

## SCOPE

State requests responses for assistance with the State Facility Design Guide (FDG) to create or adapt figures and tables, and to format and lay out pages, sections, and chapters of the FDG.

This document will replace the State Road Design Manual (RDM), which has become out of date over the course of time and is currently out of alignment with national design criteria and the state of the practice in numerous key respects, notably emerging performance-based approaches. Rather than merely updating the current RDM within its existing scope, format, and organizational structure, State is developing the FDG as a replacement publication. The major changes from the RDM are a modified chapter organization, completely new page formats, highly graphical approach, and full integration of all modes and user groups into project consideration and design decision making. The FDG acknowledges various facility types including non-motorized facilities and characterizes its content as design guidance rather than policy or standards.

This will be a continuation of the FDG project. State has developed a style guide for the FDG, with page layout templates, and procedures for development of graphics and pages, which will be used by the Successful Responder to produce pages and chapters of the State FDG using content developed by State staff. Deliverables will be developed using content provided by State. All of the Successful Responder's work products will receive technical review from the State Project Manager (PM) and other State personnel or groups. The FDG will be developed and reviewed continuously as material is developed, section by section, and chapter by chapter. The work will not be performed in the numerical order of chapters in the Facility Design Guide chapter outline. State will determine the order in which chapters will be completed, depending on State resources available for content development, review of the content by State, and revisions that are necessary. Technical comments will be provided to the Successful Responder for incorporation. After all technical content for each chapter is approved by the State PM, prior to publication the Successful Responder will complete an editorial review to confirm formatting and document compliance with the Americans with Disabilities Act (ADA).

The FDG general requirements are as follows, subject to further definition by MnDOT:

- a. Portable and Printable
  - Printable for use in areas of the State with no internet access and in situations where computer hardware is not nearby.
- b. Searchable
  - All text including captions and labels will be searchable.
- c. Navigable
  - PDF navigation tools to aid movement within the document.
  - Hyperlinks to external documents will be provided in references at the end of each chapter.
  - No links in the body text and internal document jump links, for ease of maintaining and updating the FDG.
- d. Digestible
  - Small, concise paragraphs to the extent practical.
  - Heavily structured format to facilitate citation of contents.
  - Column widths and formats that conform to the FDG Style Guide, with flexibility where necessary, as approved by State.
- e. Accessible
  - Conforms to ADA document requirements; specifically the State of Minnesota's Accessibility Standards, the Web Content Accessibility Guidelines (WCAG) 2.0, Level AA, and Section 508 of the Rehabilitation Act, where applicable.
- f. Graphically Oriented
  - Where appropriate and possible, graphics should lead the presentation of information.

- Innovative and creative illustrative methods including 3D/orthographic projections.
  - Color will be used where it serves a utilitarian purpose – for instance, to highlight different roadway materials.
  - Color will not be used for stylistic purposes – for instance, to highlight different chapters of the guide or to add flair.
- g. Easily Editable and Updatable
- Will exist as a living document, but with content not intended to require frequent updating.
  - Formats and graphics will not be more complex than necessary to communicate the information, in order to minimize the difficulty of editing or updating the FDG.
  - Section breaks used as appropriate to compartmentalize content.
- h. Computer File Formatting
- Portable Document Format (PDF) for publication by State on the FDG web site.
  - Software requirements for graphics and layout as provided herein below.
- i. Page Formatting and Fonts
- Formats have been established in the FDG Style Guide developed for this project, summarized herein below. The FDG Style Guide may be subject to further definition by State, with flexibility in those styles, as necessary and as approved by State.

#### FDG Chapter Outline

Chapter 1	State Goals, Principles, and Strategic Objectives
Chapter 2	Design Process and Approach
Chapter 3	Design Framework and Controls
Chapter 4	Configurations and Cross Sections
Chapter 5	Alignment and Superelevation
Chapter 6	Intersections
Chapter 7	Grade Separations and Interchanges
Chapter 8	Non-motorized Facilities
Chapter 9	Site Designs
Chapter 10	Roadside Design and Traffic Barriers
Chapter 11	Pavements
Chapter 12	Environmental and Visual Quality
Chapter 13	Drainage, Stormwater Management and Erosion Control
Chapter 14	Bridges and Structures
Chapter 15	Specialty Design Subjects

