PROJECT MANAGEMENT HANDBOOK

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This Project Management Handbook provides guidelines and recommended practices for both FDOT and consultant Project Managers. This comprehensive resource covers all FDOT project phases, from planning to maintenance, and is a platform to obtain more information concerning your area of concern. Included in the handbook are numerous links to references where users may obtain further information of project development and implementation process along with the steps that should be considered in the execution of an FDOT project.

Project Management Handbook Computer Based Training (CBT) is also available.

The target audience for this handbook is all project managers. An inexperienced PM will find the handbook a good source of information for training. An experienced PM should utilize the handbook as a resource, as it provides up to date guidance on policy, procedures, and practices associated with project management within the Department.

We welcome and encourage suggestions and comments from all users of this handbook. By providing feedback, you will be helping FDOT maintain and improve this document by making it a more useful tool for all Project Managers. Please share with us your thoughts, ideas and experiences as they relate to project management. Email your recommendations to Sid Kamath at siddhartha.kamath@dot.state.fl.us

PROJECT MANAGEMENT HANDBOOK
Table of Contents

PART 1 - ISSUES COMMON TO ALL PROJECT MANAGERS

CHAPTER 1 Elements of Successful Project Management
CHAPTER 2 Ethics
CHAPTER 3 Project Work Plan
CHAPTER 4 Monitoring and Control
CHAPTER 5 The Florida Department of Transportation
CHAPTER 6 Consulting Firms
CHAPTER 7 Responsibilities and Roles of Project Managers
CHAPTER 8 The Transportation Planning Process
CHAPTER 9 Context Sensitive Solutions
CHAPTER 10 Work Program and Project Funding
CHAPTER 11 Project Continuity
CHAPTER 12 Consultant Procurement
CHAPTER 13 Contract Negotiations
CHAPTER 14 Consultant Contract Management
CHAPTER 15 Scheduling
CHAPTER 16 Quality Assurance and Quality Control
CHAPTER 17 Elements of Right of Way
CHAPTER 18 Emergency Contracting
CHAPTER 19 Risk Management

PART 2 - PHASE-SPECIFIC PROJECT MANAGEMENT

CHAPTER 1 Planning Project Management
CHAPTER 2 Project Development & Environmental (PD&E) Project Management
CHAPTER 3 Design Project Management
CHAPTER 4 Right of Way Project Management
CHAPTER 5 Construction Project Management
CHAPTER 6 Design-Build Project Management
CHAPTER 7 Maintenance Project Management
CHAPTER 8 Local Agency Program (LAP) Project Management

APPENDIX

CHAPTER 1 – ELEMENTS OF SUCCESSFUL PROJECT MANAGEMENT

Contents

Project Management 2
Leadership and Management 3
Communication 9
Experience and Training 17

Project Management

This chapter presents knowledge and skills required to be a successful Project Manager (PM). A new PM should use this information to guide his professional development. An experienced PM should use it to strengthen his skills.

What is a Project? What differentiates it from a program? A ***project*** is an activity that has clear objectives, a definite schedule or ending date and resources devoted to its completion. A ***program*** is an on-going activity that does not have a defined end, examples of which are right of way mowing and payroll processing. Projects can be undertaken by consultants and/or contractors or with Florida Department of Transportation (FDOT) resources alone.

Projects that are considered FDOT core services include planning studies, roadway design, right of way acquisition, construction and maintenance. They are the focus of this manual. However, FDOT undertakes other important projects including building construction, landscaping and research. Managers for these projects will find useful information in this chapter and throughout this Project Management Handbook.

What is a Project Manager? In this handbook the term PM is used to identify the individual responsible for the execution and completion of a project. Consultant firms perform many of FDOT's planning, Project Development and Environment (PD&E), design, right of way and construction engineering and inspection projects. Therefore, this handbook addresses Project Management from the perspective of both the FDOT PM and the consultant PM. Throughout this handbook, specific recommendations are made for either the FDOT PM or the consultant PM. If "FDOT" or "consultant" is not specified, the recommendation applies to both. Refer to Appendix D for related information.

Why Is Project Management Important? Projects are the means by which the FDOT delivers its core services to the traveling public. Successful management of projects is important to the success of the FDOT. Therefore, a PM is a key member of the transportation team. FDOT operates according to the Sterling Management Model. A basic tenet of Sterling is the concept of customer service. A Customer can be either internal or external. Certainly, the ultimate customer of FDOT is the public. Since the public is served through the successful execution of projects, in a very real sense PMs are also customers for many employees of FDOT who support PMs.

This concept is even more important for consultant firms since all their business is accomplished through projects. Successful firms understand that PMs determine their firms' success. These firms have a corporate culture that honors PMs and emphasizes that the efforts of the whole firm—including top management—must be focused on helping them succeed. When the client is satisfied, the firm will be competitive for future work with FDOT.

What Is a Successful Project? The following criteria define a successful project:

- Objectives are fulfilled.
- Budget is not exceeded.
- Schedule is met.
- Quality meets or exceeds the standards of the Department and the profession.
- Customer is satisfied.

Leadership and Management

A PM must exercise good leadership and management skills. There is a difference between these terms. Management involves organizing and performing or directing administrative activities; leadership involves motivating others to work toward a common goal. Some of the tools that a successful PM needs in his PM "Tool Box" include:

- **LEADERSHIP**
- **MANAGEMENT**
- **COMMUNICATION**
- **EXPERIENCE and TRAINING**

Management ensures that all the elements of a project plan, as described in the next chapter, are in place. Management skills can be learned. Technical people frequently become very good managers because managing requires a logical way of thinking and is detail oriented. Leadership, on the other hand, is not so easily learned. It is a "people" skill that is sometimes difficult for technical personnel to develop. A summary of valuable traits and skills are shown in ***Figure 1.1***, Leadership and Management Qualities.

Leadership Concepts- Although this handbook is largely devoted to the management of projects, leadership is a very important trait of good PMs. The following can be said of good leaders:

- They lead by example. They never ask team members to do something that they are not willing to do themselves.
- They are flexible. They constantly reassess progress on the project and are willing to make changes if necessary.
- They build and maintain relationships.

- They understand that people are motivated differently. They take time to know their people, understand what is important to them and use that information to achieve project goals.
- They recognize the efforts of team members.
- They empower team member to make decisions.
- They take the blame when things do not go well and share the credit when the team is successful.

Figure 1 - Leadership and Management Qualities

Management	Leadership
Involves organizing and performing or directing administrative activities.	Involves motivating others to work toward a common goal.
◆ Understands Authority	◆ Team Builder
◆ Responsible	◆ Trustworthy
◆ Delegates	◆ Empowering
◆ Accountable	◆ Integrity
◆ Prioritizes	◆ Flexible
◆ Planner	◆ Open Minded
◆ Goal Oriented	◆ Motivator

Major General Perry M. Smith, of the National Defense University, listed 20 fundamentals of leadership in his 1986 book, ***Taking Charge, A Practical Guide for Leaders***. These are listed below, paraphrased to better fit the Project Management environment:

1. **Trust is vital.** You must trust the people on your team. In the words of Frank Crane, "You may be deceived if you trust too much, but you will live in torment if you do not trust enough."

2. **A leader must be a good teacher.** The leader must be willing to teach skills, to share insights and experiences, and to work closely with people to help them mature and be creative.

3. **A leader should let subordinates solve most problems.** General George Patton advised: "Never tell people how to do things. Tell them what to do and they will surprise you with their ingenuity."

4. **A leader must be a communicator.** Leaders must be good writers, editors, speakers and listeners. A dynamic communicator can motivate people to want to go to work committed to doing an even better job than in the past.

5. **A leader must manage time well and use it effectively**. Leaders must work smarter, not harder. Allow open time every day for thinking and dealing with crises and problems of your team members. Learn to say "no" to time wasters.

6. **Leaders should trust their intuition.** To quote Ralph Waldo Emerson, "The essence of genius is spontaneity and instinct. Trust thyself." Part of intuition is having your "antennae" out and keeping your hand on the pulse of the team.

7. **Leaders must be willing to remove people for cause.** You owe it to the team and to the success of the project to remove those who stand in the way.

8. **Leaders must take care of their people.** Be concerned about your team members' personal and professional objectives and thank them for their efforts.

9. **Leaders must provide vision.** Leaders plan, set goals and provide a vision of the completed project; then they communicate the vision to the team.

10. **Leaders must subordinate their ambitions and egos to the goals of the team that they lead.** The selfless leader gains the respect of subordinates and the support of superiors.

11. **Leaders must know how to run meetings.** Much of a leader's time is spent in meetings. Fight the cultural tendency to hold long, undisciplined meetings with little useful output.

12. **Leaders must understand the decision-making and implementation process.** How are decisions made? What decisions do leaders want made by team members? What decisions should be made by higher authority? Decisions are of little value if they are not implemented, so leaders must have an implementation and follow-up strategy.

13. **Leaders must be visible and approachable.** Leaders should be with their team, not stuck behind a desk all the time. When dealing with a team member, make that person feel that nothing else matters except what is on that person's mind.

14. **Leaders must have a sense of humor.** Leaders should let people know that life is not so important that you can't sit back occasionally and be amused by what's

happening. Humor can be a great reliever of tension; a story or joke at a time of crisis or difficulty can be very therapeutic.

15. **Leaders must be decisive, but patiently decisive**. Leaders should listen to all sides before deciding. On occasion they may postpone an important decision until additional information is available. Look for contrasting views. But remember that a non-decision is itself a decision. Risk taking is frequently an essential and healthy aspect of decision-making.

16. **Leaders should be introspective.** Leaders should be able to look at themselves objectively and analyze where they have made mistakes and learn from them.

17. **Leaders should be reliable.** A leader should be careful about what commitments are made; but once commitments are firm, nothing short of major health problems or a very serious crisis should alter them.

18. **Leaders should be open-minded.** The best leaders are the ones whose minds are never closed, who are interested in hearing new points of view and who are eager to deal with new issues.

19. **Leaders should establish and maintain high standards of dignity.** When standards of dignity are established, everyone can take pride in both the accomplishments and the style of the operation. A happy combination of substance and style leads to high performance and morale.

20. **Leaders should exude integrity.** Leaders should not only talk about it, they must operate at a high level of integrity. Of all the qualities a leader must have, integrity is the most important.

A PM should work continuously to develop and fine-tune their leadership skills. There are many different approaches to leadership that are effective. A PM must find the style that matches his personality. Because leadership involves interrelationships with other people, it is a behavioral attribute. Changing behavior is very difficult. It can be done, but it takes practice as well as reading, training and spending time with a mentor.

Management Concepts - A PM must understand the basic concepts of good management. These include:

Authority - Authority is the power to act within an organization. Project Managers must clearly understand the limits of their authority. What decisions can they make and what must be deferred to others in higher authority? What actions must be reviewed by others before beginning?

Responsibility - Responsibility is the obligation to perform assigned duties to the best of one's ability. Problems will arise when someone has been given the responsibility but not the authority to act. A basic concept of management is that authority must match responsibility.

Delegation - Delegation is the sharing of authority to take actions and make decisions. Complex projects cannot be accomplished without effective delegation. Delegation should be done deliberately, taking into account the ability of the person to whom authority and responsibility will be delegated. Clearly outline to him the limits of his authority, ensure that

responsibility and authority are in balance, and explain the reporting and oversight that goes with the delegation. The amount of oversight should vary with the individual. The manager should develop a delegation plan that is unique to the experience and abilities of each individual. Many people who otherwise have all the traits of a good PM are reluctant to delegate. It is difficult to give up a degree of control. However, a good PM can multiply his performance through the effective use of others.

Accountability - Accountability means that one is judged by the manner in which authority is exercised and the way assigned responsibility is carried out. Accountability is accepting the consequences, good or bad, for the outcome of a situation for which one is responsible. A PM is accountable for the choices he makes and the resulting consequences. This accountability cannot be shared—the PM has the "ultimate responsibility." However, the PM must hold team members accountable for fulfilling their responsibilities as well. Leadership and management cannot be exercised effectively without holding people accountable for their actions. A PM should reward high performance and correct low performance. Although holding team members accountable is sometimes unpleasant, it is necessary. The success of the project may well depend on it.

Team Building - The project team, for purposes of this discussion, is the internal group of people working on a project, either employees of FDOT or a consultant firm, or people provided through contract. By definition, the PM has authority over these people. However, project staffing is usually a matrix organization where the project staff is assigned to a PM only for purposes of a particular project. These people may normally report to someone else, and they may be working on other projects at the same time. Further complicating the challenge is the use of contractors and subcontractors to supplement the staff. Consequently, various corporate entities may be involved. The official authority of the PM over his staff may be limited. The challenge is to mold a group of people who may be temporarily assigned from other organizations for the duration of the project and who probably are working only part-time on it, into a team that will produce a successful project. The following are some suggestions:

- **Starting Off Right -** Meet with the whole team at the start of the project. Go over all the primary elements of the project plan with them so that they all know the objectives, schedule, budget and operating procedures (see Chapter 3). Ensure that everyone understands his role in the project.
- **Clarifying the Schedule and Budget -** Talk with the supervisors of the team members and clarify all schedule and budget issues. Ideally, each group in the team was involved in developing staff hours and negotiating the budget. Nonetheless, ensure that each group knows the staff-hour

budget for its share of the work. Avoid unpleasant surprises at the end of the job by making each group responsible for its own portion of the budget. The PM should not keep all of the budget data confidential.

Communicate - Keep team members informed as the project progresses. Good communication is particularly important for sub-consultants who may not be currently involved in the project. They will need to know what to expect when they do become involved. Hold regular team meetings.

- **Know Your Team -** Recognize the strengths and weaknesses of the team members and have a plan to compensate for their weaknesses and to use their strengths.
- **Lead -** Exercise the fundamentals of leadership discussed earlier in this chapter.

Partnering - Partnering is externally focused. The objective is to have organizations not directly under the control of the FDOT work toward common goals. Partnering involves bringing people from interested organizations together to agree on common objectives related to a project and to agree on how to resolve disputes. Formal partnering agreements are widely used by the FDOT in construction when several organizations with a stake in a project may have differing objectives and expectations.

Although it may not be practical to formalize a partnering agreement to the extent done in construction, the concept may be applicable on any FDOT project. A large number of state, local and federal agencies, environmental organizations, homeowners groups, utilities, developers and private companies have legitimate stakes in the outcome of projects such as PD&E studies and roadway designs.

Informal partnering is frequently used by the FDOT in planning to help ensure general agreement in later phases of project development and implementation. Formal partnering is used regularly in FDOT's Efficient Transportation Decision Making (ETDM) process which closely links planning and environmental management in Florida.

Although partnering can be a very useful technique to help the PM achieve project goals, partnering agreements do not take precedence over procedures, policies, rules and laws. FDOT's ***Partnering Facilitator's Manual***, explains the basics of partnering and some techniques to use in developing a formal partnering agreement.

Time Management - Time is the one resource that will always be in short supply for the PM. Here are a number of very good time-management references and training opportunities that the PM should take advantage of:

- Understand that time cannot be managed; one can only manage how time is used.
- Delegate effectively.

- Stay focused on the project goals and objectives.
- Know how to prioritize. Many time-consuming activities contribute nothing to project success yet extend schedule and deplete the budget. Refuse to do them, delegate them or spend as little time as possible on them. Remember what is important, and use your time accordingly. Importance and urgency are not the same.
- Plan. Set aside time each day to plan future activities. Prepare and follow a daily action plan, with priorities.
- Be realistic in your planning. Allow time for the unforeseen.
- Snap decisions are not necessarily good time management. On important issues use available time to identify and analyze alternatives and reach deliberate and sound decisions.
- Know what is important to your boss, because in the final analysis that will determine your priorities.

A Drive to Succeed - The one common characteristic of the successful PM is an uncompromising drive to succeed. The PM understands what will make his projects successful, and works tirelessly to that end. The PM accepts personal ownership of projects. The nature of public works is that one's efforts will be scrutinized and criticized by a great many people. The best PM accepts valid criticism and suggestions and does not let disagreements become personal. The PM stays focused on the goals of the project and does not get sidetracked by unimportant issues.

Communication

Effective communication skill is one of the most important traits of a successful PM. Communication is a two-way exchange of information. Information must be clearly and concisely given, and it must be clearly understood by the receiving party. The PM must communicate with his counterparts, with the team members and with organizations and individuals external to the project team. Communication processes include person-to-person and telephone conversations, meetings, e-mail, letters and reports. Listening is a critical and often-ignored communication skill.

Levels of Communication - Many FDOT projects have two PMs—one from the FDOT and one from a consultant firm. Both have important roles and responsibilities (see Chapter 7). It is critical that these two individuals communicate effectively and often. Good communication is a shared responsibility. At the beginning of a project there should be a clear understanding of the preferred methods of communicating and the frequency. Primary (normally the PM's) and alternate points of contact for both sides should be identified. It is probably a good idea to "over-communicate" at the beginning of a project until the FDOT PM and the consultant PM develop an understanding of each other and mutual trust. Each must keep the other informed of key issues. The consultant PM must let the FDOT PM know about the current status of the project, current and anticipated problems, and anything that may affect the project scope, budget and schedule. Budget issues include the projected construction costs for design projects as well as the cost of the project itself. The FDOT PM should inform the consultant PM of anything that may affect the schedule or scope of the project and her/his concerns about project performance. The best way to foster communications with one's counterpart is to develop a professional relationship built on mutual trust and respect for each other's responsibilities and capabilities.

Effective communication is the basis of team building. The PM must work to keep his team informed of the important aspects of the project. Good communication with the team will reveal issues before they become problems. Team communications include meetings, memos, copies of reports and other deliverables, and much face-to-face interaction.

Communicating with external agencies and organizations must follow established protocol. The FDOT PM must understand the district policies related to communication with local agencies, other state agencies and other organizations. The PM must be aware of political sensitivities that may exist. For certain, external communication should be more formal than internal communication. It is very important that the FDOT PM and consultant PM establish the rules that apply to external communication. Unless specifically agreed otherwise, the FDOT PM should be responsible for all formal communication with external agencies.

The FDOT PM and the consultant PM should be the conduit for the flow of project-related communication between their organizations. However, at times technical issues can be resolved more effectively by direct communication among team members. Although the PM may not have to be directly involved in this communication, he must be kept abreast of the issues and receive copies of key correspondence. The PM is personally responsible for the success of the project. Therefore, delegation of communication responsibilities should be done carefully, with appropriate oversight and control.

Personal Communication - Of the various methods of communicating, face-to-face conversation is usually the most effective. In addition to the verbal message, nuances and other non-verbal messages are exchanged. It is also easier for the sender to get confirmation that the correct message has been received and to clarify misunderstandings in person.

Telephone Communication - Even though the telephone is a commonly used communication tool, much thought should be put into making effective telephone calls. Here are some useful tips:

- Have a plan for what you want to say before making the call.
- Speak slowly and clearly.
- Pay complete attention to the call – don't do other things that will distract your attention.
- Try standing during a call; you will speak more clearly and emphatically.
- If you initiate the call, be sensitive to the fact that you may have interrupted something important at the other end.
- Schedule the call ahead of time, if possible.
- Do not waste the receiver's time with idle chatter. Make your points, listen to the other person and get off the phone.
- Plan your message in case you get a voice mailbox instead of the person you called. Voice mail can be a real time-saver, but the lack of two-way communication, even with traded messages, cuts effectiveness dramatically. Request verbal or e-mail confirmation to ensure receipt of your message.
- It is very important to speak clearly and slowly when recording a voice-mail message. Nothing is more irritating than a voice-mail message from someone who rushes through his/her name and phone number incoherently. Repeat this information at a deliberately slow speed.
- When you are out of the office for a day or more, change your voice mail message to let callers know when you will be back and an alternate number for immediate attention.

Meetings - Meetings are held for the purpose of communicating. A meeting can be a very efficient method of communication since a number of people are involved.

A PM typically must attend meetings called and controlled by someone else. Prepare for such meetings beforehand and actively participate. Use the time well, by learning as much as possible, contributing to the achievement of the meeting objectives and sharing knowledge and concerns.

A PM is also in a position to call and control their own meetings. First, avoid the impulse to call a meeting. When a meeting is proposed always ask, “Is this meeting necessary?” Impromptu meetings often accomplish very little. There are different purposes for meetings. Some meetings are purely informative, some are problem solving; others are to coordinate or arrive at a decision. Know the purpose of the meeting and tailor the meeting approach accordingly.

Group communication skills are important for the manager of a meeting. Actively judge both the verbal and non-verbal reactions of participants during the meeting. Be sensitive to both positive and negative reactions. Do not allow personal antagonism or hostility to sidetrack the meeting. Control the meeting with tact and diplomacy. Remember that everyone is very sensitive to the leader, so avoid sending verbal and non-verbal messages that can be misinterpreted. Under no circumstance should the leader argue or get defensive..

The following suggestions will help a PM lead an effective meeting:

- A Meeting should have specific objectives, a published agenda, and a set time limit. Distribute this information to participants prior to the meeting so that they can come prepared.
- Tailor the invited participants to the objective of the meeting. Do not waste people’s time if their attendance is not necessary.
- Arrange for a moderator (usually the PM) responsible for maintaining focus on the objectives, staying on the agenda, ensuring that everyone participates and keeping to the time schedule.
- Start the meeting on time, even though some participants are late.
- When the objectives are met, end the meeting. There is nothing wrong with ending early. When the scheduled time limit is reached, the meeting should end even though the agenda is not completed. Once participants learn that time limits will be enforced, they will start coming on time and limiting discussions to what is important.
- The moderator should not allow one individual to dominate the discussion. It is equally important to draw out quiet or reserved participants.
- Arrange for someone other than the moderator to take minutes. It is a good idea to allow the moderator to review a draft of the minutes before final publication and distribution to all participants.

Written Communication - The best PMs are skilled writers. Most of what they do must eventually be communicated in writing. E-mail, letters and reports are all very important to good project management. A good writer will make these documents meaningful, concise and clear so they will have impact. The following tips may be helpful:

- Sometimes letters should be very formal, such as letters of transmittal. Keep these short and to the point.
- When appropriate, make letters personal in tone. Keep the message focused on your objective, make your case, summarize and clearly state your conclusion or recommendation.
- If the purpose of your letter is to get a decision, make that very obvious.
- Avoid writing letters more than two pages in length. The recipient will lose interest and your letter will be ineffective.
- Memoranda are usually more informal than letters and are intended for internal use.
- Although it may be therapeutic to write a letter or memo when you are angry, it is not a good idea to send it until you have had time to reflect on the situation. Correspondence written in a negative frame of mind will often later be regretted.
- All project correspondence is a public record, so do not put anything in writing that you would not want to see in the local newspaper.
- E-mail is perhaps the most frequently used method for communicating about routine day-to-day business. It may be misused, however, because of its simplicity and convenience. It is just as appropriate to use good grammar and spelling, and to avoid slang, non-standard acronyms and abbreviations in e-mail as it is with other forms of written communication.
- Remember that e-mail is an official communication and a public record; so do not send inappropriate or non-business-related messages. E-mail is not private.
- E-mail is part of the official record of a project. Information that you would not wish to defend in court should not be put in writing, e-mail or otherwise.
- Generally, the same considerations that apply to any written communication should also apply to e-mail.
- PMs should avoid using memos or group e-mails as their primary means of communicating with team members. Although these are necessary sometimes, face-to-face meetings are much better.
- Reports should be carefully planned and follow a logical outline. Every conclusion and recommendation should be supported by the report content.

- Lengthy reports should include an executive summary and a table of contents.

Poor sentence structure, poor grammar, misspellings and inconsistencies in style are examples of sloppy writing. Such errors send a very negative message about the quality of one's work. Ways to improve writing skills include attending a business-writing seminar and seeking assistance with editing work.

Requests for Public Records - As an agency of the State of Florida, FDOT must make public records available to any person requesting to view them. Section 4 of ***Procedure No. 050-020-025***, ***Records Management and Distribution***, explains how such requests are to be handled. The following records are exempt from this procedure:

- Financial statements from contractors received in response to invitations to bid or requests for proposals
- Social Security Numbers
- Personal information of Motor Carrier Compliance law enforcement officers
- Information about family members of specified officials
- Information concerning ongoing legal proceedings may be exempt. The district counsel should be consulted before fulfilling such requests.

Procedure No. 050-020-026, Distribution of Exempt Public Documents Concerning Department Structures and Security System Plans, exempts records related to structural plans of Florida's infrastructure from requests for public records. The procedure recognizes that many non-FDOT employees such as consultants, local governments and utilities need access to these records. Records custodians must use discretion in these cases and maintain a record of the individuals who received copies of such information.

Detailed information on public records can be found in Appendix A, Public Records, of this handbook.

Listening - Of all of the communications skills, listening is perhaps the least mastered. Whatever the situation, the good listener forces himself to concentrate.

If you are framing your response while the other person is speaking, then you are not listening effectively. Try to understand the speaker's feelings and the content of his/her message. Test listening skills by paraphrasing the speaker's main points before making a response. Doing so does not necessarily imply agreement with the speaker, but it will demonstrate that the listener is paying attention, and it may clear up misunderstandings. Be perceptive enough to note what is not being said, such as evasion of relevant points, the truth, or some fact that the speaker wishes to avoid.

Most managers need a great deal of practice and self-awareness before they can be truly effective listeners. Effective listening calls for a sharp change in the usual pace of conversation and requires both self-discipline and humility, because the focus is on others rather than oneself.

Media Relations - District policies vary, so the PM must know the local policies concerning dealing with the media. The district Public Information Office (PIO) should be informed about any requests from the media, and the PM should coordinate any media communications with that office.

On projects that are likely to have media attention, the FDOT PM should meet with the PIO at the outset to understand clearly how this issue should be handled. It is likely that the PIO will be involved throughout the life of a project. The Consultant PM should not respond to any media requests before clearing them with the FDOT PM. When the media interviews a PM, he should use it as an opportunity to inform the public about the project and to support FDOT goals. ***Figure 1.2***, Media Dos and Don'ts, offers some guidelines for dealing with the media.

Media DOs...	Media DON'Ts...
◆ Find out what the press wants	◆ Speak off the record
◆ Understand ground rules	◆ View the press as the enemy
◆ Have an agenda	◆ Lie (it's OK to say "I don't know")
◆ Stay on message	◆ Try to "snow" the press
◆ Be sensitive to deadlines	◆ Use technical terms
◆ Expect to have your answers misconstrued	◆ Get caught up in your own brilliance
◆ Expect to be quoted	◆ Act arrogantly
◆ Be respectful	
◆ Ask to review manuscript or video before it goes final	
◆ Suggest a better question if a poor question is asked	

Figure 1.2, Media Dos and Don'ts

Involvement of the General Public and Transportation Partners - Involvement of the general public and transportation partners is an important aspect of all FDOT activities, as expressed in ***Policy No. 000-525-050***, ***Public Involvement***. Keeping transportation partners and the general public informed and involved is a continuing challenge. One of the most common fatal flaws with delayed or abandoned projects is the lack of understanding and support by the public and other groups and agencies. Partner and 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.

In addition to the training, the FDOT Environmental Management Office (EMO) has published the Department's ***Public Involvement Handbook***. This handbook provides proven techniques and methods to encourage meaningful public participation in the development of a transportation system that will meet the needs of Florida residents and visitors. It provides clear guidance for developing and implementing effective activities designed to get the public involved in the transportation decision-making process. It also includes a variety of methods and techniques to involve the public in the development of specific plans, programs or projects for those affected by the proposed transportation action.

The PM must understand the importance of including others in the process and support FDOT public involvement programs. 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 determining what the public wants and needs and then building a consensus among transportation partners to meet the needs. The PM must work closely with local planning organizations and local agencies in this process. The challenge in planning is to interest the others in a process that involves a very long-term view.

PD&E - PD&E projects have perhaps the most intensive public involvement. They typically have a specific public involvement plan. The objective is to include the public and representative organizations in addressing very basic questions: Should this improvement be built at all? If so, what is the best alternative? PD&E public involvement is usually very effective in allowing people who are directly affected by the project to be heard. Usually the challenge is to get those who may benefit from the project but will not be directly impacted to participate.

Design - Districts have public involvement processes that frequently require specific Community Awareness Plans for specific design projects. The emphasis 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, right of way projects always involve dealing with the public. Understanding the needs of property owners, residents and businesses impacted is critical to the success of right of way projects.

Construction - Public involvement issues during construction include traffic interference, business access, noise control and duration of the work.

Whenever dealing with the public, the PM must be respectful, professional, patient and willing to take the time to explain technical issues. Keep an open mind. The public frequently identifies issues and makes excellent suggestions that may be of significant help to the project. Do not argue or get defensive.

Experience and Training

A great deal of knowledge and skill must be developed and maintained by a PM. Required skills can be grouped in three broad categories:

1. "Soft" skills, dealing with such topics as leadership, communication and ethics. Many of the topics discussed in this chapter deal with soft skills.

2. "Hard" skills, including planning, scheduling and quality control. The remainder of Part 1 of this handbook is largely devoted to hard skills. Other hard skills are implied, but not specifically covered in this handbook. For instance, the PM must have computer skills to be effective in today's environment.

3. Phase-specific skills. Material in Part 2 of this handbook details how to manage specific project phases, such as design or construction.

The PM should develop a personalized professional development program in cooperation with his or her supervisor. It can consist of FDOT self-study training courses, professional society seminars and university-level courses. The PM should aggressively seek training and other opportunities for professional development. Perhaps the most effective way to gain knowledge and skills is through experience. This handbook can be a guide, and its users should not be afraid to ask questions.

The PM will want to learn who the key individuals are in all the support offices of a district. The information in Chapter 5 of this handbook can help in this regard. Usually there are key staff-level people who will have more time to spend sharing knowledge than the office head. Spending some time with these people and learning from them will enhance professional growth. The PM can also develop a personal network of help and information. Because there is constant turnover in any organization, the experienced PM as well as the new PM must work at developing and maintaining their networks. The Consultant PM should develop similar networks of people within their firms, business associates and FDOT. The FDOT and the consultant PM should take advantage of associations and learn from the knowledge and experience of each other.

The best source of knowledge and help for both new FDOT PM and consultant PM is an experienced PM. Find one and develop an informal mentoring relationship.

CHAPTER 2 – ETHICS

Contents

Introduction 2
Florida Department of Transportation Values 2
Ethical Conduct 3
Developing Professional Ethics 4
Legal Requirements 4
The FDOT – Consultant Relationship 5
The FDOT – Contractor Relationship 6
Reporting Breaches of Ethics 6

Introduction

Success of ***Florida Department of Transportation (FDOT)*** projects depends upon ethical conduct of the Project Manager (PM). Ethics is a quality expected of transportation professionals, but is difficult to quantify. Ethics is more than obedience to the laws governing conduct of state employees and professionals who perform services for the state. Ethics deals with moral conduct, values, character, ideals and relationships. Ethical decision-making involves who you are and what you stand for. Unlike law, seen as black and white (what one can or cannot do), ethics may be viewed as grey (what one should or should not do). Obvious unethical conduct is easy to identify. However, a host of apparently good and successful professionals frequently engage in unethical conduct, knowingly or as a result of a lack of information. A PM is responsible for oversight of transactions between the FDOT and outside parties doing business with FDOT. The nature of this responsibility requires a PM to maintain the highest level of ethical standards to avoid any appearance of impropriety. A PM must not engage in any conduct that could cast doubt on their integrity or create an appearance that their decisions or actions were influenced by a desire for personal gain.

Florida Department of Transportation Values

FDOT has established the following values as a guide for conducting FDOT business:

- **Integrity** "We always do what is right"
- **Respect** "We value diversity, talent and ideas"
- **Commitment** "We do what we say we are going to do"
- **One FDOT** "We are one agency, one team"
- **Trust** "We are open and fair"
- **Customer Driven** We listen to our customers"

Values form the basis of personal and professional ethics. These values should not be viewed as just words on a plaque in a hallway; they should be the basis of ethical conduct both within and for the FDOT.

Ethical Conduct

- These values should be applied in the daily conduct of FDOT business in an ethical manner. Fundamental elements of ethical behavior center around three things: objectivity, honesty and trustworthiness. Transportation professionals are expected to conduct business in an objective, truthful manner. They must ensure that decision-makers are presented with all pertinent facts, not just those that support a preconceived position. They must avoid a conflict of interest where personal financial gain may cloud a decision. Honesty is more than avoiding untrue statements. True statements can be made in misleading and incomplete ways. Trustworthiness involves honorable conduct – placing the public welfare and clients' needs above personal gain. The challenge of ethical conduct is finding practical applications of concepts such as objectivity, honesty and trustworthiness.
- L. G. Lewis, Jr., P.E. writes: "Making an ethical decision is easier when the facts are clear and choices are well defined; it is more difficult when the situation is clouded by ambiguity, incomplete knowledge, multiple points of view and conflicting objectives. In such situations, ethical judgments depend upon both the decision-making process itself and the experience, intelligence and INTEGRITY of the decision-maker.
- Therefore, ethical decisions call for certain qualities that can be identified and developed within individuals. First is the ability to recognize ethical issues and think through the various consequences of alternate solutions. Second is the self-confidence to seek out different points of view and decide what is right at a given time and place under a specific set of circumstances. Last is the strength to make decisions when all that needs to be known cannot be known and pressing questions have no answers. The corporate culture which surrounds the young and growing professional may well be the dominant environment that shapes and hones these qualities."
- American Society of Civil Engineers (ASCE) Standards of Professional Conduct, PLUS Guidelines, shown in Figure 1, suggest guidelines for dealing with ambiguous ethical questions.

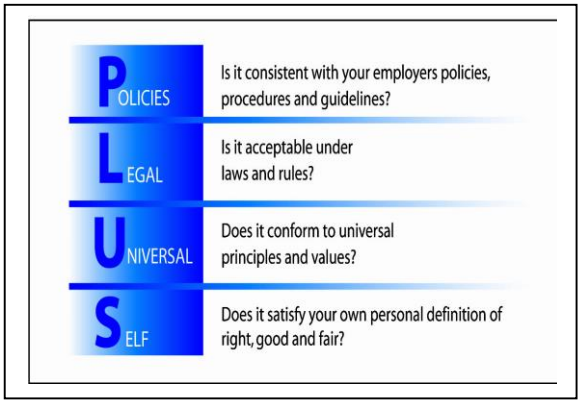


Figure 1, Professional Conduct, PLUS Guidelines

Developing Professional Ethics

L.G. Lewis describes professional ethics as being molded and shaped by three identifiable attributes: "First is development of the professional as a moral person. Next is influence on the professional by his work environment, most significantly those principles displayed by his managers and role models. Third are standards developed by the various professional societies and regulatory authorities that chart a path for ethical conduct."

Senior professionals must be aware of their influence on the younger members of their organizations and professions. Senior professionals should work to be positive role models. Written standards can help professionals chart a path of ethical conduct. These standards include codes of ethics of professional societies and laws and rules defining ethical (and unethical) conduct. One example of a professional codes of ethics is National Society of Professional Engineers (NSPE) ***Ethics***.

Legal Requirements

Several legal and procedural requirements provide ethical guidance for both the FDOT and consultant PM:

- Florida Statutes (FS), ***Title X, Chapter 112, Part III***, deals with standards of conduct for agency employees.
- FS, Title XXVI, ***Section 334.193*** and ***Section 334.195***, deal with employee financial interests and conflicts of interest.
- Florida Administrative Code (FAC), ***Rule Chapter 60L-36*** deals with conduct of employees.

- FDOT ***Policy No. 001-010-020***, ***Ethics Policy***
- FDOT ***Policy No. 001-450-003***, ***Integrity In Government***

Florida's state constitution was revised in 1968 to require a code of ethics, prohibiting conflict between public duty and private interests, for all state employees be prescribed by law. The "Code of Ethics for Public Officers and Employees" is in Chapter 112, FS. Foremost among the goals of the Code is to promote the public interest and maintain the respect of the people for their government. FDOT employees must also abide by requirements of Sections 334.193, FS and 334.195, FS, which are more restrictive than Chapter 112, FS.

Ethics laws for FDOT employees generally consist of two types of provisions, those prohibiting certain actions or conduct and those requiring that certain disclosures be made to the public. A PM should review the various laws, rules, and procedures for specific requirements that may apply to them. Remember, ignorance of the law will not excuse a violation. Violations of law, rule, or procedure may subject a PM to substantial penalties, including the loss of employment. Many of the laws concerning ethics are enforced by other agencies. A PM should never take any action that they believe could conflict with any applicable law.

Additional rules and law pertaining to the Professional Engineer are in Florida Statutes (FS) Chapter 471 and Florida Administrative Code (FAC) Chapter 61G15. Current copies of these are available at the Florida Board of Professional Engineers (FBPE) website, under Laws and Rules. These list specific expectations of Professional Engineers, including the definitions of and penalties for false, deceptive or misleading advertising; practicing under assumed, fictitious or misleading names; professional negligence; incompetence and misconduct. Specific responsibilities of engineers are also listed.

The FDOT – Consultant Relationship

Part I, Chapter 7, "Responsibilities and Roles of Project Managers," explains the relative responsibilities and roles of FDOT and consultant PMs. Part I, Chapter 12, "Consultant Procurement," Part I, Chapter 13, "Contract Negotiations" and Part I, Chapter 14, "Consultant Contract Management" provide specific contracting practices and requirements. New PMs should carefully review these chapters before developing, pursuing and entering into a consultant contract.

The FDOT PM must be fair and honest in the selection and negotiations process and in the way the contract is managed. The FDOT PM is obligated to ensure that the contract is fulfilled and the payments to the consultant are proper and supportable. The FDOT PM must avoid pressuring the consultant to provide services beyond the scope of services or before funds are encumbered and must understand that profit is a proper and acceptable objective of the consultant.

Finally, the FDOT PM must understand that the consultant PM has his own professional and ethical responsibilities.

The consultant is hired to perform a valuable service for FDOT. When that obligation is accepted, along with it is the obligation to perform under the same ethical standards that are expected of the FDOT employee. This obligation is particularly important when the consultant represents the FDOT to the public and other organizations. Therefore, the consultant PM should review and conscientiously apply the standards discussed above and avoid placing the FDOT PM in a position that might compromise his or her ethical obligations. If the consultant is a Professional Engineer or a Professional Land Surveyor the laws and rules governing the appropriate profession must be followed.

Both the FDOT PM and the consultant PM need to be vigilant to maintain the proper ethical standards as stated above, and guard against any hint of compromise including the acceptance of any gift of any value.

The FDOT – Contractor Relationship

Contracts between FDOT and construction contractors involve considerable public funds and require close daily supervision and coordination. All involved must therefore understand the necessity to keep their relationship on a professional level and not provide the public with any hint of inappropriate behavior or ethical misconduct.

FDOT, Construction Engineering and Inspection (CEI) consultant and contractor personnel must guard against any hint of compromise, including the acceptance of any gift of any value. Contractual obligations of the contractor must be fulfilled completely and in accordance with the plans and specifications. Any deviation must be in accordance with procedures and properly documented. FDOT and CEI personnel are in a special position of public trust with important responsibilities. They must conduct themselves in a manner that reflects that trust.

Reporting Breaches of Ethics

FDOT employees and consultants are obligated to report violations of the law. Such breaches should be reported through the employee's management chain immediately. The Office of Inspector General hotline can be called at 1-800-255-8099 when you suspect:

- Someone is using FDOT property or people for personal gain.
- Someone is intentionally misleading FDOT for personal gain.
- Someone is taking some benefit to "look the other way."
- You're not sure if you should call to report suspicions.

The Professional Services Office should be involved in any case dealing with consultant ethical breaches. Professional Engineers are obligated to report violations of laws and rules pertaining to professional engineers to the ***Florida Board of Professional Engineers (FBPE)***. Professional societies such as the ASCE and the NSPE also have ethical review boards for such complaints. Finally, if an engineering firm is involved in unethical conduct, a complaint can be made to the ***Florida Institute of Consulting Engineers (FICE)***.

CHAPTER 3 – PROJECT WORK PLAN

Contents

Introduction 2
Who Should Prepare a Project Work Plan? 2
The Project Work Plan Concept 3

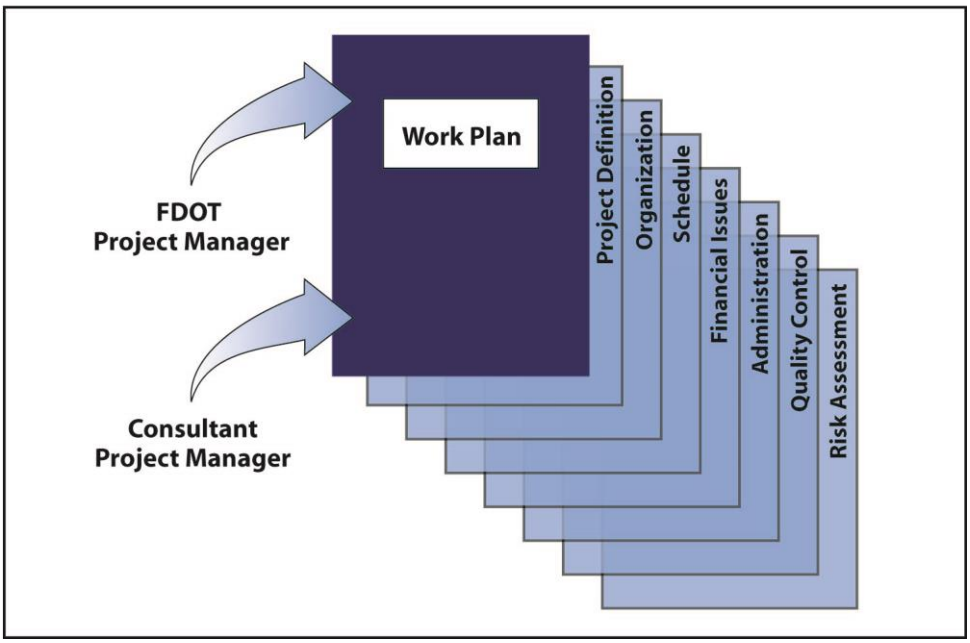
Introduction

One key to a successful project can be the development of a Project Work Plan. The purpose of the Project Work Plan is to promote the efficient, organized, and timely completion of the work product according to schedule, budget and contract requirements. The Project Work Plan details the job scope, defines the work product and establishes task sequencing, budget, resource allocation, and the schedule.

Who Should Prepare a Project Work Plan?

Project Managers in all project phases will benefit from the development of a Project Work Plan that addresses the criteria for a successful project. **Figure 1**, Work Plan Development, illustrates the typical Project Work Plan components. 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 elements, however, will not apply directly to these projects and will need to be modified or eliminated.

Figure 1
Work Plan Development



The Project Work Plan Concept

In general, the Project Work Plan 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 Project Work Plan 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 his/her perspective that addresses the needs of each organization. If a consultant is performing the project, the Project Work Plan 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 Project Work Plan becomes a “contract” between the PM and others within FDOT.

The format and level of detail of a Project Work Plan varies according to the author (FDOT PM or consultant PM) and the type, size and complexity of the project. The suggested elements of a Project Work Plan discussed in this chapter should be modified to fit the project and the needs of the PM. In fact, both the FDOT and consultant firms routinely prepare many of the elements of a Project Work Plan outlined in this chapter. 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 Project Work Plan is not to replace project files, which will contain detailed documentation of most of the items discussed in this chapter. The Project Work Plan 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 Project Work Plan 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 Project Work Plan after selection but before notice to proceed. An initial Project Work Plan 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.

The Project Work Plan must be a living document, growing in detail as a project progresses. It is probably best placed in a loose-leaf binder to allow easy revisions and insertion of attachments.

Suggested Outline

Figure 2, Project Work Plan Outline, outlines all the elements that should be considered for a Project Work Plan. The text that follows explains the type of information that could be included. Many of the individual elements are discussed in more detail in other chapters of this handbook.

Figure 2
Project Work Plan Outline

1. **Project Definition**
   a. Title and Identification
   b. Project Description
   c. Project Limits
   d. Objectives
   e. Scope of Services (attach)
   f. Commitments
   g. Constraints and Assumptions
   h. Expectations
   i. Deliverables
2. **Organization/Human Resources**
   a. Organization Chart (attach)
   b. Key Personnel (attach)
   c. Subconsultants
   d. Staffing (attach)
   e. Delegation Plan
3. **Schedule**
   a. Schedule (attach)
   b. Critical Path Elements
   c. Major Milestones
4. **Financial Issues**
   a. Contract Values
   b. Method of Compensation
   c. Invoicing
   d. Optional Services
   e. Contingencies
   f. Budget
5. **Project Administration**
   a. Responsible Office
   b. Administrative Staff
   c. Project Files
   d. Special Needs
   e. Communication Plan
   f. Meeting Schedule
   g. Internal Reporting
   h. Progress Reports
   i. Project Closeout Requirements
6. **Quality Control (QC)**
   a. QC Plan (attach)
   b. Responsibilities
   c. Required Submittals
7. **Risk Assessment**
   a. High-Risk Elements
   b. Contingency Plan

1. Project Definition

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

b. ***Project Description*** should be a brief description of the project that can be used consistently in all project documents.

c. ***Project Limits*** should be the same as what appears in the work program.

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

e. ***Scope of Services*** should be referenced and attached to the Project Work Plan. Include with the scope all significant understandings and agreements reached during negotiations.

f. ***Commitments*** made in previous phases of work should be listed.

g. ***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.

h. ***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 his/her management.

i. ***Deliverables*** should be specifically listed. Frequently not all deliverables are specified in the scope of services, but they are required by reference to

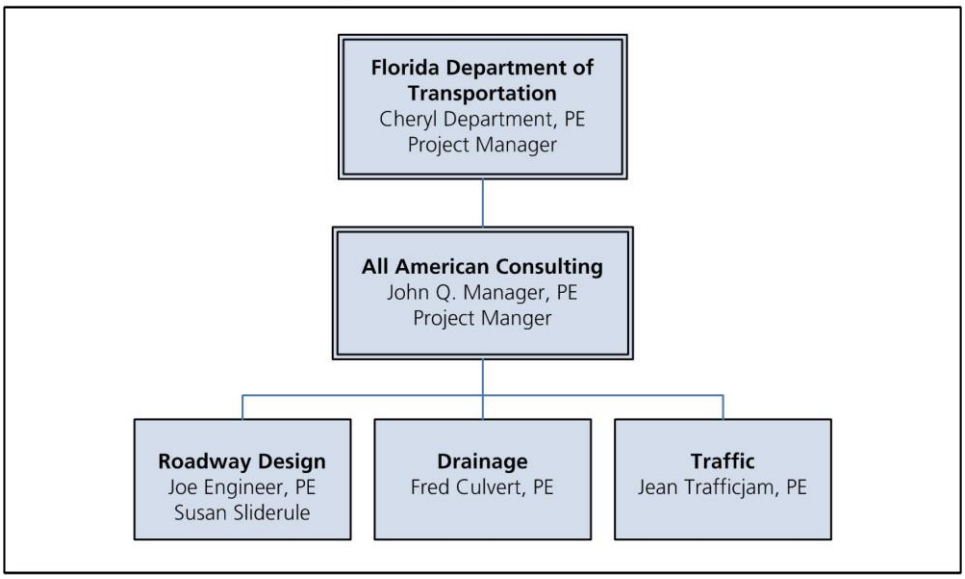
FDOT policy or manual. For example, the Plans Preparation Manual (PPM) contains requirements for deliverables that may not necessarily be repeated in the scope of services. The plan should list everything that must be delivered, including number of copies, printing and other requirements.

2. Organization/Human Resources

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. Who are the members—formal and informal—of the project team?

a. An *Organization Chart* for both the FDOT and the consultant should be attached. Organization charts should be simple, showing clear lines of responsibility. **Figure 3**, Typical Organization Chart, illustrates the information included on an organization chart.

Figure 3
Typical Organization Chart

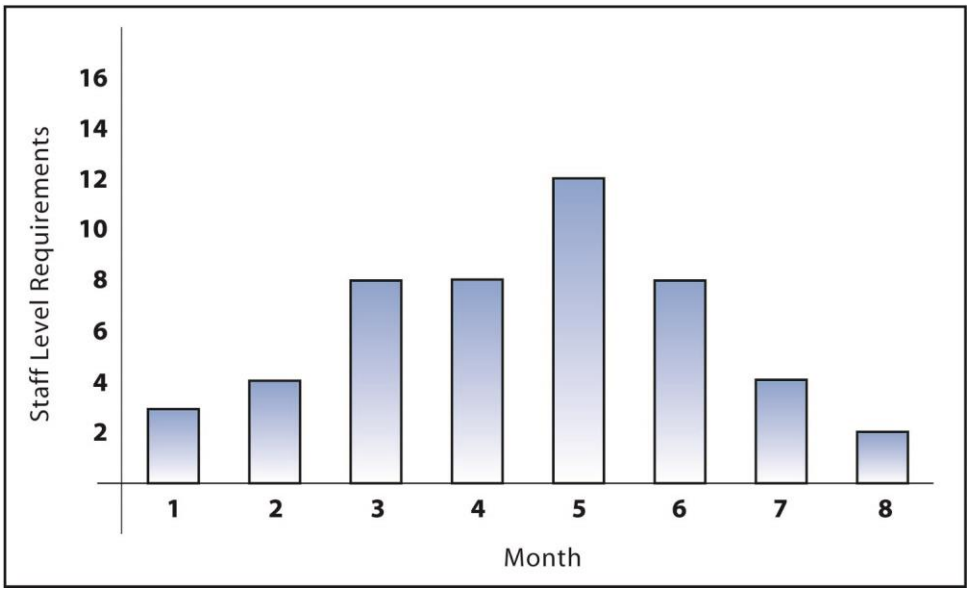


b. Key personnel include the PM and her/his supervisor and key assistants for both the FDOT and the consultant. A responsibility and contacts chart should be attached. (A sample form follows the internet references at the end of this chapter.) For design and other engineering projects, the engineer in responsible charge of the work, as defined in ***Rule 61G15-18.011(1) F.A.C.***, should be clearly identified. The Code can be found at the ***Florida Board of Professional Engineers*** website. This identification is not necessary for right of way, planning and other non-engineering projects.

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, as illustrated in **Figure 4**, Staff Level Requirements. 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. The staffing plan should be attached.

Figure 4
Staff Level Requirements



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 good PM understands that he 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. If engineers other than the EOR will be in responsible charge of parts of a project, the EOR must delegate that responsibility in writing. For example, if a roadway design project includes a bridge and traffic signal design and the EOR is a roadway engineer, she/he will delegate those portions of the work to qualified structural and traffic engineers who will sign and seal the sheets for which they are responsible. The delegation plan can be used to fulfill these requirements.

3. Schedule

Every project should have a specific schedule. Project Management Handbook, Part I, Chapter 15, discusses scheduling in detail. 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.

a. The schedule should be attached to the Project Work Plan. 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.

b. A list of the ***Critical Path Elements*** should be summarized in the schedule to help the PM plan for the more important work activities.

c. A list of Major ***Milestones*** will help the PM and the team to focus on important schedule events.

4. Financial Issues

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

a. ***Contract Values*** identify the amounts in the contract and include all contracted subtotals and limits.

b. ***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.

c. ***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.

d. **Optional Services** should be identified along with trigger dates for timely actions.

e. ***Contingency funds*** 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.

f. 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 in order to achieve a profit. Each firm has its own project budgeting procedure that should be followed and included in the Project Work Plan.

5. Project Administration

The Project Work Plan should clearly identify how the project will be administered.

a. The ***Responsible Office*** should be identified for consultants.

b. ***Administrative Staff*** who will handle project actions such as filing, word processing, invoicing and accounting should be identified.

c. ***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.

e. ***Special Needs*** such as travel procedures; vehicles and special equipment should be included as appropriate.

f. The ***Communication Plan*** may be the most important administrative issue. How will the PM communicate with his/her FDOT/ consultant 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.

g. 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 him/her to understand important project issues.

h. Routine ***Internal Reports*** to both the FDOT and the consultant firm should be listed, as appropriate. Include distribution of internal reports.

i. ***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.

j. The ***Project Closeout Requirements*** often are not completed in a timely manner, and administrative and financial problems result. The requirements of both the consultant and the FDOT PM to closeout the project completely should be listed. An index of archived files with specific instructions for retrieval should be included.

6. Quality Control

Quality assurance and quality control are discussed in detail in Project Management Handbook, Part I, Chapter 16. Every project should have a Quality Control (QC) plan. Although this has become the standard on design projects, it is not always formally done on other projects phases such as planning and PD&E. **Figure 5**, Quality Control Plan, shows basic requirements.

a. The project ***QC Plan*** should be attached to the Project Work Plan. If a formal QC plan is not required, a simple one can be prepared as part of the Project Work Plan.

b. Those with specific ***Responsibilities*** should be listed, including reviewers.

c. Any ***Required Submittals*** related to the QC Plan should be listed.

7. Risk Assessment

Figure 5
Quality Control Plan

1. **Definition of Project**
2. **Schedule**
3. **Project Manager**
4. **Quality Control Officer**
5. **Deliverables**
6. **Quality Control Procedures**

The hallmarks of a successful project normally are completing the project requirements on time, within budget and with an acceptable quality. The Project Work Plan 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.

Additional information is covered in Project Management Handbook, Part I, Chapter 19.

CHAPTER 4 – MONITORING AND CONTROL

Contents

Introduction 2
Monitoring 2
Control 6
When Things Go Wrong 9
When Things Go Right 9

Introduction

A primary responsibility for a Project Manager (PM) is to project monitoring and control. The objective is to identify and correct problems before they jeopardize the success of the project. The Project Work Plan, as explained in Part I, Chapter 3, provides the benchmarks for monitoring and control. As with the information in Part I, Chapter 3, the material in this chapter must be modified to be applicable to construction and maintenance projects.

Although this chapter is intended for both Florida Department of Transportation (FDOT) and consultant Project Managers PMs, FDOT PMs must understand that they have special and very important monitoring responsibilities. The proper stewardship of state resources is a fundamental responsibility of FDOT managers and staff. Resources must be used in a manner consistent with the FDOT's mission, in compliance with law and regulation, and with a minimum of waste and mismanagement. FDOT employees must ensure that resources are used efficiently and effectively to achieve the desired results.

Monitoring

Primary monitoring efforts should be directed to the definition of a successful project: namely, meeting objectives, on budget, on time and of acceptable quality.

Objectives: Are project objectives being monitored on a routine basis throughout the life of a project to ensure that the project stays focused?

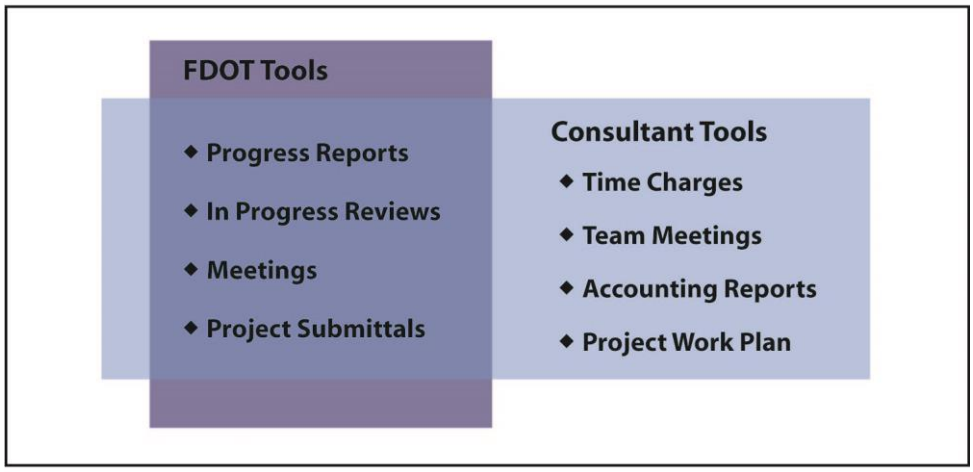
Budget: Are the costs of the project under control? For design projects, is the estimated construction cost within that planned?

Schedule: Are milestones being met? Are critical path activities anticipated and managed?

Quality: Is the Quality Assurance/Quality Control plan being followed? Is the plan working?

Monitoring tools provide both project managers a clear picture of the project status. There are many progress monitoring tools available. Some tools may be more applicable to the Consultant Project Manager or to the FDOT Project Manager. **Figure 1**, Monitoring Tools, shows some of the monitoring tools, and to which PM they are most applicable.

Figure 1
Monitoring Tools



Progress Reports: The FDOT and consultant PMs have different monitoring responsibilities. A routine (usually monthly) progress report from the consultant should be the primary monitoring tool for the FDOT PM. The progress report should include the following information:

- Activities during the previous reporting period.
- Activities planned in the next reporting period.

Progress: Compare planned percent complete with actual percent complete. **Figure 2**, Sample Progress, demonstrates one method of tracking planned progress compared to actual progress and costs.

Project Objectives: Discuss any developments that may impact accomplishment of the project objectives.

Scope of Services: Surface any issues that may affect the scope of services.

Budget: If it is a cost plus fixed fee contract, report actual and planned expenditures. Compare them with the progress report and discuss any obvious discrepancies. If it is a lump sum project, it is not necessary to report on expenditures. Address any foreseeable needs for supplemental agreements. If the project is for design, point out any project developments that will significantly affect the construction costs.

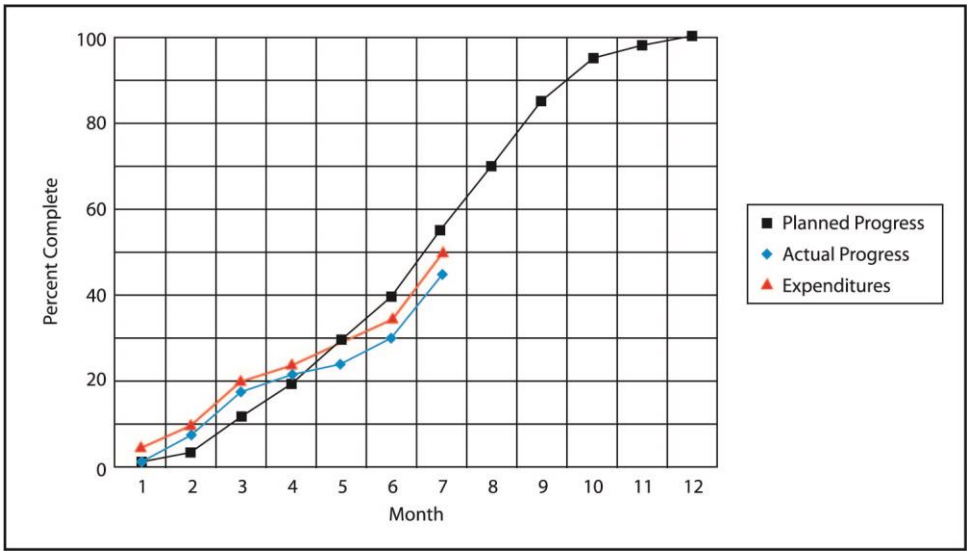
Schedule: A milestone list showing the chronology of deliverables and other key events is a simple and helpful way to discuss the schedule. Show detailed

milestones for the coming two months but just the major milestones for future periods. Another useful reporting technique is to list upcoming critical path activities as well as their projected durations and start dates. Include any appropriate discussions about preparations, concerns or other issues related to these activities.

