Section 1.1

Plans Review and Comments

1.1.1 Purpose

The Department provides opportunities for the District Construction Offices to become involved in the design element of the project development process. By taking advantage of this opportunity, the construction offices can provide comments that will improve the design of the transportation facility, decrease construction duration and address potential issues which may otherwise arise during the construction of the project. This procedure, ***the FDOT Design Manual (FDM)***, ***Topic No. 625-000-002***, and the ***Structures Manual, Topic No. 625-020-018*** describe the responsibilities and duties of various offices in the Department to perform phase reviews.

1.1.2 Authority

Sections **20.23(3)(a)** ~~20.23(3)(a)~~ and **334.048(3)** ~~334.048(3),~~ ***Florida Statutes (F.S.)***

1.1.3 General

Any person performing reviews must be familiar with *the* ***FDM***, the designer's ***Scope of Services*** and ***Request for Proposal (RFP)*** documents as applicable. The ***FDM*** describes the review phases and submittal requirements for each review stage.

This ***Manual*** adheres to the terminology used in the ***FDOT Design Manual, Topic No. 625-000-002***.

For conventional design-bid-build projects, the Phase II review is referred to as the constructability review when performed by the District Construction Office. When the District Construction Office performs a Phase III review, it is referred to as a biddability review. Constructability and biddability should be addressed at each review.

For bridges, there are four stages of plan development on conventional design-bid-build projects. Stage 1 occurs during the Project Development & Environment (PD&E) process. Stage 2 consists of the Bridge Development Report (BDR) and Phase I plans. Construction and maintenance considerations should be addressed in the BDR. Stage 3 includes the Phase III plans and technical specification submittal. Stage 4 is the Phase IV plans and complete specifications. Only a foundation submittal is required for Phase II structure plans except for Category 2 bridges that require a full submittal.

The plan reviewer must look for potential issues that can or will cause increased project duration and cost when the project is being constructed, as applicable. A plan review may be an opportunity to provide suggestions to improve the end product.

The Designer must give the District Construction Offices a reasonable amount of time, in accordance with Department policy, to perform the reviews. The District Construction Office must assign knowledgeable personnel with adequate time to perform the reviews. Comments will be provided in a timely manner so as not to delay development of the project.

The District Construction Offices must involve the respective resident office in each review to the maximum extent possible.

Comments made should relate to the Department's ability to receive favorable bids, construct the project as designed, and to address issues that might occur during construction.

All plan reviews shall be facilitated using the Department's ***Electronic Review Comment (ERC)*** system. The designer must provide responses to each plan review comment submitted which indicates a response is required. The plan reviewer must review and either reject or accept each comment response. All comments related to any specific plan development phase shall be adequately addressed to the satisfaction of the plan reviewer before any subsequent phase review submittals may be entered into the ***ERC*** system.

The following direction applies to all discipline phase plan reviewers performing Component Plan Reviews on Design-Build and Public-Private-Partnership projects:

Separate component plan review comments into categories which consist of Response Required Comments and FYI Comments.

- Response Required Comments refer to direct violations of the Contract and require a written response by the Design-Build Firm or Concessionaire. Where possible, the plan reviewer is expected to include the specific contract reference or requirement that is being violated. Examples may include, but are not limited to:

    - an AASHTO provision being violated.
    - a Governing Regulation, e.g., ***FDOT Design Manual (FDM)***, ***Structures Design Guidelines (SDG)***, requirement being violated;
    - a ***Technical Proposal*** commitment not being met;
    - a ***Request for Proposal*** requirement being omitted or violated;
    - omission in the plans or calculations;

- inconsistencies between the plans and calculations;
- an environmental commitment or permit commitment not being met.

- FYI Comments do not refer to direct violations of the Contract, so they do not require a written response by the Design-Build Firm or Concessionaire. At the end of each comment, the plan reviewer shall indicate that the comment is for information only and a written response is not required.

For additional requirements related to Component Plan Reviews on Design-Build and/or other non-conventional type projects, refer to the ***Request for Proposal*** document and ***FDM 131, 132, 133 and 901.*** ~~***301***~~.

During each phase of review, time charges should be made against the appropriate in-house support project corresponding to the construction project review.

1.1.4 Scope Development

District Level Responsibility

The Quality Control Plans for many districts require the participation of the District Construction Office in developing the scope of the project. The project scope shall be complete and anticipate future improvements if necessary.

