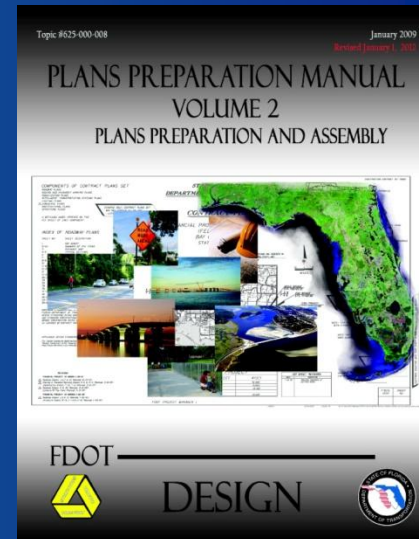
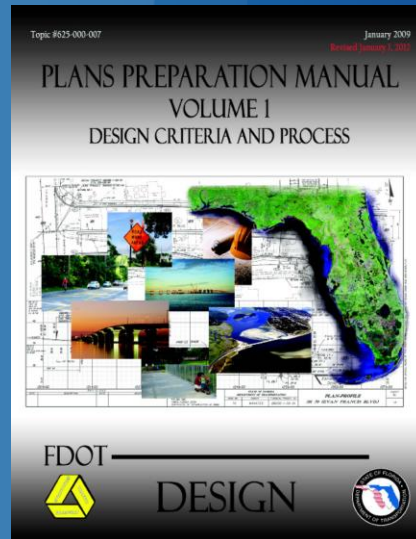


# OFFICE OF DESIGN UPDATE TRAINING

## 2012

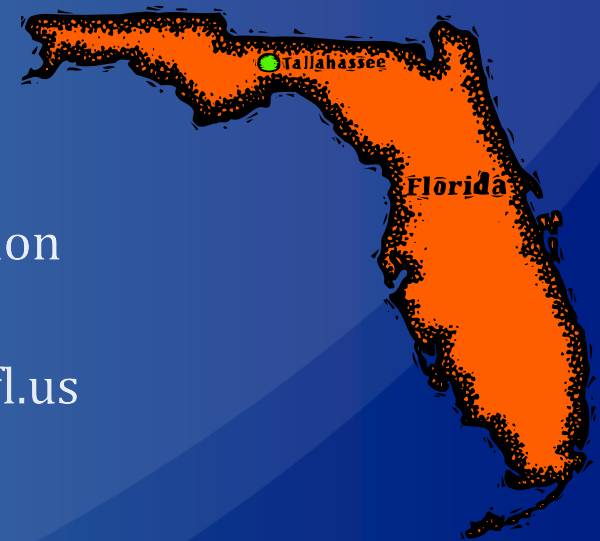
### PLANS PREPARATION MANUAL



# *OFFICE OF DESIGN UPDATE TRAINING 2012*

## **Plans Preparation Manual January 1, 2012 Updates**

Benjamin Gerrell, P.E.  
Roadway Design Office  
Criteria and Standards Section  
(850) 414-4318  
[benjamin.gerrell@dot.state.fl.us](mailto:benjamin.gerrell@dot.state.fl.us)



# Presentation Agenda

Overview of PPM Update Process

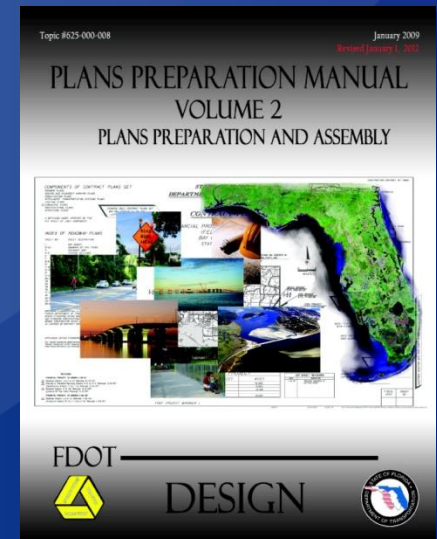
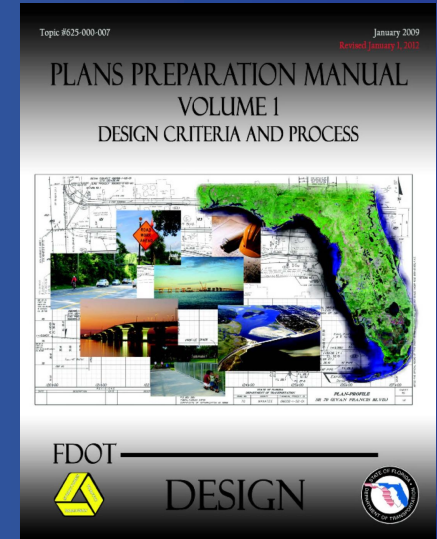
PPM – Highlights



