



Florida Department of Transportation

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TRAFFIC ENGINEERING AND OPERATIONS BULLETIN 20-04

DATE: November 2, 2020

TO: District Traffic Operations Engineers, District Design Engineers, District Maintenance Engineers, District Program Management Engineers and Administrators, District PD&E Engineers

FROM: Trey Tillander
Director, Traffic Engineering and Operations

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11/2/2020 | 9:30

COPIES: Will Watts, Lora Hollingsworth, Tim Lattner, Chris Edmonston, State Traffic Engineering and Operations Office

SUBJECT: **Manual on Uniform Traffic Studies**

This bulletin announces release of the 2021 Manual on Uniform Traffic Studies (MUTS) which is available on the State Traffic Engineering and Operations website:
<https://www.fdot.gov/traffic/trafficservices/studies/muts/muts.shtm>.

SUMMARY OF REVISIONS

- **Chapter 2 Traffic Signal Study Procedure**
 - Added alternative intersection analysis discussion.
 - Included references to the recently adopted Intersection Control Evaluation (ICE) policy.
 - Revised procedure flow charts to be consistent with ICE process.
- **Chapter 3 Traffic Signal Warrant Summary**
 - Upgraded Form No. 750-020-01 to enhance Data Collection and Analysis Spreadsheets capabilities consistent with Manual on Uniform Traffic Control Devices (MUTCD) 2009.
- **Chapter 4 Intersection Turning Movement Counts**
 - Added guidance on path-based data collection at alternative intersections: Restricted Crossing U-Turn (RCUT), Median U-Turn (MUT), etc.
 - Incorporated language regarding drone technology and application for data collection purposes.
 - Enhanced description on the application of video data collection.
 - Expanded discussion on automated counts

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- Included description and guidance on the applicability and use of probe data for data collection purposes.
- **Chapter 5 Data Collection for Transportation Safety Studies**
 - Consolidated 2016 Chapter 5 and 6 content into a single chapter covering data collection for transportation safety studies.
 - Incorporated future Highway Safety Manual (HSM) procedures including:
 - 6-8 lane and one-way streets expansion National Cooperative Highway Research Program (NCHRP 17-58).
 - roundabouts (NCHRP 17-70)
 - Developed data collection spreadsheets to support the new procedures.
 - Incorporated FDOT research on RCUT Safety Performance Functions (SPFs).
 - Included references and data collection needs to use Safety Performance for Intersection Control Evaluation (SPICE) spreadsheet: alternative intersection analysis for ICE.
- **Chapter 6 Data Collection for Safety Analysis of Freeway Facilities**
 - New chapter content, this chapter previously hosted the Condition Diagram study procedure which was moved to Chapter 5.
 - Developed material to reflect the data collection HSM requirements for freeway analysis (HSM Chapters 18 and 19) including:
 - mainline
 - ramps
 - crossroads
 - Developed data collection spreadsheets to support the new procedures
- **Chapter 7 Intersection Delay Study**
 - Incorporated Highway Capacity Manual (HCM) 6th Edition changes (included Extra Travel Time Delay).
 - Updated data collection techniques and included new available methods including:
 - Probe data
 - Drone technology for video footage
 - Developed guidance on minimum data collection period to use probe data.
 - Added language to consider alternative intersections to improve intersection delay and operations
 - Updated references to include the overall intersection delay - consistent with ICE policy.
- **Chapter 8 Gap Study**
 - Added guidance on applicability and use of gap study results (vehicular and pedestrian).
 - Incorporated field procedure to determine vehicular critical gap.
 - Developed a form to be used as a calculation sheet to process field data collection on vehicular gaps (Form No. 750-020-08b).

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- **Chapter 9 Non-Motorized Volume Studies**
 - Updated title to Non-motorized Volume Studies, previously called Pedestrian and Bicycle Volume Studies.
 - Added information and guidance on automated counts.
 - Added reference to the FDOT Central Office non-motorized counts program.
 - Adapted guidance from the FHWA 2016 Traffic Monitoring Guide for Type of Counts, Equipment (manual and automatic counts).
 - Added field procedure to conduct a walking speed study.
 - Developed walking speed study form (Form No. 750-020-11a and 750-020-11b).

- **Chapter 10 Advisory Speed Study**
 - Enhanced discussion on the available technologies for automated data collection (including Global Positioning System (GPS) and Geographic Information System (GIS)).
 - Added references to the 2018 FDOT Speed Zoning Manual.
 - Updated chapter content to be consistent with MUTCD Section 2C changes and 2019 FDOT Traffic Engineering Manual Section 2.39.2.

- **Chapter 11 No-Passing Zone Study**
 - Updated chapter guidance to be consistent with FDM Table 210.11.2.
 - Included references to F.S. Section 316.087 (85th percentile).
 - Expanded on Method Four – Intelligent Transportation System (ITS) Techniques for data collection: computer-based system.

- **Chapter 12 Vehicle Spot Speed Study**
 - Updated chapter content to be consistent with the new 2018 FDOT Speed Zoning Manual.
 - Added guidance on speed management and supporting references.
 - Added FHWA guidance on use of 50th percentile speeds.
 - Updated data collection form to calculate 50th percentile speeds.

- **Chapter 13 Travel Time and Delay Study**
 - Added new technology, data resources and best practices applicable to the data collection for calculating travel time and delay
 - Wireless / GPS
 - Cellular / Bluetooth
 - Added description and guidance on the applicability and use of probe data.

- **Chapter 14 Roadway Lighting Justification Procedure**
 - Added guidance to complete the Step 1 Lighting Justification Forms.
 - Added procedures for 6-8 lane and one-way streets (NCHRP 17-58).
 - Added new crash cost analysis spreadsheet for 6-8 lane and one-way streets.
 - Updated crash costs for all analysis spreadsheets to be consistent with current crash data.

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COMMENTARY

The non-editorial revisions and additions to the MUTS in this bulletin provide guidance on how to apply new technology and data resources applicable to the traffic studies. In addition, the non-editorial additions incorporate recently completed safety research under National Cooperative Highway Research Program (NCHRP) and FDOT initiatives to advance Vital Few Safety, Innovation and Mobility throughout the State. All sections have been reviewed by Districts DTOEs or designees and all comments from reviewers have been addressed accordingly. All revisions in this bulletin will ensure accurate and consistent implementations with no shift of risk issues.

IMPLEMENTATION

These changes are effective on projects beginning design on or after January 1, 2021. For projects currently in the design phase, these changes may be implemented at the discretion of the District.

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