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## 1.0 PURPOSE:

The purpose of this document is to define the procedure for schematic review and approval.

All schematic review and approval for NTTA projects shall comply with the procedure established herein to ensure consistency, quality, and timely delivery. This procedure does not supersede the designer's professional obligations required under state statutes, nor does it relieve the designer from implementation of an independent internal QC/QA process prior to each milestone submittal. Milestone submittals are required at 60%, Draft-Final and Final completion.

## 2.0 RESPONSIBILITIES:

- 2.1 Director of Project Delivery (DPD) – The DPD shall be responsible for approving the schematic geometric design. TxDOT Design Division and FHWA approval are required for federally funded projects.
- 2.2 NTTA Design Manager – The NTTA Design Manager shall be responsible for reviewing the schematic geometric design and forwarding recommendation of its approval to the DPD. Additionally, the NTTA Design Manager is responsible for resolving any escalated disputed comments during the Schematic review process.
- 2.3 Corridor Manager (CM)/Project Manager – The CM/Project Manager shall be responsible for:
  - Oversight of all schematic development efforts to ensure compliance with NTTA and other applicable local, state and federal requirements
  - Reviewing the schematic geometric design and forwarding recommendation of its approval to the NTTA Design Manager, as well as distributing the design to non-NTTA stakeholders
  - Ensuring all Schematic submittals are processed using NTTA's electronic workflow tool (EPDS)
  - Coordinating project kick-off meetings and ensuring compliance with corridor scopes
  - Receipt, review, verification of necessary components as described in Table 1, and distribution of Schematic Design Package milestone submittals Collecting all review comments, compiling review comments and organizing a Comment Resolution Meeting with the needed parties by ensuring any duplicated and/or conflicting review comments are resolved internally prior to incorporation in the next milestone submittal
  - Verifying final resolutions have been resolved and incorporated into the plans
  - Request for a Level F estimate *and review and approval of Level E estimate*, in compliance with PC-02, *Cost Estimates*
  - Reviewing and providing production status to the Master Program Schedule in accordance with PC-06, *Schedule Management*
  - Coordination of any external stakeholders participating in the comment review processes (i.e. local or federal funding is involved such as TXDOT or FHWA). This review process is subsequent to the NTTA PD Review. These comments shall also be compiled and addressed prior to transmission to the DSE

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- In cases where comment resolution cannot be reached, issues may be escalated to the NTTA Design Manager for resolution

Table 1 Components of a Schematic Design Package	
Schematic Plot Distribution (Hard Copies)	3 roll plots - (See above for distribution)
Schematic Plot Distribution (Electronic)	CAD and PDF
Checklists	SD-04-F1, SD-04-F2 and SD-03-A1 when applicable
Comments	FD-01-F5 (initial and previous comments)
Estimate	PC-02-F2 - Level E
Supporting Documents	Design Criteria Preliminary Drainage Report Traffic Data Cross Sections Construction Staging Schematic Preliminary Sign Schematic Preliminary Structure Layout Design Exception Questionnaire Conceptual Alternative Analysis Others as required

- 2.4 Design Section Engineer (DSE) –** The DSE shall be responsible for:
- Developing a Schematic Design Package consisting of the components listed in Table 1 for 60%, Draft-Final, Final levels of design submittals to the CM/Project Manager, all of which are required on or prior to the dates defined in the detailed design project schedule
  - Submittal of milestone reviews for each Schematic Design Package (60%, Draft-Final and Final) using the NTTA’s electronic workflow tool (EPDS) to the CM/Project Manager
  - Responding to each comment by indicating on FD-01-F5 a “Response” and “Action Plan”, and re-submission to obtain concurrence. All comments require an entry of “Agree”, “Disagree”, “Clarification”
  - Upholding his/her professional obligations in addition to responding to and complying with comments and resolutions made by PD Design Staff and other agencies on design submittals
- 2.5 PD Design Manager –** The PD Design Manager shall be responsible for reviewing submittals, identifying appropriate PD Design Staff and engaging them in review of submittals, compiling all review comments, discussing comments with the CM/Project Manager, and obtaining approval of comment package from CM. The PD Design Staff shall be responsible for reviewing submittals, as appropriate based on discipline, and submitting comments to the PD Design Manager.

**3.0 SCOPE/APPLICABILITY:**

This procedure shall apply to all NTTA corridors and projects within the Project Delivery Department.