1.1.5 Phase I Review (Roadway)

District Level Responsibility

At this review stage, no decisions have been finalized and there is an opportunity to change aspects of the project that may have serious consequences as the project progresses from concept to completion. The key to designing a successful project involves establishing all the restraints to constructing the project early in the design so that permits, Right of Way (R/W) easements, utility relocations, etc., will lead to a constructible project. The plan reviewer should concentrate on assisting the designer in determining these restraints. This provides an opportunity for the plan reviewer to provide input on how the project should be constructed.

1.1.5.1 Roadway Plans

District Level Responsibility

The plan reviewer should be familiar with the ***FDM, Topic No. 625-000-002,*** and be familiar with the information that is required to be in the plans for a Phase I review. If any

of this information is missing, its absence should be noted and corrected. Particular attention should be placed on reviewing alignments, typical sections, topography, benchmarks, and geometry for layout, R/W requirements and the traffic control conceptual plan.

R/W at intersections should be checked to make sure there is sufficient room for sidewalks, drainage structure connections, and signal poles. R/W widths should be sufficient to provide for adequate front slopes and back slopes to ditches, transitions to driveways, and future drainage structures.

The traffic control conceptual plan will have a substantial impact on the project's duration. The number of phases should be minimized. Staged construction and sequence of operations should be reviewed to minimize the impact on business.

If possible, utilities should be identified that could or should be relocated before construction. If utilities cannot be relocated before construction, encourage the use of Joint Project Agreements for relocation during construction by the Department's Contractor.

1.1.5.2 Bridge Plans

District Level Responsibility

The development of bridge plans will trail behind roadway plans at this stage because the bridge plans require the vertical and horizontal geometry, approved typical section, and Traffic Control Plan developed in the roadway plans.

1.1.6 Phase II Reviews (Roadway) and Bridge Plan Reviews

District Level Responsibility

For projects that consist of roadway and structures, the Phase II reviews for roadway and the latest set of structures plans should be submitted as a unit. At this review, the project layout is complete. Most R/W requirements should be identified, and all phases of construction should be detailed on the plan set.

1.1.6.1 Roadway Plans

District Level Responsibility

The most important aspect of this review is the drainage structures, cross and side drains, and outfall locations and R/W requirements. The plan reviewer must assure that:

(1) Pipe and drainage structure locations will not adversely affect the project duration by forcing an additional work phase.

(2) Sufficient R/W has been allowed for trenching drainage structures and for outfall locations.

(3) Apparent conflicts with utilities have been addressed.

(4) Utility contract plans have been coordinated with phasing of the roadway.

(5) Provisions have been made for positive drainage during each phase of construction.

(6) All necessary pay items are included in pay item list.

(7) Conflicts between light standards and utilities and drainage (especially where foundations are required) are resolved.

1.1.6.2 Bridge Plans

District Level Responsibility

At the BDR/Phase I bridge plan stage, the District Construction Office review should concentrate on the ability of the Contractor to get materials to the site and the ability to perform the work. Specific bridge details are not developed at this time. Some specific areas to be reviewed should include:

(1) Beam length and weight for transportability either by road or barge.

(2) R/W requirements especially for haul route, access, and staging areas.

(3) Ability to locate appropriately sized equipment on the project (i.e., is there room between bridges? Will the soil beneath the bridge or on access roads support very heavy equipment? Is water depth sufficient for barges?).

(4) Are the assumed construction methods appropriate for the site?

(5) Are utilities properly located?

(6) Will there be any difficulties encountered during installation of the foundations?

(7) Can utilities be relocated before construction? (This is especially important when utilities are hung from bridges or utilities will be in the area where piles, drilled

shafts, or temporary sheeting will be installed.) And, has the designer made any decisions about project phasing that will increase the project duration by impacting phase transitions? Is there a viable alternative?

(8) Does the design of the various bridge elements allow for reuse of formwork?

(9) Is removal of lead-based paint involved on the project? Asbestos removal? Creosote materials? Excavation in contaminated areas?

1.1.7 Phase III Review and Stage 3

District Level Responsibility

The designer must submit roadway plans, specifications, structures plans (if any), and specifications for this review. Conflicts and ambiguities between or among these elements must be resolved. The District Construction Office conducts a biddability review to establish whether a Contractor can submit a competitive bid based on the information shown in the plans and specifications. At this stage, many decisions have been made that cannot be undone; but it is still an important review because it provides an opportunity to remove some of the more common problems. Since constructability and biddability should be addressed at each review, the constructability review at this Phase should concentrate on the ability of specific details to be constructed within the requirements of the plans and specifications and to propose better details if possible.