Quality: Actions related to the project quality control plan should be reported. They should include submittals currently under quality control review and planned QC activities. This information provides documentation that the QC plan is being followed and that future activities are properly planned.

Problems: Explain any unusual events that have occurred or may occur that could affect the project objectives, budget, schedule or quality. Suggest solutions to resolve problems so their impacts are minimized.

Figure 2
Sample Progress Chart



In-Progress Reviews: An effective monitoring tool for the FDOT Project Manager is a visit to the office or work site of the consultant performing the project for an in-progress review. In-progress reviews are not effective if the consultant feels it necessary to put on a good show. The purpose should be to get a feel for progress of the work, to gain a first-hand appreciation for significant issues, to offer input into the job as it is progressing and to foster communications. The FDOT PM should give a relatively short notice of the visit, carefully explain the purpose, and expect to see a “work in progress,” not perfection.

Meetings: Review meetings are a more formalized variation of the in-progress review. These meetings may be specified in the scope of services. Review meetings should be well planned and well run, using the suggestions found in Part I, Chapter 1. If decisions are needed during a review meeting, the PM must make sure that the requested decision is clearly identified. The decision-maker should be presented with alternatives and the consequences of each as well as the PM's recommendation. Good minutes of review meetings are very important. Someone must be assigned responsibility to record and transcribe minutes. A draft of the minutes should be provided to the FDOT PM for comment before they are published.

Project Submittals: The Project Work Plan should include a list of all deliverables. They should also be shown on the milestone list. The consultant Project Manager should ensure that every submittal is made on time, is complete, meets the contract requirements and has undergone the necessary quality control checks before submittal. The FDOT Project Manager should review the submittal to ensure that project requirements are being achieved and that the project is on the right track. It is not necessary to perform a detailed technical check. Part I, Chapter 16 contains information on quality control and submittal reviews. The FDOT Project Manager has an obligation to comply with the allotted review time periods, just as the consultant must meet submittal deadlines.

Consultant Issues: The consultant PM must monitor the project on a day-to-day basis. The following recommendations may be of assistance:

- **Time Charges:** The accounting procedures of most firms allow Project Managers to monitor the time charges of the team members. PMs should ensure that the time expended is adequate to accomplish the assigned tasks. Avoid excessive charges because they will adversely affect profitability. Labor costs are the largest project expense under the control of the Project Manager. These costs must be monitored carefully.
- **Team Meetings:** Internal team meetings should be held on a routine basis, using good meeting management techniques. Remember to include subconsultants. Build the agenda around the elements of a successful project: project objectives, schedule, budget and quality.
- **Accounting Reports:** Formal accounting reports vary by firm, but most provide PMs with detailed reports of labor, direct expense, overhead charges and projected profitability. Other important reports may include invoicing and payment data.
- **Project Work Plan:** Review the work plan periodically to evaluate progress. As a project progresses, unforeseen situations and conditions always come up. Update the plan as necessary, and then communicate the revised plan to your team members. If any revision

requires a change in the contract or scope of services, take appropriate contractual actions first.

- **Earned Value Analysis.** Another monitoring tool available to both PM's is Earned Value Analysis. Earned value compares work that has been planned (what has been scheduled to be completed within the measurement period) with work that has been done (work performed within the measurement period), and compares the planned cost of the work completed (what we had planned to pay) with the actual cost of the work (what we actually paid).
- **Earned Value Analysis (EVA)** is a technique used to integrate, measure, and report project performance for the project's scope, schedule, and resources. This technique allows the project manager to relate project schedule, cost and scope using specific mathematical formulas that, when used in calculations, will indicate where variances to the plan exist and where corrective action may be required.

Control

All the monitoring tools discussed in the preceding pages are available so that the Project Manager can detect problems early and take corrective actions before project success is jeopardized. A common mistake is identifying a problem but failing to take effective corrective action in a timely manner.

Problem Indicators: The Project Manager must be alert to signals that there are problems with her/his project. If these indicators are identified and acted on early, they may not jeopardize project success.

Steady Erosion of Actual vs. Planned Progress: Actual and planned progress will not always match from one reporting period to another. However, when the actual progress consistently falls behind planned, and the difference grows each reporting period, there is a problem. Usually, this problem needs to be addressed in the first third of the project duration. When a discrepancy occurs, there are two choices: revise the schedule and/or develop a plan to catch up. If the original schedule was not realistic or unforeseen events have delayed the project, it may be appropriate to revise the schedule. Be aware that revising the schedule may require a modification to the contract. If a schedule change is made, be sure it is well documented and the necessary people have been informed of the change. If it is necessary to catch up, don't just say, "We will work harder." Determine why progress is falling behind and specifically address the problem.

Mismatch of Actual vs. Planned Expenditures: If the project is a lump sum contract, a mismatch will be an internal concern to a consultant firm only. If it is a cost-reimbursable contract, the FDOT PM should also be concerned. Red flags should be raised if the mismatch is in either direction. If expenditures are lagging, it may be an indication that resources necessary to do the work properly

have not been provided. If expenditures are in excess of the planned rate fairly early in the project, the budget may be in jeopardy.

> It is easy to underestimate the work necessary to wrap up a project at its end. Consequently, if expenditures are higher than planned late in a project, there is usually little chance of correcting the situation. Budget problems must be addressed early and aggressively. Labor costs must be controlled. Imposing "loyalty" work time (non-chargeable time during nights and weekends) has only limited benefit. First, it is only useful if the individuals involved are exempt employees. Since others must be paid overtime, there may be little benefit to the budget. And it will be effective only as an exception. When it becomes the norm, people will burn out and production will decrease. In the worst case, they will leave the organization. It is usually better to evaluate the problem honestly and deal with the source. The problem may be inadequately supervised workers, lack of understanding of the budget, too many personnel changes or a host of other possible issues. Ensure that people are not loading the project with non-productive hours in an effort to maintain chargeability.

Submittal Problems: Unsatisfactory submittals are perhaps the most important indicator of a problem. An unsatisfactory submittal is cause for dramatic action on the part of a Project Manager because it calls the overall project success into question. Project personnel changes may be necessary. The consultant Project Manager must work hard to repair the loss of trust in her/his ability to complete the project. Missed deadlines are another problem indicator related to the above discussion on progress.

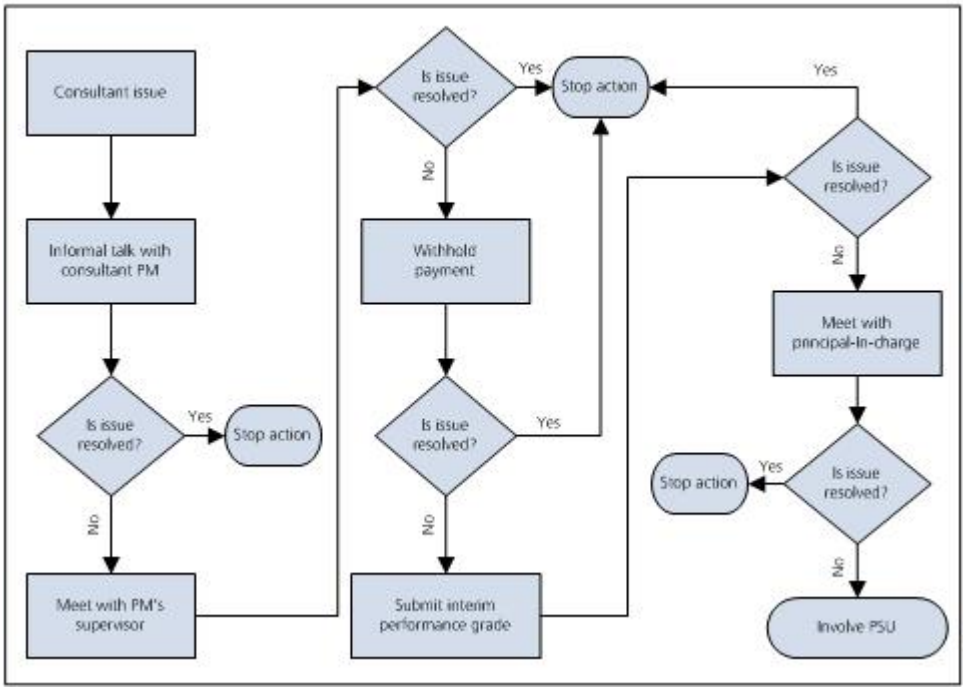
Control Tools: The FDOT Project Manager has several project control tools available. **Figure 3**, FDOT Control Tools, outlines the appropriate course of action to take when issues arise.

Have an informal talk with the consultant Project Manager and voice concerns directly and honestly. Most consultant PMs will appreciate the opportunity to fix the problem before more severe actions are taken. In the majority of cases, this conversation should resolve the problem.

The FDOT PM should meet with his/her supervisor and inform her/him of the problem. The supervisor may wish to deal with the issue personally.

After giving the consultant appropriate notice, withhold payments on invoices if the work has not been satisfactorily completed. Follow-up correspondence with the consultant is necessary to clearly explain why payment cannot be authorized.

Figure 3
FDOT Control Tools



Submit interim consultant work performance evaluations indicating a problem. Since interim performance evaluations can affect selections for other FDOT projects, be completely fair as well as honest in your evaluation. If a poor interim evaluation is submitted, submit a new one as soon as the performance problem is corrected. FDOT Project Managers can submit interim evaluations at any time. Performance evaluations are designed to recognize good performance, provide feedback in an effort to prevent problems as well as to correct sub-par performance. More information on consultant work performance evaluation can be found in Part I, Chapter 14, in this handbook.

Talk to the firm's principal in charge of the consultant Project Manager. This action is going over the head of the consultant Project Manager. Take it only after giving the consultant PM ample opportunity to correct the problem, but to no avail. There are also times when the only solution to a problem is beyond the authority of the consultant PM. In discussions with the PM's principal, be direct about the problem, recommend a solution and explain the consequences to the firm if corrective action is not taken. Be careful not to ask for anything that may be beyond the requirements of the contract and scope of services. Be aware that such a step may result in serious actions against, or even the removal of, the

consultant PM. Before taking this action, the FDOT PM should always check with her/his supervisor. It is usually appropriate for more senior FDOT managers to make contact with the firm principal.

When Things Go Wrong

The discussions above deal with ways to monitor and control a project. When a project is going badly, the best rule of thumb is: "Always give bad news early, rather than late." If the project is in danger of not meeting objectives, of being late, or of being over budget, the PM should let management know as soon as all possible efforts to get it back on track have been exhausted. Neither FDOT nor the management of consultant firms likes unpleasant surprises at the end of a project. When bad news is delivered early, management is likely to work with the PM to redefine the project objectives and minimize the consequences of the problem. In any case, major problems will not go away and will not solve themselves. Surface them as early as possible.

When Things Go Right

It is more common for FDOT projects to be successful than otherwise. When things go right, the Project Manager should share the credit by recognizing team members who contributed to the success. In addition to the conventional personnel procedures (performance ratings, letters of commendation, and so forth), look for ways to recognize high performers publicly. Social events, mementos of the project and praise before co-workers are all appropriate. If the consultant performed well, the FDOT PM should recognize that in the performance evaluations for the project and be willing to make appropriate recommendations to other potential clients of the firm. The consultant PM should remember the contributions of subconsultants. Finally, contributions of stakeholders, either organizations or individuals, should be recognized by the FDOT.

CHAPTER 5 - THE FLORIDA DEPARTMENT OF TRANSPORTATION

Contents

Introduction 2
Organization 4
Districts 4
State Policy Framework 7
Acronyms 7

Introduction

The ***Florida Department of Transportation (FDOT)*** is a significant and vital state agency. Some statistics attest to this fact:

- A typical FDOT fiscal year budget is over $9 billion.
- FDOT has approximately 8,000 employees.
- A typical FDOT Five-Year Work Plan includes over $35 billion in transportation projects.
- FDOT is among the largest agencies in the State of Florida, accounting for nearly ten percent of the total state budget and 6 percent of the total state employees.
- FDOT oversees 775 aviation facilities, 15 seaports, over 2900 miles of railroad and over 3400 miles of navigable waterways.

This impressive program is operated in large part by the successful execution of projects; these include studies, designs, construction and maintenance. Project Managers (PMs) are a key component in maintaining the excellent reputation for service delivery enjoyed by the Department.

Figure 1 outlines the Department's mission and values.

Figure 1
FDOT Mission & Values

Our Mission

The department will provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity and preserves the quality of our environment and communities.

Our Vision

Serving the people of Florida by delivering a transportation system that is fatality and congestion free.

Our Values

The fundamental principles which guide the behavior and actions of our employees and our organization.

Integrity
"We always do what is right"

Respect
"We value diversity, talent and ideas"

Commitment
"We do what we say we are going to do"

One FDOT
"We are one agency, one team"

Trust
"We are open and fair"

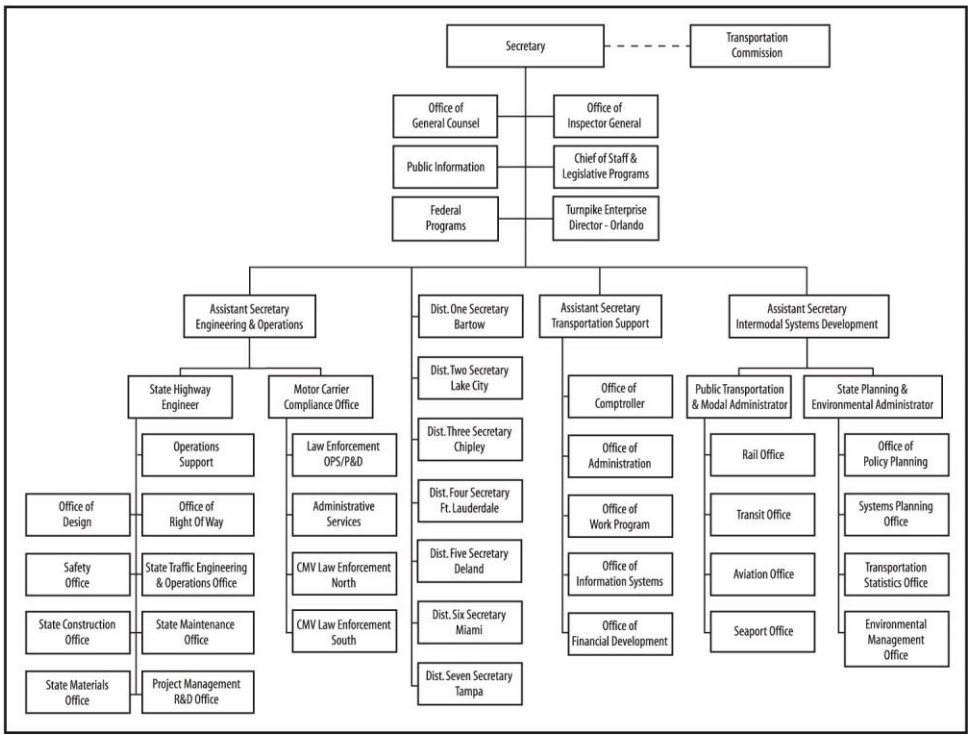
Customer Driven
"We listen to our customers"

Part I, Chapter 8 of this handbook, The Transportation Planning Process, explains how the transportation goals are translated into prioritized projects.

Organization

The Florida Department of Transportation is led by a Secretary of Transportation, who is appointed by the Governor and reports to the Transportation Commission. **Figure 2**, FDOT Organization Chart, defines the department's organizational structure.

Figure 2
FDOT Organization Chart



Districts

The FDOT is a decentralized organization, with much of the day-to-day business of the Department conducted by seven districts, managed by District Secretaries. The Turnpike Enterprise operates much as a district, with the unique characteristics of operating toll facilities statewide and generating revenues from the tolls. The major difference is a unique source of funding. The districts are organized somewhat differently, but each has three major areas of responsibility:

- **Support:** responsible for human resources, facilities, Fixed Capital Outlay, financial services, procurement, work program and performance management.
- **Development:** responsible for planning, project development, environmental studies, roadway and bridge design, right of way, and surveying and mapping.

- **Operations:** responsible for construction, maintenance, traffic operations, materials and safety.

Also important are many administrative functions which include personnel, human resources, contracting, information systems, facilities management and financial
services.

Figure 3, FDOT District Offices identifies the locations and boundaries of the seven district offices.

Figure 3
FDOT District Offices

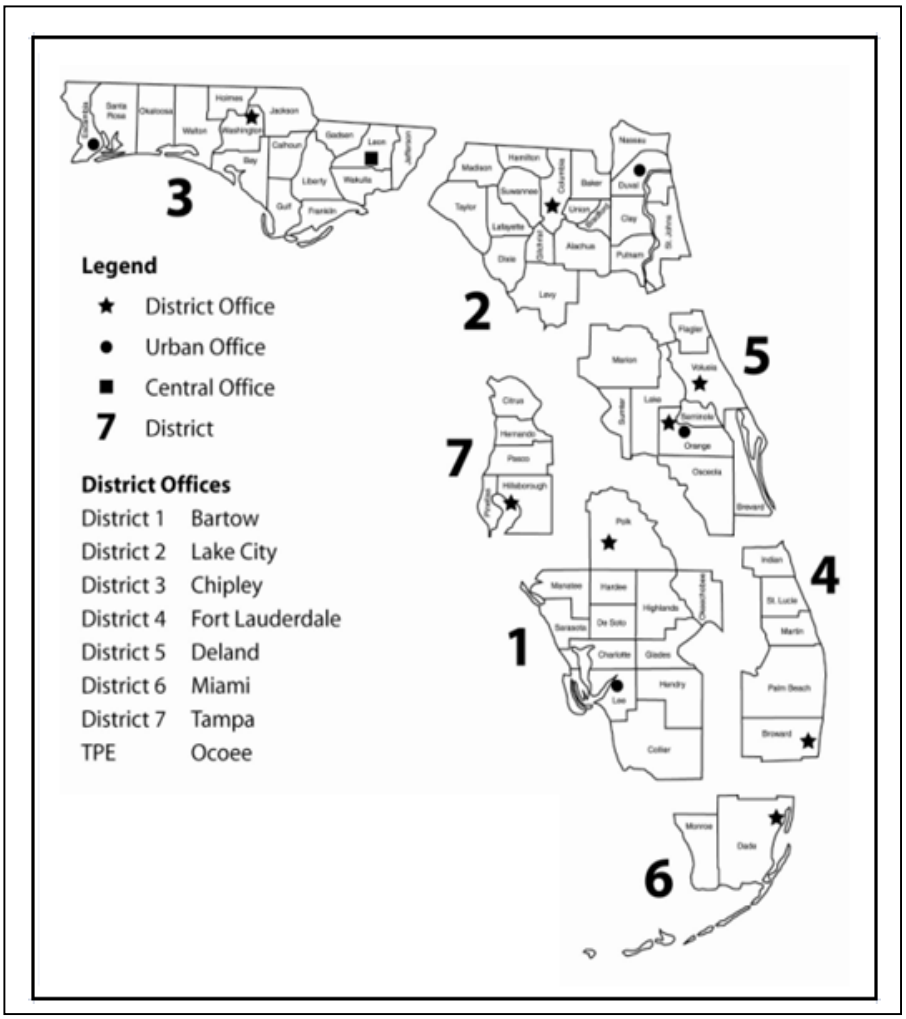
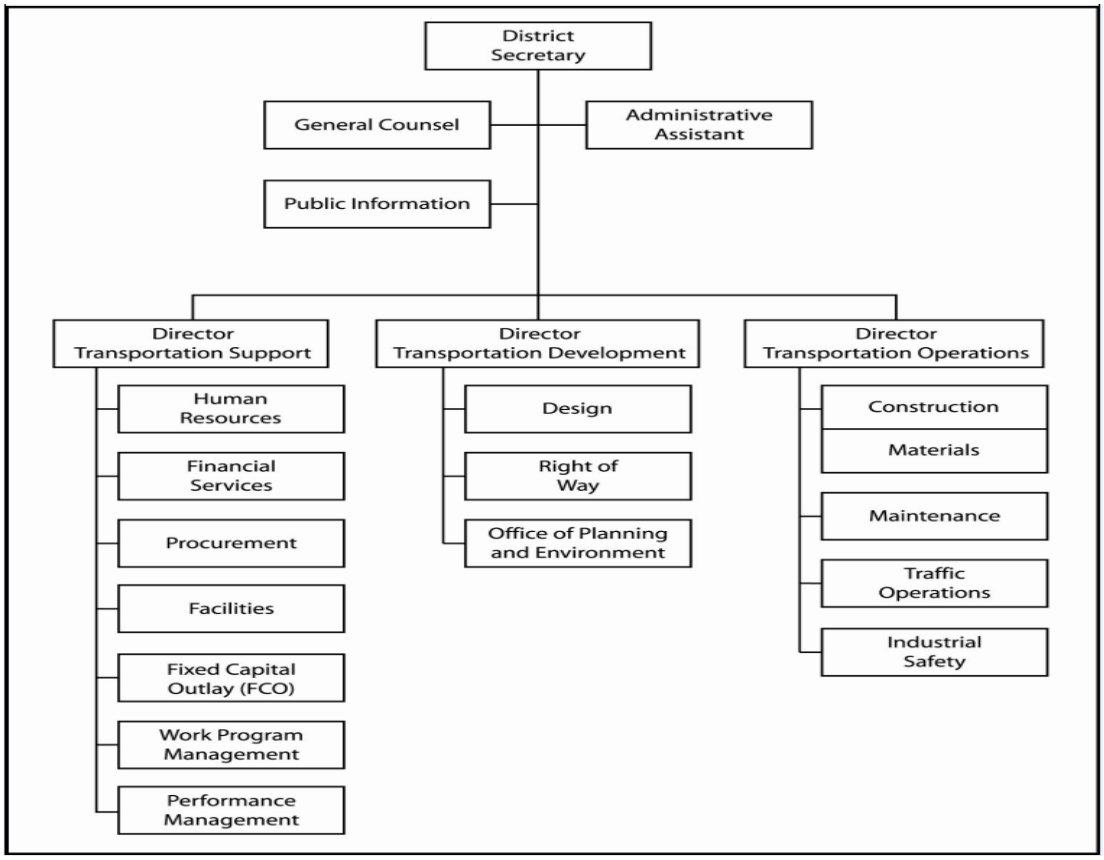


Figure 4, FDOT Typical District Organization Chart, shows a typical district office organizational structure.

It is important for a new FDOT Project Manager to become very familiar with the district organization. The following suggestions may be helpful:

- Develop a list of personal contacts in each office with whom you will have to coordinate on a day-to-day basis.
- Visit each support office and establish relationships early in your project. Remember that office heads are very busy and will have little time to spare.
- Seek out an experienced staff member who has the time and is willing to answer questions and share his/her knowledge.
- Respect the other individual's time constraints.
- Make appointments with key individuals and spend some time simply learning what they do, how you can effectively coordinate your project, and what pitfalls to avoid.

Figure 4
FDOT Typical District Organization Chart



State Policy Framework

The ***Transportation Policy Framework*** consists of laws, policies, procedures, plans and other documents.

Department Procedures are specific operating requirements and instructions that implement policy. The numbering, formatting and approval process of procedures can be found in ***Procedure No. 025-020-002***, ***Standard Operating System***.

- FDOT forms and procedures are available on the ***FDOT Forms and Procedural Documents*** website.
- Project Managers must comply with all applicable procedures. Many of the more important procedures are referenced in the manual, but Project Managers should review the complete list to ensure that they are aware of all appropriate procedures.

Acronyms

As a governmental agency, the FDOT (and the highway engineering profession) frequently uses acronyms for ease of daily communication. People who use them daily tend to forget that they are even using them. People who are not familiar with the FDOT or who are new to highway engineering can find many baffling. The Appendix of this handbook contains a list of commonly used acronyms.

CHAPTER 6 – CONSULTING FIRMS

Contents

Introduction 2
The Business of Consulting 2
Consultant Firm Characteristics 2
Qualifications to Perform Work for FDOT 5
Sources of Information 5

Introduction

Consultant firms are private businesses that contract with the Florida Department of Transportation (FDOT) to perform desired services. Consultant firms are utilized by the Department to accomplish the majority of the projects in the FDOT work program. Consultants perform planning and Project Development and Environment (PD&E) studies, roadway and bridge design, traffic engineering studies and design, materials testing and inspection, surveying and mapping, right of way services, construction engineering inspection services, and asset management services (maintenance contracts). Consultants are also used by the FDOT in general consultant roles to help manage programs, provide technical direction and review the work of other consultants.

The purpose of this chapter is to give a FDOT Project Manager (PM) a basic understanding of how consultant firms operate. Because most of the consultants doing business with the FDOT are engineering firms, much of the discussion in this chapter will focus on them. However, this discussion applies as well to the many consultant firms that offer other services used by the FDOT such as planning, surveying and mapping, geotechnical, materials testing, archeological, landscape architecture, and right of way services.

The Business of Consulting

Consultant firms doing business with FDOT vary in size, services offered, locations, management, organization and corporate cultures vary. However, there are also similarities. As businesses, all have profit as an objective. To do business with FDOT, all must conform to basic accounting procedures. All must practice in accordance with Florida laws and rules relating to the practice of professional engineering or other regulated professions.

Consultant Firm Characteristics

Each consulting firm is unique, but there are some common characteristics among many firms in terms of organization, staffing and financial operations.

Organization: Organization of consultant firms is generalized by size. The American Council of Engineering Companies defines firm size by number of employees: small firms, 1- 30 employees; medium firms, 31-150; and large firms, 151 or more employees. The actual number of employees used to categorize a firm is not important, but firm size does account for some organizational differences.

- **Small firms:** Most small firms practicing in Florida are Florida based and have only one or very few offices. Small firms usually specialize in one or a few technical services. Small firms must have very flexible organizations. Personnel are assigned to projects as needs arise. Individuals may be expected to perform a large number of tasks. It is

common for managers and engineers to perform necessary administrative tasks in addition to their technical work.

- **Medium firms:** These firms usually have several offices and groups of technical specialists. Specialized subgroups are likely to exist, such as roadway design, stormwater design, bridge design and traffic engineering. Medium firms are likely to have an accounting group, human resources and other administrative staff.
- **Large firms:** Most large firms operate in several states and have multiple offices. Many have an international practice. Large firms are usually organized either geographically or functionally, and sometimes they are a hybrid of both. Offices are usually grouped into regions. Large firms frequently have very specialized technical groups that provide services throughout the firm and well-defined administrative procedures.

Although medium and large firms have more resources, local offices may be very small and, in fact, may operate in a fashion similar to small firms.

Firms can be sole proprietorships, partnerships or corporations. While some of the larger firms are corporations whose stock is publicly held and traded, in most incorporated firms stock is privately held, commonly by the senior employees of the firm. Employee-owned firms, known as Employee Stock Ownership Plans (ESOPs), are becoming more common. An ESOP has broad employee ownership of company stock.

Consultant firm management is closely related to the ownership and size of the firm. Senior management of sole proprietorships and partnerships usually rests with the owners themselves. Stockholders, as represented by a board of directors, ultimately control corporations. A board of directors elects senior corporate officers, which may include positions such as president, chief executive officer, chief operating officer and vice presidents. There may be a number of vice presidents in a firm, each with a specific area of responsibility. A vice president is considered an officer of the firm with the power to make contractual commitments. Consultant firm organizations seldom have fixed positions with clearly defined position descriptions. More common is the tailoring of an organization to fit the skills and abilities of key employees.

Staffing Issues: Skills and abilities of employees determine the success of a consultant firm. Hiring and keeping highly qualified people are always important objectives. Project Managers are critical to the success of a consultant firm. Minimum qualifications of a consultant PM usually include professional registration, technical expertise and experience, project management skills, qualifications that will “sell” to clients, and the ability to market and win projects. The qualified consultant PM must be able to build professional relationships, write letters of interest and proposals, and make good presentations.

Financial Operations: Key to understanding consultant firm financing is being aware that every cent spent must be accounted for. Labor is by far the largest single expenditure of firms. Labor costs are accounted for by tracking hours charged to either projects or overhead accounts. Direct expenses must also be accounted for in the same way. All charges are either project chargeable or overhead.

Overhead costs can usually be subdivided into three groups, roughly equivalent in size:

1. **Employee benefits:** This group includes pay for vacation, holiday and sick time; firm contributions to retirement plans and social security; insurance costs and all other employee benefits. Since these are usually established by policy, management has very little control that over their costs.

2. **Direct expenses:** Direct overhead costs include office rent, computer hardware and software, office supplies, equipment, training and all other direct costs that are not chargeable to projects. Although some control of these costs is possible, the larger direct expenses are usually rent and computer systems. These are major, long-term commitments.

3. **Labor costs:** This group includes all non-project chargeable labor costs, including firm management, administrative staff, accounting, time for training and marketing. Marketing is usually a large cost. It includes the time required to present the firm to potential clients in the most positive light, to track potential projects, to prepare letters of interest and proposals, and to make presentations. Chargeable time is the overhead component that managers have most control over.

Overhead is calculated by adding all overhead direct expenses and labor costs associated with each of these three groups and dividing by the total project chargeable labor cost. Because project-chargeable costs are the base, the overhead rate is very sensitive to project chargeability of labor. A relatively small increase in non-chargeable time can create a large increase in the overhead rate which, in turn, will have a negative impact on profitability. For this reason, consultants must always be concerned about time chargeability.

FDOT contracts are based on the audited overhead rate, which is a firm's final overhead rate for the past fiscal year. An independent auditor must be used to arrive at the audited overhead rate. FDOT has very strict guidelines on the acceptability of overhead charges that can be included in an audited overhead rate.

To make a reasonable profit, it is necessary to balance overhead costs and volume of work. These two factors are interrelated and sometimes competing. A sufficient backlog of work ensures the resources to maintain adequate staffing. Overhead funds must be expended for marketing to obtain a steady flow of new

work. The key to profitability for a consultant firm is to strike a balance between the two.

Qualifications to Perform Work for FDOT

Rule Chapter 14-75, Florida Administrative Code, describes the qualification process for consultants, work categories that the FDOT uses for professional consultants and the minimum qualifications required for each. Considerations used in the qualification process are:

1. Professional license or registration.
2. Personnel with appropriate experience and training.
3. Business registration with the Department of State.
4. History of failure to maintain satisfactory work performance evaluations with the FDOT.
5. Integrity and responsibility.
6. History of conviction of contract crime.
7. Employment of or providing compensation to any employee or officer of the Department.
8. Attempts to influence the actions or judgment of Department employees.
9. Acceptability of supporting overhead, accounting system and insurance information.

FDOT Prequalified Consultants provides a list of all prequalified consultants by work category.

A list of Certified Disadvantaged Business Enterprises (DBE), including consultants may be found under DBE on the ***Equal Opportunity Office (EOO)*** website. The site also contains the forms and application procedures for firms seeking DBE certification. FDOT always gives consideration in the selection of professional consultants to DBE consultants and to consultants who propose to use DBE subconsultants when other factors are equal.

Sources of Information

When selecting a consultant or beginning a project with a consultant, a FDOT PM should learn as much as possible about the firm. With just a little work, a PM can find valuable information about a firm's size, services, headquarters and office locations, principals, organization and corporate culture. A good place to start is the FDOT qualification information discussed above. Another good source is the ***Florida Institute of Consulting Engineers (FICE)*** Annual Directory & Guide, which includes a description of services offered by member firms and their office locations, principals and the number of Florida-based

employees. Copies of the directory can be obtained directly from their website. Most consultant firms maintain their own websites. Finally, many firms produce excellent company brochures and newsletters.

CHAPTER 7 – RESPONSIBILITIES AND ROLES OF PROJECT MANAGERS

Contents

Introduction 2
Areas of Responsibilities.....2
Consultant Projects.....4
Working Together 5

Introduction

The Project Manager (PM) is are 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. Resources 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 must be avoided. FDOT employees must ensure that resources are used efficiently and effectively to achieve the intended results. Detailed information on PMs' financial responsibilities is included in Part I, Chapter 10, Work Program and Project Funding, and Part I, Chapter 14, Consultant Contract Management.

Areas of Responsibilities

Project Managers responsibilities are described in the following list:

- **Scope:** The scope defines 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 Project Manager to meet the contract objectives.
- **Cost:** Keeping cost within the budget is a primary responsibility of the Project Managers. They should also 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 Project Manager.
- **Quality:** The Project Manager must deliver a product of a quality that meets or exceeds the standards of the Department and the profession.
- **Risk:** There is some risk associated with all projects. The Project Manager, whether consultant or FDOT, must be aware of risks and work to reduce or eliminate unacceptable risk to the project. Risk management is an important and often-overlooked role of the Project Manager.
- **Communication:** The Project Manager 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 Project Managers. Project Managers 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 people assisting them. The development of consultant personnel is also in the interest of the FDOT and should be encouraged by the FDOT PM.

All these responsibilities are addressed in detail in other chapters of this handbook. This chapter summarizes the respective responsibilities and roles of the FDOT Project Manager and the consultant Project Manager.

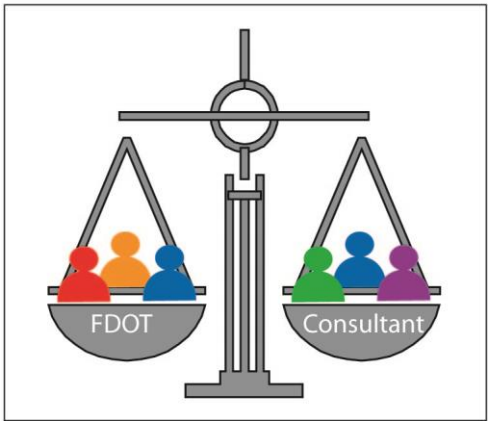
These responsibilities apply to all Project Managers, whether they are FDOT or consultant, who are managing any phase of a project: Planning, Project Development and Environment (PD&E), Design, Right of Way, Construction or Maintenance. The PM is at the hub of concern and accountability. Figure 1, **Project Manager's Accountability**, illustrates this concept. It is apparent that the roles of Project Managers differ in the various project phases. Specific roles and responsibilities are discussed in detail in Part II of this handbook.

Figure 1
Project Manager's Accountability

Consultant Projects

When a project has a Department and a consultant Project Manager, both are equally responsible for the success of the project; however it is important that each one's responsibility and role be clearly defined. **Figure 2**, Project Manager's Responsibility, depicts the importance of both Project Managers. The FDOT Project Manager is accountable to the management of the Department for the success of the project. The PM must take ownership of the project. The FDOT PM must have a drive to succeed (discussed in Part I, Chapter 1) 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.

Figure 2
Project Manager's 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 his/her firm related to both profitability and obtaining future work. The consultant PM also has professional obligations and responsibilities that must be fulfilled. The PM should aggressively pursue the project to completion and not wait for specific instructions from the FDOT PM at each step of the way.

Both the FDOT and the consultant Project Manager have specific roles to play in the fulfillment of the responsibilities discussed above. Their roles are illustrated in Figure 3, **Respective Roles of Project Mangers.**

Figure 3
Respective Roles of Project Managers

	FDOT PM MUST	Consultant 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.	◆ 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. ◆ 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: work products are deficient, the consultant is not responsive or the project is significantly behind schedule.	◆ Thoroughly know and understand the contract and fulfill all contractual obligations. ◆ Fulfill all contract 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 on a timely basis and propose reasonable solutions.
Cost	◆ Stay within the budget; be concerned about total costs, including design, right of way, construction and inspection services. ◆ Process appropriate changes in the contract amount.	◆ Complete the project within established budget. ◆ Meet the profit objectives for the project set by firm management.
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.	◆ Meet all schedule requirements. ◆ Know which activities are on the critical path and manage these activities aggressively. ◆ Update schedule as needed. (continued)

Figure 3
Respective Roles of Project Managers

	FDOT PM MUST	Consultant 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.	◆ 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. ◆ 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: work products are deficient, the consultant is not responsive or the project is significantly behind schedule.	◆ Thoroughly know and understand the contract and fulfill all contractual obligations. ◆ Fulfill all contract 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 on a timely basis and propose reasonable solutions.
Cost	◆ Stay within the budget; be concerned about total costs, including design, right of way, construction and inspection services. ◆ Process appropriate changes in the contract amount.	◆ Complete the project within established budget. ◆ Meet the profit objectives for the project set by firm management.
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.	◆ Meet all schedule requirements. ◆ Know which activities are on the critical path and manage these activities aggressively. ◆ Update schedule as needed. (continued)

Figure 3 (continued)
Respective Roles of Project Managers

	FDOT PM MUST	Consultant PM MUST
Human Resources	◆ Ensure that staff is available to perform the project and to review the project team.	◆ 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 the FDOT. ◆ Delegate effectively. Coach and train others to become Project Managers.

Working Together

The FDOT PM and the consultant PM must function as a team. The responsibilities and roles of both Project Managers 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 his/her counterpart's unique organizational responsibilities.

Successful Project Managers 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. If the consultant PM is not familiar with FDOT procedures, the FDOT Project Manager must spend more time helping the consultant Project Manager gain knowledge and understanding about the Department. Both Project Managers must work to build trust and foster a productive relationship. ***Rule 60L-36.003, Florida Administrative Code***, contains requirements concerning relations with regulated entities, such as consultants under contract. Specifically covered in this rule are offers of employment, receipt of gifts and financial interests.

Relationships are frequently determined by personalities. Sometimes personalities clash. Both Project Managers must be willing to work to overcome potential personality clashes. Communication is essential. Each Project Manager must be forthcoming with concerns about his/her counterpart. There are two sides to every issue, and one party is not always right. 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 not necessary to like the other individual, but 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 Project Manager has a responsibility to recognize the situation and to work with the firm's management and the FDOT to find an acceptable replacement consultant Project Manager. 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 Project Manager should discuss the situation with the district management. If necessary, either the FDOT Project Manager 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.

CHAPTER 8 – THE TRANSPORTATION PLANNING PROCESS

Contents

Introduction 2
Federal Involvement 2
Statewide Planning 2
Florida's Transportation Plan (FTP) 3
Florida's Strategic Intermodal System Plan (SIS) 6
Modal Planning 8
Regional Planning 11
Metropolitan Planning Organizations 12
Local Government Planning 17
Transportation Statistics 18

Introduction

It is important for all Project Managers to understand the basic planning process used to identify needs and projects undertaken by the Florida Department of Transportation (FDOT). The planning process involves working with many public and private partners to balance federal, state, regional, metropolitan and local needs. This chapter provides a brief explanation of the transportation planning process used in Florida.

Current trends show that economic activity and transportation demand in Florida will outpace the growth of the state's population. According to the ***2060 Florida Transportation Plan (FTP)***, by 2060 the system is expected to projected population of 34 million residents, 14 million jobs, and a significant increase in freight movement. Florida's planning process has been developed to help plan for these needs, now and in the future.

Federal Involvement

The federal government establishes transportation policies and funding levels for all transportation programs that are eligible for federal transportation funds. Federal laws and regulations directly affect transportation decision making. Most federal transportation programs in Florida are administered by the following agencies:

- Federal Highway Administration (FHWA)
- Federal Transit Administration (FTA)
- Federal Aviation Administration (FAA)
- Federal Railroad Administration (FRA)

Another federal agency that directly affects transportation decision making is the Environmental Protection Agency (EPA), which carries out most federal responsibilities related to the environment, particularly those related to air and water quality.

Statewide Planning

State Comprehensive Plan: The State Comprehensive Plan sets forth the land use and growth management goals and policies for the entire state. It is Florida's highest level planning document. The plan is published in its entirety in state law.

Florida Department of Economic Opportunity: The Florida Department of Economic Opportunity (DEO) works closely with FDOT, local and regional agencies, and the private sector on transportation decisions that affect development, the environment and other issues. The DEO administers the process of determining whether local government comprehensive plans are in

compliance with state regulations. Each year the DEO reviews the FDOT Five-Year Work Program and Metropolitan Planning Organization Transportation Improvement Programs to ensure that they are consistent with local government comprehensive plans.

Florida Department of Environmental Protection: The Florida Department of Environmental Protection (DEP) works closely with FDOT and local governments on statewide resource plans and policies for various natural resources, air quality and other environmental issues. The DEP's involvement in the decision-making process occurs early-on in the project planning process through the Efficient Transportation Decision Making (ETDM) process and continues through project development, design and construction activities. Other state agencies and organizations participate in transportation decision making on issues such as economic development and human services.

FDOT: The FDOT, through the seven districts and Florida's Turnpike Enterprise, is responsible for planning, operating and maintaining the State Highway System. FDOT is also the lead agency responsible for interregional, interstate, and international mobility, but must work closely through shared decision making with modal partners, other state agencies, Metropolitan Planning Organizations (MPOs), and local governments to meet these needs. Regional entities – ranging from regional transportation authorities to MPO alliances to new types of organizations that may not exist today – play the lead role in identifying and addressing regional mobility needs, in partnership with FDOT and local governments. Local governments have the primary responsibility for identifying and addressing local mobility needs, in partnership with FDOT and regional entities.

Florida's Transportation Plan (FTP)

Under state law, the Florida Transportation Plan (FTP) must be updated at least every five years. The 2060 FTP extends the planning horizon to look forward over the next 50 years to the year 2060. The 2060 FTP will develop a vision of Florida's transportation system to help ensure our economy, environment, and communities are sustainable for future generations.

The 2060 FTP is the policy framework for allocating over $150 billion in funding which will be spent to meet the transportation needs of residents, tourists, and business people between now and 2060. The 2060 FTP serves as Florida's statewide transportation plan and identifies the mission, goals and objectives for the next 20 years to address the needs of the entire state transportation system. The 2060 FTP is a plan for all of Florida, not just the FDOT, and it will take the collective efforts of many entities to implement the 2060 FTP. The 2060 FTP is supported by modal plans for aviation, rail, seaports, transit and highway.

The 2060 FTP includes 6 long range goals and 23 objectives. These goals are related and mutually supportive; indeed, all goals must be accomplished to

effectively address the challenges the state will face. These goals and objectives are:

Economic Competitiveness: *Invest in transportation systems to support a prosperous, globally competitive economy*. The following objectives support the goal of economic competitiveness:

- Maximize Florida's position as a strategic hub for international and domestic trade, visitors, and investment by developing, enhancing, and funding Florida's Strategic Intermodal System (SIS).
- Improve transportation connectivity for people and freight to established and emerging regional employment centers in rural and urban areas.
- Plan and develop transportation systems to provide adequate connectivity to economically productive rural lands.
- Invest in transportation capacity improvements to meet future demand for moving people and freight.
- Be a worldwide leader in development and implementation of innovative transportation technologies and systems.

Quality of Life: *Make transportation decisions to support and enhance livable communities.* The following objectives support the goal:

- Develop transportation plans and make investments to support the goals of the FTP and other statewide plans, as well as regional and community visions and plans.
- Coordinate transportation investments with other public and private decisions to foster livable communities.
- Coordinate transportation and land use decisions to support livable rural and urban communities.

Quality Places: *Make transportation decisions to promote responsible environmental stewardship*. The following objectives support this goal:

- Plan and develop transportation systems and facilities in a manner which protects and, where feasible, restores the function and character of the natural environment and avoids or minimizes adverse environmental impacts.
- Plan and develop transportation systems to reduce energy consumption, improve air quality, and reduce greenhouse gas emissions.

Safety and Security: *Provide a safe and secure transportation system for all users.* Three sets of objectives support this goal:

- Eliminate fatalities and minimize injuries on the transportation system.
- Improve the security of Florida's transportation system.

- Improve Florida's ability to use the transportation system to respond to emergencies and security risks.

Maintenance and Operations: *Maintain and operate Florida's transportation system proactively*. This goal is supported by the following objectives:

- Achieve and maintain a state of good repair for transportation assets for all modes.
- Reduce the vulnerability and increase the resilience of critical infrastructure to the impacts of climate trends and events.
- Minimize damage to infrastructure from transportation vehicles.
- Optimize the efficiency of the transportation system for all modes.

Mobility and Connectivity: *Improve mobility and connectivity for people and freight*. This goal is supported by the following objectives:

- Expand transportation options for residents, visitors, and businesses.
- Reinforce and transform Florida's Strategic Intermodal System facilities to provide multimodal options for moving people and freight.
- Develop and operate a statewide high speed and intercity passenger rail system connecting all regions of the state and linking to public transportation systems in rural and urban areas.
- Expand and integrate regional public transit systems in Florida's urban areas.
- Increase the efficiency and reliability of travel for people and freight.
- Integrate modal infrastructure, technologies, and payment systems to provide seamless connectivity for passenger and freight trips from origin to destination.

The Annual Performance Report The Annual Performance Report serves as the Florida Department of Transportation's annual strategic plan. It documents the Department's short-term objectives and strategies to implement the goals and long-term objectives of the Florida Transportation Plan. It specifies how those objectives are being measured and provides the policy framework for the department's budget and work program.

More detailed information on the relationships among 2060 FTP goals and long range objectives, short range objectives, focus areas, lead programs and measures is available on the ***Office of Policy Planning*** website.

FDOT Mission and Vision: The mission of the FDOT is:

> The Department will provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity and preserves the quality of our environment and communities.

The FDOT's vision is:

> Serving the people of Florida by delivering a transportation system that is fatality and congestion free.

Florida's Strategic Intermodal System Plan (SIS)

The SIS is a statewide system of high-priority transportation facilities. It includes the state's largest and most significant commercial service airports, spaceport, deepwater seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways and highways. These facilities carry more than 99 percent of all enplaned commercial air passengers in the state, 99 percent of all waterborne freight tonnage, almost 100 percent of all freight moving on the rail system, more than 70 percent of all truck traffic and 55 percent of total traffic on the State Highway System. With the exception of some localized commuting, recreational and shopping trips, most trips in Florida are impacted by the SIS. Virtually every freight shipment in the state, as well as nearly every visitor and business traveler, will use the SIS at some point in its journey.

The SIS Strategic Plan provides policy direction for implementing the SIS and serves as the foundation for a new way of planning and managing Florida's transportation system. Developed by the FDOT in cooperation with nearly 40 statewide transportation partners, as well as numerous regional and local partners, this plan:

- **Redefines the state's primary role in transportation** as focusing on international, interstate and interregional travel of passengers and goods, with emphasis on the SIS. At the same time, stronger regional partnerships will identify and invest in regionally significant transportation facilities, while local governments will have more flexibility to address purely local transportation needs.
- **Advances a multimodal approach to planning** to increase mobility for people and freight on complete end-to-end trips. Rather than focusing on individual modes and facilities, state funding will be used to improve connectivity among individual modes, eliminate bottlenecks and unnecessary delay, improve travel time reliability and expand the options available for interregional travel.
- **Links the state's transportation planning and investment decisions to statewide economic policies,** with emphasis on

Florida's Strategic Plan for Economic Development. The SIS will support interregional, interstate and international transportation services that support the diversification of Florida's economy by reducing transportation and logistics costs, improving access to markets from urban and rural areas and supporting growth in trade and tourist flows.

- **Shifts from reactive to proactive planning of future transportation investments:** In the past, transportation investments too often have responded to development instead of proactively advancing statewide goals related to economic growth, rural development, urban revitalization and environmental preservation. The SIS will provide a foundation for managing growth in the future by focusing the state's transportation investments.

Traditionally, transportation systems are planned by mode, by facility and by ownership. These perspectives all are important, but often they are invisible in the movement of passengers and freight from point A to point B. The SIS introduces a new approach for planning transportation, focusing on the function of each element of the system:

- **Statewide or interregional significance:** The SIS includes the facilities and services that play a critical role in moving people and goods to and from other states and nations, as well as among economic regions within Florida. SIS facilities and services are those most critical to Florida's transportation system and economy; generally, they support the major flows of interregional, interstate and international trips. Emerging SIS facilities and services are of statewide or interregional significance but do not currently meet the criteria and thresholds for SIS designation; generally, they serve fast-growing economic regions and Rural Areas of Critical Economic Concern. The state (lead by FDOT) will play the lead role in planning and managing the SIS, working with partners.
- **Regional significance:** Facilities and services of regional (intercity/intercounty) significance connect rural, transitioning and urban areas within multi-county regions. They also provide connections from regional economic centers to the SIS. Planning and management of these systems will be led by regional partnerships that augment existing MPO and local government planning activities and reflect regional priorities.
- **Local significance:** Facilities and services of local significance primarily serve local (intracity/intracounty) trips. Planning and management of local systems will be led by MPOs, counties or cities through existing planning processes.

The SIS includes three different types of facilities, each of which forms one component of an interconnected transportation system:

- **Hubs** are ports and terminals that move goods or people between Florida regions or between Florida and other markets in the United States and the rest of the world. These include commercial service airports, deepwater seaports, spaceports, interregional rail and bus terminals and freight rail terminals.
- **Corridors** are highways, rail lines and waterways that connect major markets within Florida or between Florida and other states or nations.
- **Connectors** are highways, rail lines or waterways that connect hubs and corridors.

FDOT and its partners are expected to be:

- **Strategic** – focused on addressing statewide and regionally significant facilities that support Florida's economic competitiveness and economic diversification.
- **Intermodal** – addressing all forms of transportation for moving both people and goods.
- **Systematic** – looking at an entire, integrated transportation network, not just individual modes and projects.
- **Efficient** – expediting consensus projects.
- **Open** – proactively providing information.
- **Inclusive –** seeking out the participation of all.
- **Continuous** – looking at how to improve the system on an ongoing basis.

Detailed information about SIS and SIS Strategic Plan is available at ***Florida's Strategic Intermodal System*** website.

Modal Planning

Guided by the SIS Plan, the FDOT coordinates statewide planning for each transportation mode.

Highway: The highway component of SIS is 4000 miles of the 12,000-mile State Highway System. Its primary purpose is to serve interstate and regional commerce and long-distance trips. The SIS Highway Component makes up only 3 percent of Florida's public roads but carries 31 percent of the traffic. FDOT prepares a SIS Funding Strategy for the Highway Component and other modes which include three interrelated sequential documents: First Five Year Plan (FDOT Five Year Work Program SIS capacity funded projects), Second Five Year Plan, and Cost Feasible Plan. Each year the Florida Transportation

Commission reports to the Legislature and the public on the status of the annual assessment of the progress that the FDOT and its transportation partners have made in realizing the goals of economic development, improved mobility, and increased intermodal connectivity of the SIS.

The FDOT systems planning office periodically updates the SIS Cost Feasible Plan. During the updates, the FDOT works with local governments, MPOs and authorities to ensure that the SIS Cost Feasible Plan and proposed projects are consistent, to the maximum extent feasible, with local government comprehensive plans and MPO Long Range Transportation Plans. Public involvement opportunities are primarily associated with updates or amendments to the local government and MPO plans.

Transit: The Transit Strategic Plan (TSP) serves as the transit element of the Florida Transportation Plan. The primary purpose is to support the development of a statewide transit system that provides Floridians and visitors with an effective, efficient and customer-friendly transit service in a transit-friendly environment. As such, it helps provide the policy framework that links Florida's transit goals and objectives with other modal plans and the Five-Year Work Program. The Plan's policies support the development of a transit systems comprised of shuttle buses, vanpools, local bus, express bus, rail transit, people movers, bus rapid transit, commuter rail, and water ferries that are integrated with the overall transportation system. An Executive Summary of ***Transit 2020 Plan; Florida's Strategic Plan for Public Transportation*** is available at the ***Transit Office*** website.

Additionally, 28 local and regional transit agencies in Florida operate and maintain transit systems. In accordance with Florida Statutes, each agency is required to prepare a Transit Development Plan to guide the overall operation and development of the local or regional transit system. These plans are required to have a 10-year planning horizon, be consistent with local comprehensive plans and contain a financial element for continued maintenance and enhancement of the system.

Aviation: The Florida Aviation System Plan (FASP) serves as the aviation element of the Florida Transportation Plan. The FASP ensures that Florida's airports provide a link to the global air transportation system, work together effectively as a statewide transportation system and integrate with other transportation systems including rail and transit systems. It identifies the runways, taxiways and access roads required at public airports to meet future aviation needs. FDOT updates the FASP about every five years.

Rail: The majority of Florida's railroad lines, terminals and other rail facilities are owned by private companies, except for 81 miles owned by the State of Florida. FDOT develops the Rail System Plan (RSP) in cooperation with these private companies, the private sector, local governments, MPOs and local rail authorities. This plan emphasizes the use of existing facilities and coordination

with other modes of transportation. The RSP addresses the proper maintenance, safety, revitalization and expansion of highway/rail grade crossings and signals. The plan also includes identification of priorities, programs and funding required to meet state needs. The RSP is updated every two years.

Seaports: FDOT developed the first FDOT-sponsored Seaport System Plan in 2009 to support the goals and objectives of the Florida Transportation Plan and the Strategic Intermodal System Plan. This Plan was developed in cooperation with the seaports, the private sector, MPOs and other partners. The Plan includes an existing seaport system profile, the vision, goals and objectives driving the Plan, examines needs, describes the process used to guide investment decisions and includes recommendations for strategic long term system preservation optimization.

A Florida Seaport Mission Plan ("A Five-Year Plan to Accomplish the Mission of Florida's Seaports") is prepared by members of the Florida Seaport Transportation and Economic Development (FSTED) Council through their third-party administrator, the Florida Ports Council and is updated annually. The Seaport Mission Plan must be updated every year and a copy provided to the President of the Senate, Speaker of the House and Governor. The goals and objectives included in the Mission Plan by the seaports are considered and addressed as appropriate in the Seaport System Plan prepared by FDOT to guide state seaport investments.

Additionally, FDOT works closely with the Florida Seaport Transportation and Economic Development (FSTED) Council and with members from each of the 14 deep-water ports on issues related to ports and port needs.

Intermodal: Highways, airports, seaports, transit systems, railroads, truck terminals, and so forth are owned and operated by a wide array of local and state governments, authorities and private transportation companies. Therefore, planning and coordination are very complex. The SIS was developed as a way to address these complexities. The SIS represents a fundamental shift in the way Florida views the development of—and makes investments in—its transportation system. Development of the SIS reflects an effort to focus on complete end-to-end trips, rather than individual modes or facilities. It reflects an effort to link Florida's transportation policies and investments to the state's economic development strategy, in keeping with the Governor's strategic imperative of diversifying Florida's economy. Finally it reflects an effort to redefine roles and responsibilities in the planning and managing of Florida's transportation—with the state focused primarily on statewide and interregional trips and strengthened regional partnerships that provide a structure to identify and implement regional priorities.

Under 341.053, F.S., FDOT is authorized to provide funds to the districts, on a formula basis, to assist local governments in funding certain intermodal projects as defined in statute.

The SIS as well as individual mode plans can be found at the ***Public Transportation*** website.

Other Modes: There are no long range statewide plans for bicycle and pedestrian facilities. FDOT Bicycle and Pedestrian Coordinators are responsible for bicycle and pedestrian safety programs and for the implementation of bicycle and pedestrian facilities on construction projects. Bicycle and pedestrian projects may be scheduled as part of the many "3-R" (Resurfacing, Restoration and Rehabilitation) projects FDOT carries out. In addition, local governments and MPOs can apply for funds for these projects under the Enhancement Program.

The Commission for the Transportation Disadvantaged is an independent commission established by state law. The mission of the Commission is to ensure the availability of efficient, cost-effective and quality transportation services for transportation disadvantaged persons. The Commission has prepared 5-year and 20-year plans for transportation disadvantaged services.

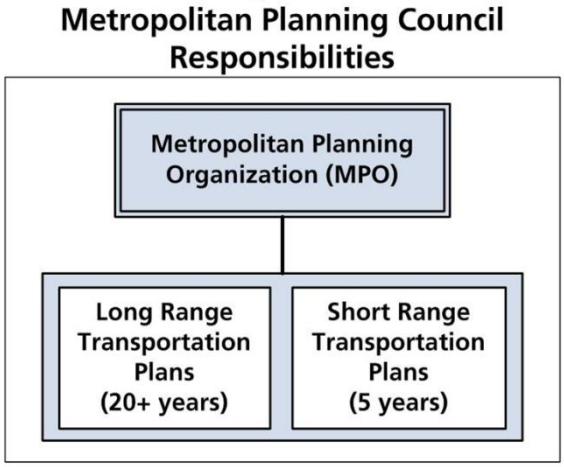
Regional Planning

While state government is taking the lead to improve the SIS, and local governments are using new tools to manage growth and local travel, the state, local governments and the private sector can be partners in complementing those efforts to better meet the increasing demand for regional travel and commerce. As part of a major initiative to improve growth management planning and funding, 2005 legislation created a new program to help accomplish that objective. The ***Transportation Regional Incentive Program (TRIP)*** was created to improve regionally significant transportation facilities in "regional transportation areas." State funds are available throughout Florida to provide incentives for local governments and the private sector to help pay for critically needed projects that benefit regional travel and commerce. The FDOT will pay for 50 percent of project costs.

Regional Planning Councils (RPCs) comprised of local elected and appointed officials, consider planning and development issues from a multi-county perspective. Florida's RPCs review and comment on local government comprehensive plans, particularly for regional issues. RPCs administer Development of Regional Impact (DRI) applications and reviews. They are responsible for the development of Strategic Regional Policy Plans that contain regional goals and policies for regional transportation, economic development, natural resources and other issues.

Five Water Management Districts are responsible for water quality and quantity issues. Their most significant role in transportation is in their assessment of impacts on water resources during project development, design and construction activities.

Metropolitan Planning Organizations



Transportation planning in metropolitan areas is the responsibility of Metropolitan Planning Organizations. The diagram on the right, **Metropolitan Planning Council Responsibilities**, shows the major tasks that the MPO oversees. MPO boards consist of elected representatives of local governments. MPOs have a professional staff and are assisted by various committees, such as a Technical Advisory Committee, which includes professionals from local agencies and FDOT, and a Citizen Advisory Committee. A list of the Florida MPOs and links to individual websites can be found on the website of the ***Metropolitan Planning Organization Advisory Council***.

Urban transportation planning and the advent of MPOs began with the passage of the Federal-Aid Highway Act of 1962. This act required, as a condition of federal financial assistance, that transportation projects in urbanized areas with a population of 50,000 or more be based upon a continuing, comprehensive, and cooperative (or "3-C") planning process undertaken cooperatively by state and local governments. Subsequent acts have added to the original, but the basic principles of a continuing, comprehensive and cooperative planning process have remained constant. The ***Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)*** and its predecessors, Transportation Equity Act of the 21 Century (TEA-21), and the Intermodal Surface Transportation Act (ISTEA), further strengthened the process by adding additional responsibilities to both the MPOs and the state transportation agencies. Detailed information on can be found on the ***SAFETEA-LU*** website.

