Production Support Office

PROJECT MANAGEMENT

GUIDE

Project Management Guide

Part 1 General Project Manager Topics and Concepts

Project Management Guide

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Introduction

The Project Management Guide (PMG) is a resource intended to be used as a guidance document by FDOT and Consultant Project Managers (PMs) to better manager and deliver FDOT projects. The PMG is designed to be used in a digital format and is located on the ***Project Management Resource Page*** along with other resources for project managers such as forms, trainings, links, and applications.

How to Use

The PMG is broken up into four parts:

- Part 1 – General PM Topics/Concepts
- Part 2 – General Project Process
- Part 3 – Phase Specific Project Management
- Part 4 – Alternative/Special Project Classifications Topics

Each part contains multiple chapters which are broken down into categories. The layout is meant to allow easy and quick access to PM topics within a FDOT project. The PMG can also be used as a training tool for onboarding PMs new to FDOT Project Management.

Management & Maintenance of the PMG

The PMG is managed by the Production Support Office's Project Management Section, located in FDOT's Central Office. The guide will be maintained and updated regularly. Topic chapters are listed for existing topics (having a "Last Update" date) as well as topics proposed for future inclusion in the PMG.

We hope you find the PMG helpful and user friendly. If you have any recommendations or suggestions to improve the PMG, or if you would like to request a topic for inclusion in the PMG, please contact the ***Project Management Section***.

Introduction

The Project Manager (PM) is responsible for the success of their project. A successful project meets the project objectives: on time, within budget and at an appropriate level of quality. To accomplish the objectives of a successful project, PMs must have a clear understanding of their responsibilities and roles.

Florida Department of Transportation (FDOT) managers and staff have a fundamental responsibility for proper stewardship of state resources. State Resource use must be consistent with FDOT's mission and in compliance with laws, rules, regulations, and procedures. Waste, fraud, unauthorized use of public funds and mismanagement is not acceptable and must be avoided. FDOT employees must ensure that resources are used efficiently and effectively to achieve the intended results.

Areas of Responsibilities

PM's responsibilities are described as follows:

Scope: The scope must clearly define the project objectives. The PM must follow the scope carefully to ensure that it is met and that only work defined in the scope is undertaken. Work beyond that authorized in the scope is known as "scope creep," and it is unnecessary and expensive.

Contract: The PM must responsibly manage contracts to ensure that all contract provisions are completed. If there is not a formal contract, such as for in-house projects, there is an implied contract with the management of the FDOT. It is the role of the PM to meet the contract objectives.

Cost: Keeping cost within the budget is a primary responsibility of the PM. It is important to ensure that the invoiced costs have been incurred and that they are in compliance with the contract.

Time: Completing the work on time is another major responsibility of the PM. This involves monitoring the project schedule, coordinating any updates, managing setbacks, and working with the consultant to ensure project success.

Quality: The PM must deliver a product of a quality that meets or exceeds the standards of the Department and the profession.

Risk: All projects have risks. The PM must be aware of risks and identify response strategies to reduce or eliminate unacceptable risks to the project. Risk management is important throughout the life of a project.

Communication: The PM must communicate effectively to be successful. All communications skills are important: writing, speaking, conducting meetings, interpersonal exchanges and listening.

Human Resources: The largest single expense of most projects is usually labor, so the efficient and effective use of staff should be a concern of the PM. The PM must always be concerned about development of the project staff and delegate effectively so that people can grow professionally. Staff development is a particular concern for consultant PMs. Not all FDOT PMs have personnel responsibilities; nevertheless, they should be concerned about the development of less experienced staff assisting them. The development of consultant personnel is also in the interest of the FDOT and should be encouraged by the FDOT PM.

These responsibilities apply to all PMs, whether they are FDOT or consultant, who are managing any phase of a project: Planning, Project Development and Environment (PD&E), Design, Right of Way, Construction or Maintenance. The PM is at the hub of concern and accountability.

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105 – PM Roles and Responsibilities

105 – Statutory Authority

Consultant Projects

When a project has a Department and a consultant PM, both are equally responsible for the success of the project; however, it is important that each one's responsibility and role be clearly defined. The FDOT PM is accountable to the management of the Department for the success of the project. The FDOT PM must take ownership of the project. The FDOT PM must have a drive to succeed and manage from a "big picture" view of the project. The FDOT PM must understand that the consultant was hired because of expertise and resources available to do the job. The consultant PM must accept professional responsibility for the project and, therefore, should have the authority to match that responsibility.

The consultant PM must fulfill the scope of services and other contract requirements on time, within budget and of an acceptable quality. In addition to contractual responsibilities, the consultant PM has certain business responsibilities to their firm related to both profitability and obtaining future work. The consultant PM should aggressively pursue the project from beginning through completion and not wait for specific instructions from the FDOT PM at each step of the way.

Working Together

The FDOT PM and the consultant PM must function as a team. The responsibilities and roles of both PMs must be clearly defined and understood in order to promote teamwork. The overall objective of both PMs is to manage a successful project, but each must respect their counterpart's unique organizational responsibilities.

Successful PMs adjust their methods of operation and management style to complement the methods and style of their counterpart. The consultant PM must spend the time necessary to ensure that there is a mutually comfortable level of understanding of the technical issues. Equally, if the consultant PM is not familiar with FDOT procedures, the FDOT PM must spend time helping the consultant PM gain knowledge and understanding about the Department. Both PMs must work to build trust and foster a productive relationship, while following the Department's ***Ethics Policy (Topic 001-010-020)*** and ***Rule 60L-36.003, Florida Administrative Code***, concerning relations with regulated entities.

Relationships are frequently determined by personalities. Sometimes personalities clash. Both PMs must be willing to work to overcome potential personality clashes. Communication is essential. Each PM must be forthcoming with concerns about their counterpart. There needs to be some give-and-take in any relationship. Be willing to compromise on those issues that do not jeopardize the statutory responsibilities of the FDOT PM or the success of the project. It is essential to have a productive working relationship. The success of the project, being paid for with public funds and for public use, is ultimately the most important consideration.

If a productive relationship is not possible, then the consultant PM has a responsibility to recognize the situation and to work with the firm's management and the FDOT to find an acceptable replacement consultant PM. Although this course of action may be painful, in severe cases it may be the only solution that will allow the firm to complete the project without damaging future business relationships. If the consultant does not take the initiative in such a severe case, the FDOT PM should discuss the situation with the district management. If necessary, either the FDOT PM or a more senior FDOT manager should meet with the firm's principal in charge of the project and request that appropriate action be taken.

Both the FDOT and the consultant PM have specific roles to play in the fulfillment of the responsibilities previously discussed. These roles are illustrated in the following tables.

Roles of FDOT Project Manager

	FDOT PM MUST
SCOPE	• Develop the Scope of Services. Coordinate input from support services and the project team. • Know and understand the Scope. • Be accountable to management for the success of the project. • Approve modifications to the Scope and update the document.
CONTRACT	• Thoroughly know and understand the contract and fulfill all contractual obligations. • Understand fiduciary responsibilities to ensure proper expenditure of public funds and to ensure that contracted services are delivered. • Review deliverables, progress reports and other project monitoring tools to identify problems early. • Take decisive action if monitoring indicates a problem, i.e., work products are deficient, the consultant is not responsive, or the project is significantly behind schedule.
COST	• Stay within the budget. • Be concerned about total costs including design, right of way, construction and maintenance services. • Process appropriate changes in the contract amount.
TIME	• Approve any change in project schedule. • Be concerned with schedule linkages to other projects in the Work Program. • Identify actions required by FDOT management and ensure timely completion. • Ensure that Department review commitments, as defined in the contract, are met.
HR	• Ensure that staff is available to perform the project and to review the project team.

Roles of Consultant Project Manager

	CONSULTANT PM MUST
SCOPE	• Completely understand and fulfill the Scope of Services. • Not work beyond the Scope of Services. • Be Accountable to both FDOT and firm management for the success of the project.
CONTRACT	• Thoroughly know and understand the contract and fulfill all contractual obligations. • Fulfil all contract and requirements on time, within budget and of an acceptable quality. • Ensure that all progress reports and deliverables are submitted on time. • Advise FDOT of contractual problems in a timely manner and propose reasonable solutions.
COST	• Complete the project within established budget. • Meet the profit objectives for the project set by firm management.
TIME	• Meet all schedule requirements. • Know which activities are on the critical path and manage these activities aggressively. • Update the schedule as needed.
HR	• Ensure that the necessary human resources are available to perform the project. • Ensure that the key staff members work on the project as proposed to FDOT. • Delegate effectively. Coach and train others to become project managers.

This chapter outlines statutory requirements that the FDOT must adhere to.

Statutory Authority

The term “Project Manager” is used to identify the FDOT’s assigned individual responsible for enforcing performance of contract terms and conditions. The terms “Contract Manager” and “Department Managers” used in the Florida Statutes (F.S.) are synonymous with “Project Manager”.

Subsection 334.048, F.S.

“**Legislative intent with respect to department management accountability and monitoring systems**. The department shall implement the following accountability and monitoring systems to evaluate whether the department’s goals are being accomplished efficiently and cost-effectively, and ensure compliance with all laws, rules, policies, and procedures related to the department’s operations:”

“. . . (5) All department managers shall be accountable for the implementation and enforcement of all laws, rules, policies, and procedures adopted for their areas of responsibilities.”

“. . . Such systems are herein established to quickly identify and resolve problems, to hold responsible parties accountable, and to ensure that all costs to the taxpayer are recovered.”

Subsection 287.057(14), F.S.

“For each contractual services contract, the agency shall designate an employee to function as contract manager who is responsible for enforcing performance of the contract terms and conditions and serve as a liaison with the contractor.”

“…(a)… The Chief Financial Officer shall establish and disseminate uniform procedures pursuant to ***s. 17.03 (3)*** to ensure that contractual services have been rendered in accordance with the contract terms before the agency processes the invoice for payment. The procedures must include, but need not be limited to, procedures for monitoring and documenting contractor performance, reviewing and documenting all deliverables for which payment is requested by vendors, and providing written certification by contract managers of the agency’s receipt of goods and services.”

Subsection 287.057(15), F.S.

“Each agency shall designate at least one employee who shall serve as a contract administrator responsible for maintaining a contract file and financial information on all contractual services contracts and who shall serve as a liaison with the contract managers and the department.”

Enforcing the Contract

The Project Manager must ensure that the acquired product or services meets the established project schedule, meets or exceeds industry standard for quality, is delivered at a fair and a reasonable cost and complies with all federal or special regulations.

The Project Manager has responsibility to objectively evaluate the consultant’s performance. Continual monitoring can assist in identifying and reducing fiscal or program risks, which include the following:

- Understand the work to be performed by reviewing contract provisions, scope of work, technical requirements, completion dates, benchmarks, timelines, estimated quantities, dollar amounts, and final product.
- Ensure that funding is available to pay for all services rendered. Identify low spending levels and consider partial dis-encumbrance and reassignment of funds.
- Establish project schedule and notify the consultant when to begin work.
- Maintain all contract documentation.
- Ensure services are performed in accordance with approved quality control plan.
- Ensure work is completed and accepted by the FDOT before the contract expires.
- Approve the final products or service.
- Assess and request amendments, renewals or new contracts as required. Allow time to process and execute such changes before the contract expires or funds are depleted in order to prevent a lapse in service.
- Review and approve invoices for payment to substantiate expenditures for work performed and to prevent penalties being assessed.
- Monitor use of Disadvantaged Business Enterprise (DBE) subconsultants to ensure attainment of approved contract participation goals.
- Verify that the Consultant has fulfilled all requirements of the contract before approving the final invoice.
- Complete the final Consultant Evaluation (see ***PMG 235 Consultant Evaluation***)

Contract Cost Analysis

Project Managers should perform a contract cost analysis for proposed contract terms. Contract cost analysis is the review and evaluation of the separate cost elements and profit in a Consultant's proposal including:

- Cost or pricing data.
- Information other than cost or pricing data.
- The application of judgment to determine how well the proposed costs represent what the contract should cost, assuming reasonable economy and efficiency.

Reviewing Invoices

Invoices are to be reviewed and paid promptly in accordance with statutory provisions (***Section 215.422. F.S.***). The Consultant should provide supporting documentation evidencing the delivery of services prior to the payment request. The Project Manager must verify:

- The payment request billing period agrees with submitted documentation.
- Amount(s) invoiced are in accordance with the contract for the services received.
- Services were rendered within the terms of the agreement and were satisfactory.
- Costs are reasonable, allowable and necessary.

A cost is ***reasonable*** if the cost does not exceed that which would be incurred by a prudent person in the conduct of a competitive business. In determining reasonableness, consideration should be given to:

- Whether the cost is of a type generally recognized as ordinary and necessary for the operation of the governmental unit or the performance of the state or federal award.
- The restraints or requirements imposed by such factors as: sound business practices; arms-length bargaining; state, federal and other laws and regulations; and terms and conditions of the state or federal award.
- Market prices for comparable goods or services.
- Whether the individuals concerned acted with prudence in the circumstances considering their responsibilities to the governmental unit, its employees, the public at large, and the state or federal government.
- Significant deviations from the established practices of the governmental unit which may unjustifiably increase the state or federal award's cost.

A cost is ***allowable*** if it is expressly provided in regulatory or contractual provisions. The FDOT may refuse to allow costs incurred by the Consultant that is either unreasonable in amount, or contrary to public policy.

A cost is ***necessary*** if it is required to meet the terms of the contract.

Payment Verification

The supporting documentation must provide reasonable assurance that services have been completed.

Payment Verification Actions based on Contract Type	
Type of Contract	**Payment Verification Actions**
Fixed Unit Rate	• Verify that invoice provides unit description and unit price. • Compare units of service to supporting documentation during monthly billing period. • Verify that rate billed coincides with agreement rate.
Fixed Price	• Verify amount requested with the agreement. • Review supporting documentation and determine if minimum performance standards are met.
Cost Reimbursement	• Verify that expenditures are allowable in the agreement budget and pursuant to governing rules and regulations. • Verify that expenditures are directly related to the scope of work, are reasonable, and within the agreement period. • Verify minimum performance standards are met and apply sanctions as needed.
Combination Contracts	• Apply above criteria for appropriate combination.

Resolution of Issues

Project Managers should coordinate the resolution of issues with their supervisor, District Financial Services Staff, Office of Comptroller, Office of Inspector General, and Office of General Counsel.

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110 General PM Topics

110 – Agreements
110 - Transportation Planning

110 – Federal and Local Funding

110 - Project Continuity

110 – Project Management Plan

110 – Public Records

110 – Right of Way

INTRODUCTION

Historically, the Department has administered all State Highway System work with its own forces and its own money. Local governments have likewise administered and funded local road work within their jurisdictions. Over time, however, both the Department and local governments have recognized the need to work together and to pool resources. In recent years, the Legislature has authorized such cooperation.

Various contractual arrangements are used to accomplish joint projects. They include: Agreements, Special Project Agreements, Utility Agreements and Public Transportation Agreements (for transit, intermodal, rail, aviation, and seaport projects). In addition, the Department enters into Joint Use Agreements with private property owners. Such agreements might involve surplus and exchange of real property.

TYPES OF AGREEMENTS

Authorized by Section 339.12, ***Florida Statutes*** (F.S.), Procedures for the Agreements are contained in ***Procedure No. 725-000-005, Public Transportation Grant Agreement*** and ***Procedure 350-020-301, Financial Provisions for All Department Funded Agreements***.

The Department may enter into an Agreement when the Department decides to use state funds to participate with a local government. The agreement defines a project on the State Highway System that is not revenue producing and determines the Department's participation. The Agreement will define the scope of work, type of funds to be used and the legal provisions.

Types of Agreements include:

Landscaping/Beautification. The Department will provide funding to local governments for plant materials. Of such funds, 50 percent must be for large plant materials and 50 percent for other plant materials. The plants must be purchased from Florida-based nursery stocks except as prohibited by federal law and to the extent practical. Purchase must be a uniform competitive bid. The underlying statutory authority for landscaping is Subsection 334.04(26), F.S.

The local government must agree to maintain the landscaping installed by the project in accordance with the Landscape Maintenance Plan(s). This maintenance will be in accordance with ***Rule 14-40.003***, Florida Administrative Code (F.A.C.). It is important for the District Maintenance Engineer or designee to be consulted on all landscaping Agreements.

Intersection Improvements. The Department often provides state funds to local governments to construct intersection improvements on behalf of the Department if the local government's cost is less than that of the Department's and if it would be practical, expeditious and economical for the Department. This situation arises when both the Department and the local government have projects that are under way concurrently at an intersection.

Design; Construction; Resurfacing, Reconstructing, and Rehabilitation (RRR). The Department will provide state funds to local governments if the Department feels that the scope of work that the local government will be performing will save the Department time and will help the Department avoid cost increases on the project. This situation arises when the Department has included an RRR job on a section of a state road where the local government plans utility or other work that would significantly affect the surface of a state road.

Drainage Improvements. The Department will provide state funds to local governments to improve drainage structures within the right of way limits of state roads when the local government undertakes to improve its own drainage system outside the limits of the state road. The Department can realize cost savings because the local government may already have a contractor mobilized or because economies of scale associated with the larger project may result. State funds are used to reimburse the local government for work done to the Department's drainage system located within the right of way and at the point of connection to the local government's drainage system.

Metropolitan Planning Organization Grants. The Department will provide state funds to a metropolitan planning organization to provide Departmental assistance to develop Long Range Transportation Plans in accordance with 23 ***Code of Federal Regulations***, Section 450.322, and to assist in transportation studies.

LOCALLY FUNDED AGREEMENTS

Authorized by Section 339.12, F.S, Procedures Financial Provisions for the ***Locally Funded Agreements*** are contained in FDOT ***Procedure No. 350-020-300***.

The Department may enter into a Locally Funded Agreement when the local government provides/contributes funding to participate on a project that the Department of Transportation will complete. The Locally Funded Agreement will define the scope of work, type of funds to be used and the legal provisions.

Examples of Locally Funded Agreements include:

- **LF Funds.** FDOT lets the contract or does the work and the local government contributes; or the local government lets the contract for doing the work.
- **LFF Funds.** Local funds are used to match federal funds on projects off the State Highway System.
- **LFR.** The local government agrees to perform a highway project or project phase in the Department's adopted work program earlier than programmed in the Work Program System. Or the governmental entity agrees to advance funds to the Department to accomplish a project early, and the local government will be reimbursed in the year that the project was originally programmed in the Work Program System.
- **LFRF.** The Department enters into an agreement with a local governmental to advance a project phase not included in the Adopted Work Program. These are only for right of way, construction, construction inspection and related support phases (PE & design are excluded).

LOCAL AGENCY PROGRAM AGREEMENTS

Authorized by s. 339.12, F.S., Procedures for the Local Agency Program (LAP) Agreements are contained in the ***Procedure No. 525-010-300, Local Agency Program Manual.***

The Department contracts with local governmental agencies to plan, develop, design, acquire right of way, and construct transportation facilities and to reimburse local governments for services provided to the traveling public. When the Department contracts with a local government for reimbursement using federal funds administered by the Federal Highway Administration, the Department will be

held accountable to ensure the certified local government complies with all applicable federal statutes, rules and regulations. Local governmental agencies must be LAP certified before entering into a LAP Agreement. For additional information on LAP, see ***PMG 430***.

PUBLIC TRANSPORTATION AGREEMENTS

Authorized by s. 339.12, F.S., Procedures for the Agreements are contained in ***Procedure No. 725-000-005***.

Public Transportation includes: rail, aviation, seaport, intermodal, and transit projects. The Department will provide state funds for providing assistance for transportation services. List of contacts are cited below in descriptions.

Rail Agreements. Any project that includes new construction, reconstruction, widening and/or resurfacing of a road at or near the right of way of a highway railroad grade crossing or the reconstruction or new construction of a Grade Separation over railroad tracks requires that a contract be negotiated with the railroad. Section 337.11, F.S., requires all Railroad Agreements to be negotiated and signed before a highway construction project is advertised for bid. Rail procedures are also contained in ***Procedure No. 725-080-002***, ***Rail Office Programs Handbook*** .

Aviation Agreements. These agreements ordinarily are not used on roadway projects because they deal primarily with direct aviation-related improvements to air facilities. However, the potential exists for a road project to be impacted by the Federal Aviation Administration (FAA) or aviation restrictions. Involvement of the Aviation Manager is critical in this case. The Department will provide state funds to provide financial and technical assistance to Florida's airports in the areas of development, improvement, land acquisition, airport access and economic enhancement.

Seaport Agreements. These agreements are similar to Aviation Agreements in that they do not deal with roadway projects. The Department will provide state funds to provide financial and technical assistance to the seaports in Florida. Involvement of the Public Transportation Manager is critical when these agreements are negotiated.

Intermodal Agreements. These agreements relate primarily to public transit issues like aviation and seaport agreements. The District Public Transportation Manager needs to be consulted early in the negotiating process.

Transit Agreements. These agreements take the form of a grant of state or federal funds to a local government or provider of public transit services. The District Public Transportation Manager needs to be consulted in the negotiation process should an issue arise.

SPECIAL PROJECT AGREEMENTS

There is no FDOT procedure for these types of agreements. References for each type of agreement can be found in Part III of the ***Work Program Instruction Manual***. Special Project Agreements include a variety of agreements that are authorized on the basis of individual statutes. These agreements allow the Department to provide funding to local governments.

County Incentive Grant Program (CIGP). This program allows the Department to provide grant funding to local governments to improve a transportation facility that is located on the state highway system or that relieves traffic congestion on the state highway system. It is authorized by Section 339.2817, F.S.

Transportation Outreach Program (TOP). This program allows the Department to provide funding for transportation projects of a high priority based on the prevailing principles of preserving existing transportation infrastructure, enhancing

Florida's economic growth and competitiveness, and improving travel choices to ensure mobility. It is authorized by Section 339.137, F.S.

Small County Road Assistance Program (SCRAP). This program allows the Department to provide funding to assist small counties with resurfacing and reconstruction of county roads. It is authorized by Section 339.2816, F.S.

Small County Outreach Program (SCOP). This program allows the Department to provide funding to assist small counties in resurfacing and reconstruction of county roads or in constructing capacity or safety improvements to county roads. It is authorized by Section 339.2818, F.S.

Transportation and Community and System Preservation Program (TCSPP). This program is a 100-percent federally funded grant program for direct congressional funding appropriations. Activities that are funded include planning, implementation and research of transportation, community, and system preservation practices. The grant may be administered by the Florida Department of Transportation or by the Division of the Federal Highway Administration. It is authorized by Section 335.093, and Subsections 339.08(2)(j), and 339.155(2)(a) 4., F.S.

UTILITY AGREEMENTS

Authorized by Sections 337.401 and 337.403, F.S., Procedures for Utility Agreements are contained in ***Procedure No. 710-010-050, Utility Work Agreements***. The district utility section is responsible for arranging to clear utilities on highway construction projects, for maintaining the Department's project file, and for certifying that utilities have been cleared.

Utility Agreements authorize utility accommodations. These agreements provide for adjusting, relocating, or otherwise accommodating utility facilities on Department right of way. Types of Utility Agreements include:

- Reimbursable
- Non-Reimbursable
- Joint Project
- Lump Sum

ROADWAY ILLUMINATION AGREEMENTS

Authorized by Section 337.11(14), F.S., there is no procedure for these agreements. Information on such projects can be found in Part III of the ***Work Program Instruction Manual***. The Department will provide assistance to a Utility Owner Agency (UOA) to provide a roadway lighting system using the UOA's poles.

NATIONAL SCENIC BYWAY AGREEMENTS

Authorized by Section 335.093, F.S., there is no procedure for these agreements. Information on such projects can be found in Part III of the ***Work Program Instruction Manual***. The Department provides funds to local governments to develop scenic byway programs and related projects along roads designated National Scenic Byways.

JOINT USE DRAINAGE AGREEMENTS

Joint Use Drainage Agreements are often used to accommodate Departmental needs relating to drainage. The joint use agreement form and context varies. Joint

use situations can be addressed by way of a real property surplus or exchange agreement. On the other hand, the joint use can be accomplished through settlement prior to or as a part of an Order of Taking within the context of an Eminent Domain proceeding. In this Joint Use scenario, the real property owner whose property is adjacent to state road right of way accepts or treats storm-water drainage from the right of way for the mutual benefit of both the property owner and the Department.

In all situations involving Joint Use Drainage Agreements, the District Drainage Engineer should be directly involved in the negotiation and agreement process.

Typical situations where Joint Use is utilized include the following:

- The real property is located adjacent to or near state road right of way and is encumbered with a blanket easement or is encumbered by historic flow and drainage patterns. In order to develop the property, the property owner approaches the Department to accept and handle the Department's drainage so as to allow development of the property.
- The real property owner desires that the Department allow reconfiguration of or relocation of Department-owned ponds (or ponds over which the Department owns a drainage easement).
- In order to minimize the impact of a taking, the Department agrees to certain restrictions or limitations on how drainage is directed onto an adjacent property. Arrangements vary widely for these situations.

Local governments may request that the Department work with them to allow storm-water retention areas to be reconfigured or relocated to achieve goals of the local governmental agency. Or the Department may approach the local government and offer its help with such reconfigurations or relocations.

In all these situations, the office of the District General Counsel should be contacted as soon as possible since there are serious and significant legal issues associated with joint use situations.

110 – Transportation Planning Process

This chapter is still under development.

Thank you for your patience.

Complete instructions on the authorization process are found in ***Procedure No. 350-050-005***, ***Federal Project Authorizations***.

Federal Funds

The Project Manager (PM) should coordinate the preparation of the Federal Authorization Request (FAR) with Federal Aid Coordinators after verifying that all the required prerequisite criteria are met and supporting materials are available. The FAR must be submitted to the Federal Aid Programs Office at least 30 days prior to the date the approval is needed.

The Federal Highway Administration (FHWA) must approve the FAR before construction projects can be advertised or before Preliminary Engineering (PE) and Construction Engineering and Inspection (CEI) contracts are executed.

Following notification that federal project authorization has been received, obtain federal aid project numbers assigned to each phase of work.

The Project Manager must close each phase of work by completing the documentation required to close the project with FHWA. Final reimbursement of federal funds cannot be requested until project closeout has been completed. Project Manager should coordinate project closeout with the Federal Aid Coordinator.

Local Funds

FDOT projects may involve local funds for elements requested by a local government agency (e.g., decorative lighting (instead of standard lighting), mast arms (instead of strain poles), decorative stamped crossings, etc.). If the PM manages an FDOT project involving local funds, the locally funded design or construction should be identified at the project scope phase. The PM should execute a formal Joint Project Agreement (JPA) or Locally Funded Agreement (LFA) with the Local Government Agency as early as possible. The PM should coordinate the language in the agreement with the Legal Department, the Professional Services Unit (PSU) and the Local Government Agency. The agreement should define all work to be performed by the Department for the specific local government agency and it should address future ownership and maintenance responsibility. The PM needs to coordinate with Work Program to program appropriate local funding and to ensure the local funds are deposited with coordination from PSU. For locally funded design, the contract cannot be executed until funds are deposited and encumbered. If a JPA or LFA is requested later in the design phase, close consideration must be given to project schedule impacts, executing the needed supplemental agreement and redesign.

If the PM manages a project solely on a local road, the PM needs to coordinate with the Local Government as early as possible to process a formal agreement with assistance from Legal Department and PSU. PM needs to ensure the agreement is executed and the local funds are deposited and encumbered prior to advertisement.

Introduction

A Project Manager (PM) must have a primary objective to clearly understand the history of a project and ensure a smooth transition among phases. A typical FDOT project can take many years to move through multiple phases, including Planning, Project Development and Environment (PD&E), Design, Right of Way (R/W), Construction and Maintenance. Throughout a project's life there will be various PMs (both FDOT and consultant) across each of the project phases. Many decisions will be reached, commitments made, and technical details added. Phase-to-phase coordination and hand-off of projects is very important. Valuable work performed in earlier phases must not be lost and commitments must be fulfilled. Each phase, PMs must understand the history of the project, including its conceptual objectives and commitments made in previous phases. Districts may have project continuity policies which must be followed. This chapter provides information for supporting these policies.

In general, a project file should be maintained, which will be handed off between phases. It should contain the original project scoping report, a summary of the key issues which each phase PM faced, references of key documents produced in the project, commitments made, and recommendations of each PM for the next phase.

Commitments (including those made to local governments, permitting agencies, business, property owners, utilities, homeowner associations, and any other individuals and groups) must be tracked through each project phase. If a District has not instituted formal commitment tracking systems for this purpose, each PM should provide a listing of the commitments, including a commitment summary, name of the individual, group or agency making the commitment, and its date and document file reference. The receiving PM must review and honor previously made commitments.

The receiving PM should be identified before the hand-off date. That PM should become an active participant in the project to become familiar with the project and to participate in decisions that will directly affect the next work phase. The receiving PM should consult frequently with the previous phase PM on sensitive and unclear issues to understand the project history, ensure continuity, and avoid duplicate, unnecessary, and inappropriate work.

Phase Hand-Offs

Most FDOT projects involve phases which follow the order: **Planning** – **PD&E** – **Design** – **Right of Way (R/W)** – **Construction** – **Maintenance**. Some exceptions to this are when Construction and Design are combined (Design-Build), when the PD&E phase is omitted (Planning to Design), or when PD&E and Design are combined. A transfer of information from one phase to the next is important for project continuity. On more complex projects, "Pass-the-Torch" (PTT) or "Hand-Off" meetings may be held to discuss the transfer of project information. Some of the key points and best practices for phase-to-phase transitions are addressed in the following sections.

Planning to PD&E. The Planning process discussed in ***PMG 110 – Transportation Planning Process***, identifies transportation needs which drive the Work Program discussed in ***PMG 210***. When a project enters the Work Program, a Project Scoping Report is prepared that includes project objectives, design concepts, schedule, and budget for each phase. This report is the basis of the work program data for the project.

Planning projects are programmed and funded before the identification of specific projects. It is not known at the initiation of a planning study if a project is needed and justified. Not all planning studies identify specific projects; however, many corridor, area, feasibility and conceptual studies result in the recommendation of projects. Commonly, corridor and area studies will identify large-scale

transportation needs, which will later be broken into smaller projects that can be more easily funded and managed. When projects are likely to be initiated as a result of a planning study, the planning report should define the project objectives, establish the need for the project, identify design concepts, identify project limits and provide initial cost estimates. Political, public and stakeholder issues as well as potential environmental issues should be identified.

When a Project Scoping Report is prepared, any corridor, area or feasibility reports available must be reviewed carefully to identify pertinent information. This information will help make the Project Scoping Report as complete and accurate as possible. Appropriate planning studies should be referenced in the Project Scoping Report.

At initiation of a PD&E project, the PD&E PM should carefully review the Project Scoping Report and referenced planning studies and use this information to plan the PD&E project.

Working in conjunction with the Federal Highway Administration (FHWA) and other federal, state, and local agencies, the FDOT developed its Efficient Transportation Decision Making (ETDM) process for streamlining transportation decisions. The process redefines how FDOT will accomplish transportation planning, project development, and permitting within its current statutes and regulations. The ETDM process creates linkages between land use, transportation, and environmental resource planning initiatives. ETDM results in more effective integration of the Planning and PD&E phases and facilitation of project hand-offs.

PD&E to Design. The Design PM (DPM) should be designated before the completion of the PD&E project. The DPM can take an active part in the PD&E project by making an effort to attend public meetings and hearings. These events provide an excellent overview of the project and associated key issues.

The PD&E report and/or environmental documentation will contain the improvement alternatives considered, the selected alternative, anticipated socio-economic and environmental impacts, permitting issues, and projected R/W and construction costs. This information is valuable for planning and scoping a design project. The PD&E PM should consider preparing a design hand-off report that summarizes the key information from the PD&E report and clearly lists all commitments made to local government and permitting agencies, business and property owners, and any other groups. The PD&E PM should remember that PD&E projects are frequently subdivided into more than one design project. Also, gaps of several months or years often occur between the end of a PD&E project and the beginning of a design project. The PD&E PM should assemble a hand-off file containing the original Project Scoping Report, a hand-off report, and either a reference to the PD&E report or the report itself. The PD&E and DPM should meet to ensure hand-off of appropriate information.

Planning to Design. In some cases, the PD&E phase is omitted and a project goes directly from Planning to Design. The DPM should begin building a project history file with the Project Scoping Report, environmental reports and available project conceptual information.

Projects that have not gone through the PD&E phase are relatively small and limited in scope, including safety, minor capacity improvements and Resurfacing, Restoration and Rehabilitation (RRR) projects. The justification for safety projects normally includes a benefit/cost analysis. Adding project features, which result in additional cost, can change the original justification. The budget should be a major consideration in the scoping process. Districts are allocated RRR funds based on a fixed amount per lane mile for resurfacing plus a limited amount for other improvements and upgrades. When these projects are scoped, clearly understanding project objectives and available funds is critical.

Design to R/W. The R/W PM should be involved with a project beginning with the PD&E phase. The R/W PM must be consulted during design and PD&E to ensure that appropriate and realistic R/W impacts and costs are considered.

The R/W phase officially begins during the design phase. Commitments that have been made from the beginning of a project must be made available to the R/WPM.

R/W to Design and Construction. During the R/W process, there must be frequent communications and careful coordination between R/W and Design. Small changes in the design can have a major R/W impact, and R/W commitments must be accounted for in the design. When appropriate, R/W commitments should be shown on the construction plans. A final meeting near the end of the R/W phase should be held to ensure that all issues have been coordinated. Construction should be part of this meeting so that all important R/W issues and commitments impacting the construction project are understood.

Design to Construction. The Construction PM (CPM) should be involved in the design of a project from the outset, and the DPM should continue to be involved through construction completion. The CPM should review the plans at each phase submittal to ensure that the project is constructible. The familiarity gained through these reviews will greatly aid in planning the inspection and engineering efforts required for the construction project.

There should be a formal hand-off or PTT meeting, between the DPM and the CPM. This meeting should include the R/W PM and representatives of all appropriate support offices. Among the key issues to be coordinated are:

- R/W
- Traffic control plans
- Environmental concerns, including permit conditions and requirements
- Utilities
- Public and political sensitivities
- Local agency coordination issues
- All PD&E, R/W, and Design commitments
- Designer's intent for complex issues, pay items, specifications, plan notes, project phasing and restricted activities
- Post-design services on the part of the Engineer of Record, including communication procedures, attendance at construction meetings and contractual issues

Construction to Maintenance. The responsible maintenance professional should be involved in a project from the design phase through the construction phase. The maintainability of a project is an important consideration for both the DPM and the CPM. From a life-cycle perspective, maintenance costs can be a major portion of the total project cost. Expenditures during design and construction that improve maintainability reduce cost in the long run. The responsible maintenance professional and the CPM should perform an inspection of the construction project in the final stages to identify maintenance concerns that can be addressed prior to completion of the project. This inspection is commonly done at 90% complete or sooner. Maintenance should always be invited to participate in the final walk-through inspection before a project is accepted from the contractor. All districts have a formalized turnover process that should be followed at the completion of a project.

Combined Phases. The FDOT frequently contracts for combined phases, such as PD&E and design or design-build. The hand-off between phases that have been combined may not be as well defined as a hand-off of more traditional projects, but the concepts discussed above still apply. When hand-off procedures are not well defined, both the transferring and receiving PMs must ensure that all

necessary coordination has occurred and that the hand-off is well documented. Previous phase PMs must be readily available to respond on a timely basis to questions from subsequent phase PMs.

Project Feedback

Throughout the process, the current phase PM should keep the preceding phase PMs informed of problems that have occurred, with the objective of improving future projects. Many districts have formal procedures to identify lessons learned. An effective technique is to conduct an on-site review after the project has been completed. The PD&E, design, construction, and maintenance PMs should participate. If the review is conducted after the project has been open to traffic from two to five years, the project should still be fresh in the minds of those involved in its development. Maintenance and enforcement personnel will have gained some experience with the project during that time. This review team should evaluate project development, design, and construction and recommend procedures to enhance performance on future projects. Regardless of the technique used, a lesson is not learned until procedural changes take place.

PM Changes

FDOT PM - FDOT projects last for several months or even years. Individuals get promoted, transferred, or they retire and leave the organization. Project continuity is a serious concern when there is a PM change during an active project phase. PMs should keep in mind that they may not finish a project. Therefore, project documentation should be maintained in a manner that will make it easy for a successor to take over. Least project interruption occurs when the PM has been diligent about developing a solid ***Project Management Plan (PMG 110)*** and keeping it current documenting all important activities and decisions, and ensuring that the project files are current, complete and accurate. It is good business to manage a project as if someone else will take it over next week.

As soon as a PM knows that they will be leaving a project, the supervisor should be notified and the project records updated. The new PM should be designated as quickly as possible to maximize overlap time of the two PMs. The Project Work Plan is a good checklist for briefing the new PM on key project issues. Every PM develops a list of personal contacts necessary to conduct project business. This list should be shared with the new PM and personal introductions made. The consultant PM should be notified promptly of the pending change, and the new PM should establish a positive working relationship with the consultant as quickly as possible.

Consultant PM - Consultant PM changes should be handled very carefully since it is likely that the consultant firm was selected in large part on the qualifications of the PM. Therefore, a change in PM has contractual implications. The consultant firm should make every practical attempt to avoid such a change. When it cannot be avoided, the FDOT PM should be notified of the situation immediately. This notification should include a proposed replacement with qualifications equal to or exceeding those of the original PM for approval by the FDOT. In addition, the firm should propose a transition plan, developed with the objective of minimizing negative impact to the project. The notification, name of nominated replacement, and transition plan should be from the firm's principal in charge of the project.

Introduction

All Major Projects are required to have a Project Management Plan (PMP) and FHWA provides ***PMP Guidance*** on their Major Projects website. Additional information on Major Projects may be found in ***PMG 405***. Project managers may find it beneficial to utilize a PMP on other non-major projects.

The PMP is a tool used to promote the efficient, organized, and timely completion of a quality work product according to schedule, budget and contract requirements. The PMP details the job scope, the work product, roles & responsibilities, task sequencing, budget, resource allocation, schedule, and risks. The PMP is intended to be a living document on how the project is to be managed. It continues growing in detail as a project progresses.

Project Managers in all project phases will benefit from the development of a PMP that addresses the criteria for a successful project. Although the following material is oriented primarily toward Planning, Project Development and Environment (PD&E) and Design projects, the concepts can also be applied to Construction and Maintenance projects. Some of the PMP elements, however, will not apply directly to all projects and the PMP will need to be modified or eliminated.

The Project Management Plan Concept

In general, the PMP answers these questions: What must be done? Who will do it? How will it be done? How long will it take? How much will it cost? What are the deliverables? How will quality be maintained? What is the schedule?

The PMP is intended to be an internal tool for both the Florida Department of Transportation (FDOT) Project Manager (PM) and the consultant PM. Each PM should have a plan developed from their perspective that addresses the needs of each organization. If a consultant is performing the project, the PMP does not replace the contract and scope of services; it helps the PM prepare these documents and complete their requirements. If the project is being done with in-house forces, the PMP becomes a “contract” between the PM and others within FDOT.

The format and level of detail of a PMP varies according to the author (FDOT PM or consultant PM) and the type, size, and complexity of the project. The suggested elements of a PMP discussed in this chapter should be modified to fit the project and the needs of the PM. Assembling these elements into one document as a management tool will help ensure that all the essential issues are considered and that the individual elements are planned in a consistent and complementary fashion. However, the intent of the PMP is not to replace project files, which will contain detailed documentation of most of the items discussed in this chapter. The PMP is intended to be a summary of the most important project records for handy, daily use by the PM.

The FDOT PM should develop a PMP when a project is first assigned, ideally when the project is first scoped. This plan will be very helpful in preparing the scope of services for the contract. The consultant PM should develop a PMP after selection but before notice to proceed. An initial PMP will be excellent preparation for contract negotiations for both parties. Once the contract is negotiated, a fairly detailed plan should be in place by notice to proceed on a contract.

PMP Outline

The following sections outline all the elements that should be considered for a PMP.

1. **Project Purpose, Goals, Objectives and Metrics**

    a. **Title and Identification** should include project titles and numbers to be used by the FDOT. For a consultant project, the consultant's contract number(s) should also be identified.

    b. **Purpose** should include the rationale for the project.

    c. **Goals** should include the long-term vision for the project.

    d. **Project Objectives** should address what this project is to accomplish and outline how it relates to the organization's mission and values. Who are the stakeholders and clients?

    e. **Metrics** should outline project targets and tracking requirements.

2. **Project Description**

    a. **Description** should be a brief narrative description of the project scope of work that can be used consistently in all project documents.

    b. **Map** should include the location of the project and the project limits (which should be the same as what appears in the work program).

    c. **Commitments** made in previous phases of work should be listed so they may be carried through the project phases until they are met.

    d. **Constraints and Assumptions** should help establish the "rules of the game." These may include technical issues, project hand-off issues from prior phases of work, public concerns and politically sensitive "hot buttons." List concerned local agencies and other stakeholders. A brief description of the pertinent history may help explain the constraints and assumptions. Other common project constraints include:

        - Construction access
        - Traffic
        - Environmental
        - Right of way
        - Geotechnical
        - Utilities
        - Other transportation modes (such as airports and railroads)

        The earlier constraints are identified, the more flexibility the PM will have in dealing with them.

3. **Project Procurement**

    a. **Procurement** should identify what services will be procured.

    b. **Scope of Services** should be referenced and may be attached to the PMP. Include all significant understandings and agreements reached during negotiations.

    c. **Expectations** are those desired outcomes that are not expressed in the scope of services. Examples may include the importance of submittal dates and timely reviews; the interrelationships with the next project in the work program pipeline; and, for a consultant firm, the potential for future business opportunities. The PM should clearly understand the expectations of their management.

    d. **Deliverables** should be specifically listed. Frequently, some deliverables are not specified in the scope of services, but they are required by reference to FDOT policies or manuals. For example, the FDOT Design Manual (FDM) contains requirements for deliverables that may not necessarily be

repeated in the scope of services. The PMP should list everything that must be delivered, delivery format, and other requirements.

4. Project Organizational Structure

This part of the plan defines the project team members (including representatives of all participating departments, agencies, and companies), identifies and quantifies personnel resources, and develops a hierarchy for problem resolution. Team members' qualifications should fit the needs of the project. The roles and responsibilities of the project team are described here.

a. An **Organization Chart** for both the FDOT and the consultant should be attached. Organization charts should be simple, showing clear lines of responsibility.

b. **Key Personnel** include the PM, their supervisor, and key assistants for both the FDOT and the consultant. A responsibility and contacts chart should be attached. For design and other engineering projects, the engineer in responsible charge of the work, as defined in ***Rule 61G15-18.011(1) F.A.C.***, should be clearly identified.

c. **Subconsultants** should be listed, along with a brief explanation of their role in the project and their key personnel.

d. **Staffing** may include important individuals by name or numbers of staff by categories. Staffing needs vary throughout the life of the project and may be illustrated in a Staff Level Requirements chart. Applying personnel resources to the schedule allows the PM to plan staff level requirements throughout the life of the project. Personnel experience and expertise should match project complexity. While it is almost inevitable that personnel will change during the course of a job, it is critical that equally qualified or better staff be substituted when changes occur. Possible substitutes should be identified as soon as changes are foreseen.

e. A **Delegation Plan** should identify the individuals who will be delegated certain responsibilities and the terms of that delegation, such as levels of authority or phases of a project. A PM cannot do everything on a project. Responsibility must be delegated in a clear, unambiguous manner. Managers of engineering projects should understand the provisions of ***Florida Administrative Code (F.A.C.), Rules 61G15-30.002, 005 and 006,*** pertaining to Professional Engineers, that explain the responsibilities of the Engineer of Record (EOR) and Delegated Engineers.

5. Project Management Controls

Project management controls should be described here. They include controls for Contract Administration, Scope, Cost, Schedule, Risk, and Quality. This section should also document how and when project performance is reported.

a. Contract Administration

The PMP should clearly identify how the project will be administered. This subsection should discuss how control contract administration activities will be documented and monitored. It should document processes and tools used for tracking and addressing contract requirements. Project controls for change management and claims management are two contract administration topics that should be clearly addressed in this section.

1. The **Responsible Office** should be identified for consultants.
2. **Administrative Staff** who will handle project actions such as filing, word processing, invoicing, and accounting should be identified.

3. **Project Files** should include a list of files to be used and the file numbering and naming system for both hard copies and computer files.
4. **Special Needs** such as travel procedures; vehicles, and special equipment should be included as appropriate.
5. The **Communication Plan** may be the most important administrative issue. How will the PM communicate with their counterpart, with the project team, subconsultants and others? The plan should include the use of e-mail, face-to-face meetings, phone calls and written correspondence. Objectives for frequency of consultant/client contacts should be identified. An example may be PM-to-PM phone contact at least weekly and firm principal contacts at least monthly. The plan could also include sample forms for letters, memos, transmittals, fax covers and other forms of written communication. Such samples will help ensure consistency in project titles and numbers and overall appearance of correspondence. A plan for communicating with the media is appropriate for complex or controversial projects.
6. A **Meeting Schedule** for consultant-client meeting, as well as internal team meetings should be included. Remember to include subconsultants in the meetings plan. Even though there may not be a specific agenda item dealing with a subconsultant, it may be advantageous for them to understand important project issues.
7. Routine **Internal Reporting** to both the FDOT and the consultant firm should be listed, as appropriate. Include distribution of internal reports.
8. **Progress Reports** should be submitted as required by the scope of services. Even if progress reports are not specifically discussed in the contract, they may be a useful communication tool for the consultant and the FDOT PM. Also identify the distribution of progress reports.
9. If the **Project Closeout Requirements** are not completed in a timely manner, administrative and financial problems can result. The requirements of both the consultant and the FDOT PM to close out the project completely should be listed. An index of archived files with specific instructions for retrieval should be included.

b. Scope

This subsection should document the criteria for defining, tracking, and controlling overall project scope. The discussion should include the processes for approving scope changes and for verifying that the planned scope of work meets the project requirements, including project permits and approvals. The Major Project Financial Plan is one tool used to document, monitor, and update project scope.

c. Cost

FDOT PMs and consultant PMs will have different approaches to material in this portion of the PMP.

1. **Contract Values** identify the amounts in the contract and include all contracted subtotals and limits.
2. **Method of Compensation** should also be identified whether lump sum, cost plus fixed fee, unit price or other. Any effect that the contract values and methods of payment will have on how the project will be managed should be discussed.
3. **Invoicing** should include the frequency, dates, task breakouts and invoicing directions for sub-consultants. Most consultant projects are invoiced through the Consultant Invoice Transmittal System (CITS). If the project is in CITS, the invoicing directions must be consistent

with the manner in which the contract data is loaded into CITS. If the project is not invoiced through CITS, the mechanism for invoicing should be explained.

4. **Optional Services** should be identified along with trigger dates for timely actions.
5. **Contingencies** available in the budget should be identified for the FDOT PM. The FDOT PM should discuss any contingency with both the work programs staff and the Professional Services Unit staff to fully understand all restrictions and requirements.
6. The **Budget** is perhaps the most important financial issue for the consultant PM. Project costs under the control of the consultant PM are labor, direct expenses and subcontracts. These costs must be controlled to achieve a profit. Each firm has its own project budgeting procedure that should be followed and included in the PMP.

d. Schedule

Every project should have a specific schedule. The complexity of a schedule will vary with the complexity and duration of the project. The schedules for small, quick turn-around projects may be as simple as a bar chart showing the duration of each project activity. Large, complex projects require very sophisticated critical path analysis.