#### Software Requirements and Style Guide

**Software:** FDG production will have three distinct elements; content (or text) development, graphic production, and layout:

- a. Content: Microsoft Word will be used to create text content, and Microsoft Word or Excel will be used to create most tables, or existing RDM tables may need to be reformatted or re-created from other formats.
- b. Graphics: Several graphics workflow options with software recommendations requiring a different level of effort required to achieve each style, as necessary to communicate the information.
- Computer-aided Drafting (CAD) based graphics
    - Bentley Microstation is the State CAD standard and will be used to create many of the graphics. Many of the existing RDM graphics were created in Microstation and may be required to be modified, or new graphics developed for use in the Facility Design Guide. Some CAD graphics may need to be exported for additional enhancement in other

graphics software. Bentley Microstation 3D will be used in some cases to produce graphics or illustrations.

- Sketchup-based graphics
    - Sketchup software (Trimble, Inc.) alone can produce some graphical content that is similar to CAD, but with the possibility of a more appealing and readable aesthetic and the ability to view objects in a 3D representation, such as modeling built environments. However, Sketchup styles are highly automated and therefore precise manual control of the details of a graphic can require a high level of effort.
  - Adobe Illustrator or Adobe Photoshop
    - Adobe Illustrator software will be used to create unique graphics, such as recreating an illustration from an historical photograph. Adobe Photoshop software will be used to adapt photographs for illustration of content or to create chapter title pages with enhanced graphics based on photographs.
- c. Layout: Adobe InDesign is the appropriate tool for creating a modern document containing text along with hundreds of images and graphics. A word processor alone is not the appropriate tool for this job because it is not able to efficiently store the amount of data that is contained in a professional graphical layout. Adobe InDesign is part of the Adobe CC suite. The Adobe CC suite is a collection of professional graphic design programs that provides full capabilities for graphic design and layout. It is the global standard software platform known by almost every graphic designer.
- d. ADA Compliance Verification: Each final deliverable for publication will be evaluated for ADA compliance by running it with JAWS Screen Reading Software (Freedom Scientific, Inc.), and Adobe Acrobat, assistive screen reader technologies commonly used by persons with disabilities.
- e. File Management and File Transfer: State ProjectWise will be used to store and manage all graphics, including work-in-progress. Files may be transmitted for review or discussion via email attachment, if feasible. Additional file management protocols will be required for transfer to State of final InDesign files and associated files necessary to allow State to recreate, edit or update documents for publication.

**Style Guide:** A Style Guide has been developed for this project. Some of the document style decisions that have already been made include, but are not limited to, the following:

- Page layout
  - Portrait orientation
  - Dual-column or single-column arrangement may be used, depending on content, to keep related material together
  - Margin, column, and gutter widths, and text justification, have been determined
- Navigation elements
  - Section numbering and page numbering protocols have been determined
  - Header/footer content and organization have been determined
  - Table and figure numbering protocol has been determined
- Typography
  - Brandon font family (Brandon Text for body, tables and captions; Brandon Grotesque for headings) as recommended in the State Style Guide
  - Font sizes have been determined for text, headings, tables, and captions
  - Routed Gothic font labeling of engineering graphics
- Color palate
  - FDG colors selected from the Minnesota State Style Guide; blue and green, with accent orange/cream/gold

- Graphics and illustrations will use colors representative of the real world, not to be constrained by the blue/green/accent palate

## **WORK PLAN**

*The Successful Responder will perform the following tasks after contract execution:*

### **Task Descriptions**

#### **Task 1: Project Management**

- 1.1 Quality Management Plan: Provide a Quality Management Plan (QMP) document that describes the processes, procedures, roles and responsibilities that will be used by the Contractor to proactively monitor and manage the quality, accuracy, and timeliness of all deliverables. The QMP will describe roles/responsibilities and processes for producing work products and for checking work products prior to transmittal to State. The QMP will include lines of communication for the project within the Contractor's company, including any subcontractors, and propose a process for resolution between State and Contractor regarding any quality or performance issues that may occur. The QMP will include file naming conventions, file folder/directory structure, and version management of work products and files. Updates or revisions of the QMP will be required. The quality management process will incorporate sufficient time for State review of deliverables, and interface with the State review process for each level of deliverable (tables, figures, sections and chapters).