The federal requirements concerning MPOs have evolved over the years. A great deal of flexibility exists in the specific manner the MPOs are organized and operate. However, all must produce a cost feasible long range plan and a short range Transportation Improvement Program. The latest legislation requires that the Long Range Transportation Plans (LRTPs) be based on a 20-year planning horizon and be cost-feasible, using reasonably expected revenue projections. SAFETEA-LU requires that the long range planning process focus on eight broad planning considerations:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency.

- Increase the safety of the transportation system for motorized and non-motorized users.
- Increase the security of the transportation system for motorized and non-motorized users.
- Increase the accessibility and mobility options available to people and for freight.
- Protect and enhance the environment, promote energy conservation, improve quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.
- Enhance the integration and connectivity of the transportation system across and between modes for people and freight.
- Promote efficient system management and operation.
- Emphasize preservation of the existing transportation system.

SAFETEA-LU also requires that any Intelligent Transportation System (ITS) projects be in conformance with the National ITS Architecture and Standards. To implement this requirement, FHWA requires each MPO area to have a regional ITS architecture and the MPO Long Range Transportation Plan to have an ITS element.

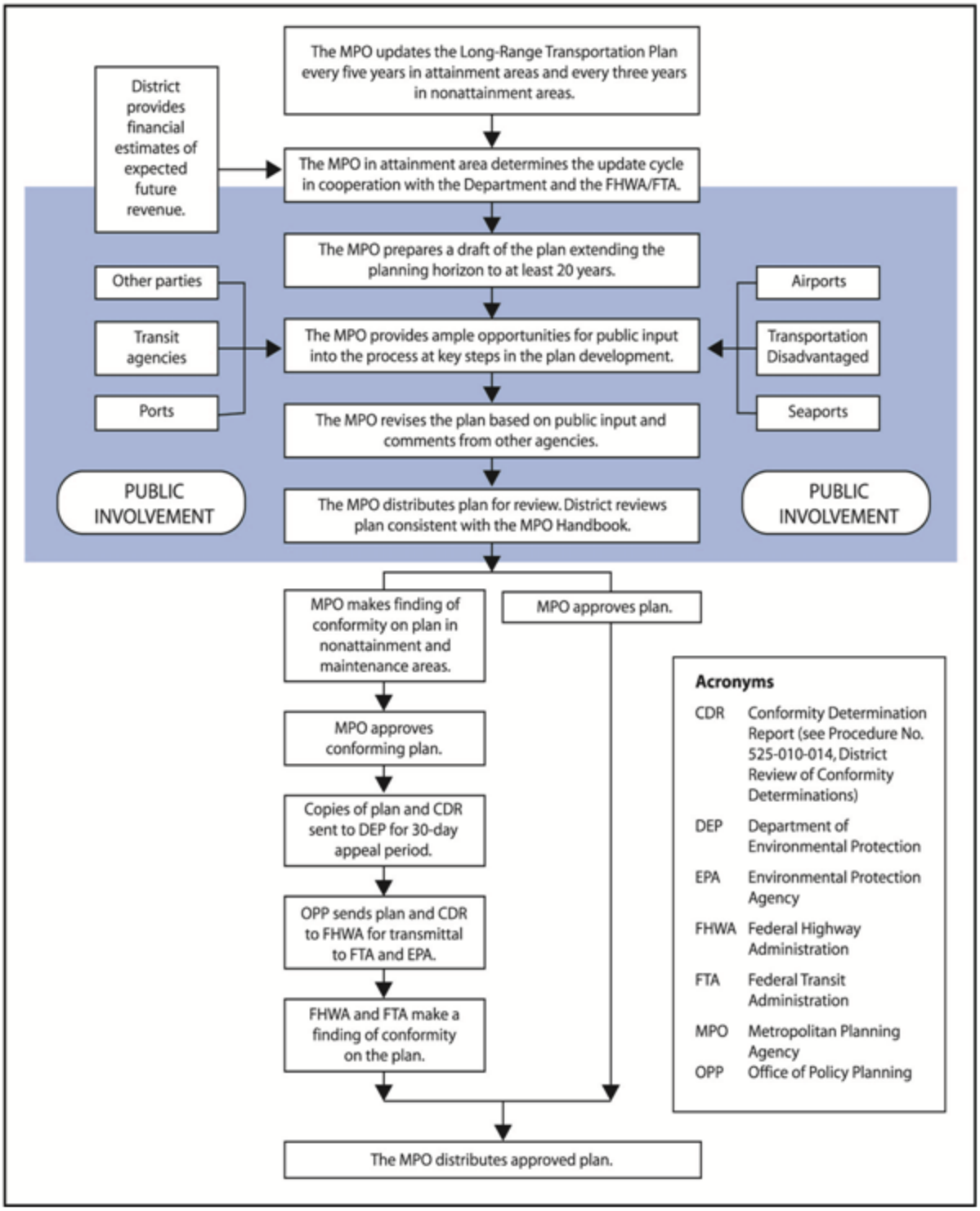
Metropolitan Long Range Planning: There is no single methodology or process that must be used for developing long range transportation plans. A Long Range Transportation Plan (LRTP) should reflect the goals, objectives and values of each community. At the beginning of the process each community must establish factors considered important to the local citizenry and address state and federal requirements. These factors should also be consistent with the Florida Transportation Plan (FTP).

The MPO is responsible for developing the LRTP in urbanized areas. Figure 1, **Plan Development and Approval Process**, illustrates the general process used to develop the LRTP. The intent and purpose of the LRTP is to encourage and promote the safe and efficient management, operation, and development of a cost feasible intermodal transportation system that will serve the mobility needs of people and freight within and through urbanized areas of this state, while minimizing transportation-related fuel consumption, greenhouse gases and air pollution.

The LRTP must include long range and short range strategies consistent with state and local goals and objectives. The LRTP addresses at least a 20-year planning horizon. An interim period (usually 10 years) can also be included, particularly in areas that do not meet the national ambient air quality standards, as enforced by the Environmental Protection Agency (EPA). “Non-attainment” areas do not meet the standards; “attainment” areas meet the standards; and

"maintenance" areas previously were non-attainment but re-designated as attainment, subject to implementation of a maintenance plan. The plan should include both long range and short range strategies and actions that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods.

Figure 1 **Plan Development and Approval Process**



The LRTP is reviewed and updated at least every five years in attainment areas and at least every four years in non-attainment and maintenance areas. Updates extend the forecast period and confirm the validity and consistency of the LRTP with current and forecast transportation and land-use conditions and trends.

The LRTP may be amended at any time. The plan amendment process is subject to all the requirements of a plan update, including public involvement. Documentation shall include, but is not limited to: a revised analysis of the impacts of the proposed plan revision to the transportation system and air quality (for non-attainment areas), documentation of the public involvement process, new maps, documentation and data files of the revised model and/or technique, and a revised balancing of project costs versus forecast revenues. The MPO must adopt long range transportation plan amendments. Amendments may result from changes to the financial plan, the addition of new projects, and changed priorities (for example, moving projects from the Needs Plan to the Cost Feasible Plan). A Needs Plan is a transportation plan that contains all needed projects including those that are funded as well as unfunded. A cost feasible plan contains only those that are funded based on projected revenue. As the need for a project becomes greater, its priority ranking increases versus that of other projects, and it is moved forward into a short range planning document, the Transportation Improvement Program (TIP) and the work program.

The Efficient Transportation Decision Making (ETDM) planning screen is used for major projects in the LRTP. The tool allows for interagency and public comment early on in the planning process for identification of fatal flaws with the project prior to being moved into the Needs Plan and/or the Cost Feasible Plan of the LRTP.

An LRTP is not required for non-urbanized areas. Transportation improvements in these areas are based on plans developed by local agencies and, for state roads, the work
program.

Transportation Models: All metropolitan long range transportation plans at some stage require an analysis to differentiate among competing needs and to document the impact of projects on congestion, air quality and land use. For such analysis, the FDOT has developed a standard transportation model structure that is available for use by all Florida MPOs. The methodology used in the Florida Standard Urban Transportation Model Structure (FSUTMS) is documented in numerous technical memoranda published by the FDOT. The MPO may use any analytical techniques and/or models after consultation with the FDOT. The MPO should provide documentation in the LRTP of the models used. In addition, the MPO should prepare a series of technical memoranda explaining model use and detailing how these techniques can be used in various planning applications. Consultants and the FDOT can then duplicate and use the preferred MPO model.

Short Range Planning: While the LRTP provides a long term guide for the development of a regional transportation system, a short range program, known as a Transportation Improvement Program (TIP), actually programs and schedules projects. This five-year, prioritized plan describes specifically which transportation improvements will be implemented and when. The TIP is updated every year to remove those projects completed, add new projects and reflect changed priorities of the MPO. The TIP includes many local agency projects as well as those for the FDOT. Federally funded projects (highway and transit) must be included in the TIP to secure federal funding. The MPO establishes a list of priority projects for FDOT to include in its five-year work program. This list is list is submitted to the FDOT in October of each year to be incorporated into the FDOT's Work Program. The FDOT will use the list of projects to define the new fifth year of the work program. The MPOs are notified of projects to be included in the new fifth year so that they can be incorporated in future TIPs. TIPs are not required for non-urbanized areas.

Local Government Planning

Florida's 67 counties and over 400 municipalities play significant roles in planning and providing transportation services. Each local government has adopted, and periodically revises, a comprehensive plan to guide growth, development and the provision of government services for periods of 5 to 20 years. Future development and public facilities such as those for transportation must be consistent with those plans. Figure 2, **Local Government Planning Responsibilities**, shows the major tasks that the local government oversees.

Figure 2, **Local Government Planning Responsibilities**

Counties are responsible for building and maintaining county road systems, which comprise about 69,000 of the 114,000 miles of Florida's public roads and streets. Municipalities are responsible for another 33,000 miles of streets. Together, they carry about one-third of Florida's daily traffic. Local governments are responsible for most public transit systems, airports and seaports either directly or in conjunction with special authorities created to manage and provide services. Some local authorities—such as expressway authorities—operate independently from local governments, although most authority board members are usually appointed by local governments. A few, such as the Tri-County Commuter Rail Authority in southeast Florida, serve more than one county.

Transportation authorities in many areas of the state manage specific transportation services such as toll bridges and expressways, public transit, commuter rail, aviation and seaports. These authorities may establish long range plans for their facilities and services, such as expressway system plans, commuter rail system plans, and master plans for airports and seaports. Public involvement opportunities vary among the authorities and according to the types of plans that are being prepared or updated.

Transportation Statistics

All of our planning is built on a foundation of data. If we don't know what we have now, we won't know what to expect or need in the future. Transportation Statistics Office (TranStat), in the Planning office is responsible for compiling and maintaining much of the FDOT's data.

Traffic Data: Traffic data include detailed current and historical Annual Average Daily Traffic (AADT).

Data sources include both continuous and non-continuous counts. The continuous count stations are operated by TranStat. Most of them also classify traffic: provide separate totals for autos, motorcycles, small trucks and buses, and various configurations of large trucks. Some provide weigh-in-motion (WIM) equipment as well. Non-continuous counts are made at thousands of locations around the state, typically on 1 or 2 days per year. They are factored up or down to be represent annual average daily traffic using continuous counts from appropriate nearby continuous counters.

Roadway Data: Most roadway data are collected and input by District personnel and their consultants. TranStat provides procedures, handbooks, training, and quality assurance. Kinds of roadway data include:

- Administrative: Roadway ID, SR/CR/US/Interstate number, designations for the SIS, and National Highway System (NHS), functional classification, federal aid eligibility, and other labels and categories.

- Geometric: Widths of the road, shoulder & median, number of lanes, intersection locations, interchanges, and other linear features.
- Physical: Pavement type & depth, shoulder & median type, and other quantitative measures
- Operational: Traffic counts and factors, speed limit, and other data on how the road is used.

Inventoried roads include all of the State Highway System, non-State roads that are functionally classified as Rural Major Collectors/Urban Collectors and above, and small non-State roads that are on the SIS or have bridges on them, or are otherwise of interest to the FDOT.

CHAPTER 9 – CONTEXT SENSITIVE SOLUTIONS

Table of Contents

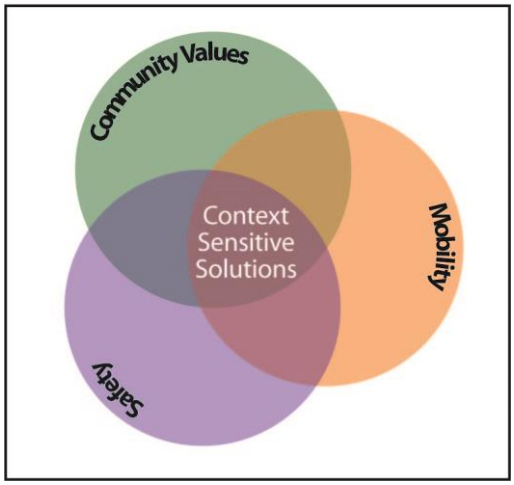
Contents

Introduction 2
CSS Considerations in Project Phases 5
Understanding Community Needs and Desires 7
CSS Concepts 8
Design Flexibility 10

Introduction

Context Sensitive Solutions (CSS) happens when existing processes are designed to help make transportation decisions that are sensitive to impacts and improvements on both the environment and communities. CSS is not a new process or a process separate from other transportation processes. To the greatest extent feasible, all projects should be planned, designed, constructed, and maintained to be sensitive to the context. No project is exempt. Sometimes referred to as "Thinking Beyond the Pavement," CSS reflects an understanding that a host of important and often competing values or interests must be considered in defining and addressing transportation needs. Being sensitive to the context does not always add cost or time to complete a transportation project. Figure 1, **Elements Affecting Context Sensitive Solutions**, illustrates this concept. The key elements are safety, mobility and community values.

Figure 1
Elements Affecting Context Sensitive Solutions



Community values may concern the preservation and enhancement of scenic, aesthetic, cultural, historic, environmental and other community resources. Being sensitive to the context involves collaboration of technical professionals, local government officials, community interest groups, landowners, facility owners, the general public and other stakeholders who will live and work near and use the transportation facility. Collaboration of this kind helps the Project Manager (PM) gain an understanding of community values, and incorporate or address them in the development of a project. Fundamental to CSS is the development of a number of alternatives, and selection of the best "context sensitive" solution to meet project and community needs. Any decision can be sensitive to the context, including decisions about project start date, end date, night work, signs, signals, drainage, lighting, utilities, design speed, posted speed, mowing, and more.

In Florida, CSS concepts began with the Transportation Design for Livable Communities (TDLC) policy, adopted by the Florida Department of Transportation (FDOT) in 1998 and subsequently incorporated into Chapter 21 of the ***Plans Preparation Manual (PPM), Volume 1***. Figure 2, **Florida Policy on Transportation Design for Livable Communities**, sums up the intent of this initiative:

Figure 2
Florida Policy on Transportation Design for Livable Communities

It is the policy of the Department to consider Transportation Design for Livable Communities (TDLC) features on the State Highway System when such features are desired, appropriate and feasible. This involves providing a balance between mobility and livability. TDLC features should be based on consideration of the following principles:

1. Safety of pedestrians, bicyclists, motorists and public transit users.
2. Balancing community values and mobility needs.
3. Efficient use of energy resources.
4. Protection of the natural and man-made environment.
5. Coordinated land use and transportation planning.
6. Local and state economic development goals.
7. Complementing and enhancing existing Department standards, systems and processes.

The FDOT adopted ***Policy 000-650-002***, ***Context Sensitive Solutions*** in 2008.

CONTEXT SENSITIVE SOLUTIONS

It is FDOT policy to use a Context Sensitive Solutions (CSS) approach on transportation projects and activities for all modes appropriate to scale, cost, location, and schedule.

CSS is a proactive, collaborative, interdisciplinary approach to transportation decision making, project development, and implementation, taking into account, the views of stakeholders, and the local area where a project will exist, be operated, and be maintained. CSS considers the physical setting in which a project or activity is to be implemented, and seeks to enhance and conserve community defining features and environmental resources. This approach seeks to balance safety and mobility with local priorities. FDOT will encourage communities to contribute financially or in-kind toward enhanced project features and maintenance.

Consistent with the CSS principles prescribed by the Federal Highway Administration, FDOT transportation projects and activities shall be compatible and consistent with available resources, FDOT policies, and community visions.

Section 1.11 of Chapter 1, ***PPM, Volume 1***, states that CSS should be considered in all projects, not just those designated as TDLC projects. "It is recognized that the Department is expected to provide mobility and a quality of life that includes the protection of the natural resources and the cultural and social values of the community."

Useful resources:

- National Cooperative Highway Research Program: ***NCHRP Report 480 - A Guide to Best Practices for Achieving Context-Sensitive Solutions***
- Federal Highway Administration (FHWA): ***Context Sensitive Solutions***
- The American Association of State Highway and Transportation Officials (AASHTO): ***A Guide for Achieving Flexibility in Highway Design***
- National Cooperative Highway Research Program: ***Quantifying the Benefits of Context Sensitive Solutions, NCHRP Report 642***

There is no specific funding allocated for context sensitive features incorporated in highway projects. In fact, frequently there are no added project costs. These features can be funded with normal project funding as long as the project program scope and estimates accurately reflect the community values. When additional funding is desired, a joint venture with a local agency can be used. A joint venture may be necessary when FDOT and the local governments mutually agree that treatments such as historic appearing lighting are desired. FDOT will usually pay for the basics (assuming that lighting is warranted) and the local government will pay for the difference. In addition, the local government must sign a Maintenance Agreement accepting responsibility to maintain additional features requested.

CSS Considerations in Project Phases

Planning: The initial definition of a transportation need takes place in the planning phase. This is the ideal time to get the public involved in the decision-making process. It is important that all parties agree that a transportation need exists, define that need and decide whether or not a project to address it should be pursued. Stakeholders need to address the basic need for a project in the planning phase. Some questions to ask during the planning phase include:

- How will the proposed transportation improvement affect the general physical character of the area surrounding the project?
- Are there unique historic or scenic features in the affected area?
- What are the safety, capacity and cost concerns of the community?

Project Development and Environment (PD&E) Studies: The draft scope of services for the PD&E phase should be widely circulated for comment among the various professional disciplines within the district, including the district planning staff serving as community or metropolitan planning organization liaisons, and the District Design Office. These personnel, who often have the closest and most frequent contact with local agencies and the public, should be most aware of local concerns. During the PD&E phase, social, environmental, economic and community impacts are studied in depth. At this stage, the location and conceptual design of the project are set and basic right of way needs identified. These activities must be sensitive to the values of the community and the context and physical location of the project. These considerations should help shape how the project will look and identify constraints and opportunities early in the process. Some questions to ask during the PD&E phase include:

- What are the physical characteristics of the corridor?
- How is the corridor being used (other than for vehicular traffic)?
- Is there significant bicycle or pedestrian travel in the corridor, or is there a significant potential for such use?
- What plants and plant communities exist along the corridor; do they have unique features?
- Are there important viewsheds from the existing roadway or potential viewsheds from a new road?
- How will views of the new or modified road affect the surrounding community?
- What is the size of the existing road and how does it fit into its surroundings?
- Are there historic or especially sensitive environmental features along the road?

- How does the road compare to other roads in the area?
- Are there particular features of the area that the community wants to preserve, such as rural character, neighborhood atmosphere or a main street?
- Are there features that the community wants to change, such as busy overhead utilities?
- What community or social groups are in the area? What are their specific interests? Are different groups affected differently by possible solutions?
- Are there concentrations of children, the elderly or disabled individuals who may have special design and access needs?
- Does the community have an existing master plan, "vision" or similar document?
- Have any local municipalities or resident/property owner groups requested a perimeter wall for their community along the corridor?

The creative process of design usually begins during the PD&E phase and is completed in the design phase. A design that is sensitive to the context involves a collaborative, interdisciplinary approach in which citizens are part of a design team. Various discipline representatives such as traffic engineers, ecologists, planners, landscape architects, urban foresters, arborists, architects, urban designers, biologists, historians, archaeologists, geologists and artists, as well as community leaders, can contribute to the highway design process. Early involvement of these professionals during the PD&E phase can help establish a contextual theme for the road, providing important direction to the design team.

To the greatest extent possible, the PD&E process needs to be flexible within the existing design standards. When the PD&E PM intends to make commitments concerning specific design features that will require a design exception or variation, the District Design Engineer (DDE) should be involved. Though not always possible, approval of any necessary design exceptions or variations should be obtained in the PD&E phase. Context sensitive decisions and commitments must be clearly communicated to the design PM in the project hand-off.

Design: Designing a project sensitive to the context requires a good understanding of the operational effects of highway geometry and sensitivity to local constraints, valued community resources, and desires for unique features or design elements. The design PM must understand the vision expressed by the community during the PD&E phase and any commitments made about project concepts and specific design features. The PM is responsible for understanding this vision and implementing a project that fulfills the vision within the constraints of policy, design criteria and available funds.

Most context sensitive projects can be implemented within the standards and criteria established for the project. Chapter 23 of the ***PPM, Volume 1*** addresses an FDOT approved process for design exception and variance when standards and criteria cannot address community needs and desires. Normally the criteria in Chapter 2 of the ***PPM, Volume 1*** apply for new and major reconstruction projects, and the criteria in Chapter 25 of the ***PPM, Volume 1*** apply to resurfacing, restoration and rehabilitation projects. When TDLC features are proposed, Chapter 21 of the ***PPM, Volume 1*** requires a concept report documenting the desired project features and the respective responsibilities of all stakeholders. When the DDE approves the Concept Report, the criteria found in Chapter 21 of the PPM, Volume 1 become the applicable criteria for the project.

Understanding Community Needs and Desires

To define issues and arrive at solutions, involve a wide range of both technical specialists and non-technical stakeholders. Specialists and stakeholders contribute information and require information to establish understanding, and to arrive at a consensus solution. Involvement of the general public and transportation partners is an important aspect of all FDOT activities, as expressed in **Policy No. 000-525-050**, ***Public Involvement***. The FDOT's ***Public Involvement Handbook*** is an excellent resource for PMs.

Planning and especially PD&E projects usually have very sophisticated public involvement processes. For projects to be fully sensitive to their context, it is important to maintain a high level of public involvement effort in both the design and construction phases. The challenge to both the FDOT and the consultant Project Manager is to devise ways to interest the public and get them involved in the decision-making process. The public must see that their active involvement and participation has meaningful impacts on decisions affecting their communities.

Design and construction projects should have a Community Awareness Plan (CAP). Development and execution of this plan can be part of the design consultant scope of services, provided through a task order consultant contract or by the FDOT PM. The CAP explains the activities that will take place to keep the community informed and involved. The scope and complexity of a CAP will vary according to the community concern that is expected about a project. Additional information on public involvement programs is found in Part 2, Chapters 1, 2 and 3 of this Handbook. Chapter 2 of AASHTO publication ***A Guide for Achieving Flexibility in Highway Design*** also contains useful information about conducting public involvement activities.

The PM must understand the needs of the local community. Learning these needs can be a very difficult task since it is common to find several local agencies, organizations, groups and individuals that represent the community. These groups may speak for different elements of the community and may have conflicting goals and interests. The challenge for the PM is to identify all the

stakeholders, establish effective communication with them and be open to their suggestions and inquiries in an effort to build a consensus. When stakeholders disagree, it is sometimes due to a misunderstanding or lack of information. The PM can resolve many conflicts by being open to all stakeholders, actively working to correct misunderstandings and being a clearinghouse for information. Including persons representing a wide array of disciplines in this process will add to the PM's ability to respond effectively to stakeholders' needs.

CSS Concepts

Context Sensitive Design: The best approach to roadway design involves the development of a design theme that is in harmony with the surroundings and ensures that the elements of the roadway are in harmony with each other. Flexibility may be necessary when selecting horizontal and vertical alignment, cross section elements, pavement, shoulder and cross walk materials and texture, pedestrian and bicycle facilities, access features, intersection and interchange design, architectural treatments of bridges, walls, lighting and other roadside furniture, and landscaping. The best designs ensure that these elements are not developed independently, but are complementary to the roadway and its context.

Designers must appreciate that the design scale of a moving vehicle is much different from the scale of a pedestrian or bicyclist, who may also be important users of the facility. Roadways in the context of an urban environment, with pedestrians and property access, require a much different scale than roadways in rural areas with expansive viewsheds. The design element that most affects scale is the cross section. Travel lanes, parking lanes, shoulders, drainage facilities, medians, clear zones, sidewalks and bicycle lanes are all cross section elements that can be designed to accommodate vehicles and the needs of other users. Designers can alter the perceived and actual width and location of these elements through the use of green space, landscaping, lighting, and textured surfaces to provide a context sensitive scale.

The view from the road is the users' perspective, which can leave a lasting impression of the community on visitors as well as residents. The view of the road is the residents' perspective, which can contribute to a feeling of community value and pride. Visual impacts are ascertained by defining the visual environment, identifying key views, analyzing the resources and community responses, and depicting the project appearance. These impacts are then assessed, and avoidance, minimization, and mitigation measures are developed. Additional information on visual impacts can be found in Part 2, Chapter 15, of the ***Project Development and Environment (PD&E) Manual*** and Section 1.7.2 in Chapter 1, of the ***PPM, Volume 1***.

An example is Perimeter Walls: The purpose of a perimeter wall is to provide a separation between a highway and adjacent land users to maintain the quality of life that existed prior to the construction of a highway project and are not

assumed to provide any measurable noise reduction benefits. Benefits of perimeter walls may include, but are not limited to, minimizing visual impacts, providing a visual screen when existing vegetation is removed, providing separation to adjacent land owners, maintaining access control restrictions, and others. In recent years perimeter walls have been constructed as part of several projects due to the negative impact on residents living near the road improvement when noise walls were not justified in an effort to preserve the quality of life for those affected.

The decision to include perimeter walls within a project is not automatic and requires input from a local municipality or land owner(s). The initial assessment for the use of a perimeter wall should typically be performed during the Project Development and Environment (PD&E) process and only when such a wall is requested by a local municipality or a substantial group of affected residents/property owners. The results of the perimeter wall analysis shall be documented in a Perimeter Wall Justification Report. This is a standalone report and is not part of any environmental document. Final decisions made during the Design Phase will be added to the report by addendum. The final decision for the use of a perimeter wall should be made during the Design Phase when the final conditions and cost are available for consideration.

To assure that the use and costs of perimeter walls are consistent across the state, guidelines containing the process and design methodologies to be used when considering the use of perimeter walls can be found in Chapter 32 of the **Plans Preparation Manual**, Volume 1.

Landscaping: Living trees, shrubs, wildflowers and other plants can be important elements in the overall context of a project. In most urban and suburban locations, the roadway should be designed to accommodate existing and proposed landscape features. Except when invasive exotic plants are present, designers should conserve as much of the natural landscape as possible. Conservation and landscaping can be part of the project scope or can be added to the scope during the PD&E phase. Landscaping can also be programmed as a separate project in the future. If landscaping is planned or may be added in the future, the roadway should be designed to accommodate the landscape design. The design could include identifying possible locations for landscaping and adding selected soils, designing the cross section and slopes to accommodate the landscaping and selecting turf choice. The roadway design PM should work closely with the District Landscape Architect in this process. The landscaping should be designed to fit into the theme and to be complementary to the other design elements. Plants can be integrated into the overall design to provide shade for pedestrians and transit users at stops, reduce runoff, screen unsightly views and improve air and water quality. If there are

separate projects, the roadway design PM and the landscape design PM must coordinate effectively throughout their projects. Landscaping maintenance and irrigation is normally provided by local agencies. Necessary agreements must be in place before landscaping can be constructed. Useful landscaping references include Chapter 9 of the ***PPM, Volume 1*** and the ***Florida Highway Landscape Guide***.

Pedestrian and Bicycle Needs: The need for safe and convenient facilities for pedestrians and bicyclists is a common issue raised by communities considering transportation improvements. Urban and suburban roadways should be designed to accommodate pedestrians and bicyclists as well as vehicles. Refer to Chapter 8 of the ***PPM, Volume 1***.

Elderly and Disabled Needs: Road and pedestrian users may have special needs. The FDOT's compliance with the Americans with Disabilities Act (ADA) provisions is detailed in ***Procedure No. 625-020-015***, ***Facilities Access for Persons with Disabilities***. Additional information can be found at the ***FDOT ADA/Accessibility Program*** website. Elderly users present special needs. The FDOT's policy concerning older road users can be found in ***Policy No. 000-750-001***, ***Safe Mobility for Life***. Additional information can be found at the ***Safe Mobility for Life Program*** website.

Transit Needs: Another issue that is commonly high on community needs is enhancement of transit use, including attractive, accessible and convenient transit stops, shelters and other facilities. The roadway environment should accommodate transit facilities. Design resources include ***Transit Facilities Guidelines***, ***Accessing Transit***, and ***From Bus Shelters to Transit Oriented Development***.

Right of Way: Context sensitive solutions must be planned and designed to fit within existing or planned right of way. If an exceptionally important context sensitive solution requires additional right of way, this need must be identified early in the process and the necessary funding agreed to by all responsible parties.

Design Flexibility

Highway design is a process of balancing mobility and safety needs of roadway, pedestrian, bicycle and transit users within time and cost constraints. This process requires the professional application of design standards, criteria and guidelines. Designers must understand the latitude that exists in these standards, criteria and guidelines and exercise judgment to successfully achieve the proper balance of project needs. Context sensitive design adds to the mix of considerations the needs and desires of the community, usually including concerns of scale, visual continuity and aesthetics. Standards do not have to be relaxed to achieve a context sensitive design. The AASHTO publication, ***A***

Guide for Achieving Flexibility in Highway Design, is a very useful reference in explaining the flexibility allowed in the AASHTO design guidelines.

Design speed is a fundamental input to design. AASHTO has recently adopted a new definition of design speed:

> Design speed is a selected speed used to determine the various geometric features of the roadway. The assumed design speed should be a logical one with respect to the topography, anticipated operating speed, the adjacent land use and the functional classification if the highway.

The PPM defines design speed as a principle of design control that regulates the selection of many of the standards and criteria used in the design of the project. The selected design speed should be sensitive to the context of the road and balancing mobility as well as safety and community needs.

Design professionals are understandably cautious about increased liability associated with compromises in design criteria. Tort liability should be considered, but it should not be an impediment to the implementation of a context sensitive solution. The FDOT encourages flexibility within the range of design criteria found in the PPM and other references. When deviation from these criteria is necessary to meet community needs and desires a design variance or exception may be authorized.

To avoid delays, it is important to determine the need for design variations early in the process. When it is appropriate to propose a design element outside the guidelines, a request for design variation or design exception will be prepared in accordance with Chapter 23 of the ***PPM, Volume 1***, taking into account safety, economics, adopted standards and recognized engineering practices. It's important to document the process followed in design, and the reason(s) that actions were taken. Risk assessment and mitigation of the geometric condition is addressed in the documentation. Potential liability is minimized when the PM follows this process.

CHAPTER 10 – WORK PROGRAM AND PROJECT FUNDING

Contents

Developing the Work Program 2
The Project Manager's Role in the Work Program 5
Contract Funds Management System 7
Payment of Invoices 7
Additional Information 8

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 over $6 billion each year. Some of basic principles that underlie this unique process are:

- The FDOT operates primarily from dedicated sources of funding, both state and federal. The State Transportation Trust Fund receives revenue from specific tax sources "dedicated" to transportation.
- The Department resembles a private-sector company in that it must forecast revenues and develop a Finance Plan. The Finance Plan takes into account levels of expenditures as well as federal aid and state revenues to determine a cash balance. By law, the program must balance expenditure and revenue forecasts.
- The program is driven by policies and program objectives outlined in the ***2060 Florida Transportation Plan (FTP)***. The FTP is described in detail in Part I, Chapter 8, The Transportation Planning Process, of this handbook.
- The Secretary of Transportation formally adopts the new Work Program each July. The Work Program lists the specific projects to be funded over a five-year period.
- The Department's funds are allocated among the seven districts by detailed formulas and procedures. Districts have the authority to determine the best use of their funds in a manner consistent with the Work Program Instructions (WPI) and the policies and objectives outlined in the short range component of the Florida Transportation Plan. Both documents are updated and published annually.
- The districts and Central Office staff, working with the Metropolitan Planning Organizations (MPOs) and local governments, develop the Department's Work Program. Input is also received through public hearings and from the Legislature and the Governor's Office. The program must be consistent with the capital improvement element of local comprehensive plans.

Developing the Work Program

The FTP and the ***Program and Resource Plan*** guide the development of the Work Program. The FTP is the blueprint that sets the policy framework of the Department. The Program and Resource Plan links the FTP, the Legislative Budget Request 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.

This complex process begins in the summer. The Department's Executive Committee meets and sets the directives based on the Department's goals and objectives. After the Executive Committee issues the directives, the operating Legislative Budget Request (LBR) is developed. The LBR reflects the requested budget amounts by budget entity and appropriation category. The Central Budget Office coordinates with the district and turnpike enterprise budget coordinators, along with the Office of Work Program, to develop the LBR. The LBR is due to the Legislature and the Governor's Office by September 1.

Simultaneously, work has begun on a new Tentative Work Program. The new Five-Year Tentative Work Program provides an update to the existing Adopted Work Program for the first four years. The Tentative Work Program represents the first formal project-level programming for the new fifth year.

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

Figure 1
Work Program Phase Description

	Phase	Description
	3B	PE Service Contract
Planning	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
Msc.	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

by number and description. Figure 1, **Work Program Phase Description**, lists Work Program Phases and their descriptions.

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 Schedule A for fund allocations and Schedule B for program performance targets. The WPI and Schedules A (fund allocations) and B (program targets) can be found at the ***Office of Work Program (OWP)*** website. Figure 2, **Policy, Budget and Work Program Development** at the end of this chapter demonstrates how projects become part of the Work Program.

The development of the Work Program involves three distinct sequences: gaming, tentative and adopted. Each is accomplished via remote computer terminals in district offices as well as the turnpike enterprise and central offices. During gaming, the districts use the Work Program Administration (WPA) files and Schedules A (fund allocations) and B (program targets) to project scenarios of alternative projects. The Work Program Instructions contain the following basic guidelines for this process:

- The District Work Program shall be developed cooperatively from the outset with the various Metropolitan Planning Organizations (MPOs) of the state and include, to the maximum extent feasible, the project priorities of the MPOs that have been submitted to their districts by October 1 of each year.
- When developing the Work Program, the first priority should be given to projects listed in the current Adopted Work Program. In other words, all projects included in the second year of the previously Adopted Work Program must be advanced to the first year of the Tentative Work Program. Exceptions must be approved by the Secretary.
- To maximize federal aid, districts are encouraged to identify and assign federal funds, when available, to projects prior to using state-allocated funds.
- During gaming, the districts and the turnpike enterprise must program up to the established target levels in Schedule B. Further, to ensure that the Department maintains a financially balanced program, districts cannot exceed fund allocations found in Schedule A.

By the end of the gaming process, and prior to submitting the Tentative Work Program to the Central Office, the districts and turnpike enterprise must adhere to the following:

- Have projects identified, scheduled and balanced to fund allocations
- Present the Work Program to the MPOs to determine if changes are necessary

- Hold public hearings

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 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 will not be 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 will have the following outcomes:

- Changes in the estimate will 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 will be affected.

Work Program Amendments: A Work Program amendment will be required if:

- Any right of way, construction, or public transportation phase costing over $500,000 in appropriated funds is advanced or deferred in the Work Program.
- A preliminary engineering phase costing over $150,000 in appropriated funds is advanced or deferred in the Work Program.
- Any project or project phase costing over $150,000 in appropriated funds is added to the Work Program in the current year.
- Any project is deleted from the Work Program.

STIP/TIP Amendments: Formal amendments in the STIP or TIP will be required if the change results in one of the following:

- Adds new individual projects to the current STIP/TIP
- Affects air quality conformity
- Adversely impacts financial constraints
- Results in major scope changes
- Removes or deletes an individually listed project from the STIP/TIP

Contract Funds Management System

The Contract Funds Management System (CFM) system is governed by Florida Statute 339.135 (6)(a), which states the following:

> *The department, during any fiscal year, shall not expend money, incur any liability, or enter into any contract which, by its terms, involves the expenditure of money in excess of the amounts budgeted as available for expenditure during such fiscal year. Any contract, verbal or written, made in violation of this subsection is null and void, and no money may be paid on such contract. The department shall require a statement from the comptroller of the department that funds are available prior to entering into any such contract or other binding commitment of funds. Nothing herein contained shall prevent the making of contracts for periods exceeding 1 year, but any contract so made shall be executory only for the value of the services to be rendered or agreed to be paid for in succeeding fiscal years; and this paragraph shall be incorporated verbatim in all contracts of the department which are for an amount in excess of $25,000 and which have a term for a period of more than 1 year.*

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. Part I, Chapter 14, Consultant Contract Management, of this handbook, discusses the responsibilities of both the consultant PM and the FDOT PM in the preparation, review and approval of invoices. Appendix D, Statutory Authority and Responsibilities of the Department's PM, also provides a detailed summary of invoice responsibilities for FDOT PMs.

Federal Funds: It is the PMs 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 will notify 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.

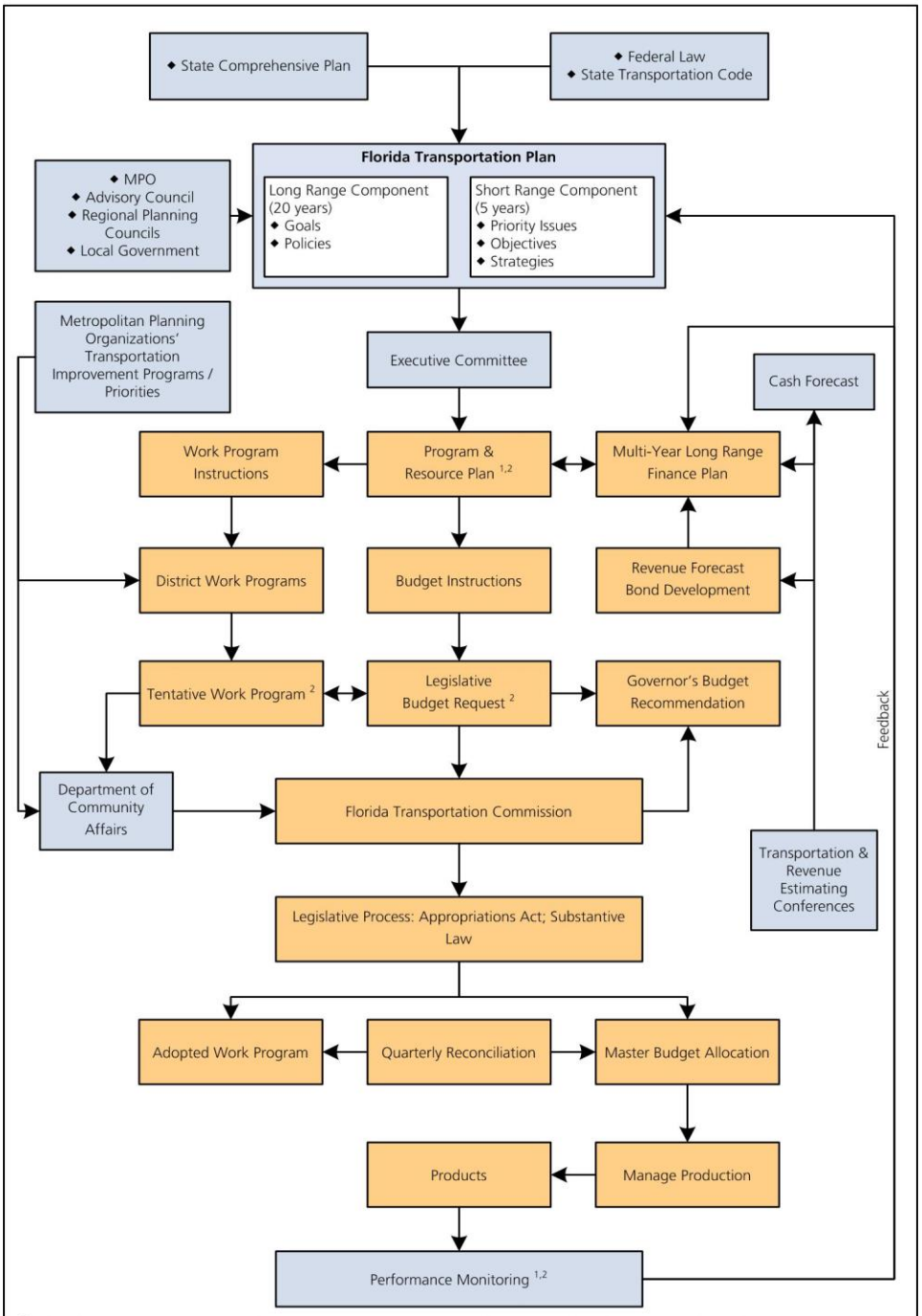
Upon payment of the final invoice, the project manager must notify the district work program office to un-encumber any remaining funds so that they may be utilized on other projects.

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 ***OWP*** website. 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 Work Program Instructions contain all information concerning programs and funds along with contact people for each area. The Appendices of the Instructions list all data elements involved in the programming of projects.

Figure 2
Policy, Budget and Work Program Development



1 Florida Transportation Plan Elements (Section 339.155, F.S.), reviewed by the Metropolitan Planning Organization Advisory Council

2 Documents Reviewed by the Florida Transportation Commission (Section 20.23, F.S.)

Work performed by District staff and Office of Management & Budget

SOURCE: FDOT Office of Work Program website:
www.dot.state.FL.us/programdevelopmentoffice/development/process.pdf

CHAPTER 11 - Project Continuity

Contents

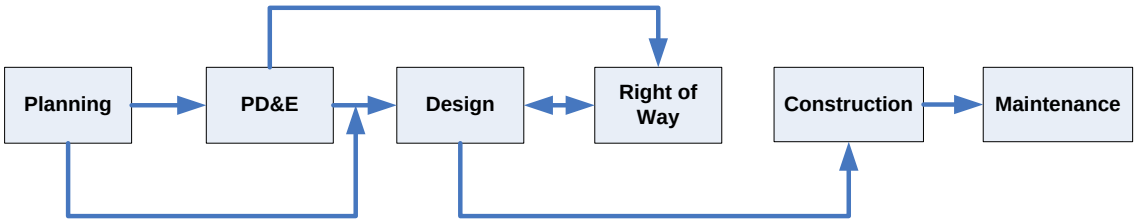
Introduction 2
Filling the Gaps 3
Phase Hand-Offs 3
Project Feedback 12
Project Management Team Approach 13

Introduction

A Project Manager (PM) must have a primary objective to understand clearly the history of a project and ensure a smooth transition among phases. A typical Florida Department of Transportation (FDOT) project can take many years to move through Planning, Project Development and Environment (PD&E), Design, Right of Way (R/W) and Construction phases. Throughout a project's life there will be a number of PMs (both FDOT and consultant). 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 PM have an understanding of the history of the project, including its conceptual objectives and commitments made in previous phases. Districts have project continuity policies which must be followed. This chapter provides helpful ideas for implementing these policies.

In general, a Project Concept Book 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 and recommendations of each PM for the next phase. Figure 1, **Overall Project Work Phase** depicts typical work flow from Planning to Maintenance. Note the unique relationship of the R/W phase with the PD&E and Design phases – a copy of the Project Concept Book should be made for the R/W PM. The R/W PM can return the updated copy to the Design PM (DPM) at the end of the R/W phase, so the DPM can update the original book.

Figure 1 – Overall Project Work Phase



Commitments (including those made to local governments, permitting agencies, business and 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 which includes a commitment summary, name of the individual, group or agency making it, 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.

Filling the Gaps

It had been observed that in spite of making diligent efforts to cover all issues during the course of projects' lives, things still "fell through the cracks," and resulted in unanticipated changes, and often delays and increased cost. A task team was assembled in 2012 to assess projects' interphase relationships and needs, identify where the breakdowns were happening and recommend ways to minimize risk of occurrence. The task team completed its analysis and at the May 2014 Executive Workshop presented its ***Filling the Gaps*** findings and recommendations.

Phase Hand-Offs

Most FDOT projects involve phases in the order, **Planning**–**PD&E**–**Design**–**R/W**–**Construction**–**Maintenance**. An exception is Design-Build which combines Construction and Design. Another occasional exception is when the PD&E phase is omitted (Planning to Design)

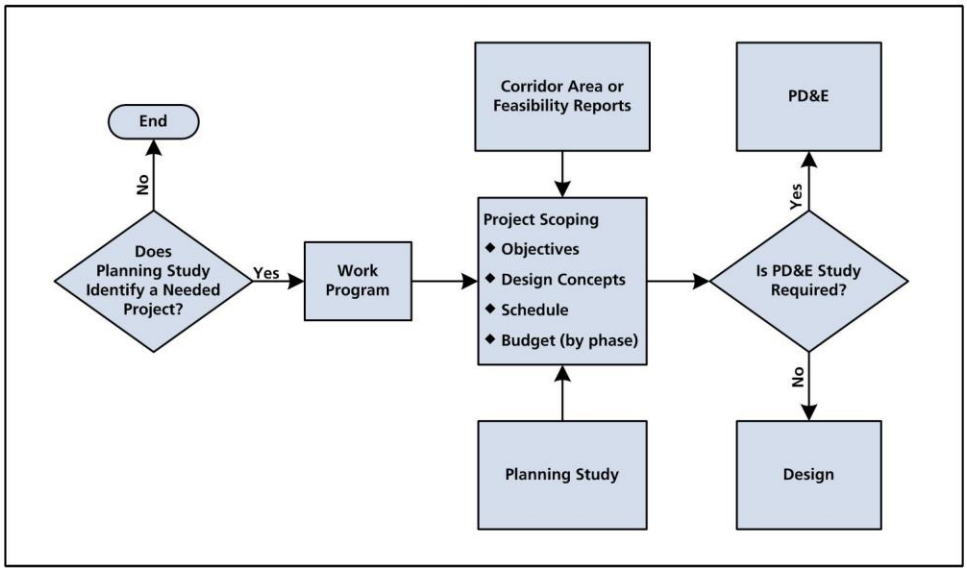
Filling the Gaps – Gap's Identified:

- Planning to Program Management
- Planning to Design
- PDE to Design
- Design to R/W
- ROW to Construction
- Design to Construction
- Construction to Maintenance
- Maintenance to Planning

Planning to PD&E. The Planning process discussed in Part I, Chapter 8, of this handbook, identifies transportation needs which drive the Work Program discussed in Part I, Chapter 10. When a project enters the Work Program, a Project Scoping Report is prepared that includes project objectives, design concepts, schedule and budget (by phase). This report is the basis of the work program data for the project.

Generally, the first phase of a specific project is Planning. Figure 2, **Planning to PD&E**, depicts how a project progresses from the Planning phase to the PD&E phase.

Figure 2
Planning to PD&E



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, whenever possible, 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 review carefully 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.

Filling the Gaps – Planning to PD&E

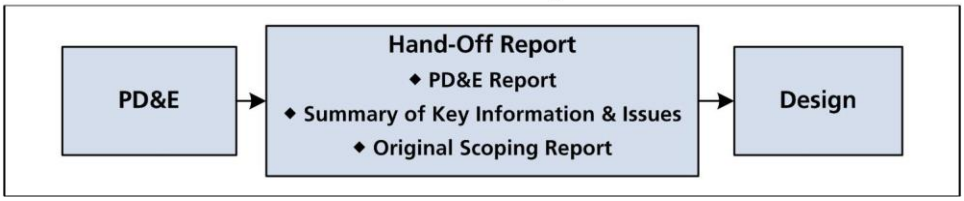
- Planning & Environment Linkage (PEL) Scoping report (What to expect)
- Multi-Modal Corridor Planning Guidebook (screening of alternates based on agreed measures)
- Intermodal Systems Development (ISD) unit performs all activities necessary for successful delivery of Scope, Staff hours estimate, and documentation of preliminary agency coordination for PDE staff to begin PDE study.

Filling the Gaps – Planning to Design

- Identifying projects to go straight to design for simpler projects
- Pass the Torch for more complex projects
- Preparation of Concept Reports (Scopes and project cost estimates and Environmental decisions)
- Identify Utility information earlier
- Perform subsurface Utility Engineering

PD&E to Design. So an effective overlap will take place, the 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. Figure 3, **PD&E to Design**, depicts how a project progresses from the PD&E phase to Design.

Figure 3
PD&E to Design



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.

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 in general relatively small and limited in scope, such as 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, so 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. Guidance

for scoping RRR projects is in Chapter 25, Sections 2 and 3, of ***Procedure No. 625-000-007***, ***Plans Preparation Manual, Volume I***.

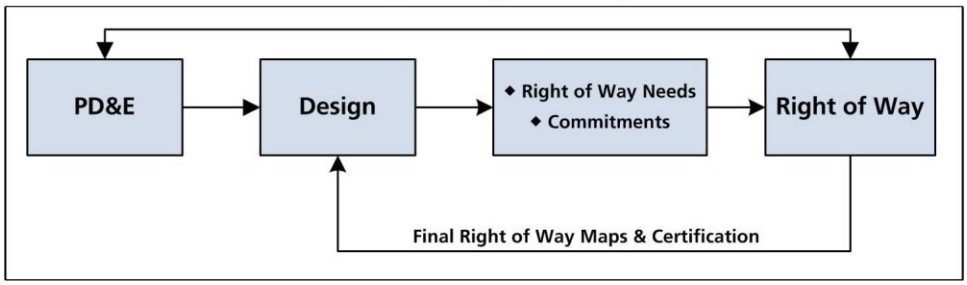
Filling the Gaps – PD&E to Design

- **Include Design PM**
- **Keep communication current between PDE and Design**
- **Project Liaisons representing various functional areas from future Design phase all involved in commitments**
  - **Project Liaisons**
  - **Environmental Liaisons**
- **Pass the Torch Meeting/Hand-Off-Meetings – end of PDE Phase**
- **Design team Members assigned to PDE study**
- **Design Unit meeting checkpoints throughout**
- **Design Unit leaders invited to PDE management meetings**
- **Field review with R/W Staff for alternative development**
- **PDE Staff included in Design Scope of Services, selection process and negotiations**
- **PDE Study – document to provide summary of items included in the Pass the Torch Agenda for the Design Phase**

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 right of way 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 right of way PM. Figure 4, **Design to Right of Way**, depicts a project's progress from the design phase into the right of way phase.

Figure 4
Design to Right of Way



Filling the Gaps – Design to R/W

Design/Survey & Mapping to R/W & Legal

- **All Districts have recognized the need for early and continuous collaboration/coordination between the various disciplines of Design and R/W in the establishment of right of way requirements to design a safe and cost effective transportation facility.**
- **All Districts have introduced into process some level of coordination efforts, whether formally or informally, prior to Phase II plans completion and/or the start of the final right of way map phase to ensure all disciplines are providing input into the establishment of the R/W requirements.**
- **All Districts recognize this collaboration/coordination must continue through the actual acquisition of the property whether negotiated or through final judgment as there will always be things that may occur and warrant R/W requirements be revised.**
- **Dedicated R/W-Design Support and Cost estimating Staff**
- **Three Opportunity Letters**
- **Defined Schedule Activity Phase identifying the Plans development stage where R/W requirements are deemed "final"**
- **Pre-Parcel Review Meeting or 210 Review – tied to Phase II Plans Review**
- **R/W Impact Revisions or Response to 210 Review**

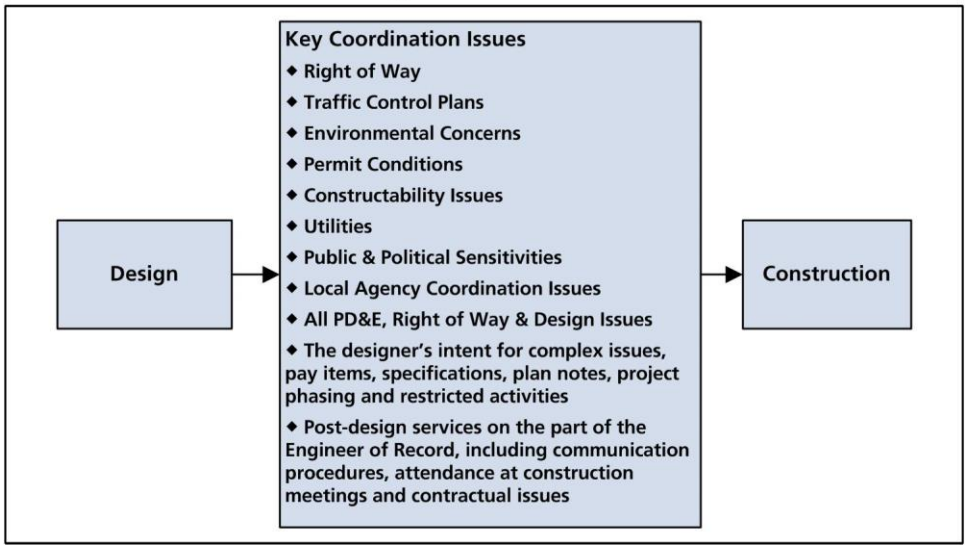
- **60% Mapping Team Meeting or Parcel by Parcel Meeting or Design Team Meeting**
- **R/W-Design Partnering Meeting or Micro Hit List Meeting**
- **R/W-Design Support Pass-the-Baton Project Summary**
- **Each district has "Hand-Off" meeting to explain past communication and detailing about specific takes.**
- **The purpose of this Hand-Off Meeting is to discuss with construction the provisions of any agreements made (including, but not limited to, Purchase Agreements, Orders of Taking, Final Judgments, License Agreements and Temporary Construction Easements) that survived title transfer and that will need to be honored by Construction.**

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. For instance, there may have been a commitment to preserve certain trees within acquired R/W. 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.

Figure 5, **Design to Construction**, depicts how a project progresses from the design phase to the construction phase.

Figure 5
Design to Construction



There should be a formal hand-off meeting, frequently referred to as a Pass the Torch (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

PASS THE TORCH (PTT) MEETING

The PTT is a vehicle for the Design group to formally hand a construction job over to Construction. It encourages communication across all functional groups in Florida Department of Transportation (FDOT). Ultimately, the outcome we are looking for is to eliminate unforeseen conditions on the job site, and thereby complete the job on time within budget. In order for this exercise to be successful, we need the District Project Managers (DPM) to take ownership of this process and fully participate. As the Consultant Construction Engineering and Inspection (CCEI) contact, it is critical you work closely with the DPM's to plan the meeting. The CCEI should begin contacting the responsible parties or participants at least 4 weeks prior to the PTT meeting. The PTT meeting should occur a minimum of 4 weeks prior to the pre-construction meeting and start of construction.

PTT - LESSONS LEARNED

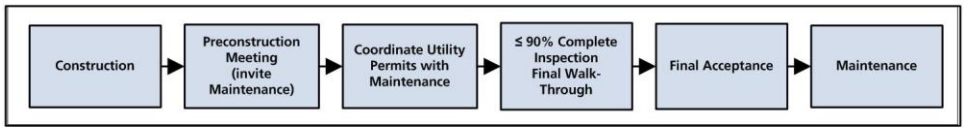
Here are some lessons learned you, as the Consultant Construction Engineer and Inspection (CCEI) contact person, should adhere to when planning the Pass the Torch Meeting:

1. Introduce yourself to the District Project Manager (DPM) as soon as possible. Work with the DPM to decide who needs to attend.
2. Once you get the list of attendees and send an invitation, follow up with a phone call and tell them exactly what you need from them. Please note: If any parcels have not been settled completely, Legal should attend as well.
3. Prior to the meeting, the CCEI shall:
   - Review the Plans and Permits.
   - Provide constructability issues to the DPM and Engineer of Record (EOR in advance for review.
   - Prepare the agenda.
4. As Chairman of the meeting, it is up to you to ask the hard questions, if answers are not forthcoming.
5. Minutes of the meeting shall be prepared and distributed to all attendees. Include Action Items in the minutes. Copy the District Construction Engineer, Operation Center Engineer, Director of Operations and Director of Production.

For reference, at the end of this chapter is District 5's PTT Agenda.

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 design PM and the construction PM. 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 to the taxpayer in the long run. The responsible maintenance professional and the construction PM 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 construction 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. Figure 6, **Construction to Maintenance**, depicts how a project's construction phase progresses to maintenance.

Figure 6
Construction to Maintenance



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 so well defined as is 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. The Florida Highway Patrol may also have useful suggestions. 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; and maintenance and enforcement personnel will have gained some experience with the project. 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 actually take place.

Project Management Team Approach

One strategy to help ensure a more effective hand-off at each phase is the project management team approach. This approach involves designating the likely PMs for all phases of a project, from planning (if appropriate) through PD&E, design, right of way, construction and maintenance. For major projects in their early stages, there probably will be changes in future phase PMs. Nevertheless, this approach ensures that there is always one designated person who will be responsible for each phase of the project. The chairperson of this team should be the PM of the current phase. This approach will be most effective if all PMs stay with the team throughout the project life. PMs from early phases will be available to answer questions about history of the project, and PMs for future phases will be aware of a project as it progresses from phase to phase.

A major concern about this approach is the time that may be required of PMs with other responsibilities. Using project management teams on large and complex projects only can minimize time demands. Frequent meetings of the team are not necessary. Monthly or quarterly team meetings may be sufficient. Much coordination can be accomplished by e-mail. As one phase comes to an end, the involvement of the next PM will increase. The value of the project management team approach is that a designated individual represents each project phase throughout the project.

PM Changes

FDOT PM. FDOT projects last for several months or even years. Individuals get promoted or transferred, retire or 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 Work Plan and keeping it current (see Part I, Chapter 3, of this handbook), 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 in 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.