1. The Schedule may be attached to the PMP. The schedule is one of the PM's most powerful management tools. The schedule should include all the required production activities and necessary quality control, printing, reviews, and revisions that are necessary for a project.
2. A list of the Critical Path Elements should be summarized in the schedule to help the PM plan for the more important work activities.
3. A list of Major Milestones will help the PM and the team to focus on important schedule events.

e. Risk

The hallmarks of a successful project normally are completing the project requirements on time, within budget, and with an acceptable quality. The PMP itemizes the elements of project management that will lead to success. However, with any plan there are risks. Risk assessment involves identifying the definition of success on a project and what may go wrong to jeopardize that success.

Risk is the measure of the probability and consequence of not achieving a defined project goal. Risk management is the act or practice of dealing with risk and includes planning, assessing, and monitoring risks throughout the project. Risk is inherent in all projects.

1. **High-Risk Elements** should be identified and included in the PMP.
2. A **Contingency Plan** should be developed and ready to implement in case it is needed. This plan will help deal with project issues in a more efficient manner.

f. Quality

Design Quality Control Plan requirements are addressed in ***FDM 124***. A project-specific Quality Control Plan is not required for Department (in-house) design projects; however, these projects must follow the procedures outlined in FDM 124. Every consultant project must have a Quality Control (QC) plan as described in FDM 124. Although this is the standard on design projects, it may be beneficial for other projects phases such as planning and PD&E. The project QC Plan should be attached to the PMP. If a formal QC plan is not required, a simple one

can be prepared as part of the PMP. A QA/QC Staffing Plan with specific QC Responsibilities should be attached Any Required Submittals related to the QC Plan should be listed.

6. Project Communication Management

The PMP should address processes and procedures to ensure effective communications among project team members and with stakeholders. Stakeholders may include but are not limited to the following: the traveling public, political officials, media, interest groups, and businesses. This section should cover how informal and formal communications will be conducted and managed.

7. Project Documentation & Reporting

This section describes how project records will be managed. This includes defining the document control and tracking systems as well as any project reporting procedures. This section should also discuss how lessons learned will be tracked throughout the life of the project and the final documentation of all lessons learned.

8. Project Closeout

This section of the PMP should outline the processes and procedures for contract closeout to ensure that all specified contract work is completed, record documents are maintained appropriately, and financial obligations are settled. This section should also discuss the requirements for a coordinated transition from the construction phase to the operations and maintenance phase. The project closeout plan should be developed to help ensure that all Federal, State, and local laws, regulations, rules, and applicable mandates are met.

9. Project Oversight

This section of the PMP should document the oversight roles and responsibilities to effectively manage the requirements applicable to the project, including review and approval actions. This section should reference program level stewardship and oversight agreements between the Department and FHWA (e.g. FHWA/ DOT Oversight Agreement) and any other project level oversight plans.

10. Management of the PMP

This section of the PMP should outline the processes and procedures for maintaining and updating the PMP. The process described in this section should outline how the project management team will ensure that the roles, responsibilities, procedures and processes in the PMP are current and being implemented. The team member responsible for managing the PMP should be identified.

11. Other

Other sections and/or appendices, such as civil rights, right of way, utilities, environmental monitoring, project agreements, and dispute resolution may be added to the PMP as appropriate. Identify any additional sections and appendices that enhance the project management and ensure that goals and objectives are met. For example, sections should be added for aspects of the project that pose a significant risk and/or require processes and procedures that are unique to the project.

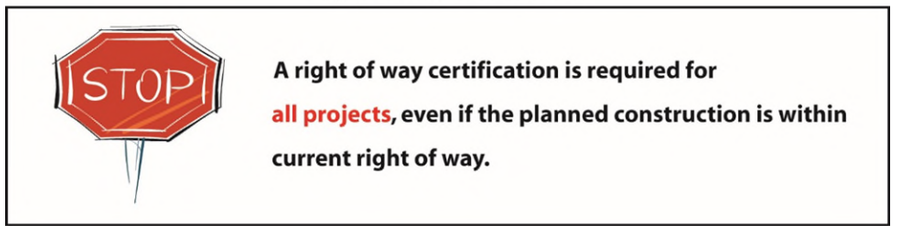
Introduction

This chapter offers a general overview of Right of Way (ROW) activities for managers of Project Development and Environment (PD&E), design and construction projects, and new Right of Way Project Managers (PMs) seeking a general, high-level orientation of the right of way process. It is essential that program understanding and close coordination exists between these areas of the project development process. A consolidation of procedures, directives, or other documents that have officially been adopted by the Florida Department of Transportation (FDOT) is contained in ***Procedure No. 575-000-000***, ***Right of Way Procedures Manual***, located on the ***Office of Right of Way webpage***. This should be the primary technical reference for Right of Way Managers.

General

FDOT frequently acquires property necessary to construct a transportation facility. As a governmental agency, the FDOT has the power of eminent domain, which allows the taking of private property for a public purpose without the concurrence of the property owner. Numerous federal and state laws protect the property owner in this process. ***Article X, Section 6(a)***, ***Florida Constitution*** says: "No property shall be taken except for a public purpose and with full compensation therefore paid to each owner..." As an example of the importance placed on property rights in Florida, there are only two types of trials that require a 12-person jury: cases that may result in a death penalty and cases involving the taking of property through eminent domain. This is a testament to the severity of the process. As a result, right of way acquisition is a fair but expensive and time-consuming process. The cost of right of way often exceeds that of construction and right of way activities are frequently on the critical path of a project schedule. Project Managers throughout the project development process (including planning, PD&E, design, and construction) must understand the importance of right of way considerations and ensure that the right of way professionals are involved early and throughout the development process.

Figure 1
Right of Way Certification



The culmination or goal of the ROW phase is the right of way certification prior to letting. The certification is a testament that the project is ready for construction from a right of way perspective (i.e., title has been acquired, all displacees have been relocated and all improvements have been removed or the removal has been included in the construction contract). **Figure 1, Right of Way Certification**, explains all projects require right of way certification.

Project Management in ROW tends to be at a sub-level to the overall ROW phase, wherein the management of in-house and/or consultant resources are handled within the various ROW disciplines. Although there are activities that must be completed prior to initiating the ROW process, the typical critical path of the right of way phase includes appraisal, acquisition, condemnation, relocation, clearing, and certification. The oversight of the entire process is at the District Right of Way Manager's level; however, delegation from this point may move into more discipline-specific management within the critical path of the overall process for any one project.

The overview ahead will discuss the preliminary activities taking place prior to the ROW phase followed by a general discussion of the specific ROW disciplines

within the process. The sections are generally in chronological order; however, some ROW activities may be performed concurrently.

Pre-Right of Way Activities

Many important actions must take place prior to starting the right of way phase of a project. The parties involved in surveying, mapping, design, and ROW acquisition must coordinate early and closely to ensure success of the project. The ROW PM should assist the PD&E and the Design PM in identifying issues during preliminary and final design so that delays and excessive costs of litigation do not occur later in the ROW phase. It may be wise to expend additional funds in the design and construction phases in order to avoid or minimize ROW, which may result in significantly lower total project cost. Delays in the delivery of ROW maps and documents can result in a delay of ROW acquisition, which could delay the letting.

Surveys: A survey is often performed during the PD&E phase of a project. This survey provides the basic location information on the preferred alignment. Once the preferred alignment is finalized and as additional design information becomes available, more detailed surveys provide information such as profiles and cross sections. Survey information is necessary to develop final design plans and ROW maps.

Conceptual Stage ROW Planning: This effort is typically started when reviewing corridor alternatives during PD&E and should be updated as the project progresses. It provides basic information about the upcoming right of way phase, such as the estimated number of parcels, businesses and displacees. This plan can provide valuable information about the types of parcels to be acquired, the likelihood of business damage claims, the likelihood of litigation, the type(s) of displacements that will occur and the extent and type of ROW clearing activities that may be required.

ROW Cost Estimates: The estimated cost of right of way and the associated administrative costs are important for the alignment and conceptual design decisions that must be made during the PD&E phase. Cost estimate updates should be requested so that any changes in the project requirements or the real estate market itself can be communicated to decision makers. When the ROW estimate is prepared, the Design PM and the Right of Way PM should meet to review possible design modifications that may help reduce potential costs.

The ROW estimate must include the costs of land and acquired improvements, severance damages, relocation, business damages, ROW clearing, and attorney fees and costs. A current ROW cost estimate must be submitted as part of the package to receive Federal Highway Administration (FHWA) authorization to proceed with the ROW phase of the project when the project is to be federally funded.

Title Search: The title search determines the property boundaries and ownerships and addresses other land title issues on the project. The title search should begin as soon as possible during the ROW mapping process. Once property boundaries and ownership information is identified, it can be plotted on the ROW maps.

ROW Mapping: ROW maps are required to initiate the right of way phase of the project. They are essential for the accurate appraisal of the land and establishment of full compensation. ROW mapping begins when the project concept, the preliminary surveying, and the preliminary engineering is complete. As the final design reaches 60% completion, ROW limits are identified. After completion of Phase II (60%) plans, the final ROW maps and preparation of required legal descriptions for title conveyance documents can begin.

Needs Assessment: This required assessment specifically addresses the relocation of displacees on the project. It is conducted as soon as displacees can be identified, usually when the ROW limits are identified in the design plans. This

assessment must be updated when the design is modified or relocation requirements change.

The Right of Way Phase

Figure 2
Federal Aid Authorization & Reimbursement

On projects with federal aid in the right of way phase, federal authorization is required prior to beginning any R/W activities. Any funds expended or costs incurred prior to federal authorization will not be eligible for federal reimbursement.

On projects with federal aid in the right of way phase, federal authorization is required prior to beginning any ROW activities. Any funds expended or costs incurred prior to federal authorization will not be eligible for federal reimbursement. This is further highlighted in **Figure 2**, **Federal Aid Authorization and Reimbursement**. The request for authorization to proceed with the right of way phase must be made to FHWA after completion of environmental documentation (discussed in ***PMG 310, PD&E***) and completion of the ROW maps. A current ROW cost estimate must accompany the request. ROW phase activities include:

Appraisals: An appraisal is an estimate of the fair market value of the land and improvements to be taken, including severance damages. An appraisal report must be prepared on each parcel. The appraisal must comply with the ***Uniform Standards for Professional Appraisal Practice (USPAP)*** and ***Part 49, Section 24.103, Code of Federal Regulations (C.F.R.)***, and the ***Department's Supplemental Appraisal Standards***. The property owner must be given the opportunity to accompany the appraiser during the inspection of the property.

A review appraiser must review all appraisals to assure they meet appraisal requirements and to recommend approval of the appraisal as a basis for the establishment of compensation to property owners. This procedure must be done before an offer can be made to the property owner. A consultant may perform the review, but approval and establishment of compensation must rest with the FDOT. Compensation for the property to be taken may not be less than the fair market value, as established by the approved appraisal.

Critical steps in scheduling the appraisal are the time required to hire the appraiser, prepare the appraisal, and complete the appraisal review and approval process.

Acquisition: The following steps are required for the process of making an offer and negotiations:

- Provide written notification of the project and recitation of the owner's rights.
- Provide a written offer of approved compensation to purchase the subject property, which may not be less than the fair market value as established by the approved appraisal.
- Negotiate in good faith with the owner and, if applicable, the owner's representative in order to reach an agreement.
- Provide a copy of the appraisal report, right of way maps, and other documents to the owner if requested.
- Reimburse the property owner for reasonable attorney fees and costs, including expert fees.

Amount of Compensation: The FDOT must offer an amount for the land taken, improvements taken or damaged, and severance damages to the remaining property as established by the approved appraisal. The payment of business damages to a qualified business may also be required. The property owner's reasonable attorney fees and costs (including expert fees), and expenses

incidental to the transfer of title must also be paid. The FDOT may not accept donations of property until the owner is advised of his/her right to an appraisal of the property and the right to receive compensation. The FDOT may not take any coercive action to induce an agreement on the price to be paid for the property.

Real Estate Closing: If an agreement can be reached as a result of negotiations, then the parcel will be acquired through a real estate closing. Title will be voluntarily passed from the property owner to the FDOT in return for payment of the agreed upon amount. If an agreement cannot be reached, then a condemnation lawsuit must be filed and the property must be taken through eminent domain proceedings. If an agreement is reached in excess of the amount of approved compensation, the FDOT must provide written justification in support of that amount. Final agency acceptance of the purchase agreement cannot be granted until at least 30 days after the agreement has been executed.

Business Damages: A qualified business may make a claim for damages to the business as a result of a taking. Business damages are not damages to the real estate, but rather damages to the profit-making capacity of the business. There are strict statutory requirements for a business to qualify for damages. The FDOT must give the owner written notice of the project and recitation of the owner's rights, but no initial offer is required. If the business intends to claim damages, it must submit a written offer to settle with the FDOT.

Claims for business damages can result in exposure to large monetary claims. Early participation of ROW experts in the pre-right of way phases of the project can greatly reduce or mitigate these costs.

Condemnation: If negotiations fail, the property must be acquired through eminent domain proceedings in the circuit court. Resolutions by the FDOT identifying the public project and authorizing the condemnation of the parcels for the project are required. The FDOT cannot file a condemnation lawsuit until at least 30 days have elapsed from the date that the property owner received the written offer.

An Order of Taking Hearing must be scheduled and conducted before the court. At this formal evidentiary hearing, the FDOT must prove that the project constitutes a public purpose, that the property to be taken is necessary for this purpose, and that the FDOT has established a good-faith estimate of the value of the property based on a valid appraisal. If the court is satisfied with the evidence, an Order of Taking will be granted; and the FDOT must deposit the good-faith estimate of the value into the registry of the court. Upon deposit, title to the property transfers to the FDOT.

The court may establish the term within which and conditions upon which the defendants will be required to surrender possession of the property. After transfer of the title, surrender of possession and removal of improvements, construction may begin. Jury trials to determine the amount of final compensation are held at a later date. Negotiations to agree upon compensation may continue until the jury renders a verdict on final compensation. Close coordination should occur between the FDOT eminent domain attorneys and personnel involved with right of way mapping, design and ROW activities throughout the pre-right of way and negotiation phases. The process of filing a lawsuit, securing an Order of Taking hearing on the court docket, to the actual surrender of the property is a significant schedule consideration, typically 90 to 120 days or longer.

Relocate Displacees: Relocation is a highly detailed program governed by the ***Uniform Relocation and Real Property Acquisition Policies Act (Uniform Act)***. Adherence to the requirements of the ***Uniform Act*** is mandatory. Failure to do so will jeopardize federal funding on the project. The program requires notification to persons and businesses displaced by the project, relocation advisory assistance, payment of moving costs, identification of decent, safe and sanitary replacement dwellings, and payment of relocation housing costs. No lawful occupant shall be required to move unless he or she has received at least 90 days

advance written notice of the earliest date by which he or she may be required to move. The time required for this process is a significant schedule consideration.

Clear Right of Way: All improvements on the property must be removed prior to construction, or the removal should be included in the construction contract. Improvements must be inspected for Asbestos Containing Materials (ACM) prior to demolition; and if ACM is found, it must be abated. The abatement of ACM may not be included in a construction contract. Any ACM present must be abated prior to letting a construction contract, even if the removal of the building is included in the construction contract. Federal law requires that the regulatory agency (Florida Department of Environmental Protection) be notified of the impending abatement and demolition a minimum of 10 working days prior to its start.

Certify Right of Way Clear and Ready for Construction: The FDOT may not advertise for construction bids until all necessary rights of way for the construction of the project have vested in the state. The District Right of Way Manager or the Assistant District Right of Way Manager must certify that all of the following are complete and that all activities were conducted in accordance with applicable state and federal laws, rules and regulations:

- Title to all ROW must be vested in the FDOT, another state agency or a local government.
- All displacees must be cleared from the project.
- All improvements must be cleared from the project or identified for removal in the construction project.

This certification is required for ALL projects. This certification is submitted directly to the Central Office of Right of Way via the Certification System. The District shall include the ROW certification for construction in the project Plans, Specifications and Estimate (PS&E) package. The District shall also upload a copy of the certification into the Certification System at or before the time the PS&E package is delivered to the Office of Production Management.

Contracting

Appraisal: Appraisals are most often performed by right of way consultants whereas Appraisal Review is most often handled by in-house staff. In the procurement of appraisal and appraisal review contracts, FDOT uses contractual services: more specifically, the Invitation to Negotiate process pursuant to ***Section 287.057, Florida Statutes (F.S.***), and ***DMS Rule 60A, Method B***, to which there is no prequalification process. Appraisers proposing on contracts to prepare surplus property appraisals and for contracts to conduct Local Agency Program (LAP) project appraisal services must be prequalified by FDOT under ***Subsection 003.n, Rule Chapter 14-75, F.A.C.***, Group 20, Appraisal Services. ***PMG 220, PMG 230 and PMG 235*** deal with consultant procurement, negotiations and contract management.

Acquisition/Relocation: The acquisition and relocation process is predominantly handled by in-house staff; however, when handled through a consultant, the ***Consultants Competitive Negotiation Act (CCNA)*** contracting process under Professional Services is followed pursuant to ***Section 287.055, F.S.***, and ***Rule Chapter 14-75, F.A.C.***

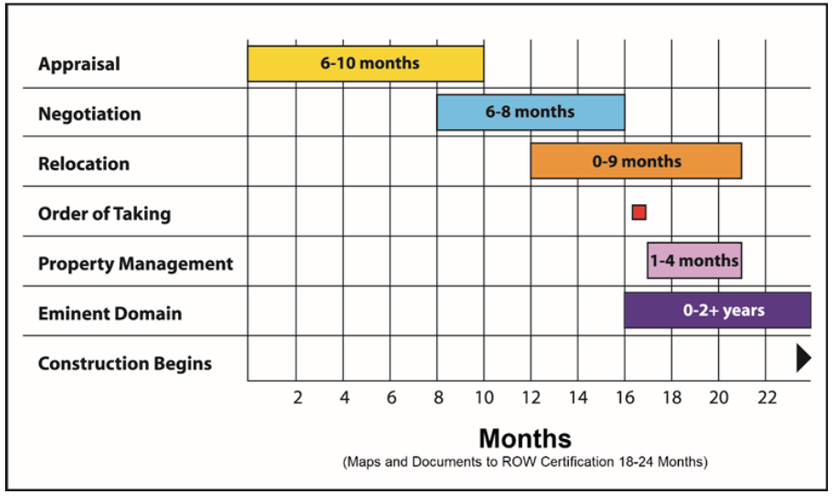
Property Management: Abatement and Demolition for the clearing of the right of way is handled solely through consultants and the Invitation to Bid contractual services process provided in ***Section 337.11, F.S.***, and ***PMG 220, Consultant Procurement***.

Expert Witness Services: Expert witness services are services rendered in direct support of litigation for projects entering the eminent domain (condemnation) process of the acquisition of a property pursuant to ***Section 287.057, F.S.***

Right of Way Phase Schedule

The time involved in performing the required right of way activities will depend to some extent on the number of parcels and complexity of each situation. Nonetheless, because of the many legal requirements, even the simplest taking may not be accomplished quickly. Early Right of Way involvement is the key to staying on schedule over the course of the project. **Figure 3**, **Right of Way Acquisition Process**, shows typical durations for key right of way activities.

Figure 3
Right of Way Acquisition Process



Public Records

Florida's Public Records Law can be found in ***Chapter 119, Florida Statutes (F.S.)***. Florida Statutes can be accessed online at ***Florida Statutes***. The State of Florida places high priority on the public's right to access governmental records. The Florida Department of Transportation (FDOT), as a state agency, must carefully and conscientiously implement all public records access laws and adhere to the state's open access policy.

The statutory definition of "public records" is: "all documents, papers, letters, maps, books, tapes, photographs, films, sound recordings, data processing software, or other material, regardless of the physical form, characteristics, or means of transmission, made or received pursuant to law or ordinance or in connection with the transaction of official business by any agency" (Section 119.011, F.S.).

FDOT employees and anyone working under contract to FDOT can reasonably assume that most documents that are created, produced, or received (whether in physical or electronic format) in the course of transacting FDOT business are public records. Individuals under contract to do work for the Department must comply with public records request laws in the same manner as FDOT employees.

Exempt Public Records

The only documents not public records are those covered by a statutory exemption. While exemptions are somewhat scattered throughout Florida Statutes, most statutory exemptions can be found in Subsection 119.07(3), F.S. FDOT ***Procedure No. 050-020-026, Distribution Of Exempt Public Documents Concerning Department Structures And Confidential And Exempt Security Systems Plans***, also exempts records related to security system plans and structural plans from requests for public records. The procedure describes the circumstances and process for the distribution of documents deemed as exempt. Information concerning ongoing legal proceedings may also be exempt. The Office of General Counsel should be consulted when such requests are received.

Public Records Requests

All non-exempt public records are subject to public inspection and/or copying or reproducing by any person, corporation or other legal entity. (See Section 119.07, F.S.). Office of General Counsel staff are available for advice and direction when legal (or procedural) questions arise concerning records access.

Responding to a Public Records Request

The person responding to these records requests must be thoroughly familiar with FDOT records management procedures. The person responding to a public records request must know the proper FDOT procedures for the handling of public records requests and follow them exactly. All FDOT employees are required to take the ***Public Records Requests*** training available through Learning Curve.

It may be both necessary and prudent to consult with the Office of General Counsel to confirm the proper handling of a public records request, to discuss whether or not any statutory exemptions apply to the documents or items requested, and to determine if there is ongoing litigation involving or related to the requestor.

Charges for Public Records

The person who responds to a public records request for hard copy text records will furnish a copy or certified copy of the record(s) upon payment of the fee prescribed by law. Payment is required in advance of producing copies. Subsection 119.07(4)(a), F.S. establishes these charges.

Project Management Guide

115 Pm Technology, Tools, and Resources

115 - PSEE

115 – ERC

115 – Retention of Engineering Documents

115 – Project Documentation (Under Development)

115 – AARF (Under Development)

115 – Vault (Under Development)

115 - AARF

This chapter is still under development.

Thank you for your patience.

115 – Project Documentation

This chapter is still under development.

Thank you for your patience.

Introduction

Project documents, including all engineering documents (reports, plans, and supporting calculations) created during the project development and construction phases are retained in perpetuity in an electronic format (e.g., PDF, WORD, EXCEL, DGN). All engineering documents are stored in an Electronic Document Management System (EDMS).

Several applications have been developed to provide a user-friendly interface within EDMS, increasing the efficiency for storing, managing, and retrieval documents. The three most common applications (each requires an established user ID and Password) include:

1. The State-Wide Environmental Project Tracker (SWEPT) is used during the Project Development and Environment (PD&E) project phase.

2. The Project Suite Enterprise Edition (PSEE) application is used during the Design project phase and for processing contract documents for letting and all changes. For more information into this application see the ***PMG 115.***

3. The ProjectSolve SharePoint (PSSP) is used during the Construction project phase. For more information see the ***PMG 115.***

The Transportation Technology Manual (FDOT Procedure No. 325-000-002) contains the standards, guidelines, and requirements related to information technology resources. See Chapter 13 of the Transportation Technology Manual for mor information on electronic document management requirements

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115 - Vault

This chapter is still under development.

Thank you for your patience.

Electronic Review Comments (ERC) System

The Electronic Review Comments (ERC) is a web-based FDOT application used to track the entire review process (comments and responses) for plan reviews and project submittals in a database. All comments and responses reside in one location allowing any user access to review data on demand. The system allows Project Managers to easily track all comments and responses from all Reviewers and Consultants at any time during the process.

ERC Application Access

Access to the ERC application can be found on the ***ERC website***. Internal staff will use their RACF ID and password to access the system, while users without a RACF ID will use an Internet Subscriber Account (ISA) to access the system.

For more information on the ERC System, refer to the ***ERC User Manual***.

Project Suite Enterprise Edition (PSEE)

Project Suite Enterprise Edition (PSEE) is a web-based application for project managers (PM) to view, manage, and request changes to project information. The system pulls project information from many other FDOT systems and places it in one location. This system allows PMs to easily manage all phases of multiple projects simultaneously in one system.

PSEE provides PMs and other users easy access to project data on demand. PSEE has a variety of modules related to different aspects of a project including project documentation, scope, schedule, budget.

PSEE Application Access

The PSEE system requires user access and is in place for all Districts. Internal staff will use their RACF ID and password to access the system, while users without a RACF ID will use an Internet Subscriber Account (ISA) to access the system.

The PSEE system can be accessed on the ***PSEE website***.

Project Management Guide

120 – General Design Elements

120 – Context Classification

120 – Complete Streets

120 – Access Management

120 – Intersection Control Evaluation

Context Classifications

Context classification is a method of classifying the roadway based on the characteristics of the surrounding environment. The FDOT takes a Complete Streets approach to planning, designing, and operating roadways on the state highway system outside of its limited access facilities. To understand the design and operations that would create a complete street for the given roadway, FDOT refers to the context classification of the roadway and the various criteria based on that classification. The resulting roadway is one that provides for the various mobility needs of the users expected on that facility.

The Context Classification Guide provides information on why complete streets are important, guidance on how context classification is determined, and describes the relationship between context classification, the FDOT Design Manual (FDM), and other FDOT guidance.

FDOT's context classification system categorizes Florida roadways based on the general characteristics of land usage, developmental patterns, and roadway connectivity along the facility. Context Classification provides cues as to the types of uses and user groups that are expected on the roadway. Based on the common built environments existing in Florida, the FDOT context classification identifies eight classifications.

Context Classification Criteria

The context classification system is broken down into the following eight classifications with the following descriptions:

C1 – Natural: Lands preserved in a natural or wilderness condition. Not intended for future development.

C2 - Rural: Sparsely settled lands. Could be developed in the future.

C2T – Rural Town: Town area immediately surrounded by rural and natural areas

C3R – Suburban Residential: Residential area uses within large blocks and sparse roadway system.

C3C – Suburban Commercial: Nonresidential use with large building footprints and large parking lots within large blocks or sparse roadway network

C4 – Urban General: Mix of the uses set within a small block with a well-connected roadway. Connects to residential neighborhoods.

C5 - Urban Center: Mix of uses set within small blocks that have a well-connected roadway network. Concentrated around a few blocks. Identified as a civic or economic center.

C6 – Urban Core: Area with the highest densities of building heights. And classified as a large, urbanized area. Buildings have a mixed use; they are built up to the roadway and are in a well-connected roadway network.

Classification help determine the design criteria that a project will refer to in order to best meet the various mobility needs along the roadway. Roadways through more densely populated areas will attract higher non-motorized traffic and thus should work to incorporate the appropriate bicycle and pedestrian facilities.

Projects

Understanding the needs of all users in the early phases of a project can help assure that the project scope of services defines all necessary improvements and that the budget is adequate for design, right of way, and construction. The context classification should be determined at the beginning of each project phase.


FDOT
FDOT Context Classification System
C1
C2
C2T
C3R
C3C
C4
C5
C6
Natural
Lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural conditions.
Rural
Sparsely settled lands; may include agricultural land, grassland, woodland, and wetlands.
Rural Town
Small concentrations of developed areas immediately surrounded by rural and natural areas; includes many historic towns.
Suburban Residential
Mostly residential uses within large blocks and a disconnected or sparse roadway network.
Suburban Commercial
Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network.
Urban General
Mix of uses set within small blocks with a well-connected roadway network. May extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway.
Urban Center
Mix of uses set within small blocks with a well-connected roadway network. Typically concentrated around a few blocks and identified as part of a civic or economic center of a community, town, or city.
Urban Core
Areas with the highest densities and building heights, and within FDOT classified Large Urbanized Areas (population >1,000,000). Many are regional centers and destinations. Buildings have mixed uses, are built up to the roadway, and are within a well-connected roadway network.

Introduction

Complete streets are context-sensitive roadways that create a safe environment for and serve the transportation needs of the system users of all ages and abilities. System users include bicyclists, transit vehicles, riders, pedestrians, freight handlers, and motorists. Complete streets provide the following:

- Increased safety
- Enhanced mobility
- Improved connectivity
- Enriched quality of life
- Economic development

The complete streets approach is a department-wide shift in transportation planning, design, and decision making. This approach may implement context-sensitive roadway improvements such as separated bicycle lanes, shared use paths, on street parking, curb extensions, wide sidewalks, and special emphasis crosswalks with pedestrian refuge islands.

The Complete Streets includes training, demonstrations, resource material, the Explorer Tool, and examples throughout the state of Florida

Introduction

Access management is the coordination of planning, regulation, and design of access between roadways and land development. The goal of access management is to promote safe movement of people and goods by reducing conflicts on the roadway system at its crossing point with other modes of travel. Conflict Points are points along the roadway where travelers path crosses one another. Conflicts can be seen within the following categories:

- Roadway Openings
  - Driveways
  - Medians and Median Openings
- Sight Distances
  - Stopping Sight Distance (SSD)
  - Intersection Sight Distance ((ISD)
- Turn Lanes and U-Turns
  - Exclusive Right-Turn Lanes
  - Exclusive Left-Turn Lanes
  - Center Two-Way Left-Turn Lanes
- Integration of all transportation modes and Intersection Control Evaluation (ICE) process

These can be found in the Access Management Guidebook through the Systems Implementation Office website. The FDM contains additional information about design of access management elements.

Project Management Guide

125 - Glossary of Terms & Acronyms

125 - Glossary of Terms

125 - Acronyms

Visit Enterprise Business Glossary for full list of Department terms, definitions, and acronyms

Frequently Used Acronyms for Project Managers

A

AASHTO	American Association of State Highway and Transportation Officials
ACEC	American Council of Engineering Companies
ACM	Asbestos Containing Materials
ACOE	Army Corps of Engineers
ADA	Americans with Disabilities Act

B

BATNA	Best Alternative to a Negotiated Agreement

C

CAP	Community Awareness Plan; Consultant Acquisition Plan
CCNA	Consultants' Competitive Negotiations Act
CE	Categorical Exclusion
CEI	Construction Engineering and Inspection
C.F.R.	Code of Federal Regulations
CITS	Consultant Invoice Transmittal System
CPAM	Construction Project Administration Manual
CPM	Critical Path Method; Construction Project Manager

D

D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DEIS	Draft Environmental Impact Statement
DEO	Department of Economic Opportunity
DEP	Department of Environmental Protection
DPM	Design Project Manager
DRI	Developments of Regional Impact

E

E&O	Errors and Omissions
EA	Environmental Assessment
EIS	Environmental Impact Statement

EOR	Engineer of Record
EPA	Environmental Protection Agency
ERC	Electronic Review Comments
ETAT	Environmental Technical Advisory Team
ETDM	Efficient Transportation Decision-Making
F	
F.A.C.	Florida Administrative Code
FDM	FDOT Design Manual
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
F.S.	Florida Statute
FTP	Florida Transportation Plan
G	
GEC	General Engineer Consultant
GIS	Geographic Information System
H	
HCM	Highway Capacity Manual
HSM	Highway Safety Manual
I	
IJR	Interchange Justification Report
IMR	Interchange Modification Report
IOAR	Interchange Operational Analysis Report
ITB	Invitation to Bid
ITN	Invitation to Negotiate
ITS	Intelligent Transportation Systems
J	
JPA	Joint Participation Agreement
L	
LAP	Local Agency Program
LDCA	Location and Design Concept Acceptance
LOR	Letter of Response
LOS	Level of Service

LRE	Long Range Estimate
LRTP	Long Range Transportation Plan
M	
MBE	Minority Business Enterprise
MPO	Metropolitan Planning Organization
N	
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
P	
PD&E	Project Development and Environmental
PM	Project Manager
PMP	Project Management Plan
PS&E	Plans, Specifications and Estimate
PSEE	Project Suite Enterprise Edition
PSR	Programing Summary Report
PSU	Professional Services Unit
Q	
QA	Quality Assurance
QC	Quality Control
R	
RFI	Request for Information
RFP	Request for Proposal
RRR	Resurfacing, Restoration and Rehabilitation
ROW (R/W)	Right of Way
RWMS	Right of Way Management System
S	
SEIR	State Environmental Impact Report
SEIS	Supplemental Environmental Impact Statement
SHE	Staff Hour Estimation
SOS	Scope of Services
STIP	State Transportation Improvement Plan
SUE	Subsurface Utility Engineering

T

TTCP	Temporary Traffic Control Plan
TIP	Transportation Improvement Program
TRC	Technical Review Committee

U

UAM	Utility Accommodation Manual
UAO	Utility Agency/Owner
UPM	Utility Procedures Manual

V

VE	Value Engineering

W

WP	Work Program
WPI	Work Program Instructions

Project Management Guide

Part 2 General Project Process

Project Management Guide

200 Introduction

(Under Development)

Project Management Guide

205 – PM By Phases

(Under Development)

205 – Project Management by Phases

This chapter is still under development.

Thank you for your patience.

Project Management Guide

210 – Work Program

210 – Understanding Work Program

210 – Work Program Instructions

210 – Work Program Instructions

This chapter is still under development.

Thank you for your patience.

Work Program Introduction

The process used to identify and track the Florida Department of Transportation's (FDOT's) large volume of work and the appropriated budget is the Work Program. The Work Program process currently manages a multi-billion-dollar budget each year. Some basic principles that underlie this unique process are addressed in the ***Work Program Process Overview***. The program is driven by policies and program objectives outlined in the ***Florida Transportation Plan (FTP)***. The FTP is described in detail in ***PMG 110 – Transportation Planning Process***.

Developing the Work Program

The FTP and the ***Program and Resource Plan*** guide the development of the Work Program. The Legislative Budget Request (LBR) reflects the requested budget amounts by budget entity and appropriation category. The Program and Resource Plan links the FTP, the LBR and the Five-Year Work Program. Consequently, development of the Department's Work Program and the appropriation request can be described with the term "Policy to Projects." This process ensures that the transportation products and services provided to the people of Florida are consistent with policy direction.

Annually the Department prepares the Five-Year Work Program pursuant to ***Section 339.135, Florida Statutes***. The Work Program must be a balanced financial plan that provides a list of transportation projects (by phase) that are scheduled for implementation during the ensuing five-year period. It includes all proposed project commitments classified by major program and appropriation category.

Projects are scheduled by phase (i.e., planning, design, and construction) because it usually takes several years to complete a project. Phases are defined by group, type, and description. **Figure 1**, **Work Program Phase Description** lists common Work Program Phases and their descriptions. For a complete list of Phase descriptions, see WPI Appendix D

Work Program Instructions (WPI)and fund allocations communicate funding and policy directives to the districts and the turnpike enterprise. Instructions for building a Five-Year Work Program to the specification of the Program and Resource Plan are contained in WPI Appendix A for program allocations and WPI Appendix B for program performance targets. The WPI, WPI Appendix A (program allocations) and WPI Appendix B (program targets) can be found at the ***Office of Work Program and Budget*** website.

The development of the Work Program involves three distinct sequences: gaming, tentative and adopted. During gaming, the districts use the Work Program Administration (WPA) files and WPI Appendix A and WPI Appendix B to project scenarios of alternative projects.

The Project Manager's Role in the Work Program

Although it is important to understand the process, the Project Manager (PM) is not normally involved in the process of developing the Work Program. However, a PM must know what is in the Work Program that pertains to their projects and the implications of that

Figure 1
Work Program Phase Description

	Phase	Description
Planning	3B	PE Service Contract
	11	Planning In-House
	12	Planning Consultant
	14	Planning Grant
	18	Planning Other Agencies
PD&E	21	PD&E In-House
	22	PD&E Consultant
	28	PD&E Other Agency
Design	31	PE In-House
	32	PE Consultant
	38	PE Other Agency
Right of Way	4B	R/W Service Contract
	41	R/W In-House
	42	R/W Consultant
	43	R/W Land
	45	R/W Relocation
	46	R/W Utility
	48	R/W Other Agency
Construction	5A	Construction Contract Bonus
	52	Construction Contractor
	54	Construction Grant
	56	Construction Utility
	57	Construction Railroad
	58	Construction Other Agency
	61	Construction Support In-House
	62	Construction Support Contractor
Maintenance	71	Maintenance In-House
	72	Maintenance Consultant
	74	Maintenance Grant
	78	Maintenance Other Agency
Misc.	84	Operations Grant
	88	Operations Other Agency
	94	Capital Grant
Local Agency Projects (LAP)	18	Planning Other Agencies
	28	PD&E Other Agency
	38	PE Other Agency
	48	R/W Other Agency
	58	Construction Other Agency
	68	CEI Other Agency
	78	Maintenance Other Agency
	88	Operations Other Agency

CEI: Construction Engineering & Inspection PE: Preliminary Engineering
PD&E: Project Development & Environment R/W: Right of Way

information. The project must be in the Adopted Work Program to be undertaken. If federally funded, the project must be included in the State Transportation Improvement Program (STIP); and, if in an MPO area, must also be included in the MPO's Transportation Improvement Program (TIP).

Regardless of the work phase, an FDOT PM is responsible for the successful progression of a transportation improvement through all project phases. The FDOT PM must ensure that the Work Program estimate for each phase is valid. The PM must also ensure that the project can be produced as scheduled. If circumstances make it impossible to complete the planned improvements within the Work Program estimate or schedule, the PM must take the appropriate steps to revise the project scope, estimate or budget and coordinate these changes with the Work Program Office. It is the PM's responsibility to keep the Work Program data current.

Changes That Must Be Reported: The District Work Program Manager must be kept abreast of key developments in a project as they relate to the Work Program. It is particularly important to update the Work Program before proceeding to contract advertisement for construction and letting. The following are examples of changes that should be reported:

- Estimated costs (increased or decreased)
- Project concept and scope
- Project limits
- Letting date
- Contract supplemental agreements
- Planned phases
- Needs to change programmed years

Failure to Report Changes: If the PM fails to notify the Estimates Office of significant changes, the TRNS*PORT system is not updated. On federally funded projects, a Transportation Improvement Plan (TIP) and State Transportation Improvement Plan (STIP) amendment may be required if the scope of the project or estimate changes significantly. Amending these projects result in the following outcomes:

- Changes in the estimate require that the Work Program be re-balanced to account for these shifts (reserves reduced or estimate increased).
- A project scheduled for letting may be delayed. Approval of Work Program amendments typically takes from four to eight weeks.
- Related activities such as right of way and utility reimbursables are affected.

Work Program Amendments: A Work Program amendment is required as described in WPI Part III Chapter 3.

STIP/TIP Amendments: Formal amendments in the STIP or TIP are required as described in WPI Part IV Chapter 5.

Contract Funds Management System

The Contract Funds Management System (CFM) system is governed by ***Florida Statute 339.135 (6)(a).***

Funds must be encumbered prior to execution of a contract, contract amendments or supplemental agreement that obligates funds. The encumbrance process, as described in ***Procedure 350-020-200***, Contract Funds Management Funds Approval, ensures that the budgeted funds are in place and sets those funds aside for payment of the specific contract. Payments must match the encumbrance accounting data found in the CFM system.

Payment of Invoices

The PM must be assured that the work, services, or goods have been delivered prior to payment of an invoice; and that the invoice is within the terms of the contract and the invoice is properly documented. ***PMG 235 - Invoicing***, discusses the responsibilities of both the consultant PM and the FDOT PM in the preparation, review and approval of invoices. ***PMG 105 – Statutory Authority***, also provides a detailed summary of invoice responsibilities for FDOT PMs.

Federal Funds: It is the PM's responsibility to ensure that Federal Aid Coordinators are notified in a timely manner of the need to request federal authorizations for federally funded projects. This responsibility includes ensuring all the required prerequisite criteria are met (and supporting materials are available) before requesting the Federal Aid Coordinator to prepare the Federal Authorization Request (FAR). The PM is responsible for obtaining federal aid project numbers assigned to all phases of work. The Federal Highway Administration (FHWA) must approve the FAR before construction projects can be advertised or before Preliminary Engineering (PE) and Construction Engineering and Inspection (CEI) contracts are executed. The FAR must be submitted to the Federal Aid Programs Office at least 30 days prior to the date the approval is needed. The Federal Aid Coordinator notifies the PM when federal project authorization is received. Complete instructions on the authorization process are found in ***Procedure No. 350-050-005***, Federal Project Authorizations.

The PM must close each phase of work in a timely manner upon completion. This includes completing all the required documentation necessary to close the project with FHWA.

- **Local Funds:** Local funds must be deposited with the Department prior to advertising locally funded projects and encumbering the contract funds.
- **Project Closeout:** Another important Work Program task for the PM is project closeout. As the project is brought to completion, the PM should work with the District Work Program Manager and Comptroller's staff to close out the project. The PM must ensure that final invoices are submitted and processed as quickly as possible.

Upon payment of the final invoice, the project manager must notify the district work program office to un-encumber any remaining funds so that they may be utilized on other projects.

Final reimbursement of federal funds cannot be requested until proper project closeout. The PM should work with the Federal Aid Coordinator to accomplish this work. Improper closeout documentation can affect billions of dollars of federal reimbursement.

Additional Information

The Work Program may be viewed at the project/phase level on the ***Office of Work Program and Budget SharePoint***. This program is accessed by going to the Finance and Administration site and clicking on Item Segment Overview. A project can be viewed at item level, or many projects can be reviewed by selecting one or more of the criteria on the screen. The codes are written out so that they can be easily followed. The WPI contains all information concerning programs and funds along with contact people for each area. The WPI Appendices list all data elements involved in the programming of projects.

Project Management Guide

215 – Scope of Work

(Under Development)

215 – Developing Scope of Work

This chapter is still under development.

Thank you for your patience.

Project Management Guide

220 – Consultant Procurement

220 – Professional Services Contracts

220 – Contractual Services Contracts
220 - Contract Types

Contractual Services

This chapter covers basic information found in the ***Commodities and Contractual Services Procurement Manual***, ***375-040-020***. Contact your District Contractual Services Office for project-specific solutions.

Contractual services include environmental, archeological, emergency response, building and equipment maintenance, training, appraisal contracts, research, systems development, information technology, and appraisal services. These services are procured through the ***Vendor Bid System*** or through ***MyFloridaMarketPlace***.

Competitive Solicitations

The competitive solicitations are done through three different types of advertisements: Invitation to Bid, Request for Proposal, or Invitation to Negotiate.

Invitation to Bid

An Invitation to Bid (ITB) is a competitive solicitation process (typically takes 8-10 weeks) that utilizes a written solicitation for competitive sealed bids. The ITB is used when the agency knows exactly what is required and is capable of specifically defining the specifications or scope of work. Bids are evaluated strictly against the terms and conditions of the ITB, and bid prices submitted. The selection is based on lowest bid that meets the specifications.

Request for Proposal

A Request for Proposal (RFP) is a competitive solicitation process (typically takes 10-12 weeks) that utilizes a written solicitation for sealed proposals. The RFP is used when contractual services being sought can be specifically defined and the agency identifies necessary deliverables. The proposal selection is based on lowest bid from a vendor that meets the qualifications.

Invitation to Negotiate

An Invitation to Negotiate (ITN) is a competitive solicitation process (typically takes 12-14 weeks) intended to determine the best method for achieving an unclear goal and identify responsive best-value vendors. The ITN process is used on complex projects that the Department knows what they want, but unclear on the best process or solution. It occurs frequently on high risk and new technology contracts when FDOT is not exactly sure of the approach or the latest technologies.

Professional Services

Florida law requires state agencies to acquire certain professional services by competitive negotiation. The process mandates a competitive selection. The selection is based on qualifications and followed by contract negotiations to establish a fee for the desired services. Here are some important rules and procedures:

- ***Procedure No. 375-030-002, Acquisition of Professional Services***
- ***Procedure No. 375-030-003*, Professional Services Procurement Manual**
- ***Rule Chapter 14-75, Florida Administrative Code (F.A.C.), Qualifications, Selection and Performance Evaluation Requirements for Professional Consultants to Perform Work for DOT***
- ***Procedure No. 375-040-010, Consultant Marketing Procedure***

The ***Consultants' Competitive Negotiation Act (CCNA)***, ***Section 287.055, Florida Statutes (F.S.)***, mandates the following services be acquired through the CCNA process; Engineering, Surveying and Mapping, Architecture and Landscape Architecture. Right of Way and Transportation Planning services may also be acquired using the CCNA process. Persons and firms used whether prime consultant or subconsultant, can only perform the work for which they are prequalified with the Department, in accordance ***Rule Chapter 14-75, F.A.C.***

Per Florida Law, FDOT utilizes this process for any project requiring a Professional Engineer, Registered Architect, or other licensed professionals. FDOT uses this process for Planning, Project Development and Environment (PD&E), Design, Construction Engineering and Inspection (CEI), and General Engineering Consulting (GEC) contracts.

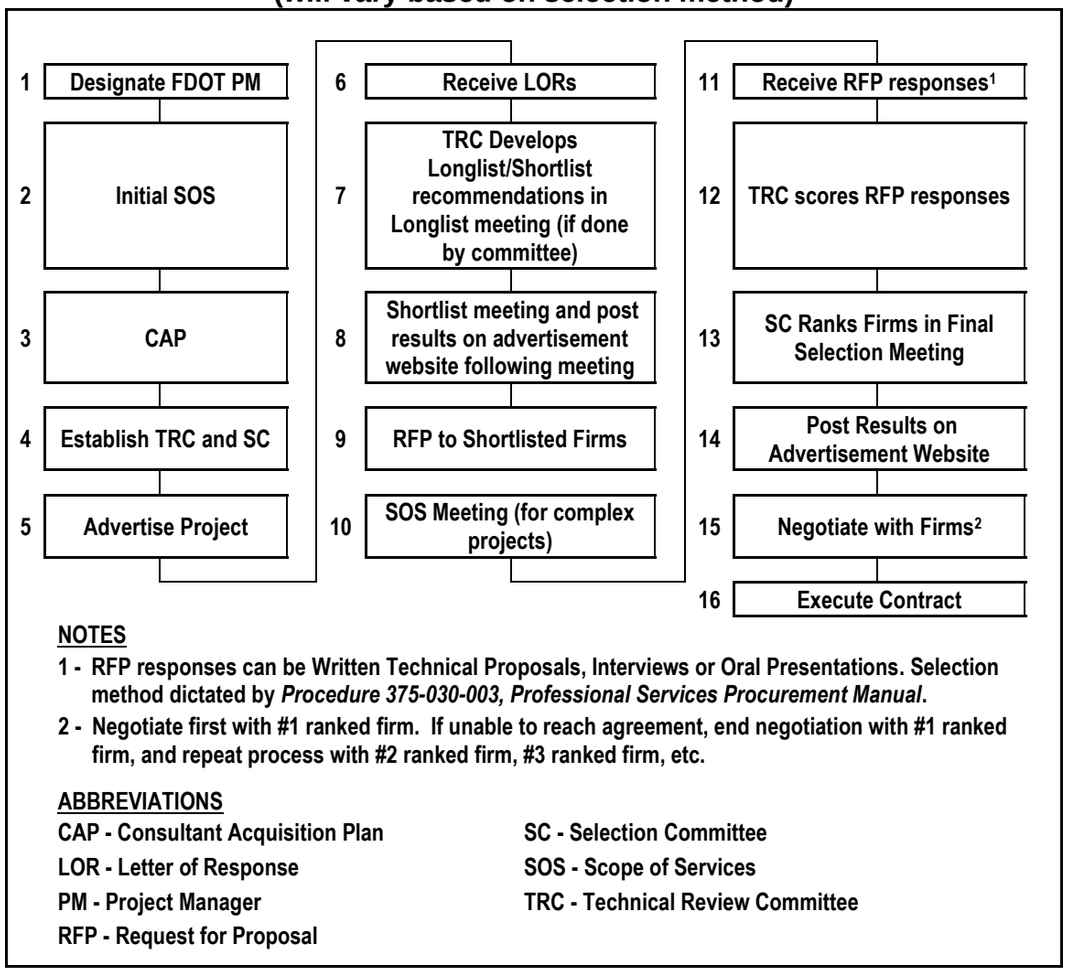
Professional Services Procurement Process

Several individuals within FDOT are involved in the acquisition process for Professional Services contracts, including the District Professional Services Unit (PSU) and Central Office Procurement Office staff, the FDOT Project Manager (PM), the Technical Review Committee (TRC) members and the Selection Committee members. The roles of each are described within this PM Topic. The critical stages in the acquisition process are:

1. Advertisement
2. Longlisting
3. Shortlisting
4. Final selection
5. Contract negotiation
6. Contract execution

The following flowchart illustrates the many steps contained in the Standard Procurement Process for Professional Services contracts.