# Overview

- Two Volumes
- English Units
- Electronic Version

<http://www.dot.state.fl.us/rddesign/PPMManual/PPM.shtm>



# Overview

To ensure you receive notification of  
all updates or revisions:

# Register!

<http://www2.dot.state.fl.us/contactmanagement>

# Overview

## For Information Regarding Registration

- **Edit Personal Information**
- **Edit Areas of Interest**

Log in to the Contact Management  
database at:

**<http://www2.dot.state.fl.us/contactmanagement/>**

# Overview

- **Senior Design Engineers Team**
  - Primary designer from each district
  - Monthly meetings
- **Draft Submittals**
  - Received throughout the year
  - Reviewed at SDE meetings
- **District Design Engineers**
  - Quarterly meetings
  - Review Final PPM Draft



# Overview

Please call or e-mail us if you have any questions or concerns.

**We want to hear from you!**



As customers, your input is important to us!



Topic #625-000-007

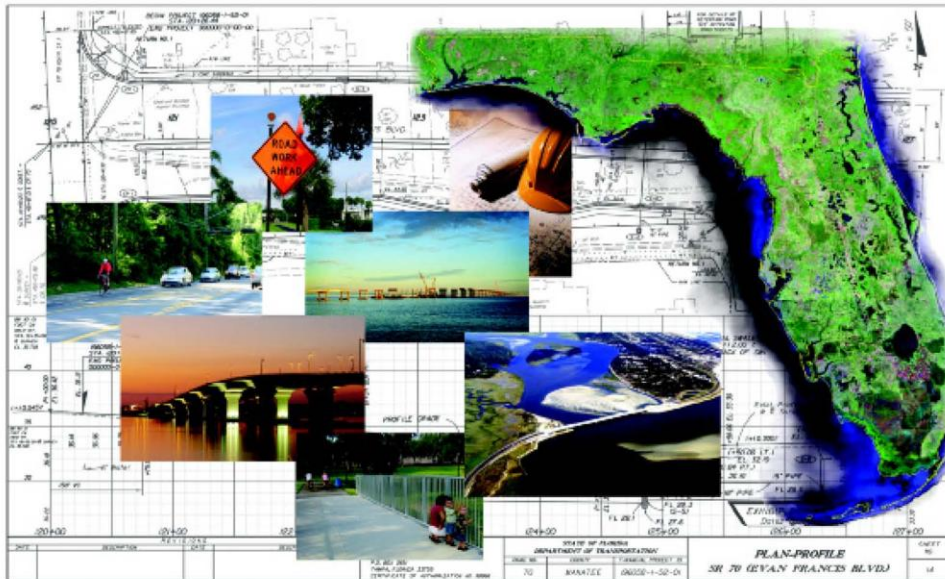
January 2009

Revised January 1, 2012

# PLANS PREPARATION MANUAL

## VOLUME 1

### DESIGN CRITERIA AND PROCESS



# Plans Preparation Manual

## Volume I

### Design Criteria and Process

FDOT



DESIGN



# Volume 1 Major Changes

- SIS Design Speed
- Roadside Slopes
- Exceptions and Variations
- Roadway Cross Slope
- Superelevation
- Traffic - Standard “K” factors



# SIS Design Speed

# SIS Design Speed

- **Section 1.9.1 Design Speed Coordination and Approvals and Section 25.4.4 Design Speed**
  - **Reason for Change**
    - **Minimum Design Speed for an Urban facilities FIHS/SIS was 50 mph**
      - **Minimize Design Variations in highly developed areas**
      - **Median Width DS greater than 45 mph is 40 feet**
      - **New Construction and RRR Projects**

