

CHAPTER 3

TDOT PROJECT DEVELOPMENT

3.1 Project Schedule

Projects involving traffic signal, signing, and roadway lighting work are imperative to be kept on schedule, as projects of this type are quite often developed to improve an identified safety deficiency. Keeping projects on schedule is a shared responsibility between the designer and the assigned TDOT Design Manager. The designer should not hesitate to contact the TDOT Design Manager regarding any questions, difficulties or delays in receiving materials or information.

3.2 Plans Development Responsibilities

Local governing agencies often prefer to use local funds to contract with design firms or use in-house staff for the preparation of construction plans which will be let to contract by TDOT with state and/or federal funding. Various responsibilities are as follows:

3.2.1 TDOT Design Manager

The TDOT Design Manager will provide traffic projections, pavement design and other related data as needed. The TDOT Design Manager will also schedule field reviews and submit preliminary, right-of-way, and final construction plans for project coordination and letting. In most cases, because of the smaller nature of standalone traffic design projects, the preliminary and right-of-way phases will be combined into one phase, which is commonly referred to as the Right-of-Way Plans phase. The TDOT Design Manager will upload the plans and supporting files on FileNet at the completion of the right-of-way and construction phases and any subsequent plan revisions that occur.

3.2.2 Local Agency

The local agency will hire and approve the consultant or on-staff designer and assure that the plans development process is completed in a timely manner. The local agency will be responsible for contacting all parties to schedule and conduct a kick-off meeting to determine the scope of the project and assign various responsibilities.

3.2.3 Design Engineer

The design engineer (e.g. designer) will develop a set of construction plans and will contact the TDOT Design Manager as needed in a timely manner to settle design issues and answer questions. If the project is let by TDOT, then the construction plans shall adhere to TDOT's format (See Section 3.3).

3.3 Plan Development Stages

The various stages of plan development for traffic signal, roadway lighting, and signing projects follow the same procedures detailed in the Roadway Design Guidelines. The following is a summary outline of the plan development process:

- **Determination that a traffic signal, roadway lighting, and/or signing project is needed and funds are obligated.**
 - Determination of projects can be made from various sources including, but not limited to, the Roadway Design Division, the Traffic Operations Division, the Strategic Transportation Investments Division, and the Local Programs Office. In some cases, other sources can make the determination of a needed project.
- **Determination if the project can be surveyed and/or designed with in-house forces. If not, a consultant is selected and requested to provide a proposal for the services needed.**
 - If a consultant is utilized, then issue a work order and conduct a kick-off meeting or some understanding, in writing, of the various duties and responsibilities of the services needed.
 - The TDOT Design Manager will request traffic projections once a project commences.
- **Perform survey.**
 - Survey control points should be coordinated with the TDOT Regional Survey offices through the TDOT Design Manager.
 - Surveys completed by consultants will be sent to the TDOT Regional Survey offices for approval.
- **If the design project right-of-way plans are not combined with the preliminary plans, then follow the same process as right-of-way plans:**
 - Develop preliminary plans.
 - Conduct preliminary field review.
 - Finalize preliminary plans.
- **Develop right-of-way plans.**
 - Right-of-way plans consist of a nearly complete set of plans for either a utility only (if no right-of-way is required) or a right-of-way submittal and should include all sheets except for the quantity sheet and some detail sheets.
 - Where feasible, avoid design features requiring the acquisition of right-of-way, drainage structures, or conflicts with utilities to help expedite the project.
 - Six weeks are typically allowed for this stage.

➤ **Conduct site review.**

- After the preliminary traffic signal layout and pole locations are determined, a site review should be scheduled prior to the right-of-way field review. In some cases, an in-person meeting can be scheduled at the end of the right-of-way field review near the project site.
- One day including travel is typically allowed for this stage.

➤ **Conduct right-of-way field review.**

- In most cases, because of the smaller nature of stand-alone traffic design projects, these field reviews consist of gathering comments from reviewers instead of an in-person meeting.
- Three weeks are typically allowed for this stage.

➤ **Finalize right-of-way plans.**

- Once all of the review comments are received, the consultant will provide the TDOT Design Manager with a disposition letter summarizing how they will proceed in addressing the right-of-way field review comments. The disposition letter should be submitted as soon as possible, but generally no later than two weeks from receiving the comments. The disposition letter shall include a statement that indicates whether or not there are impacts to the project limits, ROW, and/or utilities on the project and how they will be affected differently or changed due to the comments received.
- Upon approval from the TDOT Design Manager, the design engineer will submit an electronically signed/sealed (title sheet only) right-of-way plan set in PDF format.
- In addition to the signed and sealed right-of-way plan set, the design engineer will submit an info plan set (i.e. plan set not signed/sealed and marked not for construction), a right-of-way quantity estimate, and a ZIP file containing all of the design files that were created during the preparation of the design plans. This includes, but not limited to, Microstation DGN files and their associated reference files, Geopak files, survey files, cost estimates and their support data, pole designer software files, word documents such as correspondences and the field review comment disposition letters, spreadsheets such as earthwork grading sheets and support calculations, location maps and sketches, associated PDFs, and any other information or files that were used to develop and prepare the design project.
- At the completion of the right-of-way plans phase, the TDOT Design Manager will request the pavement design (if mainline paving is needed) and the TMP.
- Four weeks are typically allowed for this stage.