Standard Procurement Process
(will vary based on selection method)



NOTES

1 - RFP responses can be Written Technical Proposals, Interviews or Oral Presentations. Selection method dictated by *Procedure 375-030-003, Professional Services Procurement Manual*.

2 - Negotiate first with #1 ranked firm. If unable to reach agreement, end negotiation with #1 ranked firm, and repeat process with #2 ranked firm, #3 ranked firm, etc.

ABBREVIATIONS

CAP - Consultant Acquisition Plan
LOR - Letter of Response
PM - Project Manager
RFP - Request for Proposal
SC - Selection Committee
SOS - Scope of Services
TRC - Technical Review Committee

Step 1 Designate FDOT PM

The Five-Year Work Program identifies the FDOT PM for each project. Once this occurs, the FDOT PM contacts the District Procurement Office to begin the process of scheduling the contract acquisition. FDOT PM and the District PSU jointly prepare the contract acquisition schedule.

Step 2 Initial Scope of Services

Prior to advertisement, the FDOT PM determines the appropriate work groups and develops a scope of services for the project. Work groups are described in ***Rule 14-75.003, F.A.C***. List major and minor work groups in the advertisement. Include a proposed scope of services in the advertisement. Standard Scopes of Services for PD&E, Roadway and Bridge/Structural Design, Materials Testing, and CEI projects can be found at the following websites:

- PD&E Services: ***Office of Environmental Management***
- Design Services: ***Production Support Office***
- CEI Services: ***Construction Office***
- Geotechnical and Materials Testing: ***Production Support Office***

The FDOT PM may modify the standard scope language as necessary to accurately describe the specific work required and to reflect unique district procedures.

The ***Standard Terms and Conditions for Professional Services Contracts*** and the ***Standard Method of Compensation*** language should be reviewed carefully to avoid duplicating or contradicting these contract elements in the scope of services. Coordinate with all appropriate support services (e.g., surveying and mapping, traffic, materials, right of way) during the development of the draft scope and professional service fee estimate.

The FDOT PM should also review the work program and the Long-Range Estimate (LRE) during this time to ensure that project phases and funding amounts are consistent with the scope being developed for the project. The final project scope may result in significant impacts on the project phases and funding levels which should be reconciled prior to executing a contract.

Step 3 Consultant Acquisition Plan

Once the FDOT PM submits the suggested work types and scope of services, the District PSU will establish milestone dates and enter them into the district Consultant Acquisition Plan (CAP) for the upcoming fiscal year. ***CAPs*** can be found on the ***Procurement Office*** website. Generally, the scope is not ready at that time, and identified work types are tentative and subject to change.

The FDOT PM should consult with the District PSU during the development of the CAP to determine the appropriate selection method. The options are expanded letters of response, written technical proposals, oral presentations, and interviews. See ***Procedure No. 375-030-002*** and ***Procedure No. 375-030-003*** for information on proposal requirements.

Step 4 Establish Technical Review Committee and Selection Committee

Technical Review Committee

A TRC (minimum of three members) will be assigned the responsibility to evaluate LORs, Letters of Qualification, Interviews, Oral Presentations, Expanded LORs, Abbreviated Technical Proposals, and/or Written Technical Proposals submitted by Consultants. The TRC is determined by the appropriate Director (or designee) and are selected based on knowledge and expertise with required work groups, complexity of the project, and availability. When establishing the members of the TRC, consideration should be given for including technical experts for specialized work as follows:

(1) For bridge design projects involving Category I Bridges, consideration shall be given to including the District Structures Design Engineer or their designee as a member of the TRC.

(2) For bridge design projects involving Category II Bridges, consideration shall be given to including the State Structures Design Engineer or their designee as a member of the TRC.

(3) For rail corridor projects, consideration shall be given to including the Public Transportation Manager (or the District Rail Corridor Manager), and the State Rail Officer or their designees as members of the TRC.

(4) For projects involving right of way services, consideration shall be given to including the District Right of Way Manager or their designee as a member of the TRC.

(5) For PD&E projects, consideration shall be given to including the District Planning and Environmental Management (PLEM) Administrator or designee as a member of the TRC.

(6) If a significant portion of the contract (greater than fifty percent) involves specialized services, then inclusion of technical experts as described above is required. General Engineering Consultant contracts shall include one Central Office participant on the TRC, to be named by the Chief Engineer.

The TRC shall consist of an odd number of members for professional services procurements. An even number of evaluators is not permitted on professional services TRCs to reduce instances of ordinal ranking ties.

Consultant staff may not be members of the TRC. It is permissible for Consultants to serve as technical advisors to the TRC, however, no employee of a Consultant or its affiliate that is competing for a project may serve as a technical advisor for the same project.

Participation by employees of other Florida governmental entities on a TRC is not permissible, although they may serve as technical advisors to the TRC. Private citizens and members of special interest groups are not permitted to serve on TRCs.

Standing committees may be established for broad types of work with the Project Manager for each project serving as the chairperson.

All potential TRC members must sign a ***Conflict of Interest/Confidentiality Certification***, ***Form No. 375-030-50***, which will be maintained in the contract file by the PSU. The ***Conflict of Interest/Confidentiality Certification*** is required to be completed and signed by the TRC members for every contract acquisition that they participate on and maintained in the individual contract file along with other documentation related to a single contract procurement. Potential TRC members that have a conflict of interest with a firm that has submitted a letter of response, should not accept membership on the committee. These potential TRC members shall still maintain confidentiality as outlined in the form.

TRC members must be familiar with the scope of services document prior to evaluating project submittals.

Selection Committee

No member of the TRC may serve on the Selection Committee for the same project. Each voting member of the Selection Committee may appoint an appropriate management level alternate. All Selection Committee members must sign a ***Conflict of Interest/Confidentiality Certification, Form No. 375-030-50***, which will be retained in the contract file.

The composition of a Selection Committee varies depending on whether it is for a contract in Central Office or in a district as follows:

- **Central Office Selection Committee**

At a minimum, the Central Office Selection Committee will be composed of the appropriate Assistant Secretary or designee, (who will serve as Chairperson), the appropriate Director, and the appropriate Office Head or other members appointed by the Chairperson. The Manager of the Procurement Office (or designee) will serve as Recording Secretary at all meetings.

- **District Selection Committee**

At a minimum, the District Selection Committee will be composed of three members: The District Secretary (who will serve as Chairperson), the appropriate Director, and at least one other Director or the appropriate Office Head or other members appointed by the District Secretary. The Procurement Services Manager, or their designee, will serve as Recording Secretary at all meetings.

Step 5 Advertise the Project

Initially, the project will be listed by Professional Services as a planned project in order to prompt the interest of consultant firms. During this period, the FDOT PM may speak with firms who request information about the project prior to advertisement. Document requests prior to formal ad should be directed to the Department legal office. Once a project is posted as a current advertisement, all communications between interested firms and the Department must be directed to the appropriate Professional Services Office. The advertisement contact is referenced in the Respond To: section of each advertisement. Respondents to the solicitation or persons acting on their behalf may not contact, between the release of the solicitation and the end of the 72-hour period following the agency posting the notice of intended award, excluding weekends and state holidays, any employee or officer of the executive or legislative branch concerning any aspect of this solicitation, except in writing to the procurement officer or as provided in the

solicitation documents. Violation of this provision may be grounds for rejecting a response.

Meetings of the Technical Review Committee (TRC) or Selection Committee to discuss or rank consultant proposals are considered public meetings and require proper public notice. Proposed meetings of these committees must be noticed (time and date) in the advertisement. The FDOT PM should coordinate these meetings with the District PSU prior to advertisement. The Procurement Office is responsible for facilitating these meetings to ensure all applicable laws, rules, and procedures are followed.

Once the project is advertised, the "clock starts." All milestones must be completed on time to meet the contract execution schedule. The advertisement should include the proposed Scope of Services.

For projects that do not require interviews, technical proposals, or oral presentations, such as less complex CEI projects, the ranking of firms may be made directly from the Expanded Letters of Response. The advertisement must notify consultants what selection method will be followed.

Step 6 Receive Letters of Response

The District PSU will receive the Letters of Response (LOR), and perform a responsiveness check. The PSU will provide the Project Manager, Department designee, or TRC with a copy of all responsive submittals received for a given project, and make available a Detailed Consultant Analysis Report providing information on past performance with the Department for all responding Consultants prequalified to perform the advertised major types of work. For professional services contracts, all administrative responsiveness checks are exclusively performed by PSU, and the recommendations are provided to the Selection Committee for the final determination.

Step 7 Develop the Longlist and Shortlist Recommendation

From the LORs, Expanded Letters of Response, or Letters of Qualifications received from Consultants in response to an advertisement, the Project Manager, Department designee, or a Technical Review Committee will prepare a longlist of the most qualified Consultants to then be considered for shortlist recommendation to the Selection Committee. This longlist will contain a minimum of ten Consultants or all qualified responsive respondents if fewer than ten.

If the TRC is developing the longlist, they must do so in a properly noticed public meeting. If the Project Manager is independently developing the longlist, no public meeting is required.

There are certain factors to be considered by the Project Manager, Department designee, or TRC in developing the longlist and shortlist recommendations. Please review the ***Professional Services Procurement Manual*** for the factors.

The PSU will advise the Project Manager, Department designee, or TRC of the shortlist recommendation requirements. If the TRC is developing the shortlist, they must do so in a properly noticed public meeting. The longlist development and shortlist recommendation development may occur at the same public meeting. If the Project Manager is independently developing the shortlist recommendation, no public meeting is required.

Step 8 Develop the Shortlist

The shortlist meeting shall be conducted as a public meeting. The Selection Committee may review and consider the information in the Detailed Consultant Analysis Report (if available), along with the longlist/shortlist recommendations from the TRC when determining the final shortlist.

There are certain factors to be considered by the Selection Committee when making the shortlist decision. Please review the ***Professional Services Procurement Manual*** for the factors.

The Selection Committee will shortlist no less than three Consultants. Where multiple contracts are being selected with one advertisement, at least two more Consultants than number of contracts being awarded will be shortlisted.

The Selection Committee may, at its discretion, deviate from the recommendation of the TRC, and may consider other firms from the longlist for purposes of shortlisting. The Selection Committee shall also make the final determination on responsiveness of all Consultants who submitted in response to the advertisement.

Step 9 RFP to Shortlisted Firms

The PSU will input the Selection Committee's action in the Procurement Application immediately following the shortlist meeting. The results will be posted consistent with the Procurement Internet website. The shortlisted firms are sent a Request for Proposal (RFP) which includes the proposed Scope of Services. Requirements of the RFP are provided in ***Procedure No. 375-030-002*.**

Step 10 Scope of Services Meeting (if applicable)

A Scope of Services meeting with the shortlisted firms is optional; typically held only when project is complex, or scope issues exist. Scope of Service meetings should be held as either a teleconference or virtual meeting.

During this meeting, FDOT expectations and the Scope of Services will be discussed; including public involvement, environmental and utility concerns, unique project conditions, and need for Specialty Engineer

The PSU will establish an information cutoff date at the scope of services meeting. No questions will be answered relating to the project objectives after the information cutoff date. The Consultants will be instructed as to where to direct all questions after the scope meeting.

Step 11 Receive RFP Responses

Shortlisted firms must submit their proposals prior to the deadline. Depending on the acquisition method chosen, presentations or interviews may be required. All members of the TRC must attend the presentation and interview meetings and complete evaluations for each firm. If a member of the Selection Committee attends one firm's presentation or interview, they must attend these events for all firms.

Requirements for evaluation and scoring are provided in ***Procedure No. 375-030-002***. The items to be scored and the weight attached to each item should reflect the criteria that are important in selecting the consultant firm for a specific project.

Interviews

The PM or TRC prepares interview questions in advance of the interview to ensure all consultants receive the same common questions. The questions should be designed to provide the interviewers the comparative knowledge and experience of the competing teams that are being proposed. However, the interview should be structured to allow the interviewers flexibility to pursue lines of questioning that will provide insight into the consultant's other qualifications. The Department may prepare additional questions that are unique for a Consultant, based on the Consultant's Letter of Response, organization/staffing chart, or other information. An equivalent number of interview questions shall be prepared for each shortlisted Consultant. TRC members may also ask follow-up clarifying questions during the interview, as time permits. Prepared questions for the shortlisted Consultants are generally limited to 10-15 questions, to allow sufficient time for complete responses by the Consultants.

Presentations

When consultants are evaluated by oral presentations, they should demonstrate awareness of project issues, explain their approach to the project and describe their staffing qualifications and capabilities.

The selection of a consultant should be made on the technical qualifications of the firm, not "showmanship." Therefore, presenting consultants should have their key technical personnel proposed for the project make the presentation.

Technical Proposals

The evaluation of technical proposals often requires more of the TRC's time to thoroughly review the material. A proposal page limit is typically set to reduce this time requirement and expense. It is important for the consultant to include input from all team members in their written proposal to give the TRC a clear indication of the team's knowledge and understanding of the project.

Step 12 TRC Scores RFP Responses

After the selection method procedures have been completed, the TRC evaluates each consultant firm following the process outlined in ***Procedure No. 375-030-002.***

Committee members should concentrate on a firm's ability to do the work. They should not be distracted by other factors such as an attractive proposal or an artistic presentation. Although these attributes are impressive, they may not reveal the qualifications required. Gathering input from various disciplines and support offices can be beneficial in evaluating technical issues.

Each TRC member should include a written explanation for the score given. Although the scoring must be done individually, it is appropriate to discuss the consultants in general and reach some consensus on the major issues involved before scoring. These discussions shall only occur in a publicly noticed meeting that Procurement facilitates.

The TRC members shall independently evaluate and score the Technical Proposals, Interviews, or Oral Presentations. TRC members shall provide objective evaluations from a solely technical standpoint. The evaluations must be done individually by each reviewer and not as a consensus evaluation. The evaluators should provide comments along with their evaluation scores. When each evaluator has completed the evaluation of each Technical Proposal, Oral Presentation, or Interview, the raw scores and comments will be transmitted to the PSU, who will compile the individual scores and calculate the average score for each Consultant. All individual evaluations should be signed and dated by the evaluator. The individual evaluations will be included in the selection package.

Step 13 Selection Committee Ranks the Firms

The selection package is prepared by the District PSU for consideration by the Selection Committee, which decides the final ranking. The FDOT PM should be prepared to answer any questions that the Selection Committee may have during this process.

Step 14 Notify Firms

The PSU will input the Selection Committee's action in the Procurement Application immediately following the selection meeting. The results will be posted consistent with the Procurement Internet website.

Step 15 Negotiate with Firms

The negotiation process begins with the number-one ranked firm. See ***PMG 230 – Contract Negotiations*** for more information.

Step 16 Execute Contract

The consultant may only commence work with an executed contract and with funds approval.

220 – Contract Types

This chapter is still under development.

Thank you for your patience.

Project Management Guide

225 – Scope of Services

225 – Develop Scope of Services (Under Development)

225 – Developing Scope of Services

This chapter is still under development.

Thank you for your patience.

Project Management Guide

230 Consultant Contract Negotiations

230 – Contract Negotiations

Contract Negotiations

This chapter describes the contract negotiations process for professional services. Project Managers play a key role in the negotiations, often serving as lead negotiator or facilitator to technical disciplines.

The Project Manager should be familiar with:

1. ***Consultants' Competitive Negotiation Act (CCNA)***, ***Section 287.055***, Florida Statutes
2. ***Negotiation Handbook Professional Services Contracts***
3. ***Procedure No. 375-030-002***, Acquisition of Professional Services, Section 8, Negotiating Contract Fees
4. ***Professional Services Procurement Manual, 375-030-003,*** Chapter 11, Negotiating Contract Fees
5. ***Procedure No. 375-030-020***, Standard Scope and Staff Hour Estimation Guidelines for Project Development and Environment Studies and Design Services
6. ***Automated Fee Proposal Information***

The selection process discussed in ***PMG 220 – Professional Services Contracts***, results in a shortlist of no fewer than three ranked firms. The Department begins the negotiations process with the top-ranked firm by requesting the consultant to provide an audit package inclusive of an Automated Fee Proposal (AFP). The Department concurrently prepares an independent staff hour estimate.

The consultant firm and the Department will make every effort to negotiate a contract that provides a compensation for the required services that is fair, competitive, and reasonable. If a contract cannot be successfully negotiated, then negotiations shall be formally terminated with that firm. Negotiations then begin with the next most-qualified firm.

The Department cannot re-open negotiations with a firm once negotiations have been terminated. Also, it is inappropriate for the Department to have any discussions with the next most-qualified firm until negotiations are officially terminated with the current firm.

Mutual Gains Negotiations

FDOT conducts negotiations for professional services using the "mutual gains" approach based on the principles of negotiations set forth in the book "***Getting to Yes"*** by Roger Fisher and William Ury. The mutual gains approach recognizes that both parties have interests that must be satisfied if there is to be a successful outcome; therefore, both parties should work collectively to realize those interests.

There are five elements to the mutual gains approach to negotiations:

1. **Interests – Know What Is Important:** The first step in the process of mutual gains is to identify your interests and to anticipate the interests of the other side. There is a difference between an "interest" and a "position."

   Examples of positions are salary caps or a minimum number of staff hours. An interest is the reason for a position. Interests are not always obvious, so careful analysis is necessary in the pre-negotiation stage. The interests of a consulting firm may be exposure to a new client and maintenance of staff levels as well as profitability. The FDOT's interests might include quality of work and schedule as well as budget.

Understand that positions are simply means to an end and that there may be many positions that can satisfy an interest. Evaluate interests to determine if it is essential (key) or just desirable. Once the key interests are known, negotiate hard for them.

2. **Options – Be Creative:** Once you understand your own interests and have anticipated the other side's interests, determine where the two sides are likely to agree and where there is likely to be disagreement.

   Brainstorm options when interests are likely to clash. Many bottom-line dollar issues can be resolved by preparing creative options for issues such as the scope of services, schedule, or method of payment.

   During negotiations, be forthcoming with your interests and try to get the other side to do likewise. Do not get hung up on positions. Seek to understand the interests behind positions and convince the other side that there may be more than one way to satisfy its interests.

   Try collective brainstorming, with both sides working to satisfy both sets of interests. This process is the essence of mutual gains negotiations.

3. **Criteria – Be Prepared:** There is a wealth of legitimate criteria available to help overcome roadblocks in negotiations. The FDOT has extensive data on salary rates, overhead rates, direct expenses, and staff hour estimating.

   It is in the interest of both parties to review the available data carefully and to use it in negotiations as a beginning point for agreement.

   Other criteria may also be useful, such as a firm's own experience or industry averages.

4. **Alternatives – Protect Interests:** Both the consultant firm and the Department should have a good idea of what its Best Alternative to a Negotiated Agreement (BATNA) is.

   Once a fair, competitive, and reasonable compensation is determined for accomplishing the work (Scope of Services), the BATNA will guide your walk-away position. Neither the consultant firm nor the Department should enter an unfair contact.

   The mutual gains approach to negotiations does not advocate that either party walk away from negotiations. All consequences of not reaching an agreement should be carefully evaluated before exercising this option. There should be no stigma attached if a firm that chooses to exercise its BATNA.

5. **Relationships – Work Together:** Negotiations are only the beginning of an important relationship. Long-term relationships are equally important to consulting firms and to the Department; it is important that negotiations do not damage those relationships.

   It requires professional skill to negotiate hard for your interests while maintaining positive relationships. Success requires open and honest communication, and an understanding of the issues from the perspective of the other side. Being cooperative does not mean giving up your interests or settling for an agreement that is not as good as your BATNA.

   Each side should enter negotiations with the expectation that each party will work with the other to achieve a successful conclusion. Both sides have a right to fulfill their interests. Each side should be honest about what can, or cannot be done, and never sacrifice an important interest for the sake of maintaining a relationship.

Initial Submittal by the Consultant

The top-ranked firm will receive instructions to submit the following:

1. Comments or concerns regarding the scope of services for project specific contracts
2. Staff hour estimate (where appropriate)
3. Automated Fee Proposal and an audit package

FDOT requires Automated Fee Proposals for most consulting contracts. The ***Automated Fee Proposal website*** should be used in the preparation of fee proposals. When negotiations are completed, upload the updated Automated Fee Proposal into the Consultant Invoice Transmittal System to establish the contract file for payment. **Figure 1**, **Initial Submittal by Consultant**, depicts this process.

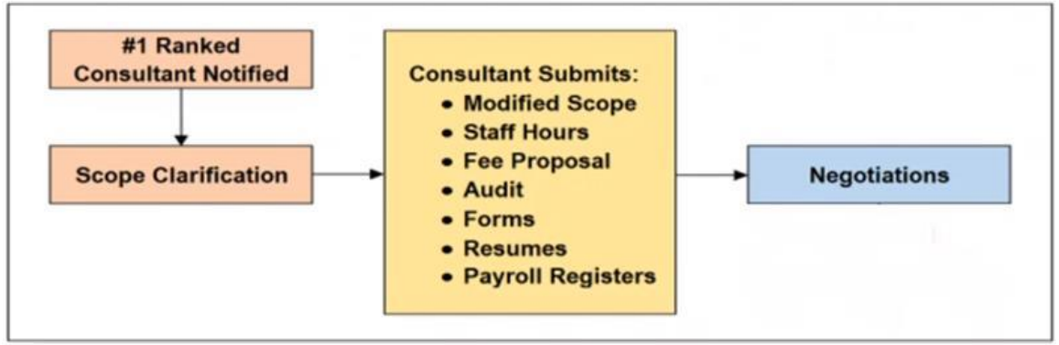
The firm should clearly understand the scope of services before preparing the fee proposal. The firm should submit any proposed changes to the scope of services when submitting the initial package for project specific contracts.

The staff hour estimate should adhere to the ***Staff Hour Estimation Guidelines*** recommendations.

The fee proposal should be accurate, complete, and timely. The fee proposal should also provide clarifications (notes), and sufficient back-up information so that a reviewer can easily determine how the price was developed. Data in this package will be used as the basis for much of the subsequent negotiations.

Consultant firms should make every effort to classify staff based on the job class typical definitions located in ***Attachment B*** of the ***Negotiations Handbook***; this often results in delayed negotiations when not done properly.

Figure 1 - Initial Submittal by Consultant



The ***CCNA*** requires consultant firms to submit a truth-in-negotiations certification stating that all wage rates and other unit costs supporting the fee proposal are accurate, complete, and current at the time of contracting. Failure to comply with this requirement will result in an adjustment of contract fees. If there are questions, the consultant should address them as instructed in the Request for Fee Proposal in sufficient time to meet the deadline for submission of the package.

Preparations for Negotiations

Both the consultant firm and the Department should learn as much as possible about the other side prior to beginning negotiations. The FDOT PM should read submitted material carefully, visit the firm's website, obtain, and read its brochures and newsletters, and talk to others in the FDOT who have worked with the firm and consultant PM. The consultant PM should learn about the district, the office involved and the FDOT PM who will be assigned to the project. The consultant PM should become familiar with the Procurement staff, and FDOT policies about any issues that may come up during negotiations.

When entering negotiations, it is important to understand what is “on the table.” The project concept, as advertised, must not be altered to the extent that the selection process may be questioned.

Contract elements that are negotiable are described as follows:

- **Scope of Services:** Even though a standard scope of services is used, the provisions of that scope are negotiable on project specific contracts. The consultant firm or the Department may propose an innovative approach that must be understood and accepted by both parties. A field visit with key Department and consultant staff prior to beginning negotiations often proves helpful in reaching a common understanding of project issues and requirements. Substantial or significant scope changes not within the intent of the original agreement may warrant contract re-advertisement or may potentially adversely impact federal funding.
- **Staff Hours:** The FDOT PM is responsible for developing the Department’s independent staff hour estimate for use in evaluating the consultant’s estimate. The Department’s estimate should be prepared in consultation with appropriate support offices (e.g., surveying and mapping, materials, structures, drainage, lighting, signals).

  Comparing staff hour estimates with those of past projects with similar work is a useful practice.

  Subconsultant’s staff hours are negotiated as they are for the prime consultant.
- **Classification of Staff Hours:** Equally important is the distribution of staff hours into the appropriate classifications. It is expected that a significant percentage of total hours negotiated for a specific task will be assigned to the staff classification(s) that will produce the work. Also, more experienced, and knowledgeable staff may warrant higher wages, but increased productivity (fewer hours required to complete the task) should be considered.

  Adding or removing staff members from the nominated team may be considered when distributing hours into the appropriate classifications.

  Salary escalation is not allowed.
- **Cost of Services and Rates:** The ***Negotiation Handbook Professional Services Contracts*** describes the parameters of hourly rates, direct expenses and operating margin. Audited overhead rates are not negotiable, although the consultant may voluntarily elect to use a lower rate as a negotiating point. Operating margin is a negotiated item.

  Rates paid to both the prime consultant, and subconsultants are validated by payroll registers and review of overhead rates. Rate escalation is not allowed.
- **Schedule:** The schedule may have a direct impact on the price of the project. Both the consultant PM and the FDOT PM should review the schedule carefully and be prepared to offer refinements, as appropriate.
- **Method of Compensation:** Four methods of reimbursement commonly used by the FDOT, are Lump sum, Cost reimbursement, Cost per unit of work, and Specific rates of compensation. The ***Negotiation Handbook Professional Services Contracts*****,** and ***PMG 235 – Contract Management***, discuss each of these payment methods.

  The final method of compensation should be agreed to during the negotiations process.

Conducting Negotiations

Once a negotiation strategy has been determined and preparations have been made, the negotiation process itself can begin.

- **Select Negotiators:** The lead negotiators are typically the consultant PM and FDOT PM with both sides assembling a team of support staff, including Procurement. The selected negotiators should participate throughout the process. Negotiators should have the authority from their organization to make decisions. At the start of negotiations, both sides should introduce their Negotiators, and their relative roles made clear to all.

  FDOT negotiators often compartmentalize negotiations, i.e., one group negotiates rates, one staff hours, and so on. Some districts operate in teams and rely heavily on the Procurement staff for information on contractual issues.

  It may be appropriate to bring in specialists at key points in the negotiation process. Good decisions are best made when one person leads the entire process and has authority to revisit previously negotiated elements, if necessary, before a final agreement is reached.

- **Start Right:** Begin negotiations with both parties agreeing on how the negotiations are going to be conducted and establishing a deadline for an agreement. Take time at the beginning to get to know the individuals on the other side and to establish a degree of familiarity and trust. Work to foster cooperation and rapport.

  Do not try to use negotiation strategies to give yourself some sort of psychological advantage. This behavior will be viewed as game-playing and unprofessional. If the other side attempts such tactics, clearly explain that you will not negotiate in such circumstances.

- **Communicate:** Open and honest communication is essential to successful negotiations. Be direct and honest and be willing to share appropriate information and useful data. Exercise active listening to hear and understand the other side's viewpoint.

  Negotiations can be stressful, but emotional reactions can be minimized by always maintaining a professional manner with a positive attitude.

- **Apply a Mutual Gains Approach:** Skilled negotiators understands the value of applying mutual gains approach, and the necessity to be open to reasoned arguments. When both parties negotiate in good faith, the mutual gains approach to negotiations will result in a fair price for both the FDOT and the consultant firm.

- **Document Negotiations:** Many agreements and understandings will be reached during the negotiation process that are important to document. When appropriate, the contract or scope of services should be revised to reflect these agreements. Minor issues discussed that may not warrant revisions in the contract should use the comments column in the standard staff hour estimating forms. Other methods of documenting agreements and understanding include negotiations reports, letters, or memoranda to file.

  The Procurement staff should be consulted for guidance on the appropriate method of documentation. Documentation is very useful when issues arise on a topic that was discussed during negotiations.

For additional information regarding contract negotiations, visit the ***Procurement Office Negotiating Contracts*** webpage.

Project Management Guide

235 Consultant Contract Management

235 – Contract Management

235 – Contract Amendments

235 – Consultation Evaluations

235 – Invoicing

235 – Disadvantages Business Enterprise

This chapter outlines Project Manager responsibilities for the consultant evaluation process.

Detailed information on Consultant Evaluations is provided in **Procedure No. 375-030-007, *Professional Services Consultant Work Performance Evaluation***. Performance evaluations received by the Consultant on current and previous projects are one of the factors considered during consultant selection.

Additional information can be found on the ***Procurement Office Intranet*** site.

FDOT Consultant Evaluation System

Florida Administrative Code Rule 14-75 requires the FDOT to have a system to evaluate the performance of Consultants on professional services contracts. A system and process has been developed that provides an objective and consistent method for measuring Consultant performance. The evaluation process benefits both the FDOT and the Consultant.

The Project Manager must enter consultant evaluations into the ***FDOT Consultant Evaluation*** internal application. Consultant evaluations are based on a 5 (high) to 1 (low) rating scale, 5 representing "Outstanding" performance and 1 representing "Unacceptable" performance.

Computer Based Training CBT are available through the internal ***Learning Management System***:

- Consultant Evaluation Requirements (Procedural requirements training): ***http://cbt.dot.state.fl.us/ois/ConsultantPerformanceEvaluations/***
- Consultant Evaluations Application (CE Application training): ***http://wbt.dot.state.fl.us/ois/CECBT/index.htm***

Consultant Work Performance Evaluations

The Project Manger must evaluate the Consultant's work performance for each advertised major work type (exception: exempt contracts less than ***Florida Statutes 287.017***, Category Two threshold – currently $35K). Consultants may also be evaluated on minor types of work, if considered significant by the FDOT.

CONSTRUCTION ENGINEERING INSPECTION (CEI) CONSULTANT CONTRACTS

Evaluations are conducted by the construction Project Manager who is responsible for managing the consultant contract. Evaluations of the consultant's performance are typically conducted quarterly for the following categories:

- **Schedule** - grade is based on the consultant's compliance with the contract schedule.
- **Management** - grade is based on the consultant's ability to manage all necessary project resources, including subs.
- **Quality** - grade is based on the consultant's attention to the established quality control plan and delivery of a quality product. Subconsultants may only receive a Quality evaluation.

NON-CEI CONSULTANT CONTRACTS

Evaluations are conducted by the Project Manager who is responsible for managing the consultant contract. Evaluations of the consultant's performance are conducted at least once every 12 months during the contract period. Evaluations include the following categories:

- **Schedule** - grade is based on the consultant's compliance with the contract schedule.
- **Management** - grade is based on the consultant's ability to manage all necessary project resources, including subs.
- **Quality** - grade is based on the consultant's attention to the established quality control plan and delivery of a quality product. A Quality rating should be assigned to any qualified consultant named in the agreement for any major type of work performed, regardless of whether the firm is a prime or sub. Subconsultants typically only receive a Quality evaluation.

A Constructability grade is also assigned by the construction Project Manager at the end of project construction for all professional services contracts that result in the preparation of construction plans. The grade is based on the design consultant's ability to develop practical, accurate, complete, and cost-effective construction plans. Constructability grades typically only apply to Work Group 3 – Roadway Design, Work Group 4 – Bridge Design, Work Group 6 – Traffic Engineering & Operations Studies, Work Group 7 – Traffic Operations Design, Work Group 14 – Architect, and Work Group 15 – Landscape Architect.

COMPLIANCE WITH DBE COMMITMENTS AND DBE PAYMENTS

Compliance with these commitments is one of the test criteria included in the consultant CEI Work Performance Evaluation, as well as in the Consultant Management Evaluation for non-CEI contracts.

For CEI Evaluations, the DBE test is included in Section A, "Management of CEI Contract", and reads: "Compliance with agreed upon DBE/MBE utilization goals and procedures".

For non-CEI contracts, the DBE test is included in the Consultant Management Evaluation in Section A, "Administration of Contract", and reads: "Complied with established DBE/MBE commitment."

Suggested performance grades are as follows:

- If the prime consultant appears to be timely in payments to a DBE subconsultant and entering payment information in into the Equal Opportunity Compliance (EOC) System, the performance rating should be a 3 (Satisfactory) or higher.
- If the prime consultant is significantly lagging in payments to a DBE subconsultant, the performance ratings should be 2 (Below Satisfactory).
- A performance rating of 1 (Unacceptable) would be given to a prime consultant who is not utilizing the DBE subconsultant, or not entering DBE payment information into EOC System.

See ***PMG 235 – Disadvantaged Business Enterprise (DBE) Program*** for additional information on the Consultant DBE Compliance Evaluation.

Project Manager Guidance

Evaluations must be fair, objective, and consistent to assure that the FDOT is providing constructive feedback on the Consultant's performance. Project Managers should consider the following guidelines:

- Performance evaluations received by the Consultant on current and previous projects are one of the factors considered during consultant selection.
- Discuss performance evaluation expectations with the consultant at the beginning of a project so the level of performance associated with the evaluation is clear to both parties. Both parties should agree on evaluation standards and expectations.
- Evaluation timeliness is important. Late submissions are often inaccurate due to time and memory lapses. It is important to keep good records.
- Interim evaluations provide the Consultant opportunity to correct a problem or improve their performance.
- Discuss performance with the consultant throughout the project so that there are no surprises when they are submitted. Discuss evaluations with the consultant before submittal and fairly consider any information provided by the consultant.
- If a poor performance evaluation is submitted, document reasons for the poor rating. If an evaluation identifies a performance problem, submit a new evaluation as soon as the problem is corrected.
- Consult the appropriate support services to get input for the evaluations of subconsultants. Obtain the input of the prime consultant as well when evaluating subconsultants.

This chapter provides best practices and guidelines to help Project Managers better understand contract amendments. ***Procedure No. 375-030-010, Amendments and Task Work Orders for Professional Service Agreements***, contains specific requirements concerning contract amendments.

Contract Amendments

An amendment to an existing contract is a separate legal document that changes the terms of an existing contract by adding, removing, or changing the obligations under that existing agreement. When both the Project Manager and the Consultant agree that additional work is necessary, a contract amendment process should be initiated.

There are two types of contract amendments: supplemental amendments and other amendments.

SUPPLEMENTAL AMENDMENTS

Supplemental amendments are used to modify the agreement terms that results in a change in the total compensation (increase or decrease). A change in the scope of services requiring additional compensation must be within the original intent and purpose of the contract. Funding for the supplemental agreement must be encumbered prior to its execution. Processing a supplemental amendment will require:

- a request for a proposal
- a proposal review
- negotiations
- an amendment request
- pre-award review
- preparation and execution

The Project Manager must coordinate the supplemental amendment process with district Professional Services Unit (PSU) personnel. The Project Manager is responsible for collecting the necessary documentation to complete the process. The Consultant should provide appropriate documentation when the supplemental amendment is requested by the Consultant. No work associated with a supplemental amendment is allowed until the amendment is executed.

OTHER AMENDMENTS

Other amendments can be used for changes to the agreement terms that do not affect total cost, such as:

- time extensions
- assignment agreements
- minor changes in the scope of service

Managing Scope Creep

The Consultant has a contractual obligation to provide the specific work requirements contained in the scope of services. Scope creep occurs when new services, work, or deliverables are added to a project that are outside the scope of service (e.g. late requests from a local government agency). The PM determines which additional scope services are warranted and needed to be added to the contract prior to the work begin.

To avoid scope creep, the Project Manager should focus on contract management (see ***PMG 235 Contract Management***). Only work expressly contained in the executed contract or amendment(s) is to be performed.

This chapter outlines requirements for the Project Manager to follow in managing the contract that is executed between the FDOT and the Consultant for design services. The Consultant is responsible for the execution of the work under the terms of the agreement, and the Project Manager has a responsibility to enable the Consultant.

Contract Management

Once contract negotiations are completed, the contract is executed and the Notice to Proceed (NTP) has been issued, work can begin. Florida law requires funds approval prior to executing the written agreement. Both the funds approval and the written agreement must be executed prior to beginning any work. Work performed before the funds are encumbered and the contract is executed cannot be paid for under the contract.

The encumbrance process, as described in ***Procedure No. 350-20-200***, ***Contract Funds Management - Funds Approval***, ensures the budgeted funds are allocated for payment of the specific contract.

Standard Contract Terms

The FDOT uses ***Form No. 375-030-12, Standard Professional Agreement Terms***, ("boilerplate"), which normally includes the following:

- **Services and Performance**: Specifies procedures for changes, revisions and supplemental agreements; standards of care; use of computer facilities; and use and ownership of documents produced by the project.
- **Term:** Details information about application of the schedule, extending the duration and delays.
- **Compensation:** Details information concerning accounting, record keeping, invoicing, accuracy of wage rates and other unit costs and the availability of budgeted funds.
- **Indemnity and Insurance:** Specifies indemnification, claims and insurance requirements.
- **Compliance with Laws:** Cites requirements for complying with specific state and federal statutes pertaining to issues such as professional licensing rules and laws, public access to documents, press releases and public statements by the consultant, employment of unauthorized aliens, and discrimination.
- **Termination and Default:** Specifies actions taken by the FDOT concerning termination of the contract and consultant default.
- **Assignment and Subcontractors:** Details responsibilities concerning assignment and subcontracts.
- **Miscellaneous:** Outlines interpretation and legal jurisdiction clauses.
- **Terms for Federal-Aid Contracts:** Cites specific requirements and certifications which apply when the contract is federally funded.

Elements of the Contract

A standard format for professional contract document consists of three parts:

PROFESSIONAL SERVICES AGREEMENT

This document, signed by both parties, specifies the terms of the agreement, as well as the legal responsibilities and rights of both parties. It includes the contract number, the financial identification number, the date of the agreement,

the Consultant information, the title of the project, the term (duration) of the contract and the schedule of services, insurance requirements, a list of subconsultants, and references to the contract terms, scope of services and method of compensation.

SCOPE OF SERVICES

The scope of services is the specific work requirements for the consultant. See ***PMG 225 Scope of Services*** for specific information included in a scope of services.

METHOD OF COMPENSATION

This section includes the compensation amount and method, invoicing procedures, and final audit and closeout requirements. Methods of compensation normally used are discussed in detail in the ***Negotiation Handbook, Professional Services Contracts***.

The FDOT utilizes the lump sum method of payment for professional services when the scope of services is well defined and the level of effort can be reasonably predicted. Cost Reimbursement is used when the scope of services is sufficiently vague or complex that the level of effort or expenditure cannot be estimated with reasonable accuracy. Cost per Unit of Work is used for repetitive services such as lab tests, soil explorations, traffic counts, or bridge inspections. Specific Rates of Compensation may be used on a design contract for ancillary minor services (e.g., geotechnical, surveying and mapping, landscape architecture).

- **Lump Sum:** Consultant agrees to complete the scope of services for a specific amount. Invoices are for a percent complete by task, deliverables or other milestones. The use of lump sum contracts for CEI work is prohibited unless the "extent, scope, complexity, character and duration of the work" have been established. Approval by the State Construction Engineer is required to negotiate a lump sum CEI contract.
- **Cost Reimbursement:** This method is also known as “cost plus fixed fee.” The actual (or negotiated) wage rates applied to the actual hours expended, plus overhead, Facilities Capital Cost of Money (FCCM) (if applicable), operating margin, and direct expenses are reimbursed. The operating margin and the “fixed fee” are negotiated as a lump sum based on a percentage of the estimated direct salary cost. A “maximum limiting amount” may be established for the overall contract or for individual tasks, projects or cost elements. Invoices for work completed under the limiting amount are only for the time and direct expenses expended, plus the fixed fee. The Consultant must maintain accurate time records and ensure that the rates used are as agreed in the contract.
- **Cost per Unit of Work:** A negotiated unit rate for a repetitive task or deliverable product is established and paid for each unit produced. The unit rate is not subject to adjustment. A maximum limiting amount is normally established based on the estimated number of units required. Invoices are based on the number of units completed.
- **Specific Rates of Compensation:** In this method, a billing rate is negotiated which commonly includes labor, overhead, FCCM, and operating margin. Direct expenses can be included in the billing rate, but sometimes they are paid separately at actual costs. These contracts are invoiced for actual hours expended in the same manner as Cost Reimbursement contracts, the difference being that all individual cost items are included in the negotiated rate. A maximum limiting amount is normally established. FHWA has approved use of specific rates of compensation (i.e., fully loaded billing rates) for all types of maximum limiting amount contracts, except for project specific design contracts.

Contracts Types

There are two basic types of contracts commonly used by the FDOT:

PROJECT-SPECIFIC CONTRACTS

Project-specific contracts are typically used on single, large projects and are to complete a specific work phase of one or more projects.

Project-specific contracts can contain options for services needed but not funded at the time of the contract. Optional services are frequently not negotiated until the decision is made to exercise the option (requires a letter of authorization to proceed). Commonly used options are design services for Supplemental Survey, Supplemental Soil Borings and other minor design services. If the scope and level of service for tasks are difficult to foresee at the beginning of long-term contracts, it may be appropriate to include those tasks in the Scope of Services to be negotiated later as a Supplemental Amendment.

TASK WORK ORDER (TWO) CONTRACTS

TWO Contracts are typically used for relatively small projects or tasks of a similar nature over an established time period (e.g., Districtwide, General Engineering Consultant Contract, Continuing Service Contract).

Task assignment contracts are designed to select a qualified consultant to perform projects or tasks until a budgeted contract amount is exhausted. The actual tasks to be performed are usually not identified at the time of consultant selection and contract negotiation. The consultant is selected based on qualifications, staff and capability to perform the tasks. Negotiations establish the rates to be applied to individual assignments. Once the contract is executed, individual TWOs are negotiated as needs arise. Depending on the structure of the base contract, TWOs may be lump sum, cost reimbursement or unit cost. The Project Manager must verify that the fee sheet provided by the Consultant contains rates that exist in the Exhibit B, Method of Compensation.

See ***Procedure No. 375-030-010***, ***Amendments and Task Work Orders For Professional Service Agreements*** for specific instructions on the preparation of Task Work Orders.

All individual TWO assignments must be completed prior to the expiration date of the overall contract. No TWO assignment may have an ending date past the expiration date of the contract.

Contract Management Assistance

The Project Manager should consult the District professional services staff within the Procurement Office or Production Support Office staff in Central Office if any contractual question or issue arises.

The Disadvantaged Business Enterprise (DBE) Certification Program is a Federal Program designed for business owners deemed "socially and economically disadvantaged." This chapter outlines Project Manager responsibilities in monitoring the DBE Program.

Equal Opportunity Compliance (EOC) System

The ***Equal Opportunity Compliance (EOC) System*** is a web-based application which provides an integrated system to assist in managing the DBE program and ensure DBE compliance. This application is used statewide to track DBE Commitments and DBE Payments. Project Managers must submit an Automated Access Request (AARF), selecting the Report User role to gain access to the EOC System. Access the EOC System can be made through the ***EOC website*** or the available link within ***Consultant Invoice Transmittal System (CITS)***.

Additional information can be found at:

- ***EOC Contractor/Consultant User manual***
- ***EOC CBT Training***
- **EOC Helpdesk: EOOHelp@dot.state.fl.us**

Professional Services PMs should refer to the ***Professional Services Project Manager EOC Guide***.

EOC Reporting

The Consultant is responsible for entering DBE Commitments and DBE Payments into EOC System. The Project Manager is responsible for verifying the accuracy of the Consultant's reporting and timeliness of DBE payments.

DBE COMMITMENTS

Project DBE Commitments must be entered into EOC for every project, even if that DBE commitment is Zero. The project DBE Commitment entry identifies the estimated payment (in dollars) to each certified DBE subconsultant. A certified DBE prime Consultant is required to report into EOC estimated payments for itself.

For Task Assignment type contracts, DBE commitment is determined from the ***Professional Services DBE or Small Business Commitment Form,*** (***Form No. 375-030-83***), submitted by the consultant firm with their Technical Proposal.

DBE PAYMENTS

All professional services contracts include a clause that stipulates the following:

1) The consultant will report subconsultant (DBE and non-DBE) payments through the EOC system on the internet.

2) Failure to submit subconsultant payment information (or failure to do so in a timely manner) may be cause for rejection of the invoice.

3) Within thirty days after receipt of the final payment, the Consultant will report final subconsultant payments through the EOC system.

4) The prime Consultant will pay all subconsultants their proportionate share of payments received from the FDOT within thirty days of the Consultant's receipt of payment from the FDOT.

Subconsultant payment data entries into EOC System will always lag 30 days behind current payments in CITS.

Consultant Compliance Evaluation

The question that should be asked is: "Did the Consultant make a good faith effort to fulfill the original DBE commitment?" Compliance with these commitments is one of the test criteria ("DBE test") included in the consultant CEI Work Performance Evaluation, as well as in the Consultant Management Evaluation for non-CEI contracts (See ***PMG 235 – Consultant Evaluation***).

The Project Manager should discuss DBE subconsultant utilization at least monthly. Good practice is to have the Consultant provide this information in their monthly progress report. The Project Manager should be aware of what point during the contract the DBE subconsultant work is to be performed and consider this when conducting the consultant compliance evaluation.

If the DBE work is scheduled to occur at the end of a non-CEI contract, it would be inappropriate to evaluate the consultant firm on adherence to DBE commitment at the beginning of the contract. In that instance, the DBE test should be skipped (left blank or "N/A"), so that it does not count against the Management Evaluation score.

Other mitigating circumstances where the prime consultant would not reasonably be expected to adhere to the original proposed DBE commitment include:

1) DBE subconsultant is unable to perform the necessary services, or is unable to meet the project schedule.

2) The FDOT PM makes changes to the scope that eliminate the need for the DBE subconsultant services.

As in all instances of necessary scope change, the Project Manager should document to the contract file, (and to the consultant), the portion of the scope of work deleted, and the reason. The Project Manager can assess Consultant achievement of DBE commitments by viewing subconsultant payment information in EOC.

Project Manager Guidance

To assist in verifying the accuracy of the Consultant's reporting the Project Manager should complete the following:

- **DBE Commitment submission in EOC:** Review the *Contract Commitment Details* report to determine if a Consultant has reported subconsultant DBE Commitment(s) in the EOC System as listed on the ***Professional Services DBE or Small Business Commitment Form***, ***Form No. 375-030-83***.
- **DBE Payment Submission in EOC**: Review the *Contract Sub Payment Details Report* to determine if a Consultant has reported their DBE subconsultant payments in EOC System.
- **Contracts Not Reported in EOC:** Review the *Contracts Not Reported Report* to determine contracts whose Contract Dollar Amount and DBE Credit have not been reported in EOC System.
- **Commitment Payment Comparison:** Review the *Commitment Payment Comparison Report* to determine DBE Commitments and DBE Payments that have been submitted in EOC System for a specific contract.
- **Contract Profile:** Review the *Contract Profile Report* which provides detailed information on DBE Commitments and Payments reported in EOC System for a specific contract.

Invoicing is a request for payment for completed work or services. This chapter outlines Project Manager and Consultant responsibilities for processing invoices.

Consultant Invoice Transmittal System (CITS)

All professional services contracts are invoiced through CITS. The Project Manager and Consultant must follow the requirements contained within the ***CITS Manual*** to assure that invoices are processed and paid promptly in accordance with statutory provisions (***Section 215.422. F.S.***). Additional information can be found on the ***Procurement Office website*** under "*More…*".