# SIS Design Speed

- **2012 PPM Revision**
  - **Note added in Section 1.9.1 under Table 1.9.2 Minimum Design Speed FIHS/ SIS**
    - **DS 45 mph may be used**
      - **New Construction and Reconstruction Projects**
      - **curb and gutter facilities existing posted speed is 45 mph or less**
      - **Access Management Class 3 is proposed**

# SIS Design Speed

- **Note added in Section 25.4.4**
  - **DS 45 mph may be used**
    - **RRR Projects**
    - **Curb and gutter facilities where existing posted speed is 45 mph or less**
    - **No access management class requirements**

# Roadside Slopes

# Roadside Slopes

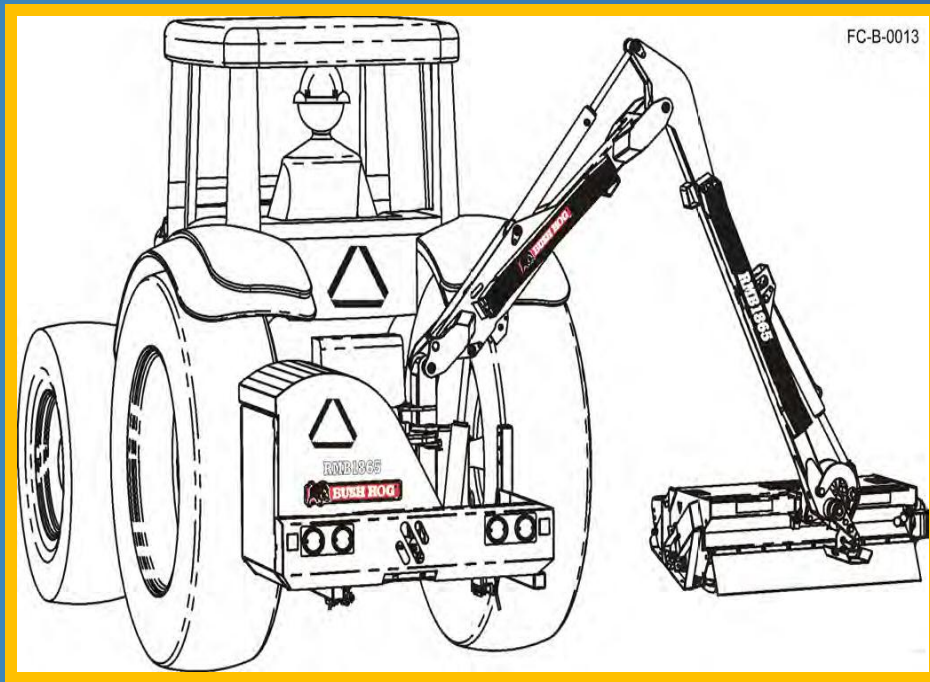
- Section 2.4 Roadside Slopes

- Reasons for the change

- Boom Mower

- Typical cutting reach limited to about 20'

- Slopes more than 20' in height





# Roadside Slopes

- **2012 PPM Revision**
  - **Slopes steeper than 1:3**
    - **Higher than 20 feet 10 foot wide flat area top and base**
    - **Higher than 35 feet 10 foot wide maintenance berm every 35 feet**
  - **Slopes steeper than 1:2 coordination with District Geotechnical Office**

# Exceptions and Variations

# Exceptions and Variations

- **Several changes were made to this chapter**
  - **Safety Projects**
  - **Variations and Exceptions for Landscape Only Projects**
  - **Turnpike Enterprise Exception Approvals**
  - **Utility Exceptions**