Other common problems are caused by plan notes. Plan notes should avoid directing means and methods to a Contractor. Plan notes should be clear and concise and relay important information without conflicting with plan details and specifications. Plan notes should never reiterate or circumvent the requirements of the specifications.

One of the most common problems relates to pay items. There must not be any missing or incorrect pay items (Refer to the Basis of Estimates Manual or specifications for the correct use of pay items). There must be a clear method of payment for all items of work. Also, there should not be double pay for the same work. The Summary of Pay Items in the Estimated Quantities Report and the plans must agree.

The biddability review should concentrate on quantities for each item of work called for in the plans and specifications. What is material used for? How much? Where does it go on the project? Are the quantities correct? Reasonable? Misleading? Duplicated? Unnecessary? Contingent?

The District Construction Office needs to identify the following needs:

(1) Traffic Control Officers' hours and Speed and Law Enforcement Officers

(2) Partnering

(3) Disputes Review Board

(4) Pre-Bid Meetings

1.1.8 Phase IV Plans Review

District Level Responsibility

This review is to assure that all previous comments are resolved and plans, and specifications are complete. There should not be conflicts between or among contract documents.

1.1.9 Checklist

District Level Responsibility

A sample checklist as shown in ***Guidance Document 1-1-A*** provides a guide for the phase reviews. Comments should not be limited to items on the checklist. Each plan reviewer is encouraged to expand on this checklist by adding other items.

Guidance Document 1-1-A

PHASE REVIEW CHECKLISTS

FINANCIAL PROJECT ID NO.: _____

Review Phase: I II III IV

NAME OF REVIEWER: _____

DATE:

1. CLEARING/GRUBBING/EXCAVATION

Item No.	Feature to be Checked	Ok	Not Ok	N/A
1-1.	Delineation of limits of grubbing, clearing and landscaping.			
1-2.	Sites for temporary fill and topsoil storage. Laydown area on same side of road as fill area. Room for storage of excavated muck to be used as muck blanket. Indication of dump sites.			
1-3.	Measurement of borrow. Percentage shrinkage used satisfactorily.			
1-4.	Underground obstructions clearly marked.			
1-5.	Stabilization limits clearly shown.			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	
Designer's Comments	
Designer's Comments	

2. SITE SURVEY/PLAN/PROFILE

Item No.	Feature to be Checked	Ok	Not Ok	N/A
2-1.	Right of Way and property line dimensions in the plan.			
2-2.	Site conditions conform to those represented in plan.			
2-3.	Existing topography accurate and up-to-date and the profile fits the terrain.			
2-4.	Work elements identified clearly, and all corresponding pay items are included with adequate quantities to construct project.			
2-5.	Plans clear and legible. Any apparent conflict between plans and specifications.			
2-6.	Existing drainage patterns shown. Its conflict with new work depicted.			
2-7.	Typical section against existing and proposed Right of Way.			
2-8.	Line and grade of ditches and fences for conflict with existing cross-section.			
2-9.	Benchmark data, needed elevations, curve data in the plan.			
2-10.	Water table elevations and requirement of dewatering.			
2-11.	Check cross-sections for grade changes at phase tie ins.			
2-12.	Appropriate general notes and special provisions required for construction.			
2-13.	Pavement design shown graphically matches with the verbal description on sections.			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	
Designer's Comments	

3. REMOVAL/DEMOLITION

Item No.	Feature to be Checked	Ok	Not Ok	N/A
3-1.	If structures to be removed or renovated, asbestos survey?			
3-2.	If asbestos or creosote timber is being removed, are special instructions and disposal defined? Who will handle?			
3-3.	Are there clear limits of removal? Horizontally and vertically?			
3-4.	Is there adequate construction access for demolition?			
3-5.	Is there a clear method of disposal?			
3-6.	Adequate provisions if signs or road markers to be removed.			
3-7.	Appropriate milling details (e.g., limits are identified; special treatment at bridge ends; bridge overpass, etc.).			
3-8.	Availability of demolition site.			
3-9.	Are there contamination sites delineated? Utility relocation in or near these sites?			
3-10.	Depth of embedment, required excavation and inside details of removable items.			
3-11.	Depiction of valve boxes, manholes, hydrants and provisions for relocation.			
3-12.	Disassembly and adequate specified protection requirements. Disassembly of plant, structure, utility or equipment and adequate specified protection requirements to existing utility or structure.			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	
Designer's Comments	
Designer's Comments	