The Project Manager should work with Professional Services Unit (PSU) staff to ensure that contract data is properly loaded into the system.

CONSULTANT RESPONSIBILITIES

The Consultant must ensure invoices are accurate and conform with the method of compensation terms specified in the executed contract. The Consultant should provide supporting documentation evidencing the delivery of services prior to the payment request. Submittal of a monthly progress report, which frequently provides the necessary back-up information needed to approve an invoice, should be coordinated with the invoice submittal. The consultant will report subconsultant (DBE and non-DBE) payments through the ***Equal Opportunity Compliance (EOC) System*** on the internet.

The Project Manager is not automatically notified by CITS that an invoice has been submitted, unless they have been set up as a reviewer in CITS. A good practice is to send the Project Manager an e-mail notification that an invoice has been loaded into CITS and attach an electronic copy of the monthly progress report.

Lump sum contract invoicing and payments should be based on completion of project milestones in the contract's "Method of Compensation" section.

Task Work Order (TWO) contract invoicing should be submitted regularly. A single invoice should be submitted that includes all TWO charges for the billing period. However, if a question that may delay approval of a task is anticipated, invoicing that task separately may be justified so the full invoice is not delayed.

PROJECT MANAGER RESPONSIBILITIES

The Project Manager must assure services were provided, the payment is in accordance with the contract, and the invoice is properly documented. The Project Manager must perform the following CITS related activities:

- Verify that the payment request billing period agrees with submitted documentation.
- Amount(s) invoiced are in accordance with the contract for the services received and is correctly entered into CITS.
- Ensure the services rendered were satisfactory through coordination with support staff and subject matter experts. Payment should be withheld for incomplete or poor-quality work.
- Review invoice to ensure charges are reasonable, allowable and necessary.
- Designate a back-up reviewer if not be available to act on an invoice.

The Consultant's failure to submit subconsultant payment information may be cause for rejection of the invoice. Prior to rejecting invoices in CITS, the Project Manager should confer with the Consultant to ascertain why subconsultant payment information is not being entered in a timely manner. It is good practice to notify the Professional Services section within the Procurement Office when

rejecting an invoice for a consultant's failure to pay subconsultants or their failure to enter subconsultant payment data into the EOC System.

Projects Not Using CITS

Projects not under CITS require a "hard copy" transmittal, which requires more time to prepare and process. An ***Invoice Summary Sheet, Form 375-030-5B***, is available on the ***Forms and Procedures Office Website***. The invoice format and supporting data should be agreed upon prior to submission of the first invoice.

Project Close Out

The Project Manager should work with the District Professional Services Unit (PSU), Work Program Manager and Comptroller's staff to close out the project when the project is brought to completion. The Project Manager must ensure that final invoices are submitted and processed soon after the services under the contract/TWO are complete and accepted. The PM must also ensure that any lump sum elements of the contract have been invoiced. Upon payment of the final invoice, the Project Manager must work with the District PSU and Work Program Office to un-encumber any remaining funds.

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240 – Scheduling Basics

240 – Risk Management

– Risk Management General

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– Risk Management Plan

– Risk Management Tools

– Risk Management Glossary

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240 – Staff Hours

Introduction

As a Project Manager within the Florida Department of Transportation (FDOT), it is important to know and understand the benefits of managing the scope of a project.

Change happens, and scope management allows the PM to prevent scope creep and manage scope changes, thus ensuring the project can still be delivered on time, within budget and with the expected quality.

The purpose of scope management is to enable the project manager (PM) to ensure the work being performed conforms with the scope of services, monitor the project for potential scope creep, and manage any scope changes.

Managing Scope for Professional Services Contracts

Properly managing scope on a project is one of the key elements to successfully delivering a project on time and on budget. Scope Management can help FDOT Project managers avoid several common project problems such as:

- Scope creep
- Inability to meet contractual requirements including ***FDOT Design Manual***, ***Standard Plans***, and ***Standard Specifications***.
- Missing critical project deadlines which can lead to schedule delays
- Cost overruns
- Actual result/deliverable was less than anticipated or required by the scope of services

Project managers should monitor the consultant's work to make sure it conforms to the scope of services. This can be done through reviewing invoices and progress reports, monitoring the project schedule, and reviewing the deliverables (and review comments) at phase reviews.

One way a PM can document how the scope will be managed and controlled is through the development of a scope management plan. The scope management plan is a component of the Project Management Plan (see ***PMG 110***) that describes how the scope will be defined, developed, monitored, controlled, and validated.

Scope Creep

Scope creep occurs when new services, work, or deliverables are added to a project that are outside the scope of services without the addition of budget, schedule or additional resources. One major responsibility of Project Managers is to manage changes that could lead to scope creep. To avoid scope creep, the PM should focus on contract management (see ***PMG 235 Contract Management***). Only work expressly contained in the executed contract or amendment(s) is to be performed.

Some common culprits of scope creep include:

- Scope of Services vague or not well defined
- Late requests from Local Government Agencies
- Project unknowns
- Late phase review comments
- Reviewers requesting changes outside the scope

Some common ways to avoid scope creep include:

- Better Scope of Services development
- Engage Local Agencies early in the scope development process
- Conduct Risk Management
- Provide phase review comments early
- Monitor reviewer comments for out-of-scope requests

Scope Changes

The PM determines which additional scope services are warranted and needed to be added to the contract prior to the work begin. Whether a proposed change originates from the FDOT PM, a reviewer, a local agency, FDOT management, or the consultant, the PM must coordinate with management to determine if the change should be incorporated into the project. Things like budget, schedule, permits, PD&E limits, community impacts and project commitments must be considered.

If the department determines to include the proposed change to the scope via a supplemental amendment, the PM will need to develop a scope of services for the change and negotiate staff hours (see FDOT Standard Scope of Services and Staff Hour Estimation tools). The PM also needs to determine the funding requirements and schedule impacts of the change. The PM must coordinate with the district Professional Services Unit on developing and processing the supplemental amendment. See ***PMG 235 Contract Amendments*** for additional information.

Schedule Management

Good schedules are an essential tool for anticipating and coordinating upcoming work. Scheduling serves two fundamental purposes. Schedules are used for tracking the overall delivery of projects and reporting that progress. The other purpose of schedules is to serve as a tool for project and task managers to effectively manage and execute projects on a day to day basis.

Scheduling responsibilities are described as follow:

- **District Schedulers** prepare and build the initial schedules based on anticipated project scope of work, Work Program funding and input from the FDOT Project Managers and consultants.
- **FDOT Project Managers** manage the project schedule by monitoring the status of activities and providing monthly updates.
- **Consultant Project Managers** develop schedules necessary for them to manage their work. The milestone dates included in the consultant schedules must be coordinated with the Department's schedule through the FDOT Project Manager and District Schedulers.
- **Functional Units:** FDOT supporting functional units review their respective components of a schedule for agreement with the scope of work and assure that the appropriate activities and time durations are included.

Initiating a Schedule

Initial template project schedules are implemented by the District Scheduler for each project when it is added to the Work Program. Typically, a schedule template is used, based on the project type, funding, and initial scope of work. Standard activity durations contained within a template can be used to determine the overall project duration. The template project schedule must align with the project scope of work and funding. The District Scheduler must review and update schedules during the gaming cycle until a FDOT Project Manager is assigned to the project. (See ***Work Program Instructions (WPI)*** ***Part V - Chapter 1: Production Management - Section C: Scheduling***)

Projects enter the Work Program and initial template schedules are created as follows:

Planning Projects: These projects consist of Feasibility Studies for discovering if a PD&E project is a viable consideration. Major milestone example is Activity ID 253 Planning Contract Executed.

PD&E Projects: These projects consist of Environmental Management Class of Actions documents such as: Type I CE, SEIR, Type II CE, EA, and EIS. Major milestones examples are Activity IDs 239 PD&E Contract Executed and 263 Location Design Concept Acceptance (LDCA).

Capacity Projects: These projects consist of both Design/Build and Conventional Design/Construction phases of work which commonly have unfunded phases of work such as Right of Way and Construction/CEI at initial funding and scheduling. Major milestones examples are Activity IDs 250 PE Begin, 233 PE Contract Executed, 268 Documents to Right of Way, 351 Authorize Right of Way Purchase, 255 Right of Way Certified, 204 Production Date and 280 Letting Date.

Resurfacing Projects: These projects consist of improvements to the structural condition of existing pavements and provides pavement resurfacing, rehabilitation, minor reconstruction, and pavement milling and recycling to preserve the structural integrity of highway pavements. Major milestones examples are Activity IDs 250 PE Begin, 233 PE Contract Executed, 204 Production Date and 280 Letting Date.

Safety and Operations Projects: These projects consist of addressing FDOT's number one priority, Safety, with the intention to ensure that available safety funds are fully programmed and scheduled to reduce fatal and serious injury crashes. Major milestones examples are Activity IDs 250 PE Begin, 233 PE Contract Executed, 204 Production Date and 280 Letting Date.

Bridge Repair & Replacement Projects: These projects consist by statutes to preserve Florida's existing transportation infrastructure. They include construction of new bridges as a replacement for pre-existing deficient structures and the repair and rehabilitation of existing bridges. Major milestones examples are Activity IDs 250 PE Begin, 233 PE Contract Executed, 274 Submit Bridge Hydraulics Report, 277 Submit Bridge Development Report, 222 All Permits Clear, 204 Production Date and 280 Letting Date.

District-Wide Projects: These projects are handled with various District-Wide contracts on an annual basis or in-house staff. These are generally reoccurring each year within the Work Program funding. Consultant Acquisition activities are maintained to align funding with encumbrances and authorizations.

Building a Schedule

The following provides guidance for the building of projects schedules.

Software: FDOT uses Oracle Primavera P6 as the official scheduling software. Primavera is an enterprise program that allows scheduling information for all FDOT projects to be combined in reports that summarize project production statewide.

Project Schedule and Management (PSM) is the current statewide scheduling system, maintained by Central Office Production Management. Districts use Primavera P6 to prepare schedule data for import into the PSM system.

Templates: Primavera schedule templates have been developed independently by each District. The number of templates developed, the level of detail of the templates, and the use of the templates varies significantly by District. Templates have been developed for each program types of work by Work Mixes. The FDOT Project Manager should review each template after it has been chosen for a project by the District Scheduler for scope conformance, funding alignment, and appropriate activity durations.

Schedule Development: An efficient way to build a schedule is to work from an existing schedule for a similar project to help identify the required sequences and time durations for the new project. An alternate way to build a schedule is to utilize templates developed by the District. One caveat when using a template is to be sure to think through each step in the template carefully to ensure it applies to the current project. Individual projects may have unique conditions that will vary from the typical project reflected by a template.

Several necessary tasks that are not always included in a project task list must be accounted for, e.g., completing quality control procedures, graphics production, preparing for and conducting meetings, project management functions. These tasks are equally as important to project success as the project-specific production tasks.

Incorporate identified constraints into the schedule, including both funding and legal requirements. Coordinate with district technical staff to assist in determining critical dates for essential tasks, such as right of way maps or environmental permits. See ***PMG 240 - Scheduling Basics*** section, for examples of date constraints.

Project commitments may create constraints that are beyond Project Manager's control, e.g., local events such as school openings or closings, community celebrations, city or county board meetings, volunteer advisory committees, necessary coordination with non-FDOT projects, coordination with other FDOT

projects, Value Engineering process, balancing the letting plan so an unmanageable number of projects are not clustered in the same quarter.

Managing the Schedule

Effective schedule management means responding to the changing needs and requirements of the project as well as to outside influences. Project schedules are useful tools for communication, managing stakeholders' expectations, and a basis of performance reporting. Use the schedule to look ahead and alert the various offices, units, disciplines, and subconsultants that activities will be starting that impact them, or that deliverables will be coming in that require their attention. Project Managers can use the schedules to make sure adequate resources are available to accomplish the upcoming work.

Validate the Initial Project Schedule: Once a project has moved into the adopted Work Program, the assigned FDOT Project Manager should carefully review the project schedule to make sure it is reflective of the project scope, funding, and unnecessary activities have been removed, all constraints have been incorporated, and activity durations are appropriate. Initial baseline project schedule request can be submitted into PSEE Change Management module by selecting the Critical Schedule.

Consultant Contracts: As the project scope is refined through the consultant selection and negotiation process, the FDOT Project Manager should continue to refine the project schedule. Upon completion of negotiations, the Project Managers should update and coordinate the Department's and consultant's schedules and provide this information to the District Scheduler. Although schedules prepared and used by consultants may have different purposes than that of the FDOT, certain activities must be coordinated with FDOT.

Monitoring Schedules: When monitoring a project schedule, Project Managers should evaluate and respond to:

- Delays in activities on the critical path that impact the completion date of the project unless corrective action is taken. While non-critical activities need to be completed in a timely manner, they do not affect the completion of the project until they cannot be finished by the Late Finish date.
- Constraints used in preparing the schedule that cause delay in connected activities. Validate the intent and necessity of the constraint.
- Available staffing or other resources to complete tasks on time. The FDOT Project Manager should discuss concerns with the consultant Project Manager.
- Negative float or a reduction in positive float from month to month, or activities that have too much float.
- Non-critical activities are consistently late. This may be indicative of future problems completing critical activities.
- There are too few activities to accurately assess the progress of the project, or a major activity has a very long duration. The FDOT Project Manager should request a more detailed schedule that will enable adequate monitoring of individual activities.
- Updates that indicate all activities are exactly on schedule with no change in float from month to month. While this hopefully indicates great scheduling ability with an exceptional project team that completes every activity exactly on schedule, it could also indicate that the schedule was updated automatically with little thought or was being updated to mask an ongoing problem.
- Activities that are out of the Project Managers' control, e.g., coordination with local government or water management districts regarding permitting or funding.

At the FPID level, project schedules can be viewed using PSEE Project Scheduling (PSM) module which displays Activity ID, Activity Description, Person Responsible, Start Date, Finish Date, Remaining Days, and Total Float.

Schedule Updating: Although the standard is to provide monthly updates, there may be phases or portions of the project when weekly updates may be appropriate. Additional updates should be done as soon as a major milestone is achieved, such as a phase submittal, receiving a permit, or when something happens that may impact the project schedule or the work of other units or team members.

Accurate updating is very important when the schedule is a source of information for consultant or contractor payment. Notify all parties when the schedule changes so they may adjust other affected schedules.

The monthly update process is well defined in each District. The FDOT Project Manager should contact the District Scheduler to determine the specific procedures used within the District. The FDOT Project Manager should establish a procedure for the consultant to provide monthly progress reports, and if necessary, an updated schedule, prior to submitting the monthly update to the District Schedulers. Project schedule updates to activities can be submitted using either PSEE Monthly Schedule Update module for updating multiple projects or PSEE Scheduling module for updating a single project.

Resolving Scheduling Problems: When issues with the schedule arise, the Project Manager should evaluate corrective action and coordinate with team members to determine the impacts of a schedule change prior to updating the schedule. Possible corrections may include:

- Determine if the duration of remaining activities can be adjusted.
- Add more staff or resources to shorten the duration of activities on the critical path.
- Eliminate unnecessary or non-applicable activities.
- Overlap activities, i.e., some activities may be able to start during a previous activity rather than at its completion.

Major Schedule Changes: If it is determined the scheduled completion date must be delayed, the FDOT Project Manager is responsible for following the schedule change procedure and getting the necessary approvals prior to making the change. Districts may have varying processes for changing a commitment date, contact the District Production Manager for the individual District's process.

Once a change is approved, the FDOT Project Manager must coordinate with District Schedulers, representatives from units impacted by the schedule change as well as the consultant Project Manager to implement the change. All impacted units, consultant Project Manager(s), and Senior District Staff must agree on the proposed changes prior to finalizing the revised schedule. Revised baseline project schedule request can be submitted into PSEE Change Management module by selecting the Critical Schedule.

Schedule Closeout: Project Managers should coordinate with District Schedulers once all project schedule activities are completed to discuss baseline vs. actual outcomes, predecessor and successor revisions, added or removed activities, determining improvements for implementation into schedule templates and archiving the final project schedule. These lessons learned should be shared by the Project Managers with the District Schedulers and District team to evaluate their project at completion to identify areas where improvements can be made with respect to the project schedule. The Project Manager should discuss the project execution with all project team members to identify root causes of problems.

When appropriate, the FDOT Project Manager should work with District Schedulers to update or modify schedule templates.

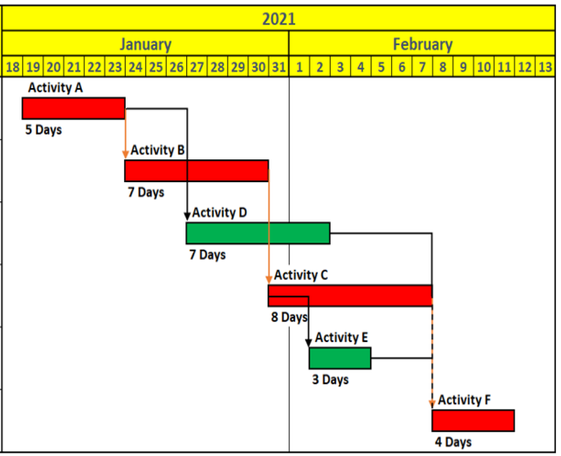
Scheduling Basics

Project schedules range from simple bar charts with few activities to complex Critical Path Method (CPM) schedules with thousands of activities. A simple bar chart showing the start and finish dates of project activities, is known as a Gantt chart. The basic difference between a Gantt chart and a CPM schedule is that the CPM schedule contains relationships between activities and allows date constraints to be placed on individual activities.

An example of a CPM schedule is shown below:

Sample CPM Schedule

Relationship	# Days	Activity Description	Duration	Early Start	Early Finish	Float
Start	0	Activity A	5	01/19/21	01/23/21	0
Finish (A) to Start (B)	0	Activity B	7	01/24/21	01/30/21	0
Finish (A) to Start (D) Lag	3	Activity D	7	01/27/21	02/02/21	5
Finish (B) to Start (C)	0	Activity C	8	01/31/21	02/07/21	0
Start (C) to Start (E) Lag	2	Activity E	3	02/02/21	02/04/21	3
Finish (C) to Start (F)	0	Activity F	4	02/08/21	02/11/21	0



A schedule is a ***tool*** for managing the progress of a project. The schedule is a "*living*" document that is periodically updated to provide current information and an up-to-date status of the project. A schedule must reflect *reality* so that potential slippage in the schedule can be identified early and the situation corrected before it becomes a serious issue. The "living" nature of the CPM schedule is one of its big advantages as the impact of an update or a potential change is readily apparent. The critical path often changes to reflect the dynamic nature of projects.

The level of detail required in a schedule depends on the complexity of the project. The level of detail also depends on who is using the schedule. The schedule used by a FDOT project manager overseeing a consultant project is often very different than one used by the consultant to manage the execution of the project. Schedules used by FDOT project managers overseeing consultant projects will typically include many internal Department activities as well as the key milestone deliverables to be received from the consultant. The consultant project manager may typically use a schedule that excludes all the Department activities but will provide the detailed sub activities that are required to complete and submit the deliverables to the Department. When reviewing a consultant's schedule, the FDOT project manager should check the following items:

- Delivery dates for submittals to the Department or agencies (e.g., submittal of permit applications) are scheduled on or before the dates shown in the Departments schedule
- Key milestones are met
- The logic between activities is appropriate
- Activity durations seem accurate

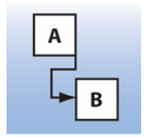
Basic Elements of a CPM Schedule:

A CPM schedule consists of seven basic elements:

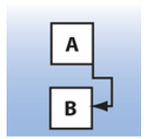
1. **Activities:** Activities are a component of work performed or a deliverable. The number of activities or tasks, in the schedule will vary depending on the phase, type and complexity of the project.

2. **Dependencies:** There are three kinds of dependencies between activities:
   - **Logical:** It is impossible or illogical to begin one activity until another is completed.
   - **Resource constraints:** The availability of resources dictates how long it will take to complete an activity.
   - **Discretionary (preferential):** The order the activities are completed is based on the preference of the project manager.

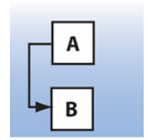
3. **Relationships:** Relationships are the link between related activities within a schedule. There are four **Definitions of Schedule Relationships**, with respect to the *sequencing* of activities and they are:
   - **Finish-to-Start:** Activity B cannot start until Activity A is competed.



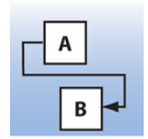
   - **Finish-to-Finish:** Activity B cannot finish until Activity A is complete. In this case, Activity A has to be finished on or before the date Activity B finishes.



   - **Start-to-Start:** Activity B cannot start until Activity A has started.



   - **Start-to-Finish:** Activity B cannot finish until Activity A has started. This relationship is rarely used, however, can be useful in certain situations.



   Relationships Definitions:

   - Predecessor - an activity that must be completed before the next activity in the sequence can begin.
   - Successor - an activity that follows a particular activity.

4. **Durations:** The anticipated time required to complete a schedule activity.

5. **Milestone:** A significant point or event in a project. A milestone has a duration of zero.

6. **Constraints:** Activities are constrained when they are limited to certain dates, rather than flowing with the natural logic of a network. Constraints are manually applied to the start or finish of an activity rather than having the date calculated solely on the logic of the network. We use constraints to maintain compliance with the Work Program.

7. **Critical Path:** The longest path through a project network. Any delay on this path will result in a corresponding delay of the end date of the project. The critical path often changes during the life of a project.

Additional Elements a CPM Schedule:

- **Early Start:** The earliest date an activity can start according to the network logic and/or constraints.
- **Early Finish:** This is the Early Start date plus the duration of the activity.
- **Late Finish:** The latest date an activity can finish without delaying the completion of the project.
- **Late Start:** The Late Finish minus the duration of the activity.
- **Float:** The amount of time that an activity can be delayed without causing delay to other tasks or the project. Although there are several different types of float, total float is typically used.
    - **Total Float** is the amount of time an activity can be delayed without impacting the overall project completion. Total float is calculated by subtracting the early finish date from the late finish date of an activity (early start and late start dates could also be used). Total float can be represented as Positive or Negative Float:
        - **Positive Float** indicates how many days an activity can slip before the activity will cause a slip in the end date of the project.
        - **Negative Float** indicates how late the end date will be delayed if an activity continues to have the same negative float and no change is made to subsequent activities.
    - **Free Float** is the amount of time that an activity can be delayed without impacting its successor activity. Free float is calculated by subtracting the early finish date of the activity from the early start of the successor activity.

    It is important to keep in mind, that Float is shared among activities. This means using up the positive float on an activity, may affect succeeding activities by making them more critical.

    The critical path will always have a float of zero.
- **Lag** is the delay of a successor activity and represents time that must pass before the next activity can begin. Lag may be found in all activity relationship types. An example of lag is illustrated in the **Sample CPM Schedule** between Activities A & D and Activities C & E.
- **Lead** is the acceleration of a successor activity. In other words, the second activity can begin (and be conducted in parallel) as the first activity. Lead is only found in activities with finish/start relationships: Activity A must finish before Activity B can start.

Introduction

Quality Assurance (QA) and Quality Control (QC) are processes used to ensure project deliverables are complete, correct, orderly, meet project objectives and are of appropriate content and quality. The Project Manager (PM) is responsible for meeting both quality and schedule objectives. Poor quality work should not be accepted just to meet a schedule.

FDOT QA and QC

Two important parts of the FDOT PM's QA responsibility are to: (1) ensure the consultant's QC plan is being followed, and (2) review quality of project deliverables. For design projects, specific QA/QC requirements are specified in ***Chapters 124 & 125 of the FDOT Design Manual***.

The FDOT PM should meet with the consultant PM early in the project to reach a common understanding of QA/QC methodologies and submittal requirements. The consultant is responsible for conducting QC reviews before every submittal. Detailed, in-depth reviews are the responsibility of the consultant for the quality of their product. The FDOT PM should check the consultant's QC actions and review their QC documentation. Record all QA/QC activities and file marked-up copies of reviewed reports and plans. The consultant's project schedule must include adequate time for QC reviews. The FDOT PM may schedule an office visit to observe a QC review as it is taking place. The FDOT PM must ensure the individuals identified in the project QA/QC Staffing Plan are performing assigned QA/QC tasks. Another control technique is to require documentation of QC activities accompany submittals. Documentation could include completed checklists, certifications, or the reviewers' marked-up copy of the reviewed documents.

FDOT uses the Electronic Review Comment (ERC) system for review of submittals. Information about the ERC system is available at ***FDOT Electronic Review Comment System (ERC)***.

The FDOT PM should conduct a cursory review of each submittal. Submittals found to be of unacceptable quality require the FDOT PM to request a re-submittal. Pressures on the FDOT PM to maintain the project schedule may make the decision to require a re-submittal due to poor-quality work, however poor-quality work results in project delays, so it is better to correct the quality problem as soon as possible. It is prudent to allow for re-submittal time in the project schedule.

FDOT QA involves several reviewers who represent all technical areas included on the project. Technical skill areas may include highway design, drainage, traffic and maintenance of traffic, structures, and constructability. FDOT reviewers should focus on the important issues and on making value-added comments. Here are some helpful guidelines for reviewing and commenting on consultant submittals:

- Reviewer requirements and expectations should be established prior to the first submittal. Reviewers should have an understanding of the project scope of work, the consultant scope of services, general phase submittal requirements and the difference between value-added and non-value-added comments.
- The FDOT PM should assign the submittal to all appropriate reviewers as quickly as possible. Reviewers' comments should be returned directly to the FDOT PM with sufficient time for discussion or resolution if needed.
- When submittals are reviewed by several FDOT individuals, the FDOT PM should review all comments for consolidation of similar comments and resolution of conflicting comments before transmitting them to the consultant in ERC.

- The FDOT PM should also look for any non-value-added comments submitted by reviewers which may not be necessary or appropriate to be entered as a formal comment. Non-value-added comments can be time consuming and counter-productive.
- Value-added comments include comments on fatal flaws, engineering issues, safety issues, errors, violations, or enhance the overall cost, schedule or quality of the project. Value-added comments require a response.
- Non-value-added comments include comments which are informational, suggestions, complimentary (i.e., “Nice plans!”) or editorial. These types of comments may be brought to the attention of the FDOT PM for evaluation and could be addressed outside of being entered as a formal comment. If non-value-added comments are entered, they should be identified as not requiring a response.
- Because the consultant is professionally responsible for the work, personal preferences should not be imposed. If personal preference comments are forwarded, they should be clearly labeled and should not require a response.
- Reviewers with no comments must utilize the checkbox in ERC which states that. Reviewers must not submit a comment that states “No comment” or something similar.
- A comment requiring work beyond the scope of services should not be forwarded to the consultant. Such issues require evaluation by the Department to establish a valid need. Once so determined, the Scope of Work should be revised and a Supplemental Amendment should be processed in accordance with procedures explained in ***PMG 235 – Contract Amendments***.

Consultant QA and QC

A Consultant firm typically has a firm-wide Quality Assurance and Quality Control (QA/QC) plan that identifies general responsibilities and required actions to assure quality products. However, FDOT requires a consultant to either (1) create a project-specific QC plan, or (2) adopt the Quality Control Plan requirements outlined in ***FDM 124*** by submitting a declaration email to the FDOT PM with the proposed QA/QC Staffing Plan. The consultant’s QA/QC Staffing Plan requirements are outlined in ***FDM 124.2.1***.

Other Project Phases

For services other than design which are performed by professional services consultants, QA/QC requirements are typically included in the associated Scopes of Services. Each project phase has different QA/QC issues. QA/QC requirements for various deliverables are addressed in applicable procedures and manuals.

Planning: All submittals for planning projects should be subjected to a peer review in the same manner previous described. Common quality issues are data collection, study methodology, assurance that report conclusions and recommendations are supported by study findings and quality of the writing.

Project Development and Environment (PD&E): PD&E project quality issues are similar to those for planning projects. QC is required for all formal submittals and materials for public meetings and hearings. In many Districts, the consultant is required to provide the Department with a QC plan at the beginning of a project.

Right of Way (R/W): District R/W Offices have Core Process Measures and QC Plans in place to ensure compliance with laws, rules, procedures, and regulations related to R/W projects. The Office of R/W monitors these measures and plans (QA) to assure consistency with statewide requirements, determine the effectiveness of the district's quality control plans, and to make adjustments in the processes as necessary to maintain high levels of quality performance in providing right of way necessary for Construction. All functional areas of R/W are involved including Appraisal, Acquisition, Relocation Assistance, Property Management, Funds Management and Work Program. Consultants may be used for some of these functional areas, with the district offices being responsible for hiring consultants who are experienced, technically competent, and have adequate quality control measures in place to provide adequate work products.

Construction: For construction projects, QA/QC is detailed in ***Section 3.2*** the ***Construction Project Administration Manual*** (***CPAM***). QC is a primary responsibility of the Construction Engineering and Inspection (CEI) consultant who monitors and evaluates the contractor's product and performance. The FDOT Construction Project Manager (CPM) must ensure the CEI adequately performs its responsibilities and the Central Office performs QA reviews, as prescribed in the ***Statewide Construction QA/QC Plan***. The CEI consultant should have an internal QA/QC plan which addresses the following: (1) CEI operating procedures, (2) sufficient staff to ensure adequate inspection coverage, (3) checks to ensure that inspectors are performing properly, and (4) internal quality reviews of records and office procedures. The CEI's objective should be to find and correct performance problems before issues come to the attention of the FDOT CPM.

Maintenance: QA/QC processes include adequate inspection of the work and sufficient documentation to ensure compliance with contract specifications. Asset Management contracts should comply with the ***Asset Management Monitoring Plan,*** available on the ***Maintenance Office*** website.

Introduction

Every project has risks, regardless of size or complexity. Project risk is an uncertain event or condition that, if it occurs, will have an effect on project success. These risks can lead to significant costs and schedule delay. Risk management is a systematic process to help project teams identify risks, analyze and prioritize them based on their expected impacts and probability, develop response strategies, monitor the risks, and track the response implementation. It can also help identify potential budget and schedule issues early in a project's development process.

This chapter outlines general information about risk management that can be applied to any project. For risk management on Major Projects, refer to ***PMG 405***.

Risk Management Defined - Risk can be characterized by probability of occurrence and level of impact on a project. Throughout the project life cycle, an uncertain future event that may occur at any time in a project's lifecycle is a risk. It has a probability of occurrence and an uncertain impact if it does occur. Each risk will have a negative or positive effect on at least one project objective. Risks that have a positive outcome are opportunities while risks with a negative outcome are threats. The Project Manager is responsible for identifying and managing all project risks; increasing the probability and/or impact of opportunities and minimizing the probability and/or impact of threats. *Probability* describes the likelihood of an event or condition actually occurring on a project and is expressed as a percent (e.g., 40% probability of this risk occurring). *Impact* describes the consequence of the event or condition occurring and is expressed in cost (e.g., if this risk does occur it will cost us $100,000) or schedule (e.g., if this risk does occur it will cause two weeks of construction delay). Risk Management involves processes, tools and techniques that will help the Project Manager maximize opportunities and minimize threats to project performance in terms of cost and schedule.

A formal risk management approach helps to optimize project performance (i.e., cost and schedule) in planning, design and construction phases. Through risk management, FDOT can better address the questions of "How much will it cost?" and "How long will it take?" Risk management enables FDOT to anticipate threats and opportunities and subsequently evaluate and plan for them. This includes (e.g., negative float, delays and missed let dates).

Risk management is an ongoing process, beginning at the conception of a project and continuing through construction and facility operation. Risk management is most effective when first performed early in the life of a project and is a continuing responsibility throughout the project. The process has basic features as summarized below. Each component has a corresponding simple question that can help identify options for how to address that component.

Risk Management Feature	Simple Question
Risk Management Scalability	What's the **appropriate level of risk management which can be cost-effectively applied** for this project?
Risk Identification	What risks might **negatively or positively** affect achieving the project objectives?
Qualitative Risk Analysis	What is the **likelihood** of risk occurrence and level of **impact** of a risk occurring in descriptive or qualitative terms of high, medium, and low?
Quantitative Risk Analysis	**How** could a risk affect the project in terms of **cost and schedule**?
Planning and Response	**What** can be done to mitigate the risk?
Ownership and Communication	**Who** will be responsible to manage risk, follow up on mitigation actions and coordinate and communicate?

Risk Management Objectives - The risk management process addresses project performance in terms of cost and schedule. The assessment especially helps project teams focus on high severity risk with a mitigation approach that considers the cost-benefit. While risks are typically discussed throughout FDOT projects, generally documentation and management of those risks is informal. The process of risk management involves formal documentation of risks, assessing likelihood and impact of each risk, establishing the proactive actions to accommodate the threat or opportunity, and monitoring and updating status of the list of risks throughout all phases of a project. This documentation is readily captured in what is called a *Risk Register* that is created early in the project development process. The Risk Register should be maintained and monitored throughout the project's life.

Benefits - The risk management process provides enhanced fiscal management for the planning, design, construction, and system operations programs. Through this process, FDOT can better predict cash flow needs, balance let dates, maintain the TIP effectively, and manage and preserve the system. Additionally, important project delivery benefits, such as reducing the potential for cost overruns and increasing the likelihood of on-time delivery through better management, will generally result in fewer surprises.

The FDOT risk management process optimizes project performance and ensures that the process becomes a foundation for successful project management. Through its execution, risk management will be a foundation for successful project management and team collaboration. This collaboration of the various disciplines on the project team is essential so that potential risks are not overlooked, and experienced team members provide an appropriate assessment of risk probability and impact.

It is also important to note another intangible (and likely tangible) benefit of the risk management approach. Setting appropriate contingency and float respectively for cost and schedule can help to reduce some of the "guess work" often associated with each.

FDOT's Risk Management approach features and benefits are summarized below:

Feature	Benefit
Scalable Approach	The appropriate level of risk management including the level of risk analysis and mitigation is applied based on project size and complexity.
Project Team	Risk management is based on a prioritization of risks. The expertise of team members is leveraged by having the team identify and assess the risks, as well as identify mitigation strategies within the functional area of their expertise (e.g., design, construction, right of way, permits, drainage, utilities, hydraulics, geotechnical, etc.)
District Risk Expert(s)	Each District has staff that may be more experienced in Risk Management. These individuals can assist the Project Manager in the development and implementation of the project risk management plan.
Ownership of Risks and Responsibilities	A risk owner is a person or entity (e.g., work unit) that has been given the authority, responsibility, and resources to manage a particular risk and is accountable for doing so**.** This assignment should be made based on who is best able to manage that risk. Risk owners support the Project Manager in risk monitoring and implementation of a selected response. It should not be assumed that Project Manager does all the work to manage the risk; but rather serve as a process facilitator.
Risk-Based Decision-Making	Project values such as cost, schedule, and quality should be balanced when making decisions. This practical focus results in a need to have a formal risk management program with objectives to improve project performance (cost, schedule, disruption and longevity).

Risk Management Ranges - FDOT's risk management process is inherently scalable based on project cost ranges. The project costs help determine the depth of risk assessment and the appropriate level of risk management in terms of both the number of potential risks captured on a risk register as well as the amount of assessment and analysis required.

The FDOT risk management process includes three ranges of risk management based on project cost. The following table details the ranges of risk management along with the strategies and types of tools that facilitate each range. All projects have risks, and the level of effort should be commensurate with the appropriate risk management strategy.

Range	Description
LOW RANGE	**Total Project Cost up to $20 Million** • Use qualitative risk-based analysis • Review of risks by internal design team • Project manager takes the lead on risk updates • Project manager conducts self-modeling (Risk Based Graded Approach) • Quantify risks and update risk mitigation strategies in regular project meetings • Mainly applied to projects < $20 million, however may be used on projects up to $50 million based on technical complexities and risk modeling opportunities
MID RANGE	**Total Project Cost $20 Million to $100 Million** • Use quantitative risk-based modeling • Internal project design team takes the lead on cost and schedule risk updates • Quantify risks within a 1-day to 2-day workshop (led by internal risk team) • Update risk register as needed (at least once prior to the Work Program update) • Mainly applied to projects from $50 million to $100 million, but may be used on projects < $50 million based on technical complexities and risk modeling opportunities
HIGH RANGE	**Total Project Cost greater than $100 Million and FHWA Major Projects (greater than $500 million or as designated by FHWA)** • Use quantitative risk-based modeling with workshop (CO Consultant Contract) • Internal and external team takes the lead on risk updates • Base cost and schedule is validated by external team • Quantify cost and schedule risks within a 2-to-4-day workshop led by external risk team (Projects not designated as a FHWA Major Project may be handled by internal risk team as required) • Annual updates just prior to Work Program update and as needed • Mainly applied to Major Projects and projects > $100 million (may be used on projects < $100 million based on technical complexities and risk modeling opportunities)

Roles and Responsibilities - Risk management requires effort, teamwork, and forward-thinking. It must be planned, resourced, and facilitated to provide accurate analyses and defendable decisions. Project Risk Management is typically the responsibility of the Project Manager. District Risk Experts can be a resource in sorting out roles and responsibilities. The following table details the project level roles and responsibilities associated with risk management.

Position	Roles and Responsibilities
Project Manager	• Lead and facilitator for risk management on the project. • Develop and manage the project's risk register. • Develop and implement the Risk Management Plan. • Assign risks and response actions to risk owners • Track, monitor & update risks and the effectiveness of risk response actions. • Produce risk management reports for Department management. • Incorporate risk management into project meetings. • Incorporate risk management into Value Engineering Study. • Elevate issues to district management for resolution as necessary.
Risk Owner	• May be a project team member, district discipline lead, or other stakeholders. • Assess & suggest risk response strategies & action plans for assigned risks. • Provide updates for the identified risk strategy. • Inform the PM if the risk materializes (or if potential risks is no longer risks).
Project Team	• Includes Project Manager, Risk Owners, and other team members. • Assist PM with the identification, assessment, review & monitoring of risks. • Suggest appropriate risk response strategies. • Assist in identifying risk owners and developing risk response strategies. • Identify, analyze, and plan responses for new risks, & add to risk register. • "Retire" risks whose opportunity has passed. • Perform risk response actions when appropriate. • Identify & share risk management lessons learned after project completion.

Project Integration - Risk management is an integral component of project management and a recognized project management technique that will help the Project Manager to better assess and manage key project performance factors. In some cases, risk management should help to even speed up design while maintaining a sharp focus on critical risks.

While the formalized approach requires development and maintenance of a risk register, the register becomes a key communication tool to efficiently focus attention on individual risks. Through this sharp focus, risks are controlled so that informed decision making can be provided in a timely manner.

Although risks can and should be discussed with project team members and management at any time during the duration of a project, it is desirable to have "checkpoints" to ensure the project does not unnecessarily proceed on a course of action that may not be feasible and may be changed later by a decision-maker. Thus, integrating risk management into the project development process becomes critical, valuable, and time saving.

Integrating risk management requires developing an initial risk register as early in the project as feasible, monitoring and developing mitigation strategies for each risk by the assigned risk owner, and discussing the risks at project meetings and when project discipline leads can most effectively discuss and address risk coordination.

The following table provides opportunities within FDOT's project development process phases where risk management should be incorporated.

Project Phase	Risk Integration
Planning	If project complexity is unknown, consider qualitative risk analysis and consider risk mitigation strategies. Communication with Metropolitan Planning Organizations and local municipalities may help to identify unforeseen risks. Risk management enhances stakeholder focus and interaction.
Programming Development	Risk management (especially quantitative analysis) can help project team validate the estimated cost and schedule
Scoping	Risk management can be used to evaluate and support the alternatives analysis
Design Field Review	Look to integrate potential risks that are identified in design field reviews.
Final Design	Look to integrate potential risks that are identified in the design phase.
PS&E	Many of the risks that would occur in the design phase should be retired by this phase.
Construction	The construction team should take a fresh look at any risks that were identified during the design phase and were categorized for occurring during the construction phase. Likewise, risks could be identified and categorized for potential occurrence during the maintenance phase.

The following are a few best practices for integrating risk management:

- Create the initial risk register through a team brainstorming discussion during or immediately after the Scoping field review. Planning partners may have developed a planning level risk register. This list should be incorporated into the initial design risk register.
- Include project risks as a regular agenda item for project meetings so that mitigation strategies can be incorporated into the project holistically. Remember that the risk register is a living document where risks can be added, along with the appropriate risk owner, and retired as necessary.
- Perform a formal review of the risks as part of the Design Field Review, Constructability Review, and the Final Design Office Meeting. The expectation is that functional disciplines are already in attendance at these major milestone meetings and can provide input and perspective for discussions involving risk. This could include a short team brainstorming to make sure there are no new risks or to retire those risks that did not occur.
- Components of risk management should be included in other FDOT project processes such as cost estimation, scheduling, constructability reviews, and value engineering.
- Risk management can be performed by external experts or internal staff.

Risk Management Tools - The key to successful risk management implementation is the ability to utilize tools that are easy to understand and can be applied to highway projects of varying sizes and types to help proactively identify, plan for, assess, and manage project risks to meet schedule and budget goals. The cost values for risk management should be generally similar to developing costs for delivering a project. The key is for the project team and subject matter experts to help advise as to those potential costs associated with risks. This results in orders of magnitude when reviewing the entire list of risks and impacts in terms of both cost and schedule. Over time, appropriate levels of risk management investment costs should be more than offset in terms of better bids, fewer surprises (work orders), and helping to limit supplements in design.

The recommended ranges are to be understood as minimum requirements. The project team may choose to work at a higher scalability range than required. However, the project team should consider other factors to determine what level of risk management effort is needed. These factors may include: project type, project location, project duration, project stakeholders, and political sensitivity. Any of these factors may warrant employing a higher scalability range.

Risk Management Process

The process to incorporate risk management into an FDOT project consists of a series of steps, which are applied at the outset of the project and verified throughout the project. The major risk management process steps are illustrated below.

Uncertainties are the greatest at the project's beginning. As the project progresses, more and more information is known and the uncertainties are reduced. However, the only time that the actual cost of a project is truly know is after construction is complete and all the bills are paid. This could be years after the project began. The total project cost is divided into three categories:

- Costs that we can actually quantify at any point in time
- Costs that we know we are going to incur, but which we cannot yet quantify
- Costs that we do not yet recognize

Traditionally we have developed the Engineer's Estimate by being conservative in estimating those items that we can quantify either by inflating the quantity of those items, or by inflating the estimated cost or, usually, both. To that we add a contingency to account for the items that we cannot quantify and to cover the unrecognized costs (Risks). The contingency is usually a percentage of the known costs.

The Risk Management process attempts to develop a more realistic risk-based cost estimate by removing the intentional overestimates of the known items, providing an allowance for those items that cannot be quantified, and developing an estimate of the potential costs of risks based on a thorough understanding of the project's specific risks.

The following table provides a description for each step in the risk management process. Each step is then explained in greater detail in this chapter.

Step	Description
Define Project Base	• Define the "base" project scenario against which events (risks) can subsequently be identified, assessed, and eventually managed. The base cost and schedule should only include events that are planned for the project (no contingencies). Variability of impact in the planned events should be captured in the base as well. If there is any uncertainty that an event will occur, then it will need to be included in the risk assessment part of the process.
Identification	• Identify a comprehensive set of risks. This is accomplished by brainstorming scenarios that might change project performance. • Categorize each risk by the phase that risk might occur.
Assessment and Analysis	• Assess the impacts of each of the threats and opportunities in the risk register, and then prioritize them on that basis. • Generally accomplished by subjectively assessing the risks (i.e., the probability of the events occurring and the impacts if it does occur. • Analytically combine the base and risks to determine a range of outcomes (cost & schedule) for project (e.g., ultimate project escalated cost and schedule).
Risk Response Planning	• Identify and evaluate possible ways to proactively reduce risks and exploit opportunities, focusing on the most severe. • Evaluate each possible action in terms of its cost-effectiveness, considering changes in both base factors (e.g., additional cost) and risks (e.g., reduced probability), and select those that are cost-effective. • Consider subsequently re-analyzing the project performance for this risk mitigation program, based on which budgets and milestones can be established.
Monitoring and Control	• Implement the Risk Management Plan as the project proceeds by monitoring the status of risk mitigation activities and changes in risk and monitoring budget and milestones, especially with respect to contingencies. • This might involve periodic updates at regular intervals (such as monthly project progress meetings) or at major milestones or changes. • Contingencies might be reduced as engineering reports or designs are completed and risks are avoided or mitigated.

Initial Project Risk Management Meeting

At the outset of each project, a Project Risk Meeting will be held independently or in conjunction with the project kick-off meeting or Scoping Field Review. The first time that the Project Team Members meet, the PM should brief the team on the following:

- The importance and objectives of the project risk management process
- The roles and responsibilities
- The risk register
- The communication check points
- Key risk management activities in the project schedule
- Expectation that risk is managed, documented and reported via a formal process

The project team will identify what events might occur and thus change the project relative to the base conditions. The threats and opportunities are then listed in the risk register for later risk management activities. Developing this risk list is a creative process.

On Low Range projects, it is helpful if the project manager involves the key members of the project team in this task. FDOT PMs should also involve Project Managers from the preceding and following phases in identifying potential risks.

On more complicated Mid and High Range projects where use of a quantitative risk analysis process is required, the FDOT PM will involve the key members of the project team in this task. On these projects, the key members should include the PM, sponsor, customer, external stakeholders, and a representative from engineering, procurement, quality, HR, safety, finance, and operations. FDOT PMs should also involve PMs from the preceding and following phases in identifying potential risks.

Define Project Base

Preparing project information for risk management is a necessary and valuable first step in the risk management process. It provides the "base" for identifying threats and opportunities, assessing them, and eventually managing them. It also documents the current state or base line for future reference. Information needed to define the base includes:

- Brief Project Description
- Project Scope, Strategy/Status, and Key Conditions and Assumptions
- Initial cost estimate without contingencies
- Initial design and construction schedules without contingencies.

Formally, this process is called *Structuring*. Structuring can help facilitate subsequent risk identification and assessment (especially when a risk is already considered and addressed in the base conditions). For example, if a complex right of way issue is already accounted for by an appropriate design schedule, then what might be considered a schedule risk is already a part of the base project conditions and should **not** be considered as a risk. By understanding the structuring of the project, risks can more easily be identified for either qualitative or quantitative risk assessments.

Risk Identification

The first step in the Risk Management process is identification of potential risks to a project. Risk identification involves identifying potential project risks and documenting their characteristics, resulting in a list of potential project risks. As a starting point in the process, examples of potential project risks are listed in blue boxes adjacent to this section. This list should be supplemented based on the experience of the Project Manager and other team members, as well as historical data available from similar projects, studies performed by the District or the Central Office on similar projects and other appropriate sources. The actual list for each project should be unique, reflecting specific project conditions.

ORGANIZATIONAL RISKS

- Inexperienced staff assigned
- Lack of staff assigned to the project
- Loss of critical staff at critical point in project
- Insufficient time to plan project
- Unanticipated Project Manager workload
- Delays getting approvals and decisions
- Support units unavailable or overloaded
- Changed priorities
- Project under funded
- Inconsistent project goals (objectives, schedule, budget and quality)

Risk identification is an essential step in the risk management process. It determines what might happen that could affect the objectives of the project and how those things might happen. It produces a deliverable (the project risk register) that documents the risks and their characteristics. The risk register is subsequently strengthened through the qualitative or quantitative risk analysis, risk response, and risk monitoring processes. Risk identification is an iterative process because new risks may become known as the project progresses through its life cycle, previously identified risks may be retired, and other risks may be updated.