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#### 4.0 REFERENCES:

- A Policy on Geometric Design of Highways and Streets, AASHTO
- NTTA and TxDOT CAD Standards (local municipal, if applicable)
- TxDOT Project Development Process Manual: Chapter 2, Section 7: Geometric Schematic Approval
- TxDOT Roadway Design Manual
- [FD-06](#) Design Criteria
- [FD-01-F5](#) NTTA Comment Review Form
- [PC-06](#) Schedule Management

#### 5.0 DEFINITIONS & ACRONYMS

**Comment Resolution Meeting:** This meeting serves as a collaborative effort among all reviewers, the CM/Project Manager and the DSE to discuss and resolve solutions to disputed comments, as documented on FD-01-F5, and to clarify any comments and Action Plans. Comments are provided by reviewers on FD-01-F5. The DSE responds to the comments as follows:

- Comments denoted as “*Agree*” will be incorporated into the next milestone submittal
- Comments denoted as “*Disagree*” will require an “*Action Plan*” entry on FD-01-F5 to justify the response
- Comments denoted as “*Clarification*” shall be followed up immediately by the originator of the comment. This may be done by verbal or electronic communication. A Comment Resolution Meeting may be more appropriate in cases where joint discussions, exhibits, markups or drawings are needed to convey information. An “*Action Plan*” entry on FD-01-F5 will be necessary to confirm and clarify the uncertainty
- During the meeting, the CM/PM shall discuss each “*Disagree*” and/or “*Clarification*” response by providing a documented and accepted “*Action Plan*” with the agreed upon solution. The updated FD-01-F5 will be provided at the subsequent submittal

**Enterprise Project Delivery System (EPDS):** NTTA’s electronic workflow application tool for managing, tracking and review and approval of Project Delivery processes. Reference the Design Packages – Schematic Process Flow (SD-04-A1) in EPDS for detailed processing requirements of Schematic Design Package submittals. Electronic workflow and distribution in EPDS is not available to external review personnel. All outside agency reviews are conducted via hard copy and email distribution.

**Action Plan:** A plan of action, as documented on FD-01-F5, which serves as an agreed solution to address a comment that requires clarification or is in disagreement.

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**6.0 PROCEDURES:**

**General:** The schematic review and approval process consists of either a schematic review of a project using only NTTA funds or a schematic review of a project using NTTA funds and additional local, state, or federal funds. Each submittal shall be reviewed and commented on by the PD Design Manager prior to any reviews performed by stakeholders such as TxDOT, FHWA, etc.

**6.1 Schematic Design Package Submittal:** – The DSE shall deliver three (3) hard copies of the required components of the Schematic Design Package to the CM/Project Manager. In addition, electronic copies shall be submitted using EPDS. The required components of a Schematic Design Package are described in Table 1. A project including local, state, or federal funds shall be initially reviewed and approved by PD Design Staff, followed by a subsequent review of the following agencies (as appropriate):

- TxDOT District (district identified by location of corridor)
- TxDOT Design Division
- Federal Highway Administration (FHWA)

The 60%, draft final and final schematics shall be reviewed by the aforementioned agencies to ensure that schematic design criteria, project needs, and commitments are satisfied. A project using only NTTA funds shall be reviewed and recommended by PD Design Staff.

**EPDS Schematic file setup:** The DSE shall create and attach two (2) compressed “Schematic Design Package” folders using the following naming convention with the content as described in Table 2:

Table 2	
NAMING CONVENTION	SUBFOLDER CONTENT
Folder 1: X_Y_Sec#_SCHEM_CAD	<b>Schematic</b> - Microstation and Geopak files (using NTTA CAD Guidelines Manual)
Folder 2: X_Y_Sec#_SCHEM_PKG	<b>Schematic</b> - (pdf format)
	<b>Checklists</b> - SD-04-F1, SD-04-F2 and SD-03-A1 when applicable
	<b>Comments</b> – FD-01-F5, Comment Review Form (Initial and Prior submittals, complete with Responses and Action Plans)
	<b>Estimate</b> – Level F, (PC-02-F2)
	<b>Supporting Documents</b> – Design Criteria, Preliminary Drainage Report, Traffic Data, Conceptual Alternative Analysis, Others as required
X = Submittal Level (60, Draft-Final, Final) Y = Corridor/Project name # = Section or Segment number	

**6.2 Preliminary Review:** The CM/Project Manager receives one (1) hard copy for distribution to the following NTTA staff: Technical Oversight Leader, Design Guidelines Manager, NTTA Design Manager,

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Agency/Local Government Project Manager, Assistant Director of Maintenance; and two (2) hard copies for distribution to the PD Design Manager. Additionally, the electronic submittal is received by email notification containing a link to the Design Package Schematic submittal in EPDS. The CM/PM shall download and view the source files to begin the preliminary review for conformity and completeness. The CM/Project Manager has two (2) working days to complete the preliminary review, and return it to the DSE if it does not meet requirements.