4. STRUCTURES

Item No.	Feature to be Checked	Ok	Not Ok	N/A
4-1.	Does Corp. of Engineers or WMD permit require work not shown on plans?			
4-2.	Is TCP coordinated with roadwork phasing?			
4-3.	If battered pile used will leads be over moving traffic? Will they miss R.E. walls?			
4-4.	Do plans show all utilities, existing pile locations and existing foundations in temporary and permanent pile driving area?			
4-5.	Water depth sufficient to float barges? Will barges block boat traffic? prop wash?			
4-6.	If access not practical by barges, have temporary work bridges or fill been considered? Is method consistent with permits?			
4-7.	Have power service points for signing, lighting, signals been confirmed?			
4-8.	Is highway lighting properly detailed for bridge? pilaster detail?			
4-9.	Are there any problems with R/W, i.e., Reimbursement Agreements and easements?			
4-10.	Has TCP Plan addressed channeling traffic from under overhead work?			
4-11.	If Federal-Aid Project, is foreign steel required on the project? If so, has the EOR obtained a design variance and waiver of the Buy America requirements from FHWA?			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	
Designer's Comments	
Designer's Comments	

5. UTILITIES

Item No.	Feature to be Checked	Ok	Not Ok	N/A
5-1.	List of all utility owners and contact numbers.			
5-2.	Existing utility location marked in the plan.			
5-3.	Utility conflicts and their relocation indicated in design.			
5-4.	Disruptions of other utilities and provisions for restoration.			
5-5.	Responsibility to relocate utility and provisions.			
5-6.	Verification of new utilities connecting with existing.			
5-7.	Adequate description of connection and reconnection points.			
5-8.	Availability of indicated existing utility ducts and their proximity to highway facility and traffic.			
5-9.	Other utilities which new underground ducts intersect or traverse.			
5-10.	Utility crossings resolved via scheduling restrictions (i.e., weekends, after hours) or temporary structures.			
5-11.	Overhead utilities, guy wires for potential conflict with operations and access of large equipment.			
5-12.	Utilities required for construction operation and field offices.			
5-13.	Sewer lines below water mains and gas lines above other utilities.			
5-14.	Space between R/W line and drainage structure to allow for construction.			
5-15.	Utility conflicts with drainage.			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	
Designer's Comments	

6. DRAINAGE

Item No.	Feature to be Checked	Ok	Not Ok	N/A
6-1.	Existing drainage patterns, their continuity and high-water indications.			
6-2.	Drainage easement, if required, in the plan.			
6-3.	Identification and adequacy of all drainage items and quantities.			
6-4.	Ditches compatible with existing and proposed drainage structures.			
6-5.	Needed elevations shown in the plan and compatibility of location of design with existing conditions.			
6-6.	Drainage when FC-2 (open graded friction course) is specified.			
6-7.	Drainage of construction area during work.			
6-8.	Drainage facility provided with the lanes on which traffic is to be maintained during work.			
6-9.	Proposed method of connecting new and old drainage facility.			
6-10.	Effect of overlay on intersections, gutters, curbs as regards to drainage and their adjustment.			
6-11.	Outfall locations of temporary and permanent drainage facility, if any.			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	
Designer's Comments	

7. MAINTENANCE OF TRAFFIC

Item No.	Feature to be Checked	Ok	Not Ok	N/A
7-1.	TCP (Traffic Control Plan) clear, complete, approved and conform to FDOT Standard Index.			
7-2.	Temporary safety devices requirement and provision (i.e., guard rail, attenuators, earth mounds, etc.)			
7-3.	Location of traffic control signs, warning devices and barricades. Check if they are encroaching on lanes.			
7-4.	Detour facility, if any, and maintenance of traffic. Traffic addressed on side streets as per Index 600 of Standard Index.			
7-5.	Traffic operation requirements properly addressed (i.e., signing, pavement markings, signal, etc.).			
7-6.	Relocation item for barrier wall or fence.			
7-7.	Location of flashing arrow boards, if needed, at appropriate places.			
7-8.	Lanes on which traffic is to be maintained compatible to local conditions and intended to be paved.			
7-9.	Is there sufficient clearance within the work zone for the operation (such as crane swing room)?			
7-10.	Adequate accommodations for intersecting and crossing traffic.			
7-11.	Address pedestrian and bicycle accommodations.			
7-12.	Are exits and entrances to the work zone adequate and safe?			
7-13.	Method of containing bridge slopes during phased construction (at end bent) and approach grade separations.			
7-14.	Restrictions (e.g., lane closure, general construction or peak-hour restrictions in urban areas) indicated in plan.			
7-15.	Note covering traffic signal modifications for phased construction.			
7-16.	Note covering pay for traffic control items.			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	