A challenge in risk identification is avoiding confusion between **causes** of

EXTERNAL RISKS

- Right of way delays as a result of court actions
- Changed priorities
- Local communities or groups pose objections
- Funding changes
- Political factors change
- Stakeholders request late changes
- New stakeholders emerge with new demands
- Influential interests raise objections
- Lawsuits to halt or change the project
- Pressure to choose time over costs or quality
- Delays in agreements with local agencies, railroads, etc.
- Utility relocation delays
- Permitting issues

ENVIRONMENTAL RISKS

- Delays in permit approval
- Changed requirements for permits
- Changes in environmental regulations
- Reviewing agencies require higher-level review than expected
- Lack of specialized staff to perform environmental analysis
- Unidentified special-interest sites discovered (historical, endangered species, etc.)
- Environmental class of action changes
- Public controversy arises over environmental issues
- Change in alignment requires new environmental analysis
- Section 4(f) lands become involved
- Pressure to compress the schedule for environmental analysis

risk, the actual risks, and the **effects** of risks. A risk may have one or more causes and, if it occurs, one or more effects.

- **Events** are circumstances in the project or its environment, which give rise to uncertainty. Examples include the need to use an unproven new technology or the lack of skilled personnel. Causes themselves are not uncertain since they are facts or requirements, so they are not the primary focus of the risk management process.
- **Risks** are uncertainties which, if they occur, would affect the project objectives either negatively (threats) or even positively (opportunities). Examples include the possibility that planned completion targets might not be met, escalation rates might fluctuate, or that requirements may be misunderstood.
- **Impacts** are unplanned variations from project objectives, which arise as a result of risks occurring. Examples include early milestone completion, exceeding the authorized budget, or failing to meet agreed quality targets. Effects are contingent events, unplanned potential future variations which will not occur unless the risks happen. As effects do not yet exist, and they may never exist, they cannot be managed directly through the risk management process. Including causes or effects in a list of identified risks obscures genuine risks, which may then not receive the appropriate degree of attention they deserve.

PROJECT MANAGEMENT RISKS

Many of the above issues will apply to the consultant as well, however consultant Project Managers must also address risk as it applies to profitability. Some unique risks for a consultant Project Manager may include:

- Incomplete or inaccurate scope of services
- Scope creep
- Unrealistic budget
- Unrealistic schedule
- Inappropriate, unnecessary or conflicting comments on FDOT reviews
- Late comments on submittals
- Unexpected rise in firm overhead
- Unresponsive subconsultant(s)
- Assessment of errors and omissions claims
- Change in FDOT Project Manager

PROJECT MANAGEMENT RISKS

- Project need and purpose poorly defined
- Project scope is poorly defined or incomplete
- Selection of a poor consultant or subconsultants
- Selection of a poor contractor
- Project Manager does not have control over staff priorities
- Too many projects
- Estimating and/or scheduling errors
- Poor communication within the team
- Unrealistic schedule
- Changed schedule
- Lack of coordination among support units
- Lack of management support
- Changes in key staff members

TECHNICAL RISKS

- Preceding phase project deliverables are incomplete
- Preceding phase reports/ plans are in error
- Right of way studies are not accurate
- Environmental analysis is incomplete or in error
- Unexpected geological issues
- Inaccurate design assumptions in PD&E Report
- Surveys are late or are in error
- Geotechnical reports in error
- Hazardous waste analysis incomplete or in error
- Need for design variations or exceptions
- Context sensitive solutions create design delays

One way to clearly separate risks from their causes and effects is to use a description with required elements to provide a **three-part structured "risk statement"**:

"As a result of (If) ___(event), then ___(risk) may occur, which would lead to ____(impact)."

Examples Include:

- "As a result of using a new technology (a definite requirement), unexpected design problems may occur (an uncertain risk), which would lead to overspending on the project (an impact on the budget objective)."
- "Because our District has never done an interchange project like this before (fact = event), we might misunderstand the requirements (uncertainty = risk), and our project would not meet the performance criteria (contingent possibility = impact on objective)."

The risk register should include those situations and conditions that have a reasonable likelihood of occurring and that will have some impact on the project.

It is not necessary to list those that are only technically possible or those that will have a very minor impact on the project. At the risk identification stage, the impacts on cost and time are not analyzed – this analysis occurs later through either a qualitative or quantitative assessment.

Assessment and Analysis

The next step in the risk management process is to qualify and prioritize the identified risks. This process involves considering probability and impact separately, then prioritizing the risks using a combination of both. Careful and objective definitions of the levels of probability and consequences, or impact, are critical to the creditability of the process. By assessing the "severity" of each risk, an action plan can be developed which assists in making better project decisions.

To assess the severity (impact rating multiplied by probability rating) of each risk in the risk register, and then prioritize them on that basis is generally done by:

- Subjectively assessing the relevant risk factors (i.e., impacts if the risk occurs and the probability of the risk occurring), either ***qualitatively*** (e.g., "high" vs. "low", where these descriptors are quantitatively defined by ranges of values); or ***quantitatively*** (in terms of mean-values or, for quantitative risk analysis, full probability distributions); and then
- Analytically combining the risk factors to determine changes in project performance measures and thereby severity

Qualitative Risk Analysis - The project manager or project team assesses each identified risk in turn and determines:

- The **rating for the probability of the risk occurring**, and
- The **rating of cost and time impact of each risk**, should it occur.

Qualitative risk analysis includes methods for prioritizing the identified risks for further action, such as risk response. This analysis assigns a Risk Rating to each risk in the risk register. The risk ratings help to determine where the greatest effort should be focused in responding to the risks. They facilitate structured risk response action and resource allocation. The three ratings Low Range projects are:

- "High" –Priority for risk response.
- "Medium" – Risk response as time and resources permit.
- "Low" – No risk response required at this time.

Why is the Qualitative Analysis used? - Qualitative analysis involves characterizing the likelihood and consequences in terms of non-quantitative ratings. A risk might be assessed to have a High (H) likelihood of occurrence and a corresponding Medium (M) cost impact and Low (L) schedule impact if it occurs along with a numerical rating (e.g., 1 through 5). On the benefit side, qualitative assessments may be relatively quick to conduct and provide a simple visual rating (depending on the method used).

To assist with this identification, the following table provides a standard definition of risk probability and impact ratings. The cost impact ratings may be easier to apply if expressed in terms of dollars. The ratings for the project serve as a consistent frame of reference for the project team in assessing the risks during the life of the project.

This table is intended as a guide. The project team may define dollar and time ranges as appropriate for the project. The impacts are to the overall project. Schedule delay applies to risks that are on the critical path (the longest path). During the Planning and Design phases, delays that impact the project let date may be of primary interest. During construction, delays impact project completion.

Rating ➔	1 Very Low	2 Low	3 Medium	4 High	5 Very High
Cost Impact of Threat	Insignificant cost increase	<5% cost increase	5 – 10% cost increase	10 – 20% cost increase	>20% cost increase
Cost Impact of Opportunity	Insignificant cost reduction	<1% cost decrease	1 – 3% cost decrease	3 – 5% cost decrease	>5% cost decrease
Schedule Impact of Threat	Insignificant delay	<1 month delay	1 – 3 months delay	3 – 6 months delay	>6 months delay
Schedule Impact of Opportunity	Insignificant improvement	<1 month improvement	1 – 2 months improvement	2 – 3 months improvement	>3 months improvement
Probability	1–9%	10–19%	20–39%	40–59%	60–99%

Drawbacks of qualitative assessments can include the following:

- Ratings can be vague, if qualitative ratings are not tied to specific values (e.g., what does a "High" likelihood of occurrence really mean?). As a result, different people can interpret qualitative ratings in different ways, which might lead to inaccuracies or problems in developing consensus. This underscores the importance of experience, good judgement, and team discussion.
- If the ratings (e.g., for likelihood and consequence) are not combined, then no overall measure of the risk is possible, which means that the register of risks cannot be ranked or prioritized.

How is the Qualitative Analysis performed? - Qualitative risk analysis for Mid-Range projects entails assigning a risk rating to each risk in the risk register. The risk ratings for probability and impact can then be combined for an overall risk ranking (based on risk severity). The risk rankings determine where the greatest effort should be focused in responding to the risks. Note the impact rating scale is exponential to increase the severity of "High" and "Very High" impacts. They facilitate structured risk response action and resource allocation. The overall ranking for each risk is then used to prioritize mitigating actions.

When and Why is the Qualitative Analysis updated? - Team members revisit qualitative risk analysis during the project's lifecycle, typically at a project's milestones. When the Team repeats or revisits qualitative analysis for individual risks, trends may emerge in the results. These trends can indicate the need for additional risk management action on particular risks or even show whether a risk mitigation plan is working.

Quantitative Risk Analysis - To perform this analysis, the Project Manager leads the Team in quantifying cost and schedule risks. This a way of numerically estimating the probability that a project will meet its cost and time objectives. The degree of uncertainty in each schedule activity and each line-item cost element is represented by a probability distribution.

- The probability of the risk occurring is expressed by two values: "Low" and "High" that cover the range.
- Three-point estimates are used for cost and schedule impacts. The three-point estimate consists of determining the "Low" (optimistic), "High" (pessimistic) and "Most Likely" values for the cost and time. The most likely value may be omitted if it cannot be established credibly, leaving a range of low to high.

Risk response strategies and actions are the same as described previously in this section. Response strategies for each risk should be carried through the project with documentation in project status meetings, and at project milestone meetings. For complex projects a formal risk report should be developed.

Once potential project risks have been prioritized through the Qualitative Risk Analysis process described above, the effect of those risks on the project can be quantified. The Quantitative Risk Analysis process analyzes the effect of the prioritized risk events and assigns a numerical rating to those risks. The quantification of risks involves assigning a cost in dollars of impact should the risk occur and a probability of the risk occurring. The results of a quantitative risk analysis can help differentiate risks that may have identical qualitative results (e.g., where a

qualitative analysis for a *low probability / high impact* risk results in medium severity…and a *high probability / low impact* risk also results in medium severity).

The purpose of risk quantification is to:

- Quantify possible outcomes for the project and their probabilities
- Assess the probability of achieving specific project objectives
- Identify risks requiring the most attention by quantifying their relative contribution to overall project risk
- Identify realistic and achievable cost, schedule, or scope targets, given the project risks
- Determine the best project management decisions when some conditions or outcomes are uncertain

Quantitative risk analysis is a way of numerically estimating the probability that a project will meet its cost and time objectives. Quantitative analysis is based on a simultaneous evaluation of the impact of all identified and quantified risks.

This analysis starts with the projects schedule and its cost estimate. The degree of uncertainty in each schedule activity and each line-item cost element is represented by a probability distribution. The probability distribution is usually specified by determining the optimistic, the most likely, and the pessimistic values for the activity or cost element. This is typically called the “3-point estimate”. The three points are estimated by the project team or other subject matter experts who focus on the schedule or cost elements one at a time. By evaluating the resulting cost and time estimates for each of these three estimate points, it is possible to answer such questions as:

- How likely is the current plan to come in on schedule or on budget?
- How much contingency reserve of time and/or money is needed to provide a sufficient degree of confidence?

Why is the Quantitative Analysis used? – As the number of project risks increases (Mid and High Range Projects), the possibility of impacts to the project schedule and cost increases. A quantitative risk analysis is a further refinement to the risk management process which considers numerical values to develop a probabilistic scrutiny of the project. This analysis:

- Quantifies the possible outcomes for the project and assesses the probability of achieving specific project objectives,
- Provides a quantitative approach to making decisions when there is uncertainty, and
- Creates realistic and achievable cost, schedule or scope targets.

How is the Quantitative Analysis performed? - There are several techniques for quantifying risks including interviewing stakeholders to determine probabilities and impacts, sensitivity analysis, decision tree analysis, and simulation with probabilistic modeling (i.e. Monte Carlo technique).

The Project Manager leads the project team in quantifying ranges for cost and schedule risks. Ranges for probability of the risk occurring and the impact to cost and schedule are estimated by determining the “Low” (optimistic), “High” (pessimistic) and “Most Likely” values for the cost and time.

The cost impacts include direct costs only; they exclude any cost of delay. Schedule impacts are expressed in days of potential delay due to the risk. Some risks may not have both cost and schedule impacts.

An example of a quantitative risk analysis could involve an urban widening project that is highly controversial. The FDOT project manager expects there to be considerable public opposition. One public meeting is scheduled to occur during the Phase III design. The project team assesses there is a 60% chance that the opponents to the project could cause a significant redesign during Phase III and that the cost of the redesign would be $400,000 plus a significant delay in the

project schedule. The team determined that the risk could be mitigated through an aggressive public involvement program involving additional public meetings, meetings with elected officials, meetings with other public interest groups, and the preparation of high-end tools such as a fly-through. The cost of the additional public involvement activities is $100,000. The project team expects the aggressive public involvement effort will reduce the likelihood of the opponents causing a significant redesign and associated delay from 60% to 20%. The risk value is reduced by $160,000 ($400,000 x (60%-20%)). In this case, it would be appropriate for the Department to undertake the aggressive public involvement program. The costs associated with the Departments aggressive public involvement program can be included in the cost baseline as the project migrates through the planning process.

When and Why is, the Quantitative Analysis updated? - Team members revisit quantitative risk analysis during the project's lifecycle. When the Team repeats quantitative analysis for individual risks, trends may emerge in the results. These trends can indicate the need for additional risk management action on particular risks or even show whether a risk mitigation plan is working. Annual updates are generally done just prior to the Work Program update.

Risk Response Planning

Regardless of the tool used to identify risk, the real value of the process lies in developing mitigation strategies for the risks identified. By developing a plan to mitigate the risks and then tracking the team's progress, the likelihood of avoiding threats and taking advantage of opportunities increases greatly. Risk Management is an ongoing process. There should be a standing item on the regular team meeting agenda to review the current state of risk items.

Each risk management tool includes the ability to identify and track response strategies for each identified risk. This typically consists of choosing a response approach, assigning responsibility, and then tracking progress. Additionally, costs associated with the response should be estimated.

Each of the risks identified by the team should be assigned to an individual who will be responsible to implement the response strategy.

At each team meeting the Project Manager should go through the Risk Register and get a status from the responsible party. This is especially important at all Milestone meetings.

Risk planning and response is the process of developing strategic options, and determining actions, to enhance opportunities and reduce threats to the project's objectives. A project team member is assigned to take responsibility for each risk response. This process ensures that each risk requiring a response has a known owner monitoring the responses, although the owner may delegate implementation of a response to someone else.

Risk response planning should focus initially on the high priority. The intermediate priority risks can be addressed as time and resources permit. Low priority risks are usually considered acceptable risks and are not usually addressed in a risk response plan (or the response strategy is "accept" the risk).

Risk Response Strategies - A risk response plan should assign a response strategy to each risk considered. The best strategy is a function of the cost associated with the strategy and the degree of remaining risk after taking the action. This is essentially a qualitative benefit-cost analysis. Once a strategy is selected, the Project Manager and team need to update the scope, project cost, and schedule. The strategy needs to be monitored throughout the project to ensure the strategy is in fact effective in mitigating the risk.

Risk response consists of specific options that are available during a particular project development phase to recover project cost or schedule. Typically, each

such option is available only through that particular project phase, and then is no longer available, or its recovery value is substantially reduced, after a particular point. Thus, the risk response is a decision point/strategy to *avoid, transfer, mitigate, or accept* a project risk. Also note the equivalent strategies for opportunities (i.e., *exploit, share,* and *enhance*). The following table includes definitions for each of these risk response strategies. Some actions may use more than one of these strategies. The intent of using these strategies is to spur the development of possible risk management actions.

Implementation of these efforts will require resources (e.g., additional design hours, additional coordination efforts, use of more expensive materials). The results of the management actions will be mitigation of the probability of occurrence of a risk and/or a reduction in the impact. For an opportunity, increase in the probability and impact.

RISK RESPONSE STRATEGIES

For Threats	For Opportunities
Avoid • The Project Manager recommends changing Possible actions include changing the scope, adding time or adding funds. • Remove threat cause or change the project plan to eliminate the risk or protect the project from its impact. • Possible actions include changing the scope, project work plan and/or consultant contract, adding time or adding funds. • Not all threats can be avoided or eliminated, and for others, this approach may be too expensive or time-consuming.	***Exploit*** • Exploit is an aggressive response strategy, best reserved for those “golden opportunities” having high probability and impacts.
Transfer • Change the scope of a proposed or existing contract to transfer the risk to a consultant, contractor, or insurance company. • Find another party willing to take responsibility for its management and bear the liability of the threat. • Ensure that the threat is owned and managed by the Team member or stakeholder best able to manage it effectively. • Usually involves payment of a premium, and the cost-effectiveness of this must be considered.	***Share*** • Allocate ownership of an opportunity to another party who is best able to maximize its probability of occurrence and increase the potential benefits if it does occur. • Allow sharing in the potential benefits (e.g., Construction Value Engineering Proposals).
Mitigate • Reduce the probability and/or impact of an adverse event (threat) to acceptable threshold. • Take early action to reduce the probability and/or impact of a threat is often more effective than repairing damage after risk has occurred. • May require resources or time and is a tradeoff between doing nothing versus mitigation cost.	***Enhance*** • Modify the “size” of the positive risk. • Increase probability and/or impact, and maximizing benefits realized for the project. • If the probability can be increased to 100 percent, this is effectively an exploit response.
Acceptance • When it is not possible or practical to respond to the risk by the other strategies, or a response is not warranted by the importance of the risk, the best decision may be to accept certain risks. • When the Project Manager and the project team decide to accept a risk, they are agreeing to address the risk if and when it occurs. • A contingency plan or workaround plan may be developed for that eventuality.	

Risk Response Examples - The following table provides a few example risks along with various responses:

RISK RESPONSE EXAMPLES		
Phase	**Risk Statement**	**Risk Response**
Design	Inaccuracies or incomplete information in the survey file could lead to rework of the design.	**Mitigate**: Work with Surveys to verify that the survey file is accurate and complete. Perform additional surveys as needed.
	A design change that is outside of the parameters contemplated in the Environmental Document triggers a review which causes a delay due to the public comment period.	**Avoid**: Monitor design changes against ED to avoid reassessment of ED unless the opportunity outweighs the threat.
Environmental	Potential lawsuits may challenge the environmental report, delaying the start of construction or threatening loss of funding.	**Mitigate**: Address concerns of stakeholders and public during environmental process. Schedule additional public outreach.
	Nesting birds may delay construction during the nesting season.	**Mitigate**: Schedule contract work to avoid the nesting season or remove nesting habitat before starting work.
Right of Way	Due to the complex nature of the staging, additional right of way or construction easements may be required to complete the work as contemplated, resulting in additional cost to the project.	**Mitigate**: Re-sequence the work to enable right of way certification.
	Due to the large number of parcels and businesses, the condemnation process may have to be used to acquire right of way, which could delay start of construction by up to one year, increasing construction costs and extending the time completion.	**Mitigate**: Work with right of way and project management to prioritize work and secure additional right of way resources to reduce impact.
Construction	Hazardous materials encountered during construction will require an on-site storage area and potential additional costs to dispose.	**Accept**: Ensure storage space will be available and include disposal costs.
	Unanticipated buried man-made objects uncovered during construction require removal and disposal resulting in additional costs.	**Accept**: Include a supplemental work item to cover this risk.

Risk Assessment Bias - Bias must be recognized and addressed. The goal of risk-factor assessment is to obtain accurate, defensible assessments. As mentioned previously, subjective assessments are usually required to assess risks (likelihood of occurrence and impact) but are subject to bias. Bias essentially comes in two forms:

- "Motivational bias" occurs when someone says something that contradicts what they believe. This bias can be difficult to detect and counter but is often present when participants have a high stake in a project's continued survival or other conflict of interest. It can also occur when experts intentionally inject some conservatism into their assessments or intentionally exclude some scenarios.
- "Cognitive bias" occurs when someone believes something that is inconsistent with the facts. Most people will overestimate what they know about a particular topic, which leads to over-optimism and to underestimating uncertainty.

Risk bias can be addressed by ensuring and facilitating open discussions with Team members during the assessment and encouraging participants to share the basis and assumptions of their input. Project teams tend to be overly optimistic in the early phases of project development. Risk management helps to temper or tamp down this natural tendency.

Responding to Risks - Following identification and analysis of project risks, the project team acts in response to the risks to improve the odds in favor of project success. Ultimately, it is not possible to eliminate all threats or take advantage of all opportunities – but they will be documented to provide awareness that they exist and have been identified. Successful risk response will change/update the risk profile through the project life cycle, and risk exposure will often diminish. Risk response involves:

- ***Prioritizing*** and determining which risks warrant a response and identifying which strategy is best for each risk.
- ***Assigning*** an action to the Risk Owner to identify options for mitigating the probability or impacts of each threat or increasing the probability/impact of an opportunity. The Risk Owner takes the lead and can involve experts available to the project.
- ***Evaluating*** each option for potential mitigation of the risk and cost of implementing the option.
- ***Selecting*** the best option for the project.
- ***Adjusting*** project budget and schedule; justify changes for as necessary.
- ***Assigning*** an action to the Risk Owner to execute the selected response action. The Risk Owner is the lead and may assign specific tasks to other resources to have the response implemented and documented.

If the project team judges that a risk should be accepted, it may assign an action to the Risk Owner to prepare a contingency plan if deemed necessary. Accepted risks should be communicated as necessary to higher levels of management, particularly when there is a "need to know".

Risk Perspective Can Enhance Decisions

When considering risk mitigation methodology:

- Recognize the impacts of the decision;
- The impact of responding to a risk may make sense in the short term (e.g. Saves design costs, allows Team to meet schedule), but risk impact should be considered in context of the entire project.

For example, the impact of a few unknown conditions can affect construction where the window of an environmental activity requires the project to be suspended.

While the direct cost to resolve an unknown condition may be less than the cost of a site visit, *the overall impact of the change may be a significant delay to the contract if not recognized.*

Project Contingency - Even after proactive risk management, there will be residual risks, which FDOT must accept and thus accommodate in the budget and schedule. Typically, this is done by establishing and controlling contingencies for cost and for schedule, over and above the base cost and schedule. These contingencies can be established at various levels of conservatism or levels of confidence in their sufficiency; the higher the level of conservatism, the higher the chance that the contingencies will be sufficient. However, the more funds that must be committed to the project means those funds are not made available for other projects. This underscores the need for a balanced approach, judgement, and big picture thinking.

Monitoring and Control

The implementation and control of a Risk Management Plan consists of three main elements designed to optimize project performance:

1) plans for individual risk reduction actions

2) protocols for contingency management

3) protocols for recovery plans

Because project conditions, and hence risks, inherently change as a project moves through the development process, the Risk Management Plan is intended to be an evolving document, adjusting as the project develops. This in turn requires monitoring (e.g., of the progress and results of specific risk reduction action, of specific risks in the risk register, and of contingency) and periodic updating (e.g., of residual risks, of risk reduction plans, and of contingency requirements).

It is the Project Manager who has the overall responsibility for implementing the plan. The Project Manager will then typically delegate responsibility for various elements of the plan to those who are in the best position to monitor and complete them. The Project Manager will then follow-up to ensure that those delegated elements have been completed. This needs to be done as efficiently as possible to prevent wasting precious resources. For example, it is envisioned that risk management status will be incorporated into regular project status meetings. Similarly, risk management status should be incorporated into project status meeting minutes and distributed in a timely fashion. Delegation and tracking should be as efficient as possible.

Risk Reduction Actions – A set of actions are specified for reducing individual risks. These actions must be successfully carried out to realize any risk reduction, although the actual amount of risk reduction, and typically to a lesser extent their cost and schedule to implement, will be uncertain beforehand. However, such actions can be adjusted (e.g., stopped) as their projected performance or need changes.

Risk Monitoring and Updating - Continuous monitoring by the Project Manager and the project team ensures that new and changing risks are detected and managed and that risk response actions are implemented and effective. Risk monitoring continues for the life of the project. Because project conditions, and hence risks, inherently change as a project moves through the development process, the Risk Management Plan is intended to be an evolving document (and strategy), adjusting and adapting as the project develops.

When and Why is the risk register updated? - Risk identification, and therefore maintaining the risk register, is an iterative process because new risks may become known as the project progresses through its life cycle, previously identified risks are retired, and other risks may be updated. Risks change as the base project evolves, as conditions change, and new information becomes available. Eventually, each risk happens (and is mitigated) or does not happen (and can be "retired"). Generally, specific types of risk can only happen during specific project phases, after which they cannot occur. For example, a design risk will generally occur during the design phase, after which it can no longer occur. If the risk does not happen during design, its chance of occurrence drops to zero, and it can be "retired" after design. Thereafter, a review and discussion of the risk register at the beginning of each subsequent phase of the project is highly recommended.

Risk Monitoring and Updating

Risk monitoring and updating should occur at project status meetings and at the following project development milestones:

- Scoping Field Review
- Design Field Review
- Constructability Review
- Value Engineering
- 90% Plans
- Project status meetings

Risk Management Plan

Development of the Risk Management Plan - Developing a formal risk management plan document is a matter of documenting the process and decisions made throughout the process. As discussed previously, this is a living document which should be updated as the project progresses. Low and Mid-Range projects might use a risk register as the only formal Risk Management Plan, whereas High-Range projects should have a formal Risk Management Plan following the outline provided in the next section. On Major Projects, the Project Management Plan includes the Risk Management Plan and must adhere to FHWA Project Management Plan Guidance: https://www.fhwa.dot.gov/majorprojects/pmp/

What's in the formal Risk Management Plan? - The Risk Management Plan report documents specific actionable items to deal with threats and opportunities. Additionally, it provides a consistent format for assigning and documenting these resources. The plan consists of management actions to:

- proactively mitigate specific high priority risks
- establish and maintain adequate budget and schedule to accommodate remaining risks
- modify the project as necessary if the established budget or schedule is inadequate despite proactive management actions

Risk Management Plan Essentials	
Answer the essential questions about risk management:	
• Who will manage the risk?	• How will they do it?
• What will be done?	• What resources are likely to be required?
• When will it be done?	• What are the likely benefits?

A Risk Management Plan should contain the following items:

1. Introduction (brief project summary with respect to risk management and any notes relevant to project structuring, contingencies, and base assumptions)
2. Risk management strategy and approach
   a. Team member risk management roles and responsibilities
   b. Communication strategy (basic, what are the communication needs and how will each be met)
3. Risk register including
   a. Risk identification
   b. Risk assessment, and analysis
   c. Risk Response Planning (risk owners identified and responsible if a risk is triggered)
4. Implementation strategy (including risk monitoring and updating, information gathering and distribution)
5. Supporting documentation and reports (can include output from risk management workshops, meetings, etc.)

Risk Management Plan Outline - This section contains a general outline for a typical Risk Management Plan. However, on Major Projects, the Project Management Plan (including the Risk Management Plan) must adhere to FHWA's Project Management Plan Guidance: www.fhwa.dot.gov/majorprojects/pmp/

1. **Introduction**
   - Project Name and Location
   - Brief project summary with respect to risk management
   - Potential macro-level risks and any considerations for mitigation/minimization

2. **Risk Management Strategy and Approach**
   - Provide a brief summary overview of the strategy that will be used to manage, mitigate and minimize potential risks, involved with the particular risk.
   - Team member risk management roles and responsibilities
   - Communication strategy – basic listing of communication needs and how each will be met

3. **Risk Register**
   a. **Risk Identification (Reference Risk Model/Register)**
      Using this guide, procedures and risk register model, identify all potential risks.
   b. **Assessment and Analysis**
      - **Qualitative -** Use the techniques outlined in this guide to perform the assessment.
      - **Quantitative -** When necessary, use the techniques outlined in this guide to perform the assessment.
   c. **Risk Response Planning (Reference Risk Model/Register)**
      Determining who, what group or groups will have responsibility for avoiding or mitigating identified risks. Risk owners identified and responsible if a risk is triggered.

4. **Implementation**
   Including risk monitoring and updating, information gathering and distribution.

5. **Supporting documentation and reports.**
   Include output from risk management workshops, photographs, meetings, newspaper articles, community documents (e.g., local government meeting minutes) etc.

How to Use the Appropriate Risk Management Tools

There are many strategies and tools available for risk management. This section describes how each risk management step can be accomplished and documented by the risk management tool. This section will describe these processes and tools: The Risk Based Graded Approach, the Project Risk Register, Qualitative and Quantitative Risk Analysis tools, and Risk Workshops.

Several tools are provided to assist in the identification, analysis, planning and implementing a plan for risk management. The ***Project Managers Toolbox*** contains a risk-based "graded approach analysis" methodology, used to determine requirements for planning and control of the project work effort. This procedure results in an overall risk evaluation for a project, as well as identification of general risk elements within a project. It is a simplified approach to risk analysis.

FDOT Risk Management Tools

FDOT provides access to tools for every cost range risk analysis. The tools correspond to the cost ranges described in ***PMG 240 Risk Management - General***. Risk management on Low Range projects is based on a qualitative analysis where the project team can identify project risks or select applicable risks from a list of common risks (Risk Starter List). This qualitative analysis can be a more detailed expansion of the Risk Based Graded Approach Worksheet. Mid and High Range projects require a greater level of risk management but differ in the level of quantitative analysis required.

The risk management approach strongly encourages project integration and using information from other project evaluation tools and processes. The risk management tools simply help the project team focus on the highest severity risks and to ensure that a risk owner will follow up appropriately. It is important to keep in mind that low severity risks will typically not warrant mitigation or attention.

Risk Management Plan - A risk management plan should identify the risks that need to be managed (the highest priority risks and possibly some or all of the intermediate priority risks) and the selected risk response strategy for each. The plan should include specific actions to be taken and responsible parties. A new risk management plan should be developed at the initiation of each project phase, involving the FDOT Project Managers of the preceding, current and subsequent phase. Plans should be developed early enough to include necessary strategies in the consultant scope of services. A risk management plan will also be a valuable tool in selecting design-build and other innovative contracting methods for construction contracts.

It is a good idea for both the FDOT and consultant Project Managers to develop separate risk management analyses from their own perspectives as part of their preparations for contract negotiations. Managing high-priority risks are valid interests that should be addressed by both parties as part of mutual gains negotiations. The analyses should then be updated after negotiations reflecting any agreements reached.

Risk management plans should be monitored to identify new risks and to ensure that selected strategies are executed and the effectiveness of actions taken are evaluated. Monitoring of the plan should continue throughout the life of a project. Detailed updates of the plan should be made at selected milestones, especially on large projects. It is recommended that the risk management plan be provided to the Value Engineering team prior to the VE workshop.

Risk Based Graded Approach - The most basic type of risk management tool is a Risk Based Graded Approach Worksheet which the project manager uses to grade and prioritize different risk elements. This is the starting point for all projects and it can be completed in very little time. A Risk Based Graded Approach is a process to define, in rough terms, the overall risk value of the project. It should be used by the FDOT Project Manager during the initial scoping phase of the project to assess overall project risk. The Risk Based Graded Approach Analysis is used during project scoping by the

FDOT Project Manager to determine requirements for planning and control of the project work effort. This analysis will maximize project control effectiveness at the lowest cost and assist in identification and mitigation of project risks.

The Risk Based Graded Approach Analysis is a management tool used to:

- Determine where to assign what PM resources
- Helps define the scope for the Project
- Evaluate risk elements based on risk (vs. cost of project)
- Get agreement from all members of the project team

The Risk Based Graded Approach Worksheet should take no more than fifteen minutes to complete, even on the most complex project. The worksheet is completed as part of the project planning process with the total Risk Score included in the project documentation. Completion of the Risk Based Graded Approach Worksheet is a fast way to assess project risk early in the project timeline and should not be used as a substitute for formal risk identification, qualification, quantification, and response planning.

A Risk Based Graded Approach Worksheet identifies and documents values for predetermined risk elements. Identification of a total risk score denotes the probability of any potential impacts on project deliverables and cost/schedule baselines during project execution. Identification of project risk qualifies the possibility of baseline impacts (e.g., not meeting intended functions, internal or external schedule commitments or cost thresholds.

Glossary

Base - Value exclusive of threat and opportunity (i.e., per specific set of assumptions).

Bias - Error in value (e.g., due to conservatism).

Contingency - Value in addition to base cost and schedule intended to cover risks and other uncertainties (e.g., for project cost and for project schedule).

Contingency Plan - A set of predefined actions to be taken when a negative risk occurs.

Impact - Effect or consequence of an action or the failure to take action.

Mitigation - The act of alleviating a harmful circumstance. Risk mitigation seeks to reduce the probability and/or impact of a threat to below an acceptable threshold or to enhance/exploit the probability/ and/or impact of an opportunity.

Opportunity - A risk that will have a positive impact on a project objective if it occurs.

Probability - Likelihood of the occurrence of any event.

Qualitative Risk Analysis – The process of prioritizing risks by assessing the probability and impact of project risks to classify risks as high, medium, and low for prioritized risk response planning.

Quantitative Risk Analysis - The process of analyzing the effects of each prioritized risk and assigning values in terms of cost and time impacts.

Recovery - Actions to reduce project cost and/or schedule (e.g., scope reductions), typically in reaction to exceeding available contingency.

Residual Risk - Risks that remain even after developing responses to the project's original risks.

Risk - A defined uncertainty that can impact the outcome of a project including cost, schedule, scope or quality. A risk has a cause and, if it occurs, a consequence. (Project Risk - An uncertain event or condition that, if it occurs, has a positive or negative impact on at least one project objective.)

Risk Allocation - Placing responsibility for a risk to a party through a contract. The fundamental tenets of risk allocation include allocating risks to the party best able manage them, allocating risks in alignment with project goals, and allocating risks to promote Team alignment with customer-oriented performance goals.

Risk Analysis - process of calculating project performance including risks, and often the sensitivity of that performance to the various risks (i.e., to prioritize the risks for further assessment or for risk mitigation), based on previous structuring and risk identification and assessment. As used elsewhere, sometimes refers broadly to identification and assessment, as well as analysis, of risks, interchangeably with risk assessment.

Risk Assessment - A component of risk management that bridges risk identification and risk analysis in support of risk allocation.

Risk Avoidance - Changing the project plan to eliminate the risk or to protect the project objectives from its impact. It is a tool of the risk response planning process.

Risk Documentation - Recording, maintaining, and reporting assessments; handling analysis and plans; and monitoring results. It includes all plans, reports for the Project Manager and decision authorities, and reporting forms that may be internal to the Project Manager.

Risk Event - A discrete occurrence that may affect a project in either a positive or negative way.

Risk Identification - Determining which risks might affect the project and documenting their characteristics. Tools used include brainstorming and checklists.

Risk Management - The systematic process of planning for, identifying, analyzing, responding to, and monitoring project risk. Risk management involves people, processes, tools, and techniques that will help the project manager maximize the probability and consequences of positive events and minimize the probability and consequences of adverse events. Project risk management is most effective when first performed early in the life of the project and is a continuing responsibility throughout the project.

Risk Management Plan - Documents how the risk processes will be carried out during the project. This is the output of risk management planning.

Risk Owner - A person assigned to monitor the risk(s) and inform the project manager of any changes in the status of the risk.

Risk Register - A document detailing all identified risks, including description, cause, probability of occurrence, impact(s) on objectives, proposed responses, owners, and current status.

Risk Trigger - Symptoms and warning signs that indicate whether a risk is becoming a near-certain event and a contingency plan/response plan should be implemented.

Severity (or risk severity) - a measure of a risk's impact on project performance, e.g., by combining values of changes in cost and schedule due to that risk.

Structuring - process of defining base project performance, e.g., by reviewing/abstracting available detailed project performance estimates, adequately for purpose of risk management process.

Threat - A risk that will have a negative impact on a project objective if it occurs.

This chapter outlines Project Manager responsibilities in Value Engineering Program. Detailed information on Value Engineering process is provided in ***Procedure No. 625-030-002, Value Engineering Program.***

Additional information on the Value Engineering Program, including District Value Engineering Coordinator contacts, please visit the FDOT Value Engineering Program webpage:

https://www.fdot.gov/designsupport/projectreview/valueeng/default.shtm

Value Engineering

Value Engineering (VE) is the systematic process used by a multidisciplinary team to improve the value of a project through the identification and analysis of functions.

PROJECT SELECTION

Since 1995, Congress has required VE to be performed on certain federal-aid projects. The current requirement includes any federal-aid project on the National Highway System (NHS) with total estimated costs greater than $50 million and any bridge project on the NHS with total costs greater than $40 million. The Department has an additional requirement that all projects with an estimated total cost of $25 million or more must have a minimum of one Value Engineering study performed during the development of the project prior to the completion of final design. The districts have the flexibility to study additional projects below the $25 million threshold. Contact the District Value Engineering Coordinator to determine if a project has been selected as a candidate for a Value Engineering review. (Note: The $25 million threshold includes all phases of the project. If a project is close to the threshold, a VE Study should be conducted earlier in the development of the project due to the schedule impacts a VE Study with large changes could create if held late in the project development.)

VALUE ENGINEERING STUDY

The Value Engineering Study, which typically includes a Value Engineering Workshop, is conducted during the Project Development & Environmental phase or the Initial Engineering Design Phase. For the Value Engineering team to provide the best input, they will need the full background and supporting documentation for the project.

The study is most effective when the following information is available:

- All work that was done on the project up to the beginning of the Value Engineering Study.
- Back-up information on which the proposed design is based.
- A comprehensive cost estimate.

Project Manager Responsibilities

The PM is responsible for coordinating with the District Value Engineering Coordinator to determine if their project requires a Value Engineering Study.

The Consultant is responsible for clearly explaining to the Value Engineering Study team the scope of the project and all constraints and commitments.

The Value Engineering Study process often generates many questions that need to be answered during the process. As a result, the Project Manager and the project discipline leaders (subject matter experts) should be available to provide answers or additional information as necessary. Cooperation among the project's design team and the Value Engineering team assures a successful Value Engineering Study.

240 – Budget and Cost Management

This chapter is still under development.

Thank you for your patience.

Project Management Guide

245 Project Communications

245 – Public Involvement

245 – Community Awareness Plan (CAP)

245 – Railroad

245- Public Transportation

245 – Toll Coordination

Community Awareness Plans

Public participation is an important element of all FDOT projects, from planning and PD&E through design and construction. During planning and PD&E, the emphasis is on participation in the decision-making process concerning the need for a project and its basic concepts. In the design phase, the emphasis changes to one of informing the public of the project. People are much more likely to tolerate the inconvenience of a construction project if they understand the need for the work and have good information about the project. Therefore, emphasis during the design and construction phases is on communicating with the community. During design there are also opportunities to work out details of the project to minimize negative impacts.

Each design project should have a Community Awareness Plan (CAP) which will carry forward into the construction phase. The CAP can be developed by the PM, or it can be made part of the consultant scope of services. The CAP should explain the activities which will take place to keep the community informed of the project and to minimize negative impacts. The scope and complexity of a CAP will vary according to the expected community concern about a project. Projects can be categorized into one of four levels of public concern they are likely to generate, as illustrated by **Figure 1**. Phase I of plan development is the most important for CAP activities. Decisions affecting access management, temporary traffic control (TTC), possible interruptions of utility service, and drainage, are almost always of concern to the public. The PM must have a good understanding of the impacts on the community and the concerns and needs of the public. Changes in vertical alignment are likely to create access problems during construction. Drainage during construction can also be affected.

335.199 F.S., requires a public meeting for any project on the State Highway System which will divide a state highway, erect median barriers modifying currently available vehicle turning movements, or have the effect of closing or modifying an existing access to an abutting property owner. Property owners, municipalities and counties must be notified at least 180 days before the design of the project is finalized, providing a written explanation of need to modify access and informed they will be given an opportunity to provide comments to the FDOT regarding potential impacts. At least one public meeting in the jurisdiction where the project is located shall be held to receive public input on how the project will affect access to businesses and the potential economic impact of the project on the local business community.

A CAP should, as a minimum, include the following:

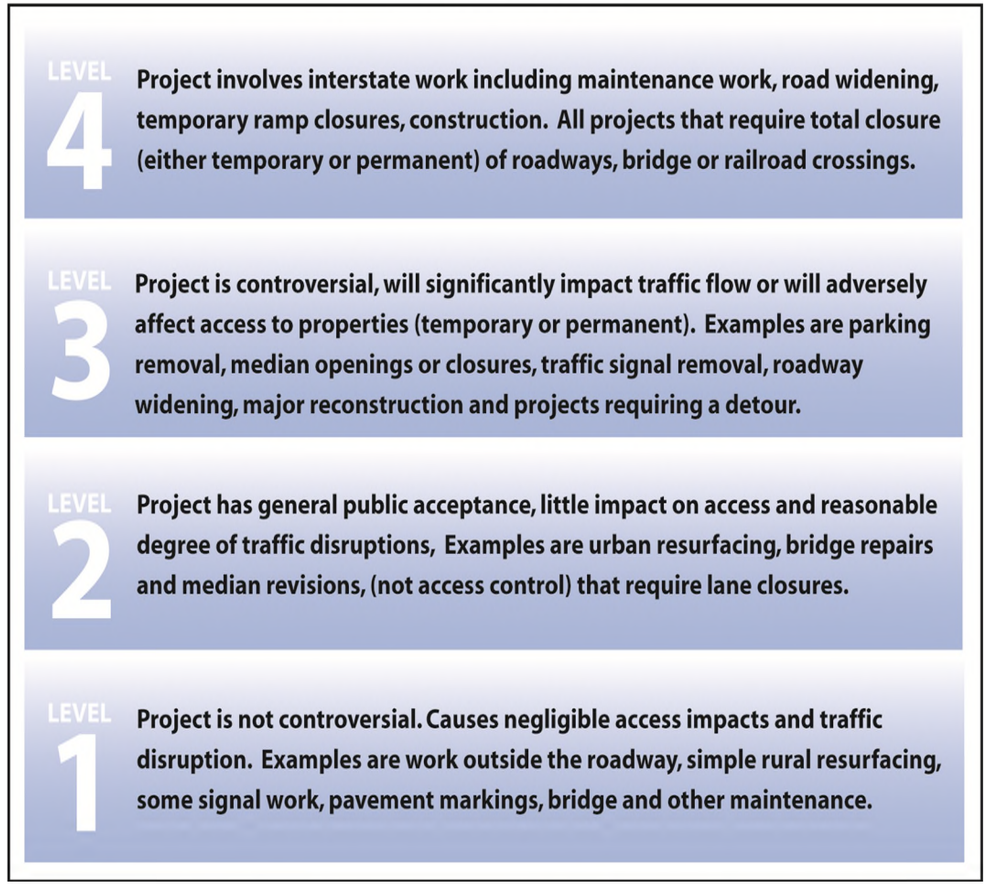
- Date of the plan and each revision.
- Name of person initiating the plan.
- A description of the project and anticipated level of public concern.
- Identification of city, county, and other local officials that may be involved in the project and how they will be kept informed of project activities.
- A summary of expected traffic impacts during construction.
- A description of the community and properties affected by the project.
- A description of any access changes including median construction or revisions and any driveway drive closures or modifications affecting property access.
- A discussion of removal of street parking (if any) and how it will affect adjacent properties and businesses.
- Special features and amenities that will be part of the project, including landscaping and esthetic treatments.
- Construction schedule, contract time and consideration for alternative contracting methods.

- A list of known community concerns and a strategy for addressing each of them. The PD&E Report will be a good place to begin this list.
- A list of all PD&E and right of way commitments made to the public and how they are to be addressed.
- A plan for news media relations (for Level 4 and possibly Level 3 projects), developed in cooperation with the District Public Information Office. A public information campaign may be appropriate for very large projects.
- A summary of planned public information meetings and/or required public hearings.

The media can be of great assistance to FDOT in encouraging citizen input and keeping the public informed about a project. The PM should work with their District Public Information Office (PIO) to develop and implement the CAP.

The PM should be aware of any unique CAP requirements of the District. The ***Public Involvement Handbook*** and ***FDM 104.3*** is an excellent resource to use in developing a CAP. The CAP should be updated throughout the design process and then passed to the construction PM for use during the construction phase.

Figure 1
Community Awareness Plan



Public Involvement

Involving the general public and transportation partners is an important aspect of all FDOT activities, as expressed in ***Policy No. 000-525-050***. Public involvement is part of every step in the development of transportation improvements. Public involvement is not just about holding meetings or issuing press releases. It is about planning and implementing a comprehensive, integrated program to involve the public in transportation decisions.

This is a brief discussion of public involvement for PMs. FDOT published the Department's ***Public Involvement Handbook*** to provide guidance and methods for developing and implementing effective strategies designed to get the public involved in the transportation decision-making process. The PM must understand the importance of including others in the process. Effective public involvement through all phases of the transportation decision-making process is the key to developing an efficient transportation system where projects move forward smoothly. In addition, it leads to transportation improvements that meet community needs and desires, provides for greater acceptance of projects, and enhances agency credibility. Public involvement builds credible and trusting relationships between agencies and with the community. These relationships, in turn, will minimize conflict and help resolve potential problems that may arise when implementing a project. The public is more likely to support and take ownership of a plan or project when given time and opportunity to review information, share ideas and concerns, and observe changes as a result of their input.

The emphasis of these efforts is slightly different at each phase of a project:

- **Planning -** In the planning stages of a project, the emphasis is on engaging the public and transportation partners in defining a transportation need or problem and then identifying a range of solutions for further consideration in later phases. The PM must work closely with local planning organizations and local agencies in this process. The challenge in planning is to keep others interested in a process that involves a very long-term view.
- **PD&E -** The objective of a Project Development & Environment (PD&E) study is to evaluate the natural, human, and physical environment, present alternatives to the public, and develop a preferred alternative that moves forward into the design phase. PD&E public involvement allows people who are directly affected by or interested in the project to provide their input.
- **Design -** The emphasis of public involvement in design is to inform the public of the project and to solicit timely input into design details. This process usually involves close coordination with local governments.
- **Right of Way -** By their very nature, projects that may require acquisition or relocation always involve dealing with the public. Understanding the needs of property owners, residents and businesses impacted is critical to the success of these projects. The Design PM will work with the Right of Way Office in the course of the project.
- **Construction -** Public involvement issues during construction include maintenance of traffic, business access, noise control, and duration of the work. The Communications Office should be involved in any media or communications about the construction project.

Engaging the Public

Regardless of the project phase, engaging the public generally involves identifying the public, preparing an outreach plan, conducting outreach, follow-up, and documentation.

Identify the Public. Public involvement activities must be accessible to anyone who has an interest in the project, regardless of race, age, income level, or disability. The PM must have an understanding of the different populations who

live, work, and travel in the study area, so that communications methods can be tailored to their needs and preferences. Making sure that all interested members of the public are provided the opportunity to have input into our projects also assures that FDOT complies with federal nondiscrimination regulations, including Title VI and Environmental Justice.

Use a three-pronged approach for identifying the public:

1. **Collect data**. Use Census data for results from the decennial survey and the more frequent American Community Survey. Local counties and governments may also have information related to the population within their jurisdiction. The Sociocultural Data Report (SDR), available in the FDOT Environmental Screening Tool, can be used to help you determine the demographic make-up of your project area. It pulls from U.S. Census data and summarizes the relevant data into one report. Contact your District ETDM coordinator for access to the environmental screening tool.

2. **Conduct a field review**. Visit the study area to verify the demographic data collected and any transportation issues that may be present. During this field review, note who is observed in the study area, the types of community services provided, and if there is evidence of languages other than English being used.

3. **Talk to the community**. Talk to local government staff, community leaders, local businesses, and social service organizations. They work with the community every day and could provide valuable insight. Identify people in the community who can help you understand community values and characteristics.

Prepare a Plan. A comprehensive plan is crucial to the success of any public involvement effort, regardless of the project or phase. For PD&E projects, a Public Involvement Plan (PIP) is required. Guidance on PIPs is provided within the ***PD&E Manual, Part 1, Chapter 11***. For design and construction projects, a Community Awareness Plan (CAP) is prepared. Guidance on CAPs is provided within the ***FDOT Design Manual, Chapter 104***. The PIP and CAP are a road map to the activities that will be done. Results need to be described in the final project documents for PD&E projects or CAP for design projects.

