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1.1 GENERAL

The Traffic Engineering Design Manual has been developed to provide guidance on the design of traffic control devices (TCDs) throughout the Commonwealth of Virginia. The manual presents engineering fundamentals; design processes; and design aides to assist in the design of TCDs without duplicating information in other commonly used design manuals. The Manual is divided into six sections:

Section I – General

Section II – Signs

Section III – Pavement Markings/Markers

Section IV – Traffic Signals

Section V – Roadway Lighting

Section VI – Rest Areas, Park & Ride and Commuter Lots

The General Section has been developed to provide information that is typical or common to two or more of the design sections throughout this Manual. This section has been divided into four chapters and one appendix as follows:

Chapter 1 – Introduction:
Introduces the Traffic Engineering Design Manual.

Chapter 2 – Project Processes / Procedures:
Presents various processes and procedures that are involved in project design.

Chapter 3 – Design Issues / Reference Materials:
Presents issues and references that will assist in the development of the design.

Chapter 4 – Construction Related Issues:
Discusses post design activities.

Appendix A – References and examples addressed within the General Section.

The four TCD disciplines are presented in Sections II through V. Each section is divided into four chapters and two appendices as follows:

Chapter 1 – Introduction:
Introduces the TCD discipline.

- Chapter 2 – Engineering Concepts / Guidance:
Discusses engineering design concepts and / or reference material related to the TCD discipline.
- Chapter 3 – Preliminary Engineering:
Discusses preliminary design activities for the TCD design.
- Chapter 4 – Plan Development:
Discusses design activities and plan sheet formats included in a typical set of construction plans for the TCD.
- Appendix A – Example of TCD plan set.
- Appendix B – Design aides and other information used in developing a construction plan set.

The chapters within Section VI, “Rest Areas, Park and Ride and Commuter Lots”, provide information related to each specific area. The chapters within this section provide a discussion of each TCD discipline separately (Signing, Markings and Lighting) and in the same manner similar to that provided under the TCD discipline sections.

- Chapter 1 – Introduction:
Introduces the design considerations for the three areas.
- Chapter 2 – Rest Areas:
Discusses preliminary activities, and plan sheet formats for each of the TCD disciplines. This chapter also provides a discussion of parking lot lighting and visibility relevant to each of the areas described in this section.
- Chapter 3 – Park and Ride Facilities:
Discusses preliminary activities, and plan sheet formats for each of the TCD disciplines.
- Chapter 4 – Commuter Parking Lots:
Discusses preliminary activities, and plan sheet formats for each of the TCD disciplines.
- Appendix A – Example of TCD plans.
- Appendix B – Design aides and other information used in developing a construction plan set.

1.2 METHODOLOGY

The Traffic Engineering Design Manual presents the fundamental concepts and standard practices related to the design of TCDs for VDOT. It is structured to inform and parallel the progression of decisions, activities and functions related to the design. The following sections will identify engineering concepts and analyses, preliminary engineering activities and plan development.

This manual is not intended to be a stand-alone document. The design processes in each section are based on standards and recommendations established in the MUTCD, AASHTO, NEC, NESC and other publications. The user should be familiar with those publications and appropriate references are made to these publications within each section.

1.3 PURPOSE OF THE TRAFFIC ENGINEERING DESIGN MANUAL

The primary purpose of this Manual is to present fundamental concepts and standard practices used in traffic control device designs for VDOT projects. It is also to promote standardization and uniformity in designs throughout the Commonwealth of Virginia.

- Standardization
 - Promotes contractor understanding
 - Provides desired construction of traffic control devices
 - Minimizes change orders or impacts to schedules
- Uniformity
 - Benefits motorist expectation
 - Improves understanding between designers and reviewing agencies

1.4 TRAFFIC CONTROL DEVICE DESIGN PROJECTS EMPLOYED BY VDOT

Authorization for Preliminary Engineering is initiated in accordance with the type of roadway project that is being administered by VDOT. The various roadway project types are:

- Interstate,
- Primary,
- Urban
- And Secondary

Further information on Preliminary Engineering authorization and project initiation responsibilities are in the [VDOT Road Design Manual, Chapter 2A – Location Study](#).

In addition to VDOT projects being initiated based on the roadway type, the development of TCD designs may be in conjunction with roadway projects or as “stand-alone” projects. Chapter 4 in Sections II through V addresses TCD plan development as though the traffic control devices are being designed in conjunction with a roadway project. There are notes provided throughout the plan development process that reflect variations in the design process when the TCD design is advertised as a “Stand-alone” project.

VDOT administered projects are maintained and operated by VDOT Districts, Residencies, Counties or Municipalities. Therefore, it is imperative to determine the needs of the local jurisdiction early in the design process to maintain uniformity and adhere to the standards of the jurisdiction.

References made to “Maintaining Jurisdiction” in the Traffic Engineering Design Manual are defined as the agency responsible for performing operation and maintenance activities for the TCD.