Sample PTT Meeting AGENDA (District 5)

1. Parcel by parcel discussion
    - Construction commitments
    - Contact Information
    - Encroachments
    - Uneconomic Remainders
    - ODA issues
    - Owner concerns/Difficulties
    - Negotiation/Litigation status
    - Cure plans/Right of Entry agreements
    - Access issues
    - Plan notes
    - Utility issues
    - Demolition status/Improvements left for clearing and grubbing
    - Environmental/contamination issues
    - Fencing and livestock control
2. Driveway Modifications & Property Owner Coordination
3. Utilities:
    - Update on utility relocation status
    - Joint Project Agreements
4. Non-Utility Joint Project Agreements i.e., like landscaping, street lighting
5. Discuss EOR post design services availability – Methods for dealing with RFIs
6. Environmental concerns
    - Review environmental permits with the EOR
    - Discuss implementation of the Erosion Control Plan
7. Local Funds and Funding Agreements
8. Transfer of hard copy documents (commitment sheets on each parcel, right of entries, deed with special conditions, easements, final judgments, aerial photos, right of way maps)
9. Customer satisfaction survey

CHAPTER 12 – CONSULTANT PROCUREMENT

Contents

Introduction 2
Professional Services 2
The Professional Services Procurement Process 3
Marketing Professional Services to the FDOT 9
Contractual Services 10

Introduction

Most Florida Department of Transportation (FDOT) projects are accomplished through contracts. The FDOT commonly uses contracts for the following services:

- Professional Services
- Contractual Services
- Construction
- Maintenance

This chapter deals with professional services and contractual services. Part II, Chapter 5, of this handbook, deals with construction contracts, and Part II, Chapter 7 deals with maintenance contracts. The FDOT Project Manager (PM) plays a major role in this process and must thoroughly understand the contract procurement guidelines. To a great extent, the success of a project depends on properly scoping the contract and selecting the best consultant available. This is too critical a step for the FDOT PM to leave to others. The consultant PM must also fully understand the process in order to be selected. For both PMs, the contract procurement process is the first step in the successful completion of a project.

Professional Services

Florida law requires state agencies to acquire certain professional services by competitive negotiation. The process mandates a competitive selection (based on qualifications) followed by contract negotiations to establish a fee for the desired services. The ***Consultants' Competitive Negotiations Act (CCNA)***, Section 287.055, Florida Statutes (F.S.), mandates the following kinds of services be acquired through the CCNA process:

- Engineering
- Surveying and Mapping
- Architecture
- Landscape Architecture

In addition right-of-way and transportation planning services may also be acquired using the CCNA process described under Section 287.055 F.S., in accordance with Sections 337.107 and 337.1075, F.S. Planning services must be provided by planners certified by the American Institute of Certified Planners under CCNA.

The FDOT uses this process for Planning, Project Development and Engineering (PD&E), Design, Construction Engineering and Inspection (CEI), and General Engineering Consulting (GEC) contracts.

The primary references that all Project Managers must be familiar with are ***Procedure No. 375-030-002***, ***Acquisition of Professional Services***, and ***Rule Chapter 14-75*** of the Florida Administrative Code (F.A.C.). The process involves distinct steps described in detail in ***Procedure No. 375-030-002***.

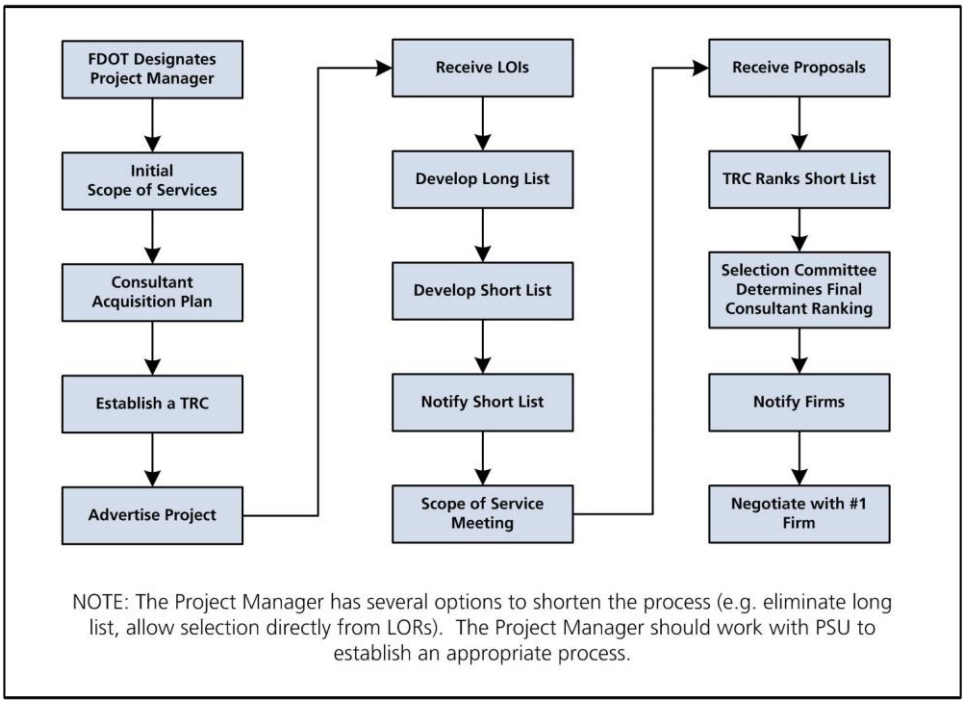
The Professional Services Procurement Process

Develop a Plan. The Five-Year Work Program identifies the FDOT PM for each project. Once this occurs, the FDOT PM should contact the District Professional Services Office to begin the process of scheduling the contract acquisition. The critical stages in the acquisition process are advertisement, longlisting, shortlisting, final selection, contract negotiation, and contract execution. The contract acquisition schedule should be prepared jointly by the FDOT PM and the District Professional Services Unit (PSU).

Initially, the project will be listed by Professional Services as a planned project in order to prompt the interest of consultant firms. During this phase the FDOT PM may speak with firms who request information about the project prior to advertisement. Once the project is advertised to solicit letters of response, contact with consultants should cease. At that point, any discussions with a particular firm could be construed as giving that firm an unfair advantage. All communication should be channeled through the District PSU after advertisement.

Meetings of the Technical Review Committee 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, date and place) in the advertisement. The FDOT PM should coordinate with the District PSU prior to advertisement to schedule these meetings. Figure 1, **Standard Procurement Process**, maps this process.

Figure 1
Standard Procurement Process



Initial Scope of Services: Prior to advertisement, the FDOT PM must determine the appropriate work groups and develop a scope of services for the project. Work groups are described in Rule 14-75.003***, F.A.C***. Major and minor work groups must be listed in the advertisement. A proposed scope of services is also included in the advertisement. Standard scopes have been prepared for Project Development and Environment (PD&E), roadway and bridge/structural design and Construction Engineering and Inspection (CEI) projects. The PD&E and Design Standard Scopes can be found at the ***Project Management Office*** website and the CEI Standard Scope at the ***Construction Office*** website. A standard scope should be used whenever appropriate, but the FDOT PM may modify the standard language as necessary to accurately describe the specific work required and to reflect unique district procedures. The following elements should be considered for inclusion in a scope of services:

- The objectives of the project.
- A clear description of the required work.
- A listing of major tasks to be performed.
- An identification of important parameters, constraints and conditions related to the project and associated work.
- A list of all previous work done on the project that can be useful and access to relevant information.

- Schedule requirements including the total duration and any intermediate dates or durations that are important.
- Quality Control Plan requirements.
- A list of required deliverables and reporting requirements.
- Delineation of work and support to be provided by the FDOT and others.
- Unique or special conditions that the consultant should be aware of.
- Post-design services for a design project.
- Options for any additional services that can be foreseen. If there are technical requirements that may be needed but cannot be fully determined initially, it is prudent to include them as options.

The scope should be written to describe the work required, not as directions for the preparation of a proposal or presentation. A new FDOT PM may find it helpful to review scopes of currently advertised projects and files of similar projects advertised in the district. The Standard Terms and Conditions for Professional Services Contracts and the standard Method of Compensation language should also be reviewed carefully to avoid duplicating or contradicting these contract elements in the scope of services. Preparation of the draft scope and professional service fee estimate should be coordinated with all appropriate support services, such as surveying and mapping, traffic, materials and right of way. At this point, the FDOT PM should review the work program and the Long Range Estimate (LRE) for the project construction cost. This is to insure the work program contains the necessary project phases and funding amounts in line 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.

Finalize Milestones: Once the FDOT PM submits the suggested work types and scope of services, the District PSU will establish necessary milestones and enter them into the district Consultant Acquisition Plan (CAP). The dates in the CAP are very important and should drive the FDOT PM's actions concerning procurement. The CAP is usually developed before the Secretary of Transportation approves the Work Program for the next fiscal year. It is posted to the web, ordinarily in February. Generally, the scope and suggested work types are not ready at that time.

Selection Committee: This committee will make both shortlist and final selections. The Selection Committee composition will vary slightly by district, but it normally includes the district secretary (who will serve as chairperson) and the district directors, or their designees. The FDOT PM may not serve on the Selection Committee.

Technical Review Committee: The Technical Review Committee (TRC) develops the longlist. The FDOT PM is a member of the TRC and is usually the chair. The TRC members should be selected to match the technical issues that will be important on the project. A person should not accept membership on a TRC if he/she is not able to devote the time necessary to do the job properly. If a member of the TRC has any potential conflict of interest with a firm that has submitted a letter of interest, she/he should not accept membership on the committee. Examples of possible conflicts of interest are: a competing firm employs a family member, or the person owns stock in a competing firm. It is best to avoid even the appearance of a conflict of interest. Members of the TRC as well as Selection Committee members must sign a Conflict of Interest Certification Form (Form 375-030-50) which will be kept on file in the District PSU.

Determine the Proposal Requirements to Use: The FDOT PM should consult with the District Professional Services Office and other FDOT PMs to determine the proposal requirements that will provide the information necessary to select the best consultant for the project. This consultation should be done during the development of the CAP. There are three options: written technical proposals, oral presentations (also known as oral technical proposals), and interviews. ***Procedure No. 375-030-002***, Acquisition of Professional Services, paragraphs 3.6 and 3.7, contain information about determining proposal requirements. The "best" procedure is the one that will result in selecting the most qualified consultant for the project. Minimizing expense for consultants and the time requirements for the TRC are secondary factors to consider. The following suggestions may be helpful in determining what type of proposal requirements will be most effective:

- Generally, interviews are appropriate for small relatively simple projects and for district-wide projects. Interviews may also be used for projects when the consultant teams have been specified and are primarily competing in terms of experience, such as on CEI projects. Interviews should include planned questions that are asked of all consultants. 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. Interviews are usually the least costly method for the consultants.

- Oral technical presentations are most appropriate for PD&E and other projects involving public participation because they provide some insight into the consultant's presentation skills. Consultants 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. Oral presentations are generally the most expensive selection procedure for the consultants.
- Written technical proposals are appropriate for large and complex projects. Sample projects, submitted as part of or instead of a technical proposal, can be helpful in evaluating consultants for projects without a specific scope, such as a district-wide project. When technical proposals are submitted, the TRC will take more time to review the material. To reduce this time requirement and expense, a proposal page limit may be set. It is important for the consultant to include input from all team members in their written proposal in order to give the TRC a clear indication of the team's knowledge and understanding of the project.
- Both technical proposals, oral and written, may be appropriate for very large and complex projects. Requirements of ***Procedure No. 375-030-002***, Acquisition of Professional Services, Section 3.6, must be met.
- For projects that do not require technical proposals or presentations, such as CEI projects or district-wide projects, the alternate selection method may be used, where ranking is made directly from the letters of response. The advertisement must notify consultants if the optional alternate selection process will be followed. Section 3.7, Procedure No. 375-030-002 should be carefully reviewed when this process is used. The letter of response page limit should be increased to allow consultants to adequately portray their knowledge, qualifications and understanding of the project. The TRC will usually take additional time to review and rank the letters of response.

Advertise the Project: 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.

Receive Letters of Response From Consultants: The District PSU will receive the Letters of Response (LOR), eliminate non-responsive consultants from consideration and verify qualifications of responding firms. Any determinations of non-responsiveness by District PSU will be communicated to the TRC and

discussed at the Selection Committee public meeting. Non-responsive LORs are posted along with the shortlist posting.

Develop the Longlist: Developing the longlist of potential firms is the next step. All information available on each consultant firm should be considered carefully. If performance evaluations raise questions, it is wise to call FDOT Project Managers who have previously worked with the firms being reviewed. All firms, both those that are known to the TRC as well as those that are new, should be considered fairly. The longlist should include a minimum of ten firms. If the number of qualified firms is less than ten, all should be listed.

Develop the Shortlist: The Selection Committee decides which firms to shortlist after considering the recommendations of the TRC. The FDOT PM, although not a member of the Selection Committee, should be prepared to offer input and suggestions when asked.

Notify Shortlisted Firms: Either the FDOT PM or District PSU personnel will call to notify firms selected for the shortlist. The shortlisted firms are then sent a Request for Proposal (RFP). The contents of the RFP are explained in ***Procedure No. 375-030-002***, Section 4***.*** The RFP includes the proposed Scope of Services.

Hold Scope of Services Meeting: While a Scope of Services meeting with the shortlisted firms is optional, one should be held if the project is complex or scope issues exist. At the Scope meeting, the FDOT PM explains FDOT expectations and the Scope of Services. An alternative is to hold the meeting only if it is requested by any of the shortlisted firms. A teleconference Scope of Services meeting is another alternative. This meeting format may save travel time and expense for both the FDOT and the consultants. After the scope of services meeting, a specified time is provided to allow consultants to ask questions. The procedure for submitting questions should be clearly established. Normally, technical questions should be directed in writing to the FDOT PM; contractual and submittal questions should be directed in writing to the PSU. All firms on the shortlist should receive the text of all questions and FDOT responses.

Receive Proposals From Consultants: Shortlisted firms submit their proposals, which may involve their making presentations and/or the FDOT conducting interviews. All members of the TRC must attend the presentation and interview meetings and complete evaluations for each firm. If members of the Selection Committee decide to attend one firm's presentation or participate in one firm's interview, they must be present for those of all other firms. The FDOT PM must take time to prepare for these meetings, and should review the consultant firm submittals carefully and prepare insightful questions. If written technical proposals are the basis for selection, the submittals should be reviewed completely and carefully. It is also wise to contact consultant client references to learn how they have evaluated the firm's performance.

Section 6, ***Procedure No. 375-030-002*** discusses the scoring form. 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. The consultant's Project Manager is critical to the success of the project. The TRC should be concerned not only about his/her qualifications but also about his/her involvement in other projects and availability. It may be useful to learn how many other FDOT projects that this individual is currently managing.

Conduct Technical Review of Consultants. After the selection method procedures have been completed, the TRC evaluates each consultant firm following the process outlined in Section 6, ***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 of her/his score that explains the rationale for the score. 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. The TRC chair should review results to ensure that they are reasonable and proper. Significant discrepancies in the scores of TRC members should be addressed in the selection package.

Rank the Shortlist. 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. The PSU then notifies the shortlisted firms of the final rankings, and negotiations may begin with the number-one ranked firm.

Marketing Professional Services to the FDOT

Consulting firms wishing to do business with the FDOT must understand the procedures for pre-qualification, selection and negotiations. All necessary information can be found at the ***Procurement Office Professional Services*** website. Districts schedule firms for presentation of their capabilities to key district staff on a regular basis. Firms should take advantage of this opportunity to market their skills to districts where they have not done business recently or when they have had significant changes in key project staff.

Consultant firms recognize that there is usually much competition for projects. It is to the firm's advantage to research carefully FDOT planned projects (found at the Procurement Office website). Firms should be selective when deciding projects for which to submit Letters of Response. Only those projects that are within the capabilities of the firm should be pursued. Being selective is usually more effective than a "shotgun" approach. When a firm is shortlisted, it must

avoid any contact with FDOT personnel concerning the project except as allowed in the RFP.

Contractual Services

The major difference in professional services and contractual services selection is: Professional Services selections are based on qualifications only; contractual services are based on qualification and price. Contractual services procedures are used for the procurement of any services that do not fall into the categories listed as professional services at the beginning of this chapter.

They may include: environmental, archeological, emergency response, building and equipment maintenance, training, research, systems development, information technology (IT), and appraisal services. Although appraisal contracts may be advertised under the professional services procedures, FDOT uses contractual services. Appraisers proposing on contracts to prepare surplus property appraisals and for contracts to prepare Local Agency Program (LAP) project appraisals must be qualified by FDOT under Rule 14-75, Subsection 003.n of the F.A.C., Group 20, Appraisal Services.

The procedures for contractual services are covered in ***Manual No. 375-040-020***, ***Procurement of Commodities and Contractual Services***. Procurement of contractual services under this procedure can involve either an Invitation to Bid (ITB), a Request for Proposal (RFP) or an Invitation to Negotiate (ITN). All begin with an advertisement package that includes either a Scope of Services or specification and an acquisition package plan.

The ITB process is generally used for purchase of commodities, well-defined services and temporary help. The process normally takes 8 to 10 weeks but may be shortened to 4 weeks if necessary. The lowest bidder who meets the specified minimum qualifications is awarded the contract. The FDOT Project Manager is responsible for determining which bidder meets the minimum qualifications.

The RFP process is normally used for training, research and technical expertise contracts. The process generally takes from 10 to 12 weeks, but may be shortened to 4 weeks. Vendor RFPs are rated on two factors, various technical qualifications and price. The FDOT PM and the District Contractual Services Office (CSU) must develop a two-part rating or grading system that awards points for each factor. The grading system may be weighted: that is, more or fewer points can be awarded for either technical qualification factors or price depending on their relative importance. The vendor with the highest score when technical qualifications and price factors are combined is awarded the contract.

The ITN process is typically used for high-risk and new technology contracts when FDOT is not exactly sure of the approach or the latest technologies that will be required to perform the work. The process usually takes 12 to 14 weeks but can be shortened to 6 to 8 weeks if necessary. The submittal includes a

modified proposal briefly outlining technical qualifications and a preliminary price quotation. Three or four highest ranked vendors are shortlisted. Each is invited to prepare a proposal that details both technical qualifications and price. The FDOT PM and Contractual Services then negotiate with the shortlisted vendors. There may be more than one round of negotiations. The FDOT gathers additional information and better defines the scope with each successive round. Like the RFP process, a grading procedure based on both technical factors and price is developed and then used in the final selection of a contractor.

These contracts are procured through the state's eProcurement system, ***MyFloridaMarketPlace***, and are subject to a 1 percent transaction fee on all payments. There are important differences with contracts procured through Contractual Services that the PM should understand. The district level Contractual Services Coordinator should be consulted early in the procurement process.

CHAPTER 13 – CONTRACT NEGOTIATIONS

Contents

Introduction 2
Mutual Gains Negotiations 3
Initial Submittal by the Consultant 6
Preparations for Negotiations 7
Conducting Negotiations 10

Introduction

The discussion in this chapter will center on the contract negotiations process for professional services. However, many of the recommended techniques will apply to contracts negotiated under contractual services procurement as well. The principles of mutual gains can be applied to any negotiations.

The selection process discussed in Part 1, Chapter 12, in this handbook, for professional services results in a shortlist of no fewer than three ranked firms. The first-ranked consultant is requested to provide an automated fee proposal. The Department prepares an independent staff hour estimate. Negotiations are then conducted to establish fair, competitive and reasonable prices for the services to be provided.

Both the Florida Department of Transportation (FDOT) Manager (PM) and the consultant firm PM should always play a prominent role in the negotiations process including that of serving as lead negotiator when appropriate. Both PMs are responsible for the success of the project. That success, in large part, depends on the scope of services and resources available. Both of these are determined in negotiations.

Prior to negotiations both FDOT and consultant PMs should review the primary references governing negotiations for consultant contracts with the FDOT:

- ***Consultants' Competitive Negotiations Act (CCNA)***, Section 287.005, Florida Statutes
- ***Negotiation Handbook Professional Services Contracts***
- ***Procedure No. 375-030-002***, ***Acquisition of Professional Services***, Section 8, Negotiating Contract Fees
- ***Procedure No. 375-030-020, Standard Scope and Staff Hour Estimation Guidelines for Project Development and Environment Studies and Design Services***
- ***Automated Fee Proposal User's Guide***

The CCNA provides that the Department shall: "*…negotiate a contract with the most qualified firm for services at a compensation that is fair, competitive and reasonable*." It further provides that if such a contract cannot be negotiated with that firm, then negotiations shall be formally terminated. Negotiation shall then proceed with the next most qualified firm. If the Department is unable to reach agreement with the second-ranked firm, the process is repeated with the third-ranked firm. In summary, the Department must negotiate with firms in order of their rankings, one at a time, and cannot re-open negotiations with a firm once negotiations have been terminated.

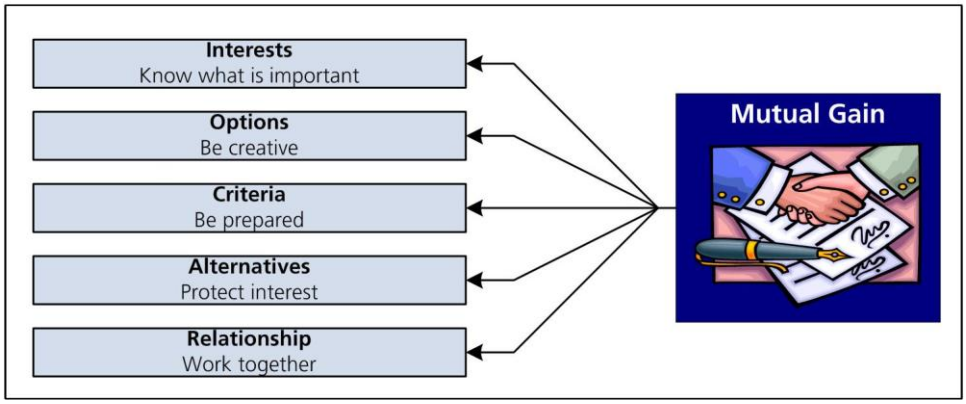
Mutual Gains Negotiations

The FDOT conducts negotiations for professional services using the "mutual gains" approach, as taught by the Program on Negotiations in Cambridge, Massachusetts. The essence of this approach is based on the principles of negotiations originally set forth in the book "***Getting to Yes"*** by Roger Fisher and William Ury. The term Mutual Gains Negotiations was carefully selected by the FDOT to reflect the underlying concepts of a negotiating method that increases the chances of arriving at a fair and reasonable price for professional services. It is not a strategy to "win" in negotiations, nor is it a "win-win" approach. The mutual gains approach is designed to take the game-playing out of negotiations. It 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. However, it also emphasizes negotiating hard for legitimate interests and exercising alternatives when those interests cannot be achieved; thus everyone will not always "win."

The negotiations process is serious business. On one hand, it determines business success, which affects the livelihood of individuals. On the other hand, public agencies have a legal and moral obligation to safeguard the taxpayers' hard-earned money. They must ensure that all expenditures result in a reasonable value for the public. Negotiations, therefore, should not be treated as a game where one side wins as much as possible without regard to the interests of the other side.

There are five elements to the mutual gains approach to negotiations: interests, options, criteria, alternatives and relationships. Figure 1, **Mutual Gains**, illustrates the five elements of mutual gain. Each is discussed below and useful procedures for the negotiator are recommended.

Figure 1
Mutual Gains



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. For example, 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. Know your interests and negotiate hard for them. Understand that positions are simply means to an end and that there may be many positions that can satisfy an interest.

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 and 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.

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. Remember that other criteria may be useful also such as a firm's own experience or industry averages.

Alternatives – Protect Interests: Each side should have a good idea of what its Best Alternative to a Negotiated Agreement (BATNA) is. A strong BATNA is real power in negotiations. For example, assume you are buying a car. Once you have done thorough research, know the worth of the car you want and have a price from another dealer, you have all the power in negotiations. If you cannot reach a deal, you have a good alternative. Your BATNA will determine your walk-away position. Neither consulting firms nor the FDOT should be forced into poor business deals as a result of negotiations. While the mutual gains approach to negotiations does not advocate that either party walk away from negotiations, that option should be carefully evaluated and exercised when necessary. Otherwise, one party may hold unfair power over the other. Because this element of mutual gains negotiations is available, there must be no stigma attached if a firm chooses to exercise its BATNA.

Relationships – Work Together: Remember that negotiations are only the beginning of an important relationship. Once a deal is struck and a project completed successfully, future projects may result for the consulting firm involved. Long-term relationships are equally important to consulting firms and to the FDOT; it is important that negotiations do not damage those relationships. It requires professional skill to negotiate hard for your interests while maintaining positive relationships. It requires excellent communications and going the extra mile to view the issues from the perspective of the other side. Remember, each side enters negotiations with certain preconceptions about the other side. Some are accurate and some may be inaccurate. Carefully evaluate your own preconceptions, and be willing to alter them if they prove to be false. Understand that the other side has preconceptions about you, and they may or may not be correct.

Many use negotiation techniques that are really nothing but game-playing. Such techniques, in the long run, will damage relationships. Remember, "winning" does not require that the other side "lose." Be open and honest and avoid playing games. The PM must approach negotiations with the attitude that both sides have a right to fulfill their interests. Work as hard to satisfy the other side's interests as you do to satisfy your own.

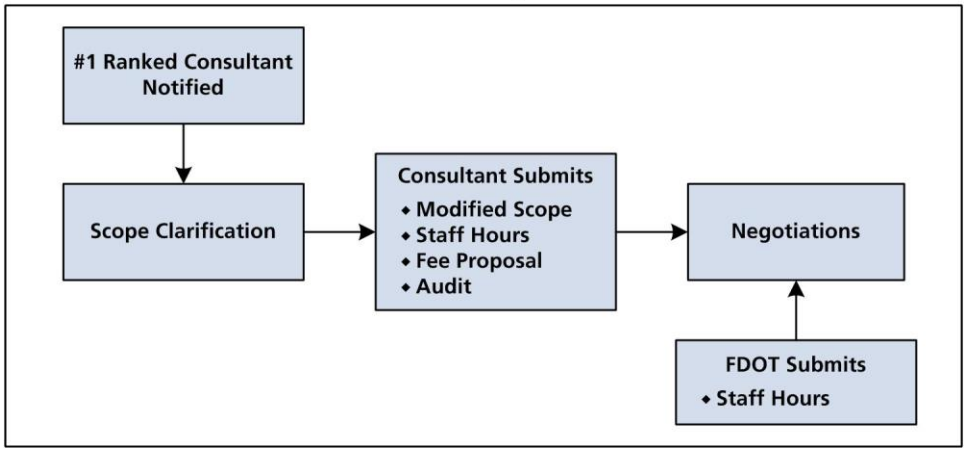
Ultimately a relationship of trust and respect is established by being clear and honest with the other party, not by giving in. Be honest about what you cannot do. You should not sacrifice an important interest for the sake of maintaining a relationship. Being cooperative does not mean giving up your interests or settling for an agreement that is not as good as your BATNA.

Initial Submittal by the Consultant

The top-ranked consultant will receive instructions for the submittal of comments on the scope of services, a detailed staff hour estimate (where appropriate), a fee proposal and an audit package that supports the fee proposal. The FDOT requires automated fee proposals for most consulting contracts. The Automated Fee Proposal User's Guide should be used in the preparation of fee proposals. When negotiations are completed, the updated automated fee proposal will be uploaded into the Consultant Invoice Transmittal System to establish the contract file for payment. Figure 2, **Initial Submittal by Consultant**, depicts this process.

The firm should ensure that the scope of services is clearly understood before

Figure 2
Initial Submittal by Consultant



preparing the fee proposal. The proposal should include proposed changes to the scope, if appropriate. The staff hour estimate should follow the Standard Scope and Staff Hour Estimation Guidelines recommendations whenever possible. But it must be recognized that not all professional services are covered in this document. When the standard estimating forms are used, directions should be followed.

An accurate, complete and timely fee proposal must be prepared. The fee proposal should be clear and contain explanations 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. It is, therefore, to the benefit of the consultant to submit a quality package that will make a positive impression on the FDOT negotiations team. Instructions are explicit as to what is required, and they should be followed carefully. The consultant should ensure that everything requested in the instructions is submitted including any required documentation. The CCNA requires consultants 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 and may also result in suspension of the consultant's qualifications. If there are questions, the consultant should address them as instructed in the notification package in sufficient time to meet the deadline for submission of the package.

Preparations for Negotiations

Both sides should prepare properly for negotiations. The more thorough the preparation, the more quickly an agreement can be reached and work can begin. A good rule of thumb is: spend as much time preparing for negotiations as you expect to spend in the negotiations process.

Know What Is Negotiable: The first step in contract preparations is to clearly understand what is "on the table." Figure 3, **Negotiable Issues**, describes the various contract elements, which are also described below.

Scope of Services: Both parties must agree to the scope. Even though a standard scope of services is used, the provisions of that scope are negotiable. The consultant may have proposed an innovative approach that should be considered, or the FDOT may have some special concerns. Both PMs must understand the scope and be prepared to clarify it as necessary in negotiations. A field visit with key FDOT and consultant staff prior to beginning negotiations will prove helpful in reaching a common understanding of project issues and requirements.

Figure 3
Negotiable Issues

- Scope of Service
- Staff Hours
- Distribution of Staff Hours
- Staffing
- Cost of Services and Rates
- Subcontract Costs
- Schedule
- Method of Compensation

- **Staff Hours:** The FDOT PM should prepare an independent staff hour estimate of the project prior to negotiations for use in evaluating the consultant's estimate. This estimate should be prepared in consultation with appropriate support offices such as surveying and mapping, materials, or structures. A good check on staff hour estimates is to compare them with those of similar projects taking into account differences in complexity and other factors. The objective of mutual gains negotiations is to avoid game-playing. Deliberately estimating high or low, whether it is the FDOT or the consultant, does not achieve this important goal of the mutual gains theory.
- **Distribution of Staff Hours:** ***Not*** only are the total staff hours important, so is the distribution of staff hours. For instance, it is necessary to have sufficient hours of key staff in the project, but it is not appropriate to overload the hours with highly paid senior staff.

Another point to remember is that while very experienced staff may receive higher wages, they should be more productive and, consequently, work fewer hours.

- **Staffing:** Addition to or elimination of ***selected*** staff members from the nominated team is a negotiable issue. However, the nominated team plays a large part in selection. Location of staff may also be an issue and is negotiable.
- **Cost of Services and Rates:** Both PMs ***should*** review the ***Negotiation Handbook Professional Services Contracts*** and understand the parameters of negotiating salaries, salary escalation, direct expenses and operating margin. Audited overhead rates are not negotiable, although the consultant may opt to use a lower rate as a negotiating point.
- **Subcontract Costs:** Subcontracts ***can*** be a significant cost factor in a contract. The costs of subconsultant services and associated rates are negotiable for subconsultants as they are for the prime consultant. Subconsultant costs must be carefully prepared and reviewed prior to negotiations.
- **Schedule:** The schedule may have a ***direct*** impact on the price of the project. Both Project Managers 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, listed in the ***Negotiation Handbook Professional Services Contracts***, Section 6, are Lump sum, Cost reimbursement, Cost per unit of work, and Specific rates of compensation.

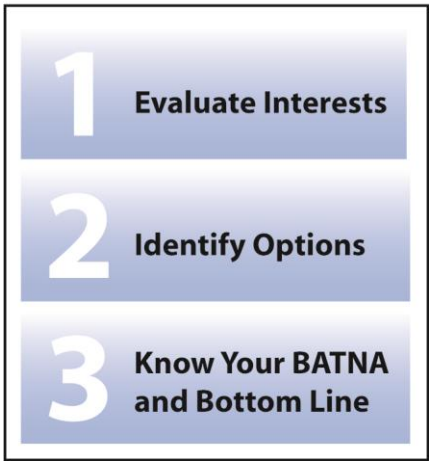
Part I, Chapter 14, of this handbook, discusses each of these payment methods. The Department's preferred method of compensation should be stated in the Request for Proposals. The final method of compensation should be agreed to during the negotiations process.

In evaluating what is negotiable, the project concept, as advertised, cannot be altered. Care should be taken not to alter contract elements to the extent that the selection process may be questioned.

Prepare Using a Mutual Gains Approach: The steps for preparing to engage in mutual gains negotiations are summarized in Figure 4, **Preparing for Mutual Gains Negotiations**.

Evaluate Interests: Each PM should list the key interests for the project. Some must be satisfied to reach an agreement; others may be desirable, but not essential. Be honest with yourself, and make sure only significant interests are listed. Once your interests are identified, place yourself in the position of the other side and list their likely interests using the same process. Then recognize that other parties who may not be directly involved in the negotiations may have legitimate interests in the outcome. These parties should be consulted prior to negotiations to determine their interests.

Figure 4
Preparing for Mutual Gains Negotiations



- **Identify Options:** This process begins by reviewing your interests and the anticipated interests of the other side. Those interests that are in agreement need not be negotiated since there is agreement. Where there is likely to be disagreement, prepare options to present in the negotiations. Brainstorm options with your team. Be creative; look at all negotiable elements discussed above. For example, if there is likely to be an impasse on staff hours, will changes in the scope or schedule overcome the problem? Have options available before negotiations begin.
- **Know Your BATNA and Bottom Line:** Evaluate all consequences of not reaching an agreement. For the FDOT, it will mean delay because it will be necessary to go through the negotiating process with the second-place firm. Anticipate this alternative by learning about the number-two ranked firm. Audited overhead and expense rates are available for all qualified consultants, and salary rates can be determined from recent FDOT contracts. It is, however, inappropriate to have any discussions with the second-place firm until negotiations are officially terminated with the first-place firm.

For the consultant, the loss of business should be evaluated against the current backlog of work and other potential contracts. Any potential ill will that may be generated with the FDOT should be factored into the consideration.

A thorough analysis of your BATNA allows you to determine your walk-away position. What interests and bottom-line price must be achieved in the negotiations for an agreement? Deliberately formulate an answer to this question before negotiations. Making a walk-away decision in the heat of negotiations is usually a mistake.

It is not the intent of mutual gains negotiations to encourage terminated negotiations; rather it is to ensure that both parties reach well-thought-out business decisions. While everyone wants negotiations to be successful, there is a point where an agreement cannot be achieved. Know that point before beginning negotiations.

Learn About the Other Side: Both PMs 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 its nominated 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 PSU staff and learn the negotiating philosophy of the district he/she will be dealing with. The consultant PM must know the FDOT's policies about any issues likely to come up in negotiations.

Conducting Negotiations

Once a negotiation strategy has been determined and preparations have been made, the negotiation process itself can begin. Figure 5, **Using Mutual Gains**, offers some suggestions for conducting successful negotiations.

Figure 5
Using Mutual Gains

- Select Negotiators
- Start Right
- Communicate
- Apply Mutual Gains Strategy
- Document Negotiations

Select Negotiators: The negotiators for both sides should be introduced and their relative roles made clear to all. Negotiators should have the authority from their organization to make decisions. Going back to the boss to get authority for a decision only delays the process, and it may be seen as a delaying tactic. The selected negotiators should participate throughout the process. FDOT negotiators sometimes tend to compartmentalize negotiations; that is, one group negotiates rates, one staff hours, and so on. Some districts operate in teams and rely heavily on the Professional Services Unit (PSU) staff for information on contractual issues. It may be appropriate to bring in specialists at key points in the process. Good decisions are best made, however, 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: One of the first steps during actual negotiations is to agree on how the negotiations are going to be conducted and to establish 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: Communication is essential to successful negotiations. A key communication skill in negotiating is listening. Earnestly try to understand the other side's viewpoint. Criticizing the other side is a sure way to shut down communications. Do not be secretive during negotiations. Be willing to share appropriate information and useful data. Good communication does not mean agreeing with the other side. Mean what you say, and don't equivocate with bad news. Be direct and honest. Always maintain a professional approach. Negotiations can be stressful, but you should minimize your emotional reactions and be understanding of emotional reactions from others. Stay calm, and separate people issues from substantive issues.

Apply a Mutual Gains Strategy: Become skilled in the use of mutual-gains techniques previously discussed. Throughout the process, both parties should be open to reasoned arguments. A "take it or leave it" position from the outset is not negotiations and may be a violation of CCNA. Both parties should negotiate in good faith. The end result of the mutual gains negotiating technique is to obtain a fair price for both the FDOT and the consultant. Throughout negotiations, therefore, keep in mind that agreement on a bottom line price is the objective, not the mechanics of reaching it.

Document Negotiations: There will be many agreements and understandings reached during the process of negotiations. When appropriate, the contract or scope of services should be revised to reflect these agreements. However, there will also be many minor issues discussed that may not warrant revisions in the contract but are important to document. The comments column in the standard staff hour estimating forms can be used to document understandings reached for levels-of-effort issues. Other understandings can be documented with negotiations reports, letters or memoranda to file. The PSU staff should be consulted if the appropriate method of documentation is not clear.

Regardless of the method used, some sort of documentation is useful. As work on a project proceeds, issues may arise that were discussed during contract negotiations, or work may be added or deleted. Good documentation of the negotiations can avoid confusion during the project. And, when organizations change staff or a new Project Manager takes over before a project is completed, the "gentleman's agreements" reached in contract negotiations may be lost unless they have been properly documented.

CHAPTER 14 – CONSULTANT CONTRACT MANAGEMENT

Table of Contents

Contents

Introduction 2
Elements of the Contract 2
Types of Contracts 5
Invoicing 6
Consultant Work Performance Evaluations 8
Disadvantaged Business Enterprise (DBE) Program 11
Contract Amendments 14
FDOT- Consultant Relationships 16
Where to Go for Help 17

Introduction

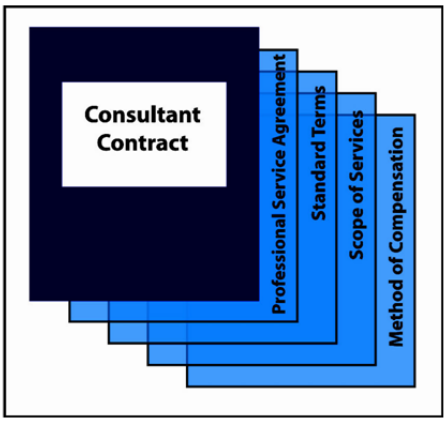
Once contract negotiations are completed, the contract is executed and the Notice to Proceed (NTP) has been issued, work can begin. Both the Florida Department of Transportation (FDOT) Project Manager (PM) and the consultant PM will be eager to perform the technical work. Both must have a clear understanding of how to manage the contract as well as the technical work. The consultant has a responsibility to perform under the terms of the agreement, and the FDOT PM has a responsibility to enable the consultant in execution of the work, and reasonably and objectively evaluate the consultant's performance.

Florida law requires funds approval prior to executing the written agreement and both the funds approval and the written agreement must be executed prior to beginning services. Both PMs need to be aware of this requirement and not allow work to begin early. Work performed before the funds are encumbered and the contract is executed cannot be paid for under the contract. However, some preliminary engineering services related to reimbursement of utility work may not require prior encumbrance. The encumbrance process, as described in ***Procedure No. 350-20-200***, ***Contract Funds Management - Funds Approval***, ensures the budgeted funds are in place and sets those funds aside for payment of the specific contract. The FDOT PM should check with the District Utility Coordinator concerning this type of work.

Elements of the Contract

Both PMs must know the contract. They must understand the "boilerplate," as well as the scope of services. The standard format for professional contracts includes a standard contract document which specifies the terms of the agreement as well as the legal responsibilities and rights of both parties. Exhibit A of the contract describes the scope of services, and an Exhibit B of the contract describes the method of compensation. Figure 1, **Elements of a Contract**, lists required contract items.

Figure 1, **Elements of a Contract**



Professional Services Agreement: This document is, signed by both parties, is the actual agreement. It includes the contract number, the financial identification number, the date of the agreement, the consultant, the title of the project, the term (duration) of the contract and the schedule of services, insurance requirements, a list of subcontractors, and references to the contract terms, scope of services and method of compensation.

Standard Terms: The FDOT uses a ***FDOT 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.

Scope of Services: The scope of services is the specific work requirements for the consultant. See Part 1 Chapter 12 of the ***Project Management Handbook*** for specific information included in a scope of services. Both PMs are responsible for managing the scope.

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***. These include:

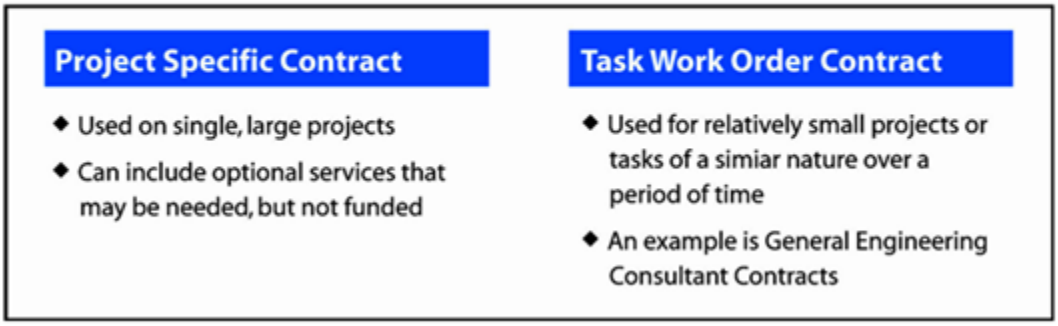
- **Lump Sum:** With a lump sum contract, the consultant agrees to complete the scope of services for a specific amount. Invoices are for a percent complete by task, deliverables or other milestones. Scope creep must be controlled. Legitimate scope changes should be added by modification, with negotiated revisions in the lump sum price.
- **Cost Reimbursement:** This method is also known as "cost plus fixed fee." This method is used primarily when the scope and required level of effort is unclear at the time of contract negotiation. The actual (or negotiated) rates for wages 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.
- The consultant must maintain accurate time records and ensure that the rates used are as agreed in the contract. The negotiated contract should specify how labor rates should be invoiced, actual rates or the negotiated average for the labor category. A limiting amount may be established, for the overall contract or for individual tasks, projects or cost elements. A cost reimbursement contract gives the FDOT PM a means to more carefully monitor the level of involvement of the consultant's key staff members.
- If the work is completed under the limiting amount, the consultant is reimbursed only for the time and direct expenses expended, plus the fixed fee. Once the limiting amount is reached, the consultant is obligated to continue until all terms of the contract have been fulfilled. If additional funds are necessary, an amendment must be executed prior to beginning any of the work requiring the additional funding. The consultant PM should monitor the remaining contract balance and inform the FDOT PM when the total expenditures approach the limiting amount. This type of contract requires intensive contract management from both PMs.

- **Unit Cost:** Unit cost is a fixed rate of reimbursement for each unit of work completed. This method is used for services such as geotechnical services or traffic counts. Invoices are based on the number of units completed. Normally, a limiting amount is established based on an estimated number of units.
- **Specific Rates of Compensation:** In this method, a billing rate is negotiated which commonly includes labor, overhead, facilities capital cost of money (FCCM) if applicable, 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.

Types of Contracts

Figure 2**, Types of Contracts**, shows the differences between the two basic types of contracts commonly used by the FDOT.

Figure 2, Types of Contracts



- **Project-Specific Contracts:** Many consultant contracts 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. Commonly used options are design services for Project Development and Environment (PD&E) contracts and post-design construction services for design contracts. 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 make them options to be negotiated at a later date. An example would be a long and complex PD&E project, where some of the public participation, public hearings, analysis of alternatives and final environmental reporting are options to be negotiated when there is a better grasp of the project requirements.

- **Task Work Order (TWO) Contracts:** The FDOT frequently must accomplish relatively small projects or tasks for which it would be inefficient to advertise and go through the consultant selection process individually. Task assignment contracts are designed to select a qualified consultant to perform projects or tasks of a similar nature for a period of time or 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. Scopes of services for individual TWOs should contain all the basic information recommended for a scope in Part I, Chapter 12, of this handbook. The level of detail can be abbreviated as long as it is clear to both the FDOT PM and consultant PM. FDOT PMs should review Section 2, ***Procedure No. 375-030-010***, ***Amendments and Task Work Orders For Professional Service Agreements*** for specific instructions on the preparation of Task Work Orders.
- Both PMs must understand the differences between TWO contracts and those for specific projects. When TWO contracts involve a large number of relatively small task assignments, their management can become a challenge. Each PM must have a systematic process for ensuring that deliverables, contract funds, invoicing procedures and schedules are all properly controlled. Task assignment contracts should be managed so the overall contract term does not expire prior to the completion of all individual TWO assignments. If necessary, however, an individual TWO issued prior to the expiration date of the overall contract may have an ending date past the expiration date of the contract.

Invoicing

Consultant Project Manager: Consultant PMs must ensure invoices are accurate and services were rendered within the terms of the agreement. Invoices must be fully supportable. The supporting documentation must agree with the requested billing period.

The consultant must understand the invoicing requirements for the contract. Most professional services contracts are now invoiced through the Consultant Invoice Transmittal System (CITS). For projects in CITS, the consultant PM should study the CITS instructions prior to submitting the first invoice. The ***CITS Manual*** and information on how to request access can be found on the ***Procurement Office*** website under Professional Services. The FDOT PM

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

Figure 3**, CITS Invoicing Checklist**, is a quick reference for the PM.

Figure 3, **CITS Invoicing Checklist**

Consultant Project Manager	FDOT Project Manager
☑ Submit invoice for all work accomplished including all Task Work Orders for that billing period	☑ Make sure correct data entered into CITS
☑ Submit all invoices on a timely & routine basis	☑ Review invoice to ensure charges are reasonable, allowable & necessary
☑ E-mail FDOT PM when invoice has been submitted—include progress report	☑ If unable to review invoice, appoint someone else to do so

The consultant PM should appreciate the fact that the FDOT PM has a time limit to review and act on an invoice submitted through CITS. The FDOT PM is not automatically notified by CITS that an invoice has been submitted. However, CITS does prompt the consultant to e-mail the FDOT PM and opens a browser with a prepared message. The consultant should take advantage of this feature. 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. A good procedure is to send the FDOT PM an e-mail notification that an invoice has been submitted and attach an electronic copy of the monthly progress report.

NOTE: At times the FDOT PM will not be available to act on an invoice, in which situations a back-up reviewer should be designated.

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.

Consultants should invoice on a timely and routine basis. It is not appropriate to delay invoices at the end of the year because of tax concerns. Lump sum contract invoicing and payments should be based on completion of project milestones in the contract’s “Method of Compensation” section. Invoices for TWO assignment contracts should be submitted on a regular basis, say monthly. To reduce workload for the FDOT, one invoice should be submitted that includes all TWO charges for the billing period. Multiple invoices for each TWO generally should not be submitted. However, if a question that may delay approval of a

particular task is anticipated, invoicing that task separately may be justified so the full invoice is not delayed.

FDOT Project Manager: FDOT PMs must review invoices to ensure that costs are reasonable, allowable and necessary. A cost is reasonable if, in its nature or amount, the cost does not exceed that which would be incurred by a prudent business person in the conduct of a competitive business. A cost is allowable if it is expressly provided in regulatory or contractual provisions. The FDOT may refuse to allow costs incurred by consultants which are deemed unreasonable in amount, or contrary to public policy. A cost is necessary if it is required to meet the terms of the contract.

Approving invoices results in the direct expenditure of state funds. When reviewing invoices related to the work of subconsultants, the FDOT PM should consult appropriate support services to see if their personnel are familiar with the work accomplished. The FDOT PM must assure services were provided, the payment is in accordance with the contract, and the invoice is properly documented. If justified and provided the contract allows it, the FDOT PM should withhold payment of a portion of an invoice for poor quality work.

The FDOT PM is also responsible for ensuring proper project closeout. See *Closeout*, in Work Program, in Part 1 Chapter 10 of the ***Project Management Handbook***.

Consultant Work Performance Evaluations

The FDOT contracts with professional services consultants to provide a variety of services. Florida Administrative Code Rule 14-75 requires the FDOT to have a system to evaluate the performance of consultants on professional services contracts. Performance evaluations received by the Consultant on current and previous projects are one of the factors considered during consultant selection. The consultant's work performance for each advertised major work type must be evaluated by the FDOT's PM (exception: exempt contracts less than Florida Statutes 287.017, Category II threshold – currently $25K). Consultants may also be evaluated on minor types of work, if considered significant by the FDOT's PM. ***Be advised that once a minor work type is evaluated, it must continue to be evaluated throughout the life of the contract***.

<u>Construction Engineering Inspection (CEI) consultant contracts</u>: Evaluations are conducted by the Construction Project Manager (CPM) who is responsible for managing the consultant contract. Evaluations of the consultant's performance are conducted in the areas of Schedule, Management and Quality. The Schedule grade is based on the consultant's compliance with the contract schedule. The Management grade is based on the consultant's ability to manage all necessary project resources, including subs. The 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. Evaluation is performed quarterly.

Non-CEI consultant contracts: Evaluations are conducted by the FDOT's PM who is responsible for managing the consultant contract. Evaluations of the consultant's performance are conducted in the areas of Schedule, Management, Quality, and Constructability (only for contracts that produce construction plans). The Schedule grade is based on the consultant's compliance with the contract schedule. The Management grade is based on the consultant's ability to manage all necessary project resources, including subs. The Quality grade is based on the consultant's attention to the established quality control plan and delivery of a quality product. The PM should assign a Quality rating 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 may only receive a Quality evaluation. Evaluation is required at least once every 12 months during the contract period from the Notice to Proceed.

A Constructability grade is also assigned by Construction at the end of 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.

All consultant evaluations are based on a 5 (high) to 1 (low) rating scale, 5 representing "Outstanding" performance and 1 representing "Poor/Unacceptable" performance. For more detailed information on Consultant Evaluations, please refer to ***Procedure No. 375-030-007***, ***Professional Services Consultant Work Performance Evaluation***. The following are also available, on the ***Project Management Office*** website:

- **Consultant Performance Evaluations Computer Based Training**
- **Selection Committee Guidance Document**
- **Evaluations (Excel spreadsheet versions)**

The FDOT PM must enter consultant evaluations into the Professional Services Information System (PSIS). To access to the mainframe application, the PM will should contact the OIS Help Desk to obtain a user account. Instructions, including Computer Based Training on entering and updating consultant performance evaluations in PSIS, are available on the **Procurement *Office*** website.

The FDOT PM who is not comfortable with the evaluation process may find it helpful to talk with Professional Services Unit (PSU) personnel and more experienced PMs before submitting evaluations.

Performance evaluations are important to consultants because they are a factor in selection for work with the FDOT. More important, evaluations are an excellent quality assurance tool for the consultant, and for FDOT a valuable project management tool. Here are some guidelines:

- Fairness and consistency in evaluating is necessary. Inflated evaluations are misleading to both FDOT and to the consultant. On one hand, sub-satisfactory performance so scored will serve as a "take notice" alert to the consultant. On the other hand, a consultant that effectively manages a contract (Management) on time (Schedule), and produces deliverables satisfying requirements (Quality/Constructability) is doing what is expected, and should therefore be graded 3 for "Satisfactory." There are opportunities in each of the evaluation grading areas to recognize "above expected" performance which can increase the score for the particular area. *However, performing the required work, on time and at the expected quality is satisfactory work and overall performance grades in the 3 plus range are to be expected and should not be viewed as low performance by the department or the consultant.*
- 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 and do not provide useful selection information for other FDOT PMs.
- Interim evaluations are very useful.
- 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. It is appropriate to give the consultant time to correct a problem before submitting a poor evaluation, so begin the process early.
- 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.
- Subconsultants may also be evaluated, but only on Quality, because the prime consultant is responsible for Management, Schedule, and Constructability (when applicable). The FDOT PM should consult the appropriate support services to get input for the evaluations of

subconsultants. It is also be appropriate to obtain the input of the prime consultant when evaluating subconsultants.

Disadvantaged Business Enterprise (DBE) Program

The FDOT PM must monitor Disadvantaged Business Enterprise (DBE) and Minority Business Enterprise (MBE) commitments, utilization and payments on all consultant contracts. Compliance with these commitments is one of the test criteria included in the consultant CEI Work Performance Evaluation (**Form 375-030-08X**), as well as in the Consultant Management Evaluation (**Form 375-030-08B**) 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." For Task Assignment type contracts, DBE commitment is determined from the DBE Participation Statement, (**Form No. 375-030-21)**, submitted by the consultant firm with their Technical Proposal.

Equal Opportunity Compliance (EOC) System Overview:

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. EOC replaced the previously used Bizweb application, and was made available to the public for use on October 3rd, 2012. This application is used statewide by FDOT contractors and consultants to report Bidders Opportunity List, DBE Commitments and DBE Payments. Additionally, the FDOT PM is responsible for ensuring that the consultant reports this DBE Commitment and Payment information in EOC in a timely manner.

DBE Commitments:

A consultant is required to enter their project DBE Commitment into EOC for every project; even if that commitment on a project is Zero. For example, a prime consultant that does not have any DBE subconsultants on the project needs to so indicate in EOC. Also, a prime consultant that is a DBE is required to report DBE Commitments and Payments for itself as the Prime in EOC.

Communication with the prime consultant is essential to the FDOT PM in properly assessing when or if the DBE subconsultant should be utilized as originally committed. The question the FDOT PM needs to fully resolve is: "Did the prime consultant make a good faith effort to fulfill the original DBE commitment?" If a DBE commitment was made for the contract, the FDOT PM will need to determine at what point during the course of the contract the DBE activity/work should take place, and consider that when evaluating the consultant firm on adherence to DBE commitment. For example, if the DBE activity/services

are 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; and (2) The FDOT PM makes changes to the scope that eliminate the need for the DBE services. As in all instances of necessary scope change, the FDOT PM should document to the contract file, (and to the consultant), the portion of the scope of work deleted, and the reason. The FDOT PM can assess Consultant achievement of DBE commitments by viewing subconsultant payment information in EOC.

DBE Payments:

All current professional services contracts include a clause that stipulates the following in the contract Method of Compensation, Invoice Procedure Section: "Invoices for this agreement will be prepared by the consultant and submitted through the FDOT's web-enabled CITS internet application. The consultant will report subconsultant payments through the EOC system on the internet. Failure to submit subconsultant payment information (or failure to do so in a timely manner) may be cause for rejection of the invoice. Within thirty days after receipt of the final payment, the consultant will report final subconsultant payments through the EOC system. 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." Note that subconsultant payment data entered by the prime consultant in EOC will always lag 30 days behind current payments in CITS to the prime.

The Method of Compensation contractual language imposes the penalty: "Failure to submit subconsultant payment information may be cause for rejection of the invoice." Prior to rejecting invoices in CITS, the FDOT PM should confer with the consultant to ascertain why payment information is not being entered in a timely manner. It is good practice to notify the Professional Services Office when rejecting an invoice for a consultant's failure to pay DBE subconsultants or their failure to enter DBE payment data in EOC. Per the contract, invoices should either be rejected or accepted within the contractual and statutory time constraints mandated for invoice review. Specific questions regarding DBE compliance ratings should be directed to the District PSU.

Consultant Compliance Evaluation:

If the prime consultant appears to be timely in paying the DBE subconsultant (and timely in entering payment information in EOC), the DBE test in the aforementioned performance evaluation should be rated as a 3 (Satisfactory) or

higher. If the prime consultant is significantly lagging behind in paying any DBE subconsultant, the performance ratings should be 2 (Below Satisfactory) or even 1 in some instances (Unacceptable). An "unacceptable" rating would be given to a prime who is not utilizing the DBE at all, nor entering DBE payment information in EOC in accordance with the contract and their prior DBE commitment.

EOC Access for FDOT Project Manager:

To gain access to the EOC system to monitor consultant BE Commitment and Payment submissions, the FDOT PM must submit an Automated Access Request form (AARF), selecting the Report User role. Once granted access, the FDOT PM can access the ***EOC Application*** system. A link to EOC is ***also*** available thru ***CITS***.

Professional Services PMs should refer to the ***EOC GUIDE FOR PROFESSIONAL SERVICES PROJECT MANAGER***.

FDOT PM Monitoring Role:

The FDOT PM should monitor contracts in EOC to ensure that the Prime Consultant submits DBE Commitments and Payments in a timely manner.

- **DBE Commitment submission in EOC:** The FDOT PM should run the *Contract Commitment Details* report to determine if a consultant has reported subconsultant DBE Commitment(s) in the EOC system as listed on the DBE Participation Statement, **Form 375-030-21**.
- **DBE Payment Submission in EOC**: The FDOT PM should run the *Contract Sub Payment Details Report* to determine if a consultant has reported their DBE subconsultant payments in EOC.
- **Contracts Not Reported in EOC:** The FDOT PM should run the *Contracts Not Reported Report* to determine contracts whose Contract Dollar Amount and DBE Credit have not been reported in EOC.
- **Commitment Payment Comparison:** The FDOT PM should run the *Commitment Payment Comparison Report* to determine DBE Commitments and DBE Payments that have been submitted in EOC for a specific contract.
- **Contract Profile:** The FDOT PM should run the *Contract Profile Report* which provides detailed information on DBE Commitments and Payments reported in EOC for a specific contract.

Additional EOC Resources:

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

Contract Amendments

Paragraph 1, ***Procedure No. 375-030-010***, **Amendments and Task Work Orders for Professional Service Agreements**, contains specific requirements concerning contract amendments. There are two types of contract amendments—supplemental amendments and other amendments.

Supplemental Amendments: Supplemental amendments are used to modify an original agreement condition where there is a corresponding change in the total compensation. A change in the scope of services requiring additional compensation must be within the original intent and purpose of the contract. A supplemental amendment will require a request for a proposal, proposal review, negotiations, an amendment request, pre-award review, preparation and execution. Funding for the supplemental agreement must be encumbered prior to its execution.

A supplemental amendment is a time-consuming process, so the need should be identified early and carefully coordinated with PSU personnel. The FDOT PM must be completely familiar with this procedure and ensure that all necessary documentation is in place before beginning the process. If the supplemental amendment is requested by the consultant, the consultant PM should help by providing all appropriate documentation. No work associated with a supplemental amendment can begin until the agreement is fully executed.

Other Amendments: Other amendments can be used for changes that do not affect total cost such as time extensions, assignment agreements, minor changes in the scope and other modifications to the agreement terms.

Managing Scope Creep. The consultant has a contractual obligation to provide all the services required in the scope, but only those services. It is not appropriate for the FDOT PM to request additional services (scope creep). **Figure 4, Ways to Avoid Scope Creep**, offers suggestions on ways to keep the project on schedule and within budget. This practice either unfairly affects the consultant's profitability or it exposes the FDOT to the risk of additional costs. The consultant PM must identify scope creep early and bring it to the attention of the FDOT PM. Recognize that scope creep could also originate from within the consultant team. Both PMs and all team members must stay focused on the scope. Both PMs should know when and how to say "no" when necessary. When both the FDOT PM and the consultant PM agree that additional work is necessary, the contract amendment process discussed above should be used.

Figure 4, Ways to Avoid Scope Creep

- **Do not ask for services beyond the scope**
- **Do not volunteer services beyond the scope**
- **Stay focused on the scope**
- **Know how and when to say no**

FDOT- Consultant Relationships

Both the FDOT and the consultant PM must work to develop a professional relationship that will foster project success. It should not be an adversarial relationship. Both parties are on the same team, and each is necessary for the other's success. Mutual respect and good communications are usually the keys to a successful relationship. Both parties will begin a project with certain expectations, which are probably not specifically addressed in the contract. Both should be open with expectations of each other early in the project. Part I, Chapter 7, of the ***Project Management Handbook***, discusses the roles and responsibilities of both FDOT and consultant PMs.