Conduct Outreach. The Department encourages multiple ways for communicating with the public. Public involvement activities almost always include public meetings and hearings. However, building relationships with the community through other forms of outreach is essential to supporting the engagement process. A comprehensive summary of available tools and outreach methods is provided in the Public Involvement Handbook.

It is important to distinguish between public meetings and hearings. **Public meetings** are held to share information and obtain input. **Public hearings** are held to present the recommended alternative or design and allow for public comment. Public hearings are required by law for projects involving new capacity, new corridor, and new interchange access.

The Department requires the hybrid format for public meetings and hearings. In a hybrid format, attendees can participate in two ways: either in person or virtually. Hybrid meetings offer people a choice which encourages more participation. The information presented should be the same regardless of how people participate.

Presentations to local government bodies, such as town councils, county commissions, and MPO boards, provide an opportunity to formally engage with elected officials and to get their opinion on the record. There are no advertisement or notification requirements when presenting at a commission or board meeting or for any meeting that is not sponsored by FDOT.

For public meetings or hearings sponsored by the Department, notifications to elected officials, agency representatives, property owners and tenants, and

interested individuals are required. Notification requirements are provided in the PD&E Manual, Part 1, Chapter 11. Additional guidance on preparing for a meeting or hearing is provided within the Public Involvement Handbook.

Follow-up. After the meeting, it is important to acknowledge each comment received. This confirms to the person that their comment was incorporated into the project. Not all comments require an extensive response. For comments where someone is simply expressing their opinion, a simple acknowledgement and “thank you” is sufficient. However, some participants will ask specific questions within their comment. These may require a specific or customized response.

Documentation. Documentation is important for a variety of reasons. Aside from meeting state and federal requirements, documentation lets the public know they have been heard and creates a record for future phases. It also helps the Department retain records in the event of legal actions. It helps ensure that issues, ideas, and commitments are communicated from one phase to the next. After the meeting or hearing, retain an electronic copy of all notifications, meeting materials, comments, and responses.

Public Transportation Coordination

Coordination with the District Modal Development Office (MDO) is necessary on any urban design project. Early coordination can avert design problems such as special Americans with Disabilities Act (ADA) requirements and unique Temporary Traffic Control (TTC) problems associated with bus stops.

Usually, the MDO is also involved with airport coordination. Any project that is in the vicinity of an airport should be reviewed early. Potential problems are locations and elevations of structures, signs, and lighting. The height of construction equipment can also be a problem. Refer to ***FDM 110.5.1*** for project aviation coordination and notification requirements.

Railroad Coordination

When coordinating with railroad companies, it is critical on how and when the coordination process takes place. A few other important aspects must be considered when working with the railroads. All railroads own the R/W that they occupy. Any encroachment on railroad R/W will require a permit from the railroad company. Any permanent use of railroad R/W will require a Use Agreement. Both permit and Use Agreement will normally require compensation and will often involve lengthy reviews by the railroad company.

Refer to ***FDM 220*** and the ***Freight and Multimodal Operations Office*** for additional general railroad criteria information.

Railroad coordination and permitting is a very lengthy process that should be initiated as early in the project as possible. Discussions with the District Railroad Coordinator should be held prior to any direct communication with the railroad in question. Railroads usually allow only their own forces or contractors to perform any adjustments to their facilities. Therefore, the maintenance of traffic plan for the project should include appropriate information for railroad contact personnel and any special considerations that the department's contractor needs to consider for the bidding process or during the actual construction of the project.

When developing a project with a tolling component or impacts to existing tolling operations, the District Project Manager (PM) must contact Florida's Turnpike Enterprise (Turnpike) Program Management Administrator so that a Turnpike Production PM can be assigned. The FTE Production PM becomes the point of contact and engages Turnpike Design, Planning, and Toll Systems disciplines necessary to support the tolling project. The District PM should refer to the General Tolling Requirements (GTR) when proceeding with a tolling project. The GTR explains the toll infrastructure criteria/requirements for all project delivery methods. The GTR has three parts:

Part 1: Contains development and processes

Part 2: Contains design criteria including the content of the exhibits

Part 3: Contains the plans preparation and assembly requirements

Coordinate with the Turnpike Production PM to obtain tolls-related project input for the following activities:

1. Master planning for managed lanes with a tolling component (Express Lanes). Turnpike assists with concept of operations, master signing plans, tolling infrastructure locations, and express lane diagrams and concepts that are compatible with the Statewide Express Lane Software (SELS).

2. Develop District and FTE responsibility agreements for planning, design, construction, and maintenance of tolled facilities. Refer to the Toll Project Responsibility Matrix for use as the basis of these agreements.

3. Develop tolling plans for the corridor and provide recommendations where to toll and whether ramp or mainline tolling should be used.

4. Long range estimate input including construction cost estimates for tolling infrastructure (phase 52) and cost estimates for toll system installation (phase 53).

5. Consultant Scope & Staff Hour Development - Scope and staff hour development of tolling related disciplines for PD&E, design services, and RFP preparation services as well as negotiation support.

6. Stakeholder management support including Turnpike Host and Back Office, District Traffic Management Center, Turnpike management, and public communications.

7. Design reviews and post-design oversight including shop drawing review, Requests for Information/modification support, and Tolls Systems construction management.

8. Develop the overall tolling deployment plan and the associated tolling implementation plans with all related coordination including post implementation reporting.

The District PM must communicate with the Turnpike Production PM who will engage with Toll Systems PM and Tolls Design Administrator through each phase of the project.

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250 Project Closeout

250 – Project Continuity

250 – Project Documentation (Under Development)

Introduction

A Project Manager (PM) must have a primary objective to clearly understand the history of a project and ensure a smooth transition among phases. A typical FDOT project can take many years to move through multiple phases, including Planning, Project Development and Environment (PD&E), Design, Right of Way (R/W), Construction and Maintenance. Throughout a project's life there will be various PMs (both FDOT and consultant) across each of the project phases. Many decisions will be reached, commitments made, and technical details added. Phase-to-phase coordination and hand-off of projects is very important. Valuable work performed in earlier phases must not be lost and commitments must be fulfilled. Each phase, PMs must understand the history of the project, including its conceptual objectives and commitments made in previous phases. Districts may have project continuity policies which must be followed. This chapter provides information for supporting these policies.

In general, a project file should be maintained, which will be handed off between phases. It should contain the original project scoping report, a summary of the key issues which each phase PM faced, references of key documents produced in the project, commitments made, and recommendations of each PM for the next phase.

Commitments (including those made to local governments, permitting agencies, business, property owners, utilities, homeowner associations, and any other individuals and groups) must be tracked through each project phase. If a District has not instituted formal commitment tracking systems for this purpose, each PM should provide a listing of the commitments, including a commitment summary, name of the individual, group or agency making the commitment, and its date and document file reference. The receiving PM must review and honor previously made commitments.

The receiving PM should be identified before the hand-off date. That PM should become an active participant in the project to become familiar with the project and to participate in decisions that will directly affect the next work phase. The receiving PM should consult frequently with the previous phase PM on sensitive and unclear issues to understand the project history, ensure continuity, and avoid duplicate, unnecessary, and inappropriate work.

Phase Hand-Offs

Most FDOT projects involve phases which follow the order: **Planning** – **PD&E** – **Design** – **Right of Way (R/W)** – **Construction** – **Maintenance**. Some exceptions to this are when Construction and Design are combined (Design-Build), when the PD&E phase is omitted (Planning to Design), or when PD&E and Design are combined. A transfer of information from one phase to the next is important for project continuity. On more complex projects, "Pass-the-Torch" (PTT) or "Hand-Off" meetings may be held to discuss the transfer of project information. Some of the key points and best practices for phase-to-phase transitions are addressed in the following sections.

Planning to PD&E. The Planning process discussed in ***PMG 110 – Transportation Planning Process***, identifies transportation needs which drive the Work Program discussed in ***PMG 210***. When a project enters the Work Program, a Project Scoping Report is prepared that includes project objectives, design concepts, schedule, and budget for each phase. This report is the basis of the work program data for the project.

Planning projects are programmed and funded before the identification of specific projects. It is not known at the initiation of a planning study if a project is needed and justified. Not all planning studies identify specific projects; however, many corridor, area, feasibility and conceptual studies result in the recommendation of projects. Commonly, corridor and area studies will identify large-scale

transportation needs, which will later be broken into smaller projects that can be more easily funded and managed. When projects are likely to be initiated as a result of a planning study, the planning report should define the project objectives, establish the need for the project, identify design concepts, identify project limits and provide initial cost estimates. Political, public and stakeholder issues as well as potential environmental issues should be identified.

When a Project Scoping Report is prepared, any corridor, area or feasibility reports available must be reviewed carefully to identify pertinent information. This information will help make the Project Scoping Report as complete and accurate as possible. Appropriate planning studies should be referenced in the Project Scoping Report.

At initiation of a PD&E project, the PD&E PM should carefully review the Project Scoping Report and referenced planning studies and use this information to plan the PD&E project.

Working in conjunction with the Federal Highway Administration (FHWA) and other federal, state, and local agencies, the FDOT developed its Efficient Transportation Decision Making (ETDM) process for streamlining transportation decisions. The process redefines how FDOT will accomplish transportation planning, project development, and permitting within its current statutes and regulations. The ETDM process creates linkages between land use, transportation, and environmental resource planning initiatives. ETDM results in more effective integration of the Planning and PD&E phases and facilitation of project hand-offs.

PD&E to Design. The Design PM (DPM) should be designated before the completion of the PD&E project. The DPM can take an active part in the PD&E project by making an effort to attend public meetings and hearings. These events provide an excellent overview of the project and associated key issues.

The PD&E report and/or environmental documentation will contain the improvement alternatives considered, the selected alternative, anticipated socio-economic and environmental impacts, permitting issues, and projected R/W and construction costs. This information is valuable for planning and scoping a design project. The PD&E PM should consider preparing a design hand-off report that summarizes the key information from the PD&E report and clearly lists all commitments made to local government and permitting agencies, business and property owners, and any other groups. The PD&E PM should remember that PD&E projects are frequently subdivided into more than one design project. Also, gaps of several months or years often occur between the end of a PD&E project and the beginning of a design project. The PD&E PM should assemble a hand-off file containing the original Project Scoping Report, a hand-off report, and either a reference to the PD&E report or the report itself. The PD&E and DPM should meet to ensure hand-off of appropriate information.

Planning to Design. In some cases, the PD&E phase is omitted and a project goes directly from Planning to Design. The DPM should begin building a project history file with the Project Scoping Report, environmental reports and available project conceptual information.

Projects that have not gone through the PD&E phase are relatively small and limited in scope, including safety, minor capacity improvements and Resurfacing, Restoration and Rehabilitation (RRR) projects. The justification for safety projects normally includes a benefit/cost analysis. Adding project features, which result in additional cost, can change the original justification. The budget should be a major consideration in the scoping process. Districts are allocated RRR funds based on a fixed amount per lane mile for resurfacing plus a limited amount for other improvements and upgrades. When these projects are scoped, clearly understanding project objectives and available funds is critical.

Design to R/W. The R/W PM should be involved with a project beginning with the PD&E phase. The R/W PM must be consulted during design and PD&E to ensure that appropriate and realistic R/W impacts and costs are considered.

The R/W phase officially begins during the design phase. Commitments that have been made from the beginning of a project must be made available to the R/WPM.

R/W to Design and Construction. During the R/W process, there must be frequent communications and careful coordination between R/W and Design. Small changes in the design can have a major R/W impact, and R/W commitments must be accounted for in the design. When appropriate, R/W commitments should be shown on the construction plans. A final meeting near the end of the R/W phase should be held to ensure that all issues have been coordinated. Construction should be part of this meeting so that all important R/W issues and commitments impacting the construction project are understood.

Design to Construction. The Construction PM (CPM) should be involved in the design of a project from the outset, and the DPM should continue to be involved through construction completion. The CPM should review the plans at each phase submittal to ensure that the project is constructible. The familiarity gained through these reviews will greatly aid in planning the inspection and engineering efforts required for the construction project.

There should be a formal hand-off or PTT meeting, between the DPM and the CPM. This meeting should include the R/W PM and representatives of all appropriate support offices. Among the key issues to be coordinated are:

- R/W
- Traffic control plans
- Environmental concerns, including permit conditions and requirements
- Utilities
- Public and political sensitivities
- Local agency coordination issues
- All PD&E, R/W, and Design commitments
- Designer's intent for complex issues, pay items, specifications, plan notes, project phasing and restricted activities
- Post-design services on the part of the Engineer of Record, including communication procedures, attendance at construction meetings and contractual issues

Construction to Maintenance. The responsible maintenance professional should be involved in a project from the design phase through the construction phase. The maintainability of a project is an important consideration for both the DPM and the CPM. From a life-cycle perspective, maintenance costs can be a major portion of the total project cost. Expenditures during design and construction that improve maintainability reduce cost in the long run. The responsible maintenance professional and the CPM should perform an inspection of the construction project in the final stages to identify maintenance concerns that can be addressed prior to completion of the project. This inspection is commonly done at 90% complete or sooner. Maintenance should always be invited to participate in the final walk-through inspection before a project is accepted from the contractor. All districts have a formalized turnover process that should be followed at the completion of a project.

Combined Phases. The FDOT frequently contracts for combined phases, such as PD&E and design or design-build. The hand-off between phases that have been combined may not be as well defined as a hand-off of more traditional projects, but the concepts discussed above still apply. When hand-off procedures are not well defined, both the transferring and receiving PMs must ensure that all

necessary coordination has occurred and that the hand-off is well documented. Previous phase PMs must be readily available to respond on a timely basis to questions from subsequent phase PMs.

Project Feedback

Throughout the process, the current phase PM should keep the preceding phase PMs informed of problems that have occurred, with the objective of improving future projects. Many districts have formal procedures to identify lessons learned. An effective technique is to conduct an on-site review after the project has been completed. The PD&E, design, construction, and maintenance PMs should participate. If the review is conducted after the project has been open to traffic from two to five years, the project should still be fresh in the minds of those involved in its development. Maintenance and enforcement personnel will have gained some experience with the project during that time. This review team should evaluate project development, design, and construction and recommend procedures to enhance performance on future projects. Regardless of the technique used, a lesson is not learned until procedural changes take place.

PM Changes

FDOT PM - FDOT projects last for several months or even years. Individuals get promoted, transferred, or they retire and leave the organization. Project continuity is a serious concern when there is a PM change during an active project phase. PMs should keep in mind that they may not finish a project. Therefore, project documentation should be maintained in a manner that will make it easy for a successor to take over. Least project interruption occurs when the PM has been diligent about developing a solid ***Project Management Plan (PMG 110)*** and keeping it current documenting all important activities and decisions, and ensuring that the project files are current, complete and accurate. It is good business to manage a project as if someone else will take it over next week.

As soon as a PM knows that they will be leaving a project, the supervisor should be notified and the project records updated. The new PM should be designated as quickly as possible to maximize overlap time of the two PMs. The Project Work Plan is a good checklist for briefing the new PM on key project issues. Every PM develops a list of personal contacts necessary to conduct project business. This list should be shared with the new PM and personal introductions made. The consultant PM should be notified promptly of the pending change, and the new PM should establish a positive working relationship with the consultant as quickly as possible.

Consultant PM - Consultant PM changes should be handled very carefully since it is likely that the consultant firm was selected in large part on the qualifications of the PM. Therefore, a change in PM has contractual implications. The consultant firm should make every practical attempt to avoid such a change. When it cannot be avoided, the FDOT PM should be notified of the situation immediately. This notification should include a proposed replacement with qualifications equal to or exceeding those of the original PM for approval by the FDOT. In addition, the firm should propose a transition plan, developed with the objective of minimizing negative impact to the project. The notification, name of nominated replacement, and transition plan should be from the firm's principal in charge of the project.

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255 – Post-Design Services

255 – Errors & Omissions

Errors and Omissions (E&O)

Professional Engineers are accountable for the technical accuracy and quality of their work. Mistakes can occur during the design (Consultant EOR) or during construction (Consultant CEI) that are caused by a lack of due care or professional negligence, and those errors can result in substantial construction cost or time overruns. Florida statute obligates the Department to pursue recovery of certain "premium costs" and to incorporate corrective measures to prevent recurrence. A premium cost is the difference that the Department must pay due to the E&O issue that is above and beyond the price of the original work. The process that addresses the recovery of E&O premium costs is explained in ***Procedure No. 375-020-010***, ***Resolution of Errors, Omissions, and Contractual Breaches by Professional Engineers on Department Contracts.***

Project managers (in both construction and design) are responsible for taking action as soon as an E&O issue (or potential E&O issue) is discovered. Once an issue is discovered, there needs to be timely communication between all involved parties to determine a cost effective and timely solution. This timely communication may help minimize premium costs.

The project manager is expected to manage the E&O issues and premium cost recovery. The Resolution Tracking Module within Project Suite (PSEE) is the tool used to manage, track and document each E&O issue. Each district has an E&O Liaison who can assist with or provide guidance for these efforts.

Post-Design Services

The Design scope of services may include minimal post-design services so that the Engineer of Record (EOR) is readily available when needed during construction. Typically, more specific post-design services are negotiated separately on a case-by-case basis, depending on anticipated activities based and the size and complexity of the project.

Both the Design Project Manager (DPM) and the consultant PM should retain a sense of ownership of the project all the way through construction. A good idea is for the EOR to attend the pre-construction conference and weekly construction meetings at least for the first 25% of the construction project. Responsibilities for updating plans and as-builts should be established. Anticipated requirements for EOR involvement should be coordinated with the Construction PM prior to scoping and negotiating post-design services. Construction delays can be very expensive, so responsiveness is extremely important. The EOR contract is managed by the FDOT DPM, so a communication procedure must be agreed to prior to beginning construction. All communications between the construction staff and the EOR can be routed through the DPM. Alternatively, direct communication between the construction staff and the EOR may be the preferred procedure with the understanding that the DPM will be informed of any cost commitments.

Note: Consultant activities involving resolution of their errors or omissions are not post-design services.

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Part 3 Phase Specific Project Management

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310 – Project Development & Environmental

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310 – Scope Development

310 - Contract Management

310 - Communication

Introduction

The ***Project Development and Environment (PD&E) Manual*** provides Project Managers (PMs) with a framework for the consistent development of transportation projects to comply with federal and state laws, regulations, and requirements. The PD&E Manual is the Florida Department of Transportation's (FDOT's) procedure for complying with the ***National Environmental Policy Act (NEPA) of 1969, Title 42 U.S.C. § 4321, et seq.***, and associated federal and state laws and regulations. *NEPA* established a national environmental policy focused on Federal activities and mandated Federal agencies to consider the potential environmental consequences of their actions, document the analysis, and provide this information to the public prior to implementation.

The PD&E PM should follow from scope development through completion of a PD&E study.

State Projects

Project funding sources is one of the primary considerations in defining the PD&E study's process. PD&E projects receiving only state funding are documented by either a Non-Major State Action (NMSA) or State Environmental Impact Report (SEIR) and are approved on the district level. For more information on non-federally funded project delivery, see Part 1, Chapter 10 of the PD&E Manual.

Federal Projects

Projects receiving federal funding, in whole or in part for any project phase, through the Federal Highway Administration (FHWA) are required to follow the PD&E Process that is outlined in Part 1, Chapters 2-9 of the PD&E Manual. Projects receiving Federal Transit Administration (FTA) funding follow the process documented in Part 1, Chapter 14 of the PD&E Manual.

Federally funded projects receive a Class of Action determination based on the significance of the project's impact on the social, physical, or natural environment defined at *40 CFR 1508.27*. The Class of Action determination identifies the level of environmental documentation required for a project, which can be a Categorical Exclusion (Type 1 or Type 2), an Environmental Assessment (EA), or an Environmental Impact Statement (EIS). More information on Class of Action determination can be found in in Part 1, Chapter 2 of the PD&E Manual. Type 1 Categorical Exclusions do not have a PD&E phase. Environmental analysis for Type 1 Categorical Exclusions is completed and documented in a checklist during the Design Phase and approved at the district level.

PD&E

The FDOT project development process includes five phases: Planning, PD&E, Design, Right of Way, and Construction. Application of the PD&E process carries the transportation project from the Planning Phase into the Design Phase. Adherence to the PD&E Manual assures compliance with NEPA and its related laws and implementing regulations, and Executive Orders. The PD&E process gives consideration for:

- Purpose and need of the project
- Avoiding and mitigating potential environmental impacts
- Public and resource agency input for the project

There are three key chapters of the ***PD&E Manual*** that each project manager needs to be familiar with to effectively coordinate project delivery. These chapters include the ***Project Development Process***, ***Engineering Analysis***, and ***Commitments***.

NEPA OVERVIEW

National Environmental Policy Act (NEPA) is a policy followed to use practicable means and measures to create and maintain conditions where man and environment can exist in harmony and fulfill social and economic requirements. NEPA defines a special process that should be followed when evaluating the impact of a proposed activity or developmental action. NEPAs framework consists of:

- Fully describing the project
- Justify the purpose and need
- Study the existing environment
- Describe and analyze project alternatives
- Describe input from citizens, agencies, government, and provide responses
- Announce decision and reason the preferred alternative was selected.

NEPA ASSSIGNMENT OVERVIEW

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) established a Surface Transportation Project Delivery Program that allowed the Secretary of the United States Department of Transportation to assign to certain states the USDOT Secretary's responsibilities under the National Environmental Policy Act of 1969 and the USDOT Secretary's responsibilities for environmental review, consultation, or other action required under any Federal environmental law with one or more highway projects within the State.

The FDOT has assumed Federal Highway Administration's (FHWA's) responsibilities under the National Environmental Policy Act (NEPA) for highway projects on the State Highway System (SHS) and Local Agency Program (LAP) projects off the SHS.

FDOT's assumption includes all highway and roadway projects in Florida whose source of federal funding comes from FHWA or which constitute a federal action through FHWA. This includes responsibilities for environmental review, interagency consultation and other regulatory compliance-related actions pertaining to the review or approval of NEPA projects. Whereas FHWA was previously identified as the Lead Federal Agency, this function is now served by FDOT with approval authority resting in the Office of Environmental Management (OEM).

This streamlines Florida’s environmental review process and project delivery time. Through the NEPA Assignment program, FDOT assumes legal responsibility and liability to ensure compliance with all environmental requirements.

Scoping a PD&E Study

Scoping a PD&E Study is a project development activity that identifies and considers project related issues that may affect quality, cost and schedule, determines the work activities to be performed for the project, and develops or refines key project parameters and requirements sufficient to define the project. PD&E scope development starts at the end of the Planning Phase and helps to focus the project activities on issues that have a potential to impact the project and actions needed during the PD&E phase.

The PD&E PM is responsible for scoping the PD&E Study. The PD&E PM should identify work activities and deliverables and prepare the preliminary schedule to complete the study. During scoping, the PM must work collaboratively with District staff and other project stakeholders to identify project needs and potential issues that will be addressed by the PD&E Study. Early input from the district offices and project stakeholders is essential for developing effective project scopes that consider broader project issues and needs.

Using ETDM to Support Project Scoping

The Efficient Transportation Decision Making (ETDM) process identifies and defines the project issues coordination with resource agencies, regulatory agencies and the public through the Environmental Screening Tool (EST). The ETDM process links Planning and PD&E phases by carrying forward planning products, previous analyses, and planning decisions supporting the project into the PD&E Study. ETDM process consists of a Planning Screen and a Programming Screen. The Planning Screen is used to identify environmental considerations that assist in assessing projects for inclusion or advancement in Long Range Transportation Plans (LRTPs) and the Cost Feasible Plans. The Programming Screen builds on information from the Planning Screen (if applicable) and is considered the start of the PD&E scoping process. A programming Screen should be performed before creating the project scope of services so the screening results can be considered during its development. PD&E PMs are assigned during the Programming Screen and are responsible for working with the ETDM Coordinator throughout the ETDM process. Review the ***ETDM Manual*** for more details about the ETDM process.

Scope of Services Development Tool

Developers of the PD&E Study Scope of Services must have Statewide Environmental Project Tracker (SWEPT) accounts to access the scope development tool. Review the ***Instructions to Prepare Scope of Services*** for more information.

Linking Planning and Environmental Review Process

The PD&E Phase is intended to build on the decisions made and other products developed in the Planning Phase. Planning data and analyses can be included by reference in the PD&E Study, provided they meet conditions.

Alternative Corridor Evaluation Process

FDOT uses the Alternative Corridor Evaluation (ACE) process to identify, evaluate, and eliminate alternative corridors on qualifying projects prior to the PD&E phase. The ACE process links planning and environmental review process. Adoption and use of ACE decisions in the NEPA process is subject to a determination by the Lead Agency. The ETDM screening facilitates the ACE process.

Environmental Considerations

The presence of environmental resources and potential project impacts on the resources must be considered by PMs when developing a PD&E study scope. The PMs must seek input from environmental subject matter experts when developing the scope. Special federal protection is established for endangered species, publicly owned park/recreation lands, historic properties, archaeological sites, wetlands, essential fish habitat, or concentrations of minority or low-income populations. The potential impact to these resources is typically identified during the ETDM process.

Contract Management

The FDOT PM plays a major role in the contract procurement process for the PD&E Study and is responsible for management of the Consultant through the PD&E Study's completion. The FDOT PM is responsible for understanding the FDOT's contract procurement guidelines.

Managing Schedule

FDOT has developed project schedule templates for PD&E Studies by Class of Action to streamline the development of PD&E schedules. These templates are designed to be used only as a guide to support sequencing, implementation, and execution of the Work Breakdown Structure (WBS) for the project. The schedule templates include milestones, specific tasks, and Project Schedule and Management (PSM) codes to allow project tracking.

The PD&E PM must work with the District Production Management Office to create a detailed project schedule using PSM codes from the preliminary PD&E schedule developed during State-Wide Acceleration Transformation (SWAT) kickoff meeting. The schedule must allow for sufficient time to complete work activities, proceed in a logical order, and include review and quality control time.

Quality Management

During the PD&E Phase, the consultant prepares and implements the Quality Control Plan. The consultant PM is responsible for the quality of all submittals, including sub consultants' work.

It is the FDOT PM's responsibility to ensure that the consultant's quality control plan is followed, and to review consultant work products to ensure their quality. The FDOT PM should check the consultant's quality control process, including quality control documentation, marked up reports, and records showing individuals identified in the quality control plan are reviewing documents.

Cost Schedule and Risk Analysis (CSRA) Management

Project risk management is the systematic process of identifying, analyzing, planning for, responding to, and monitoring project risk. Risk analysis performed during PD&E is qualitative where project features are identified and their impact to the scope, schedule, budget, or quality are analyzed and prioritized for further action.

Numerous factors affect the level of effort associated with a PD&E Study, including the project length, complexity, need for additional right of way, controversy potential, project impacts, and the need for mitigation measures. Each of these factors represents a risk to the budget and schedule of a PD&E Study and may be seen after the Efficient Transportation Decision Making (ETDM)screening is completed. Managing the risk associated with each involves recognizing them during the scoping of the study and allocating adequate time in the schedule and funds in the budget to address them. The PD&E PM must document risk factors in the risk register. Additional information on risk management can be found in PMG 240 – Risk Management.

Communication, Coordination, and Public Engagement

The FDOT PM and Consultant PM both have a responsibility to communicate and coordinate with federal, state, and local agencies, other offices within the FDOT, and the public throughout the PD&E Study. Coordination efforts benefit the project's progress in the PD&E Phase and subsequent phases.

Resource and regulatory agency coordination is initiated during the Efficient Transportation Decision Making ***(ETDM) process*** as Environmental Technical Advisory Team (ETAT) members representing various government agencies review and comment on projects during the Planning and Programming Screens. The FDOT PM must continue to coordinate with these agencies, as appropriate, during PD&E.

Public involvement is required in all phases of a transportation project. During PD&E public involvement provides opportunity for input from interested and affected members of the public, local governments, regulatory, and resources agencies, is required by both federal and state laws, as well as FDOT procedure (See ***Public Involvement Opportunities, Topic No. 000-525-050***). See Part 1 Chapter 11 of the ***PD&E Manual*** and the ***Public Involvement Handbook*** for guidance on developing and implementing effective public involvement for transportation projects.

Project Commitments

An FDOT commitment is an obligation to provide a feature, or perform an action, related to a project. Commitments established as a result of the PD&E Study must be documented in the Environmental Document and tracked through ***Procedure No. 650-000-003, FDOT Commitment Tracking***. The PD&E PM must make sure all PD&E documented commitments are recorded on the ***Project Commitment Record (PCR), Form No. 700-011-35*** and transmitted to the Design PM when PD&E is completed. Commitments are also tracked in (Project Suite Enterprise Edition) PSEE.

Re-evaluation

A re-evaluation is performed to determine if the approved Environmental Document remains valid and to document all changes to concept plans prior to advancing a project to its next major phase, primarily right of way acquisition and construction advertisement. The PM in phases subsequent to PD&E should be aware that major changes to the project scope can impact production schedules as this change may require environmental analysis as part of the re-evaluation process.

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320 – Design

320 – Design Project Management – Introduction

320 – Design Project Process

320 – Design Project Closeout

320 – Projects involving Bridge Demolition

320 – Bridge Project Development

320 – Pavement Design Packages

320 – Specifications

Introduction

Many design projects include structures such as bridges, culverts, sign and signal supports, retaining walls, noise walls or perimeter walls. Additional structures design information and references can be found in the ***FDOT Design Manual*** (FDM) and on the ***Structures Design Office website***.

The Project Manager (PM) is responsible for the adequacy of all design submittals and for the coordination of reviews between the Department and the consultant. ***FDM 121 Bridge Project Development*** provides an overview of the structures design process, including the classification of structure, office responsibilities, the development process, phase submittals, and the assembly of the plans.

Structural designs for new construction and widenings are developed under the direction of the District Structures Design Offices (DSDO)in Tallahassee and the Structures Design Office (SDO). Structures are classified as Category 1 or Category 2 based upon design difficulty and structural complexity as defined in FDM 121. The DSDO has total project development and review responsibility for projects involving Category 1 Structures. The SDO has total project development and review responsibility for projects involving Category 2 Structures. For large projects with multiple bridges, review responsibilities will be coordinated between the DSDO and the SDO based on the category of the individual bridge, workload demands, and project make-up. The PM will need to maintain communication with the SDO and the DSDO as appropriate during the project. The PM is also responsible for establishing the schedule of submittals with input from the Engineer of Record (EOR) and either the DSDO for Category 1 projects or SDO Office for Category 2 projects.

Structural designs for repair or rehabilitation of bridges are generally developed under the direction of the District Structures Maintenance Engineer (DSME) and may not include all the following project phases.

Bridge Project Development

Bridge project development normally includes five phases:

1. Bridge Analysis
2. Bridge Development Report (BDR) / 30% Structures Plans Submittal
3. 60% Substructure Submittal / 60% Structures Plans Submittal
4. 90% Structures Plans Submittal
5. 100% Structures Plans and Specifications Submittal.

The required items and level of completeness for each phase submittal for various project types is indicated in tables in FDM.

Bridge Analysis:

The Bridge Analysis is performed during the Project Development & Environment (PD&E) process. The purpose of the Bridge Analysis is to determine the general attributes (type, size, and location) of the recommended bridge. The findings of the bridge analysis must be approved by the DSDO or the SDO, as applicable. The PM must coordinate with the District Structures Design Engineer (DSDE) who will review and concur with the bridge aspect of all projects during the PD&E process in accordance with ***Part 2, Chapter 3*** of the ***PD&E Manual***.

Bridge Development Report (BDR) / 30% Structures Plans Submittal:

The BDR is initiated after location design approval. The purpose of the BDR is to select the optimal bridge type and to establish the basic parameters for final design and detailing. The work necessary to prepare the BDR is determined on a case-by-case basis depending on the complexity of the bridge and other

factors. The DSDE will make the final determination on the scope of work necessary to prepare a BDR.

The BDR Submittal Checklist (***FDM 103, Form 121-A***) contains a list of items that must be included as part of the BDR submittal. The Typical Section Package and Design Variations or Exceptions should be approved prior to approval of the final BDR. Depending on the project, the 30% Structures Plans will be included as an Appendix to the BDR but may be a separate submittal after the BDR.

60% Substructure Submittal / 60% Structures Plans:

The contents of the 60% Submittal depend on whether the bridge is classified as a Category 1 or Category 2 Structure.

Category 1 Structures require a 60% Substructure Submittal, which is a partial plan set. The purpose of this submittal is to communicate essential project information to the Geotechnical and Hydraulic Engineers so that all remaining calculations can be performed using actual structural shapes, loads, and dimensions.

Category 2 Structures require a 60% Structures Plans Submittal (includes both substructure and superstructure).

90% Structures Plans:

The EOR will have resolved all prior review comments and the design and plans production are required to be complete. This submittal requires a completed set of plans, Estimated Quantities Report, design calculations, Final Geotechnical Report, Addendums to Hydraulic Report, and Technical Special Provisions (if applicable).

For Category 1 and 2 Structures, it will be the responsibility of the PM to coordinate a review of the 90% Structures Plan submittal. This review should occur at the same time as the Phase III Plans submittal for the roadway segments of the project. Additionally, for Category 2 Structures, it will be the responsibility of the SDO to coordinate a review of the 90% Structures Plans submittal. The Construction Offices should be given adequate time to perform these reviews. All comments from these reviews are required to be addressed prior to the 100% Structures Plans Stage submittal.

100% Structures Plans and Specifications:

The 100% Structures Plans Submittal should incorporate any remaining review comments and include signed and sealed plans, signed and sealed Technical Special Provisions (if applicable), and the Estimated Quantities Report.

Projects Involving Existing Bridges

The PM may be required to perform additional coordination on projects that involve the following existing bridges as described in ***FDM 110.5***:

1. See ***FDM 110.5.2.1*** for Projects involving existing steel bridges.
2. See ***FDM 110.5.2.2*** for Projects involving existing bridges with asbestos-containing materials.
3. See ***FDM 110.5.2.3*** and ***PMG 320*** for Projects involving bridge demolition.
4. See ***FDM 110.5.3*** for Projects involving bridges over navigable water.

Introduction

The term Design Project Manager (DPM) is a general term used throughout this chapter for the Florida Department of Transportation (FDOT) employee responsible for managing the design of a project. Unless specifically indicated otherwise, PM refers to the FDOT DPM.

PMG 320 provides references and guidance for PMs responsible for designing projects and preparing plans, specifications, and estimates. This covers the knowledge areas needed to manage the design and completion of contract documents for the construction letting of a project in addition to the basic project management knowledge areas.

The complete design process is explained in ***Procedure No. 625-000-002***, ***FDOT Design Manual (FDM)***. A DPM should be familiar with these references. Other useful references include:

- ***Standard Plans for Road and Bridge Construction*** ***(Procedure 625-010-003)***
- ***Drainage Manual*** ***(Procedure 625-040-002)***
- ***Utility Accommodation Manual (UAM)*** ***(Rule 14-46.001 F.A.C.)***
- ***Utility Procedures Manual (UPM) (Procedure No. 710-030-001)***
- ***Basis of Estimates Manual*** ***(Procedure No. 600-000-002)***
- ***Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Florida Greenbook)*** ***(Procedure No. 625-000-015)***
- ***Access Management Guidebook***
- ***Roadway Design Bulletins***
- ***Structures Manual***
- ***Structures Design Bulletins***
- ***Public Involvement Handbook***
- ***Standard Specifications for Road and Bridge Construction***
- ***AASHTO Policy for Geometric Design of Highways and Streets (Green Book)***
- ***AASHTO Roadside Design Guide***
- ***AASHTO Highway Safety Manual (HSM)***

Design Objectives and Criteria

The ***FDM*** sets forth geometric and other design criteria, as well as procedures, for FDOT projects. The information contained applies to the preparation of contract plans for roadways and structures. The DPM must be familiar with criteria and procedures contained in this manual and understand how they apply to the project. The DPM may depend on the discipline designer or specialist to be responsible for the selection and application of the appropriate design criteria; however, the DPM is responsible for ensuring that all disciplines and project activities come together in a set of contract plans for the project.

Many of the activities necessary to define a design project scope and its parameters are outlined in ***FDM 110,*** Initial Engineering Design Process. This chapter describes the expectation in the initial engineering phase, discusses initial data sources and the establishment of the project scope, objectives, budget, and schedule. The DPM should review the information in this chapter before finalizing the scope of work for the project, or prior to preparing a scope of services for any consultant services on the project.

Initial Data Collection

Required data collection should be specifically tailored for each individual project. Defining data necessary to support the design processes established by the project scope is the first step. Sources may vary, including any or all of the following:

- As-built plans and existing right of way maps
- Straight line diagrams
- Project Development & Environmental (PD&E) Reports and environmental documentation
- Planning Studies
- Efficient Transportation Decision Making (ETDM) Program Screen
- Project Concept Report
- Interchange Justification and Modification Reports
- Surveys (ground and/or aerial)
- Geotechnical reports
- Maintenance records for current maintenance rating data
- Field reviews
- Previous studies by others
- Preliminary engineering plans
- Traffic data
- Crash records
- Utility plans and other records
- Local agencies

A good practice before finalizing the scope is to conduct a field review with all the disciplines that might be involved in the project.

When available data have been collected, the additional project data collection requirements should be developed, to include a timeline and deliverables. The DPM should collect all the above information that is available and record it electronically, if possible. Assembled background information can then be presented to the consultant at the Notice to Proceed, meeting to allow a much faster start on the design work. Data collection is best done by a consultant and should be included in the scope of services. Coordination with appropriate disciplines and/or sub consultants should take place early in the process so that all interested parties have a clear understanding of their roles and responsibilities during the data collection phase.

The Design Process

The FDOT design process includes a number of important steps. Key parts to this process are discussed in this section. The PM must know this process and be able to use it effectively.

Verification of PD&E

An important early step is to verify commitments affecting design, made during the PD&E phase as documented in the PD&E and the Preliminary Engineering Reports. Many of these commitments (i.e., landscaping, and other aesthetic enhancements) require local agencies to fund them in whole or in part and also usually written maintenance agreements. The Design Project Manager is responsible for following through with these commitments during the Design Phase.

The design phase may overlap the PD&E phase, which can result in a decrease in production time, efficiencies in data collection, public involvement, engineering design, and better overall project consistency. When overlapping these phases, both the PM and the PD&E PM must work closely to ensure commitments and issues are addressed.

When the Design Phase overlaps the PD&E Phase, the PM must verify the Federal Highway Administration's concurrence with the Location Design Concept Acceptance (LDCA) prior to advancing the project beyond the Phase II (60%) submittal. Work beyond the Phase II submittal is considered Final Design, and Federal Regulations prohibit advancing into Final Design prior to LDCA receipt.

The PM must coordinate with the PD&E PM, or the District Environmental Management Office to ensure the project has received LDCA. The PM will need to convey this information to the District Federal Aid staff in the District Work Program Office if there are federal funds in the design phase. This verification can take place at any point during the design process prior to acceptance of the Phase II submittal.

Phase Submittals and Reviews

Many of the activities necessary to complete the design of a project are outlined in ***FDM 111***. This chapter, the Final Engineering Design Process, describes the activities to prepare contract plans and specifications that can be used to bid and construct the project with a minimum of field changes, delays, and cost overruns. The PM must be familiar with the activities described in this chapter to ensure the proper completion and assembly of a contract plans package.

The PM is usually the person responsible for determining the plan phase reviews required for a project and ensuring that the reviews are completed. The PM is responsible for the adequacy of the design submittals and for the coordination of reviews between the Department and the consultant. *Design Submittals,* ***FDM 120***, provides an overview of most of the various items of information which may be required from different sections or departments during the design process. Projects may not require submittals at all phases to meet project objectives. The PM should determine the appropriate phase submittals for each project. Some reasons to adjust phase reviews on a project include project complexity, production schedules, political commitments, and the availability of information within the specific stage of the project.

The ***FDM***, ***Part 3 and Part 9***, sets forth requirements for the preparation and assembly of contract plans for FDOT projects. The information applies to the preparation of contract plans for both roadways and structures design projects. The consultant, or Engineer of Record (EOR), is responsible for the design plans. However, as already noted, the PM is usually responsible for coordinating the plan phase submittal reviews. *Sequence of Plans Preparation*, ***FDM 301 & 901***,

provides a systematic design process for preparing plans and performing the required phases of review and revision to ensure technically correct and clear plans. The PM should be familiar with the information provided in this chapter.

Some simple projects may need only a 15% and a 90% phase submittal. Sometimes, additional or intermediate submittals may be required to ensure the progress of a project. Examples would be a 15% submittal, usually defined as horizontal and vertical alignment, and a 45% submittal, usually defined as addition of drainage details and design approaches to the maintenance of traffic. Coordination with all potential reviewers for intermediate submittals is important so they understand the purpose and intent of the intermediate phase submittals.

The initial phase submittal should identify need for Design Exceptions and Design Variations, and this information should be updated with each subsequent submittal. Please see the ***FDM 122*** for more information on these important documents.

Submittal requirements should be determined early and included in the consultant scope of services. The Quality Control (QC) plan and sufficiency checklists can be used to ensure the completeness of any particular phase submittal. Refer to ***FDM 124*** for more information on the QC process.

All reviewers do not need to see all phase submittals. To bring conclusion to any submittal, review comments must be addressed and final resolution of any issues achieved. Coordination with all reviewers can expedite the process. Decisions reached should be documented and communicated to the review team.

All review comments should go to the PM, who is responsible for transmittal to the consultant. The PM should identify conflicting comments and resolve them as necessary. A comment resolution meeting may be held to deal with comments and responses that require resolution. The consultant PM should work to resolve all engineering-related issues by Phase II (60%) submittal, especially if the project requires new right of way. NOTE: Districts all use a Web-based Electronic Review Comment (ERC) system to facilitate and manage the review and comment process.

The FDOT PM should manage the review process and ensure that the consultant is not delayed because of late reviews. Likewise, it is the consultant project manager's responsibility to ensure that the project's scheduled review times are not compromised by late or incomplete submittals.

Plans Processing

The PM's objective in a design project is to complete the plans, specifications and estimate (PS&E) so that a contract can be advertised and awarded for the construction of the project. The *Plans Processing and PS&E Submittal Package Revisions,* ***FDM 131 & 132***, describes in general terms the critical activities required to process the PS&E for letting. It identifies the transmittal forms, certifications and other documents prepared by the District and the various offices involved in processing a PS&E package. This chapter also outlines the revision process and the steps to resubmit a project that has been withdrawn from letting. It is also the PM's responsibility to ensure any electronic submittals are checked and comply with the Department's CADD requirements for electronic deliverables.

Specifications: As with other major aspects of a project, the preparation of the project specifications package is an important step. An understanding of the governing order of contract documents will aid in understanding the process. This information can be found in Section 5.2, of the ***FDOT Standard Specifications for Road and Bridge Construction***. The rule of thumb is that the most project-specific documents take precedence over the least project-specific documents. Coordination with the District Specifications Department will aid in the production of this document.

Certain pay items trigger the need for Technical Special Provisions (TSPs) to be generated. TSPs need to be identified as early as possible during the design to allow for proper review prior to final submittal. The TSPs, signed and sealed by the engineer who developed them, are included in the Specifications Package.

Some projects require the use of Developmental Specifications. *Developmental Specifications* are specifications developed around a new process, procedure, or material approved for limited use by the State Specifications and Estimates Office. These specifications are signed and sealed by the FDOT's professional engineer responsible for authorizing their use and monitoring their performance in the field. The PM is responsible for obtaining this authorization.

The current specifications workbook should be obtained from the District Specifications Department prior to beginning the process. Since the development of these workbooks is a continuing process, it is important to have the most recent edition.

Estimates: The estimated cost of construction must be completed at each phase to ensure compliance with the Work Program. The engineering design estimate process is discussed in ***FDM 123***. The engineer's estimate of construction cost and contract time is one of the last activities performed on a design project. To do a quality estimate, the engineer must have the following material available:

- Complete plans, including all components
- Complete specifications, including supplemental specifications and special provisions
- Design Standards, referenced to the key sheet of the contract plans
- Utility work schedules
- Basis of Estimates Manual

The specifications establish the method of measurement, basis of payment, and pay items for work specified. The Master Pay Item List contains design aids, notes, and computation information to aid the engineer in preparing the cost estimate.

Engineer's Report: The engineer's report, often called the Project Design Documentation, should be included with all phase submittals on major projects. It should include information from any project development stages that occurred prior to the design phase along with the backup information and calculations for the project design, correspondence, certifications and overall cost estimate for the project. It should be well organized and referenced so that anyone seeking information from it can find it quickly and easily.

Introduction

Specifications are the preliminary step of all FDOT Contracts such as Construction, Maintenance, Design-Build, and Push-Button.

Design Phases

Before a specification package is started there are certain phases that need to be completed by the Designer and the Project Manager.

- **Phase one -** gets to know the project, understanding what is needed, what will be performed, and the project outcome.
- **Phase two -** identifies the specifications to be used. Determines the need for Modified Special Provisions (MSPs), Technical Special Provisions (TSPs) (sole-source approval if needed), and/or Developmental Specifications (Devs). Consider the Buy America Provisions and review APL.
- **Phase three –** finalizes all MSPs, TSPs, and Devs. Coordinate with District Specifications Office to ensure Legal review on the appropriate specifications. Confirms that specifications correlate with the Approved Product List (APL), Innovative Product List (IPL) or sole-source items.
- **Phase four -** create and submit for review and creates the Signed and Sealed Specification Package using the eBook and Workbook per the Project Letting date. This is specific to each District. Speak to District Specifications Coordinator.
- **PS&E Submittal -** the final Signed and Sealed Specification Package is submitted.

Specification Package

All FDOT contracts contain a Specification Package signed and sealed by the Engineer of Record (EOR). The Specs on the Web application is used to compile the Specification Package and may contain the following:

1. **Supplemental Specifications:** Revisions or additions made to the Standard Specifications. There are two types of Supplemental Specifications.
    a. **General** - Necessary before the next eBook/Workbook. The effective date is included in the Usage Notes. This type of supplemental will be incorporated in the upcoming eBook or Workbook.
2. **Special Provisions:** Pre-approved revisions to the Standard Specifications eBook. Applicable to a project's unique circumstances.
    a. **Modified Special Provisions (MSP):** Pre-existing specifications that have been modified to meet the needs of a specific project; justification require and approved by the States Specifications Engineer.
    b. **Technical Special Provisions (TSP):** TSPs are technical in nature, they address instances and issues that are outside the range of FDOT Specification.
3. **Developmental Specifications:** Specifications that have been developed based on a new process or materials for limited use.
4. **Mandatory Revisions:** Required on a specific date due to safety concerns, statutes, and financial issues. These can be viewed on the Workbook Page and are available in Specs on the Web.

5. **Standard Specifications:** "Standard Specifications for Road and Bridge Construction" is an electronic book, applicable to all Department Contracts containing adopted requirements, setting out or relating to the method or manner of performing work, or to the quantities and qualities of materials and labor.

Alternate Letting Types Specifications

These alternates letting type specifications must be added to the contract. When building the package, these can be seen in the Specs on the Web.

Design-Build Specifications has a Division I boilerplate to be incorporated into the Request for Proposal (RFP) for Design-Build Projects. The Division II and III specification package is to be prepared using the Workbook from Specs on the Web.

Local Agency Program (LAP) used for the structural and non-structural components within the LAP Projects.