# Safety Projects

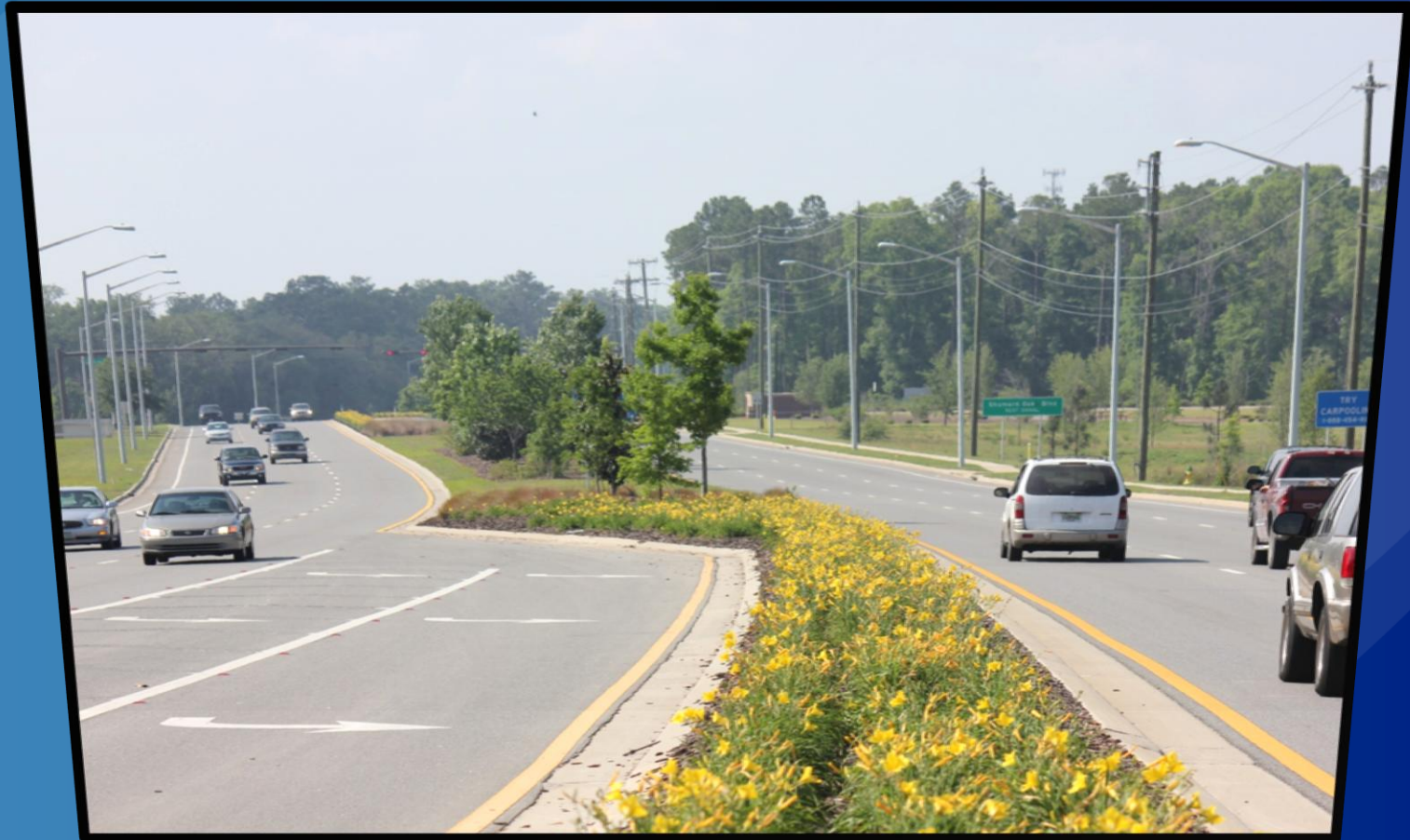
# Safety Projects

- Reasons for the change
  - Canceled Projects
    - Projects in design
    - But unable to get exceptions approved
    - Stopped Design

# Safety Projects

- **2012 PPM Revision**
  - **Section 23.1 General**
  - **Safety Study identify all applicable variations and/or exceptions**
  - **All applicable variations and/or exceptions approved prior to beginning of design phase**

# Landscape Only Projects



# Landscape Only Projects



- Reasons for the change
  - Design Variations or Exceptions
    - Intersection Sight Distance
    - Stopping Sight Distance
    - Signed and sealed by Professional Engineer



# Landscape Only Projects

- 2012 PPM Revision
  - Section 23.1 General
    - Landscape Only Projects a Landscape Architects can
      - Sign and Seal
        - ISD Design Variations
        - Design exceptions where ISD is less than SSD