An important financial responsibility of both FDOT PM and the consultant PM is to be aware of the potential for fraud and abuse of state funds, to guard against such activity and take appropriate action when it is suspected. Fraud is defined as a deceitful practice that results in an injury. It is always intentional and it always includes a lie. Some examples of fraud include:

- Acceptance of gifts
- Conflict of interest
- Dual employment
- Theft
- Unlawful compensation
- False statements
- Money laundering
- Organized scheme to defraud
- Bribery
- Nepotism

Part I, Chapter 2, Ethics, of this handbook, discusses the ethical and legal responsibilities of FDOT employees and consultants working for the FDOT. A large sum of money in an active contracting program such as exists with the FDOT creates temptations for unethical people to commit fraud and, unfortunately, it does happen. Frequently the PM is in the best position to identify possibly fraudulent activities. Both FDOT and consultant PMs are obligated to report any suspicion of fraud. It is not the PM's responsibility to prove that fraud is taking place; only a suspicion is sufficient. Both the FDOT and the consultant PM are responsible to notify the Office of Inspector General of such suspicion. A hotline can be called at 1-800-255-8099.

Where to Go for Help

The FDOT PM should consult the district professional services staff if any contractual question or issue arises. Most consultant firms do not employ full-time contract specialists. Consultant firms should feel free to consult with the PSU that services their contract to assist with contractual questions or issues.

CHAPTER 15 – SCHEDULING

Contents

Introduction 2
Why Do We Need Schedules?.....2
How Do We Use Schedules?.....3
Responsibilities for Scheduling 4
The Basics of Scheduling 4
Schedule Initiation.....10
Building a Schedule 12
Managing the Schedule 13
Schedule Reporting 18

Introduction

Scheduling is a critical element for both FDOT and consultant personnel in the successful execution and delivery of their respective projects. Within FDOT, scheduling serves two fundamental purposes. First, schedules are used by FDOT for purposes of tracking the overall delivery of projects and reporting that progress back to District and Central Office senior management. The second purpose of schedules is to serve as a tool for use by project and task managers to effectively manage and execute projects on a day to day basis.

The majority of FDOT projects are accomplished by consultants with the remaining projects done with in-house staff. Schedules developed by FDOT can be quite different than schedules developed by consultants. FDOT schedules include many activities that are required for internal administrative purposes (such as contracting, funding, and internal approvals) that are not relevant to the consultant's execution of a project. On the other hand, a consultant's schedule will typically include many more activities detailing the delivery of the project. FDOT in-house design project schedules should include the same level of project activities as a consultant's schedule.

The purpose of this chapter is to provide background in the preparation and effective use of scheduling as a tool for project management, recognizing that practices related to scheduling vary by district. Many districts have detailed scheduling guidelines that the Project Manager should refer to before developing a schedule. This chapter focuses on the basics of the Critical Path Method (CPM) of scheduling while addressing the benefits of a schedule, how to build and use a schedule, some techniques for managing the schedule, some examples of effective reports, and finally, how to identify and correct common schedule problems. Scheduling is a necessary skill for project management. At the end of this chapter is a list of useful references for more detailed information on scheduling techniques. Although much scheduling literature is related to construction scheduling, the same techniques apply to any project phase (i.e. planning, Project Development and Environmental (PD&E), design or maintenance).

Why Do We Need Schedules?

The benefits of project schedules quite simply are its use as a management and communications tool that can be used to anticipate and prevent problems from occurring.

Here are some advantages a carefully prepared and regularly updated schedule can provide for the project team members.

- The schedule preparation process can help the team think through the project from beginning to end. Sometimes this planning step is overlooked or shortened in the interest of getting a schedule in place

quickly. Documenting the rationale for the schedule helps everyone stay focused on the logical sequence of activities.

- It is a management tool for the FDOT Project Manager, other district staff and the consultant Project Manager. If all team members have input and are regularly involved in the updating process, then the schedule can provide a road map to successful project completion.
- It helps to manage the dollar commitment for each stage of the project. Because the schedule can be “loaded” with the resources required for each activity in terms of staff and dollars, it allows the projection of expenditures of project funds.
- It increases efficiency. Team members can focus on the critical data activities.
- It can provide a performance measure as well as a historical record that can be used to develop or refine templates to make scheduling of future projects more accurate.
- It can help ensure a quality product by incorporating time for quality check activities into the schedule at appropriate points.
- It allows the project to be delivered on schedule.

How Do We Use Schedules?

The schedule can be used in ways other than supplying historical information and determining if a project is ahead or behind schedule. Some other uses are:

- It can be a valuable tool for the allocation of additional funds. Many districts maintain a framework of all projects in the district interfaced with individual project schedules. This overview allows easy evaluation of where to place additional funds in the overall work program.
- Similarly, this structure facilitates the reallocation of funding within a given time frame.
- The schedule can facilitate evaluation of resources to aid in focusing them to handle critical needs in response to a potential or actual delay.
- It can be used in a mentoring program with training for new PMs to familiarize them with District processes.
- The schedule provides a look beyond what has happened to what might happen, thus allowing the PM to proactively anticipate, mitigate and eliminate potential problems.

Responsibilities for Scheduling

Many individuals are involved in the preparation, updating, and maintenance of schedules throughout the life of a project. It is important to understand the responsibilities of the key players:

District Schedulers develop, update and maintain schedules for all projects. District schedulers are typically the only individuals with access to the scheduling software. District schedulers prepare initial schedules based on the project scope of work and input from consultants and PMs.

- District Project Managers review and modify the initial project schedule, monitor schedules on an ongoing basis, provide schedule updates to District Schedules at least monthly, and assess consultant progress.
- 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. Consultant Project Managers should prepare monthly schedule updates and progress reports.
- 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.

The Basics of Scheduling

Project schedules can range from simple bar charts with few activities to complicated 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 contains relationships between activities and allows date constraints to be placed on individual activities. Thus, for small or simple projects where activities are consecutive or connected end-to-end a Gantt chart may be adequate. However, as projects become more complicated, activities will occur concurrently and complex relationships will develop. In these cases, a CPM schedule may prove to be more effective and provide more benefits.

A Gantt chart is illustrated in Figure 1, and a CPM Chart in Figure 2.

Figure 1
Sample Gantt Chart

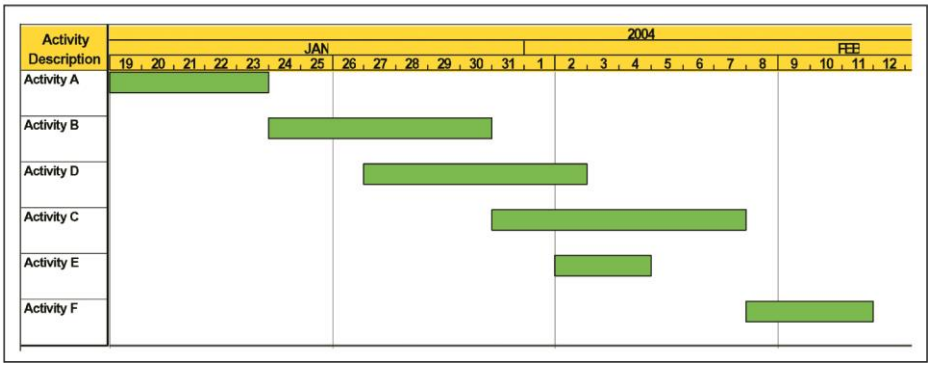
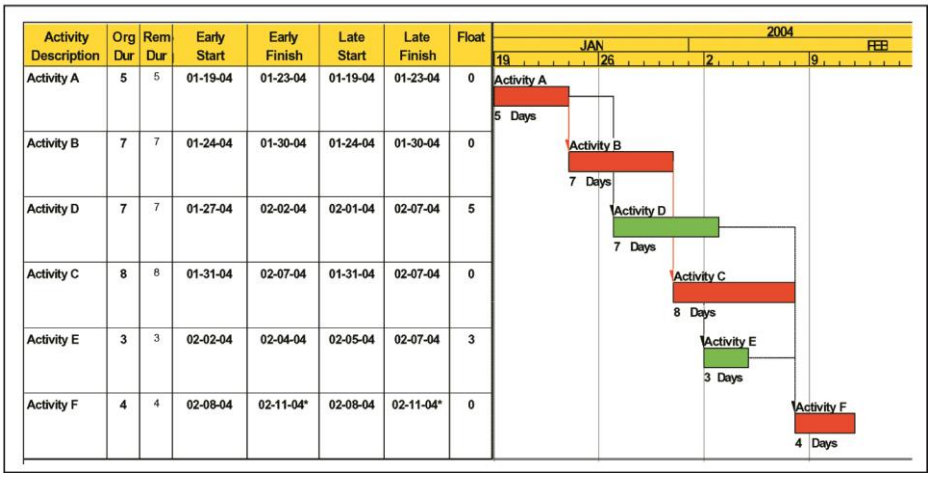


Figure 2
Sample CPM Chart



Activity Description	Org Dur	Rem Dur	Early Start	Early Finish	Late Start	Late Finish	Float
Activity A	5	5	01-19-04	01-23-04	01-19-04	01-23-04	0
Activity B	7	7	01-24-04	01-30-04	01-24-04	01-30-04	0
Activity D	7	7	01-27-04	02-02-04	02-01-04	02-07-04	5
Activity C	8	8	01-31-04	02-07-04	01-31-04	02-07-04	0
Activity E	3	3	02-02-04	02-04-04	02-05-04	02-07-04	3
Activity F	4	4	02-08-04	02-11-04*	02-08-04	02-11-04*	0

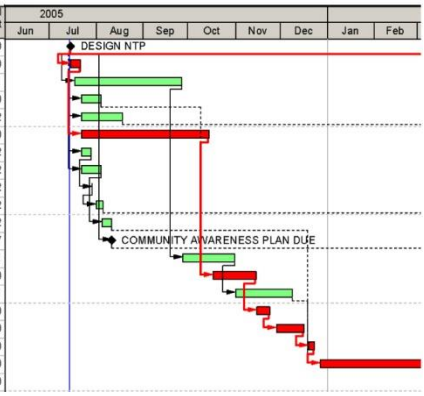
- Before explaining the nuts and bolts of the CPM, it is important to point out that:
- The schedule is a ***tool*** for project management.
- The schedule is a "*living*" document. It needs to contain current information and conditions that provides an up-to-date picture of the project. One common complaint about schedules is that, once they are prepared, they are hung on the wall to turn yellow and never be used again. The "living" nature of the CPM is one of its big advantages as the impact of an update or a potential change is readily apparent.
- The schedule must reflect *reality* so that any potential slippage in the schedule can be identified early and the situation corrected before it becomes a serious issue. One common pitfall is to make the schedule fit target or project milestone dates by assigning unrealistic durations to individual activities. Some of the current CPM software allows automatic updating of activities. While using this automated feature is easier than verifying the status of each activity separately, this practice may show the project as continuing on schedule from month to month when it really is starting to fall behind.
- The critical path can *change*. Since the schedule is a living document the critical path can and often does change to reflect the dynamic nature of FDOT projects.

Examples provided in this chapter are based on a hypothetical example project on SR 51 located in Central Florida. The project involves designing RRR improvements to a 2 mile segment of the highway through a rural community. Specific work includes ADA improvements and signal upgrades. A portion of the project schedule is shown in Figure 3. The full schedule is provided at the end of the chapter.

Figure 3
Sample 3R Project Schedule

SR 51 - Example 3R Schedule

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
23401	DESIGN NTP	0	15-Jul-05		0
96401	Confirm Schedule/Scope	5	15-Jul-05	21-Jul-05	0
10601	DESIGN SURVEY	50	18-Jul-05	26-Sep-05	11
10201	Obtain Traffic Data	10	22-Jul-05	04-Aug-05	50
29501	Preliminary Environmental Determination	20	22-Jul-05	18-Aug-05	162
93501	Request Asphalt Recommendation From Gainsv...	60	22-Jul-05	14-Oct-05	0
96501	Confirm Description and Limits With Work Progr...	5	22-Jul-05	28-Jul-05	352
26001	Typical Section Development	10	22-Jul-05	04-Aug-05	92
96601	Confirm LRE	1	29-Jul-05	29-Jul-05	352
99601	Calculate Construction Duration	5	01-Aug-05	05-Aug-05	352
26002	Typical Seciton Approval	5	05-Aug-05	11-Aug-05	92
29001	COMMUNITY AWARENESS PLAN DUE	0		11-Aug-05	197
10802	PLOT SURVEY DATA FIELD DATA	25	27-Sep-05	31-Oct-05	11
19702	Prepare Pavement Design	20	17-Oct-05	14-Nov-05	0
11301	Preliminary Alignment & Grade	25	01-Nov-05	08-Dec-05	11
97501	Prelim DOT Pavement Design Review	7	15-Nov-05	23-Nov-05	0
19701	FINAL PAVEMENT DESIGN	15	28-Nov-05	16-Dec-05	0
97701	FDOT PAVEMENT DESIGN APPROVAL	5	19-Dec-05	23-Dec-05	0
11302	Prepare PH II Plans	75	27-Dec-05	12-Apr-06	0
23501	SUBMIT PH II PLANS	0		12-Apr-06	0



Elements of a Schedule: Schedules consist of 7 basic elements: activities, dependencies between activities, relationships, durations, milestones, constraints and the critical path. Each of these elements must be carefully considered when preparing a schedule as an error in any one element can have significant impacts on the overall schedule.

- **Activities:** Activities are a component of work performed during the course of a project. The number of activities or tasks, in both the FDOT and consultant/contractor' schedule will vary depending on the phase, type and complexity of the project.
- **Dependencies:** There are three kinds of dependencies between activities:

  Logical: It is impossible or illogical to begin one activity until another is completed. For example, Phase I plans cannot be completed before the topographic survey is obtained

  Resource constraints: The availability of resources dictates how long it will take to complete an activity. For example, it is possible to complete the field survey on SR 51 in 10 days but not if there is only one field survey crew available.

  Discretionary (preferential): The order the activities are completed is based on the preference of the project manager. For example, the project manager would like to complete the field survey before the typical section package is submitted for review, although it could be submitted while the field survey is underway.

  Relationships: Relationships are the link between related activities within a schedule. Figure 4**, Definition of Schedule Relationships**,shows the four kinds of relationships with respect to the *sequencing* of activities (in order of decreasing frequency of use). Figure 5, **Typical Schedule Relationships** illustrates the three most common relationships and how they would be used in a schedule.
- **Durations:** The anticipated time required to complete a schedule activity.
- **Milestone:** A significant point or event in a project. A milestone has a duration of zero. Figure 5**, Typical Schedule Relationships**, highlights one milestone event.
- **Constraints:** Activities are constrained when they are limited to certain dates, rather than flowing with the natural logic of a network. We use constraints to maintain compliance with the Work Program.

Figure 4
Definition of Schedule Relationships

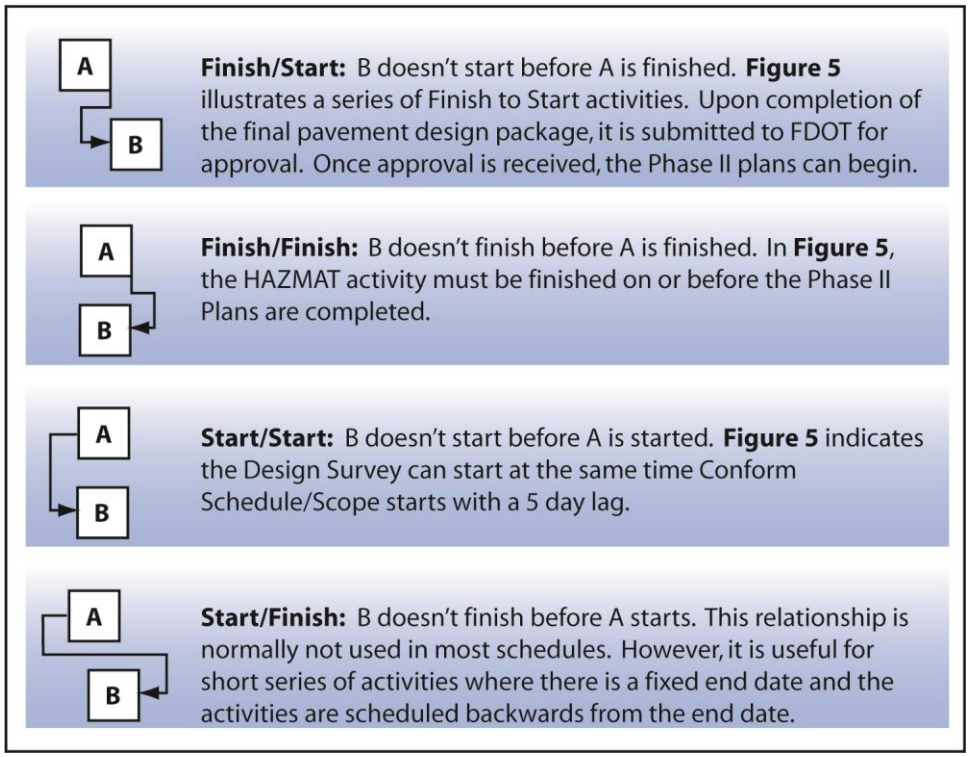
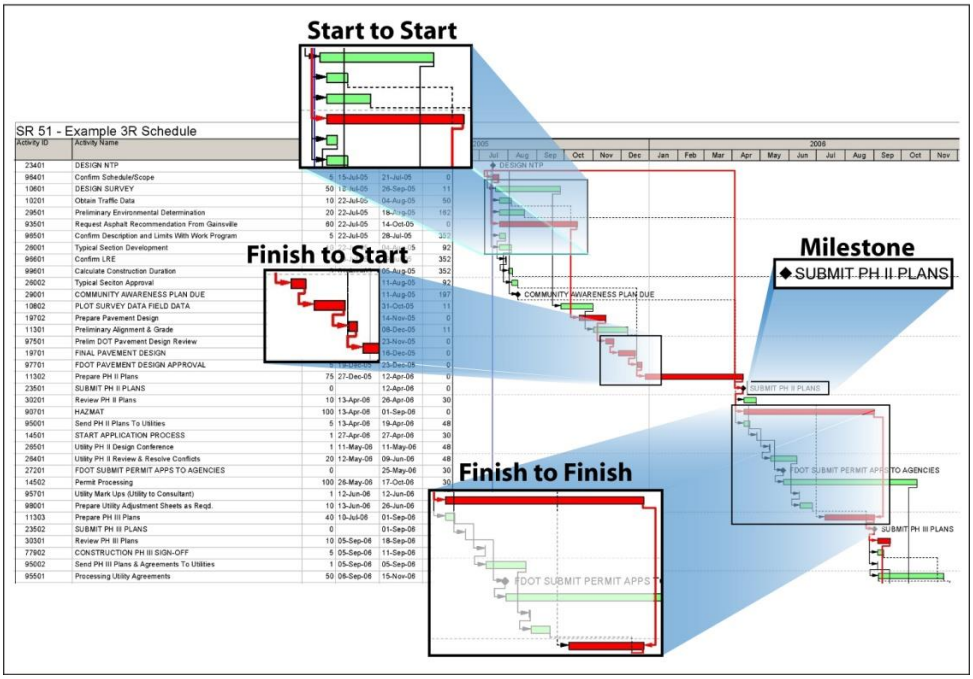
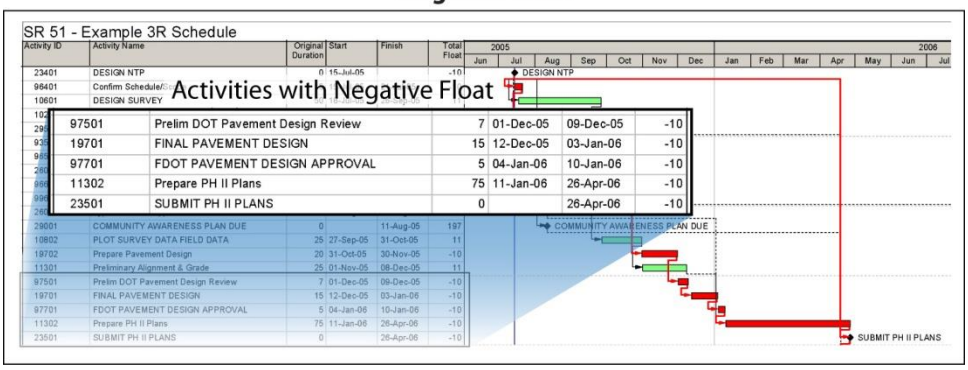


Figure 5
Typical Schedule Relationships



- **Constraint Dates** are manually applied to the start or finish of an activity rather than having the date calculated solely on the logic of the network. For example, to keep activities within a funding year, Start No Earlier than (SNE) or Finish No Later than (FNL) dates can be used to help the PM keep specific activities in line with it's phase in the work program. The beginning and end of programmed phases are committed dates and are therefore, commonly constrained. Similarly, mandatory start or mandatory finish dates can be used to lock in a particular start or finish date. Mandatory dates are often used with contract milestones, specific agency approval dates and public hearings. It is important to use constraint dates accurately to ensure that schedules do not mis-lead anyone. Constraints that result from mandatory dates often disregard schedule logic, and thus the schedule is misleading.
- **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.
- **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:** Although there are several different types of float, total float is most commonly used. Total float is the difference between the early finish date and late finish date of an activity (early and late start dates could also be used). Positive float indicates how many days an activity can slip before the activity will cause a slip in the end date of the project. Similarly, 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. Figure 6, **Float and Constraints**, illustrates negative float in a CPM schedule.

Figure 6
Negative Float



- **Software.** FDOT adopted Primavera P3 as the official scheduling software in 1993. The current version being used is P3e/c. Primavera is a data based enterprise program that allows scheduling information for all FDOT projects to be combined and reports written that summarize project production statewide. Consultants typically use Primavera P3 or P3e/c, Suretrak (which is a pc based program that is compatible with Primavera), or Microsoft Project.
- Project Schedule and Management (PSM) is the current statewide scheduling system, maintained by Production Management. Districts use P3/P3e/c to prepare schedule data for import into the PSM system.

Level of Detail in Schedules: As noted above, 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 an FDOT project manager overseeing a consultant project is typically quite 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 (for example phase submittals, typical section package, and reports). 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 (submittal of permit applications) are on or before the dates shown in the Departments schedule
- Key milestones are met, such as the 268 (Documents to ROW) date and Production date.
- The logic between activities is appropriate
- Activity durations seem reasonable

Schedule Initiation

Schedules are created for each project when it is added to the Work Program. Typically, the District Scheduler will select a schedule template based on the type of project and will modify the template to match the initial scope of work. Standard activity durations contained within a template can be used to determine the overall project duration. The FDOT project manager should review the schedule prepared by the District Scheduler prior to entering into the Work Program. As projects progress, assigned project managers should review and

update schedules during the gaming cycle. The following generally describe how different types of projects enter the work program:

Planning Projects: Planning projects are generally included in the work program as District-wide allocations and therefore project specific schedules are not developed. When a specific planning study is identified in the work program, a project schedule should be developed and reviewed by the Planning Project Manager. Under District-wide allocations, the District allocates a certain portion of funds to planning level task assignments. Once a task assignment has been made to a consultant, the consultant should prepare a schedule for review by the FDOT project manager and their scheduler.

PD&E and Capacity Projects: With the exception of FIHS projects, PD&E Studies and capacity projects in Design, Right of Way or Construction are generally those that have been assigned a priority by a local agency or Metropolitan Planning Organization (MPO). The District evaluates the local requests and adds projects into the work program in coordination with the local agency. PD&E projects are generally added to years 3-5 of the new 5-year work program, but depending upon factors including funding and other considerations, they could be added in the 1st or 2nd years of the program, or even in the current fiscal year with the approval of a work program amendment. Later phases of capacity projects (Design, Right of Way, Construction) are entered into the work program at the discretion of the District. In some instances, Districts use a general time-frame between production phases, (i.e. 2 years for PD&E, 2 years for Design, and 2 years for Right of Way) in programming later phases of the work program. In other instances, later phases are not entered until an earlier phase has progressed to a more developed stage. As noted above, the FDOT project manager should review the schedule prepared by the District Scheduler for scope conformance and appropriateness of durations when a project phase enters the work program.

Resurfacing Projects. Each year the Department's District Materials Offices provide their their District with pavement condition results on all State facilities. From this list, facilities are identified for a need of future resurfacing. Each District employs its own practices for evaluating the pavement conditions and prioritizing future resurfacing improvements. In general, Districts enter construction for new resurfacing projects in the 3rd or 4th year of the new work program during gaming. Design phase funds (and Right of Way phase as necessary) are added in advance of construction. Generally, Design is entered in the new work program's 1st year.

Safety Projects: Improving safety on existing facilities is extremely important to the Department. Each District utilizes District-wide funds for studying opportunities to make safety improvements on facilities. These projects are developed from local requests (each District works with local Community Traffic Safety Teams), maintenance requests, or other means. Similar to Resurfacing Projects, Safety Projects enter the work program at the discretion of the District.

Generally, construction is funded in years 2-4 of the new work program, and design is funded in the current or 1st year. Many of the Districts maintain a District-wide design contract to handle design of Safety Projects to expedite their completion. In some cases, in-house design forces are assigned Safety Projects to further expedite their delivery.

Bridge Repair Projects: Bridge Repair projects are derived from allocations made at the CO level based on inspections of existing structures. The design for Bridge Repair projects is generally handled out of maintenance groups in the Districts, or under the direction of the District Structures office. Projects for routine work are handled with District-wide Structures Design contracts on an annual basis or in-house design staff. Construction is normally funded in the current or next fiscal year.

Right of Way Projects: Other than advanced Right of Way activities, the Right of Way Acquisition phase for capacity and other projects is generally connected to Design and/or PD&E activities. How a Right of Way Acquisition phase enters the work program and the duration allocated for the phase varies significantly by District. Some Districts will routinely enter the Right of Way Acquisition phase into the work program 2 years after the Design phase enters the work program. Other Districts will hold entering the Right of Way phase until it is clear when the Design phase in nearing completion.

Building a Schedule

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 Professional Services Units (PSU) contracting activities, as well as PD&E and various design projects. The FDOT project manager should review each template after it has been chosen for a project by the District Scheduler for scope conformance and appropriate activity durations.

Schedule Development: The easiest and most efficient way to build a schedule is to work from an existing schedule to help identify the required sequences and time durations for the new project. A second 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. It is easy to pick up the template, quickly run through it and hand it off to a scheduler. The end result of such a lack of scrutiny may be overlooking some critical areas.

There are several necessary tasks that are not always included in a project task list. These include all the steps necessary for adequate quality control, FDOT reviews, graphics production, printing and assembly, meetings and other important project-management functions. These tasks are equally as important

to project success as the project-specific production tasks, and they must be accounted for in the schedule.

When developing a schedule, it is important to understand the use of constraining dates. When a CPM schedule is used, the activities are linked together, durations are assigned, and resources and responsible team members may be identified. But there should be another step in the process—outside constraints must also be considered before the schedule is complete. In the Basics of Scheduling section at the beginning of this chapter several types of date constraints are described. There are many issues related to constraints such as the need to:

- Identify FDOT constraints that should be incorporated into the schedule, including both funding and legal requirements (such as the time required to give a property owner prior to negotiations).
- Identify those who can supply other critical dates—district right of way manager and technical support services staff (geotechnical, surveying and mapping, and others).
- Recognize any external commitments that have been made that may be beyond the control of the Project Manager.
- Recognize other external factors that may impact the schedule. For example, local events such as school openings or closings, community celebrations and city or county board meetings, volunteer advisory committees or necessary coordination with non-FDOT projects as well as coordination with other FDOT projects and Value Engineering needs.
- Balance the letting plan so an unmanageable number of projects are not clustered in the same quarter but are distributed throughout the year.
- Coordinate with the schedule of the consultant PM. Although schedules prepared and used by consultants may have different purposes than that of the FDOT, certain activities must be coordinated with FDOT.

Managing the Schedule

Managing the schedule is a significant part of the Project Manager's role. Effective schedule management means responding to the changing needs and requirements of the project as well as to outside influences. It means making adjustments to advance, slip or compress the schedule.

Validate the Initial Project Schedule: Once a project has moved into the current adopted work program the assigned FDOT project manager should carefully review the project schedule to make sure it is reflective of the project

scope, unnecessary activities have been removed, all constraints have been incorporated, and activity durations are appropriate. 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 FDOT and consultant project managers should update and coordinate the Department's and consultant's schedules and provide this information to the District Scheduler.

Monitoring Schedules: When monitoring a project schedule, project managers should:

- Focus on the critical path activities when monitoring a schedule. Delays in activities on the critical path will 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 will not affect the completion of the project until they cannot be finished by the Late Finish date.
- Understand the constraints used in preparing the schedule. Are activities connected because logic dictates the order in which they occur? Do manpower or other resources dictate how the activities are to be connected? For example, if you only have one survey crew, they cannot be on two jobs at the same time.
- Some key indicators to be aware of that may have a major impact on the schedule are shown in Figure 7, **Project Schedule Speed Bumps**.

Figure 7
Project Schedule Speed Bumps

- Advance notification
- Public hearings
- Location Design Concept Acceptance
- Quality Assurance/Quality Control/Value Engineering
- FDOT reviews
- Coordination with FDOT offices and other agencies
- Drainage/Utility design
- Surveying
- Right of Way Mapping
- Documents to R/W
- Right of Way certification
- Permits clear
- Utilities clear

Design Concept Acceptance - Good schedules are an essential tool for anticipating and coordinating upcoming work. Project managers can use the schedule to look ahead 30 or 60 days to 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. Key indicators that warn a project manager that the schedule may be in trouble include:

- Negative float or a reduction in positive float from month to month.
- Non-critical activities are consistently late. This may be indicative of future problems completing critical activities.
- There are too few activities to adequately manage the project, or a major activity has a very long duration. For example, there are dozens of sub activities that comprise preparation of a 30% plan set for a 3R project. If a schedule wraps all those activities into one line item there is no way to accurately assess the progress of the project until it is too late to make schedule adjustments. The FDOT project manager should request a more detailed schedule that will enable adequate monitoring of individual activities.
- The project team assigns too few resources to accomplish the project as scheduled. The FDOT project manager should discuss concerns with the consultant project manager.
- A critical path that does not make sense or does not meet the contractual milestones.
- Activities that have too much float.
- Inaccurate or unnecessary constraints.
- Continuously late updates or updates with inaccurate actual start and/or actual or expected completion dates.
- 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.

Schedule Updating: The importance of accurate, timely updates cannot be overemphasized. The frequency of updating depends on many factors including size and complexity of the project. Even when the standard may be to use monthly updates, there may be phases or portions of the project when weekly updates will be appropriate. These updates may be manual rather than a complete computer update. Accurate updating is very important when the

schedule is a source of information for consultant or contractor payment. All parties should be promptly notified 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.

In addition to monthly updates, it may be necessary for a project manager to conduct additional updates. These updates should be done as soon as a major milestone is achieved, such as a phase submittal or receiving a permit, or when something happens that may impact the project schedule or the work of other units or team members.

Should there be a major schedule problem, such as surveying being completed late, or a 3R project now needs a ROW phase, the project manager should immediately review and update the schedule as necessary. The project manager should coordinate with all appropriate team members to determine the impact of a schedule change on their respective activities prior to updating the schedule. The project manager should evaluate action items that could correct the schedule problem with team members. Actions a project manager could take to correct or recover from a schedule problem include:

- Verify that the update is accurate. Are all remaining durations correct?
- Review activity durations and shorten them if possible and realistic.
- Add more resources to the team to accelerate the schedule.
- Eliminate unnecessary activities. Are there activities that came from a template or previous project that are not applicable on this phase of this project?
- Change logic. The tendency is to link all activities from the end of the preceding activity to the start of the next (finish to start). Activities can overlap or be connected by lag activities, thus some activities may be able to start during a previous activity rather than at its completion.
- If all else fails, adjust commitment dates or create a new schedule. But before making changes, get formal approval. Be aware that funding year changes may need to be approved by a higher authority.

It is best to identify activities that bear the greatest risk of being delayed, such as permitting, right of way acquisition and delivery time of special materials. When the schedule is first developed, plan options for recovery if these activities are delayed. Then there will not be an “oops” because the problem was anticipated and an alternative solution implemented.

Major Schedule Changes: Once it is determined the scheduled completion date must be delayed there are specific steps the FDOT project manager must take that have been established by each District. The FDOT project manager is responsible for following the schedule change procedure and getting the necessary approvals prior to making the change. Once a change is approved, the FDOT project manager must work with District Schedulers, representatives from units impacted by the schedule change as well as the consultant project manager. All impacted units, consultant project manager, and senior District staff must agree on the proposed changes prior to finalizing the revised schedule.

Lessons Learned: Project managers should 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 team members to identify root causes to problems and identify potential corrections. The FDOT project manager should meet with District Schedulers to update schedule templates as needed.

Schedule Reporting

The schedule can be presented in three basic formats. The logic diagram shows all the activities and the interconnections or constraints between each activity. A time-scaled diagram presents the logic on a time line, which makes it easy to see what date activities are planned to occur. The bar chart shows the activities on a calendar grid, but without the constraints. These formats are illustrated in Figures 8-10.

A variety of tabular reports can also be produced. The advantage of these reports is that they allow the user to focus on specific areas of interest or concern without having to digest the full schedule report. Reports can be sorted by area, department or responsible party. They can also be limited to activities that will occur in a specific period of time, such as a specific fiscal year or the next 30 days. A report of critical or near-critical activities can help focus the team on potential areas of concern. Samples are provided in Figures 11-14.

Each District has different “standard” reports that are prepared for project managers and senior district staff and managers. FDOT project managers should coordinate with the District Schedulers to tailor reports that provide information he/she specifically would like to see to assist in managing their projects. These reports should include the CPM diagram so that schedule impacts can be assessed.

Figure 8
Logic Diagram

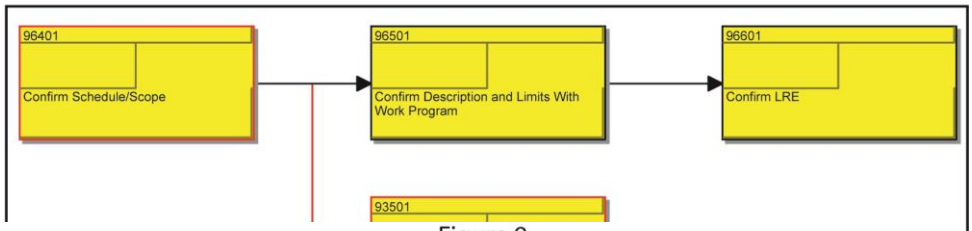
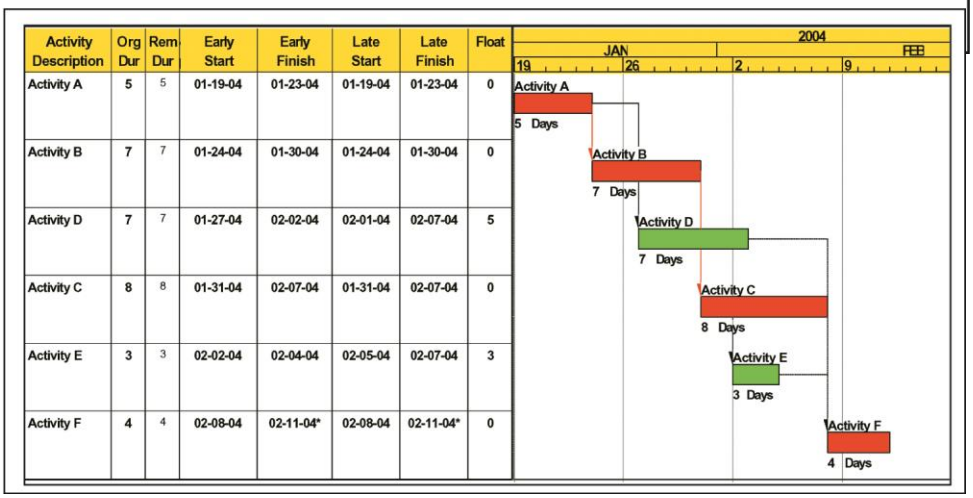


Figure 9
Time-Scaled Diagram



Activity Description	Org Dur	Rem Dur	Early Start	Early Finish	Late Start	Late Finish	Float
Activity A	5	5	01-19-04	01-23-04	01-19-04	01-23-04	0
Activity B	7	7	01-24-04	01-30-04	01-24-04	01-30-04	0
Activity D	7	7	01-27-04	02-02-04	02-01-04	02-07-04	5
Activity C	8	8	01-31-04	02-07-04	01-31-04	02-07-04	0
Activity E	3	3	02-02-04	02-04-04	02-05-04	02-07-04	3
Activity F	4	4	02-08-04	02-11-04*	02-08-04	02-11-04*	0

Figure 10
Sample Bar Chart

Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
23401	DESIGN NTP	0	15-Jul-05		0
96401	Confirm Schedule/Scope	5	15-Jul-05	21-Jul-05	0
10601	DESIGN SURVEY	50	18-Jul-05	26-Sep-05	11
10201	Obtain Traffic Data	10	22-Jul-05	04-Aug-05	50
29501	Preliminary Environmental Determination	20	22-Jul-05	18-Aug-05	162
93501	Request Asphalt Recommendation From Gainsville	60	22-Jul-05	14-Oct-05	0
96501	Confirm Description and Limits With Work Program	5	22-Jul-05	28-Jul-05	352
26001	Typical Section Development	10	22-Jul-05	04-Aug-05	92
96601	Confirm LRE	1	29-Jul-05	29-Jul-05	352
99601	Calculate Construction Duration	5	01-Aug-05	05-Aug-05	352
26002	Typical Seciton Approval	5	05-Aug-05	11-Aug-05	92
29001	COMMUNITY AWARENESS PLAN DUE	0		11-Aug-05	197
10802	PLOT SURVEY DATA FIELD DATA	25	27-Sep-05	31-Oct-05	11
19702	Prepare Pavement Design	20	17-Oct-05	14-Nov-05	0
11301	Preliminary Alignment & Grade	25	01-Nov-05	08-Dec-05	11
97501	Prelim DOT Pavement Design Review	7	15-Nov-05	23-Nov-05	0
19701	FINAL PAVEMENT DESIGN	15	28-Nov-05	16-Dec-05	0
97701	FDOT PAVEMENT DESIGN APPROVAL	5	19-Dec-05	23-Dec-05	0
11302	Prepare PH II Plans	75	27-Dec-05	12-Apr-06	0
23501	SUBMIT PH II PLANS	0		12-Apr-06	0

Figure 11
Responsibility Sort

Activity ID	Activity Description	% Compl	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Budgeted Cost
Richard Stevens - Site Project Manager										
P1G100	MOBILIZATION	100	4	0	04-23-99A	04-27-99A	04-23-99A	04-27-99A		100.00
Alice White - Purchasing										
P1NP200C	PROCUREMENT OF SIGN STRUCTURES	100	10	0	05-02-99A	06-03-99A	05-02-99A	06-03-99A		20,000.00
Pete Reynolds - Electrical Crew Foreman										
P2N2125B	INSTALL TEMP. ELECTRICS	0	15	15	04-06-00	04-26-00	05-30-00	06-19-00	38	8,884.80
P2N2130	INSTALL ELECTRIC CONDUITS &	0	19	19	04-27-00	05-23-00	06-20-00	07-17-00	38	42,243.08
P2N2140	INSTALL POWER & LIGHTING	0	15	15	05-24-00	06-13-00	07-18-00	08-07-00	38	16,954.80

Figure 12
Look Ahead Report

Activity ID	Activity Description	% Compl	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Budgeted Cost
P1N2100	PLACE CONST. BARRIER	0	14	14	01-06-00	01-25-00	01-06-00	01-25-00	0	17,799.84
P1N2190	INSTALL SIGN SUPPORT STRUCTURE	0	8	8	01-06-00	01-17-00	10-13-00	10-24-00	200	6,895.36
P1N2195	ERECT SIGNS	0	3	3	01-18-00	01-20-00	10-25-00	10-27-00	200	5,371.56
P1N2115A	GRUB & STRIP TOPSOIL	0	8	8	01-26-00	02-04-00	01-26-00	02-04-00	0	12,533.12
P1N2105B	INSTALL EROSION CONTROL DEVICES	0	15	15	02-07-00	02-25-00	02-07-00	02-25-00	0	3,760.32
P1N2200	INSTALL TEMP. SHEETING	0	12	12	02-28-00	03-14-00	02-28-00	03-14-00	0	9,347.04
P1N2210	EXCAVATE RETAINING WALL	0	12	12	03-15-00	03-30-00	03-15-00	03-30-00	0	7,542.24
P1N2220	CONSTRUCT FOOTING	0	27	27	03-31-00	05-08-00	03-31-00	05-08-00	0	110,196.72
P2N2115B	REMOVE GUIDE RAIL	0	4	4	03-31-00	04-05-00	05-24-00	05-29-00	38	3,115.68
P2N2125A	EXCAVATE FOR ELECTRICAL	0	10	10	04-06-00	04-19-00	06-06-00	06-19-00	43	6,141.20

Figure 13
Critical Activities Report

Activity ID	Activity Description	% Compl	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	Budgeted Cost
P1N2100	PLACE CONST. BARRIER	0	14	14	01-06-00	01-25-00	01-06-00	01-25-00	0	17,799.84
P1N2115A	GRUB & STRIP TOPSOIL	0	8	8	01-26-00	02-04-00	01-26-00	02-04-00	0	12,533.12
P1N2105B	INSTALL EROSION CONTROL DEVICES	0	15	15	02-07-00	02-25-00	02-07-00	02-25-00	0	3,760.32
P1N2200	INSTALL TEMP. SHEETING	0	12	12	02-28-00	03-14-00	02-28-00	03-14-00	0	9,347.04
P1N2210	EXCAVATE RETAINING WALL	0	12	12	03-15-00	03-30-00	03-15-00	03-30-00	0	7,542.24
P1N2220	CONSTRUCT FOOTING	0	27	27	03-31-00	05-08-00	03-31-00	05-08-00	0	110,196.72

Figure 14
Location Sort

Lane	Activity ID	Resp	Rem Dur	%	Early Start	Early Finish	Total Float	Resource
Station 050 + 00								
General Construction								
Walk/Road/Parking Appurtenances								
NO5	P1N2190	GG	8	0	01/06/00	01/17/00	200	LABOR-G, DRIVER, FOREMAN,
NO5	P1N2195	GG	3	0	01/18/00	01/20/00	200	CRANE, FOREMAN, OPERATOR,
Northbound Outer Lane								
Grading								
SO3	P2N3120	GG	7	0	04/27/00	05/05/00	124	FOREMAN, DOZER, OPERATOR
Electrical Utilities								
SO4	P2N2130	PR	19	0	04/27/00	05/23/00	38	ELEC, FOREMAN, LABOR-S,
SO4	P2N2140	PR	15	0	05/24/00	06/13/00	38	ELEC, LABOR-S, FOREMAN,
Station 075 + 00								
Southbound Outer Lane								
Barriers & Enclosures								
NO7	P1N2100	GG	14	0	01/06/00	01/25/00	0	LABOR-G, CRANE, OPERATOR,
Northbound Outer Lane								
Removals								
SO4	P2N2115B	GG	4	0	03/31/00	04/05/00	38	FOREMAN, LABOR-H, LOADER,
SO3	P2N3110	GG	9	0	04/14/00	04/26/00	124	FOREMAN, LABOR-G, LOADER,
Excavation & Backfill								
SO4	P2N2125A	GG	10	0	04/06/00	04/19/00	43	FOREMAN, LABOR-G, LOADER,
Asphaltic Concrete Pavement								
SO4	P2N2150	JAM	14	0	06/14/00	07/03/00	38	FOREMAN, ROLLER2, OPERATOR,

Figure 15
SR-51 Example 3R Schedule

CHAPTER 16 – QUALITY ASSURANCE AND QUALITY CONTROL

Contents

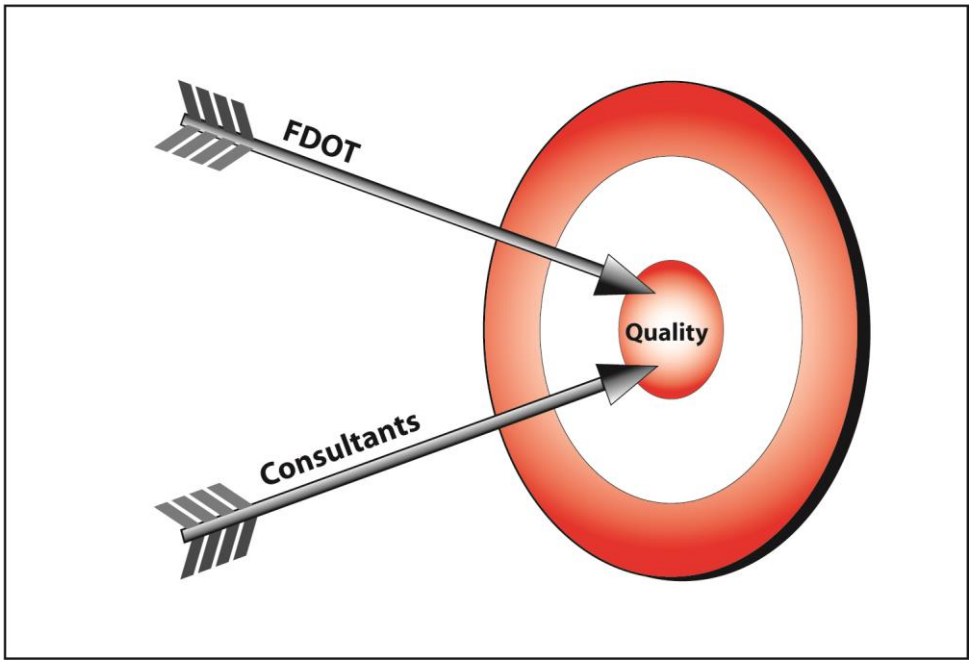
Introduction 2
FDOT QA and QC.....3
Consultant QA and QC 5
Project Phases.....6

Introduction

Quality Assurance (QA) and Quality Control (QC) are processes used to ensure project deliverables meet project objectives and are of appropriate quality. Perfection is difficult to achieve and the cost of a perfect product would be prohibitive. However, defined standards must be met on Florida Department of Transportation (FDOT) projects. Quality frequently comes into conflict with the schedule. 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.

The FDOT PM and consultant PM use the terms “QA” and “QC” somewhat differently. However, as Figure 1, **Quality Assurance & Quality Control Target** illustrates, both the FDOT and consultants target quality in project delivery.

Figure 1
Quality Assurance & Quality Control Target



FDOT QA and QC

Two distinct processes, QA and QC, are used by the FDOT to ensure that the public receives a quality product. The Central Office is the responsibility for, and performs QA. District Offices and as appropriate their agents (consultants) are responsible for and perform QC. Each district has a QC plan, at least for design. For design projects, specific QA/QC requirements can be found in Chapter 18 of ***Procedure No. 625-000-007, Plans Preparation Manual (PPM), Volume I***. For construction projects, QA/QC is detailed in Section 3.2 of ***Procedure No. 700-000-000***, ***Construction Project Administration Manual (CPAM)***. Another construction-related reference is the ***Statewide Construction Quality Assurance/Quality Control (QA/QC) Plan***.

Two important parts of any FDOT PM's QC responsibility are (1) ensure the consultant's QA/QC plan is being followed adequately and (2) review project deliverables to ensure they are of appropriate quality. The FDOT PM should meet with the consultant PM early in the project to reach a common understanding of QA/QC methodologies to be used and submittal requirements. The FDOT PM should check the consultant's QA/QC actions by visiting the consultant's office and reviewing the QC documentation. There should be a record of all QA/QC activities. Marked-up copies of reviewed reports and plans should be on file. The consultant's project schedule should allow adequate time for QC reviews. If possible, the FDOT PM should 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 plan are actually 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 document itself. In some districts, many of the actions discussed above are formalized in a formal QC audit process.

Traditionally, FDOT reviews of formal submittals have been the focus of QC for consultant projects. However, when the FDOT Project Manager and technical team members take the proactive approach of reviewing work in progress, the result is usually higher quality submittals. Problems can be identified and solutions worked out before submittals. The review team also will have a better understanding of major issues and what to expect in the submittal.

The FDOT PM should have a clear understanding of the objectives of project submittal reviews. The consultant is responsible for conducting QC reviews before every submittal.

Every FDOT district 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)***.

Detailed, in-depth reviews are usually not necessary or desirable and serve to relieve the consultant of some responsibility for the quality of the product. Submittals found to be unacceptable should be returned for re-submittal.

Frequently pressures on the FDOT PM to maintain the project schedule make it difficult to require re-submittals of poor quality work. Poor quality work, however, eventually results in a project delay. Thus, it is usually better to correct the quality problem at the earliest possible date.

Here are some helpful guidelines for reviewing and commenting on consultant submittals:

- Make sure what each reviewer needs to see is clear. For instance, in a design submittal, the structures reviewer may want to see only the bridge plans, but the geotechnical group may need the full set. Some reviewers may need to see submittals only at certain stages of a project. Reviewer requirements should be determined prior to the first submittal. A review matrix showing this information may help the FDOT PM manage this process.
- The FDOT PM should distribute copies of the submittal to all appropriate reviewers as quickly as possible. Reviewers' comments should be returned directly to the FDOT PM for control and resolution of conflicting comments.
- Comments should be categorized as fatal flaws, errors, suggestions or personal preferences.
- Generally, a comment requiring work beyond the scope of services should not be forwarded to the consultant before establishing a valid need. Once so determined, the Scope of Work should be revised and a Scope of Services Amendment contract amendment should be processed in accordance with procedures explained in Part I, Chapter 14, of this handbook. In situations where the comment will require a very minor work effort, it may be forwarded with the understanding that the FDOT PM and consultant PM must exercise good judgment in the final resolution.
- 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.

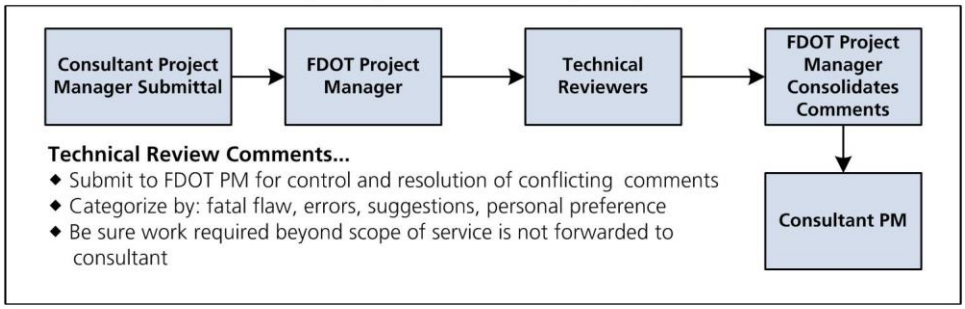
- When submittals are reviewed by a number of FDOT individuals, the FDOT PM should review and consolidate them before transmitting them to the consultant.
- The FDOT PM must return comments within the time frame allowed in the project schedule. Otherwise, the FDOT may delay progress on the project.

Stay Focused on the Important Issues: A study of FDOT reviews of design projects found the average cost of a review comment, taking into account the time of both the FDOT reviewers and the consultant to research and address each comment, to be $200. Design projects averaged 180 comments per submittal. Clearly the review process is expensive. The same study also investigated a number of Phase 1 and 2 design submittals and determined 50 percent of the comments were editorial in nature, 10 percent related to format, and 40 percent addressed engineering issues. The primary purpose of these submittals should be to resolve engineering issues, yet at least half the cost was expended on comments that were not really important. This same concern applies to all types of projects. FDOT reviewers should focus on the important issues.

Consultant QA and QC

Figure 2**, FDOT Quality Assurance & Quality Control** maps this process.

Figure 2
FDOT Quality Assurance & Quality Control



A Consultant firm frequently 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 create a project-specific QA/QC plan. A consultant's project QA/QC plan should describe the processes in place to assure QA/QC procedures to be used. Specific individuals to be involved and their responsibilities should be identified. The project QC officer who has responsibility for ensuring that the plan is properly executed should be identified. QC reviewers should not be closely associated with the project and should be at least as experienced as the originators. If qualified reviewers are not available in the consultant firm, then the subcontracting the responsibility should be considered. The plan should

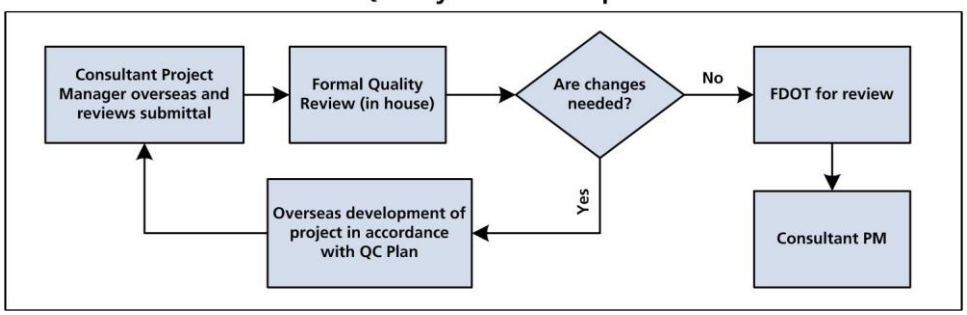
describe how the QC activities will be documented. The submittal review process should be described in detail. The following procedures are typically used:

1. The originator (usually the PM) produces the submittal and should thoroughly check the submittal.
2. The QC reviewer critiques the document, marks up the submittal, and returns it to the originator.
3. The originator reviews the comments and then meets with the reviewer(s) to ensure that the originator's intent and the comments are understood. The originator who accepts professional responsibility for the submittal, either accepts (agrees to make the recommended changes), or rejects each comment.
4. The necessary corrections are made, and the submittal is returned to the reviewer.
5. The reviewer verifies the corrections were properly made, and returns the document to the originator.
6. After final corrections are made, the document is submitted for review to the FDOT.

If done properly, this process is time and labor consuming. It must be properly accounted for in the project schedule, negotiations and budget. Even more important, the process must be followed.

Figure 3**, Consultant Quality Assurance & Quality Control Responsibilities**, maps the QC process.

Figure 3
Consultant Quality Control Responsibilities



Project Phases

The following discussion is based on the services being performed by professional services consultants, QA/QC requirements for which 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: Although the FDOT does not have specific requirements for planning projects, QA/QC are important activities. 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): For PD&E project quality issues are similar to those for planning projects. A QC activity is included in the scope of services and staff hours for all Consultant PD&E projects. While there is no formal FDOT QC process in PD&E, 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.

Design: For design projects, QA/QC is generally a well-defined process. Usually the QA/QC plan is the first deliverable for a consultant design project. The consultant PM should review Chapter 18 of **PPM, Volume I** before preparing the QA/QC plan to ensure all requirements are met. The plan should be unique to the project, not "off the shelf." Each project has its own technical issues, scope, schedule and team, all of which should be accounted for in the plan. Work of subconsultants should be addressed in the plan. Good design quality control requires several reviewers who represent all technical skills involved. Technical skill areas may include highway design, drainage, traffic and maintenance of traffic, structures and constructability.

Right of Way (R/W): District R/W Offices have Core Process Measures and QC Plans in place in order 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 districts 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, the contractor has specific responsibilities, defined in the Standard Specifications. QC is also 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**. Specific QC requirements are detailed in Section 3.2 of the **CPAM**. 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: To ensure the quality of maintenance projects and compliance with FDOT procedures, QA/QC processes should be in place. 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.

CHAPTER 17 – ELEMENTS OF RIGHT OF WAY

Contents

Introduction 2
General 2
Pre-Right of Way Activities 3
The Right of Way Phase 5
Contracting 8
Right of Way Phase Schedule 9

Introduction

This chapter offers a general overview of Right of Way (R/W) 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 Manual***. 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), of the 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, a testimony 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

A right of way certification is required for all projects, even if the planned construction is within current right of way.

The culmination or goal of the R/W 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 (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 what projects require right of way certification.

Project Management in R/W tends to be at a sub-level to the overall R/W phase wherein the management of in-house and/or consultant resources are handled within the various R/W disciplines. Although there are activities that must be completed prior to initiating the R/W 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 R/W phase followed by a general discussion of the specific R/W disciplines within the process. The sections are generally in chronological order; however, some R/W 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 R/W acquisition must coordinate early and closely to ensure success of the project. The R/W 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 R/W phase. It may be wise to expend additional funds in the design and construction phases in order to avoid or minimize R/W, which may result in significantly lower total project cost. Delays in the delivery of R/W maps and documents can result in a delay of R/W acquisition, which will probably 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 R/W maps.

Conceptual Stage R/W Planning: This effort is typically started 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 relocatees. 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 of displacements that will occur and the extent and type of R/W clearing activities that may be required.

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

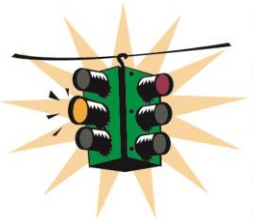
Title Search: The title search determines the property boundaries and ownerships and addresses other land title issues on the project. The title search should begin as soon as possible during the R/W mapping process. Once property boundaries and ownership information is identified, it can be plotted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

R/W Mapping: R/W 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. R/W mapping begins when the project concept, the preliminary surveying and the preliminary engineering is complete. As the final design reaches 60% completion, R/W limits are identified. After completion of Phase II (60%) plans, the final R/W 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 relocatees can be identified, usually when the R/W 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 R/W 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 Part II, Chapter 2, of this handbook) and completion of the R/W maps. A current R/W cost estimate must accompany the request. R/W 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 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 Department. Compensation for the property to be taken may not be established in an amount 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.
- Provide a copy of the appraisal report, right of way maps and other documents to the owner if requested.
- Attempt through good faith negotiations to reach an agreement with the owner.
- Reimburse the property owner's reasonable attorney fees and costs, including expert fees.

Amount of Compensation: The Department 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 Department 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 Department 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 these negotiations, then the parcel will be acquired through a real estate closing. Title will be voluntarily passed from the property owner to the Department 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 Department must provide written documentation in support of that amount. Final agency acceptance of the purchase agreement cannot be granted less than 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 Department 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 Department. Once notice has been given to the business owner,

the Department may file a condemnation proceeding for the real estate taking.

Claims for business damages can result in exposure to large monetary claims. Early participation of R/W 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 Department identifying the public project and authorizing the condemnation of the parcels for the project are required. The Department 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 Department must prove that the project constitutes a public purpose, that the property to be taken is necessary for this purpose, and that the Department 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 Department must deposit the good-faith estimate of the value into the registry of the court. Upon deposit, title to the property transfers to the Department. 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 eminent domain attorneys for the Department and personnel involved with right of way mapping, design and R/W 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 (normally 90 to 120 days or longer) to the actual surrender of the property is a significant schedule consideration.