Push-Button Specifications are available for all Construction and Traffic Operation Push-Button contracts. They are not used for Maintenance or Design-Build contracts. Push-Button Specifications include:

- Award and Execution of Contract
- Control of the work
- Prosecution and Progress, Contract Renewal
- Maintenance of Traffic.

Maintenance Specifications used for the Standard Maintenance Special Provisions documents in FDOT Projects.

Resources

These resources can be used throughout the FDOT Contracts when building Specification Packages and needing general knowledge towards Specifications.

TSP Library: a library for non-project specific technical special provisions.

Industry Review: proposed revisions to the Standard of Specifications eBook along with comments made about the revisions.

Track the Status: shows the revisions that are currently being reviewed.

Specification Guidance: contains links and reviews to the Specifications Package Preparation procedure, training, and other resources.

Specs on the Web: application used to create the Specifications Package.

Right of Way Requirements

Right of Way (R/W) requirements should be identified as early as feasible in the project. The District Right of Way Office can provide valuable insight to many issues, including maintenance of property access. The awareness they can bring to the design process can save a considerable amount of redesign work and acquisition cost. The R/W office should be consulted from the early stages of design through completion. On many projects R/W acquisition costs exceed the cost of construction. Early involvement of R/W staff will help achieve a proper balance of project objectives and total cost. R/W may be required for utilities as part of the project. Early establishment of utility property rights and R/W requirements is essential to keep the project on track.

Preliminary R/W requirements should be identified at the completion of Phase I (30%). Final R/W requirements should be submitted after completion of Phase II (60%) plans. At this point a field review should be held with the Design PM (DPM), the consultant PM, and R/W staff to ensure:

- Mainline R/W requirements are complete.
- Pond R/W requirements are complete.
- Mitigation R/W requirements are complete.
- Phase II plans are complete.
- Possible parcel modifications have been investigated and resolved.
- Utility easements or R/W requiring subordination are identified.
- Necessary easements are identified.

It should also be noted that the R/W acquisition process usually drives the project schedule, once the R/W requirements have been defined. Therefore, the sooner these requirements are set, the sooner the entire project can be completed. The participation of the District R/W Office is particularly important on a design project with a compressed schedule. The R/W phase can be delayed if the DPM does not identify the R/W requirements on schedule. R/W maps and documents also will be delayed. The R/W process is described in ***PMG 110 & 325***.

The R/W Office sometimes makes commitments (preservation of trees, driveway modifications) to property owners during the R/W process. The DPM must know about these commitments, and they must be reflected in the plans if appropriate.

This chapter outlines Project Manager responsibilities for projects that involve bridge demolition.

Project Manager Coordination Responsibilities

Projects involving the demolition of a bridge require a notification to other agencies of the availability of the resulting debris, if the material is not used by the FDOT. This requirement and the reason for the notification are provided in ***FDM 110.5.2***. The Project Manager must coordinate the notification to Federal, State and local governments of availability of bridge demolition debris for use as shore erosion control or stabilization, ecosystem restoration, and marine habitat restoration. This notification will take place after the completion of the BDR, or 30% plans. The notification will identify the quantity of debris and when the debris will be available (general time estimate, e.g., fall, 2019). The Federal, State, or local government agency must reply within a reasonable time frame to allow for the development of a Joint Project Agreement (JPA).

The following contacts may be used to meet the requirements of this notification:

- Artificial Reef Program in the Fish and Wildlife Conservation Commission at this email address: artificialreefdeployments@myfwc.com
- The Environmental Technical Advisory Team (ETAT) members established within each District to work with the FDOT as part of the Efficient Transportation Decision Making (ETDM) process using the following e-mail distribution lists:

  District 1: d1_etat@fla-etat.org
  District 2: d2_etat@fla-etat.org
  District 3: d3_etat@fla-etat.org
  District 4: d4_etat@fla-etat.org
  District 5: d5_etat@fla-etat.org
  District 6: d6_etat@fla-etat.org
  District 7: d7_etat@fla-etat.org
  FTE: turnpike_etat@fla-etat.org

An example e-mail notification is provided on the ***Project Management Resource Page***. When the ETAT distribution list is used, the sender will receive a copy of the sent e-mail with all recipients shown. If no agency expresses an interest in the material, the disposal of bridge debris will be addressed in the plans in accordance with current guidelines and specifications.

If an agency wants the bridge debris, the Project Manager must coordinate with the receiving agency and the District Construction Engineer to develop a JPA. The receiving agency will be responsible for all additional costs associated with the processing, delivery, placement, and use of the material. The Department's standard Bridge Debris Use Agreement is provided on the ***Project Management Resource Page***. The Project Manager should not modify this agreement or its covenants. The conditions contained in the agreement must be included in the construction contract documents.

Project Closeout

The main aspect of project closeout is to ensure that there are no outstanding administrative or financial issues and to ensure that all appropriate information is passed along to personnel who will be handling the construction phase of the project. It is important for the design consultant PM to submit the final invoice as soon as possible, clearly marked as “final.”

The PM must submit final evaluations for the consultant on a timely basis. At this time, it is a good practice to review the project files to make sure they are in order and complete.

At the end of the design phase, the Design PM should set up a hand-off meeting with the construction personnel so that important information regarding the project can be passed along to those who are responsible for the construction aspect of the project. Issues such as R/W and access agreements need to be covered. Sometimes in the design process, issues arise that may require special attention during construction. It is important to notify construction personnel of these issues before construction begins. Refer to ***PMG 250*** for more information on this hand-off meeting.

Any funds remaining in the design phase need to be un-encumbered so that they can be recycled back into the work program. Additionally, the design phase of the project must be completely closed out on federally funded projects before the post design services can be initiated.

Project Management Guide

325 – Right of Way

325 – Right of Way-Introduction

325 – Pre – Right of Way Activities

325 – Right of Way Phase

325 – Post Right of Way Activities

Introduction

The term Project Manager (PM) is a general term used throughout ***PMG 325*** for the Florida Department of Transportation (FDOT) employee responsible for managing a Right of Way (ROW) phase of the project. Unless specifically indicated otherwise, PM refers to the FDOT ROW PM.

The typical ROW process followed by the Districts does not provide for a PM having overall project oversight. The District ROW Manager typically has in place individual section managers for each of the ROW functional areas (Appraisal, Acquisition, Relocation, and Property Management). Specific project assignments are made by these section managers to members of the individual section who would be charged with performing the duties and responsibilities requisite to that specific discipline in the ROW process. However, on special projects or perhaps unusually large projects, the ROW Manager has the option to assign or contract for an overall PM to oversee a project throughout the ROW process. If such is the case, the PM must ensure the activities detailed in ***PMG 325*** are adequately performed.

NOTE: Although ***PMG 325*** does not contain an exhaustive list of ROW activities, all designated ROW functions must be attended to, regardless of whether a project utilizes a single ROW PM or separate ROW functional area PMs.

Pre-ROW Activities

Before the ROW phase begins, the ROW PM must verify the work program data, plan the project, and procure a consultant, ROW staff or a combination of both.

Verify Work Program Data: The PM should coordinate with the appropriate section in the District ROW office to verify that adequate funding is available in the work program for the project. This procedure requires a comparison of the work program funds with the current project cost estimate to verify that adequate funding is programmed. Programmed funding for the project must also be compared with the project schedule in the Project Scheduling and Management System (PSMS). Adequate funding must be available in the work program for each work program phase and must be available in the year the work under each phase is scheduled.

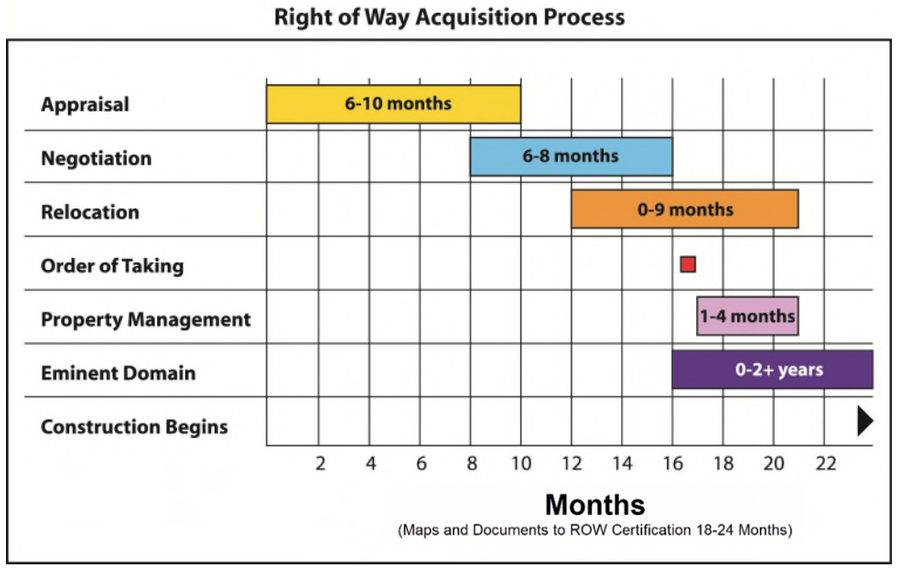
If adequate funding is not programmed for each phase in the year the phase is scheduled, the PM must coordinate with the ROW work program liaison, District Work Program Office and District project scheduling office to resolve funding/scheduling issues.

Plan the Project: The PM must track critical events and activities during the ROW project. ***Figure 1, Right of Way Acquisition Process***, describes the major activities commonly associated with ROW Projects.

It is recommended that prior to the commencement of the ROW project the PM should establish a system to track events and activities occurring during negotiations, relocation, and property management. The tracking method the District chooses is discretionary; but it should include procedures to track events, amounts, and comments. The following list is not intended to be comprehensive or indicative of the exact ROW time period, but to provide a guide to some key events that must be tracked on a parcel-by-parcel basis:

- Delivery of ROW maps, title searches, and conveyance documents

Figure 1



- Appraisal/appraisal review delivery
- Delivery of acquisition notices
- Delivery of initial offers to purchase
- Delivery of eminent domain suit information
- Eminent domain suit file dates
- Eminent domain order of taking dates
- Deposit date of good faith estimate into court registry
- Invoice receipt and approval dates
- Delivery date and amount of any best and final offer

- Date best and final offer accepted or expired
- Agreement dates and amounts including any administrative increase
- Warrant requested/received dates
- Parcel closing date
- Date the Notice to Business Owner was received
- Business damage offer received date and amount
- Deadline date for FDOT to respond to Business Owner's claim/offer
- Delivery and expiration dates of relocation notices
- Relocation payment amounts, approval dates, and delivery dates
- Displacee move dates
- Identification of improvements requiring demolition
- Date of FDOT physical possession
- Dates for asbestos survey and abatement, if required
- Date demolition complete

Procure a Consultant: The initial step in consultant procurement is to develop a scope of services. The PM must identify the broad scope of the ROW project and type of ROW services required. Required ROW services can be determined from review of the current ROW cost estimate, field review of the project, ROW maps, and construction plans. The scope of work must identify:

- The number of ROW parcels to be acquired.
- The interest to be acquired in each parcel (fee, perpetual easement, temporary easement, etc.).
- Vacant parcels.
- Parcels that have improvements located on them.
- Residential parcels.
- Commercial parcels.
- Anticipated business damage claims.
- All displacees by type (residential, business, personal property only, on-premise signs, and so forth).
- Outdoor advertising signs.
- All structures and improvements anticipated to be demolished.
- Any other issue anticipated that may influence the ROW services to be performed.

ROW may detail the anticipated consultant costs in the scope or as a separate estimate for the Professional Services Unit (PSU). Costs should be estimated based on historic hourly rates or unit costs for similar consultant services compared against the estimated hours or unit values required for the project.

As a guideline when developing the project scope of services, the PM might refer to a scope of services previously prepared for a similar project.

The PM must provide a scope of services and estimate to the PSU in order to procure consultant services. For detailed information on consultant procurement and negotiations, the PM should refer to ***PMG 220, Consultant Procurement***, and ***PMG 230, Consultant Contract Negotiations***.

Assign ROW Staff or Joint Staff: Instead of utilizing a consultant, the District ROW Manager may elect to assign ROW services to FDOT staff. The District

ROW Manager or designee will ensure the assigned staff is aware of their duties and responsibilities for the project.

The District ROW Manager may also decide to use a combination of ROW staff and consultants for the project. When joint staff is utilized, the District ROW Manager or designee must ensure that both parties are aware of their roles and responsibilities through the appropriate means of procurement (i.e., assignment for FDOT staff and scope of services for consultants).

ROW Phase

In the Right of Way (ROW) phase, the PM will conduct the kickoff meeting, coordinate with functional areas to resolve issues, provide oversight of the ROW process, and provide oversight of consultant management issues.

Kickoff Meeting: The PM is responsible for scheduling and conducting the kickoff meeting. The scope of the required ROW services will determine the list of invitees. Generally, the kickoff meeting will include the FDOT Engineering PM, Consultant Engineering PM (if consultant designed the project), appraisers and review appraisers, District Appraisal/Valuation Services Manager, attorney assigned to the project, Acquisition Administrator, Relocation Administrator, Property Management Administrator, Certified Public Accountant (CPA), appropriate survey and mapping staff, appropriate drainage staff and appropriate environmental management staff.

At the kickoff meeting the design staff will provide an overview of the design project. All aspects of the project that may impact the ROW phase should be discussed. The following list is not intended to be comprehensive but to provide insight into topics and issues that should be considered during the kickoff meeting:

- Project Design
- Environmental Issues
- ROW Mapping
- Legal Descriptions and Conveyance Documents
- Drainage Issues
- Appraisal Instructions and Issues
- Business Damage Issues
- Legal or Title Concerns
- Relocation Issues
- Demolition Issues

Coordination Issues: If problems arise that will affect timely delivery of appraisals, ROW maps or conveyance documents, the PM must coordinate with the appropriate functional area manager to identify and to the extent possible correct the problems causing late delivery. If attempts to resolve problems causing late delivery are not successful, the District ROW Manager should be advised of the situation.

The PM should coordinate periodic project status meetings. These meetings should include representatives from the consultant and the FDOT in each program area (Acquisition, Appraisal, Relocation, and Property Management). The District ROW Manager should be included as an optional attendee. The project status meetings should be held at least quarterly to discuss and resolve problems or concerns on the project. Other attendees for these meetings will depend on the issues to be discussed. The PM should decide whom to invite.

The PM should periodically ride the project to identify any physical changes, encroachments, or other situations along the project corridor that could impact the ROW project or project schedule.

The Right of Way Process: The following are key issues in the completion of a ROW project:

- **Project Resolution:** The PM must ensure that the Project Resolution has been completed, executed by the District Secretary, and filed in the public records prior to making the first offer on the project. A copy of the Project Resolution should also be placed in FDOT's official file.

- **Acquisition Notices:** The PM must ensure that acquisition notices are delivered to each property owner prior to or simultaneously with the initial offer to purchase. The PM must also be aware that where parcels are affected by ownership changes or design changes, revised acquisition notices must be sent.
- **Relocation Needs Assessment Survey:** The PM must approve the Relocation Needs Assessment Survey. The survey must be completed and approved prior to delivery of the first initial offer for the project. The PM is responsible for ensuring that the Relocation Needs Assessment Survey is comprehensive and complies with procedures.
- **Appraiser's Parcel Inspection:** The PM should ensure that the fee appraiser and the consultant ROW agent physically inspect each parcel. The assigned CPA may accompany the appraiser and agent for parcels that will involve business damages. Typically, the appraiser is responsible for scheduling the inspections and keeping the PM advised of the dates and times the inspections will occur. During the inspection, issues such as whether items are real estate or personal property should be resolved.
- **Identifying Business Owners:** The PM must ensure that all business owners are identified; identification generally occurs at the same time the Relocation Needs Assessment Survey is done.
- **Federal Aid Projects:** The PM must verify that the Federal Highway Administration (FHWA) project authorization has been issued prior to any offers being made on projects with federal aid in ROW.
- **Initial Offers to Purchase:** The PM must ensure that offers are prepared and delivered according to procedures. This step is a pacing event in the ROW process. Initial offers constitute the official initiation of negotiations with the property owner. Eminent domain suits cannot be filed earlier than 30 days after the property owner's receipt of the initial offer.
- **Delivery of Relocation Notices:** The PM must ensure that relocation notices are prepared and delivered according to procedures. These notices inform displacees of their eligibility, rights and responsibilities regarding their relocation entitlements under federal law and FDOT procedures.
- **Delivery of Business Owner Notification Letters:** The PM ensures that Business Owner Notification Letters are prepared and delivered according to procedures. Receipt of these notices initiates the statutory time frame for eligible business owners to file claims for business damages. Business owner notifications must be provided as a prerequisite to the FDOT's eminent domain authority.
- **Review of Documents:** The PM should review the following documents for procedural compliance and timely delivery:
    - Initial Offer Packages
    - Purchase agreements
    - Administrative settlement recommendations
    - Parcel closing packages
    - Warrant requests
    - Suit packages
    - Order of Taking (OT) deposits
    - Relocation claims
- **Review of Business Damage Claims and Counteroffers:** The PM must ensure that business damage claims received from eligible businesses are reviewed by a CPA, a designated expert, or a Business Damage Claims Committee. The PM must also coordinate the FDOT's counteroffer, if any, with the reviewers. Counteroffers or other responses must be timely delivered to business owners who have filed business damage claims.

- **Property Management Activities:** The PM must monitor all property management activities on the project. Asbestos survey, asbestos abatement and demolition of improvements can often become pacing items for the ROW certification for the project. Typically, asbestos activities and demolition are handled by separate contracts with the District. However, the acquisition consultant is usually responsible for coordinating property management activities with the demolition and asbestos contractors, which may require site visits on short notice. The PM must closely monitor this coordination to ensure that ROW parcels are cleared timely.
- **Encroachments:** Another issue that can often become a concern for ROW certification is encroachments within the existing ROW for the project. Items such as signs, backflow preventers, and fencing must be removed prior to certification. Since these encroachments are outside of the ROW acquisition but in the project area, they can be easily overlooked.
- **Final Relocation Notices and Move Verification:** The PM must ensure that final relocation notices have been delivered in accordance with FDOT procedures and that all displacees have moved and have removed their personal property from the parcels no later than the move date on the final notice.
- **Field Files:** When parcels are completed, the ROW agent's field file must be merged with the FDOT's official parcel file. This merger is the agent's responsibility. Usually, the FDOT and the consultant have agreed to a comprehensive Quality Assurance (QA) file checklist that must be completed for each parcel file. File merger may occur as parcels are completed or comprehensively at the end of the ROW project. The PM must ensure the accuracy of the file mergers by spot-checking the official parcel file against the checklist.

  Throughout the life of the project, the PM must be spot-checking the data being input into the ROW Management System (RWMS). This check may be done by comparing a random selection of parcel files with the data in RWMS and by using the exception reports available in RWMS. RWMS data must be accurate and entered timely.
- **Project Certification:** The ROW certification for the project is the statement by the District ROW Manager that ROW activities on the project are sufficiently complete to allow the project to be constructed. In order to certify for construction, title to all of the parcels must be in the FDOT, all displacees and their personal property must be moved and all demolition activities must be completed or included in the construction contract.

  Prior to certification, the PM must do a final field inspection of the project. The inspection should be conducted jointly with the consultant. The PM must also verify that all parcels are in the appropriate status in RWMS by running the RWMS certification exception report.

Consultant Management. For detailed information on consultant management issues, the PM should refer to ***PMG 235, Consultant Contract Management***. The following apply specifically to ROW consultant contracts:

- **Periodic Consultant Invoicing:** ROW consultants normally invoice for their services based on agreed contract production milestones. As milestones are reached for each parcel, the consultant will invoice the FDOT based on a production status report that is maintained by the consultant. The PM must ensure that all activities for which the consultant is invoicing have been completed and have not been previously invoiced and paid. The PM may monitor consultant invoicing against the ROW project tracking system discussed earlier or by relying on the consultant's production management report, or both.

  The PM should periodically spot check the consultant's parcel files against the production management report to ensure that ROW activities being invoiced have been completed as represented on the report. After parcels

are closed, the consultant must provide a comprehensive quality assurance checklist showing all ROW activities on the parcel are complete. The last invoice for the parcel will be based on this comprehensive checklist.

The PM must ensure that all activities on the parcel are complete and reflected accurately in the RWMS as compared against the consultant's parcel file. In some cases, Districts may include incentive payments in their ROW consultant contracts. Incentives may be based on early completion, administrative settlement rate, or other performance measures. For those contracts containing incentives, the funds allocated to the contract to pay incentives must be used for the incentive only. The incentive funds cannot be used to pay for services under the contract.

- **Scope of Services:** The PM must monitor all aspects of the project to ensure that any changes that would expand the scope of the ROW phase are addressed. An example would be a substantive design change that adds parcels to the project. If available consultant contract funds drop below a sufficient level, the PM must coordinate with the District Professional Services Unit and Work Program staff to supplement the consultant contract.
- **Consultant Quality Assurance Plan:** The PM must ensure that the consultant provides a ROW project quality assurance plan to the FDOT within 30 days after the notice to proceed with ROW services is issued. The PM is responsible for the review and approval of the consultant's quality assurance plan. Throughout the life of the ROW project, the PM must spot check the consultant's project files against the approved quality assurance plan to ensure the effectiveness of the plan.
- **Production Status Report*:*** The consultant project status report must track all critical events in the ROW schedule and critical events in the project schedule that impact ROW. The PM must ensure the accuracy of the data contained in the status report and make certain that critical events are occurring in a timely manner. The PM must also ensure that RWMS data entry is accurate. The PM must periodically spot check the accuracy of the data in the status report and RWMS against the consultant's project files.

Post Right of Way Activities

Handoff Meeting: The PM should inform the construction PM of any commitments made during the Right of Way process that may have an impact on construction, such as driveway locations, median, or curb cuts. It is usually a good idea to provide the construction PM a copy of all purchase agreements, deeds and final judgments for the parcels affected by the construction. The complexity and volume of commitments should be considered when deciding whether a face-to-face meeting is necessary and whether other functions such as design should be included.

Project Management Guide

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330 – Connected Automated Vehicles

330 – Statewide arterial Management Program

330 – ITS Communication

330 – Managed Lanes

330 – ITS Software

Connected and Automated Vehicle Initiative

The Connected and Automated Vehicle (CAV) Initiative is focused on implementing and streamlining connected and automated vehicles and emerging technologies for improving safety and enhancing mobility for motorists. The TSM&O Strategic Plan outlines CAV as one of the key focus areas. These technologies include but are not limited to wireless communications, vehicle sensors, and transit signal priority.

Equipment within the Connected Vehicle (CV) is employed to continually transmit a vehicle's position, direction, and speed (e.g., whether turning or braking), as well as other information, to vehicles sharing the road with it, at rates of up to 10 times per second. CVs are capable of "talking" to equipment installed along the road itself and other infrastructure, such as traffic signals, stop signs, toll booths, work or school zones, and railroad crossings. The information shared enables applications to send alerts and warnings to drivers about potential crashes, queues forming ahead, ahead, upcoming work zones, and much more.

Autonomous Vehicles (AV) are vehicles that have advanced sensors (radar, LiDAR, cameras, etc.) and computing abilities to provide steering, braking, and acceleration without the driver's input.

There are three major approaches to CAV communication, generally referred to as V2X (meaning vehicle to everything):

- Vehicle to Vehicle (V2V)
- Vehicle to Infrastructure (V2I)
- Vehicle to Pedestrian (V2P)

The CAV office manages research and pilot projects in order to provide direction and considerations as CV and AV technologies become mainstream.

Vehicle to Vehicle (V2V) Communications:

Connected vehicles are vehicles that can communicate. This allows vehicles to share data on their position and use this data collected to warn drivers of potential dangers. These technologies can warn drivers of cautions that are not seen or visible to sensors.

Vehicle to Infrastructure (V2I) Communications:

Vehicle to Infrastructure connected vehicles will allow the vehicle to communicate with traffic management centers. This communication can be used to update drivers on weather, traffic, and work zones.

Vehicle to Pedestrian (V2P) Communications:

Vehicle to Pedestrian connected vehicles will allow the vehicle to communicate directly with the pedestrian or multiple pedestrians within close proximity. In addition, communication can be to other vulnerable road users, such as cyclists.

CAV Business Plan

A CAV Business Plan has been developed by the Department for deploying technologies statewide. This plan was initiated by the FDOT Statewide Traffic Engineering and Operations Office and adopted in January 2019. The CAV Business Plan provides the framework to create a comprehensive, statewide approach; particularly important in a decentralized organization like FDOT, and intended for use by all stakeholders. The approach addresses planning, research, design implementation, maintenance, and operations, and is geared toward the Systems Engineering process.

CAV Projects and Initiatives

Initial pilot projects have been deployed across the state as examples of how CAV could be incorporated into infrastructure. The CAV website provides the planning, design, and operational stages of these individual projects and initiatives. Project managers should review the website to familiarize themselves with available technologies and training resources.

CAV initiatives may be included into larger Construction or Maintenance projects. Some aspects of managing a CAV efforts may differ from other project types. For example:

- CAV devices may not always be on the FDOT Approved Products List (APL). In these cases, the project manager will need to coordinate with the respective Districts' TSM&O Engineers within the Traffic Engineering and Operations Office to go through an approval process with FDOT's Traffic Engineering Research Laboratory.
- There may be extra emphasis placed on acceptance testing as some devices may not be on the APL.
- Additional coordination with the Central Office may be needed - for example, FCC cellular vehicle-to-everything (C-V2X) licensing, onboarding on to the statewide Vehicle-to-everything Data Exchange Platform (V2X DEP) etc. The project managers are suggested to work with the District TSM&O engineers to get the requirements that should be incorporated into the project procurement packages as requirements for the contractors and device manufacturers to meet.
- Close coordination is needed with the Traffic Operations Office.

CAV Training Resources

Training and additional resources continue to be developed and refined. Please continue to check the CAV Website for updates. Trainings and resources include:

- Guidance for Assessing Planning Impacts and Opportunities of Automated, Connected, Electric and Shared-Use Vehicles

ITS Communications

Intelligent Transportation Systems (ITS) Communications supports telecommunications related to ITS deployment and operations. The program administers contracts and monitors performance using the Communications General Consultant (CGC) contract as well as stand-alone contracts.

Work includes maintenance and upgrade of existing statewide communications systems leases and operating agreements for public/private partnerships for wireless tower development, statewide fiber optic network deployment and tower co-location requests. The following are the responsibilities for the ITS Communications through transportation systems and operations:

- Guide deployment of a communications backbone to serve ITS deployments on major corridors
- Manage and update the Florida ITS Operations Network to support ITS deployments
- Manage the maintenance program for the Florida ITS Operations Network to support ITS deployments and various ITS research and development initiatives
- Manage the Federal Communications Commission statewide radio license database
- Manage the Wireless General Manager Agreement, a resource sharing public/private partnership which places commercial wireless carriers on FDOT rights of way

For more information on the ITS Communications Program, please contact the State ITS Communications Administrator at:

its-communications-administrator@dot.state.fl.us

ITS Software

Intelligent Transportation Systems (ITS) Software includes several programs utilized by Traffic Operations and Maintenance. The largest is the State's Advanced Transportation Management System software known as, SunGuide®.

The SunGuide software system is used for freeway and incident management, interoperability of the Department's Regional Transportation Management Centers (RTMCs),), and data archiving. SunGuide works in companion with the Statewide and Regional ITS Architectures to manage and promote integrated regions, corridor, and projects. SunGuide provides unified ITS traffic data and information and management systems for the state of Florida. This website contains the programs coordinated through the SunGuide Software and Architecture.

The Statewide Express Lanes Software (SELS) is the program used in operation of managed lanes. It takes inputs from SunGuide (Vehicle Speed, Volume, etc.) and the District RMTCs to calculate toll amounts, set tolling schedules, post messages to dynamic message signs, and more.

Florida 511 is the Department's Advanced Traveler Information System. It provides real time traffic information including a real time traffic map with travel times, traffic incident details, weather observations and traffic cameras.

The ITS Facility Management (ITSFM) software is used by the Department to share accurate ITS information with FDOT Districts, Florida Tolling Authorities, city, and county transportation departments. The Data Integration and Video Acquisition System (DIVAS) software enables FDOT to share data and video images between districts, the central office, and other agencies.

FDOT is implementing a statewide Lane Closure Notification System (LCNS) to share lane closure information with then national Work Zone Data Exchange (WZDx) and with private traveler information service providers.

District Offices also work with local traffic signal operating agencies to implement Advanced Transportation Management System (ATMS) software to provide central control of traffic signals. Some districts are also developing and supporting decision support system (DSS) software to assist with active arterial management (AAM) and/or integrated corridor management (ICM) systems.

It may be necessary to use modified special provisions (MSP) or technical special provisions (TSP) to procure software, software updates, integration, and/or configuration.

Systems Engineering for TSM&O Projects

The Department's System Engineering and Intelligent Transportation Systems (ITS) Procedure #750-040-003, or "***Procedure***," covers systems engineering analysis requirements for federally funded projects with ITS or TSM&O elements. Figure 1 from the ***Procedure*** is a pictorial description of the systems engineering process.

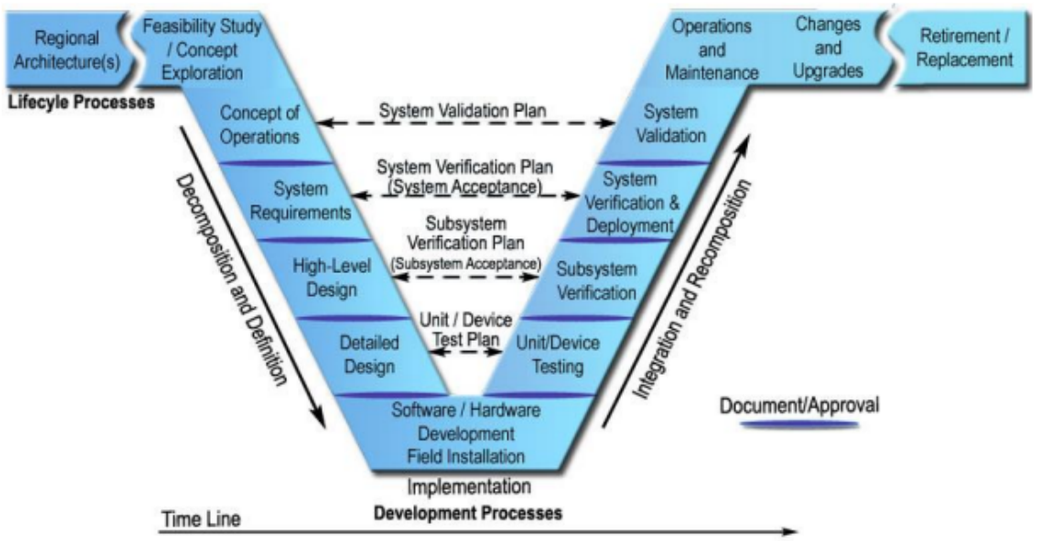


Figure 1: Typical Systems Engineering Process Depicted as a Vee Diagram

The ***Procedure*** recommends tailored systems engineering analysis based on project risk and complexity. The ***Procedure*** requires Project Managers to confer with the District TSM&O Program Engineer to determine the level of systems engineering analysis for federally funded projects and for complex or high-risk state or locally funded projects. Complex and high-risk projects typically involve one or more of these attributes: multiple agencies, custom software development or updates, cutting edge or emerging technologies, new information flows or interfaces, system requirements needing further development, operating procedures needing further development, and/or planned use of end-of-service life technologies. Systems engineering analysis includes completion of these two forms, as a minimum:

- Project Risk Assessment and Regulatory Compliance Checklist (FDOT Form #750-040-005)
- Systems Engineering Project Checklist (FDOT Form #750-040-006)

Other systems engineering documents that may be required for high risk and complex projects are listed below. FDOT provides templates for these and other systems engineering documents on the Systems Engineering website. The Project Manager should ensure the proper level of systems engineering analysis is included in scopes and schedules for consultants and/or construction contracts.

- Concept of Operations (ConOps)
- Regional Concept of Transportation Operations (RCTO)
- Project Systems Engineering Management Plan (PSEMP)
- Requirements Traceability Verification Matrix (RTVM)
- Requirements Validation Plan
- System Verification Plan

As depicted in the Typical Systems Engineering Process diagram, above, a Regional ITS Architecture (RITSA) is the first step in the systems engineering Vee Diagram. The Statewide Intelligent Transportation Systems Architecture (SITSA) and the RITSAs represent a shared vision of how each agency's ITS elements work together now and, in the future, share information and resources to provide a safer, more efficient, and more effective transportation system for travelers in the State of Florida. The latest versions of the SITSA and the seven RITSAs are posted at https://teo.fdot.gov/architecture/. For each TSM&O project, as new stakeholder roles, ITS services, ITS projects, and/or interconnects are identified or as project features are completed, the Project Manager should submit an ITS Architecture Change Request Form (FDOT Form #750-040-04) to document changes to the SITSA or RITSA. The form is submitted to the District TSM&O Program Engineer

and the Central Office. The ***Procedure*** describes roles and responsibilities for use, maintenance, and updating the SITSA and RITSAs.

ITS Training Resources

- Developing and coordinating ITS training enhances the quality and quantity of the state's ITS workforce. Transportation Systems Management and Operations (TSM&O) and ITS training links are provided on the website. Some of the courses provide Professional Development Hours (PDHs) for professional engineers.

The ITSFM program has a library of available trainings on its website. For more information please contact the FDOT ITSFM Staff at: FDOT-ITSFM-Trainer@dot.state.fl.us

Managed Lanes

Managed Lanes are employed in State Highway facilities or a set of lanes where operational strategies are proactively implemented and managed in response to changing conditions. Managed Lanes provide benefits such as: travel choices, predictable travel times, congestion management, reduced fuel consumption, decreased air pollution, and support transit usage. In Florida, Managed Lanes networks have been implemented in several high traffic areas throughout the state to help relieve congestion, improve safety, and provide users with travel options. Managed Lanes help motorists get where they need to go, safely, efficiently and hassle free. Additional information may be found on the Manage Lanes website.

Resources

Extensive materials covering Managed Lanes are located on the Managed Lanes Systems Implementation Office SharePoint. These include:

- Managed Lanes Project Lists
- Presentations
- Research Reports

Managed Lanes Guidebook

The Managed Lanes Guidebook provides guidance for implementation of the Department's ***Managed Lanes Policy, Topic No. 000-525-045***. This Guidebook is intended to be used during the development, implementation, and operations of managed lanes on the following facilities:

- Interstate System
- Florida's Turnpike Enterprise (FTE) System, and
- Non-interstate limited access facilities on Florida's State Highway System (SHS)

Managed Lanes Coordination

When a project involves Managed Lanes, additional coordination is required by the project manager with the Managed Lanes Planning Team. See the ***Managed Lanes Guidebook*** Chapter 2.

When implementing tolling on managed lanes, coordination with Florida's Turnpike Enterprise is facilitated by the Managed Lanes Planning Team. See the ***Managed Lanes Guidebook*** Chapter 6 and ***PMG 245*** (Communication on Tolling Projects) for implementing tolling on managed lanes.

Statewide Arterial Management Program

The Statewide Arterial Management Program (STAMP) supports the implementation, management, and operations and maintenance (O&M) of performance-based arterial networks. The goal of the program is to achieve increased throughput, efficient multi-modal operation, reduced travel time, increased traffic and bicycle/pedestrian safety and increased system uptime outcomes envisioned in the Transportation Systems Management & Operations (TSM&O) Strategic Plan.

The STAMP Action Plan was developed by the Department to provide outcome based actions intended to guide the collective arterial management efforts of the Department in collaboration with its partners. The STAMP Action plan has five focus areas including infrastructure upgrades, data management, performance measurement, emerging technologies, and operations and maintenance. More information about the STAMP can be found on the STAMP website.

Arterial Projects and Strategies

Projects that build and support arterial operations and management include:

Traffic signals – Installation of new traffic signals.

Traffic signal update – Replacing some or all components of a traffic signal at an intersection to bring them up to the operations needs for the current intersection traffic needs.

Traffic control systems – Refers to an interconnected set of traffic signals that provides for progression through intersections.

Arterial traffic management – Traffic signal systems that provide for the safe and efficient movement of traffic along arterials. These systems are characterized by the interconnection of signals and the use of computers to implement traffic patterns to maximize the throughput of traffic. These systems have the capabilities to receive information from the street through detectors that are either imbedded in the pavement or mounted on the side of the road to make decisions regarding the proper traffic pattern to implement to best move traffic. These systems may include the use of CCTV cameras to monitor the traffic, dynamic message signs to provide feedback to the public, preemption for emergency vehicles, and prioritization for public transit.

ITS communication systems - Projects include the planning, design, deployment, and integration of communications infrastructure that support ITS.

These projects may support major arterial management strategies such as :

Active Arterial Management (AAM) – The practice of monitoring roadways with the goal of identifying crashes, causes for corridor congestion, and maintenance issues that are impacting safety and mobility.

Integrated Corridor Management (ICM) – The practice of coordinating the management of freeway and arterial traffic operations along a corridor to divert traffic in response to nonrecurring congestion. This may involve implementing technology systems to enable associated traffic signal needs.

Automated Traffic Signal Performance Measures (ATSPM) – A system that monitors signal performance by logging real time measures. It also uses tools to evaluate this data and support signal management, operations, and maintenance.

Arterial Management Coordination:

- Coordinate project scope with District Traffic Operations and Traffic Design Offices to identify their current activities and any other considerations which could be evaluated for incorporation.
- Closely coordinate with local agencies on preferred detection technology and other ITS infrastructure preferences they have that meet FDOT standards. On most of the non-limited access State Highway System (SHS) the Department has an agreement with these agencies to be compensated to lead the operation and maintenance of the traffic signal control devices. See the following section.

Traffic Signal Maintenance and Compensation Agreement

FDOT partners with local agencies for the maintenance of traffic signal systems through the Traffic Signal Maintenance and Compensation Agreement (TSMCA). This agreement provides details on maintenance needs, associated compensation for the traffic control devices, and provides for the local agencies to complete repairs to damaged devices from crash or force majeure events.

Training Resources

Useful training on STAMP and other Traffic Operations topics can be found here.

Project Management Guide

335 – Construction

335 – Construction Project Management Introduction

335 – Construction Engineering and Inspection Contracts

335 – Alternative Contracting Methods

335 – Warranty Specifications

335 – Plan Revisions

335 – Permits and Other Commitments

335 – Alternate Designs

335 – Coordination with the Engineer of Record

335- Construction Quality Control Testing

335 – Coordination with the District Maintenance

335 – Project Closeout

Introduction

The term Project Manager (PM) is a general term used for the Florida Department of Transportation (FDOT) employee responsible for managing a construction project. Unless specifically indicated otherwise, PM refers to the FDOT Construction PM, throughout the Project Management Guide (PMG).

This chapter deals with project management from the perspective of the PM and consultant Construction Engineering and Inspection (CEI). Both, the PM and the CEI must concentrate on the four goals of a successful project:

1. Fulfill overall scope of the project
2. Complete the project within the time specified
3. Complete the project within the allocated funds
4. Complete the project to the level of quality specified by the contract documents

Of these goals, the one that lingers longest after job completion is the quality of construction, and it should not be sacrificed for the sake of the other three.

Perhaps more so than for any other project phase, fiscal responsibility must have a high priority on a construction project. The PM is responsible for ensuring the CEI decisions follow FDOT guidance and procedures. In addition, they do not violate Florida Statutory guidelines and limitations. Projects must be managed properly in every respect. Accurate and complete documentation is imperative.

Construction Contract Management

The PM manages construction contracts either directly or through a CEI consultant. The PM may be responsible for more than one construction project. FDOT out-sources management of many of its construction contracts; however, it still manages a select few with its own in-house staff. For contracts with in-house staff, the PM will manage the contract directly using consultant inspectors. These are called hybrid contracts. For most construction contracts, FDOT competitively selects consultant firms to provide CEI services on a specific construction project or group of construction projects. The CEI consultant furnishes a team of engineers and inspectors fully qualified for and certified in all areas related to their responsibilities, including sampling, testing, and inspection. A Senior Project Engineer oversees the CEI team and is responsible for coordination and monitoring contract progress on behalf of FDOT. The Senior Project Engineer may oversee more than one construction project.

It is important for both the Senior Project Engineer and the PM to remember that the contractor is ultimately in charge of the construction effort. The contractor is obligated to provide the means, methods, and resources, such as labor, equipment, materials, and sub-contract services, and to complete the job as specified in the contract documents. It is important to establish a positive working relationship through a Partnering Program, when included in the contract (pay item 999-16), or similar means at the very outset of the job. For additional information on partnering, refer to the ***Partnering Facilitators Manual***. Communication, trust, documentation, and coordination are just a few of the key ingredients that go into managing a successful project, as shown in Figure 1, Elements in

Figure 1
Elements in Managing a Successful Project

CEI Contracts

A construction project has three entities working together to achieve the project objectives of timely completion, within budget, and a quality product: the FDOT, the CEI, and the contractor.

The PM should concentrate on the performance of the CEI firm by being involved in the selection process, defining the type and number of personnel needed, qualifications required, and other important selection criteria. The PM should see that the selected CEI team is brought on board at the appropriate time and is fully familiar with the requirements of the contract and the scope of services. The PM is responsible to review invoices and the schedule and costs of the CEI. The PM should coordinate with other FDOT resources and make decisions outside the CEI scope as necessary. The CEI does not have the authority over R/W or Utility conflict issues.

The ***Contractor's Quality Control website***. The ***Construction Project Administration Manual (CPAM)*** and **Scope of Services** describes CEI responsibilities in detail. The CEI must report any actions on the part of the contractor that raise suspicion of illegal or inappropriate activities. The CEI is responsible for ensuring the necessary staff and resources are available to complete the contract.

The Senior Project Engineer is ultimately responsible for the CEI contract and will report the contract progress to the PM. The Senior Project Engineer manages situations when things do not go as planned. For example, schedules are delayed, costs tend to overrun, the contractor files notices of claims and unexpected site conditions are found on the job. The Senior Project Engineer must overcome these obstacles while protecting the interests of the Department. Problems can be avoided or minimized by looking ahead on a project to anticipate possible problems and identifying potential solutions.

The Project Administrator (PA) must be involved with the construction contractor on a day-to-day basis from pre-construction activities through project completion and final acceptance.

Scheduling the CEI Contract

The time to bring the CEI on board will vary according to the type of construction contract, i.e., design-build, conventional (unit price), lump sum, etc. The PM should decide the appropriate level of involvement in any pre-letting activities such as plans review and comments, determining contract duration and recommending appropriate alternative contracting techniques. The CEI firm's input in the early stages of a project can result in a more constructible project and lower construction cost.

The Work Program establishes the bid-letting date well in advance. Following this date, the contract is generally awarded within 20 days. The contractor executes the contract documents within 10 days following award of the contract. Once the contractor returns the contract documents, the FDOT has 5 days to execute them. The construction contractor's Notice to Proceed (NTP) is generally issued within 20 days following contract execution by both parties.

Managing a **Successful Project**. Both the PM and the CEI must work together ensure success.

There are many guidelines and manuals describing the relationships of the FDOT, CEI, and the contractor. These relationships will differ slightly from job to job. Both the Senior Project Engineer and the PM must be very familiar with all contract documents. Reading and understanding them is essential. Two additional documents that must be thoroughly understood are the ***FDOT Standard Specifications for Road and Bridge Construction***, and the ***Construction Project Administration Manual (CPAM)***. For more information see the ***Construction website***.

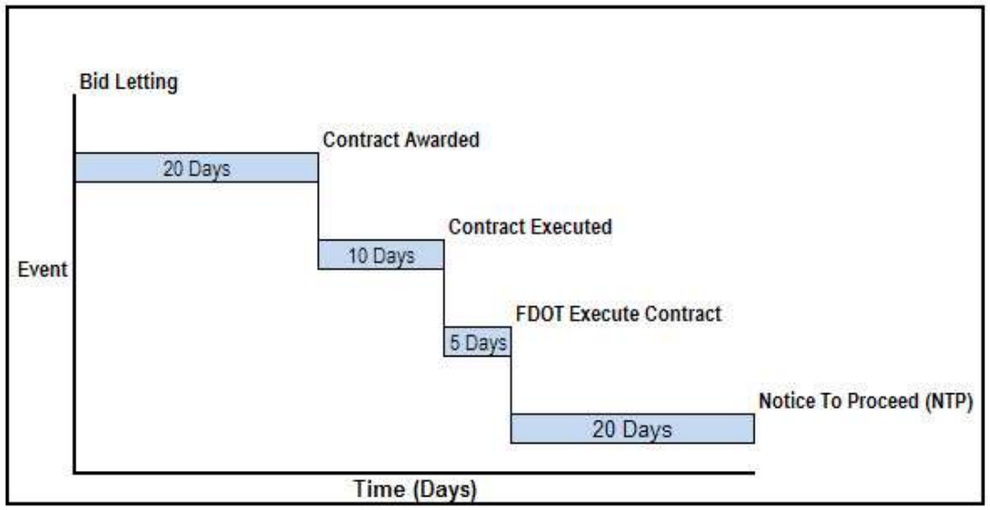
Alternative Contracting Methods

The method of contracting work on a particular project will, to some extent, dictate how the project should be managed. The FDOT has experimented with and continues to practice various methods of bidding for and awarding a construction contract to achieve a specific goal. Detailed information on alternative contracting methods can be found on the Construction Office website under ***Alternative Contracting***, and the ***Contractor's Quality Control website***. The ***Construction Project Administration Manual (CPAM)*** ***Section 1.2***. ***or 6.2***. FDOT has used the following methods of project delivery in the bidding and awarding process:

- **Conventional (Unit Price)**: This method is the most common FDOT delivery method. Both the construction time and quality are specified, and unit prices are established in the bid for various items of work. The total cost is determined by extension using estimated quantities. Final costs are based on physical measurements of the quantity of work performed in each item of work or plan quantity (see ***Standard Specification 9-3.2***).
- **Lump Sum**: Time and quality are established in the bid documents, but the bidder determines the quantities of work and the cost and submits one bid price for all work required. This type of contract eliminates the need for final measuring of the job quantities.
- **Design-Build** (D-B): This method is based on a selection procedure that considers qualifications, costs, and other factors. The contractor is responsible for design. The major benefit of D-B is a significant reduction in the overall project delivery time that results from the overlap of design and construction. Demands on the PM and the CEI increase for this type of contract, both in the selection process and the actual monitoring of the contract. Since the contractor is responsible for design, Quality Assurance/Quality Control (QA/QC) must be emphasized. D-B Project Management is discussed in detail in *PMG 410*.
- **Bid Averaging**: This method is one of the few that addresses cost. Instead of the traditional low bid, certain high and low bids may be thrown out, and the remaining bids are used to calculate an average cost (bid). The project is awarded to the bidder closest to this average cost.
- **Lane Rental**: This method is useful in minimizing traffic impact of a project, particularly if the project will require frequent lane closures. Part of the bid is a rental rate for lane closures: a cost per lane per length (mile) per unit of time (hour or day). This strategy provides an incentive for the contractor to find ways to avoid or minimize lane closures and, when necessary, to minimize the time involved. The contractor is rewarded for keeping traffic lanes open as much as possible throughout the construction period.
- **Incentive/Disincentive**: This concept of contracting is designed to reduce the overall contract time by giving the contractor an incentive for every day the contract is completed early and a disincentive for failure to complete a project on time. The amount of incentive/disincentive is established by FDOT in the bid package. A benefit-cost analysis is required to establish the incentive amount.
- **No Excuse Bonus**: This method provides a monetary incentive bonus for the contractor who completes the project early within a specified time, regardless of any problems or unforeseen conditions. No time extensions are allowed for purposes of this bonus. This method normally would be used for major work with severe community impacts.
- **Liquidated Savings**: This method awards the contractor for each calendar day the contract is completed and accepted prior to the expiration of allowable contract time. Contract time is adjusted for time extensions. The amount of award is based on the direct savings to the Department related to CEI and contract administration costs.
- **A+B Bidding:** This method enables a contractor to establish their own construction time. Generally, the bidder who can complete the project in

Figure 2, **Construction Contract Award Time Frame**, illustrates a typical construction contract award schedule.