- **Post right-of-way plans turn-in.**
 - Requests for right-of-way revisions will occasionally come from the TDOT Design Manager and should be processed as soon as possible.
- **Develop construction plans.**
 - After receiving both the environmental document and right-of-way funding approval documents, the TDOT Design Manager will notify the consultant to proceed with the development of construction plans.
 - Construction plans consist of a complete set of plans including all index sheets, quantities sheets, general and special notes, tabulations and details as required.
 - Six weeks are typically allowed for this stage.
- **Conduct constructability field review.**
 - In most cases, because of the smaller nature of standalone traffic design projects, these field reviews consist of gathering comments from reviewers instead of an in-person meeting.
 - Three weeks are typically allowed for this stage.
- **Finalize construction plans.**
 - Once all of the review comments are received, the consultant will provide the TDOT Design Manager with a disposition letter summarizing how they will proceed in addressing the constructability field review comments. The disposition letter should be submitted as soon as possible, but generally no later than two weeks from receiving the comments. The disposition letter shall include a statement that indicates whether or not there are impacts to the project limits, ROW, and/or utilities on the project and how they will be affected differently or changed due to the comments received.
 - Upon approval from the TDOT Design Manager, the design engineer will submit an electronically signed/sealed (on every sheet) construction plan set in PDF format.
 - In addition to the signed/sealed construction plan set, the design engineer will submit an info plan set (i.e. plan set not signed/sealed and marked not for construction), a final quantity estimate, and a ZIP file containing all of the design files that were created during the preparation of the design plans. This includes, but not limited to, Microstation DGN files and their associated reference files, Geopak files, survey files, cost estimates and their support data, pole designer software files, word documents such as correspondences and the field review comment disposition letters, spreadsheets such as earthwork grading sheets and support calculations, location maps and sketches, associated PDFs, and any other information or files that were used to develop and prepare the design project.

- When ready, the TDOT Design Manager will submit construction plans for turn-in.
 - Four weeks are typically allowed for this stage.
- **Post construction plans turn-in.**
- Requests for letting and construction revisions will occasionally come from the TDOT Design Manager and should be processed as soon as possible.

3.4 Support Projects

Support projects, which are typically prepared as part of a larger roadway design project by a consultant or in-house staff, require only traffic signalization, roadway lighting, detail sheets, signing layouts, and sign schedules. Since support projects are often prepared by design engineers not under the direct supervision of the primary professional engineer responsible for signing/sealing the plans in general, the traffic engineering quantities and special notes should be included on a sheet separate from the roadway project quantities under the seal of the supporting signal design engineer. Coordination between the primary professional engineer, the supporting professional engineer, and the TDOT Design Manager should be maintained throughout the design process.

3.5 Conformance to TDOT Plans Format

TDOT requires all roadway plans let to contract in the State's bid process to be developed in the particular TDOT format described in the TDOT Roadway Design Guidelines and as adapted for traffic design in this manual. TDOT contracts for the design and construction of hundreds of millions of dollars and many miles of road construction projects and has developed a plans format that many designers, roadway observers (i.e. roadway inspectors), and road contractors have become familiar and comfortable with. Variations from this format could create some confusion and misunderstanding and should be avoided. The following are plans layout requirements:

- **Plan Sheet Numbering:** On support projects, consult with the TDOT Roadway Design Manager for sheet numbering. The example shown in Table 3.1 is an intersection widening project with a traffic signal.
- **Plan Scales:** The typical plan scale for traffic signal intersection layouts is 1 inch = 30 feet (1"=30'). However, a plan scale of 1 inch = 20 feet (1"=20') is desired if the traffic signal intersection layout can fit on one plan sheet. No other scales for traffic signal intersection layouts are acceptable unless approved by the TDOT Design Manager. For traffic signal interconnect layouts, the minimum plan scale is 1 inch = 50 feet (1"=50') unless another scale is approved by the TDOT Design Manager.

- **Aerial Photography:** This may be used as a base for signal layout plans where no utility relocation is involved and right-of-way is easily established. However, a survey may be required for control purposes. Contact the TDOT Design Manager before using aerial photography.
- **Details:** A signal detail sheet will be required for each signal installation and should display wiring diagrams, tabulations of signal phasing, detection tables, and signal timing requirements.
- **Notes:** Any notes not listed in the Roadway Design Guidelines as General Notes are to be labeled Special Notes and shown apart from the General Notes.
- **Quantities:** Keep items as specific as possible. If possible, avoid costs to be included in other items for items.

Table 3.1 – Plan Sheet Numbering Example

Sheet	Preliminary*	Right-of-Way	Construction
Title	1	1	1
Index	1 or 1A	1 or 1A	1 or 1A
General Notes	2	2	2
Roadway Quantities	N/A	N/A	2A
Property Map, Acquisition Table	N/A	3	3
Present Layout	3, 4, etc	4, 5, etc	4, 5, etc
Proposed Layouts	3A, 4A, etc.	4A, 5A, etc.	4A, 5A, etc.
ROW/Utility Details	3B, 4B, etc.	4B, 5B, etc.	4B, 5B, etc.
Signal Layout	5 (or next number), 6, etc.	6 (or next number), 7, etc.	6 (or next number), 7, etc.
Signal Details	5A, 6A, etc.	6A, 7A, etc.	6A, 7A, etc.
Erosion Control	7 (or next number)	8 (or next number)	8 (or next number)
Traffic Control	8 (or next number)	9 (or next number)	9 (or next number)
Cross-Sections	9 (or next number), 10, etc.	10 (or next number), 11, etc.	10 (or next number), 11, etc.

*Follow the Preliminary example if the project includes the separate preliminary phase. Otherwise, follow the Right-of-Way example.