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 advice and assistance, payment of moving costs, identification of decent, safe and sanitary replacement dwellings and payment of relocation housing costs. The time required by 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 Department 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 R/W must be vested in the Department, 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. The District shall include the R/W certification for construction in the project Plans, Specifications and Estimate (PS&E) package. The District shall also provide the Director, Office of R/W a copy of the certification 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 ***Rule Chapter 14-75***, Subsection 003.n of the F.A.C., Group 20, Appraisal Services. Part I, Chapters 12, 13 and 14 of this handbook deal with consultant procurement, negotiations and contract management.

Acquisition: The acquisition 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.

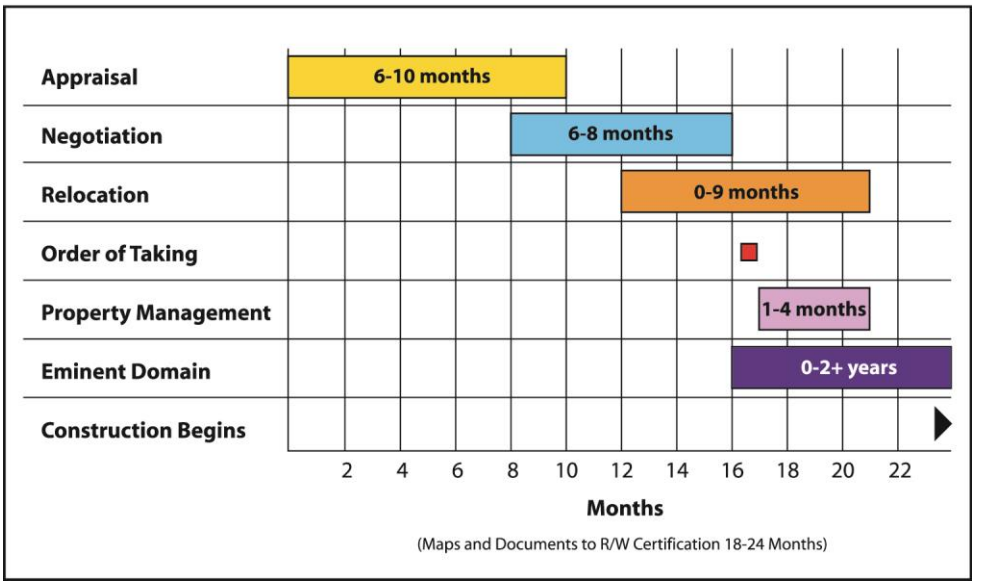
Property Management: Abatement and Demolition for the clearing of the right of way is handled solely through consultants and the Invitation to Bid contractual services process provided in Section 337.11, F.S., and Part I, Chapter 12, in this handbook.

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 cannot 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



CHAPTER 18 – EMERGENCY CONTRACTING

Contents

Introduction 2
Emergency Procedures 2
Emergency Repairs 3
Emergency Projects.....4

Introduction

The term Project Manager (PM) is a general term for the FDOT employee responsible for managing the project. In the context of this chapter, unless specifically indicated otherwise, PM refers to the FDOT Maintenance PM.

Florida has experienced several catastrophic events, including hurricanes, wildfires, sinkholes and major crashes into structures, which have caused severe damage to the transportation infrastructure and closure of important transportation facilities.

The highway system is critical to the rapid and effective recovery of a devastated region. Getting these facilities back into service as rapidly as possible must be a very high priority in emergency response. A PM assigned to emergency response is in an extremely important position. Key to success will be finding innovative ways to produce quality work on dramatically compressed schedules. Compliance with environmental protection, good stewardship of public funds, standards, worksite safety and other requirements are still expected, but the overriding concern will be schedule.

Emergency Procedures

Two statutes govern the emergency contracting process:

- Governor-declared emergencies, governed by ***Emergency Management Powers of the Governor***, Section 252.36, Florida Statutes (F.S.), are for regional or statewide events, such as hurricanes.
- Secretary-declared emergencies, governed by ***Contracting Authority of Department; Bids; Emergency Repairs***, Sub-section 337.11(6)(a), F.S., are used for localized events such as bridge damage from a crash or a sinkhole.

Depending on the scope and extent of the damage, activities likely to be initiated concurrently include:

- Emergency repairs, immediate actions necessary to provide access to first responders, to open roads to the public and to prevent further damage.
- A Project Development and Environment (PD&E) project, if necessary, to prepare National Environmental Protection Agency (NEPA) documentation for major reconstruction.
- Procurement of design-build contracts, to allow fast-tracking of replacement facilities design and construction.

Emergency Repairs

Emergency repairs must begin immediately on the damaged facilities to allow first responders and other emergency services access to damaged areas, to restore needed services to the public, and to complete any emergency repairs that may be required to protect the facility from further damage. Depending on the district, this work may be performed by maintenance forces, by contract maintenance or by construction.

Pre-event contracts are executed to clear all federal-aid eligible roadways to make them passable and to restore signals and roadway signs. These contracts are known as "H" or "Cut & Toss" contracts, Standard Scope of Services for which can be found on the ***State Maintenance Office*** website. These contracts should be procured in advance using a competitive format that meets Florida Department of Transportation (FDOT), Federal Emergency Management Agency (FEMA), and Federal Highway Administration (FHWA) requirements. ***However, notice to proceed cannot give until the Governor declares a state of emergency***.

Figure 1
Pre-Event Contracts

- **Also known as "H" or "Cut and Toss" contracts**
- **Procure before Hurricane Season**
- **Involves proposal process**
- **Selection based on resources, capability and cost**
- **Use estimated quantities to determine total cost of proposal**
- **Governor must declare state of emergency to use**

Procurement usually involves a proposal process with selection based on cost, resources and capabilities. Estimated quantities will be needed to establish the total costs of proposals. ***Procedure No. 375-000-001***, ***District Contracts***, is usually used to procure these services.

The PM will be responsible for activating the emergency contract and necessary Construction Engineering and Inspection (CEI) contracts when authorized, and for ensuring that the contractor stages equipment at predetermined locations by the deadline specified in the contract. These contracts should allow for use across district lines. Thus, if one district prepares contracts but an expected storm moves elsewhere, the impacted district can take advantage of another district's contracts. Figure 1, **Pre-Event Contracts**, shows the key features of these contracts.

It is recommended that all "H" contract CEI work be assigned to one firm, using subcontracts as necessary. The PM will be responsible for ensuring that the CEI has enough manpower to adequately document the work efforts of all contractor crews. The PM should instruct the CEI to report the location of any road or bridge damage they encounter, so the PM can forward the information to the appropriate district office.

Federal-aid primary, secondary and special roadway designations are eligible for federal funds administered by FHWA. Work on all other roads is generally reimbursed through FEMA. The Construction PM should not authorize any

changes to the emergency contract without receiving prior approval by the FHWA through the district. The PM will be responsible for ensuring work efforts stay on Federal Aid Eligible roadways and that FHWA and FEMA documentation is separated. FEMA usually requires a spreadsheet that includes the date on delivery tickets, load ticket number, truck number, truck capacity and load site.

The PM is responsible for ensuring all invoices are submitted to the district in a timely and accurate manner. The PM shall require the CEI to sign the invoice recommending payment followed by the PM's signature. The PM shall ensure that additional funds are requested prior to exhausting the original funding. The PM shall ensure that additional time is requested, if it is justified, prior to exhausting the original time.

The PM will be responsible for coordinating any efforts of the local agencies that might overlap the Department's contract. The PM will be responsible for notification of the completion of the emergency work by completing the Final Acceptance Letter and the Final Inspection and Acceptance of Federal-Aid Project, Form 700-010-32.

Emergency Projects

Figure 2
Abbreviated PD&E Process

- **Compressed schedule**
- **Advanced notification using ETDM process**
- **Identification of key stakeholders**
- **Minimal public involvement**
- **Early involvement with FHWA**

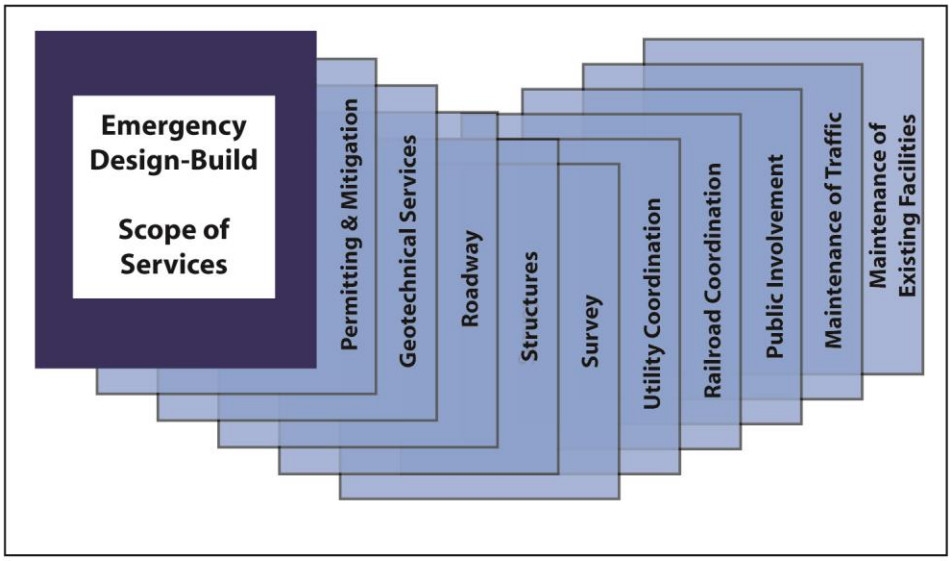
PD&E: When damage is so severe that major reconstruction is required, it may be necessary to prepare NEPA documentation using an abbreviated PD&E study process. Key elements of this shortened process are highlighted in Figure 2.

Necessary PD&E projects must be pursued aggressively with the objective of producing the necessary environmental documentation as quickly as possible. This aggressive PD&E process includes an advanced notification using the Efficient Transportation Decision Making (ETDM) process. Key stakeholders must be identified early and coordination begun immediately. The minimum public involvement requirements must be scheduled concurrent to other early activities, even though project data may not be fully developed to the point normally required. FHWA must be involved at the beginning of the effort to ensure their agreement with the abbreviated scope and aggressive schedule. Depending upon potential environmental complications and degree of public acceptance, it would not be unusual for an emergency PD&E effort to be accelerated to 16 weeks, from advanced notification to FHWA approval of the NEPA document.

Design-Build Projects: The primary vehicle for completing major reconstruction is the design-build contract, which allows the maximum flexibility for early completion of major work. Procurement is a critical link in the schedule. The

Professional Services Unit will assist the PM in the development of a scope of services and other necessary procurement activities. A pre-proposal conference will be a key event because much essential information can be conveyed in a presentation when there is not time to prepare comprehensive Request for Proposal (RFP) packages. Potential competitors must be invited to the pre-proposal conference. Figure 3, **Emergency Design-Build Scope of Services**, illustrates key components that should be included in the scope of services.

Figure 3
Emergency Design-Build Scope of Service



Competitors for emergency design-build contracts will be given a minimum response time for their proposals. Proposals must be reviewed and selections made. Negotiations will be abbreviated, so parties must expect hard negotiations and must be able to make immediate decisions.

CHAPTER 19 – RISK MANAGEMENT

Contents

Introduction 2
Risk Management Plan 5
Elements of a Risk Management Plan 6
Risk Elements and Assessment 9
Interpreting the Graded Approach Total Risk Score 12
References 15
Caltrans Method for Risk Analysis 16

Introduction

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

Project risk is an uncertain event or condition that, if it occurs, will have an effect on project success. Project success is defined as meeting the goals of project. The four critical goals of every project include: objectives, schedule, budget, and quality.

In addition to the four goals listed above, consultant Project Managers must also be concerned with those risks that will affect profitability and liability of the firm.

Risks that have a positive outcome are opportunities while risks with a negative outcome are threats. The Project Manager is responsible to identify and manage all risks; increasing the probability and/or impact of opportunities (i.e. positive risk events) and minimizing the probability and/or impact of threats (i.e. negative risk events). Figure 1, **Three Components of Risk**, illustrates the elements associated with all risk.

Project opportunities are uncertain events that, if they occur, will have a positive

Figure 1
Three Components of Risk

effect on project success. Opportunities do occur during projects and Project Managers must be prepared to capitalize on them. This chapter will concentrate on threats (i.e. negative risks), but the management processes described may also identify opportunities.

Project risk is the combination of probability and impact. 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 dollars (e.g., if this risk does occur it will cost us $100,000). Risk management must consider both. The risk of a major financial crisis within the state, shutting down a project would have a major impact on the project, but is a very unlikely event. Although the risk of a missed deadline for a specific task may be great, the impact may not be very severe if the time can be easily made up. In both of these cases, the overall risk may be acceptable.

There are many procedures and tools available for risk management. This chapter will describe three processes: the Risk Based Graded Approach, Caltrans Method for Risk Analysis and the Project Risk Register.

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.

Another alternative method for Project Risk Management is the Caltrans Method for Risk Analysis. This process was developed by the California Department of Transportation and specifically designed for transportation projects. The Caltrans Method is presented at the end of this chapter.

The Project Risk Register is a formal risk analysis involving input from both internal and external stakeholders. The Project Risk Register should typically be used on only the most complicated, riskiest FDOT projects. The Project Risk Register allows the Project Manager and project team to determine what is the probability and impact for identified risks. From this the risks can be prioritized using expected monetary value and displayed on the “Probability – Impact Matrix”. This matrix would be a major deliverable and a strong communication

tool that focuses everyone on the prioritized risks (i.e. the high:high risk cells). The Project Risk Register should be completed by FDOT and the consultant after the consultant selected for the project is under contract. It will likely be necessary to adjust the scope of work to accommodate the results of the risk analysis.

Although this chapter deals specifically with the project manager's responsibilities with risk management processes, other chapters in this Project Manager's Handbook describe common sense risk management steps and practices. The following chapters in Part I of the handbook present specific recommendations that will help manage risks, with or without a formal risk management plan:

- Chapter 3, Project Work Plan
- Chapter 4, Monitoring and Control
- Chapter 7, Responsibilities and Roles of Project Managers
- Chapter 11, Project Continuity
- Chapter 15, Scheduling
- Chapter 16, Quality Assurance and Quality Control

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. The risk management plan should become part of the Project Work Plan, as discussed in Part I, Chapter 3 of this handbook. 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.

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.

The ***Project Manager's 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.

Elements of a Risk Management Plan

Risk Identification. The first step in Risk Management 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, potential project risks are listed in Figure 2, **Types of Risk**. 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. This list should include those situations and conditions that have a reasonable likelihood of occurring and that will have some negative 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. Otherwise, probability and impact should not be a consideration at this point.

Developing this list is a creative process. It is helpful if the project manager involves the key members of the project team in this task. FDOT project managers should also involve Project Managers from the preceding and following phases in identifying potential risks. The list of potential risks should include everything that can go wrong on a project. It will vary according to the project phase (PD&E, Design, etc.), type of project (3R, capacity improvement, etc.), whether the list is being compiled by FDOT or a consultant Project Manager, and specific project conditions.

On complicated projects where use of a formal risk analysis process is required (e.g. the Project Risk Register), the FDOT Project Manager will involve the key members of the project team in this task. In general the key members should include the Project Manager, sponsor, customer, external stakeholders, and a representative from engineering, procurement, quality, HR, safety, finance, and operations and maintenance. FDOT Project Managers should also involve Project Managers from the preceding and following phases in identifying potential risks.

Figure 2
Types of Risk

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

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

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)

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

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

Qualitative Risk 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.

A 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 quantify project risk early in the project timeline and should not be used as a substitute for formal risk identification, qualification, quantification, and response planning. Figure 3, **Risk Based Graded Approach Definitions**, will help clarify some terminology.

Figure 3
Risk Based Graded Approach Definitions

Graded Approach	Risk Based Graded Approach
A flexible selection process that allows the project manager to choose a more or less rigorous application of project control elements. This flexibility permits customizing project control needs to the specific project and focus's the team efforts on the higher risk elements (i.e.,"the 5 – 5's").	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 cost / schedule baselines during project execution. Identification of project risk qualifies the possibility of baseline impacts (e.g., not meeting intended technical functions, internal or external schedule commitments, cost thresholds, et al).

Risk Elements and Assessment

Refer to Figure 4, **15 Risk Elements**.

There are numerous risk areas that may typically be encountered on an FDOT project, 15 of the more critical risk elements are listed on the following pages. The risk areas are not cast in stone and may be eliminated, or new risks added, to match the characteristics of a specific project. For example, risk element 5, environmental impacts/contamination, could be eliminated if there were no chance of impacts or contamination on the project.

Risk Assessment: The Risk Assessment value is determined by the project team and documented on the graded approach worksheet. The below-listed numeric guidelines can be used to guide the team members in determining the overall level of risk, per element, to project priorities (i.e., scope, schedule, cost, and, quality). Risk assessment values are as follows:

The project team assigns each risk element a risk assessment value based on the anticipated risk level. Note, although typically there is a distribution of 1, 3, and 5's within this column, all risk assessments may be "1" or all "5". This is dependent on the input from the team.

Risk Priority: Next, the project team next identifies where they will apply priorities within the identified risk elements. The team determines where the maximum number of three "5's" (i.e., highest priority) are to be assigned and scores the balance of the risk elements with either a "3" (medium priority) or "1" (low priority). The three high risk elements should be identified first.

Total Risk Score: The Total Risk Score is calculated by multiplying the scores in the risk assessment column times the priority scores for a total per risk element. The risk element scores are then summed to determine a Total Risk Score.

Figure 4
15 Risk Elements

Risk Element	1 - Low Risk	2 - Medium Risk	3 - High Risk
1. **Utility Involvement** - Level of utility involvement on the project	None or very little impact, no relocations	Small number of utilities in the corridor with minor adjustments and few relocations	Multiple utilities with major relocations
2. **Project Schedule** - How much time the project team has to complete the project	Everyone has as much time as they want.	Schedule is somewhat compressed.	Schedule is very compressed or very critical.
3. **Interfaces** - Number of organizations/stakeholders involved in the planning and/or execution	One to three	Four to seven	More than seven
4. **Experience/Capability** - Level of experience and capability of project team members	Project loaded with highly experienced senior staff	Blend of highly experienced senior staff and inexperienced personnel	Project loaded with inexperienced staff
5. **Right of Way (ROW) Involvement** - Level of right of way acquisition involved	No new ROW required	Minor ROW required, such as corner clips	Major ROW acquisition with redesigns for cures
6. **Environmental Impacts/Contamination** - Level of environmental impact or contamination encountered	None or minor environmental impacts; contamination fully characterized and acceptable	Major, but routine impacts that are readily permitted; contamination partially characterized and results indeterminate	Extensive major impacts that are difficult to permit and will cause delay; contaminations expected, extent unknown or unacceptable characterization
7. **Regulatory Involvement** - Degree to which governmental or other regulatory agencies impact project	None or minor involvement	Somewhat involved	Regular contact and/or visits

Figure 4
15 Risk Elements (continued)

Risk Element	1 - Low Risk	2 - Medium Risk	3 - High Risk
8. **Contractor Issues** - Degree of complexity expected (e.g. long lead times, contractor qualification and reliability)	Minor or non-existent issues	Contractor issues will occur on regular basis, but will be manageable*	Contractor issues may result in significant delays and/or cost overruns.
9. **Resource & Material Availability** - Availability of internal and external resources or materials to plan and execute the project	Resources and materials readily available	Resources and materials are somewhat restricted	Project will be resource or material constrained, impacting schedule and cost.
10. **Project Funding** - Availability and approval status of project planning and execution funding	Single source and approved	Multiple sources and approved	Significant chance funding may be cut or may be inadequate to continue the project
11. **Political Visibility** - Level of political exposure the project has to elected officials	None, just get it done	Somewhat visible - provide occasional updates or receive occasional phone calls from elected officials	Highly visible - scheduled visits by and frequent updates to elected officials or their designated staff
12. **Public Involvement** - How much the public is involved in the project	None, just get it done; public strongly behind the project with little opposition	Somewhat involved - issue news releases as required; some opposition, but not very organized	Very involved - part of the project scope, schedule and cost, and quality decisions may be impacted by public involvement; strong, well organized, vocal public opposition
13. **Safety** - The safety issues the team will encounter	Standard safety considerations	Increased diligence due to location, product weight or configuration, or type of work (e.g. high voltage)	Very restrictive safety considerations (e.g. caustic environment, hot-taps, etc.)
14. **Construction Complexity** - Degree of complexity expected when combining technology, scope of work, maintenance of traffic, and schedule	Routine day construction with limited night work; rural environment	Major construction in urban or suburban areas; right of way width does not constrain contactor operations	New construction techniques; multiple phased project with complex maintenance of traffic, tight right of way constrains contractor operations; urban environment
15. **Weather Sensitivity** - How weather conditions, major events (e.g. hurricanes) and time of year would impact project schedule	No impact by normal weather or by a major event	Little impact by normal weather with some impact by a major event	Major impact by normal weather disruption or major event; time of year significantly constrains progress (e.g. photography difficult to obtain due to cloud cover)

Interpreting the Graded Approach Total Risk Score

There are two values to look at:

- The total risk score – where it fits into specified ranges to determine if the project is low, medium, or high risk.
    - Total Risk Score = < 90 Low Risk Project
    - Total Risk Score = 90 – 150 Medium Risk Project
    - Total Risk Score = > 150 High Risk Project
    - **Note:** these scores are based on **15** risk elements included in the analysis. Prorate the scores based on the number of elements used.
- If there are any "5 – 5's" (i.e., when there is a 5 in the risk assessment and risk priority columns for a single risk element) it signifies a risk element that should be focused on by the team and used to determine the makeup of the team members. For example, if you have a "5 – 5" in project schedule you will want to have a schedule focused leader. If the "5 – 5" is in Technology you will want to have more of an engineering focus. The project team should also review moderate risk elements receiving scores of "3-5" or "5-3" to determine actions that can be taken to reduce, mitigate or plan for the risk.

Sample Risk Based Graded Approach Worksheet: A "sample" graded approach worksheet is provided in Figure 5**, Risk Based Graded Approach Worksheet**. Risk elements project schedule and right of way involvement are rated as "5-5". Overall, the total project score is 137 and is considered a medium risk project.

Figure 5
Risk Based Graded Approach Worksheet

ITEM	RISK ELEMENT	RISK ASSESSMENT	PRIORITY	TOTAL
1	Utility Involvement	1	3	3
2	Project Schedule	5	5	25
3	Interfaces	3	1	3
4	Experience/Capability	3	3	9
5	Right-of-Way Involvement	5	5	25
6	Environmental Impacts/Contamination	1	1	1
7	Regulatory Involvement	3	3	9
8	Contractor Issues	5	3	15
9	Resource and Material Availability	3	3	9
10	Project Funding	1	1	1
11	Political Visibility	3	5	15
12	Public Involvement	3	3	9
13	Safety	3	3	9
14	Construction Complexity	1	1	1
15	Weather Sensitivity	3	1	3
			Risk Score	**137**

Low Risk	0 - 90
Medium Risk	90 - 150
High Risk	>150

Quantitative Risk Analysis: 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 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

(reference Project Managers Book of Knowledge (PMBOK) Guide – Third Edition; p 254)

There are several techniques for quantifying risks including interviewing stakeholders to determine probabilities and impacts, sensitivity analysis, decision tree analysis, and simulation (i.e. Monte Carlo technique). Discussion on these techniques and tools can be found in project management publications and books such as the PMBOK Guide – Third Edition.

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 teams 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.

Risk Response. Risk response planning should focus initially on the high priority risks (the example identifies project schedule and right of way Involvement as high priorities). The intermediate priority risks (contractor issues and political visibility) 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.

A risk response plan should assign one of the following strategies to each risk considered.

- **Avoid the Risk:** The Project Manager recommends changing the project plan (scope, project work plan and/or consultant contract) to eliminate the risk or protect the project from its impact. Possible actions include changing the scope, adding time or adding funds.
- **Transfer the Risk:** Change the scope of a proposed or existing contract to transfer the risk to a consultant, contractor, or insurance company. For example, if the original plan was for the FDOT to perform geotechnical investigations but the risk of project overload in that group is high then it could be added to a consultant contract. There will almost always be a cost associated with a transferred risk.

- **Mitigate the Risk:** Reduce the probability and/or impact of a risk to an acceptable level. For instance, a public relations consultant might be assigned to mitigate a high priority risk of public controversy on an upcoming major construction project. Mitigation steps, although almost always costly and time-consuming, may still be preferable to going forward with an unmitigated risk.
  - **Accept the Risk:** The best decision may be to accept certain risks. This strategy includes recognizing the potential risk and the need to address it if it occurs and possibly developing a contingency plan for that event.
  - **Select a Strategy:** 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.

References

CALTRANS

Caltrans Method for Risk Analysis

Step 1. Assign Probability Ranking: Assign a probability ranking of one to five to each identified risk. Figure 6, **Risk Probability Rankings**, provides some definitions may be helpful in this process.

Figure 6
Risk Probablity Ranking

Ranking	Probability of Risk Event
1	80 – 99%
2	60 – 79%
3	40 – 59%
4	20 – 39%
5	1 – 19%

Step 2: Assign Impact Ranking: Impacts are the consequences of a risk, if the risk should occur. Figure 7, **Risk Probability Ranking**, can be used to assign impact rankings to risks, based on potential impacts to each of the project goals.

Figure 7
Risk Impact Considerations

Project Goal	Impact Ranking				
	1	2	3	4	5
Objective	Insignificant changes in project objectives	Changes in project scope are necessary	Significant changes in project scope are necessary	Stakeholders' objectives not fully met	Purpose and need of the project is jeopardized
Schedule	Insignificant Schedule slippage	Slippage of milestone by less than one month	Slippage of milestone by one to two months	Slippage of milestone by two to three month	Slippage of milestone by more than one quarter
Budget	Insignificant cost increase	Less that 5% increase	5 – 10% increase	10 – 20% increase	Greater than 20% increase
Quality	Insignificant effects on quality	Quality problems will cause significant management attention	Quality problems will cause budget and/or schedule slippage	Quality problems will effect project objective	Major re-work will be required, effecting all other project goals

If a risk impacts more than one project goal it may be appropriate to assign one ranking higher. For instance, if a risk will result in schedule slippage of one to two months and a budget increase of less than 5%, an appropriate ranking may be 4.

Step 3: Determine Risk Priority Group: The third step is to combine the data from the previous steps to arrive at a risk priority grouping. **Figure 8**, Risk Impact Considerations, combines probability and impact rankings.

Each risk is assigned a priority group, which reflects both probability of the risk occurring and the impact, if it should occur. All risks are then assigned to one of three groups:

- Group A: High Priority Risks
- Group B: Intermediate Priority Risks
- Group C: Low Priority Risks

Figure 8
Risk Priority Groups

Impact Rankings	Probability Rankings				
	1	2	3	4	5
1	C	C	C	C	C
2	C	C	B	B	B
3	C	B	B	A	A
4	B	B	A	A	A
5	B	A	A	A	A

Risk Response: Risk response planning should focus on the high priority risks (Group A) initially and intermediate priority risks (Group B) as time and resources permit. Low priority risks are usually considered acceptable risks and are not usually addressed in a risk response plan.

A risk response plan should assign one of the following strategies to each risk considered.

- Avoid the Risk
- Transfer the Risk
- Mitigate the Risk
- Accept the Risk
- Select a Strategy

Risk Management Plan: A risk management plan should identify the risks that need to be managed (those in Group A and possible some or all of Group B) and the selected risk response strategy for each. The plan should include specific actions to be taken and responsible parties.

Example of the Risk Management Process: An FDOT Project Manager has been assigned a highway design project to manage. This project is the widening of four miles of a rural two-lane highway to a four-lane divide highway with at-grade signalized intersections. A PD&E project has been completed. This project will be designed by a consultant. The scope of services for the consultant contract has not yet been finalized.

The following risks are identified:

- PD&E report is in error

- Right of way studies are in error
- Local communities will pose objections
- Delay in railroad agreement
- Delay in permit approvals
- Unanticipated Project Manager workload
- Selection of an inexperienced consultant
- A very aggressive schedule

Risk probability and impact rankings are assigned using the following matrix, Figure 9, **Risk Priorities**.

Figure 9
Risk Priorities

Risk	Probability Ranking	Impact Ranking	Priority Group
PD&E report is in error	2	2	C
Right of way studies are in error	1	4	C
Local communities will pose objections	4	5	A
Delay in railroad agreement	4	3	A
Unanticipated Project Manager workload	4	4	A
Selection of an inexperienced consultant	2	4	B
Aggressive schedule	1	4	C

A risk management plan based on the risk priorities above might consist of the following actions, as illustrated in Figure 10, **Risk Response Plan**.

Figure 10
Risk Response Plan

Risk	Response
High Priority Risks:	
Local communities will pose objections	Include a well-prepared community action plan in the consultant scope and ensure consultant devotes adequate staff in negotiations.
Delay in railroad agreement	Begin negotiations with railroad early in the project and ensure adequate consultant support is available.
Unanticipated Project Manager workload	Request that an assistant P.M. be assigned to the project. Work closely with Professional Services to ensure the consultant selection process results in a consultant that can be expected to produce with minimum oversight by the FDOT Project Manager.
Intermediate Priority Risks:	
Selection of an inexperienced consultant	Actions taken in above response will mitigate this risk.
Aggressive schedule	Review schedule prior to finalizing consultant scope and revise if necessary.

CHAPTER 1 – PLANNING PROJECT MANAGEMENT

Contents

Introduction 2
Long Range Planning 2
Annual Performance Report 4
Planning Project Types 7
Development of a Coordination Plan 10
Public Involvement 12
Long Range Estimate (LRE) 13
Work Program 14
Concept Planning 14
Development/Project Reviews 16

Introduction

The term Project Manager (PM) is a general term for the Florida Department of Transportation (FDOT) employee responsible for managing the project. In the context of this chapter, unless specifically indicated otherwise, PM refers to the FDOT Planning PM.

A diverse range of studies and projects fall under the "planning" umbrella. Figure 1, **Types of Planning Projects**, identifies the general types of planning projects performed by the Department. Although this diversity precludes the development of a single, simple work plan for use in conducting and managing all of these projects and studies, several common features can be identified. Four are addressed in this chapter: coordination with other entities, public involvement, cost estimates and work programs. This chapter presents guidelines for the successful completion of planning objectives. A brief overview of typical studies is also included. FDOT guidelines are available for the Project Development and Environmental (PD&E) phase (the ***PD&E Manual***), and for the Design phase (Volume 1 of the ***Plans Preparation Manual***), which outline well-defined procedures and methods. However, no such guidelines exist for *planning* projects. The diversity of kinds of projects and study types undertaken precludes the development of a single set of basic work guidelines. Therefore, the PM relies on academic training in the fields of planning or transportation engineering for necessary technical knowledge and expertise. The PM gains both technical know-how and management skills from work experience and training. The ***Planning Office*** website provides valuable information. Perhaps the most critical management function in accomplishing the FDOT planning phase of Project Management is coordinating. Outside entities are often involved in planning projects. Multiple entities at various levels must reach consensus to ensure each plan or study comes together effectively. The PM must be able to effectively coordinate the many activities of everyone who plays a role in planning. Effective coordination requires good management skills, especially in communication, leadership and consensus-building.

Figure 1
Types of Planning Projects

Modal Planning
Area Studies
Long Range Transportation Plans
Transportation Modeling
Corridor Studies
Development of Regional Impact (DRI)
Other Studies:
Interchange Justification Report (IJR)
Interchange Modification Report (IMR)
Strategic Intermodal System (SIS) Master Plans/Actions
Level of Service (LOS) Studies
Access Management/Median Openings
Local Government Comprehensive Plan (LGCP)
Bicycle/Pedestrian Studies

Long Range Planning

The Florida Transportation Plan (FTP) defines the state's long range transportation goals and objectives, which are to be accomplished over a period

of at least 20 years. They must fall within the context of the State Comprehensive Plan, and any other statutory mandates and authorization. The goals and objectives must be based on these principles:

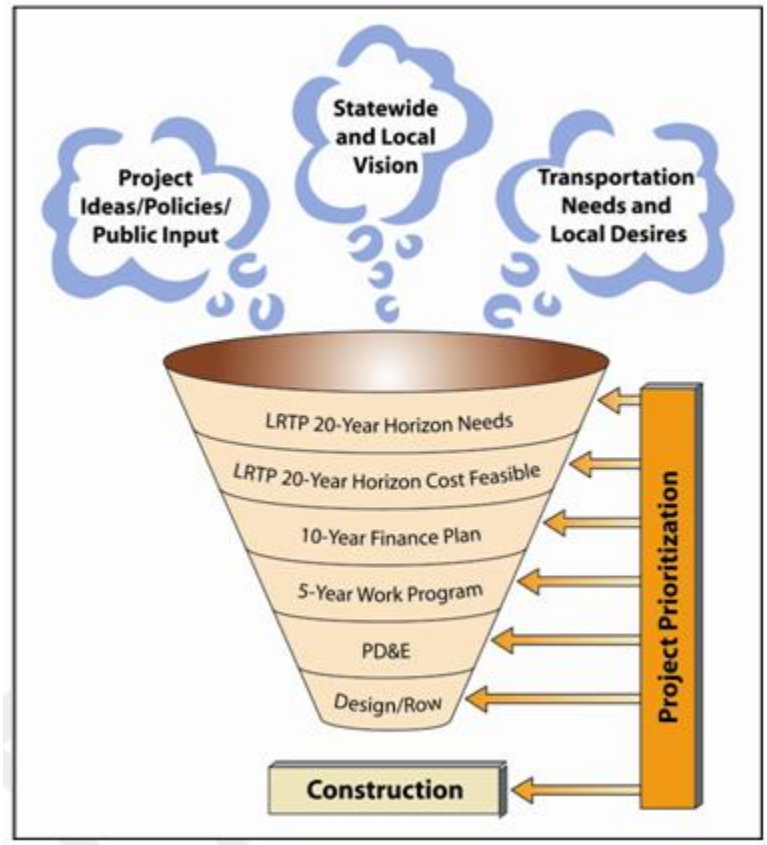
- Preserving the existing transportation infrastructure
- Enhancing Florida's economic competitiveness
- Improving travel choices to ensure mobility
- Expanding the state's role as a hub for trade and investment

The FTP shall consider the needs of the entire state transportation system and examines the use of all modes of transportation to meet such needs effectively and efficiently.

This FTP must be developed in cooperation with Metropolitan Planning Organizations (MPOs) and reconciled, to the maximum extent feasible, with the long range transportation plans developed by MPOs pursuant to Section 339.175, F.S. In addition, the FTP must be developed in consultation with affected local officials in non-metropolitan areas and with any affected Indian tribal governments. The plan must provide an examination of transportation issues likely to arise during the next 20 years. The FTP shall be updated every five years (more often if necessary) to reflect substantive changes to federal or state law.

The FDOT establishes a major work group that is responsible for long range (greater than 10 years) planning. The primary function of this work group is to plan for future transportation on state roadways that will support economic growth and vitality in the state. The FDOT also provides support to local agencies and jurisdictions by providing technical expertise to assist their long range transportation planning efforts. Specific study types that might be conducted include: LRTPs, Area Studies, Public Transportation, Master Plans, Comprehensive Plans, and Florida Strategic Intermodal System (SIS) studies. Several of these study types also have short range goals and objectives. However, their main purpose is to develop a long-term road map (or game plan) for maintaining and enhancing the state transportation system. The Long Range Planning process that leads to project construction is outlined in Figure 2, **Long Range Planning Funnel**.

Figure 2
Long Range Planning Funnel



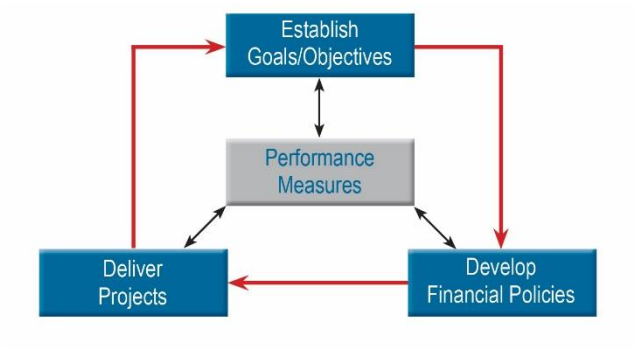
Annual Performance Report

FDOT's mission is to provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities. The Annual Performance Report documents the department's objectives and strategies to implement the goals and objectives of the 2060 FTP.

Measures Matter - Performance measures quantify progress toward attaining goals and objectives. FDOT uses performance measures to:

- Assess how well the transportation system is operating
- Provide information to support decisions
- Assess the effectiveness and efficiency of transportation project and service delivery
- Demonstrate transparency and accountability to Florida's citizens

Performance-Based Planning Process



Performance measures are part of FDOT's business practices on three distinct levels:

1. **At the strategic level** – Performance measures are used to establish goals and objectives, and to monitor progress towards achieving the State's long-range transportation goals. These long-term goals are part of the ***2060 Florida Transportation Plan***.
2. **At the decision-making level** – Performance measures are used to inform the financial policies that determine how funds are allocated across numerous programs such as highway preservation, system expansion, and public transportation in an effort to measure their effectiveness. These programs are defined in the ***Program and Resource Plan***.
3. **At the project delivery level** – Once projects have been selected, performance measures are used to monitor the efficiency and effectiveness of projects and services in the ***Five Year Work Program***. The measures are also used in supporting organizational and operational improvements.

The Annual Performance Report includes the following objectives to implement the goals of the 2060 FTP:

Safety & Security

- Reduce by 5 percent annually, the highway fatality and serious injury rate per 100 million vehicle miles traveled
- Update emergency response plans and readiness procedures for disaster response and conduct regular training exercises

Maintenance & Operations

- Ensure that 80 percent of pavement on the State Highway System meets Department standards
- Ensure that 90 percent of Department-maintained bridges meet standards while keeping all Department-maintained bridges open to the public safe
- Achieve 100 percent of the acceptable maintenance standard on the State Highway System
- Improve system efficiency by deploying Intelligent Transportation Systems (ITS) technology on critical state corridors

Economic Competitiveness & Mobility

- Make strategic investments that support statewide and inter-regional mobility
- Allocate up to 75 percent of new discretionary capacity funds to the Strategic Intermodal System (SIS)
- Maintain the average growth rate in person-hours of delay on Florida Strategic Intermodal System (SIS) highways at or below 5 percent
- Support efforts to enable Florida to expand its role as a hub for international and domestic trade
- Maximize the use of existing facilities
- Develop/redevelop multi-modal corridors to support future mobility
- Participate in statewide and regional visioning efforts
- Increase transit ridership at twice the average rate of population growth

Quality of Life & Environmental Stewardship

- Make transportation decisions in the context of community interests, plans, values and visions
- Enhance the Florida travel experience
- Deliver a transportation system that supports quality of life and environmental stewardship

More detailed information on the relationships among 2060 FTP goals and objectives, focus areas, lead programs and performance measures is available on the ***Office of Policy Planning*** website.

Planning Project Types

Modal Planning: The FDOT coordinates statewide intermodal planning and planning for each transportation mode. Modal plans include the following:

- Strategic Intermodal System (SIS)
- Transit Strategic Plan
- Florida Aviation System Plan
- Rail System Plan
- Florida Seaport Mission Plan

The overall purpose of modal systems planning is to coordinate the movement of people and goods throughout Florida by looking at the facilities on a statewide basis and coordinating with owners and providers of transportation facilities and services. More discussion on modal plans can be found in Part I, Chapter 8, of this handbook, and cited internet references.

Area Study: Performed in cooperation with local jurisdictions, area studies involve multiple corridors, emerging neighborhoods and communities that are experiencing high population and traffic growth or significant existing transportation capacity deficiencies. Area studies are usually sub-county, with 5-15 year planning horizons. These studies often result in several actions:

- New capacity enhancement projects for the FDOT's Work Program.
- Modifications to the local Comprehensive Plan.
- Capacity enhancement projects for the local government Capital Improvements Program.
- Updates to the Long Range Transportation Plan (LRTP).

Study elements and activities include involve public involvement, land use assessment, roadway and traffic data collection, existing and future condition assessments, projection of future traffic, alternatives, analysis, recommendations and documentation.

Long Range Transportation Plan (LRTP): The agency responsible for LRTP is the local Metropolitan Planning Organization (MPO). To achieve planning and programming objectives MPOs develop and regularly update a 20-year long range transportation plan. These plans document key transportation issues, establish planning goals and objectives, and outline a course of action for addressing those issues. The FDOT is a cooperating agency and often provides transportation modeling support and support in developing a long range revenue forecast. Modeling involvement differs by district, and by MPO area within a district. Activities might include calibrating the model, updating both the specific trip generation equations and the network, and reviewing oversight for MPO staff. A key role of FDOT planning staff is to ensure that the LRTP and the

Transportation Improvement Plan (TIP), discussed in Part I, Chapter 8, of this handbook, are consistent with the projects in the FDOT Work Program and the SIS Cost Feasible Plan. The Work Program instructions provide a procedure which defines the schedule for coordination and how it is to take place.

As an MPO resource, the FDOT reviews analysis techniques, results and recommendations. Usually the FDOT requests a review of all technical analysis completed for the state roadway facilities within the plan update limits. Additionally, the FDOT is a resource to the MPO in support of financial funding identification for the cost-feasible analysis. The FDOT also supports the public involvement program by providing guidance, support staff and assistance in the preparation and conduct of this program.

Transportation Modeling: The FDOT develops and maintains the adopted transportation model used throughout the state, the Florida Standard Urban Transportation Model Structure (FSUTMS). District staff is involved in all aspects of model development including data collection, validation and application. The FSUTMS is the backbone of the long range forecasting process that guides the development of long range plans which ultimately identify projects for the work programs of the FDOT and local agencies.

Corridor Studies: Corridor studies fall into one of the following six types:

- Multi-modal or investment studies
- SIS master plans and action plans
- Corridor management studies
- Access management reviews/studies
- Congestion Management System (CMS) or Transportation Systems Management (TSM) studies
- Concept analysis reports

The overall objective of corridor studies is to develop an enhancement or improvement plan for immediate and multi-year (5, 10 and 20-plus) capacity and safety needs of the study corridor. Access management, CMS, and TSM, studies typically focus on immediate or short term improvements related to traffic operational improvements rather than significant capacity enhancements. While comprehensive, multi-modal, SIS, and concept analysis studies identify short term operational and safety improvements, their main objective is to address future capacity needs in a comprehensive framework. Subjects might include capacity enhancements, land-use considerations (in conjunction with local agencies), transit system needs, and accommodation of pedestrian and bicycle needs. These studies produce a master plan for the long-term management of a corridor. Several study types involve local governments and their processes for managing a transportation corridor. The results of these corridor studies will provide input to the next phase of project development.

Development Reviews. Section 380.061, Florida Statutes (F.S.), ***The Florida Quality Developments Program***, addresses general requirements for the application and approval of Developments of Regional Impact (DRIs). Specific DRI review requirements for are established by Rule 73C-27, Florida Administrative Code (F.A.C.), administered by the Florida Department of Economic Opportunity (DEO). The DRIs are identified developments based on specified land-use thresholds established within Rule 73C-27, F.A.C. Section 380.061, F.S., also addresses general requirements of Florida Quality Developments (FQDs), a type of expedited DRI. Rule 73C-42, F.A.C., establishes additional criteria to be followed when preparing an application for approval of an FQD. The FDOT planning staff reviews the technical analysis of the transportation study area as submitted by an applicant. The FDOT planning staff also evaluates direct and indirect potential impacts and recommends actions to mitigate negative effects on the state roadway system resulting from major developments. The ***Transportation Impact Handbook*** is the ready-reference tool to be used for conducting development reviews.

Other Studies: Definitions and references for several other planning study types are summarized on the following page:

- Interchange Justification Report (IJR) and Interchange Modification Report (IMR): Technical and administrative procedures for interchange justification/modification are in ***Procedure 525-030-160, Interchange Justification*** and described in the ***Interchange Handbook*** and associated training materials.
- SIS Master Plans/Action Plans: *These* documents identify both short and long term capacity improvements to SIS facilities consistent with SIS standards. Master Plans are for limited access facilities and should identify potential new interchanges or modifications to existing ones. Action Plans are for controlled access facilities on the SIS. Requirements are in ***Procedure 525-030-260, Strategic Intermodal System Highway Component Standards and Criteria***.
- Level of Service (LOS) Studies: *The* FDOT's ***Quality/Level of Service Handbook***, implements the procedures required by Subsection 334.044(2), F.S., and Rule Chapter 14-94 F.A.C. The handbook provides a multimodal perspective. LOS studies are normally used as a part of another study. They are also done to determine how all or parts of the State Highway System (SHS) are performing. The Roadway Level of Service Handbook is consistent with the Transportation Research Board Highway Capacity Manual.
- Access Management/Median Opening Studies: Technical details for these are presented in Rule 14-96, F.A.C., and Rule 14-97, F.A.C., and in several working documents prepared by the FDOT's Systems Planning Office, which can be found at the ***Access Management*** page. Typical

studies include corridor-wide access management plans and access management information for PD&E and design projects.

- Strategic Intermodal System (SIS), *Section* 339.64, F.S. stipulates the department shall develop a SIS Plan that will include a needs assessment, a project prioritization process, a map of facilities designated as SIS, a finance plan based on reasonable projections of anticipated revenues, and an assessment of the impact proposed improvements to SIS corridors on military installations. The SIS Plan must be consistent with the FTP and must be updated at least once every five years, subsequent to FTP updates. Section 339.64(3) a, F.S., outlines during the development of updates to the Strategic Intermodal System Plan, the department shall provide metropolitan planning organizations, regional planning councils, local governments, transportation providers, affected public agencies, and citizens an opportunity to participate in and comment on the development of the update.
- Local Government Comprehensive Plan (LGCP): Chapter 163, F.S., addresses the primary land planning requirements for all Florida's local governments. It contains the FDOT's responsibilities for reviewing these documents. The most common FDOT reviews are Local Government Comprehensive Plan (LGCP) amendments, particularly those initiated by prospective developments in the form of Future Land-Use Change Maps change requests, and/or DRI amendments. The FDOT also reviews the Capital Improvement and Transportation elements of LGCPs. Chapter 163.3177, F.S., outlines LGCP requirements.
- Bicycle/Pedestrian Studies: The primary function of the SIS is to provide for high-speed and high-volume traffic movement. The safe movement of bicycles and pedestrians must be carefully considered and accommodated so there will be no adverse impact on vehicular safety, capacity or speed. Accommodating bicycle and pedestrian traffic on roads intended for high-speed, high-volume vehicular traffic requires a careful balancing. The objective is meeting all three modes' needs. Separate, offsite, and/or parallel facilities shall be used where practical and feasible.

Development of a Coordination Plan

At the outset of a planning study, the PM should develop a Coordination Plan identifying the agencies and entities that will be involved in the study. The PM determines the nature and intensity of coordination efforts and the forum and other logistics of coordination with each entity. Specific contact people should be identified within each organization. Critical components of the Coordination Plan are also included in the project Schedule and Public Involvement Plans, as appropriate. Groups and agencies that may be involved in a planning project include but are not limited to:

- Federal, including Federal Highway Administration (FHWA), Army Corps of Engineers (ACOE), Environmental Protection Agency (EPA)
- County and local governments
- MPOs
- RPCs
- Other FDOT districts
- Turnpike Enterprise
- Expressway authorities
- Other state agencies including DEO, Enterprise Florida, the Department of Environmental Protection (DEP), and the Governor's Office of Tourism, Trade and Economic Development (OTTED)
- Statewide, regional and local modal groups for highways, trucking, shipping, aviation, public transportation, rail, seaports, space and bicyclists and pedestrians
- Statewide, regional and local environmental or preservation groups
- Citizen or homeowner groups
- Statewide, regional and local business groups including chambers of commerce and economic development boards
- Native American tribes either living in or having cultural affiliation with Florida

Figure 3, **Coordination Matrix**, lists the typical project types and agency coordination requirements. The PM must determine what groups should be involved in the project and then develop a plan to include these parties.

Figure 3
Coordination Matrix

Project Type	City/County	MPO/RPC	State Agency	Federal Agency	Public Involveme	Public hearing
Area Study	R	R	P		R	P
LRTP (1)	R	R	R		R	R
Transportation Modeling	R	R	P			
Corridor Study	R	R	P	P	P	
Public Transportation	R	R	P	P		
Multi-Modal	R	R	P	P		
Development Reviews	R	R	R	P		
IMR/IJR (2)	R	R	R	P	P	
FIHS (3) Master Plans/Action Plans	R	R	P	R	R	P
LOS Study	R	R	P	P		
Access Management Plans	R	R	R		P	P
SIS (4)	R	R	R	P	P	P
Comprehensive Plans	R	R	R		P	P
Bicycle/Pedestrian Studies	R	R	P	P	P	P

R - Required coordination
P - Potential coordination
(1) Long Range Transportation Plan
(2) Interchange Modification Report (IMR), Interchange Justification Report (IJR) - coordination and approval by FHWA required for interstate projects
(3) Florida Intrastate Highway System
(4) Strategic Intermodal System

Public Involvement

A PM may employ several techniques to effectively involve the public in planning projects, among them graphic presentations, small group meetings, advisory

committees, community events, newsletters, open-house workshops and websites. The Office of Policy Planning has many ready-reference materials available related to public involvement and public hearings and offers an on-line ***Public Involvement Training*** course.

When developing and implementing a public involvement plan, an excellent reference is the FDOT's ***Public Involvement Handbook***.

Public Policy/Local Support: Gaining local support for the smooth progress of any planned project is imperative. More and more, the public demands accountability for use of its tax dollars and wants to be informed of any plans affecting their daily lives. Transportation issues are always at or near the top of public opinion polls in terms of issues significantly affecting people's lives. Winning local governance support in developing and promoting public policy is essential. Much debate surrounding public policy development for transportation occurs at the local level.

Application/Project Complexity: Public involvement communication techniques to be used are dependent on the project complexity. A smaller project such as intersection improvement may require a level of coordination that involves only the localized vicinity businesses/residences over a short period of time. A large scale project such as a mile-long road widening may require intense activity from the earliest planning stage all the way through construction.

Documentation/Commitment Tracking: Key to this process is ensuring follow-through of any commitment made during the planning process from concept initiation through PD&E. Documentation of commitments made through the public involvement process is essential. Sources of documentation of both commitments and follow-through include the full text of relevant reports and meeting notes, but more important, executive summaries of all pertinent documents.

Other Coordination: Local governments and the general public are not the only groups involved in this process. External agencies such as Florida's Water Management Districts, ACOE, DEP, FHWA, serve critical roles in the development of public policy and permitting.

Long Range Estimate (LRE)

A solid LRE estimate is essential to ensuring reasonable budgets are prepared which reflect the true cost of a project. ***Procedure No. 600-010-005***, ***Development and Review of The Five Year Work Program Construction Cost Estimates***, describes the LRE process. The LRE computer system is used to estimate the costs of highways, bridges and related projects while in the conceptual and early planning stages, before actual plan quantities are available. Information about the LRE process and training opportunities can be found at the ***Estimates Office*** website. Planned projects must be estimated accurately and

then matched to anticipated revenue. The FDOT's ***Revenue Forecast Handbook*** provides information on revenue forecasting.

Work Program

Section 339.135, F.S., authorizes and specifies requirements for the FDOT to prepare, adopt, executive, and amend the State Transportation Five-Year Work Program. The Work Program is a statewide project-specific list of transportation activities and improvements that must meet the objectives and priorities of the FTP. To develop the Five-Year Work Program, the FDOT coordinates with its seven district offices, the Turnpike Enterprise Office (Turnpike), the Rail Enterprise, MPOs, local governments, and modal partners (e.g. seaports, airports, railroads). The intent of the Work Program is to maximize the FDOT's production and service capabilities through innovative use of resources, increased productivity, reduced cost, strengthened organizational effectiveness and efficiency. The development of the Work Program is a year round activity. In July, the FDOT begins the development of the Tentative Work Program for the five year period beginning the following July 1st to be adopted by the Secretary. Each district adjusts the first four years of its work program and adds a new fifth year through the gaming process. The Work Program is reviewed by the Florida Transportation Commission (FTC) and the DEO, to ensure compliance with applicable state laws and procedures.

Details of programming and Work Program management are described in Part I, Chapter 10, of the ***Project Management Handbook***, and at the ***Office of Work Program (OWP)*** website in the Work Program Instructions.

Concept Planning

This functional area of planning involves a range of short term and corridor-specific projects. These projects are oriented to the specific needs of the state roadway system and involve corridor and pre-PD&E level efforts. Types of projects are: corridor or specific arterial studies, access management studies, IJR/IMRs, level of service studies and SIS Master or Action plans.

These projects require significant data collection and analysis to ensure that adequate and appropriate improvement concepts or action plans are produced. The PM must focus early coordination efforts on public entities and agencies and the general public to gather a full range of data including planning data sets, traffic and roadway characteristics, environmental, archaeological, and other area information, resources and concerns.

Figure 4, **Study Needs Matrix**, shows project types and what information and coordination will be relevant in conducting each type.

Concept-level planning can be viewed as the preparation and fatal-flaw screening mechanism to produce a "clean" project ready for project development

and entry into the work program cycle. Enough investigation and analysis is needed to screen the corridor or interchange area to obtain needed approvals or recommendations for advancement to more detailed study. As with long range planning efforts, much coordination is needed to successfully navigate the development of specific recommendations and appropriate next steps. Coordination for these study types has been described earlier in this chapter.

Figure 4
Study Needs Matrix

Project Type	Corridor Study	Pre-PD&E	Access Mgmt	IMR/IJR	LOS Analysis	SIS MAPs
Traffic and Roadway Data	N	N	N	N	N	N
Land Use Data	N	N	N	N	N	P
Environmental Data	P	N		N		N
Archaeological/Historic/Social Data	P	N		N		N
Public Involvement	N	N	N	P		N
Detailed Alternatives Analysis	N	N		N	N	N
Public Hearing						P

N - Need
P - Potential Need
MAP - Master/Action Plan

Development/Project Reviews

The following projects fall under the umbrella of development or project reviews when the Planning PM is coordinating with or through another agency to provide reviews of potential impacts to the SHS. These review efforts occur when significant new land development projects are under way. An overview of major reviews is provided below. Discussion of IJRs, IMRs and Interchange Operational Analysis Reports (IOARs) is included to ensure that the analysis and recommendations in the DRI or the Site Plan development process are consistent with data represented in the reviews, studies or reports.

Development of Regional Impact (DRI): This site impact study represents any effort by the FDOT to prepare an analysis or conduct a review of an analysis prepared by another party. The purpose of the analysis is to estimate and quantify the specific transportation-related impact of a development proposal on the surrounding transportation network, regardless of who initiates the development proposal. The FDOT's impact assessment may be limited to the SHS or to any affected roadway system as determined by the specific type of review being conducted.

Interchange Modification Report (IMR): This report is required for all requests for modification to an existing and/or approved but not yet constructed interchange on SIS limited-access facilities. An Interchange Proposal must be developed and approved even if the proposed interchange is contained in a DRI Master Plan or PD&E study for the facility.

Interchange Justification Report (IJR): This report is required for all requests for a new interchange on existing SIS limited-access facilities. An Interchange Proposal must be developed and approved even if the proposed interchange is contained in a DRI Master Plan or PD&E study for the facility.

Interchange Operation Analysis Report (IOAR): This report may be required by FDOT or FHWA to analyze specific improvements of an interchange modification where the IMR is not required or to determine the specific year a proposed improvement to an interchange or facility is needed.

Florida Quality Development (FQD): This expedited DRI allows an alternative, expeditious and timely review process for DRIs that have been thoughtfully planned, take into consideration the protection of Florida's natural amenities, consider the cost to local government of providing services to a growing community and address the high quality of life Floridians desire.

CHAPTER 2 – Project Development and Environmental Project (PD&E) Management

Table of Contents

Contents

Introduction 2
PD&E Projects 2
Data Collection 3
Identification of Project Needs 4
Non-Federally Funded Projects 4
Class of Action Determination 5
Development of Alternatives 6
Section 4(f) 8
Environmental Analysis 8
Public Involvement 9
Coordination 9
Evaluation and Selection of Alternatives 10
Permits 11
Documentation 11
Reevaluation 13

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 the Project Development and Environment (PD&E) phase of a project. Unless specifically indicated otherwise, PM refers to the FDOT PD&E PM.

The PD&E process is described in FDOT ***Procedure 650-000-001***, ***Project Development and Environment Manual (PD&E Manual)***. This process has been authorized by Florida Statute to comply with the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws, rules and regulations. There are also environmental reporting requirements for non-federally funded projects. The PD&E Manual should be used as a reference for these projects as well.

The objective of this chapter is to assist the PM in navigating through the PD&E study process from initiation through completion of a study. The intent is not to replicate the detailed information provided within the PD&E Manual but to direct the PM to the applicable sections in a logical, efficient manner. Flow charts in Figures 1 through 4 at the end of this chapter depict the PD&E process.

PD&E Projects

Throughout this chapter reference is made to “Lead Federal Agency”. The lead federal agency on the majority of FDOT projects is the Federal Highway Administration (FHWA), but others may be lead agencies. These include, but are not limited to Federal Aviation Administration, Federal Railroad Administration, and Federal Transit Administration.

PD&E studies can be long and complex undertakings. They are to be a continuation of the analyses from the earlier Planning and Programming stages of the project in the Efficient Transportation Decision Making (ETDM) process. The Planning and Programming stages include an analysis by environmental resource agency staff known as the Environmental Technical Advisory Team (ETAT). The ETAT reviews various databases using an interactive Geographic Information System (GIS) platform and other departmental reference material.

The objectives of a PD&E study are to perform necessary social, environmental and engineering studies of a proposed transportation improvement, to support decisions concerning if and where a project should be built and to decide what the basic design concepts will be. The social, environmental and engineering studies to be conducted are in response to comments received from the ETAT reviews of the project during the Planning and Programming screens. The ETAT will also provide additional information needed. Throughout this process, it is essential that the public have effective input into these decisions. The public includes individual citizens as well as state and federal agencies, permitting agencies, local governments, neighborhood associations, businesses, and

environmental and other interest groups. The products of a PD&E study are the reports of findings and recommendations, appropriate environmental documents and preliminary engineering concepts. The engineering included in a PD&E study varies depending on schedule, funding and required study. This engineering component might result in a level of detail necessary to obtain the project's environmental permits. The ETDM process is further discussed in the ***ETDM Manual***.