# Landscape Only Projects

- **Design Projects with Landscaping**
  - **Professional Engineer shall Sign and Seal**
    - **ISD Design Variations**
    - **Design exceptions where ISD is less than SSD**

# Turnpike Enterprise Exception Approvals

# Turnpike Enterprise Exception Approvals

- **Reasons for Change**
  - **FHWA delegates the authority to approve design exceptions for nonfederal oversight projects to the State Design Engineers**
  - **Turnpike being a state funded facility is not subject to federal oversight**

# Turnpike Enterprise Exception Approvals

- 2012 PPM Revision
  - Section 23.3 Approval
    - State Roadway Design Engineer
      - Delegated Approval Authority
        - To Turnpike Design Engineer
        - Design Exceptions
        - Florida Turnpike Facilities

# Turnpike Enterprise Exception Approvals

- State Structures Design Engineer
  - Delegated Approval Authority
    - To Turnpike Design Engineer
    - Design Exceptions
    - Bridge width
    - Horizontal Clearance
    - Vertical Clearance
    - Florida Turnpike Facilities

# Roadway Cross Slope



# Roadway Cross Slope

- Section 25.4.6 Roadway Cross Slope

- Reasons for the change

- Correction and Variation

- Correction

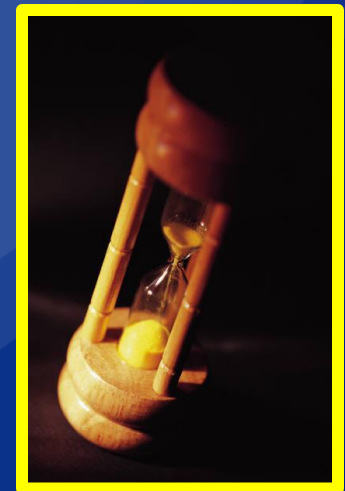
- Cost overruns

- Insufficient Information

- Design Variation

- Prepared

- Approved





# Roadway Cross Slope

- 2012 PPM Revision
  - Existing Pavement
    - Field Verified
      - Full DTM
      - Vehicle Mounted Scanner

# Roadway Cross Slope

- **Full DTM**
  - **Roadway Width**
  - **Evaluate Cross Slopes**
  - **Tangent Sections**
  - **Every 100 feet**

# Roadway Cross Slope

- **Vehicle Mounted Scanner**
  - **Determine Roadway Limits**
  - **Out of Tolerance**
  - **Request DTM**
  - **Implementation for projects being designed in November**



# Roadway Cross Slope

- **Cross Slope Correction**
  - **Determine appropriate method of correction**
  - **Tabulate existing cross slope at 100' intervals**
  - **Don't show correction in cross sections**
  - **Correction method in milling and resurfacing details**
  - **Allowable Ranges in Table 25.4.6 or Table 25.4.7**

# Roadway Cross Slope



- **Table 25.4.6 for Roadway Cross Slopes**
  - **Two-Lane Roads – (0.015 – 0.030)**
  - **Multi-lane Roads – (0.015 – 0.040)**
  - **Shoulders – (Adjacent Lane Cross Slope – 0.080)**
  - **Parking Lanes – (0.015 – 0.050)**



# Roadway Cross Slope

- **Table 25.4.6 New Notes**

- **Multilane cross slope two lanes in one direction**

- **Existing curb and gutter outside lanes max. cross slope of 0.05**

- **0.06 Max. algebraic difference between adjacent through lanes**

- **Parking spaces and access aisles serving persons with disabilities cross slopes no steeper than 0.02**