**6.3 Create Review Team:** The CM/Project Manager shall create a review team composed of the PD Design Manager to start the review process. The CM/Project Manager shall also distribute the schematic checklist associated with the submittal level (60%, Draft-Final and Final) and form FD-01-F5 to capture each reviewers comments. NTTA's Technical Oversight Leader, Design Guidelines Manager, Design Manager, Agency/Local Government Project Manager and Assistant Director of Maintenance are copied on the EPDS submittal.

**6.4 PD Design Manager Review:** The PD Design Manager receives an email notification containing a link to the Schematic Design Package submittal in EPDS and then distributes form FD-01-F5 and corresponding hard copies to PD Design Staff for review. The review is typically a two week process. All reviewers shall document their comments on form FD-01-F5. The completed comments are then attached to the submittal in EPDS. PD Design Staff shall compile all of the comments into one file and save it as: **X\_Y\_Sec#\_Comments\_Z**, where "Z" corresponds to the review discipline.

**6.5 Compile and Review Comments:** When the PD Design Manager has completed the review process in EPDS, the CM/Project Manager receives an email notification containing a link to the Schematic Design Package submittal in EPDS. The CM/Project Manager shall review the comments and compile them into a single worksheet and save as: **X\_Y\_Sec#\_Comments**. The CM/Project Manager should also request if comments are available from NTTA's Technical Oversight Leader, Design Guidelines Manager, Design Manager, Agency/Local Government Project Manager and Assistant Director of Maintenance.

The CM/Project Manager shall negotiate and resolve any conflicting review comments. The CM/Project Manager submits the comments to the DSE for response and action plan generation.

**6.6 Response & Action Plan** – In accordance with the production schedule, and allowing sufficient time for resolution of disputed comments in advance of the next submission due date, the DSE shall review all comments and select a response from the pre-determined drop-down categories in FD-01-F5. If comments are agreed to, the DSE shall incorporate the comments into the subsequent milestone submittal. For all comments categorized as "Disagree" or "Clarification", the DSE must document a justification and Action Plan on FD-01-F5 and save as: **X\_Y\_Sec#\_ActionPlan**. The DSE shall submit the Response and Action Plans to the CM/Project Manager for review.

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**6.7 Response & Action Plan Review:** The CM/Project Manager shall review the DSE Response and Action Plans to determine if they are complete and acceptable. The CM/Project Manager may elect to schedule a Comment Resolution Meeting with the DSE and the Review Team to resolve “Disagree” or “Clarification” comments. When comments have been resolved, the CM/Project Manager shall update the Action Plans and submit them back to the DSE for review. When the response and action plans are complete and meet all requirements, the CM/Project Manager shall forward it to the DSE and copy the PD Design Manager.

**6.8 Incorporate Response & Action Plans:** The DSE incorporates all comments and action plans into the Schematic Design Package as requested by the CM/Project Manager, recreates the electronic file folders with the updated documents (reference Table 2) and attaches them to the next milestone Schematic EPDS submittal.

**6.9 Submittal Level Determination:** The Schematic Design Package submittal process is repeated (steps 6.1-6.8) until the Final submittal is completed. The Final Schematic Design Package shall be forwarded to the NTTA Design Manager.

**6.10 Final Approval:** The Final Schematic Design Package shall be reviewed by the NTTA Design Manager, and if acceptable, shall recommend approval to the DPD. The DPD shall review the Final Schematic Design Package, and if acceptable, shall approve.

**6.10.1** If the NTTA Design Manager or DPD do not approve the Final Schematic Design Package submittal, it shall be returned to the CM/Project Manager to compile their comments and send to the DSE for response (return to step 6.7).

**6.11 Archive Schematic Design Package:** The CM/Project Manager shall copy the approved Final Schematic Package to EPDS Content Management.

Final geometric schematic design approval shall be obtained from the DPD prior to starting final design.