Typical tasks accomplished in a PD&E study include agency coordination, data collection, development of alternatives, environmental analysis and report preparation/review, public involvement, evaluation and selection of alternatives, Value Engineering (VE), and documentation.

Data Collection

The data-collection phase is not a well-defined activity. On most studies this activity will actually start well before the execution of the consultant contract during the ETDM Planning and Programming screens and the development of the study scope of work. This activity will often continue until after the public hearing when comments from the public are addressed. However, for the purpose of this chapter, the discussion will primarily address the data-collection activities that are required to evaluate the study need and the development of alternatives.

Engineering data that may be collected include existing roadway plans, straight-line diagrams, right of way maps, crash data, functional classification and posted speed limit, pedestrian or bicycle facilities, lighting and traffic signalization, utility locations (existing and planned), transit and rail operations (existing and planned), soils and geotechnical data, existing pavement condition, traffic volumes (existing and projected), drainage maps and features, access management and median openings, and current aerial photography.

If the study involves an existing bridge, information that might also be collected include type of structure and existing structure plans, structural condition and rating, horizontal and vertical clearance, span arrangement (number and length), and historical significance.

If a bridge on the project crosses a waterway, information that may also be collected include channel data (alignment, width, depth and required clearance), boat traffic survey (size and type of watercraft), number of openings for movable structures, ship impact data, and scour data.

Environmental data that may be collected in response to comments and questions received during the Planning and Programming screens include land uses (existing and proposed), cultural features and community services, archaeological and historic features, natural and biological features, known contamination sites, existing noise studies, socio/economic information, and community values, views and opinions regarding the project and area.

The information listed above is not meant to be all-inclusive. Some projects may require more or less information depending on the project and the results of the ETDM Screenings. The PM must determine what information or data must be collected. This determination should be conducted with the project team to ensure that all areas of concern are addressed. For a more detailed discussion of data collection and needed information, see the specific chapter for each technical topic in the PD&E Manual.

Identification of Project Needs

The needs for the project are identified during the ETDM Planning and Programming phases. These identified needs are further evaluated during the PD&E phase by evaluating existing data and through the public involvement process. These needs will directly affect what alternatives will be evaluated and serve as justification for the project. Because there are often multiple deficiencies or desires, there are often multiple needs. These needs can be separated into two categories: area-wide needs and project corridor needs. Area-wide needs relate to system deficiencies and local government or community desires. Project corridor needs relate to route deficiencies and specific community desires within a corridor. These needs are explained in more detail in subsequent sections of this chapter.

Project needs should be identified in the Planning and Programming phases and come from the Long Range Transportation Plan (LRTP) and, ideally, the Transportation Improvement Program (TIP). Projects should be consistent with local comprehensive plans. Meetings with local government officials, business communities and the public are valuable in verifying needs.

For project corridor-specific needs, a review of FDOT databases and/or specialized analyses may be required to determine deficiencies. Corridor-specific needs may include deficiencies of the existing facility, the need for additional capacity and the safety of the existing facility. Project needs are discussed in detail in the ETDM Manual and the PD&E Manual.

If a new or revised interchange is required, an Interchange Justification Report (IJR) or Interchange Modification Report (IMR) may be required. These are normally produced in the planning phase of a project, but they may be a PD&E requirement. Technical and administrative procedures for interchange justification/modification are found in **Procedure No. 525-030-160**, ***Interchange Justification***, and described in the ***Interchange Handbook*** and associated training materials.

Non-Federally Funded Projects

A State Environmental Impact Report (SEIR) may be required for certain non-federally funded projects. The PD&E Manual explains procedures to be followed with non-federally funded projects. A SEIR is required if the project is a major transportation project using non-federal funds and one of the following conditions is met:

- The project is part of the State Highway System (SHS).
- The project is a toll project.
- The project is privately funded or connected to the SHS.

Projects that do not meet one of these criteria, even though major, will not be required to process a SEIR.

Major projects are generally defined as having one or more of the following characteristics:

- A new freeway or expressway.
- A highway providing new access to an area that could substantially change land use or development patterns.
- A new or reconstructed arterial highway that could substantially increase capacity or change land-use or development patterns.
- A new circumferential or belt highway that bypasses a community.
- Added interchanges to a completed freeway or expressway.
- A new bridge that provides new access to an area.
- Major Public Transit Projects such as an intermodal center, passenger rail, etc.

When it is determined that a project is not major, a designation of Non-Major State Action (NMSA) is assigned. The NMSA does not require a public hearing but may require public involvement activities. Projects meeting the NMSA criteria are excluded from the SEIR process.

Class of Action Determination

When the project has completed the Programming screen, the Department's ETDM Coordinator will work with the lead federal agency, in making an environmental Class of Action Determination. This determination is made part of the final Programming Summary Report (PSR) which is completed prior to the project being programmed in the FDOT's five-year work program. It is these project concepts (types of facilities, number of lanes, interchanges and intersections, structures, and so forth) identified in the PSR that will become the basis for alternatives that will be further studied.

Federally funded projects are classified as one of the following:

- **Categorical Exclusion (CE).** This classification is for projects that do not individually or cumulatively have a significant impact on the social, physical or natural environment. These projects are exempt from the NEPA requirements. However, they still must meet all other federal

and state requirements and executive orders. CEs are processed as one of three types: Type 1, Programmatic, and Type 2. Type 1 and Programmatic CEs are typically identified as minor projects. The PD&E Manual has a list of typical minor projects. A major project that is determined not to have any significant impacts is a Type 2 CE. Any Type 2 CE requires appropriate environmental analysis in order to address the concerns and questions identified by the ETAT during the Planning and Programming screens. This analysis supports the determination that there is no significant impact.

- **Environmental Assessment (EA).** This document may be required when the significance of any environmental impact has not been clearly established.
- **Environmental Impact Statement (EIS).** The EIS classification applies to projects that will have a significant impact on the social, physical or natural environment as defined by NEPA and Part 40, Section 1502, Code of Federal Regulations (C.F.R.).

The PD&E Process Flowchart at the end of this chapter illustrates that the Class of Action Determination and scope of work are completed during the Programming phase and documented in the PSR. The PSR is the basis for the type of study that is programmed in the five-year work program

For projects determined to be Type 2 CEs, the Project Development Summary Report (PDSR), discussed later in this chapter, will serve as the decision-making document. At the completion of the PD&E study, the PDSR and the Public Hearing transcript are submitted to the FHWA, in order to receive Location and Design Concept Acceptance (LDCA).

Development of Alternatives

While there is no set number of required alternatives for a PD&E study, Council on Environmental Quality (CEQ) regulations require the PM to “rigorously explore and objectively evaluate all reasonable alternatives.” Generally, a PD&E study will include the following alternatives:

- **No-Build Alternative (mandatory).** This alternative is the existing system with any improvements already programmed that are not specifically tied to the new project. The no-build alternative is considered a viable alternative through the public hearing.
- **Transportation System Management (TSM) Alternative.** This alternative consists of those minor improvements that would maximize the efficiency of the existing facility. This alternative may include safety improvements, access management and signalization.

- **Transit Alternative.** This alternative, in most cases, is incorporated with other alternatives such as the TSM or a construction alternative. It addresses the potential to reduce traffic by increasing use of an alternate mode of transportation.

Construction Alternatives require reconstruction or widening of the existing facility or building a new facility on a new location and are consistent with the project concept identified in the PSR. More than one construction alternative is usually developed. In the development of the construction alternatives, the PM should consider the issues and surroundings associated with the project. Project alternatives need to improve transportation; but they should also, if applicable, enhance the community by maintaining its scenic or historic values or fit within the vision of the community. Deviations from the FDOT standards might be appropriate in order to design an alternative that meets the community values or to avoid or minimize social or environmental impacts. These deviations may require design variances or exceptions that must be discussed with and approved by the District Design Engineer (DDE).

The PM must develop each alternative until an objective evaluation of its cost and impact are addressed. The level of development depends on the alternatives under consideration. In some cases, a simple concept may be all that is necessary to compare the alternatives. Some cases, on the other hand, may require a high level of detail. In all cases, the analysis of each alternative must address the following:

- Cost, which includes engineering, right of way, relocation, environmental mitigation, utility relocation, construction, and construction engineering and inspection costs.
- Right of way involvement, which includes drainage requirements and easements.
- Number of relocations, both residential and business.
- Impact to any special, unique, natural, historic or otherwise significant feature.
- Potential for Section 4(f) involvement (see discussion below).
- Assessment of community impacts.
- Summary of environmental impacts.

The PM is responsible for ensuring all reasonable alternatives have been studied and dismissal of other alternatives has been justified, based on reasonableness and feasibility. In order to eliminate a viable alternative the PM should coordinate with the lead agency and the reason must be well documented. The PM must ensure that the development of alternatives is consistent with PD&E Manual.

Section 4(f)

The U. S. Department of Transportation Act (DOT Act) of 1966, included a special provision which (Section 4(f)) stipulated that the FHWA and other DOT Agencies (including FTA and FRA) cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply: (1) there is no feasible and prudent alternative, and (2) the action includes all possible planning to minimize harm. This policy does not prohibit the taking of public lands, but it must be demonstrated that there is no feasible alternative. The ***Section 4(f)*** website contains useful information on federal requirements and documentation required concerning this topic.

Environmental Analysis

Environmental analysis for the study will start during the Programming screening analysis. The ETDM process initiates NEPA with the notification to the ETAT that the project is ready for review in the Programming screen. The ETAT will determine the magnitude of effect the project has on its respective resources. The ETAT will also comment as to the sufficiency of the existing databases and the need for additional information to verify the degree of effect. This request for additional information forms the scope of work for the study and the need for the required environmental analysis.

Once alternatives have been developed, the requested environmental analysis of each alternative should be performed. The analysis differs by type of impact. Some environmental analyses may only require simple consultation with the appropriate ETAT member, while other impact analyses will use measures such as field-testing and computer simulations.

Although an analysis may be of a quantitative or qualitative nature, the environmental impacts are evaluated for level of significance. For a more detailed discussion of the level of significance for environmental impacts, see the PD&E Manual.

The PM is responsible for coordinating with the Environmental Administrator and environmental specialists throughout the environmental analysis process. While the PM may not be the one responsible for the actual analysis or documentation, the PM is responsible for ensuring that these analyses are conducted and documented according to the procedures outlined in the PD&E Manual.

Public Involvement

Public involvement is an essential and critical element of project development. The NEPA process requires extensive involvement, coordination and communication with all relevant and affected parties: the general public, community groups, environmental organizations, and local, state and federal agencies. The ***Public Involvement Handbook*** is available to the PM for developing and conducting an appropriate Public Involvement Plan for transportation projects. The PM should also refer to the Chapter 11 of the PD&E Manual.

Coordination

Project development demands a multi-disciplined approach in developing and analyzing alternatives for transportation projects. No one person has the knowledge to develop or the authority to approve a solution to the complex issues associated with these projects. Throughout the study, the PM must coordinate not only with other federal, state, and local agencies but also with other sections within the Department.

Governmental Coordination. The ETDM process lays the ground work for intergovernmental coordination. The ETAT members all represent various governmental resource agencies. The Planning and Programming screens are the beginning points for coordination. Some agencies may not desire or need further involvement. Additional agencies may be identified after the PD&E study has been initiated. It is critical to the success of the project to continue the coordination begun during the Planning and Programming stages throughout the life of the project. The development and review of environmental technical studies and public participation efforts are examples of situations requiring governmental coordination.

Public Coordination. The public involvement process requires extensive coordination. For instance, coordination with homeowners' associations and special interest groups may help identify all stakeholders along the corridor. This type of coordination is part of the public involvement process.

Interoffice Coordination. Because no one person has the knowledge to develop all elements of a project alternative, the PM must interact and work with various FDOT offices. Examples of such coordination with other offices and key personnel include the District ETDM Coordinator for updates on the project; Planning, for traffic projections; Structures, for bridges; Drainage, for drainage design; District Permit Coordinator for permitting; and Right of Way, for right of way estimates. The PM must understand that the alternatives developed must represent a consensus of the FDOT, not just the views of one office.

Evaluation and Selection of Alternatives

Once the alternatives public meeting(s) have been conducted and the environmental analysis is complete, the project team is in a position to evaluate the alternatives. Evaluation criteria will include, but not be limited to, the following:

- Project Costs (engineering, right of way, construction, construction engineering and inspection, mitigation)
- Maintenance of Traffic
- Environmental Impact (noise, air, wetlands, contamination, wildlife, and so forth)
- Socioeconomic Impact (relocations, aesthetics, cultural resources, and so forth)
- Public Sentiment
- Fulfillment of Project Needs and acceptable Level of Service (LOS)

If the criteria information is presented in a matrix format, persons reviewing it will more easily understand how the project team reached its conclusions. For more information on developing an evaluation matrix, see the PD&E Manual.

The PM must lead the project team through the evaluation process. In some cases a consensus among the project team is not achieved. Then, the PM must determine which alternative to recommend or propose for construction and to fully justify that recommendation. This decision is based on the project team's recommendations together with a subjective and objective review of the evaluation criteria.

The final recommended alternative will be the result of a consensus of the project team, FDOT, lead federal agency, local officials, the metropolitan planning organization and other appropriate stakeholders.

Permits

Prior to initiating the Project Development Study, the PM, working with the District Permit Coordinator, will determine if the environmental permits will be obtained during Project Development or throughout the project. This determination will be based on several factors. The first is whether or not the time duration of the permit would be sufficient to complete construction of the entire project. It is estimated a minimum permit duration of ten years would be necessary. Available funding for the additional surveying and engineering work should also be considered when determining if the environmental permits are to be acquired during the project development phase. Another factor is the production schedule of the project and its various segments. For long projects where only a shorter segment is planned for immediate completion, permits should be acquired for that section only.

The activities associated with acquiring permits for a project are discussed in the permitting section of Part 2, Chapter 3, Design Project Management, of this handbook.

Documentation

Draft Documents. When the evaluation of alternatives is completed, the PM is ready to prepare the first draft of the preliminary PDSR or Preliminary Engineering Report This first draft of the report is sent to the District Value Engineer. Then a VE Study may be conducted for the project.

At this point, the FDOT may have a locally preferred alternative identified. This alternative, however, should not be considered the recommended alternative until after the public hearing and lead federal agency approval. For a Type 2 CE project the FDOT may wish to carry one or more construction alternatives to the public hearing. In these cases, the draft reports should indicate which alternatives are being carried forward. For EA's or EIS's all alternatives are taken to the Public Hearing. A preferred alternative is not identified until after the Public Hearing.

Depending on the Class of Action Determination, the PM may have to prepare an Environmental Assessment (EA) or a Draft Environmental Impact Statement (DEIS). Directions for preparing and processing these documents are given in Part 1 of the PD&E Manual.

For a Type 2 CE, the preliminary PDSR can be submitted to the lead federal agency along with the public hearing transcript following the hearing. For more information on processing a Type 2 CE, see Part 1 Chapter 3 of the PD&E Manual.

If the project is a non-federally funded major transportation project, as defined by PD&E Manual, the PM should proceed with the development of the PDSR for submittal to the district secretary for approval. If the project has been designated an NMSA, the completion of a detailed checklist is typically the only documentation that is required.

The PM must ensure that draft environmental documents have been subjected to a comprehensive quality control review. Both the consultant and the districts have quality control plans; the processing of all documents must follow these plans. Documents containing errors or inaccuracies must not be sent to the lead federal agency or made available to the public.

Project Development Summary Report (PDSR)

After the Public Hearing the recommended alternative will then be developed to a level that allows a clear understanding of impacts and costs. At this point, the preliminary PDSR is completed and submitted to the lead federal agency along with the public hearing transcript and the environmental document if applicable. This report will outline a clear understanding of the recommended alternative including the preferred alignment, typical section, right of way requirements, environmental impact and results of the Public Involvement Plan. The report will also include cost estimates for design, right of way, construction, and construction engineering. Districts require different levels of completeness for the plans development during the PD&E phase. The level of detail will also be determined by whether or not environmental permits will be applied for during the PD&E study. This issue should be addressed in the scope of services.

The final PDSR will be prepared once the environmental permits have been obtained if applicable, or after the lead federal agency has granted the project LDCA (where permits are not required). The PDSR includes sections on the preferred alternative, summary of environmental impacts, summary of permits and mitigation, summary of the public involvement, and commitments and recommendations. For more detailed information on the content and format of the PDSR, see the PD&E Manual.

The flow chart following the references at the end of the chapter illustrates where the preliminary and final PDSRs should fall in the PD&E process.

Perimeter Wall Justification Report. The initial assessment for the use of a perimeter wall should typically be performed during the Project Development and Environment (PD&E) process and only when such a wall is requested by a local municipality or a substantial group of affected residents/property owners. The results of the perimeter wall analysis shall be documented in a Perimeter Wall Justification Report. This is a standalone report and is not part of any environmental document. Final decisions made during the Design Phase will be added to the report by addendum. The final decision for the use of a perimeter wall should be made during the Design Phase when the final conditions and cost are available for consideration.

To assure that the use and costs of perimeter walls are consistent across the state, guidelines containing the process and design methodologies to be used when considering the use of perimeter walls can be found in Chapter 32 of the ***Plans Preparation Manual, Volume 1***.

Final Environmental Document. After the comment period that follows the public hearing ends and comments have been addressed, the final environmental documents are prepared for the selected alternative. Depending on the type of environmental documentation required, Finding of No Significant Impact (FONSI) or Final Environmental Impact Statement (FEIS), the final draft is prepared. Requirements for and processing of these documents are discussed in **Part 1** of the PD&E Manual.

When the final documents are completed, reviewed by Central Office, and have gone through the appropriate quality control process, the PM will submit these reports to the lead federal agency. After the lead federal agency comments and/or concurs with the findings, it will approve the environmental document and grant the LDCA.

Reevaluation

When project changes occur after approval of the original environmental document, a Reevaluation is used to document compliance with federal laws. A reevaluation is required for:

- Design, Right of Way, or Construction Advertisement
- RFP Package for Design Build Projects
- Design Concept Change
- Prior to FEIS if more than 3 years since DEIS

These situations and the format for the Reevaluation package are thoroughly discussed in the PD&E Manual.

Generally, the reevaluation process is approval by exception. Issues that remain unchanged from the original study are stated and documented. Any significant change in the social, economic or environmental impacts associated with the project are noted and expanded upon. This report is typically done in memorandum format. Evaluation of major design changes and revised design criteria are summarized, and the previously prepared engineering document is referenced for all original information that is unchanged.

The Mitigation Status and Commitment Compliance section serves to document commitments made or mitigating factors that were established through the Reevaluation process and serves as a basis for the scope on subsequent phases of the project. It is critical that this section is clear and thoroughly documented to highlight these commitments for the design Project Manager, who will advance the project through the design phase.

The Permits Status section lists previously obtained permits, if they exist. Any conditions of the permits should be included in the project documentation and summarized under this section. A thorough discussion of the Reevaluation process is included in the PD&E Manual. Format guides, sample letters, and a flowchart defining the process are presented.

Figure 1
PD&E Process Flow Chart

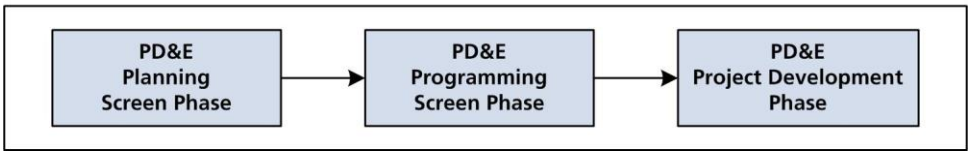


Figure 2
PD&E Process Flow Chart: Planning Screen Phase

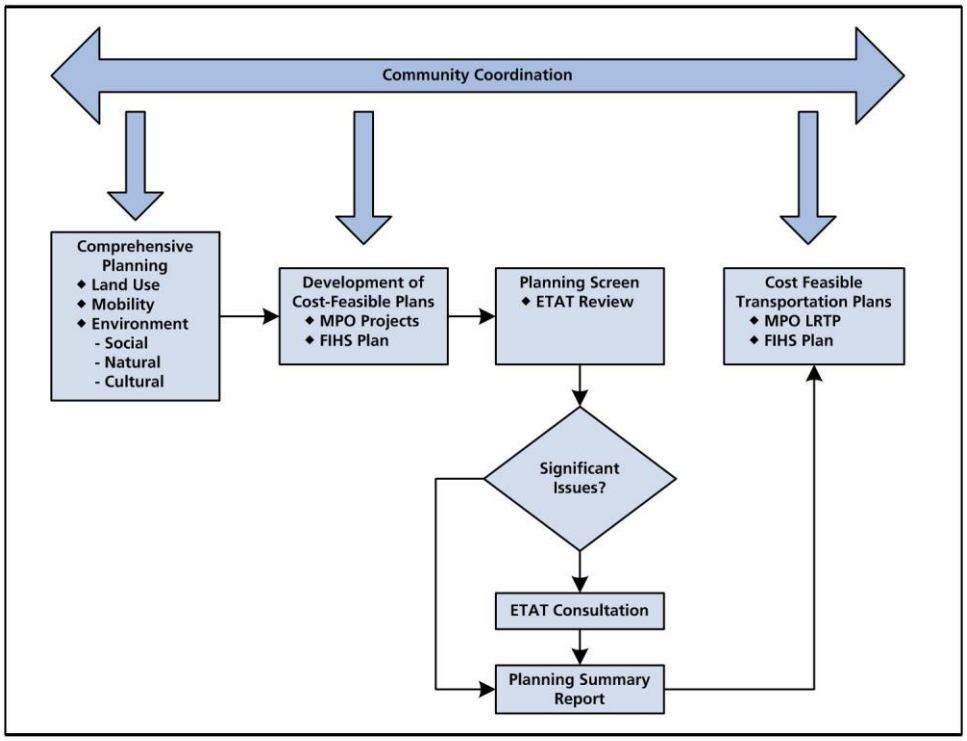


Figure 3

PD&E Process Flow Chart: Programming Screen Phase

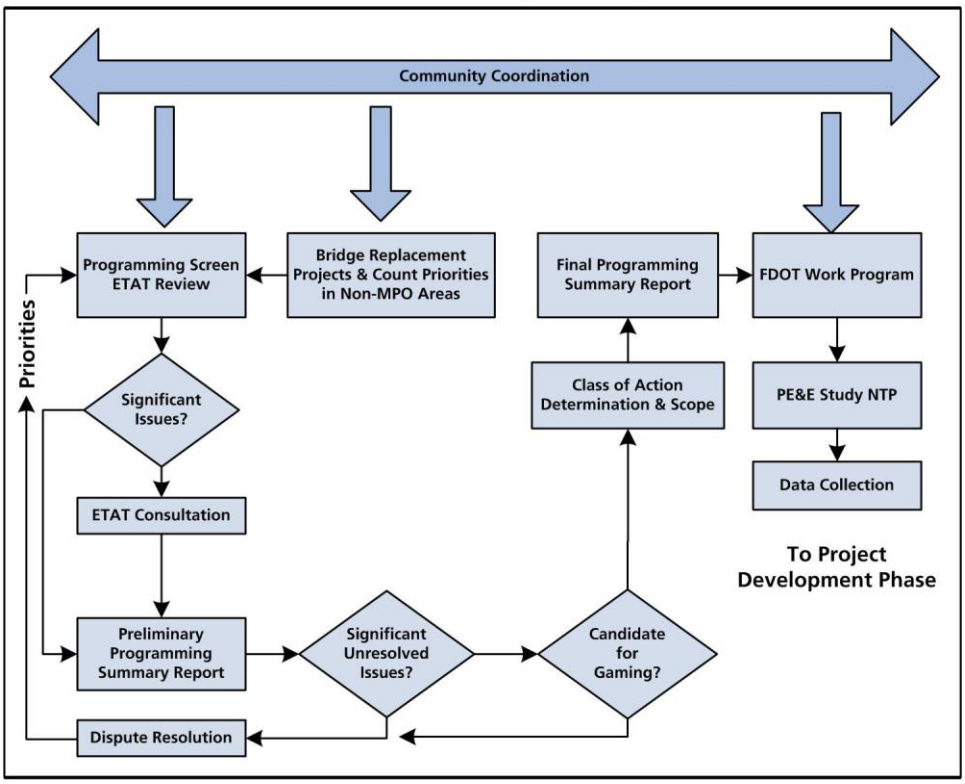
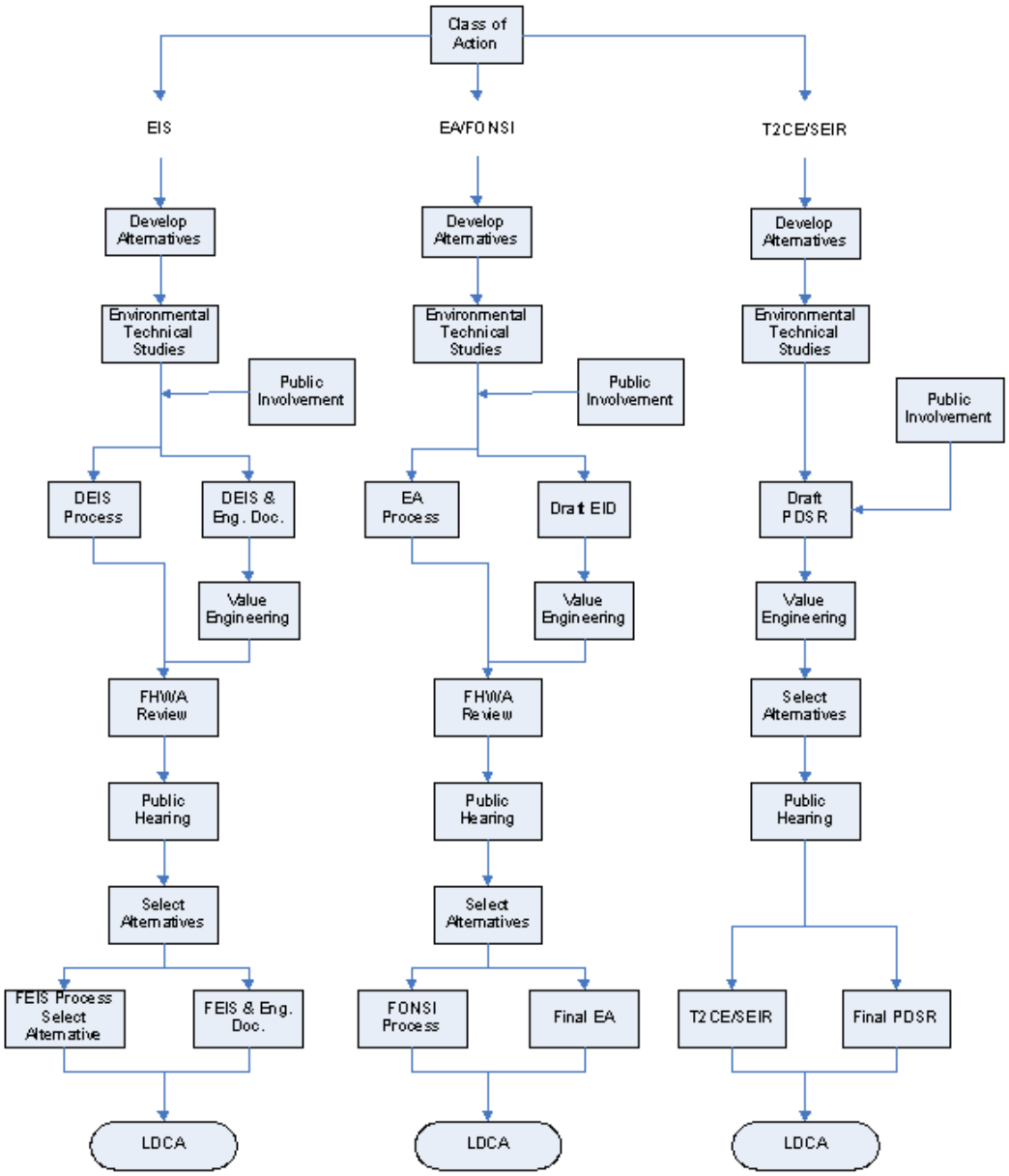


Figure 4

PD&E Process Flow Chart: Project Development Phase



DEIS: Draft Environmental Impact Statement
EA: Environmental Assessment
EID: Environmental and Engineering Document
EIS: Environmental Impact Statement
FEIS: Final Environmental Impact Statement

FONSI: Finding Of No significant Impact
LDCA: Location & Design Concept Acceptance
PDSR: Project Development Summary Report
SEIR: State Environmental Impact Report
T2CE: Type 2 Categorical Exclusion

CHAPTER 3 – DESIGN PROJECT MANAGEMENT

Table of Contents

Topic

Introduction 2
Design Objectives and Criteria 3
Initial Data Collection 3
The Design Process 4
Verification of PD&E 4
Phase Submittals and Reviews 5
Plans Processing 6
Specific Design Project Issues and Coordination 8
Variations and Exceptions 8
Resurfacing, Restoration, and Rehabilitation (RRR) Projects 9
Structures Design 9
Maintenance of Traffic 10
Value Engineering 10
Right of Way Acquisition 11
Traffic Design 12
Utility Coordination 12
Railroad Coordination 13
Public Transportation Coordination 13
Local Government Coordination 14
Project Agreements 15
Community Awareness Plans 16
Permits 18
Post-Design Activities 23

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 the design of a project. Unless specifically indicated otherwise, PM refers to the FDOT Design PM.

This chapter 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 included in **Part 1** of this handbook.

The complete design process is explained in **Procedure No. 625-000-007**, ***Plans Preparation Manual (PPM), Volume 1***, and Chapter 2 of **Procedure No. 625-000-008**, ***PPM, Volume 2***. A design Project Manager (PM) should be familiar with these references. Other useful references include:

- ***Design Standards*** (**Procedure 625-010-003**)
- ***Drainage Manual*** (**Procedure 625-040-002**)
- ***Utility Accommodation Manual (UAM)*** (**Procedure No. 710-020-001**)
- ***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**)
- ***Florida Intersection Design Guide***
- ***The Median Handbook***
- ***Driveway Information Guide***
- ***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***

Design Objectives and Criteria

The ***Plans Preparation Manual, Volume 1*** sets forth geometric and other design criteria, as well as procedures, for Florida Department of Transportation (FDOT) projects. The information contained applies to the preparation of contract plans for roadways and structures. The PM must be familiar with criteria and procedures contained in this manual and understand how they apply to the project. The PM may depend on the discipline designer or specialist to be responsible for the selection and application of the appropriate design criteria; however, the PM 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 Chapter 13 of the **PPM, Volume 1**. This chapter, the Initial Engineering Design Process, describes the expectation in the initial engineering phase, discusses initial data sources and the establishment of the project scope, objectives, budget, and schedule. The PM 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 PM 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 Chapter 14 of the **PPM, Volume 1**. 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,* Chapter 16 of the **PPM, Volume 1**, 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 **Plans Preparation Manual, Volume 2** 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*, Chapter 2 of the **PPM, Volume 1** 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 Plans Preparation Manual, Chapter 23 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 Part I, Chapter 16 of the ***Project Management Handbook*** for more information on the QC process.

All reviewers do not need to see all phase submittals. A Plans Review Matrix, included in Section 2 of the project Scope of Services, is helpful for managing who should participate in each specific phase review. The Scope of Services should also indicate whether the Department or the consultant is responsible for distribution of plan sets for review. To bring conclusion to any submittal, review comments must be addressed and final resolution of any issues achieved.

> 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.

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.

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 Revisions,* Chapter 20 of the **PPM, Volume 1**, 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, Division I 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.

The ***Specifications Handbook*** provides additional information.

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 Chapter 17 of the **PPM, Volume 1**. 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.

Specific Design Project Issues and Coordination

Variations and Exceptions

Design Variations are necessary when deviations from FDOT criteria occur. Design Exceptions are necessary when neither the FDOT criteria nor those of the American Association of State Highway and Transportation Officials (AASHTO) can be met for any one of the following critical design elements, which are typically safety-related:

- Design speed
- Lane widths
- Shoulder widths
- Bridge widths
- Structural capacity
- Vertical clearance
- Grades
- Cross slope
- Super-elevation
- Horizontal alignment
- Vertical alignment
- Stopping sight distance
- Horizontal clearance

Refer to Chapter 23 of the **PPM, Volume 1** for guidance on Design Exceptions and Variations. Chapter 13 of the **UAM** provides guidance on Utility Exceptions.

It is of paramount importance to determine, as early as possible during the design phase of a project, if any additional Design/Utility exceptions or Design Variations will be required that have not been previously processed and approved. These must be submitted and approved early in the design phase in order to avoid possible rework and schedule delays.

If Exceptions involve utilities, refer to the criteria and process described in the UAM rather than the PPM.

Resurfacing, Restoration, and Rehabilitation (RRR) Projects

RRR is defined as work undertaken to extend the service life of an existing highway and/or enhance highway safety. RRR and other smaller projects are generally limited by the scope of work to be completed, physical constraints, or economic feasibility, and are geared toward rectifying specific deficiencies within a project corridor. Design criteria for RRR projects are in Chapter 25 of the **PPM, Volume 1**.

Structures Design

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 Chapters 26 through 33 of the **PPM Volume 1**, and on the ***Structures Design Office*** website.

The PM is responsible for the adequacy of all design submittals and for the coordination of reviews between the Department and the consultant. *Bridge Project Development*, Chapter 26 of the **PPM, Volume 1**, 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.

Projects Involving Bridge Demolition: 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 FDOT. This requirement and the reason for the notification are provided in Chapter 13, Section 13.5.2.3 of ***PPM, Volume 1***. The PM 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, 2009). 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 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 Turnpike: turnpike_etat@fla-etat.org

An example e-mail notification is provided at the end of this chapter. When the ETAT distribution list is used, the sender will receive a copy of the sent e-mail with all of the 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 PM 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. A draft Bridge Debris Use Agreement is provided at the end of this chapter. The PM should not modify this agreement or its covenants. The conditions contained in the agreement must be included in the construction contract documents.

Maintenance of Traffic

All highway design plans must include provisions for the maintenance of vehicular, bicycle and pedestrian traffic through construction work zones. The Traffic Control Plan (TCP) addresses this issue. The TCP is part of the project design. Chapter 10 of the **PPM, Volume 1** provides guidance for the design and phase submittals for the project's traffic control plans. **Procedure No. 625-010-010**, ***Maintenance of Traffic Training***, requires individuals responsible for developing the TCP to have a current Advanced Work Zone Traffic Control Training certification. A current list of Maintenance of Traffic Providers is available at ***Approved MOT Training Providers***. The preparation of the TCP should begin early in the project. In many cases, maintenance of traffic issues may directly influence the final geometrics and materials specified in the final design. Preparation of the TCP should be a multi-disciplined effort and involve individuals with expertise in traffic engineering, including traffic planning, highway design, drainage, and construction. Maintenance of traffic policies and standards are contained in Index 600 of the ***Design Standards***. Anticipated Levels of complexity for traffic control plans are in Chapter 19 of the ***PPM, Volume 2***.

Value Engineering

Value Engineering (VE) is the process in which specific major projects are evaluated to determine if changes to the project concept can result in significant cost savings or an increase to the overall value of the project to the public. Project Managers should review **Procedure No. 625-030-002**, ***Value Engineering Program***, for a detailed explanation of the value engineering process. Not all projects are selected to undergo a VE review. The District Value Engineering Coordinator should be contacted to determine if a project has been selected as a candidate for a VE review.

Normally, if a project has been selected for VE during the design phase, it takes place between the Phase I and Phase II submittals. In order for the VE team to provide the best input, they will need the full background and supporting documentation for the project. This information includes all preliminary work that was done on the project prior to the commencement of the design phase. In addition, all back-up information on which the proposed design is based should be made available. The most effective VE takes place when a comprehensive cost estimate has been prepared for the VE team. Therefore, a concerted effort to prepare a detailed cost estimate should be made and completed before the start of the VE process.

The consultant PM is usually responsible for clearly explaining to the VE team the scope of the project and all constraints and commitments. The PM should also be aware that the VE process often generates many questions that need to be answered during the course of the process. As a result, the PM and the project discipline leaders should be available to provide answers or additional information as necessary. Cooperation among the PM, design team, and the VE team is imperative in order to take full advantage of the VE process.

Regardless of whether or not a project is selected for a formal VE review, VE principles should be applied continuously to all design projects.

Right of Way Acquisition

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 PM, 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 PM 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 Part 2, Chapter 4, of this handbook.

The R/W Office sometimes makes commitments (preservation of trees, driveway modifications) to property owners during the R/W process. The PM must know about these commitments, and they must be reflected in the plans if appropriate.

Traffic Design

Traffic control devices and intelligent transportation system (ITS) deployments are necessary to help ensure highway safety by providing the orderly and predictable movement of all traffic, motorized and non-motorized, throughout the highway transportation system, and to provide such guidance and warnings as are needed to ensure the safe and informed operation of individual elements of the traffic stream. The design and layout of signs, signals, pavement marking and lighting should complement the basic highway design. Design requirements for signs, markings, lighting, and signals are explained in Chapter 7 of the **PPM, Volume 1**. Turn lane requirements and lengths are usually established prior to the design phase of a project. Any changes need to be verified by performing a capacity analysis to determine if there is an adverse effect on traffic flow. The ***State Traffic Engineering and Operations Office*** website provides additional information.

Utility Coordination

Utility Agencies/Owners (UAOs) are major stakeholders on a majority of transportation projects. Proper location and identification of all utilities on the project and coordination with all utility companies involved is an important aspect on every project. Chapter 5 of the **PPM, Volume 1** provides guidance and references for coordinating with UAO's and accommodating utilities during the design of projects.

The PM should be sensitive to utilities' interests and should take time to understand how utilities do business and build relationships. Face-to-face dealings with utility personnel are a very effective means of coordination. When possible, the project should be designed around the utility. If a utility relocation can be avoided, cost to the taxpayers (who are also utility customers) can be avoided. The PM should evaluate the cost of designing around a utility versus the cost of relocation. Constructability must also be considered. Such good-faith efforts will reap benefits when relocations are truly necessary.

Close coordination with the District Utilities Office is essential, as knowledge and experience of its staff can be a major help throughout the process. The **UAM** is established to regulate the location, manner, installation, and adjustment of utility facilities along, across, or on any transportation facility under the jurisdiction of the FDOT. The PM should be familiar with this manual and work closely with the District Utilities Office during each phase of the design project.

The PM should also be aware that FDOT also owns and operates utilities that are not documented within the ***Sunshine 811*** system. These include water, sanitary sewer, power, and communications facilities. Their location can only be determined by contacting the various FDOT offices responsible for maintaining or contracting maintenance of these facilities. Examples of these facilities include rest area (water, sanitary), lighting, traffic counters, fiber optic, and signalization.

Utilities are one of the most frequent sources of both project delays and claims. It is essential that utility conflicts be properly identified and resolved early.

Railroad Coordination

Coordination with railroad companies is similar to utility coordination with respect to how and when the coordination process takes place. A few other important aspects must be considered when dealing with the railroads. While only some utilities hold compensable interests for the properties they occupy, 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 will normally require compensation and will often involve lengthy reviews by the railroad company.

Refer to the **UAM***,* and Chapter 6 of the **PPM, Volume 1** 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.

Public Transportation Coordination

Coordination with the District Public Transportation Office (PTO) (also known as the Office of Modal Development in some districts) is necessary on any urban design project. Early coordination can avert design problems such as special Americans with Disabilities Act (ADA) requirements and unique MOT problems associated with bus stops. Usually the PTO 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.

Local Government Coordination

Local governments are often key stakeholders on any given project. Therefore, they need to be kept informed of progress of the project throughout its life. At the beginning of the project, the PM should learn if any commitments have been made to any local agencies during any previous planning and project development phases. When this information has been obtained, a coordination meeting should be scheduled so that project objectives can be relayed to appropriate personnel. Since local agencies have a vested interest in the project, they should be afforded an opportunity to provide input to the design process. This opportunity can be easily provided through the standard phase reviews and effective coordination on the project. Since elected officials and local agency personnel can change during the course of a project, the PM should keep abreast of such changes and ensure that appropriate lines of communication are maintained. Being proactive with this process can create many allies.

Some coordination issues with local governments to keep in mind include:

- All required agreements should be identified as early as possible. Lighting, landscaping, and others frequently are overlooked and result in project delays.
- Local government-owned utilities sometimes are very small and not as experienced in dealing with FDOT as privately owned companies, so they may require some additional effort.
- Many local agencies do not have the engineering resources needed for in-depth technical coordination of major projects. The PM must be sensitive to the technical capabilities of the local agencies and tailor requests for reviews and other input accordingly.
- Required Agreements must be coordinated early and managed well to avoid delays.
- Any agreement that requires board approval by the local government must be reviewed by the local agency staff and then placed on the advertised agenda. This process is usually time consuming and must be anticipated in the project schedule.
- Maintenance agreements must be coordinated early to ensure that they are completed prior to production.
- Perimeter Wall requests and agreements: The initial assessment for the use of a perimeter wall should typically be performed during the Project Development and Environment (PD&E) process and only when such a wall is requested by a local municipality or a substantial group

of affected residents/property owners. The final decision for the use of a perimeter wall should be made during the Design Phase when the final conditions and cost are available for consideration. If a perimeter wall is proposed, the Department will approach the local government during the Design Phase of the project to seek concurrence on the incorporation of the perimeter wall into the project. The local government will be responsible for obtaining support from the majority (simple majority) of the adjacent residents/property owners prior to construction of a perimeter wall. FDOT will work closely with the local municipality to determine final wall locations, color, texture, etc. For walls located on non-FDOT owned lands, the local government or land owner assumes the responsibility for all maintenance, including structural repairs. The local government or land owner will provide formal concurrence with the recommendation (resolution or letter) and a Maintenance Agreement for the perimeter wall, if applicable. To assure that the use and costs of perimeter walls are consistent across the state, guidelines containing the process and design methodologies to be used when considering the use of perimeter walls can be found in Chapter 32 of the **PPM, Volume 1**.

Project Agreements

During the design of a project, it is often necessary to enter into written agreements with local governments, utilities, or other entities regarding some aspect of the project. Many agreements involve design and construction phases, but agreements are also used in planning, PD&E, and R/W way phases of work. The PM is commonly responsible for preparing the agreement, obtaining the signatures, and encumbering any funds if necessary. Formats and local requirements vary widely, so the PM should coordinate closely with the District staff responsible for the activities included in the agreement. Because agreements are needed for critical activities such as utility relocation and drainage work or are specific maintenance agreements required for letting the project, they frequently are on the critical path of a project. The PM should recognize that execution of an agreement may not have the same urgency for the other agency as for FDOT, so the process should begin early. A reasonable objective is to have agreements executed prior to completion of Phase 2 (60%) plans. Appendix C of this handbook contains definitions of various types of agreements commonly used by FDOT.

The following are some of the agreements that may be necessary during design:

- Utility relocation or construction in FDOT right of way
- Work on railroad crossing or within railroad right of way
- Local advance or partial funding of all or a portion of the work in the projects
- Combining a local project to be bid with the FDOT project

- Joint use of drainage ponds and other facilities
- Maintenance agreements for the entire project, or for elements such as lighting, landscaping, signals or aesthetic enhancements.
- Access or temporary use agreements
- Road closure agreements

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.

Figure 1

Community Awareness Plan

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, maintenance of traffic (MOT), 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.

Also, legislation enacted in 2010, 335.199 F.S., requires a public hearing 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 hearing 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** 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.

Permits

Environmental permits are intended to minimize adverse environmental, water quality or water quantity impacts of construction and operations. Permitting requirements enacted by legislation are administered by regulatory agencies. These agencies have established distinct thresholds, exemptions, and permit conditions specific to their agencies.

Environmental permits are required from one or more regulatory agencies for most land alterations including: (1) addition of impervious surface; (2) construction, alteration or abandonment of stormwater management facilities; (3) bridge reconstruction and repair; (4) major shoreline stabilization projects; and (5) wetlands or surface water impacts. Limited types of construction activities may be exempt from permitting requirements of regulatory agencies. These limited construction activities may include milling and resurfacing, culvert extensions or replacement with no wetlands or surface water impacts, and minor maintenance and repairs. FDOT has committed to include utility work in environmental permits if the utility has completed the necessary work on time and the Department of Environmental Protection (DEP) has no objections. Separate review fees may be required by DEP. Permit applications are reviewed by the permitting agencies for engineering soundness and effects of the project on flood protection, water quality, and the environment.

The PM must coordinate permitting needs through the District Permits Coordinator, who is responsible for identifying all permitting involvement for a project. The PM must include time in the project schedule for all the required permitting activities, including wetland identification and mitigation, pond sitting, the bridge hydraulics report and no-rise certification. Permitting is a time-consuming task that involves a degree of risk. Permitting tasks often are on the project critical path. The PM is responsible for ensuring all necessary permits have been acquired for the project. If the permits requiring signatures are not

Figure 2
Permits Are...

- **Ultimately the Project Manager's responsibility.**
- **Time-consuming responsibility that involves a degree of risk.**
- **Often on the project critical path.**
- **Required to be in-hand prior to the scheduled production date.**

executed by the scheduled production date, the project will not be let on schedule. Figure 2 summarizes the key points of permits.

Efficient Transportation Decision Making (ETDM) Process

One benefit of the ETDM process, described in Part 2, Chapter 2 of the ***Project Management Handbook***, is early identification of potential project permits. In the Programming Screening process of the ETDM, the ETDM coordinator prepares a Programming Screen Notice that supplies the review agencies project and environmental information. Input received from Programming Screen will allow the PM to pursue the necessary environmental permits and approvals. By providing this information to the permit agencies early in the process, the PM may be able to request and receive state and federal permits as well as other authorizations and approvals at the end of the Project Development phase.

Permitting Authorities

Permitting authorities most often involved with projects include:

- United States Environmental Protection Agency (EPA): EPA is currently responsible for reviewing federal-aid highway projects located in areas of the Volusia-Floridian and Biscayne aquifers, which have been designated by EPA as Sole Source Aquifers.
- United States Army Corps of Engineers (ACOE): ACOE has authority to issues permits for activities involving the discharge of dredge and fill materials into waters of the U.S. including wetlands.
- United States Coast Guard (USCG): USCG issues permits for bridges or causeways in or over navigable waters of the U.S. and for causeway construction in all tidal waters of the U.S. The Federal Highway Administration (FHWA) is responsible for determining if a project will require a USCG permit.
- Florida Department of Environmental Protection (DEP): DEP is the state's permitting authority for the National Pollution Discharge

Elimination System (NPDES) program. An NPDES permit is required for storm-water discharge from large and small construction activities that disturb equal to or greater than one acre up to less than five acres of total land area. DEP also issues leases and easements to use sovereign submerged lands. DEP is the authority for wetlands and storm-water permitting in most of the panhandle of Florida in areas west of the Aucilla River in Jefferson County.

- Florida Water Management District (WMD): Five WMDs have been delegated authority by DEP to administer the state's Environmental Resource Permit (ERP) program in most areas east of the Aucilla River. The ERP program regulates activities in wetlands, treatment of stormwater, and certain issues pertaining to the use of sovereign submerged lands. The WMDs are: Northwest Florida, Suwannee River, St. Johns River, South Florida and Southwest Florida.

Permit Coordination

The District Permits Coordinator is responsible for acquiring all the necessary FDOT permits for a project. Coordination activities include the following:

- Conducting meetings and field reviews.
- Identifying potential permit involvement.
- Preparing and submitting permit applications, with all supporting documentation.
- Verifying permit compliance.
- Requesting permit extensions.

The Permits Coordinator will make all the permitting agency contacts for the FDOT and acquire the permits by the defined time in the project schedule. The PM must work closely with the Permits Coordinator to provide support, attend meetings when necessary, assist with timely issue resolution, make necessary plan changes, and report any schedule changes. The PM must monitor progress throughout the permitting process. During the process, the PM must work closely with the Permit Coordinator to provide support, attend meetings when necessary, assist with timely issue resolution, make necessary plan changes, and report any schedule changes. The PM must monitor progress throughout the permitting process.

Permitting Process

The permitting process begins in the PD&E stage of the project with the environmental documentation and the development of a Permit Coordination Package, all of which serve to give regulatory agencies advance notification of the project and potential environmental impacts. The PM should hold pre-application meetings and field reviews with permitting agencies early to define requirements prior to committing significant design effort. The PM should design

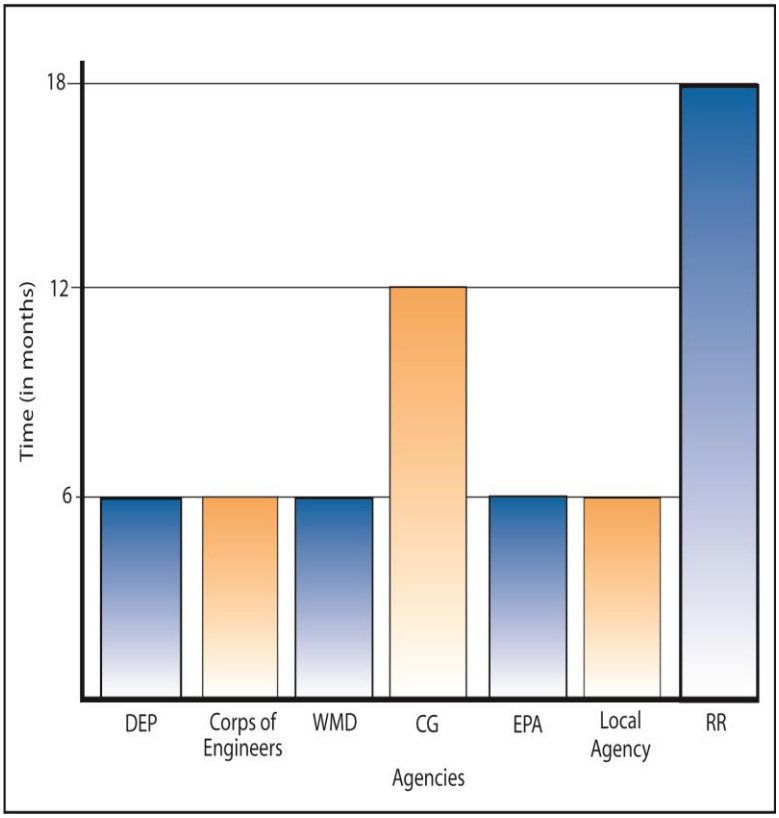
the project to minimize identified impacts and to fulfill all commitments made during the PD&E stage.

When design reaches Phase II (60%) completion, the Permit Coordinator will begin preparing permit applications. The PM should review and discuss the permit application with the Permit Coordinator prior to submittal. The Permit Coordinator will submit the permit applications when the plans are at approximately 70-80% complete, or 8-12 months prior to the District production date. Permitting agencies usually do not want to see the full plan set. The PM must coordinate any reduction in the plan set with the agency before submittal.

The Permit Coordinator will monitor the progress of the application, provide any additional information requested, and address and resolve any adverse comments or objections raised by the regulatory agencies. The PM must assist the Permit Coordinator in this process. Once the permits have been issued, they must be carefully reviewed. Particular attention should be paid to “Special Conditions” to ensure that all conditions can be accommodated. The Permit Coordinator will distribute the executed permit to the appropriate offices.

During each step of the process, the PM needs to monitor progress to ensure that all required permits are acquired on a timely basis. Meetings and field visits should be considered to clarify permitting agencies’ concerns. The PM must notify the Permit Coordinator of any modifications in the project design that will affect permits. Changes in stormwater facility locations late in a project can substantially delay permits and adversely impact the project schedule.

Figure 3
Average Permitting Time by Agency



Permit Processing Time

Almost all state environmental permits must be issued within 90 days of agency receipt of a complete application, as defined by the permitting agency. Agencies frequently find applications incomplete and require additional information, extending the processing time. Thorough preparation and checking will reduce this risk but not eliminate it. Responding to all comments when an application is returned with a

request for more information is essential. Figure 3 offers a quick reference for permitting time requirements.

Post-Design Activities

Post-Design Services

The scope of services normally should include post-design services so that the Engineer of Record (EOR) is readily available when needed during construction. Both the PM 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 PM, 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 PM. Alternatively, direct communication between the construction staff and the EOR may be the preferred procedure with the understanding that the PM will be informed of any cost commitments.

Errors and Omissions

Professional Engineers are accountable for the technical accuracy and quality of their work. FDOT and design consultant PMs attempt to minimize errors and omissions through quality control. However, mistakes do occur, and construction plans and contract documents may contain errors and omissions. Mistakes caused by a lack of due care or professional negligence can result in substantial construction cost overruns. Florida statute obligates the Department to pursue recovery of certain added costs and to incorporate corrective measures to prevent recurrence. The process is explained in **Procedure No. 375-020-010**, Errors, Omissions, and Contractual Breaches by Professional Engineers on Department Contracts.

Many steps in the design process are developed to avoid errors and omissions in contract documents. These include the project Quality Control plan (see Part I, Chapter 16, of this handbook), and constructability and bidability reviews. Exercising due care in the preparation of plans and construction documents is expected of all professional engineers.

If an error is found during the construction process, the construction engineer will determine the origin of the error. If the error is design-related, it will then be determined whether a premium cost has been incurred because of the design error. Premium cost is the difference that the Department has to pay above and beyond the price of the required work if the error had not occurred. The process allows the design consultant an opportunity to respond to any claim of error or omission. It is up to the district's management staff to decide if they wish to recoup these costs from the consultant in question.

Project Close-out

The main aspect of project close-out 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."

> 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.

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. A well-organized project file will pay dividends later if questions arise.

Another good practice is to set up a 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.

Example Bridge Debris Notification

(Letter or e-mail)

(Date)

Agency Name and Mailing Address

or

E-mail address

SUBJECT: Use of Debris from Demolished Bridges and Overpasses

Financial Project Number 123456-1-52-01

Project Location: State Road XX Bridge over the Big River

Any County, Florida

This notice is required by Public Law 109-59, Section 1805, Safe Accountable Flexible Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU), which directs the Florida Department of Transportation (FDOT) to make debris from demolished bridges available for beneficial use by a local, State or Federal agency. Beneficial use is defined as the use of the debris for shore erosion control and stabilization, ecosystem restoration, and marine habitat creation. This notice is sent to you as the Environmental Technical Advisory Team representative for you agency to coordinate within your respective agencies.

The bridge to be demolished is the *State Road XX Bridge over the Big River in Any County*. The demolition will result in *XXX* cubic yards of steel reinforced concrete debris. The project is scheduled for construction to begin in *December, 2009*. The demolition of the existing bridge should begin in the *Fall of 2010*. A detailed construction schedule will be developed once the contractor is named.

If your agency has an interest in the beneficial use of this material please contact *Mr. John Smith, FDOT Project Manager, at (District Mailing Address and/or e-mail) by (2 months after the date of notice).* The FDOT will negotiate a Joint Project Agreement (JPA) with your agency that will describe the responsibilities of each party. The agency receiving the bridge debris will be responsible for transportation, storage and processing costs. Be advised that the FDOT will not accept any liability, nor any additional cost associated with your agency's use of this material.

If you need additional information, please (*contact me at the above address or reply to this e-mail*), or call me at *(555)123-4567*.

Sincerely,

John Smith

FDOT Project Manager

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

BRIDGE DEBRIS USE AGREEMENT

This Agreement has been entered into this _____ day of _____, _____, by and between the State of Florida Department of Transportation, hereinafter called the Department, and _____, hereinafter called the Agency.

WHEREAS, the Department through its Contractor will be demolishing the _____bridge at _____ (Project) resulting in approximately _____cubic yards of debris; and

WHEREAS, the Agency desires to use the bridge debris for shore erosion control and stabilization, ecosystem management, and / or marine habitat creation; and

WHEREAS, this Agreement has been entered into prior to the letting of the Department's Contract for the bridge work and this Agreement will be reflected in the Department's Contract and Specifications Package so that the Contractor's bid reflects knowledge of this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the State of Florida Department of Transportation (Department) and _____ (Agency) agree as follows:

(1) General:

(a) The recitals hereinbefore set forth are true and correct.

(b) The Agency will provide a storage area or staging area (hereinafter the "storage area") of sufficient size to accommodate the delivery of all the bridge debris (Debris). The storage area must be outside the limits of the Project, and must not interfere with access to the Project or the work of the Department's Contractor.

(c) The Department will deliver the unprocessed bridge debris to the Agency's storage area The Agency will be responsible for all off-loading of the Debris at the storage area. The Agency may enter into a separate agreement with the Department's Contractor to perform this work.

(d) The Agency will be responsible for transporting the Debris from the storage area to the final location where the Debris will be used (final location).

(e) The Agency will be responsible for any and all processing, cleaning, environmental approvals, de-contamination, permitting, application fees, and for compliance with all applicable laws necessary to use the Debris, transport the Debris to the final location where the Debris will be used, and/or store the Debris at the storage area.

(f) The Agency will be responsible for all claims of the Department's Contractor related to or concerning delay claims, inefficiency claims, and/or claims for extra work incurred in off-loading and/or storing the Debris at the Agency's storage area. The Agency will defend, and hold harmless FDOT from all such claims.

(g) The Agency shall comply with all applicable Federal, State, County, and Municipal laws in the performance of this Agreement, including those laws applicable to the transportation, storage, and/or use of the Debris.

(2) Indemnification and Insurance:

(a) To the extent provided by law, the Agency shall indemnify, defend, and hold harmless the Department and all of its officers, agents, and employees from any claim, loss, damage, cost, charge, or expense arising out of any act, error, omission, or negligent act by the Agency, its agents, or employees related to the use of the Debris, transport of the Debris to the final location, storage of the Debris at the storage area, and loading and off-loading of the Debris after arrival of the Debris at the storage area. When the Department receives a notice of claim for damages that may have been caused by the Agency or an agent or employee of the Agency, the Department will promptly forward the claim to the Agency. The Agency and the Department will evaluate the claim and report their findings to each other within fourteen (14) working days. The Agency agrees to provide independent counsel to the Department, at the Agency's expense, to defend such claims. The Department's failure to promptly notify the Agency of a claim shall not release the Agency of the above duty to indemnify, defend, and hold harmless.

(b) The Agency shall carry or cause its contractor/consultant to carry and keep in force for the duration of this Agreement, or until the Debris has been used as contemplated under this Agreement, or properly disposed of, whichever is later, public liability insurance protecting the Department and its agents and employees against any and all claims for injury and/or damage to persons and/or property, and for the loss of life or property occurring in, on, or about the storage area for the Debris, and the Debris arising out of the act, negligence, omission, nonfeasance, or malfeasance of the Agency, its agents, and/or employees occurring during or after off-loading of the Debris at the storage area. Such insurance shall be for a limit of not less than $5,000,000 for all damages arising out of bodily injuries to, or death of, one person and, subject to that limit for each person, a total limit of $10,000,000 for all damages arising out of bodily injuries to, or death of, two or more persons in any one occurrence, and not less than $500,000 for all damages arising out of injury to, or destruction of, property in any one occurrence. All such insurance policies shall be issued by companies licensed to do business in the State of Florida and all such policies shall contain a provision whereby the insurance policy cannot be canceled or modified unless the Department is given at least sixty (60) days prior written notice of such cancellation or modification. The Agency shall provide the Department with certificates showing such insurance to be in place and showing the Department as an additional named insured under the policy.