# Roadway Cross Slope

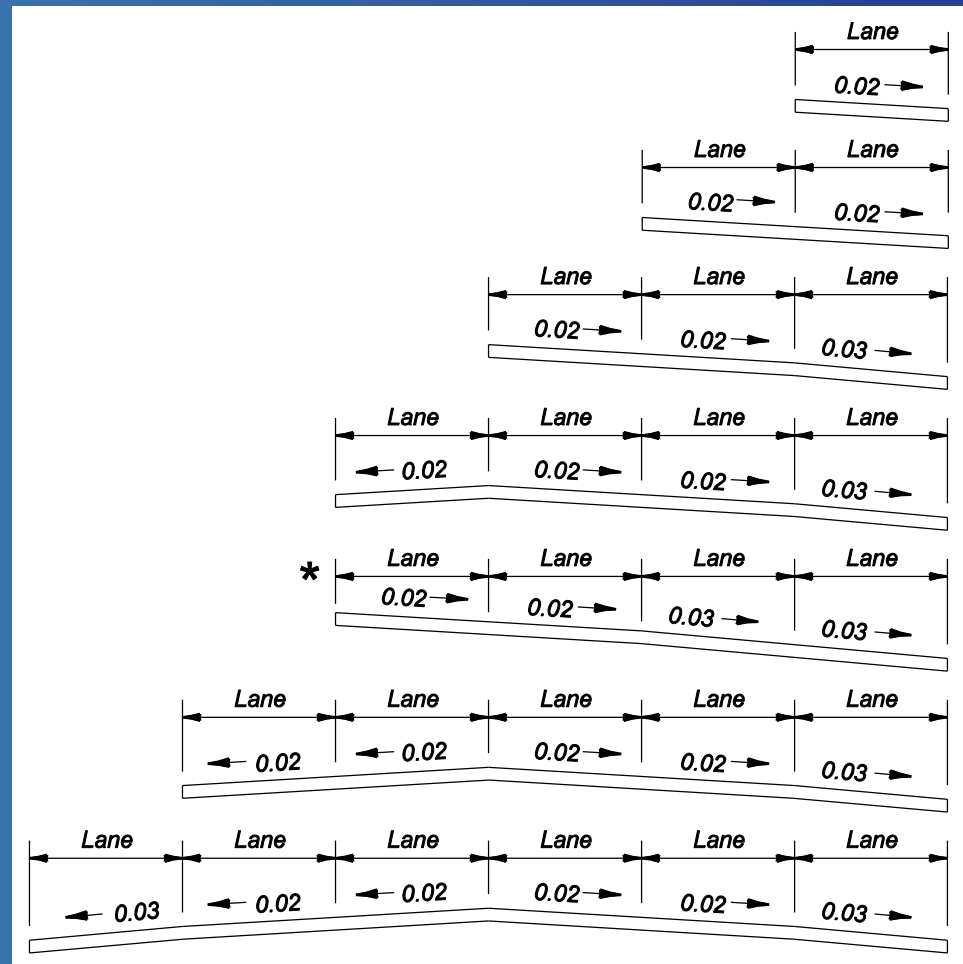
- **Table 25.4.7 Freeway Cross Slopes**
  - **New Table**
  - **Travel Lanes**
  - **Figure 2.1.1**
  - **Range of + or - 0.005**



# Roadway Cross Slope

Figure 2.1.1 Standard Pavement Cross Slope

Allowable Range for cross slope on existing freeways is + or - 0.005 (0.5%) from the standard slopes in Figure 2.1.1



# Roadway Cross Slope

**Table 25.4.7 Freeway Cross Slopes**

Facility or Feature	Standard	Allowable Range
Travel Lanes	0.02*	0.015-0.025
Travel Lanes	0.03*	0.025-0.035

\* Applies to lanes as designated in Figure 2.1.1.

The algebraic difference in cross slope between adjacent travel lanes shall not exceed 0.04. The maximum algebraic difference in cross slope between a through lane and an auxiliary lane at a turning roadway terminal shall meet Table 2.1.4.

Paved shoulder cross slopes do not need to be corrected if they meet the values in Table 25.4.6 and the algebraic difference in cross slope between the shoulder and adjacent travel lane is 0.07 or less.