**Deliverables:** QMP and revisions or updates to the QMP

- 1.2 Work Product Tracking Spreadsheets

- 1.2.1 FDG Progress Log: The FDG Progress Log is a work progress tracking and documentation spreadsheet prepared by the Contractor using Microsoft Excel software, stored on the State's ProjectWise system, and updated continually (at least weekly) by the Contractor. Tab 1 of the FDG Progress Log will provide detailed tracking of all Contractor work products in production and in the QMP process, and track State review or coordination with content preparation for chapters and their elements under development. Each table, figure, exhibit, section or chapter will be listed in Tab 1 as a separate line item for tracking, including but not limited to exhibits (tables, figures, illustrations), section layouts, and chapter layouts. Tab 2 of the FDG Progress Log will track transmittals of work product items and the dates they were submitted for review or in final form, listing the transmittal number and date, and the version number of each item included in the transmittal
- 1.2.2 FDG Work Priority List: The FDG Work Priority List will be prepared by the Contractor using Microsoft Excel software, stored on the State's ProjectWise system, and updated continually (at least weekly) by the Contractor based on State priorities and needs for progressing FDG exhibits, sections and chapters through the process of development, review and publication. The FDG Work Priority List will: 1) identify and update priorities for Contractor work efforts at a more aggregated level than the FDG Progress Log, and 2) track submittals of work products at a more aggregated level than the FDG Progress Log.

**Deliverables:** FDG Progress Log, updated weekly; FDG Work Priority List, updated weekly.

- 1.3 ProjectWise File Management System: The Contractor will create and maintain a comprehensive system of folders in State's ProjectWise for all work-in-progress and final work products. The file folder system will be organized in the same hierarchy as the FDG outline or table of contents of chapters and sections. The ProjectWise File Management System will be updated continually in real-time as it is used by Contractor personnel as the location for all working files. State will provide access to ProjectWise for approved Contractor staff. State may modify or comment as needed on work-in-progress in collaboration with Contractor.

**Deliverables:** ProjectWise File Management System, updated continually in real-time.

1.4 Meetings:

- 1.4.1 To ensure continued coordination throughout the project, meet with the State project team and others to discuss the status of the project and upcoming work that is planned, and to review work products. The contents and timing of these meetings will be determined by the State project team during the project with input from the Successful Responder and others.
- 1.4.2 The Contractor will meet with State staff for the following series of planned meetings:
- Weekly check-in conference call, via Zoom or Teams (approximately 60 minutes)
  - Approximately one 60-minute meeting per month with the State project team and other individuals as needed to discuss or resolve specific technical issues or questions.
  - A pre-layout discussion meeting with the chapter or section authors, for each chapter or section, after content has been finalized and before the Contractor begins layout work.
  - Meetings with State staff performing InDesign layout or revisions of sections or chapters.
  - Other meetings, to be determined, where the Contractor's presence is needed.

**Deliverables:** Weekly check in conference calls, technical issue meetings, pre-layout meetings, other meetings as needed; meeting agendas and meeting notes.

1.5 Transmittal of Work Products

- 1.5.1 Contractor will provide work products in PDF format, or native format if requested by State, to the State Project Manager in weekly Transmittal emails that will be sequentially numbered. The work products in each Transmittal will have been reviewed by Contractor in accordance with the QMP, and organized by section or chapter in a .zip file. Each Transmittal will include the sequential Transmittal number in the subject line of the email and in the filename of the .zip file.

**Deliverables:** Transmittals provided on a regular schedule for orderly submittal of work products, noting the status of transmitted items' development, review, and approval.

**Task 2: Facility Design Guide Production:** The following sub-tasks 2.1 through 2.4 will be completed by the Contractor, utilizing the style guide developed for the project and other guidance for the project regarding style, vision, accessibility and use of the FDG document. Contractor will coordinate the work of this task considering the work effort priorities established in the FDG Work Priority List and FDG Progress Log for chapters and their constituent sections, tables and figures.

2.1 Exhibits (Tables, Figures and Illustrations)

- 2.1.1 Adapt existing RDM tables, figures, and illustrations or create new content, as directed by State PM.
- 2.1.2 Review each item in accordance with the QMP.
- 2.1.3 Transmit draft tables, figures, and illustrations in PDF, or native format if requested by State, to the State PM for coordination of State review.