**7.0 REGULATORY REQUIREMENTS:**

N/A

**8.0 RELATED BOARD POLICY:**

N/A

**9.0 COMPONENT DOCUMENTS:**

- [SD-04-A1](#) Design Packages – Schematic Process Flow
- [SD-03-A1](#) TxDOT Advanced Project Development Design Schematic Checklist
- [SD-04-F1](#) 60% Schematic Checklist

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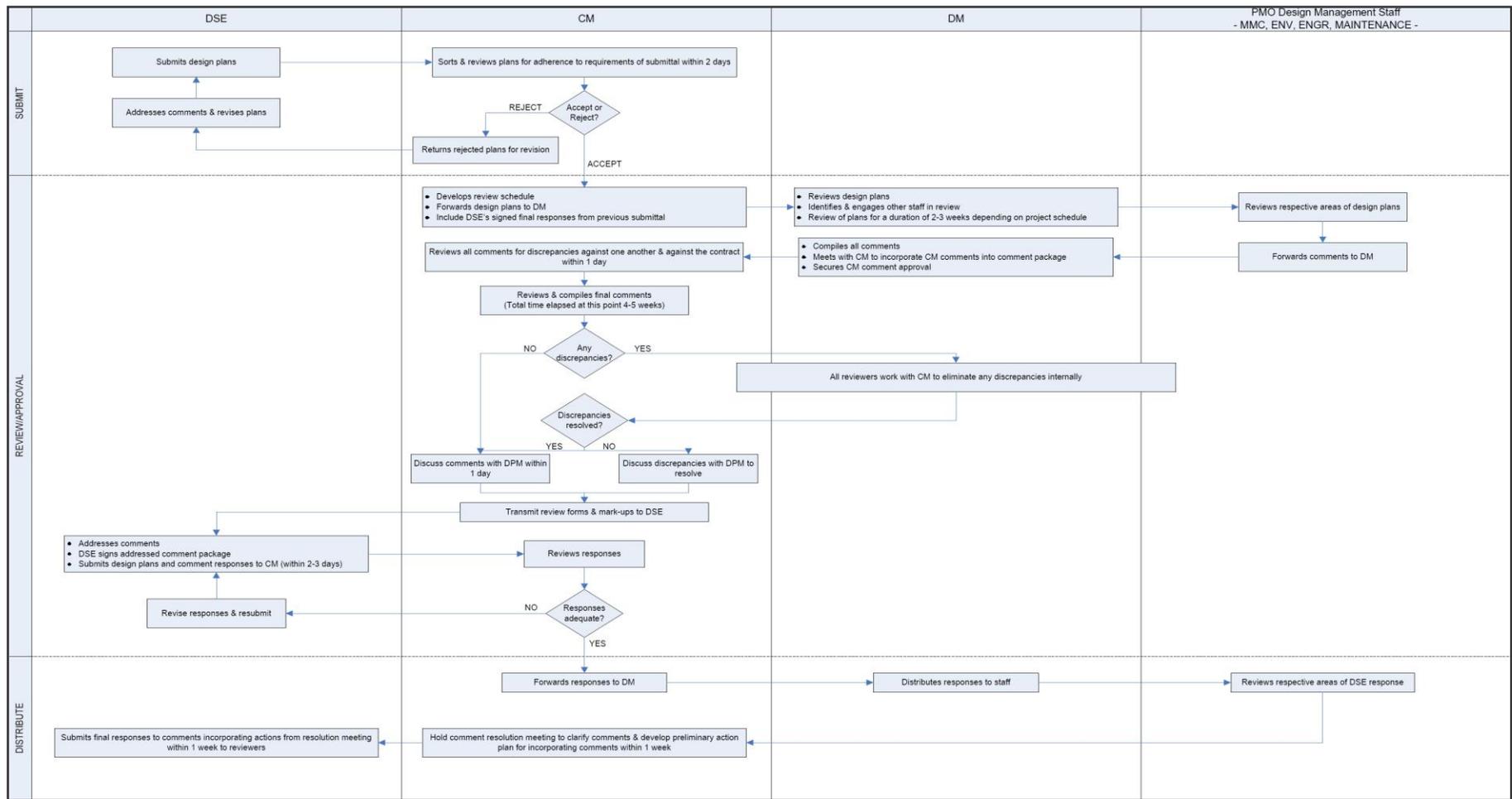
- [SD-04-F2](#) Draft Final & Final Schematic Checklist
- [FD-01-F5](#) Comment Review Form

**10.0 REVISION HISTORY:**

Revision	Revised by:	Date Issued	DRN	Reason for Revision
0	Dave Clarke	06/05/2008		Original Issue
1	Darla Payberah	04/28/2011	<a href="#">10289</a>	Updated roles new/replaced roles and provided minor revisions for clarity. Added SD-04-A1section 9.0 Component Documents.

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**11.0 FLOWCHART: 60%/90%/Draft Final/Final Submittal Process only NTTA Funds** (Adjust zoom to enlarge)



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**11.1 FLOWCHART: Draft Final/Final Submittal Process with Other Funds** (Adjust zoom to enlarge)