# Roadway Cross Slope

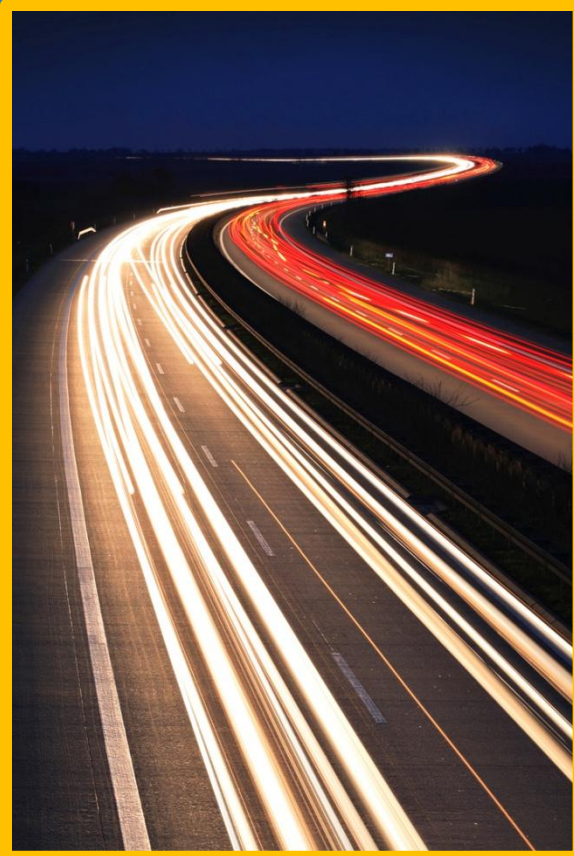
- **Notes:**

- **Max. Algebraic difference between adjacent travel lanes 0.04**

- **Algebraic difference between a through lane and an auxiliary lane meet Table 2.1.4**

- **Paved shoulders Table 25.4.6 algebraic difference between shoulder and adjacent travel lane is 0.07 or less**

# Superelevation



# Superelevation

- **Section 25.4.7 Superelevation**
  - **Reasons for the change**
    - **Roadways and shoulders shall**
      - **Index 510 for rural curves**
      - **Index 511 for urban curves**

# Superelevation

- **2012 PPM Revision**
  - **Roadways and Shoulders Should**
  - **Index 510 for Rural Curves**
  - **Index 511 for Urban Curves**

# Superelevation

- Existing Superelevation
  - Does Not Meet Design Standards
  - Safety Study
  - Contributing factor
  - One Crash in 5 year period



# Superelevation

- High Speed Facilities
  - Correction not required if Superelevation cannot be linked to crashes
    - Existing Rate  $\geq$  AASHTO's Minimum Radii for Design Superelevation Rates, Design Speeds, and  $e_{\max} = 6\%$
    - Existing Rate  $\leq$  AASHTO's Minimum Radii for Design Superelevation Rates, Design Speeds, and  $e_{\max} = 12\%$



# Superelevation

- **Superelevation Correction**
  - **Show the Transition from Normal Cross Slope to Superelevation**
  - **Correction in Cross Sections**
    - **The PC and PT**
    - **50' before and after the PC and PT**
    - **300' intervals within the curve**

# Traffic - Standard "K" factors



# Traffic - Standard “K” factors

- 2012 PPM Revision
  - Section 1.2
    - Department adopted Standard “K” factors
    - Doug McLeod to discuss further

# Summary

- **SIS Design Speed**

- On FIHS/SIS Facilities a DS of 45mph may be used
- Changed in Chapter 1 and 25

- **Roadside Slopes**

- Flat area 10' wide at the top and bottom of steep slopes higher than 20'
- Flat area every 35' in height for slopes higher than 35'

- **Exceptions and Variations**

- Safety Projects require approval before design phase
- Design variations and exceptions can be signed and sealed by a Landscape Architect
- The State Design Engineers have delegated the authority to approve design exceptions to the Turnpike Design Engineer

# Summary

## ● Roadway Cross Slope

- Existing pavement and shoulder on RRR Projects to be field verified by Full DTM of the roadway or Vehicle Mounted Scanner.
- Check existing cross slope against allowable ranges in Table 25.4.6 or Table 25.4.7.

## ● Superelevation

- When existing superelevation does not meet standards a Safety Study (non-formal) shall be conducted to determine if superelevation is a primary contributing factor to crashes in curves.
- When superelevation is not linked to crashes and the existing superelavation rate is between AASHTO's Minimum Radii for Design Superelevation Rates, Design Speeds, and  $e_{\max} = 6\%$  table and  $e_{\max} = 12\%$  table correction is not required .

# Thank You!

Benjamin Gerrell, P.E.  
Roadway Design Office  
Criteria and Standards Section  
(850) 414-4318  
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