(3) Miscellaneous:

(a) This Agreement may be terminated immediately by the Department upon default by the Agency.

(b) This Agreement contains the complete understanding of the Department and the Agency with respect to the subject matter hereof. All prior understandings and agreements, oral or written, heretofore made between the Department and the Agency are merged into this Agreement, which alone, fully and completely expresses the intent and agreement between the Department and the Agency with respect to the subject matter hereof. No modification, waiver, or amendment of this Agreement or any of its conditions or provisions shall be binding upon either the Department or the Agency unless in writing and signed by both parties. Nothing in this Agreement is intended nor shall it be construed to give any person or entity, other than the Department and the Agency any right, remedy, or claim under or by reason of this Agreement. Nothing in this Agreement is intended nor shall it be construed to give any member or members of the public any right, remedy, or claim under or by reason of this Agreement.

(c) This Agreement shall be governed by the laws of the State of Florida.

(d) All notices to the Department shall be sent to:

_____.

(e) All notices to the Agency shall be sent to:

_____.

(f) If any part of this Agreement is determined to be invalid in any court of law, the remaining provisions of this Agreement shall remain in full force and effect and may be enforced in accordance with the provisions hereof.

(g) This Agreement was jointly negotiated and drafted by the undersigned and shall not be construed by a court of law against either the Department or the Agency as the drafter thereof.

(h) The prevailing party in any litigation arising out of this Agreement shall be entitled to reasonable attorney's fees and expenses incurred in such litigation.

(i) The undersigned hereby acknowledge that they have read each page of this Agreement, they fully understand them, they agree to them, and voluntarily sign them.

IN WITNESS WHEREOF, the Department and the Agency have caused these presents to be executed, the day and year first above written.

Agency: _____

By: _____
Authorized Agent

_____
Print Name

Title: _____

Attest: _____ (SEAL)

_____
Print Name

Title: _____

State of Florida, Department of Transportation

By: _____
Authorized Agent

_____
Print Name

Title: _____

Legal Review:

_____

CHAPTER 4 – RIGHT OF WAY PROJECT MANAGEMENT

Contents

Preface 2
Pre-ROW Activities 2
ROW Phase 5
Post Right of Way 10

Preface

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 Right of Way (ROW) phase of 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 insure the activities detailed in this chapter are adequately performed.

All 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.

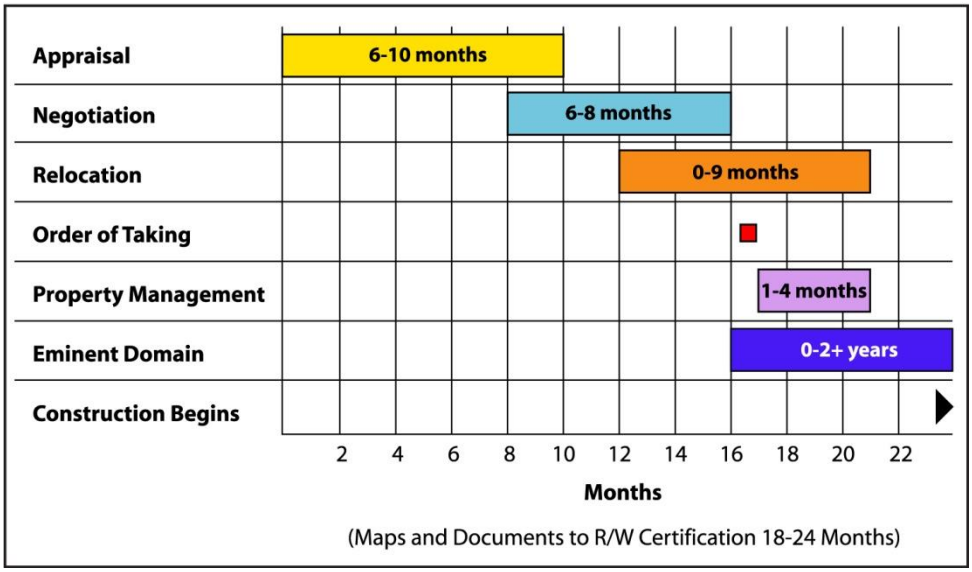
Verify Work Program Data: The PM should coordinate with the District office ROW records and funds section to verify that adequate funding is available in the work program for the project. This procedure requires a comparison of the work program funds with the current project cost estimate to verify that 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** Schedule, 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

Figure 1
Right of Way Acquisition Schedule



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 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
- 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.

In addition to identifying ROW services to be performed, the scope must detail anticipated consultant costs. 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 Professional Services Unit (PSU) in order to procure consultant services. For detailed information on consultant procurement and negotiations, the PM should refer to Part I, Chapter 12, Consultant Procurement, and Part I, Chapter 13, Contract Negotiations, in this handbook.

ROW Phase

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 design project), appraisers and review appraisers, District chief review appraiser, attorney assigned to the project, 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 problems.

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). These 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.
- **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. Typically, acquisition notices should be delivered at the time the appraisal process begins. 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 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:
  - 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. Counter offers or other responses must be timely delivered to business owners who have filed business damage claims.

- **Property Management Activities:** The PM must monitor 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. The PM must closely monitor this coordination to ensure that ROW parcels are cleared timely.

  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 are 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 consultant ROW agent's field file must be merged with the FDOT's official parcel file. This merger is the consultant'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 Part I, Chapter 14, Consultant Contract Management, in this handbook. The following apply specifically to ROW consultant contracts.

- **Periodic Consultant Invoicing:** R/W 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

The PM should inform the construction PM of any commitments made during the ROW 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.

CHAPTER 5 - Construction Project Management

Contents

Introduction 2
Construction Contract Management 2
CEI Contracts 3
Community Awareness Plan 7
Alternative Contracting Methods 8
Warranty Specifications 10
Plan Revisions 10
Permits and Other Commitments 11
Alternate Designs 11
Coordination with the Engineer of Record 11
Construction Quality Control Testing 12
Coordination with the District Maintenance Office 13
Project Closeout 14

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 construction project. Unless specifically indicated otherwise, PM refers to the FDOT Construction PM.

This chapter deals with project management from the perspective of the FDOT PM and consultant Construction Engineering and Inspection (CEI) PM. Whether FDOT or consultant, the PM must concentrate on the four goals of a successful project:

- Fulfill project objectives
- Complete the project within the time specified
- Complete the project within the allocated funds
- 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. PMs are responsible for very large expenditures of state and federal money. 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, who has responsibility to manage the construction contract on behalf of the FDOT. The PM may be responsible for more than one construction project. Following trends in other areas, the FDOT now out-sources management of many of its construction contracts; however, it still manages a select few with its own in-house staff. The 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 effort and is responsible for coordination and monitoring contract progress. The Senior Project Engineer may oversee more than one construction project.

Figure 1
Elements in Managing a Successful 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 very important to establish a positive working relationship through a Partnering Program or similar means at the very outset of the job. For additional information on partnering, refer to the ***Partnering Facilitators Manual***. Communications, 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 Managing a Successful Project**. Both the PM and the CEI must work together to provide them.

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 ***Procedure No. 700-000-000, Construction Project Administration Manual (CPAM)***. The FDOT Specifications establish the relationship between the FDOT and the contractor. The CPAM describes the relationship between the FDOT and the CEI firm; it also describes the CEI management scope and procedures required on the job.

CEI Contracts

A construction project normally 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 roles and responsibilities of each must be clearly defined and understood. For a project to run smoothly there must be clear leadership and coordination, without redundancy.

"...CEI firms shall be allowed to exercise their independent professional judgement...The role of the Department's Project Manager (PM) is to ensure that these CEI firms are providing services in accordance with their Contract and not controlling the means and methods by which the CEI firm performs these services. Department procedures allow review and rating of such services and further provides for recovery of any errors and omissions made by the CEI firm."

Jose Abreu
Secretary of Transportation
February 6, 2004

The PM should concentrate on the performance of the CEI firm and its daily operations. The PM should be personally 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 to be provided. The **CPAM** describes CEI responsibilities in detail. In addition to monitoring CEI performance, the PM reviews invoices and results of sampling and verification testing. It is particularly important that the PM track the schedule and costs of the CEI and that the CEI track those of the construction contracts. The PM should coordinate other FDOT resources that may be required and key decisions that may be needed. The PM is the primary resource for decisions outside the CEI Scope. The CEI does not have the authority over R/W or Utility conflict issues.

Both the CPAM and the CEI contract scope of services clearly define the responsibilities of the Senior Project Engineer. The Senior Project Engineer is to be totally involved with the construction contractor on a day-to-day basis, from pre-construction activities through project completion and final acceptance. The Senior Project Engineer must monitor and document the contractor's activities.

Scheduling the CEI Contract. The appropriate time to bring the CEI on board will vary according to the type of construction contract, i.e. design-build, 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. There are many good reasons to involve the CEI firm early in the process. The CEI firm's input in the early stages of a project can result in a more constructible project and thus 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.

Figure 2
Construction Contract Award Time Frame

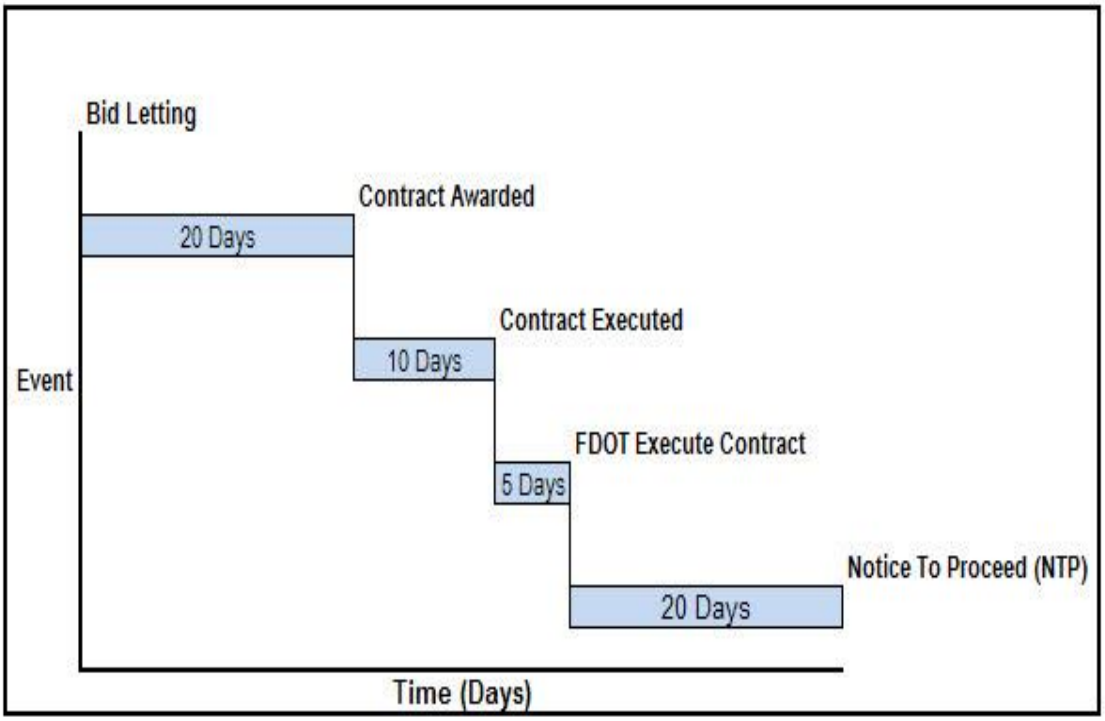


Figure 2, **Construction Contract Award Time Frame**, illustrates a typical construction contract award schedule.

The CEI firm should be on board well before the NTP for several reasons. It is not unusual to issue the NTP at the pre-construction conference, which is generally chaired by the CEI firm. Also, notices must be sent to all who will attend the pre-construction conference well in advance of the established date. 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.

Similar allowances must be made at the end of the project. To consider final measurements and estimates, final inspections, warranties and guarantees, claims, as-builts, and other documentation and demobilization efforts at the end of a job, the CEI will need time beyond construction project completion.

Lump Sum CEI Contracts. The conventional method of CEI contracting is 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 clearly defined and documented. Lump sum contracts are also used for CEI services. The PM should consider the risks and rewards possible for the CEI firm under a lump sum contract. If the project goes well and is completed on or ahead of schedule, the CEI firm is rewarded for contributing to an efficient operation. If a project does not go well and there are substantial time overruns, the CEI firm must absorb the additional costs. Once the lump sum fee is established, it can be renegotiated only under certain specified and 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 as much information as possible about the project, the contractor and the project schedule prior to negotiating the lump sum fee. Prior to fee negotiations, the FDOT should have provided the consultant with as much information as possible about the project, the contractor and the project schedule.

From the FDOT point of view, the lump sum fee for CEI services is much easier to administer and monitor. Percentage payments should track the construction progress. Comparisons between more traditional and lump-sum CEI contracts are still being made. CEI consultants have concerns about the risk associated with these contracts, but they find the administration and documentation much easier. Guidelines for CEI lump sum contracts can be found on the ***Construction Office*** website.

CEI Responsibilities. The CEI consultant responsibilities are defined in the contract scope of services, which should be tailored to meet the special needs of each project. Generally, the CEI firm is responsible for administering the construction contract to ensure the project is constructed on time, within budget, with the specified quality and in reasonable conformance with the contract documents. The Senior Project Engineer represents the FDOT to the construction contractor and reports to the PM regarding construction progress. The CEI must report any actions on the part of the contractor that raise suspicion of illegal or inappropriate activities.

Each district maintains a standard CEI Scope of Services. This standard scope of services of the CEI consultant should be modified so that it is specific to the needs of the project. In general, the responsibilities in the scope are derived from two basic documents, the **CPAM** and the Standard Specifications. The PM should refer to these documents when preparing the scope of services. The Senior Project Engineer must be fully aware of the provisions of these documents and the scope of services.

CEI Management Issues. The CEI's first priority is the full-time administration of the construction project assigned. However, the resources for accomplishing this work are limited. The Senior Project Engineer must establish a list of critical items and events needed to meet the requirements of the project and then reasonably allocate the necessary resources to accomplish the project objectives at a profit for the CEI firm.

Management of a CEI contract is a challenge. Because of the task at hand and limited resources, the Senior Project Engineer must plan the day-to-day operation of his office carefully in order to meet or exceed the requirements of the FDOT and accommodate the contractor's construction operations to avoid any delays to the work. This operation can be rather routine. The contractor provides a schedule for all work activities, and the CEI meets that schedule with the necessary resources.

The real challenge for the Senior Project Engineer is managing 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 in a positive, economical manner 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. Problems must be identified early and solutions aggressively sought.

On cost plus fixed fee contracts, it is particularly important for the CEI to track costs carefully. If it appears that contract limits will be exceeded, a request for fee increase must be submitted in sufficient time to negotiate a new fee and execute the necessary contract modification before costs actually exceed the current contract amount. The CEI cannot be reimbursed for costs that exceed contract limits. It is the Senior Project Engineer's responsibility to take these actions.

Community Awareness Plan

A Community Awareness Plan (CAP) should be developed during the design phase of the project (see Part 2, Chapter 3 of this handbook). The hand-off from design to construction should include the CAP. The PM and the Senior Project Engineer should review the CAP and update it as necessary to make it useful during design. The CAP should be a factor in selecting the contracting method to be used, as discussed below. Construction phase CAP actions to be considered include:

- Mass mailings with information on construction dates and specific traffic impacts that are expected
- Pre-construction public information meetings to allow the public to review the plans and ask questions
- News releases
- Information flyers
- Specific business access issues
- Methods of dealing with complaints and inquiries from the public

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 Section 1.2 of the **CPAM**. The FDOT has used the following methods of project delivery in the bidding and awarding process:

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.

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 Part 2, Chapter 6, Design-Build Project Management, of this handbook.

Bid Averaging. This method is one of the few that address 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. Section 1.2 of the CPAM discusses the required procedure.

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 basically to establish his own construction time. Generally but not always, the bidder who can complete the project in 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.

Figure 3, **Alternative Contracting Methods and Their Advantages**, outlines the benefits of these various alternative contracting methods.

Figure 3
Alternative Contracting Methods and Their Advantages

Contracting Technique	Reduce Traffic Impacts	Reduce Community Impacts	Minimize Construction Time	Minimize Total Time	Minimize Administration	Minimize Claims	Maximize Control
Unit Price							★
Lump Sum					★		
Design-Build				★	★	★	
Bid Averaging					★	★	
Lane Rental	★						
Incentive/ Disincentive	★	★	★				
No Excuse Bonus	★	★	★				
Liquidated Savings	★	★	★				
A+B Bidding	★	★	★				

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 and acceptance and the quality assurance testing, should enhance the project life.

Plan Revisions

During the course of construction, certain revisions to plans are permissible under certain circumstances without voiding the construction contract. Section 4.3, Alteration of Plans or Character of Work, of the FDOT Specifications, deals specifically with this issue. The topic is also covered in Section 7.3.6.3 of the CPAM, and Section 3.5 of Procedure No. 700-050-010, ***Preparation and Documentation Manual***. These last two references, however, are not construction contract documents to be enforced on the contractor.

The need for plan revisions is anticipated in the contract documents. Reasons for revisions include but are not limited to the following:

- 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) submitted by the contractor, the FDOT or the CEI

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 Chapter 4 of the **Preparation and Documentation Manual**. This reference 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 the 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 citizens 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.

All utility permitting must be coordinated and managed in accordance with the district-established schedule. At some point in 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. Paragraph 4, Alternative Traffic Control Plan, in Section 102 of the 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 CSI could also represent an alternate design submittal by the contractor. These proposals have been discussed earlier. A timely response is of great importance.

Coordination with the Engineer of Record

The Senior Project Engineer should have on-going coordination with the FDOT design 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 State Construction Engineer, or his designee, not the EOR.

The Senior Project Engineer should remember that the FDOT design project manager and the EOR have been involved in the project through the design phase. They can explain the history of the design and how it evolved into the final construction phase. 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. Usually the FDOT design PM must approve any chargeable services provided by the EOR. Consequently, it is important to work with the FDOT design 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 design project manager and the EOR should be invited to the pre-construction conference, the partnering meeting, and at least 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 Requests for Information (RFI) or CSI submitted by the contractor, and address any other design-related issues.

A good working relationship between the Senior Project Engineer and the EOR is very important. 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 have been discussed. The PM or Senior Project Engineer should provide as much lead-time as possible to the EOR.

Construction Quality Control Testing

The FDOT has recently implemented changes in the construction specifications that shift more of the construction quality control responsibilities to the contractor. This change is a departure from past practice where the FDOT was responsible for all sampling and testing procedures. The approach, known as Contractor Quality Control (CQC), was developed over several years and is still being refined on construction projects today. There is much information available on the program in the contract documents, which the PM should review in detail.

Before starting any new construction project, the contractor is required to submit a Quality Control Plan to the FDOT for review and approval. There is not much leeway in the contractor's submittal, since the requirements are spelled out throughout the FDOT Specifications, particularly in Section 105, Contractor Quality Control General Requirements. The Plan must specify how the contractor is to assure a quality job in all phases of materials handling including, but not limited to: procurement, hauling, fabricating, stockpiling or storing, and producing.

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 his/her 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.

Despite this innovative approach to Florida road and bridge construction, the FDOT still maintains the right to perform any inspection and 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 verification testing, and it may be performed on a random-sampling basis.

The FDOT Design project manager must be notified immediately upon discovery of any design-related issues and must be involved in the resolution.

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. Again, the CPAM covers the entire scope of sampling and testing requirements for construction projects and provides excellent guidelines on how it is best implemented.

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 project functional and safe. Since maintenance is the ultimate "owner" of the roadway, the appropriate maintenance personnel should be involved in the project throughout its many 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 the course of 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. At this time 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.

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 CPAM discusses final inspection and acceptance procedures.

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**

Chapter 6

Design-Build Project Management

Contents

Introduction 3

Unique Features of Design-Build Projects..... 3

Procurement Process..... 5

Scheduling 6

Coordination Issues..... 7

Design Issues..... 8

Right of Way Issues 8

Construction Engineering and Inspection (CEI) Issues 9

Design-Build Lessons Learned 9

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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 PM.

The FDOT began using Design-Build (D-B) procurement on limited types of projects in 1995. 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.

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 Expanded Letter of Interest (ELOI).
7. Submittal of Critical Issue list to Proposal Evaluators in advance of the ELOI due date.
8. Preparation of Draft Request for Proposal (RFP)
9. Advertisement
10. Phase I ELOI
11. Phase I ELOI 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 selection 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 procedure is used. **Figure 6-1**, Design-Build Process, at the end of this chapter, illustrates this process.

The concurrence–in-award package shall include a summary of the adjusted scores, the results of the question and answer session by the short listed firms, and the Department's selection committee's decision for award of the contract, please refer to Procedure No. 625-020-010.

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***. The PM is responsible for coordinating the procurement of the D-B services as well as overseeing the project CEI. 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.
- Working with the contracting unit and others in developing the advertisement.
- Coordinating with the FHWA representative on oversight and exempt projects.
- Coordinating with or participating on the TRC in evaluating the Phase I ELOI's of D-B firms.
- Participating in development of RFP.
- Working with contracting unit in responding to inquiries from D-B firms.
- Participating in pre-bid meeting.
- Coordinating with or participating on the TRC in evaluating Phase II Technical Proposals.
- Coordinating submittal of technical evaluations to selection committee.
- Providing 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.
- 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

Most designers find D-B is a dramatic departure from the traditional design-bid-build project. The contractor is the lead organization in the procurement process for a D-B project. Therefore, 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 design-build 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 giving consideration to court schedules that are outside the Department's control. 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 12 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 design-build 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 design-build 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 design- build 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 Part 2, Chapter 5, Construction Project Management, of this handbook for more information.

Design-Build Lessons Learned

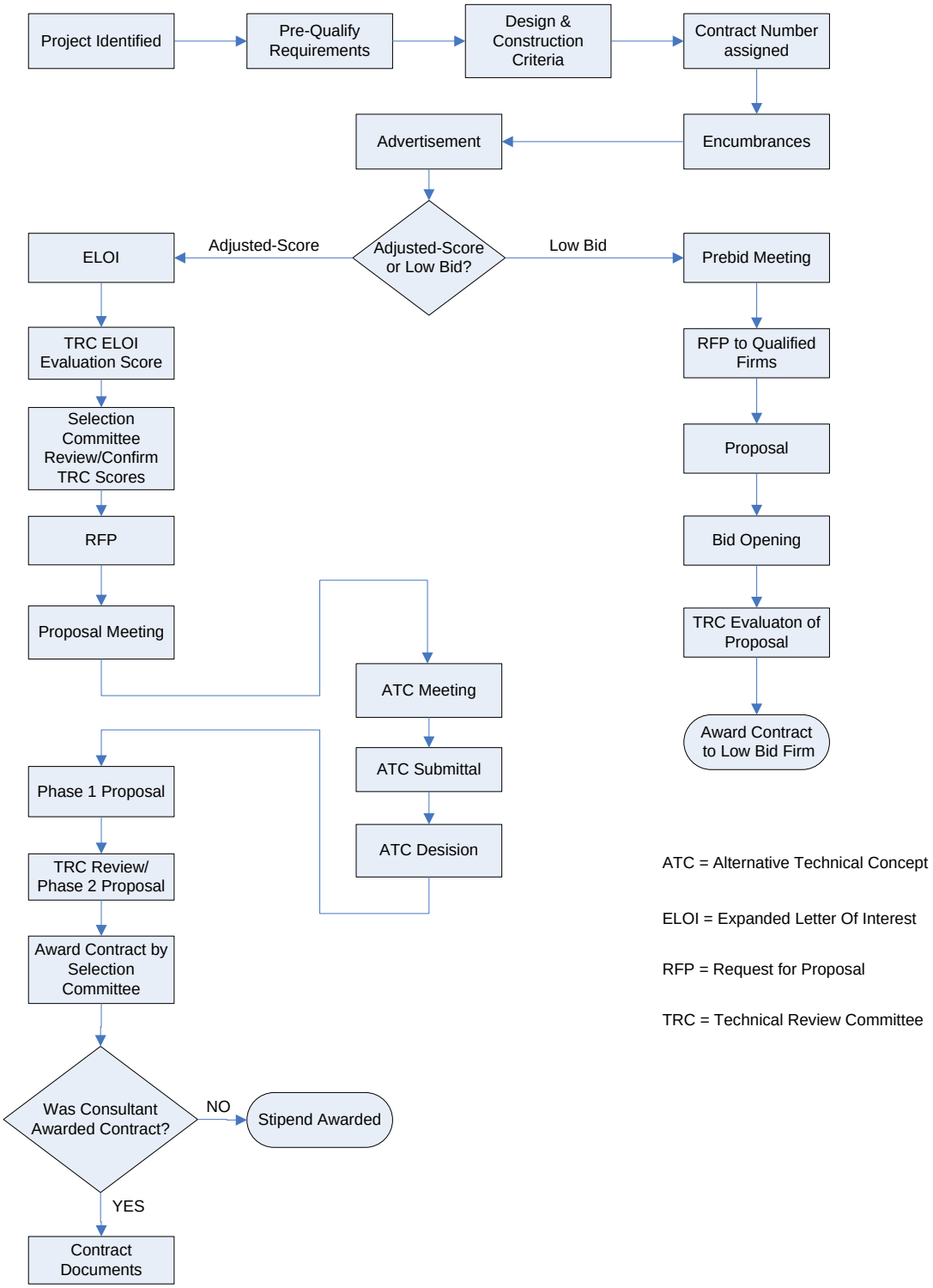
Projects that require the coordination, cooperation and approval of agencies or people beyond the control of FDOT are more likely to experience delay and therefore may be inappropriate for D-B. Examples are projects that involve right of way acquisition or complicated environmental issues. Districts 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.

Figure 6-1
Design-Build Process (New)



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CHAPTER 7 – MAINTENANCE PROJECT MANAGEMENT

Contents

Introduction 2
Florida Department of Transportation Maintenance Program 2
Project Manager Titles 2
Contract Maintenance 3
Maintenance Rating Program 4
Asset Maintenance 4
Other Maintenance Contracts 5
Coordination with Developing Projects 6

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 Maintenance PM.

The ***Florida Department of Transportation (FDOT)*** must maintain over 12,000 centerline highway miles of roadway; 6,300 bridges; and 67 rest areas, welcome centers, service plazas and other roadside facilities in order to provide efficient and safe transportation and to preserve its substantial investment. The maintenance program, accessible at the ***Maintenance Office*** website, consists of a mixture of in-house and contract work, with the trend favoring more contract maintenance in future years.

Florida Department of Transportation Maintenance Program

Maintenance programs are projected in the FDOT Five-Year Work Program. An automated Maintenance Management System (MMS) is used to assist in planning, organizing, budgeting and controlling the overall maintenance operations for the FDOT. The overall Maintenance Contract Program consists of some large projects and numerous small projects, some of which are repetitive in nature. Whether large or small, a project requires a skilled Project Manager (PM) to make the program successful. A PM in maintenance must have management and leadership skills and be able to handle contract administration, reporting responsibilities and enforcement of contract provisions.

Project Manager Titles

A PM generally has the overall responsibility for producing a quality product within time and budget. A PM might have any of the following titles:

- Maintenance Contract Engineer
- Assistant Maintenance Engineer
- Maintenance Engineer
- Maintenance Contract Administrator
- Operations Center Engineer
- Operations Center Manager
- Operations Center Contract Engineer
- Operations Center Contract Manager

Contract Maintenance

The FDOT maintenance program is mostly contract-driven. Examples of contracts administered by PMs are:

- Asset Maintenance Contracts (for a corridor, geographic area or specific component)
- District Contracts (annual, work-order driven or site specific)
- Contractual Services (service contracts)
- Professional Services Contracts (bridge inspection)
- Emergency Contracts
- Temporary Contracts

Most of these contracts are procured and managed in accordance with ***Procedure No. 375-000-001***, ***District Contracts***. Asset management contracting instructions can be found on the Maintenance Office website. Part I, Chapters 12, 13 and 14 of this handbook, discuss contracts for consultant services.

In addition, maintenance frequently enters into agreements with other state agencies, local governments and other organizations. These agreements include the following:

- Memorandum of Agreements (MOAs)
- Agreements (see Appendix C of this handbook)
- Negotiated Agreements with groups certified as a Florida Youth Work Experience Program
- Department of Correction Inmate Programs

The PM must be fully knowledgeable of contract document preparation, procurement of services, negotiations, and administration of various types of contracts. The PM must have a full understanding of the specifications or scope of services to be rendered under the contract and how the contractor will be paid. Procedure No. 375-020-002, ***Contract Maintenance Inspection and Reporting***, contains specific instructions related to the management of maintenance contracts.

PMs may be called upon to fully develop bid packages for any of the contract types listed above. Such activities will include a complete review of the work requirements to determine the optimum contracting method. Once the contracting method has been determined, a complete set of contract documents is developed.

Information concerning the development of specifications and special provisions can be found in ***Procedure No. 850-000-020***, ***Standard Maintenance Special Provision Development***, and ***Procedure No. 850-000-025***, ***Maintenance Specification Package***.

Figure 1, **Contract Document Checklist**, shows some of the required documents.

Figure 1
Contract Document Checklist

- ☑ Plans for the work
- ☑ Scope of service
- ☑ Maintenance special provisions
- ☑ Standard maintenance specifications
- ☑ Special provisions
- ☑ Supplemental specifications
- ☑ Standard specifications
- ☑ Design standards
- ☑ Cost estimate
- ☑ Quantities & pay items
- ☑ Fund encumbrances

The contract package is then submitted to the appropriate FDOT Contracts Administration personnel for advertising, bidding, review and award. The PM must work closely with the contracts personnel; she/he will be expected to review bids or proposals and provide inputs to the awards committee when required. Once the contract is awarded, the PM must then implement the project start-up and controls as required by the contract documents.

Maintenance Rating Program

The Maintenance Rating Program (MRP) is a uniform method for evaluating the performance of maintenance operations. The Maintenance Rating Program, described in ***Procedure 850-065-002***, ***Maintenance Rating Program***, provides the PM with a uniform procedure to evaluate maintenance features on the State Highway System. The information contained in this procedure together with that in the Maintenance Rating Program Handbook defines a method for conducting a visual and mechanical evaluation of routine highway maintenance conditions.

Maintenance ratings can be a valuable resource early in the development of new construction projects to help ensure that maintenance needs are adequately considered in the project scope. It is also a good practice to perform maintenance ratings on new projects as they near construction completion to help identify problems that might be corrected during construction.

Asset Maintenance

Asset maintenance contracts are generally used for routine maintenance work and management services for a designated corridor, geographic locale, or specific roadway components such as rest areas, weigh stations, welcome centers, bridges or other fixed assets within a specified boundary. The contracts are usually long term, fixed lump sum contracts. The ***Highway Asset Maintenance Scope of Service*** is located on the Maintenance Office website. Under this type of contract, the contractor assumes all risks associated with the specific scope of work and posts an annual performance bond. The contractor's performance is rated periodically using the FDOT Maintenance Rating Program,

and other performance measures that have pre-determined deducts in payment for sub-standard or unacceptable performance. The Maintenance Office website contains useful information related to asset maintenance.

Because of the size and complexity of these contracts, they are generally awarded through a Request for Proposal process. Proposals are first evaluated and scored against the scope requirements. The proposals include the contractor's plan to comply with the FDOT maintenance requirements as presented in the scope of services. Final contractor selection is made with price 30-40% and the technical portion of the proposal 60-70% of the total score.

These contracts must be monitored to assure the contractor's proper performance of all requirements in the scope of services. Reductions in payments are assessed if the maintenance contractor's performance is substandard. The desired level of maintenance is included in the scope of services, and the MRP is part of the evaluation process.

Other Maintenance Contracts

The FDOT maintenance projects that are not under an asset management type contract are generally performed by other maintenance contracts. Some contract maintenance is specialty work; other contracts may cover routine maintenance. The contract portion of maintenance may cover the following areas:

- Pavement Marking and Striping
- Asphalt Repair
- Roadway Lighting Maintenance
- Mechanical Roadway Sweeping
- Concrete Repairs and Joint Sealing
- Roadside, Intermediate and Slope Mowing
- Maintenance of Traffic
- Guardrail, Attenuator and Fence Repair
- Maintenance of Signs and Delineators
- Litter Removal
- Tree Trimming and Removal
- Drainage Repairs
- Shoulder, Slope and Ditch Repair

The above list is by no means a complete list, but it serves as an example of the areas of roadway maintenance that can be contracted. Controlling these many separate contracts requires a PM skilled in contract inspection and administration. Contractors who demonstrate an inability or lack of willingness to

comply with the terms of the contracts should be declared non-responsible, as described in ***Procedure No. 850-070-001***, ***Contractor Non-Responsibility for Maintenance Projects***.

Coordination with Developing Projects

It is the District Maintenance Office that will "own" the ultimate result of projects that work their way through the planning, project development, design, right of way and construction pipeline. All PMs in this pipeline should consult with and seek the input of the responsible maintenance professional. Avoidable maintenance problems are frequently "built in" to a project. PMs in the pipeline should actively seek and consider suggestions from maintenance, and maintenance professionals should take advantage of opportunities to improve the quality of the final product. The design should facilitate easy maintenance of all features of the project, such as shoulders, slopes, drainage features, and signs. The designer should take into account space needed for maintenance activities without creating traffic problems. The maintainability of new products and equipment should always be considered before including them in the plans and specifications.

Because funding is always a challenge for maintenance operations, maintenance reviewers should seek to have all appropriate work included in the construction contract. It makes sense to include the correction of any maintenance problems in a construction contract. However, construction contracts are not usually used to perform routine maintenance that is the responsibility of the local maintenance office, such as ditch cleaning or tree trimming. PMs must understand that there are funding limits on construction, and it is not always possible to get everything "fixed" with the construction project. These discussions should take place at the time of project scoping,

very early in the project development process. The construction PM has very limited ability to change the scope of work during active construction. The emphasis for coordination during construction should be on quality and maintainability of the work.

CHAPTER 8 - LOCAL AGENCY PROGRAM (LAP) PROJECT MANAGEMENT

Contents

Introduction 2
The LAP Process 2
Programming LAP Projects 2
Range of Possible LAP Projects 3

Introduction

The Florida Department of Transportation's (FDOT) program to contract with qualified local agencies for the administration of federally funded transportation projects is known as the Local Agency Program (LAP). The FDOT appoints a Project Manager (PM) for each LAP project. The LAP PM should review the appropriate chapters from this handbook for guidance on how to manage a project in accordance with FDOT procedures.

The LAP Process

Per the ***Stewardship and Oversight Agreement***, in enacting ***23 United States Code (USC) 106(c)*** Congress recognized the need to give states more authority to carry out Federal-Aid Highway Program project responsibilities traditionally handled by the Federal Highway Administration (FHWA). Under this assignation of responsibilities, the Florida Department of Transportation (FDOT) may permit local agencies to carry out the FDOT's assumed responsibilities on locally administered projects. The FDOT is responsible for Local Agency compliance with all applicable Federal laws and requirements.

This process is described in detail in Procedure No. 525-010-300, ***Local Agency Program (LAP) Manual***. It is important that LAP PMs become familiar with this manual, which contains all administrative requirements of the program. The ***Local Agency Program (LAP)*** website contains additional information concerning this program.

The State Local Program Administrator in Central Office is responsible for the administration and oversight of the program. Each district has a Local Program Administrator, who is responsible for project-level direction and oversight through the offices of planning, environmental management, design, right of way and construction.

Programming LAP Projects

Local agencies submit their "Priorities Request" to the local Metropolitan Planning Organization (MPO) or county commission in the absence of an MPO. This process should start early in the state's fiscal year (July 1 to June 30) to assure state and federal funds are committed in the years for which the project is programmed. Once projects are identified by the transportation planning process, they are entered into the work program like any other FDOT project. A project is programmed for delivery in LAP depending on a number of factors in the decision-making process. Once the project is programmed as LAP in the Department's Five-Year Work Program (reference Work Program Instructions Part III, Chapter 18) the local agency works with the District Local Program Administrator.

A LAP Agreement between the local agency and the FDOT is prepared for each federally funded project that covers all phases of work involved in the project. Its purpose is to ensure that the federal funds in the agreed-upon amount are spent in accordance with all applicable state and federal laws and regulations. This agreement also specifies the procedures for payment and reimbursement on the project. The LAP Agreement does not constitute approval of federal funds.

Range of Possible LAP Projects

LAP can include a wide range of projects, from very simple enhancement projects to complex projects for developing and building major transportation facilities. Federal funds may be authorized for the following project phases:

- Planning
- PD&E Studies
- Preliminary Engineering
- Design
- Right of Way
- Construction
- Construction Engineering and Inspection (CEI)

FDOT may delegate some authority for project development and delivery of federally funded projects to qualified local agencies under its LAP Certification process. A certified local agency may develop phases of a federally funded project for which it qualifies using the procedures permitted under the ***LAP Manual***. The local agency must maintain sufficient staff and other resources for project administration to ensure all applicable state and federal requirements are met.

The FDOT PM and FHWA retain responsibility for the following actions:

- Project Selection
- Authorization of funds
- Determination of National Environmental Policy Act (NEPA) environmental class of action
- Right of way certification
- Approval of final plans, specifications and estimates (PS&E) for all projects
- Final inspection
- Equal Employment Opportunity Contract Compliance Program

- Disadvantaged Business Enterprise Program

The receipt of federal funds to deliver a LAP project, including Congressional earmarks, “federalizes” the project and requires that all phases of project development be completed or retrofitted to comply with applicable federal rules and regulations including NEPA and Buy America requirements.

Federal regulations do not allow FDOT to delegate the certification of right of way or the determination of environmental class of action. Local agencies must be pre-qualified on a project-by-project basis by FDOT to acquire right of way or perform PD&E phases. The local agency must obtain authorization from FDOT to proceed with right of way activities after qualification and prior to beginning any right of way activities on the project. Any funds expended or costs incurred prior to authorization will not be reimbursed.

Each federally funded phase must be specifically authorized per the Work Program Instructions. The benefits of using federal funds on a phase of a project should be considered when developing a project. However, the requirements of using federal funds may include additional work or activities in prior work phases or require certain commitments or compliance in subsequent work phases. In order to ensure success of LAP projects, it is critical to work with the appropriate District staff through each phase of the project.

Appendix

Contents

Appendix A – Public Records 2
Appendix B – Acronyms.....6
Appendix C – Agreements 13
Appendix D – Statutory Authority and Responsibilities of the Department's Project Manager.....19

Appendix A – Public Records

The following are some frequently asked questions about Florida's public records laws, and answers to them:

What are public records, and where do I find applicable law?

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. This and related statutes governing access are among the most open in the nation. 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 a public record 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.

Are any records exempt from public records requests?

Yes, but 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. The following records are exempt from this procedure:

- Financial statements from contractors received in response to invitations to bid or requests for proposals
- Social Security Numbers
- Personal information of Motor Carrier Compliance law enforcement officers
- Information about family members of specified officials

Information concerning ongoing legal proceedings may be exempt. The district counsel should be consulted before fulfilling such requests.

Procedure No. 050-020-026, Distribution of Exempt Public Documents Concerning Department Structures and Security Systems Plans, also exempts records related to structural plans of Florida's infrastructure from requests for public records. The procedure recognizes that many non-FDOT employees such as consultants, local governments and utilities need access to these records. Records custodians must use discretion in these cases and maintain a record of all individuals who received copies of such information.

Who can request public records and how are requests made?

All non-exempt public records are subject to public inspection and/or copying or reproducing by any person, corporation or other legal entity. Section 4 of ***Procedure No. 050-020-026***, explains how such requests are to be handled. To facilitate procedures for accessing public records, the FDOT Central Office, districts and the turnpike enterprise assign a staff member as the "custodian of records." That person is usually the Office Manager or his/her designee. Inspecting and duplicating of records procedures will necessarily vary by office to accommodate number, type and frequency of records requests and the media format required for reproduction. "Every person who has custody of a public record shall permit the record to be inspected and examined by any person desiring to do so at any reasonable time under reasonable conditions and under supervision by the custodian or designee." (See Section 119.07, F.S., and Rule Chapter 14-0081, Florida Administrative Code (F.A.C.). The custodian of records or her/his designee is responsible for safeguarding and retaining records. All offices have general counsel staff personnel available for advice and direction when legal (or procedural) questions arise concerning records access.

Requests for public records may be oral or in writing, and a custodian of records or designee must provide the response. FDOT employees or persons working under contract for FDOT may, in the course of doing business, ask or be asked for access to records. Such requests can be processed through administrative channels so that they reach the appropriate custodian of records. If an oral request for records is made, the following information should be noted (in writing) by the person receiving the request: date, time, and the specific document/s or information requested. Written requests are preferred because they may be more easily tracked and documented. All records requests must be kept on file for one year. Public records requests must be responded to in a "reasonable time." A "reasonable time" is not specifically defined and may depend on the size of the request and other factors.

The following examples illustrate a reasonable vs. unreasonable request. A request for e-mails to and from a particular person between January and June 2004 might be a reasonable request; a request for all e-mails of all Department employees for a period of three years might be unreasonable. If the requestor wants these e-mails within an hour, that could be an unreasonable request. Or if he/she wants to take the records elsewhere for copying, that too would be an unreasonable request. The custodian of records does not decide such issues; the appropriate general counsel does.

Is there a charge for public records?

The person (custodian) 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. When no fee is prescribed, charges are 15 cents per one-sided page, size up to 81/2 x 14 inches and 20 cents per page for 2-sided copies. The per-page charge for certification is $1. When the volume or the nature of the request will require more than one hour to complete, time spent after the first hour will be charged at the hourly rate of the person doing the work. Payment is required in advance of producing copies. Subsection 119.07(1) (a), F.S., and Rule 14-1.0081, F.A.C. establish these charges. Additional charges may be determined and charged for oversized documents, for requests that require use of technological resources, or for those requiring extensive clerical and supervisory assistance. The requestor need not copy documents; they may be reviewed at the responsible office. If any documents are selected for copying, the above charges apply.

What steps should a Custodian of Records take in responding to a public records request?

Because public records request will vary from office to office, the records custodian or designee responsible for responding to these requests must be thoroughly familiar with the office and the records management procedures where he/she is working. For example, one district requires that all public records requests be handled by and processed through the district general counsel's office. This is not, however, the procedure in every district. The person responding to a public records request must know the proper internal procedures for the handling of public records requests in his/her district and follow them exactly.

Although the custodian of records or designee may not be required by district procedures to do so, it may be both necessary and prudent to consult with the district general counsel's office to confirm the proper handling of a public records request and to discuss whether or not any statutory exemptions apply to the documents or items requested. All public records must be thoroughly reviewed to ensure that all documents and information that is exempt or confidential is not produced. It is also recommended that the state General Counsel's Office in Tallahassee be contacted to determine if there is ongoing litigation involving or related to the requestor. It is particularly important to know of contractor litigation. It is often a tactic of trial attorneys to obtain documents through a public records request without advising opposing counsel. If, in response to a public records request, documents related to a matter in litigation have been sent as requested, the Department's attorneys will be disadvantaged if they do not also receive copies of these documents.

E-mails are public records, and particular care should be taken when fulfilling public records requests for them. As with other public records, e-mails may contain documents and information that is exempt or confidential. Frequently Department attorneys communicate with employees through e-mail, and care should be taken to ensure that exempt or confidential information is not produced. Any such questionable emails (and other documents) should be discussed with the appropriate general counsel's office.

Does the public records law apply to contractors?

YES. Companies and individuals under contract to do work for the Department must comply with public records requests in the same manner outlined above.

What happens if there is no response to a public records request?

The Department and the person receiving the public records request are subject to sanctions for failing to comply with Florida's public records law. Misdemeanor fines are imposed upon persons who violate the public records law; a felony can be charged against persons who willfully and knowingly violate the public records law; and the Department is subject to paying attorney's fees and costs incurred in efforts to obtain public records. When in doubt, always check with the appropriate district or other general counsel's office.

Appendix B – Acronyms

AADT Average Annual Daily Traffic

AASHTO American Association of State Highway and Transportation Officials

ACM Asbestos Containing Materials

ACOE Army Corps of Engineers

ADA Americans with Disabilities Act

ADE Area Design Engineer

AICP American Institute of Certified Planners

AN Advance Notification

ASCE American Society of Civil Engineers

ASDB Adjusted Score Design-Build Bid

ASTM American Society of Testing and Materials

BATNA Best Alternative to a Negotiated Agreement

BDR Bridge Development Report

BHR Bridge Hydraulics Report

CAC Citizens Advisory Committee

CADD Computer Aided Design and Drafting

CAP Community Awareness Plan; Consultant Acquisition Plan

CCNA Consultants' Competitive Negotiations Act

CDR Conformity Determination Report

CE Categorical Exclusion

CEI Construction Engineering and Inspection

CEQ Council on Environmental Quality

CES Contracts Estimates System

CFR Code of Federal Regulations

CIA Community Impact Assessment

CIPG County Incentive Grant Program

CITS Consultant Invoice Transmittal System

CMS Congestion Management System

CO Central Office

CPA Certified Public Accountant

CPAM	Construction Project Administration Manual
CPFF	Cost Plus Fixed Fee
CPM	Critical Path Method; Construction Project Manager
CQC	Contractor Quality Control
CSI	Cost Saving Initiative
CSM	Congestion Management System
CSD	Context Sensitive Design
CSS	Context Sensitive Solutions
CTQP	Construction Training/Qualification Program
CTST	Community Traffic Safety Team
CUTR	Center for Urban Transportation Research
D-B	Design-Build
DBE	Disadvantaged Business Enterprise
DEIS	Draft Environmental Impact Statement
DCA	Department of Community Affairs
DEMO	District Environmental Management Office
DEP	Department of Environmental Protection
DHV	Design Hourly Volume
DOE	Department of Economic Opportunity
DOT	Department of Transportation
DRI	Developments of Regional Impact
DS	Design Standards
D/W	District Wide
EA	Environmental Assessment
ED	Environmental Class of Action Determination
EIS	Environmental Impact Statement
EMO	Environmental Management Office
EOR	Engineer of Record
EPA	Environmental Protection Agency
ERC	Electronic Review Comments
ERP	Environmental Resource Permit
ESAL	Equivalent Single Axel Loads

ESOP Employee Stock Ownership Plan

ETAT Environmental Technical Advisory Team

ETDM Efficient Transportation Decision-Making

FA Federal Aid

FAA Federal Aviation Administration

FAC (F.A.C) Florida Administrative Code

FAR Federal Authorization Request

FAR Federal Authorization Request

FASP Florida Aviation System Plan

FCCM Facilities Capital Cost of Money

FEIS Final Environmental Impact Statement

FEMA Federal Emergency Management Agency

FES Florida Engineering Society

FDOT Florida Department of Transportation

FHWA Federal Highway Administration

FICE Florida Institute of Consulting Engineers

FNL Finish No Later Than

FONSI Finding of No Significant Impact

FQD Florida Quality Developments

FRA Federal Railroad Administration

FS (F.S.) Florida Statute

FSTED Florida Seaport Transportation and Economic Development Council

FSUTMS Florida Standard Urban Transportation Model Structure

FTA Federal Transit Administration

FTP Florida Transportation Plan

GC General Consultant

GEC General Engineer Consultant

GIS Geographic Information System

GPS Global Positioning System

HOV High Occupancy Vehicle

IJR	Interchange Justification Report
IMR	Interchange Modification Report
IOAR	Interchange Operational Analysis Report
ISTEA	Intermodal Surface Transportation Act
ITB	Invitation to Bid
ITN	Invitation to Negotiate
ITS	Intelligent Transportation System
LA	Limited Access
LAP	Local Agency Program
LBDB	Low Bid Design-Build Bid
LBR	Legislative Budget Request
LDCA	Location and Design Concept Acceptance
LGCP	Local Government Comprehensive Plan
LOI	Letter of Interest
LOR	Letter of Response
LOS	Level of Service
LRE	Long Range Estimate
LRT	Light Rail Transit
LRTP	Long Range Transportation Plan
LS	Lump Sum
MBE	Minority Business Enterprise
MMS	Maintenance Management System
MOA	Memorandum of Agreement
MOT	Maintenance of Traffic
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MRP	Maintenance Rating Program
MUTCD	Manual of Uniform Traffic Control Devices
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NHS	National Highway System

NIMBY	Not in My Back Yard
NMSA	Non-Major State Action
NPDES	National Pollutant Discharge Elimination System
NTP	Notice to Proceed
O&M	Operations and Maintenance
OPP	Office of Policy Planning
OT	Order of Taking
PCR	Project Concept Report
PD&E	Project Development and Environmental
PE	Preliminary Engineering
P. E.	Professional Engineer
PER	Preliminary Engineering Report
PIO	Public Information Office
PM	Project Manager
PPM	Plans Preparation Manual
PS&E	Plans, Specifications and Estimate
PSMS	Project Scheduling & Management System
PSU	Professional Services Unit
PTO	Public Transportation Office
QA	Quality Assurance
QAP	Quality Assurance Plan
QC	Quality Control
RCI	Roadway Characteristics Inventory
RFI	Request for Information
RFP	Request for Proposal
ROD	Record of Decision
RPC	Regional Planning Council
RR	Railroad
RRR	Resurfacing, Restoration and Rehabilitation
RSP	Rail System Plan

R/W Right of Way

RWMS Right of Way Management System

SAFETEA-LU Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

SCOP Small County Outreach Program

SCRAP Small County Road Assistance Program

SEIR State Environmental Impact Report

SEIS Supplemental Environmental Impact Statement

SHE State Highway Engineer

SHS State Highway System

SIS Strategic Intermodal System

SNE Start No Earlier Than

SOS Scope of Services

SOV Single Occupancy Vehicle

STIP State Transportation Improvement Plan

SUE Subsurface Utility Engineering

TAC Technical Advisory Committee

TCI Traffic Characteristics Inventory

TCP Traffic Control Plan

TCSPP Transportation and Community System Preservation Program

TDLC Transportation Design for Livable Communities

TEA-21 Transportation Equity Act for the 21st Century

TIP Transportation Improvement Program

TMA Transportation Management Area

TOP Transportation Outreach Program

TRC Technical Review Committee

TRIP Transportation Regional Incentive Program

TRNS*PORT Transportation Software Management Solution (ASSHTO's)

TSM Transportation System Management

TSP Technical Special Provision

TSP Transit Strategic Plan

UAM Utility Accommodation Manual

UAO Utility Agency/ Owner

UPWP	Unified Planning Work Program
USC	United States Code
USCG	United States Coast Guard
VE	Value Engineering
WIM	Weight in Motion
MD	Water Management District
WP	Work Program
WPI	Work Program Instructions
WZTC	Work Zone Traffic Control

Appendix C – Agreements

SECTION 1 - INTRODUCTION

Historically, the Florida Department of Transportation (FDOT) 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. It could also be a Drainage Agreement.

SECTION 2 - AGREEMENTS

Authorized by Section 339.12, Florida Statutes (F.S.), Procedures for the Agreements are contained in ***Procedure No. 725-000-005, Public Transportation Joint Participation Agreement*** and ***Procedure 350-020-301, Financial Provisions for Joint Participation Agreements Non-PTO***. Contact person would be the District Utility Coordinator.

The Department of Transportation may enter into an Agreement when the Department decides to use state funds to participate with a local government to define a project that is not revenue producing to be done on the State Highway System and to determine 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 to provide the funds. 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. Such a 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.

SECTION 3 - LOCALLY FUNDED AGREEMENTS

Authorized by s. 339.12, F.S, Procedures Financial Provisions for the Locally Funded Agreements are contained in FDOT *Procedure No. 350-020-300*. Contact person would be the District Agreement Coordinator.

The Department of Transportation routinely enters into an agreement which requires the deposit of local funds with the Department to use for funding a specific project. 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).

SECTION 4 - 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.*** Contact person would be the District Special Project Supervisor.

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 Part II, Chapter 8 of this handbook.

SECTION 5 - PUBLIC TRANSPORTATION AGREEMENTS

Authorized by s. 339.12, F.S., Procedures for the Agreements are contained in ***Procedure No. 725-000-005***. Contact person varies by type of agreement.

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 Manual***. Contact person would be the District Rail Administrator.

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 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. Contact person would be the District Aviation Supervisor.

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. Contact person would be the District Seaport Supervisor.

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. Contact person would be the District Intermodal Supervisor.

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. Contact person would be the District Transit Supervisor.

SECTION 6. 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***. The contact person would be the District Special Project Supervisor. 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 (TCSP). 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.

SECTION 7. 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 Relocation Agreements***. Contact person would be the District Utility Manager. 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

SECTION 8. 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 contact person would be the District Traffic Engineer/Designer. The Department will provide assistance to a Utility Owner Agency (UOA) to provide a roadway lighting system using the UOA's poles.

SECTION 9. 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 contact person would be the District Scenic Highway Coordinator. The Department provides funds to local governments to develop scenic byway programs and related projects along roads designated National Scenic Byways.

SECTION 10. 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 land 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.

Appendix D – Department's Project Manager's Statutory Authority and Responsibilities

Fiscal Monitoring

The role of government has changed from delivering to managing the delivery of products and services. Department management recognizes project managers are not fully equipped to handle this changing role. Project managers must ensure acquired products and services are:

- delivered in a timely manner.
- of the desired quality.
- for a fair and a reasonable cost.

The purpose of this appendix is to provide best practices and guidelines to help project managers better understand these responsibilities. These guidelines apply regardless of the type of agreement (for example, contract, grant, purchase order, memorandum of understanding, and so forth).

Financial accountability is recognized as an enterprise-wide problem by Florida's Chief Financial Officer. Comptroller Memorandum No. 8 (2001-2002) asserts the authority to withhold or offset funds when an agency lacks proper accountability over the use of state funds and/or the delivery of services.

Statutory Authority

In this Handbook the term "Project Manager" is used to identify the individual responsible for enforcing performance of contract terms and conditions. In Florida Statutes, the terms "Contract Manager" and "Department Managers" are used to identify these individuals. Statutory responsibilities are outlined in the following citations:

Subsection 334.048, Florida Statutes (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 to 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(15), F.S.

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

establish procedures to ensure that contractual services have been rendered in accordance with the contract terms prior to processing the invoice for payment."

Subsection 287.057(16), 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."

Accountability

Accountability is accepting the consequences, good or bad, for the outcome of a situation for which one is responsible. Project Managers are accountable for the choices they make and the resulting consequences. This accountability cannot be shared—the project manager has the "ultimate responsibility."

Management accountability is the expectation that managers are responsible for:

- the quality and timeliness of program performance.
- increasing productivity.
- controlling costs.
- mitigating adverse aspects of department operations.
- assuring that programs are managed with integrity.
- compliance with applicable laws and regulations.

The purpose of management accountability is to ensure effective organizational and decision-making structures.

Program accountability is ensuring that programs and services are relevant and responsive to current needs and achieve the desired results.

Financial accountability is ensuring that moneys are spent wisely and in conformity with the law.

Project Manager Responsibilities

The project manager must ensure that the acquired product is of the desired quality, and delivered in a timely manner at a fair and a reasonable rate.

Project managers must have professional skepticism—an attitude that includes a questioning mind and a critical assessment. Professional skepticism requires the project manager not to assume that contractor is either honest or dishonest but rather to base his or her assessment on available information.

Contract monitoring is an involved, interactive, and proactive activity. While the contractor/consultant has responsibility to perform under the terms of the agreement, the project manager has responsibility to reasonably and objectively evaluate the contractor's/consultant's performance. Effective monitoring can assist in identifying and reducing fiscal or program risks as early as possible, thus protecting public funds and ensuring the delivery of required services.

Typical responsibilities of the contract manager are as follows:

- Develop and write a clear, concise, detailed description of the work to be performed.
- Review the draft contract for contract provisions, scope of work, technical requirements, completion dates, benchmarks, timelines, estimated quantities, dollar amounts, and final product.
- Ensure compliance with all federal or special regulations.
- Ensure that funding is available and the contract is encumbered in conformance with statutory provisions.
- Notify the contractor to begin work.
- Maintain all contract documentation.
- Monitor the contract to ensure compliance with all contract provisions:
  - Monitor progress of work to ensure that services are performed according to the quality, quantity, objectives, timeframes, and manner specified in the contract: for example, review progress reports and interim products.
  - Ensure that all work is completed and accepted by the department before the contract expires.
- Assess and request amendments, renewals or new contracts as required. Allow sufficient 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 contract expenditures to:
  - Ensure there are sufficient funds to pay for all services rendered.
  - Identify low spending levels and consider partial disencumbrance and reassignment of funds.
- Notify appropriate personnel of equipment purchases, if applicable, and ensure property is tagged and inventoried before approving cost reimbursement.
- Monitor use of Disadvantaged Business Enterprise (DBE) subcontractors and suppliers to ensure attainment of approved contract participation goals.
- Verify that the contractor has fulfilled all requirements of the contract before approving the final invoice.
- Identify and approve the final invoice, as appropriate, and forward it for payment.
- Complete the contractor evaluation.
- Approve the final products or service.

Contract Cost Analysis

When appropriate, project managers should perform a cost analysis for proposed contract terms. Cost analysis is the review and evaluation of the separate cost elements and profit in a contractor'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

The contractor/consultant should submit documentation evidencing the delivery of services prior to the payment request, regardless of the method of payment. The project manager's responsibilities include verifying:

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

Project managers must review invoices to ensure that costs are reasonable, allowable and necessary. Invoices must be reviewed and paid promptly in accordance with statutory provisions (Section 215.422. F.S.).

A cost is ***reasonable*** if, in its nature or amount, the cost does not exceed that which would be incurred by a prudent business person in the conduct of a competitive business. In determining reasonableness of a given cost, consideration shall 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 Department may refuse to allow costs incurred by contractors that are unreasonable in amount or contrary to public policy.

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

The supporting documentation of agreements must be reviewed to give the project manager reasonable assurance that services have been completed.

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 Allowable pursuant to other rules and regulations. Directly related to the scope of work. Reasonable. Within the agreement period. Documented. Verify minimum performance standards are met and apply sanctions as needed.
Combination Contracts	Apply above criteria for appropriate combination.

Problems

There are a number of resources available to assist project managers when problems arise. As appropriate, project managers should include their supervisor, District Financial Services Staff, Office of Comptroller, Office of Inspector General, Office of General Counsel, or other office in the resolution process.