- 2.1.4 Enter the review status of tables, figures, and illustrations in the FDG Progress Log, make revisions in accordance with reviewer comments and as directed by State PM, and manage files of iterated versions.

**Deliverables:** Exhibits (tables, figures, and illustrations) provided in Transmittals for State review.

## 2.2 Layout of Pages, Sections and Chapters

- 2.2.1 Lay out pages and sections of chapters incorporating text content provided by State and exhibits developed in Task 2.1. A pre-layout discussion meeting, as provided in Task 1, will be coordinated for each section or chapter ready for layout.
- 2.2.2 Create chapter title page, section summaries and table of contents, which will be referred to as the Front Matter of each chapter.
- 2.2.3 Review each page, section and chapter in accordance with the QMP.
- 2.2.4 Transmit sections and chapters in PDF, or native format if requested by State, to State PM for coordination of State review.
- 2.2.5 Revise sections or chapters, in accordance with reviewer comments as directed by State PM, and manage files of iterated versions

**Deliverables:** Section or chapter layouts including text, exhibits, and front matter, provided in Transmittals for review.

## 2.3 Sections or Chapters for Publication

- 2.3.1 Complete any final edits in the section or chapter layout, and transmit to the State PM in PDF for final review by State.
- 2.3.2 After State provides approval of the section or chapter layout, finalize tags, threading and alt-text for screen reader as necessary for ADA compliance, and verify compliance with WCAG 2.0 Level AA.

**Deliverables:** Complete sections or chapters with all technical review comments incorporated, verified for ADA compliance, submitted in PDF format, ready for publication by State.

## 2.4 Collaborate with Section and Chapter Layout by State staff

- 2.4.1 Depending on availability of State staff with expertise in InDesign layout, State forces will produce sections or chapters for review and publication. The Contractor will collaborate with State staff through the State Project Manager to provide tables, figures or other items as needed for State staff to layout or revise pages, sections or chapters.

**Deliverables:** Tables, figure and illustrations in format needed for State forces to layout or revise sections and chapters.

## **Task 3: Documentation of FDG Chapters: Source Files**

- 3.1 After completing each chapter, transmit all files to State, provide documentation of the locations and structure of Projectwise folders/directories and the component files, including how they are linked or referenced to each other.

### **Deliverables:**

- Transmit all InDesign files and other related files in a format that is usable by State to re-create the InDesign document.
- Documentation of Source Files.

## **Task 4: Documentation of Process and Guidelines for Updates**

- 4.1 Develop, update or continue development of a guidance document for use by State that provides detailed software instructions and step-by-step guidance for how to revise or update all tables, figures, and illustrations, as well as page and section layouts of the FDG, and provide documentation of any additional resources, such as special fonts, as needed for State to replicate or update the FDG. The instructions and guidance will include how to format or apply styles to text and headings, headers and footers, titles and captions, procedures and file formats for InDesign, ADA compliance and reflow, how to insert revised tables or figures into a section, how to insert a revised section into a chapter, and how to convert revised section or chapter to ADA-compliant PDF for publication.

**Deliverable:** Documentation of Process and Guidelines for Updates, and updates or revisions thereto.

### **MNDOT RESPONSIBILITIES**

*State will provide the following to the Contractor:*

Task 1:

- Scheduling and facilitation of meetings.
- Advise Contractor regarding priorities for Contractor work efforts.
- Provide appropriate access for approved Contractor personnel to Projectwise.

Task 2:

- Provide Microsoft Word files of section text content.
- Coordinate State review of tables, figures, and illustrations.
- Coordinate State review of sections and chapters.
- InDesign layout of certain sections or chapters, depending on availability of State staff with InDesign expertise.
- Coordinate final State review and approval of chapters.
- Publish final completed chapters on State web site.
- Provide appropriate access for approved Contractor personnel to Projectwise.

### **PROJECT SCHEDULE AND MILESTONES**

Contract schedule and duration of tasks:

Contract time – Date of contract execution through September 30, 2022

Task 1 – July 1, 2021 or contract execution date through June 30, 2022:

- Milestone: August 15, 2021 – QMP (final approved deliverable completed).

Task 2 – July 1, 2021 or contract execution date through June 30, 2022:

- Milestone: June 30, 2022 is the deadline for completion of the Facility Design Guide.

Task 3 – July 1, 2022 through September 30, 2022

Task 4 – July 1, 2022 through September 30, 2022

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