TR) and superelevation runoff (L) distances.
  - **Tangent Runout** is the distance needed to change from a normal crown section to a point where the adverse cross slope of the outside lane or lanes is removed (i.e., the outside lane(s) is level).
  - **Superelevation Runoff Length** is the distance needed to change the cross slope from the end of the tangent runout (adverse cross slope removed) to a section that is sloped at the design superelevation rate.
Introduction

- Description of Terms (Cont.)
  - **Superelevation Rate** is the amount of cross slope or “banking” provided on a horizontal curve to help counterbalance the centrifugal force of a vehicle traversing the curve.
  - **Relative Gradient or Relative Longitudinal Slope** - In superelevation transition sections on two-lane facilities, the relative gradient between the profile grade and edge of traveled way.
  - **Axis of Rotation** is the line about which the pavement is revolved to superelevate the roadway. This line will maintain the normal highway profile throughout the curve.
  - **Superelevation Rollover** is the algebraic difference (A) between the superelevated travel lane slope and shoulder slope on the outside of a horizontal curve.

Design Methodology

- **Open Roadway Conditions**
  - Open-roadway conditions apply to all rural facilities and all urban facilities where the design speed (V) > 45 mph.
  - Use Figure 43-3A ($e_{max}$ = 8%) to determine Superelevation rate and runoff length.

- **Low Speed Urban Streets**
  - Low-speed urban streets are defined as streets within an urban or urbanized area where the design speed (V) < 45 mph.
  - Use Figure 43-3C to determine Superelevation rate.
  - Use Figure 43-3L to determine Runoff length.

- **Turning Roadway Conditions**
  - Turning roadway conditions apply to turning roadways at intersections at-grade.
Common Mistakes, Errors, and Misconceptions

- Insufficient Gradient on Multi-Lane Roadways. Figures 43-3E & 43-3F

An Example Superelevation Diagram
Common Mistakes, Errors, and Misconceptions

- Insufficient Transition between adjacent reverse curves.

An Example Superelevation Diagram
Common Mistakes, Errors, and Misconceptions (Cont’d.)

- Improper distribution of transition between curve and tangent.
- 80/20 distribution is of “Runout” length only!!
Common Mistakes, Errors, and Misconceptions (Cont’d.)

- Transitioning into an intersecting roadway.
- Failing to show shoulder rollover detail.

Design Exceptions

If proper transition length cannot be met:
- Prepare a Level 1 Design Exception

Justifications
- Low accident History
- Excessive Construction Cost
- Still meets AASHTO
INDOT’s 10 Year construction plan is fully funded
- INDOT will be doubling its new construction budget
- 9% annual increase

This will result in a 1st Class transportation system. Indiana’s competitive advantage in the global economy.
- Largest Biofuel plant in the world to be built in Indiana
- Toyota to add 1,000 new jobs to build Camry’s in Lafayette
Excerpt from *Business First* (a Louisville Business Magazine)

“The revenue from the toll road lease along with federal gas-tax receipts will enable the Hoosier state to pay for every project in its ambitious 10-year plan.”

“That makes Indiana the envy of Kentucky and every other state that routinely develops 10-year road plans without knowing how they will be funded.”

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**Major Move Highlights**

- $3.85 billion upfront payment for the least of the Toll Road by Statewide Mobility Partners (SMP)
- SMP will make more than $4.4 billion in improvements to the Toll Road over the term of the lease.
Major Moves

- How will the proceeds be used?
  - $2.52 billion to Major Moves Construction Fund
  - $1.35 billion to Toll road Counties
    - $875 million for State projects in Toll Road Counties
    - $225 million to pay off existing Toll Road Bonds
  - $100 million for Northwest Indiana Regional Development Authority
  - $100 million for Local Transportation Projects
  - $150 million over the next 2 years to local communities for road and bridge needs