Figure 2
Construction Contract Award Time Frame



The CEI firm should be on board well before the NTP. The NTP may be issued at the pre-construction/services meeting, which is generally chaired by the CEI firm. Notices must be sent to all who will attend the pre-construction conference well in advance of the established date (refer to ***CPAM 3.1***). The CEI team must have time to mobilize, assign personnel, establish office space (with telephones, computers, and other necessary supplies) and obtain necessary vehicles for project staff. The CEI will need time beyond the construction project completion to consider final measurements and estimates, final inspections, warranties and guarantees, claims, as-builts, and other documentation and demobilizing efforts.

CEI Contract Types:

CEI contracting uses a cost-plus fixed fee type contract, where the CEI is paid for the actual hours worked in each employee classification and all expenses are defined and documented. Lump Sum Contracts are also used by CEI services.

The CEI needs to track costs carefully with cost-plus fixed fee contracts. If the contracts limits are exceeded, a request for fee increase must be submitted in time to negotiate a new fee and execute the modifications before the cost exceed the current contract. The CEI is not reimbursed for exceeded contract limits. The Senior Project Engineer is responsible for these actions

The PM should consider the risks/rewards for the CEI firm under a lump Sum contract such as additional costs with time overruns Once a Lump Sum Fee is determined, it can be renegotiated under pre-determined conditions.

It is important to select projects carefully for this contracting method to minimize risk to both the CEI and the FDOT. The following types of construction projects are most appropriate for a lump sum CEI contract:

- Design-Build or Lump Sum Construction Contracts
- Contracts that include incentives for early completion
- Corridor Projects with sufficient history regarding time and cost changes
- A construction project with a clearly defined scope and minimum variables

When a lump sum CEI contract is used, the selected CEI firm should be provided with the contractor and the project schedule, prior to negotiating the lump sum fee and any other necessary information.

Warranty Specifications

The FDOT has developed performance-based warranty and guarantee specifications that are now being incorporated in design-build projects and all asphalt and concrete pavement, turf, and landscape projects. The contract documents specify that the contractor provide these assurances.

Under these specifications, the contractor assumes a much greater role in the quality control, production, and testing of the work items in which the contractor has such a vested interest in assuring their service life.

The PM must be familiar with the warranties/guarantees used in the contract documents. The inclusion of these requirements, which may require additional effort in the inspection, acceptance, and the quality assurance testing, should enhance the project life.

Plan Revisions

During construction, certain revisions to plans are permissible under certain circumstances without voiding the construction contract. Section 4-3, Alteration of Plans or of Character of Work, of the ***FDOT Standard Specifications***, deals specifically with this issue.

The need for plan revisions is anticipated in the contract documents. Reasons for revisions include:

- An increase, decrease, or actual alteration in the work
- Extra work assigned under the contract
- Differing site conditions found in the field
- Cost Savings Initiatives (CSI)

When faced with a potential plan revision, the CEI should research the referenced documents, determine if costs or time are involved in the plan revision, and respond promptly so that the contractor's progress on the project is not impeded. The procedures to follow are all carefully detailed in the references. In no case should the contractor be allowed to proceed with any plan revision until written approval is issued. It is important that all significant changes made during construction be documented in the final as-built plans, as discussed in the ***Construction Project Administration Manual (CPAM)*** ***Sections 5.12 and 5.13***. These references should be followed in making any changes in final quantities and changes in the design that are reflected in the final estimate for the project.

Permits and Other Commitments

The CEI is responsible for ensuring compliance with environmental permits and for ensuring that environmental commitments made during project development are honored. The PM and the Senior Project Engineer must be aware of requirements and conditions specified in permits. These usually focus on measures to protect wetlands, wildlife, and water quality. Other commitments may include socio-cultural commitments made to federal, state, and local agencies, organizations, and citizen groups. Examples include construction noise controls, dust control, maintenance of traffic issues, and accommodation of special events. Provisions for these commitments should be included in the contract documents. ***Project Suite Enterprise Edition (PSEE)*** modules are available for managing permits and commitments.

All utility permitting must be coordinated and managed in accordance with the district-established schedule. During the design phase, all utility permitting coordination is turned over to the District Construction Office. These are in turn included in the CEI review responsibilities for a project. The CEI provides recommendations, but the Maintenance Office approves or denies the permits.

Alternate Designs

The CEI may be challenged on the construction project by the submittal of an alternate design by the contractor. Alternate designs are generally submitted for one or more of these three objectives: project cost, project time, or project quality. Therefore, they should be carefully and promptly considered, with a written response to the contractor. Contract documentation must be included if the submittal has been approved.

The contractor frequently offers alternate traffic control plans. Section 102-4, Alternative Traffic Control Plan, in the ***FDOT Standard Specifications***, describes the procedures and requirements governing such an alternate design. As with most contractor submittals, a specialty engineer is required to sign and seal the plans prior to submittal. The Senior Project Engineer must respond to these submittals in a timely manner.

A Cost Savings Initiative (CSI) could also represent an alternate design submittal by the contractor. A timely response is of great importance.

Coordination with the District Maintenance Office

At the end of the construction phase, all projects are transferred to FDOT maintenance for operations. The District Maintenance Office provides continual inspection, repair, and rehabilitation necessary to keep the facility functional and safe. Since maintenance is the ultimate “owner” of the facility, the appropriate maintenance personnel should be involved throughout the project phases (PD&E, design, and construction). The Senior Project Engineer should work to keep the appropriate maintenance personnel involved throughout the construction phase. Utility permits must be coordinated with the District Maintenance Office.

The Senior Project Engineer should begin by inviting the appropriate maintenance personnel to attend the pre-construction meeting as part of the team. During construction, maintenance personnel should be invited to tour the project and witness the construction procedures. Except as allowed in ***Procedure No. 850-000-005***, ***Maintenance Responsibilities on Construction Contracts***, the construction contractor will maintain the project until final acceptance by the FDOT. The acceptance procedure includes a final “walk-through” by the contractor, CEI (if assigned on the project), PM, and maintenance personnel. During the walk-through, all questions should be answered, and concerns addressed. Appropriate maintenance personnel should be involved in final acceptance of the project, which will then be assigned to them.

Coordination with the Engineer of Record

The Senior Project Engineer should have ongoing coordination with the FDOT project manager and the Engineer of Record (EOR) throughout project construction. The EOR is the designer of the project who was responsible for the preparation of the contract documents. The term “Engineer,” mentioned in the contract documents refers to the Director, Office of Construction, or their designee, not the EOR.

The Senior Project engineer should understand that the PM and EOR were involved since the design phase and should be able to explain the history and evolution. Generally, design contracts include some post-design (construction) services. The PM or CEI must understand the contractual issues related to obtaining the services of a consultant EOR. The FDOT PM must approve any chargeable services provided by the EOR. Consequently, it is important to work with the FDOT project manager to establish the appropriate protocol for communication. The EOR should prove to be an excellent resource for the PM and the Senior Project Engineer throughout the construction period.

The FDOT project manager and the EOR should be invited to the pre-construction conference, the partnering meeting, and to the earlier on-site construction progress meetings to establish open and direct lines of communication.

The PM’s role includes monitoring the EOR’s responsiveness during the construction period. The EOR must review and approve shop drawings submitted by the contractor within the allotted contract time, review and approve any contractor-proposed design changes, evaluate, and respond to any Request for Information (RFI) or Cost Saving Initiative (CSI) submitted by the contractor, and address any other design-related issues.

Many of the EOR duties and responsibilities mentioned above have a direct impact on the project schedule. Communications must be clear and open. Contract deadline dates outlined in the documents should be well known, and they should be discussed. The PM or Senior Project Engineer should provide as much lead-time as possible to the EOR.

The FDOT project manager must be notified immediately upon discovery of any design-related issues and must be involved in the resolution. These issues could be a result of Errors and Omissions which can be found in the Project Management Guide

Construction Quality Control Testing

The construction specifications the construction quality control responsibilities to the contractor. This approach is known as Contractor Quality Control (CQC) and information is available on the program in the contract documents.

Before starting any new construction project, the contractor is required to submit a Quality Control Plan to the FDOT for review and approval in the Materials Acceptance and Certification (MAC) program. The requirements are identified throughout the ***FDOT Standard Specifications***, particularly in Section 105, Contractor Quality Control General Requirements and in the MAC interface.

The Senior Project Engineer must be aware of the many FDOT testing requirements. All tests must be met, and the contractor is responsible for having all sampling and testing on the project performed by FDOT certified personnel. The contractor may employ an independent certified laboratory, train their own personnel, or use a combination of both methods to perform the required sampling and testing. To expedite training for the CQC program, the FDOT has contracted with outside firms to implement its training and qualifications program for construction technicians and contractor personnel. This program is better known as the Construction Training Qualification Program (CTQP). The contractor's Quality Control Plan (including certifications) is reviewed and approved by the FDOT prior to the start of the job.

FDOT maintains the right to perform any inspection, sampling, and testing on the project it considers appropriate to verify the results submitted by the contractor on any materials or process. This procedure is known as independent assurance (IA) testing, which is performed by random sampling.

The State Materials Office and the State Construction Office have combined all pertinent contractor Quality Control information and requirements on the ***Contractor's Quality Control website***. The ***Construction Project Administration Manual (CPAM)*** covers the entire scope of sampling and testing requirements for construction projects and provides excellent guidelines on how it is best implemented See ***CPAM 3.3: Contractor's Quality Control Plan*** and ***CPAM 5.8: Control of Materials*** for more information.

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the shortest time will be successful because a value is fixed in the bid process for each day of construction. This method normally is used on controversial projects with significant impacts to traffic or property access.

Project Closeout

There are many important actions that must take place to properly close out a construction project. **Figure 4, Project Close-Out Checklist**, offers a quick reference.

Section 12.1 of the ***Construction Project Administration Manual (CPAM)*** discusses final inspection and acceptance procedures.

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Figure 4
Project Close-Out Checklist

- ☑ **A thorough research of the contract and Standard Specifications to identify all of the documentation required from the contractor and ensure that all are submitted and accepted**
- ☑ **Submittal, review and acceptance of the final estimate**
- ☑ **Final payment to the contractor**
- ☑ **Identification of potential claims**
- ☑ **Preparation of as-built plans**
- ☑ **Final acceptance letter**
- ☑ **Final contractor grades**
- ☑ **Preparation of the files for storage**
- ☑ **Submittal of final invoice by the CEI**
- ☑ **Submittal of final grades for the CEI**

Project Management Guide

340 – Maintenance

340 – Maintenance Contract Management

Introduction

The maintenance program is delivered through multiple types of maintenance contracts and in-house maintenance personnel.

A Maintenance Project Manager (PM) must have management and leadership skills necessary to handle contract administration and ensure contract requirements are met.

For most types of maintenance contracts, the Maintenance PM is responsible for ensuring that their contracts are planned, developed, and administered in a manner that results in quality product and within the time and budget established.

A thorough understanding of contract procurement, contract specifications, contract scope of services, and contract administration is essential. Detailed information on contract development and contract procurement can be found on the Contracts Administration Office website and the Standard Specifications for Road & Bridge Construction website.

Detailed information on the administration of maintenance contracts is provided in the ***Maintenance Contract Administration, Inspection and Reporting Procedure***, and information on the administration of Asset Maintenance and Performance Based Contracts is provided in the ***Performance Based Maintenance Contracting Procedure***.

Maintenance Program Planning

Maintenance program needs are projected in the FDOT Five-Year Work Program. The Maintenance Management System (MMS) is used to assist in planning, organizing, budgeting, and directing maintenance operations. Detailed information on MMS is provided in the ***Maintenance Management System Procedure 325-010-001***.

Maintenance Contracting

The Maintenance Contract Program consists of performance-based contracts and work-directed contracts.

There are multiple types of competitively bid maintenance contracts:

- Asset Maintenance
- Best Value and Low Bid Performance-Based Maintenance
- Maintenance Work-Directed
- Landscape Installation and Establishment
- Pre-Event
- Emergency

Maintenance Agreements

Maintenance program objectives are also accomplished through agreements with other state agencies, local governments, and other organizations. These agreements include the following:

- Memorandum of Agreements (MOAs)
- Negotiated Agreements with groups certified as a Florida Youth Work Experience Program
- Department of Correction Inmate Labor

Preparation and Procurement

The PM must be knowledgeable of contract document preparation, procurement methods, negotiations, and administration of various types of contracts and agreements.

The PM must have a clear understanding of Standard Specifications for Road and Bridge Construction, Maintenance Modified Special Provisions and Maintenance Supplemental Specifications, as well as project specific modifications or technical special provisions.

For asset maintenance contracts, the PM must have a clear understanding of the performance contract scope of services, the governing order of authority of contract documents, and the established means to evaluate the contractor's performance on the contract.

PMs may be responsible for developing request for advertisement packages for the competitively bid types of maintenance contract listed above be submitted to the District Contracts Administration Office for advertisement. After bids are received, the PM may be required to participate in the bid review for recommendations to the awards committee.

When the contract has been awarded, the PM is responsible for initiating the contract administration actions.

Maintenance Rating Program

The Maintenance Rating Program (MRP) is a uniform method for evaluating the performance of maintenance operations. Details on the Maintenance Rating Program are provided in the ***Maintenance Rating Program Procedure 850-065-002***. The procedure together with the Maintenance Rating Program Handbook, provides a method for conducting an evaluation of the condition of maintenance features on the State Highway System.

Maintenance ratings can be a valuable resource early in the development of future construction projects, to help ensure that maintenance needs are considered in the project scope.

Asset Maintenance

Asset maintenance contracts are used for routine maintenance, operations, and management of a designated corridor, geographic area, or specific roadway component. Specific components can include rest areas, weigh stations, welcome centers, bridges, or other fixed assets within the specified boundaries of the contract.

These contracts are multi-year contracts with payments made based on a schedule of lump sum payments. The contractor's performance is rated periodically using the FDOT Maintenance Rating Program, and other performance measures. The contract scope provides minimum performance criteria and pre-establishes deductions for failure to meet the established performance criteria.

Asset maintenance and best value performance contracts are awarded through a Request for Proposal (RFP) process. The technical proposals received are evaluated and scored based on the established RFP criteria. The contractor selection is based on the overall score comprised of both the technical proposal score and the price proposal score.

The PM is required to monitor the performance-based contract to determine if the established performance requirements of the contract are being met.

Maintenance Work-Directed Contracts

Work-directed maintenance contracts typically provide routine maintenance activities in specified areas and can be Work Document or Site Specific. With Work Document contracts, the work needs are not known at the time of bid, and the PM is responsible for issuing Work Documents to identify the location, description, and amount of work to be performed within the time periods specified. Site Specific contracts are generally short-term contracts for work needs that are specified in the contract prior to advertisement.

Examples of maintenance work activities that may be provided by work-directed contracts:

- Pavement Marking and Striping
- Asphalt Repair
- Roadway Lighting Maintenance
- Traffic signals
- Mechanical Roadway Sweeping
- Concrete Repairs and Joint Sealing

The previous list is by no means a complete list, but it serves as an example of the various types of work activities that maintenance contract PMs are responsible for administering, including inspection of the work.

Contract Evaluations, Defaults, and Non-Responsibility

The PM is responsible for evaluating the performance of each maintenance contract. For contract evaluations on non-asset maintenance contracts, the PM is required to complete the **Contractor Field Performance Rating Form.**

For evaluations on asset maintenance contracts, the PM must have a clear understanding of the Asset Maintenance Performance Rating (AMPER) which is used to evaluate and assist in administering asset maintenance contracts. Completing the AMPER requires coordination with the FDOT Maintenance Rating Program (MRP) team, consideration of the condition of assets not covered by MRP, along with the assessment of multiple other contract requirements.

Coordination with Developing Projects

The District Maintenance Office and Operations Centers will be responsible for maintaining the facility after construction projects have been completed, so it is important for Maintenance to be involved in the project development phase and design phase submittals.

The design PM should consider the cost and complexity of future maintenance of all project features, such as shoulders, slopes, drainage features, and signs, with the goal of designing projects that can be efficiently maintained. The designer should consider space needed to conduct maintenance activities without creating the need for unnecessary maintenance of traffic. The maintainability of new products and equipment should always be considered before including them in the plans and specifications. Consideration of review comments from Maintenance could benefit the Department by avoiding potential maintenance challenges.

Maintenance personnel should take advantage of opportunities to provide input during the planning and design phases of construction projects, with a focus on providing maintenance perspectives that may result in the design of projects that can be efficiently maintained.

Project Management Guide

Part 4 Alternative and Special Project Classifications

Project Management Guide

400 - Introduction

(Under Development)

Project Management Guide

405 – Major Projects

405 – Major Project Requirements

405 – Project Management Plan

405 – Cost and schedule Risk analysis

405 – Financial Management Plan

Introduction

Major projects require extra oversight by the Federal Highway Administration (FHWA). They are required to have a Project Management Plan (PMP), a Cost and Schedule Risk Assessment (CSRA), and an annual Financial Plan.

Major Project Defined

A major project is defined as: a project that has received (or will receive) any federal funding (even just $1) and has more than $500 million (Year of Expenditure $) total project costs based on its PD&E /NEPA limits. A major project includes all costs and phases under the project's NEPA scope, even if multiple construction segments are involved.

FHWA can deem a project as a major project such as one which: has a high level of public or congressional interest; is unusually complex; has extraordinary implications for the national transportation system; or is likely to exceed $500 million in total cost

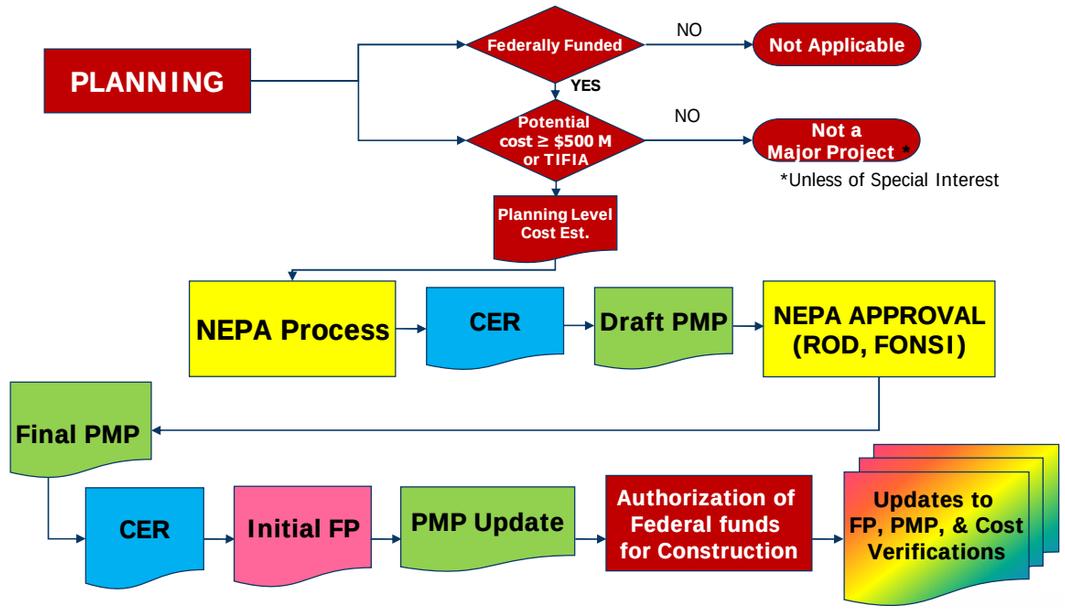
Please note that a major project can include multiple PD&Es, if being procured together. All past, current, and future work that falls under the approved NEPA scope must be included in the scope of the major project:

The scope of the PMP, CSRA, and Financial Plan should be consistent between documents. They should cover the same Financial Management (FM) numbers. All major project elements such as planning, environmental, preliminary engineering, right of way, construction, construction support, utilities, and CEI are to be included and cover the project's entire life cycle from planning to final acceptance. O&M phases are excluded unless the project is a P3 Design-Build-Finance-Operate-Maintain (DBFOM - like I-4 Ultimate, Port of Miami Tunnel, or I-595)

Additional FHWA Major Projects guidance is available on the FHWA Major Projects website: https://www.fhwa.dot.gov/majorprojects/

Major Project Process

The basic major project process is depicted below.



Once a project is determined to be a major project, a "Pre-NEPA" CSRA is conducted and a PMP is drafted. A "Pre-Construction" CSRA is held as the project approaches the start of procurement. An Initial Financial Plan (IFP) is finalized after the Pre-Construction CSRA is completed. The IFP must be approved by FHWA in order to receive federal authorization for the project. All major project documents (IFP, PMP, CSRA) must be approved by FHWA prior to Advertisement for Design-Bid-Build projects. For Design-Build or P3 projects, FHWA may grant "conditional" federal authorization contingent upon IFP approval up to NTP2.

Major Project Map

A good major project map defines the limits of the major and ensure that no item segments are left out. Often, the PD&E limits, design limits, and/or construction limits do not always neatly line up, especially if there are multiple PD&Es and/or multiple construction segments. The major project is the scope of the entire PD&E limits, unless the District is procuring construction segments that cover multiple PD&Es. The Department has several major projects with overlapping PD&E limits.

The map for the major project should:

- Have an information box for the PD&E and an information box for each of the construction segments that includes item segments.
- The color of the PD&E information box should match the PD&E limits on the map. The start and end arrows of the PD&E study should be marked in the same color as the PD&E box, especially if there are multiple PD&E limits involved.
- For a PD&E information box, include the environmental decision type (i.e., Categorical Exclusion II), approval date or expected approval date, and re-evaluation approval or expected approval dates.
- If a reevaluation has occurred or is pending that is different from the original NEPA limits, it should be shown with its own color-coded box with start/end limits clearly labeled.
- The PD&E limits should be underlaid under the construction contracts.
- Each construction segment (not design) should have their own distinct color and have a corresponding color-coded box that contains a short description and associated FM numbers.
- For construction segments with “ultimate” work approved under the NEPA documents, show the i ultimate construction limits with a dotted line, using the same color as the near-term construction segment.
- Any overlapping NEPA limits and/or reevaluations should be called out and explained.
- If the major project is included as part of a larger “system,” it is fine to show the entire system, however, the major project portion should be highlighted.
- Do not leave out any work that might be far in the future but approved under the NEPA decision (i.e., future interchange work, direct connects, park and ride lots).
- Adjacent, supporting, or related projects that are not part of the PD&E study may be shown, but they should be clearly marked that they are not included in the scope of the major project.
- Refrain from adding any cost or schedule information on the map as this information will get out of sync from the Financial Plan fairly quickly.

All of the major project information should be on a single major project map, not on separate maps.

This same map should be used in PMP, the CSRA, and the Financial Plan. The use of the major project map helps to ensure that the entire scope is being included and that all financial management numbers associated with the Project have been identified for all three major project documents.

A sample Major Project Map is shown below.

Sample Major Project Map

(for a project with multiple construction contracts)

Segment 2
Design: 123456-1
Construction: 987654-2
Construction Limits: BRIEFLY DESCRIBE LIMITS

Advertisement: MONTH/YEAR
Letting: MONTH/YEAR
Award: MONTH/YEAR
Construction Start: MONTH/YEAR
Construction End: MONTH/YEAR'

Segment 3 "Interim"
Design: 123456-2
Construction: 987654-3
Construction Limits: BRIEFLY DESCRIBE LIMITS

Advertisement: MONTH/YEAR
Letting: MONTH/YEAR
Award: MONTH/YEAR
Construction Start: MONTH/YEAR
Construction End: MONTH/YEAR

Segment 3 "Ultimate"
Design: 123456-2
Construction: 987654-5
Construction Limits: Direct Connect

Advertisement: MONTH/YEAR
Letting: MONTH/YEAR
Award: MONTH/YEAR
Construction Start: MONTH/YEAR
Construction End: MONTH/YEAR

Direct Connect (orange dotted line) expected to begin in FY 2030

Segment 4
Design: 123456-2
Construction: 987654-4
Construction Limits: BRIEFLY DESCRIBE LIMITS

Advertisement: MONTH/YEAR
Letting: MONTH/YEAR
Award: MONTH/YEAR
Construction Start: MONTH/YEAR
Construction End: MONTH/YEAR

Segment 5
Design: FM 123456-2
Construction: 987654-5
Construction Limits: BRIEFLY DESCRIBE LIMITS

Advertisement: MONTH/YEAR
Letting: MONTH/YEAR
Award: MONTH/YEAR
Construction Start: MONTH/YEAR
Construction End: MONTH/YEAR

Notes:
- Segments should represent individual construction contracts (not design limits).
- Each construction contract should have its own color-coded box.
- If a construction contract crosses two PD&Es, the entire limits for both PD&Es may be combined into one major project.
- Background clutter (i.e. aerial shots) should be minimized. Major roads, bridges, interchanges, landmarks can be added.
- If the major project crosses District lines, please add the District boundaries.
- Work approved under the NEPA must be included, even if it is planned many years in the future. For example, if a segment has an "interim" and an "ultimate" solution (i.e. a future direct connect), please show future work as a dotted line. Future work may be eligible for an OINCC waiver, to be determined and granted by FHWA.

PD&E: 123456-1
ADD DESCRIBE LIMITS HERE
ADD TYPE OF DECISION
ADD APPROVAL DATE
ADD RE-EVAUATION APPROVAL DATES

Project Management Plan (PMP)

The preparation of the Project Management Plan (PMP) begins early in the planning phase of a project. **The draft PMP must be submitted to the FDOT State Project Management Engineer and the FHWA Division Office for review 60 days prior to the submission of the final NEPA report, while the final PMP is required 90 days upon the issuing of the Record of Decision (ROD), Finding of No Significant Impact (FONSI), or Categorical Exclusion (CE).** The review is conducted by the FHWA Division Office in consultation with the FHWA Headquarters Project Delivery Team. Even though the PMP is drafted well ahead of the Financial Plan, final approval of the PMP by FHWA is usually done along with the Initial Financial Plan (IFP).

The PMP is intended to be a living document on how the project is to be managed. FDOT is expected to update the PMP if any significant changes occur that result in how the project would be managed. FHWA may request an update to the PMP if there is a major change in scope, an additional phase is added, or if the project has experienced significant cost overruns or schedule delays.

The District Project Manager is responsible for submitting the PMP to FHWA. Once approved by FHWA, the PMP is signed by the Division Administrator of the FHWA Florida Division Office and the FDOT District Secretary. The draft PMP should be completed well ahead of the IFP.

Note: Don't wait until the IFP is due to execute the PMP. Any problems with the PMP can result in a delay of the IFP approval. The IFP must be approved before FHWA will authorize federal funds.

Do not include any cost or schedule data in the PMP. If a previous project's PMP is used as a template, ensure that any language pulled from the previous PMP is understood and appropriate for the project.

Additional FHWA PMP guidance is available on the FHWA Major Projects website: https://www.fhwa.dot.gov/majorprojects/pmp/

Questions to consider:

- Has the PMP been reviewed against the FHWA PMP Checklist: Guidance - Project Management Plans - Major Projects - Federal Highway Administration (dot.gov)?
- Has a draft Project Management Plan been submitted to the FHWA and the FDOT State Project Management Engineer for review prior to approval of the NEPA decision document?
- Has FHWA provided FDOT comments on PMP?
- Has FDOT submitted the final PMP for approval within 90 days of the date of the signed NEPA decision document?
- Are there any outstanding issues or comments on the PMP from FHWA?
- Has the PMP been signed by the District Secretary and FHWA Division Administrator?

Introduction

The purpose of a Cost and Schedule Risk Assessment (CSRA) is to identify potential project cost and schedule risks, evaluate the probability of such risk occurring, and to assign a range of costs if such risk were to occur. Risks can either be a threat or an opportunity. Systematic identification of risk early in the Project helps the Department take steps to reduce or eliminate threats and to increase probability and/or benefit of opportunities. Another term for CSRA previously used by FHWA is Cost Estimate Review (CER).

The scope of the Major Project equals its NEPA limits, so the CSRA must include the entire NEPA scope, both fully funded and partially funded phases, plus prior costs. It includes past phases, phases approaching the start of procurement, and those future phases that may be decades out in the future. The scope of the CSRA must match the scope of the Initial Financial Plan (IFP), i.e., they must use the same project limits and FM numbers. If it is discovered that the scope of the CSRA and IFP are not the same, the CSRA workshop may have to be redone. This could result in delay of the Financial Plan approval and federal funds authorization. Design-Bid-Build projects may not be advertised until the Initial Financial Plan is approved. For Design-Build or P3 projects, FHWA can grant "conditional" federal authorization (up until NTP2) contingent upon FHWA's approval of the major project documents (PMP, IFP, CSRA).

CSRA Activities

FHWA has the option of conducting the CSRA themselves, but has chosen to delegate this task to FDOT on their behalf. FDOT must follow FHWA's ***Consultant-Led CER Guidance*** (internal SharePoint link) to ensure FHWA is fully involved in every step of the CSRA process. **FHWA must be included in all pre-workshop and workshop activities. The FDOT Project Manager (PM) must invite FHWA to all meetings, including prep sessions, base cost reviews, and risk workshops. FHWA must be copied on all draft and final reports. The FDOT PM is responsible for ensuring that FHWA is included in all CSRA activities.** Final CSRA reports must be approved by FHWA. Districts should follow up with FHWA to ensure there are no outstanding issues with the report.

CSRA Workshops

CSRA Workshops (CSRAs) are typically facilitated by an FDOT consultant using a Central Office consultant contract (*contact the Production Support Office for information on using the CO Contract*). Base cost reviews and CSRA workshops should have a virtual meeting available concurrent to any in-person meetings so that Central Office, FHWA, or other affected entities can participate.

FWHA requires that at least two CSRAs be conducted, the first workshop should be held at least 90 days ahead of NEPA approval and the second CSRA is held prior to starting procurement. These are commonly referred to as the "Pre-NEPA" and the "Pre-Construction" CSRAs. **CSRA workshop results are only good for one year.** The IFP must be approved within a year of the Pre-Construction CSRA workshop, otherwise an updated CSRA workshop is required. Additional CSRA workshops may be needed if future portions of the Project are unfunded or partially funded and the Financial Plan is phased.

At a CSRA workshop, multiple risks are identified and are assigned a cost range and the probability of occurrence. Base costs are stripped of contingencies and the CSRA process adds back an appropriate contingency based on a systematic risk assessment. Risks identified in the CSRA workshop are analyzed in a Monte Carlo simulation.

The CSRA Workshop results in several outputs including a 70th percentile cost (and schedule), a risk register, and a table identifying the top ten risks for the project (sometimes in the form of a "tornado diagram"). This is all included in the CSRA Report.

70th Percentile Threshold

One of the outputs of a CSRA workshop, is the 70th percentile (confidence level) cost. *In other words, FHWA is 70% sure that the Project's final total costs will be at or under this amount.* The difference between the base cost and the 70th percentile is considered to be the appropriate contingency for the project.

In order to receive federal authorization, programming must be at or above the 70th percentile as identified in the CSRA. Care must be taken to use the proper 70th percentile threshold in the Financial Plan, as the CSRAs typically report the 70th percentile in a variety of different ways and in different tables or graphs. The 70th percentile that is to be used in the Financial Plan should include all costs (including prior costs) and be in year-of-expenditure dollars (YOE$, escalated, inflated).

Prior to the CSRA Workshop, the Financial Plans Coordinator (in CO) will provide prior cost (expenditures) data to the CSRA consultant for the 70th percentile table in their report. The consultant must not ask the District for this data as there may be discrepancies. Any discrepancies between the item segment numbers provided by the District and those provided by the Financial Plans Coordinator, those must be resolved. The Financial Plan and CSRA must be based on the same set of FM numbers.

The Project Manager should share the 70th percentile results with the District Program Management Office to ensure that there are no surprises in regard to programming shortfalls. 70th percentiles should be generated in a manner that matches the procurement methodologies, for example, a major project that has multiple construction contracts will require 70th percentiles for each construction contract.

Once the CSRA report is finalized, the State Estimates Engineer and the District Project Manager should actively follow up with FHWA to make sure they have no concerns. Any lingering issues, questions, or problems with the CSRA can hold up approval of the IFP, resulting in delays in advertisement or awarding the project and receiving federal funds authorization.

For major projects that have multiple construction contracts, a 70th percentile should be established for each construction contract.

Risk Register

The project risk register documents the risks, their characteristics, probability of occurrence, quantitative impact (both negative and positive) and risk response strategies. The risk register is used to identify and manage risks throughout the life of the project. Risk management is a continual and iterative process because new risks may become known as the project progresses through its life cycle, previously-identified risks may be retired, and other risks may be updated.

Top 10 Risks

A table of the top 10 cost and schedule risks identified in the CSRA (typically represented as a "tornado" diagram in the CSRA), as well as their response strategies, are to be reported in the Initial Financial Plan. This table is updated in Financial Plan Annual Updates to reflect the District's risk response efforts.

Introduction

All federal projects greater than $500 million and that have any federal funding are required to have a Financial Plan.[1] A Financial Plan is a comprehensive document that reflects the Project's cost estimate and revenue structure and provides a reasonable assurance that there will be sufficient financial resources available to implement and complete the project as planned. The purpose of the Financial Plan is to help ensure the necessary financial resources are identified, available, and managed through the life of the project. They include the scope, cost estimate, schedule, funding, and reasonable assurance that there is funding to complete the project.

The scope of the Project Management Plan (PMP), Cost and Schedule Risk Analysis (CSRA), and Financial Plan should be consistent between documents. They should cover the same Financial Management (FM) numbers. The CSRA, PMP, and Financial Plan must include everything under the approved NEPA scope, whether it is past, present, or future work.

Costs in the Financial Plan are reported in year-of-expenditure dollars (also referred to as inflated, escalated, or YOE$) as opposed to present day costs. It is important to include all costs, segments, or phases of the project unless specifically waived by FHWA. If any element of the project is left out of the Financial Plan and is subsequently discovered later, it must be added to the Financial Plan. FHWA may request that the CSRA and PMP be updated to add any missing elements.

Resources

The FDOT Project Finance Office in the Office of the Comptroller coordinates all Major Project Financial Plans for the Department. **Districts with a major project must contact the Project Finance Office** as their major project is finishing the PD&E phase or before the Cost Estimate Review Workshop is scheduled.

FDOT Project Managers can find specific Financial Plans Guidance on the FDOT ***Project Finance SharePoint*** (internal link). The ***Major Projects Financial Plans Handbook*** (internal link) is available to offer further guidance.

FDOT PMs should also follow FHWA Financial Plans Guidance which is available on the FHWA Major Projects Financial Plans website: https://www.fhwa.dot.gov/majorprojects/financial_plans/

[1] Projects that have regional or national significance or are close to the $500M threshold may be deemed major projects by FWHA.

Project Management Guide

410 – Design-Build

410 – Design-Build Project Management

410 – Design-Build Procurement Phase

410 – Design-Build Lessons Learned

Introduction

The term Project Manager (PM) is a general term used throughout this chapter for the Florida Department of Transportation (FDOT) employee responsible for managing a project. Unless specifically indicated otherwise, PM refers to the FDOT Design-Build (D-B) PM.

There are many unique features of D-B projects that affect the roles of the PM, the consultant designer, and the contractor. Primary references for D-B projects are ***Procedure No. 625-020-010***, ***Design-Build Procurement and Administration***. The role of the PM in D-B projects is discussed in Section 3.1 of the procedure.

Unique Features of Design-Build Projects

D-B combines into a single contract the design, construction and acceptance requirements of a project, all in accordance with the appropriate FDOT contractual documents. Right of Way services may also be included in D-B projects. These projects allow the contractor to participate in the design in an effort to reduce costs and expedite construction. It is important for the PM to understand the benefits the FDOT can expect by using the D-B delivery method:

- Completing projects faster as a result of concurrent design and construction activities.
- Reducing the number of supplemental agreements and change orders during construction.
- Eliminating supplemental agreements in consultant design contracts.
- Shifting some liability from FDOT to the contractor.
- Minimizing claims.
- Reducing the costs of consultant design fees and consultant inspection fees.
- Reducing FDOT administration costs.
- Encouraging the use of innovative design and construction techniques.

The design consultant is placed in a totally different role as part of a D-B team. The contractor is ordinarily the lead partner in the team. The designer assumes the role of partner and must coordinate the design with the contractor who ultimately builds the project. The designer is required to consider the contractor's recommendations for possible inclusion in the design and must closely coordinate design with construction activities. Because construction generally starts in advance of the completion of design, close coordination between the contractor and designer is required. Simultaneous work on design and construction is what shortens the project time.

The PM should be aware of types of projects usually selected for D-B consideration include those that:

- Demand an expedited schedule and can be completed earlier than by normal procurement.
- Require minimum right of way acquisition and utility involvement.
- Do not require complex environmental permitting.
- Have a well-defined scope for all parties (design and construction).
- Have room for innovation in the design and/or construction effort.
- Are low in risk of unforeseen conditions.
- Have a low possibility for significant change during all phases of work.

Scheduling

Scheduling projects for D-B procurement is unique in that the design and construction will overlap substantially. Once concepts and preliminary plans are completed and reviewed, the designer then starts on the final design plans. Construction can usually begin when the final plans are about 60% complete. However, each project is unique and the design-construction overlap will vary.

Under conventional procedures, a consultant under direct contract with the FDOT completes the design. Then the project is advertised for bids from contractors. This end-to-end process is time consuming, but it provides excellent review and modification time. The D-B process provides an overlap of the design-construction effort by establishing the contract document criteria for both at the same time.

The PM should establish clear benchmarks and other criteria to measure progress (and payment) in the project schedule. Tracking these projects is of utmost importance since product delivery time is one of the major advantages of the D-B process.

Coordination Issues

On a D-B project, the PM will be responsible for coordinating the procurement of D-B services as well as overseeing the engineering, inspection and construction of the project. These responsibilities are clearly outlined in Section 3 of ***Procedure No. 625-020-010***. A team approach, with a PM from production and a PM from operations/construction, is a viable way to fulfill the responsibilities of this role. Some of the responsibilities are:

- Developing the Design Criteria package and RFP.
- Working with contracting unit and other appropriate offices in establishing the pre-qualification categories and advertisement.
- Coordinating with the FHWA representative on oversight projects.
- Coordinating with or participating on the TRC in evaluating the Phase I LOI's and Phase II Technical Proposals of D-B firms.
- Working with contracting unit in responding to inquiries from D-B firms.
- Participating in procurement meetings.
- Coordinating submittal of technical evaluations to selection committee.
- Acting as the FDOT liaison with D-B firm during construction of project.
- Coordinating FDOT review of D-B firm submittals during design and construction.
- Making periodic site reviews.
- Reviewing and approving progress payments.
- Monitoring Disadvantaged Business Enterprise (DBE) and Minority Business Enterprise (MBE) participation and compliance.
- Ensuring FDOT receives all final documents.
- Ensuring proper CEI during construction.
- Working with others to develop supplemental agreements, if required.
- Ensuring the D-B firm's Quality Control (QC) Plan is followed.
- Ensuring environmental commitments are followed through.
- Ensuring each step in the process is properly documented.
- Furnishing D-B firm with all FDOT standard forms and documents.
- Conducting performance evaluations.

Design Issues

The contractor is the lead organization in the procurement process for a D-B project. The design consultant's client is the contractor rather than the FDOT. The designer must complete the design under different schedule pressures. There will be constant pressure to deliver a design that will result in the lowest possible construction cost while meeting the project scope. At the same time, the designer has a professional responsibility to design the project in accordance with FDOT standards and procedures. The roles and responsibilities of the designer and the contractor must be clear from the beginning. Consultants who have been most successful in the D-B arena are very careful about teaming arrangements and have solid agreements about performance and delivery expectations. The process demands good communication between the FDOT, designer and the contractor throughout the project. The contractor and CEI staff must know the schedule for completion of elements of the design so that they can plan appropriately. The designer must be very careful about design changes during the project that may affect permits that have been obtained from and agreements that have been made with local agencies, utilities and others.

Right of Way Issues

If right of way is required for the D-B project, coordination and schedule control become essential to the success of the project. The D-B contract must allow sufficient time for right of way acquisition. The District Right of Way Office must be informed regarding contractual obligations, the impact of delays, and the potential for contractor claims if right of way is not available when needed for construction to proceed.

Prior to advertisement, all projects must have one of two types of right of way certification pursuant to ***Section 7.16*** of the ***Right of Way Procedures Manual***:

- The certification for construction states that all right of way needed for the project is available for construction.
- The initial D-B certification states that additional right of way is required for the project and will be acquired in compliance with applicable state and federal law.

If an initial D-B certification has been issued, a certification for construction must be executed when all right of way activities have been completed. Construction may commence on buildable segments of the D-B project prior to certification for construction provided the FDOT's district right of way manager states in writing that all right of way activities have been completed for the buildable segment and right of way is clear for construction.

Construction Engineering and Inspection (CEI) Issues

FDOT sometimes performs CEI services on D-B projects. However, when FDOT elects to use Consultant CEI services it hires a separate CEI firm to provide oversight services directly for FDOT. Refer to ***PMG 335, Construction***, for more information.

Design-Build Procurement Process

The PM should be familiar with the specific procurement processes. The Construction Office maintains a ***Design-Build*** website with extensive procurement information. Two processes are explained in detail in ***Procedure No. 625-020-010***, Adjusted Score Design-Build (ASDB) in Section 4, and Low Bid Design-Build (LBDB) in Section 5.

The ASDB process includes the following steps:

1. Project identification
2. Development of pre-qualification requirements
3. Development of design and construction criteria
4. Contract number assignment
5. Encumbrances
6. Development of the list of Critical Issues which D-B Firms should address in the Letter of Interest (LOI).
7. Submittal of Critical Issue list to Proposal Evaluators in advance of the LOI due date.
8. Preparation of Draft Request for Proposal (RFP)
9. Advertisement
10. Phase I LOI
11. Phase I LOI evaluation by Technical Review Committee (TRC)
12. Phase I Selection Committee Meeting
13. Stipends for unsuccessful shortlisted firms (when applicable)
14. Preparation of Final RFP
15. Pre-bid meeting for short listed firms
16. Alternative Technical Concepts
17. Phase II Technical Proposals submitted
18. TRC evaluation of Phase II Technical Proposals
19. Phase II Selection Committee Meeting
20. Award of contract by Contracting Unit
21. Preparation of contract documents

The LBDB process includes the following steps:

1. Project identification
2. Development of pre-qualification requirements
3. Development of design and construction criteria
4. Contract number assignment
5. Encumbrances
6. Advertisement
7. Pre-bid meeting for LBDB firms
8. Issue RFP package to LBDB pre-qualified firms
9. Preparation of proposals
10. Submission of proposals by D-B firms
11. Bid opening
12. TRC evaluation of responsiveness of proposals
13. Award of contract to firm with lowest responsive bid

In the ASDB case, the award is made to the “lowest adjusted score.” In the LBDB case, the award is made to the “lowest responsive bid.” The PM plays an important role in maintaining continuity and keeping communications flowing throughout the entire selection process, whichever method is used.

The concurrence-in-award package shall include the RFP/Addenda, a summary of the adjusted scores, the results of the question and answer written responses by the short-listed firms, and the FDOT’s selection committee’s decision for award of the contract, bid analysis, R/W, Utility and Railroad certifications and the Bid Price Proposal. Please refer to ***Procedure No. 625-020-010***.

Design-Build Lessons Learned

Projects that require the coordination, cooperation and approval of agencies or people beyond the control of FDOT are more likely to experience delay and therefore may be inappropriate for D-B. Examples are projects that involve right of way acquisition or complicated environmental issues. Districts must evaluate the risks associated with such variables when evaluating the possibility of using D-B procedures for a project. The potential benefits of D-B must be weighed against risk, which increases as the number and severity of such unknown factors increase.

Reviews of D-B projects indicate that an emphasis on the following issues may help ensure a successful D-B project:

- Pick the right project for D-B. Projects must be well defined, have little or no right of way required and few, if any outstanding environmental or permitability issues.
- Pick the right team. The selection process must be carefully structured to select the best-qualified team.
- Prepare a clear and concise request for proposal. The scope must cover all desired work requirements.
- Allow for contingencies to cover unforeseen conditions. Although a D-B project should not have overruns, there will be unforeseen conditions and additional work requirements that may arise. The project funding should include a contingency to cover these issues.
- Submit adequate component plan sets. Component plan sets such as roadway, structures, signing and marking, maintenance of traffic (MOT), and so forth, should be submitted for segments that can be logically reviewed and built.
- Allow adequate time for plan reviews. Plan reviews cannot be as thorough as for conventional designs because reviewers will probably not receive the full design in one submittal. Since the contractor has much more responsibility for the final product for a D-B project, thorough plan reviews by FDOT are not as necessary. However, FDOT plan reviews are important, and reviewers must be provided adequate time for their reviews.
- Process all information and decisions through the PM. D-B projects are fast paced and involve many concurrent activities. The PM must know about all these activities to ensure proper coordination.
- Recognize that communication is essential. Frequent project meetings with the PM, the contractor, designer, CEI and other interested parties are necessary.
- Document all actions and decisions. Because of the fast pace and concurrent activities, thorough documentation is essential throughout the project.

Project Management Guide

420 – Grants

(Under Development)

Project Management Guide

425 – Emergency Contracting

425 – Emergency Contracting Project Management

Introduction

Florida experiences different types of emergency events that often causes severe damage to the transportation infrastructure. Any time this occurs, it is the Department's top priority to get critical roadways back open and operational as quickly as possible.

There are two types of emergencies that can affect the State transportation system: Department-related events such as bridge hits; and natural or other types of disasters such as hurricanes.

Response and recovery efforts for both event types require different approval processes within the Department when seeking emergency contracting. This document will provide a brief overview of each, and additional guidance is either are referenced or linked below.

The details provided below are informational in nature and can change based on a specific event. Therefore, it is critical to always reach out to the appropriate offices for all emergency contracting information.

Emergency Types

Department Emergencies – Those emergencies that stem from an event or occurrence that require repair or restoration of state transportation facilities (roads, bridges, etc.) not caused by a natural disaster or related to any event that receives a Governor's Declaration. The emergency procurement guidance for this event type can be found in the ***Commodities and Contractual Services Procurement Manual, Chapter 10***.

Governor-Declared Emergencies - Those emergencies that stem from natural disasters or other events that create an immediate need for assistance requiring the Governor to waive certain restrictions to ensure timely response and recovery efforts. Once the Governor's Executive Order has been issued, the Secretary will then issue an Emergency Order specifying which items in the Governor's Executive Order is applicable to the Department. Please read these orders carefully as they are not always identical. FDOT Procedure 375-040-130, Emergency Procurement, details this process and the types of contracts that can be used for these events.

Emergency contracts used during Governor-declared events require prior approval from the Central Office Executive team in conjunction with the Central Office (CO) Emergency Management office. Any questions related to this process can be addressed by the CO Emergency Management Emergency Coordination Officer. Emergency contracts are not typically used for permanent work. Permanent work requires regular procurement procedures to be used and usually requires prior authorization from Federal partners prior to use. Please contact your District Maintenance Engineer or CO Emergency Management Office prior to letting any contracts for permanent or emergency work related to events for the most current guidance.

Project Management Guide

430 – Local Agency Program

(Under Development)