8. SIGNALIZATION

Item No.	Feature to be Checked	Ok	Not Ok	N/A
8-1.	Pole locations and their conflict with utilities and drainage structures.			
8-2.	Controller, signal heads, pull boxes, pedestrian pole locations.			
8-3.	Vertical conduit.			
8-4.	Verification of conduit street crossing to become overhead.			
8-5.	Existing controller compatible to added items.			
8-6.	Fiberglass insulators needed for span wire due to power overhead lines and adequate provisions.			
8-7.	Number of detectors is right.			
8-8.	Any signs attached to the overhead span wire for the traffic signal.			
8-9.	Disposition of existing signal poles and other equipment if they are removed.			
8-10.	Signal arms far enough to provide sidewalk access.			
8-11.	Pole embedment conforms to proper depth criteria.			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	
Designer's Comments	
Designer's Comments	

9. SCHEDULE/PHASING/ACCESS

Item No.	Feature to be Checked	Ok	Not Ok	N/A
9-1.	Review of design and construction schedule for feasibility.			
9-2.	Scheduling and phasing with activity needs.			
9-3.	Access maintenance to all occupied spaces by reviewing scheduling restrictions, sequence of work restrictions, delineated work areas.			
9-4.	Type and limits of fence to be used for limited access highways.			
9-5.	Defined and designated lay down area and sufficient space for trailers, material storage and operations.			
9-6.	Requirements for local/state special permits.			
9-7.	Haul route different from most direct route and indicated in TCP.			
9-8.	Any walls or special access required to adjacent property.			
9-9.	Easement of available adjacent property for storage & construction.			
9-10.	Safe pedestrian access and access to business and residences provided.			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	
Designer's Comments	
Designer's Comments	

10. NATURE & ENVIRONMENT PROTECTION

Item No.	Feature to be Checked	Ok	Not Ok	N/A
10-1.	Erosion and pollution control items/measures.			
10-2.	Depiction of all existing trees and shrubs to remain and those to be removed.			
10-3.	Are the NPDES permit requirements addressed?			
10-4.	DEP and local agency requirements are clearly identified.			
10-5.	Provisions to prevent groundwater contamination/other environmental pollution.			
10-6.	Project's environmental protection safeguards with respect to dust control, erosion, and disposal of wastes.			
10-7.	Provisions for noise abatement (e.g., permanent noise walls)			
10-8.	Does the plan try to accommodate local noise ordinances?			
10-9.	Verification of landscaping and planting requirement and their conflicts with utilities (e.g., irrigation lines).			
10-10.	Where additional trees are planted, is there sufficient space (25-30') for power mowers?			
10-11.	Provisions for silt fences, turbidity barriers, etc.			

Suggested Changes: (to be completed for items checked "NOT OK")

Item No.	Description of Change
Designer's Comments	
Designer's Comments	
Designer's Comments	
Designer's Comments	

11. RECONSTRUCTIBILITY

When this project needs to be reconstructed, (i.e., repaving, widening, utility/drainage work, etc.) in the future, which of the following project components, as designed, will facilitate reconstruction?

Item No.	Feature to be Checked	Ok	Not Ok	N/A
11-1.	Earthwork design (e.g., "temporary" borrow, "additional excess," detour material, embankment, etc.).			
11-2.	Right of Way acquisition (e.g., for signal and lighting foundations, redesigned radii of drainage structures, utility relocation, construction easements, adequate workspace, desirable clear zone, etc.).			
11-3.	Geometrics and roadway alignment (e.g., curve data, sight distance, vertical datum, centerline, etc.).			
11-4.	Utilities (e.g., accuracy of location, proposed relocation, conflicts with other structures, future MOT impact, etc.).			
11-5.	Pavement (e.g., design criteria, flexibility to change, material alter- natives, etc.).			
11-6.	Drainage structures (e.g., new and standardized structures, size of pipe, low head piping, interim drainage).			
11-7.	Lighting and signs (e.g., conduit size, service point locations, design of structures, compatibility, power source, etc.).			
11-8.	Other structures (e.g., mix design, strength, pile information, finishes, concrete, and steel requirements, etc.).			

Item No.	Comments