

# **TURNPIKE DESIGN HANDBOOK (TDH)**

## **DEVELOPMENT AND PROCESSES – PART 1**



### **FLORIDA'S TURNPIKE ENTERPRISE PRODUCTION DESIGN DEPARTMENT**

**OCOEE, FL**

**January 2022**

## Introduction

As part of the Florida's Turnpike Enterprise (Turnpike) continuing quality enhancement efforts, the ***Turnpike Design Handbook (TDH)*** has been developed to provide consultants, reviewers and management with a single source of additional Turnpike-specific requirements that modify or add to the requirements included in the ***Florida Department of Transportation (FDOT) Design Manual (FDM)***.

The ***FDM*** and the ***TDH*** are both four-part documents:

- Development and Processes – Part 1
- Design Criteria – Part 2
- Plans Production – Part 3
- NexGen Plans Production – Part 9

The ***TDH*** also includes the [Turnpike Guide Drawings](#), which are available electronically on the Turnpike Design website. Review and become familiar with the [Turnpike Guide Drawings](#), including the Guide Drawings Introduction document which provides a general description and overview of the Guide Drawings development and their use.

For Turnpike requirements related to tolling, please see the [General Tolling Requirements \(GTR\)](#) which is a separate document.

The ***TDH*** is updated on an annual basis, following the official revision of the ***FDM***. Interim updates to the ***TDH*** will be issued as Addenda to the annual revision.

Should you have any comments or suggestions for this ***TDH*** document, please contact the Turnpike Design Engineer.

## 100 Introduction

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 102 Glossary of Terms

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 103 Standard Forms

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 104 Public Involvement

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 105 Aesthetic Design

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 106 Exempt Public Documents

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***



## 110 Initial Engineering Design Process

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

### 110.2 Initial Engineering Design

*Add the following items to the list in the first paragraph*

- (14) Identify seasonal high water and base clearance water elevations and determine base clearance.
- (15) Identify applicable project drainage criteria and constraints. Determine impacts to project design and schedule.
- (16) Identify locations of potential hydroplaning risk and develop mitigating strategies to reduce risk and aid in the development of the Typical Section Package.

### 110.5 Support Services

*Add the items to the list in the third paragraph*

- (22) Tolls Design
- (23) Environmental Permitting
- (24) ITS
- (25) Lighting/Electrical
- (26) Concepts
- (27) Architecture
- (28) Materials (pavement)

### 110.6 Preliminary Geometry

*Add the following sentence to the end of the third paragraph*

Refer to **TDH 120.2.5.1**, for specific submittal and coordination requirements of the preliminary line and grade.

## 111 Final Engineering Design Process

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

### 111.3 Contract Plans and BIM Files

*Add the following item to the list in the first paragraph*

- (9) Toll Facilities

### 111.7 Project Documentation

*Replace the first and second paragraphs with the following*

The submittal of project documentation is required for all projects. The Turnpike Transportation Development Document Management Team will place required projects documents in the Project Suite Enterprise Edition (PSEE) Design Development Documentation Module after the project letting date. Only final documents will be placed in this folder structure; do not submit working files or draft documents. Standard file format is PDF; however, an Excel spreadsheet may be placed in the folder structure if protected to prohibit changes.

When the PSEE module is fully populated and no additional plan changes are expected, the Department will lock the Design Development Documentation Module, typically one week after the letting date.

#### 111.7.1 File Naming Convention

*Replace entire subsection with the following*

These file creation and naming guidelines do not supersede [FDOT CADD Manual](#) standards for Digital Delivery processes and related file naming conventions for the production deliverables (signed and sealed Contract Plans and Specifications Package).

Contact [TP-TransDev-DocMgmt@dot.state.fl.us](mailto:TP-TransDev-DocMgmt@dot.state.fl.us) if there are questions prior to submittal to the Turnpike.

**General Requirements:**

Do not include the following characters in any folder or file names:

\ / : \* ? " < > | # { } % ~ &

Spell out acronyms in file names. Ex: LDAR = Lighting Design Analysis Report

Indicate the FPID, submittal phase, and date (MM-DD-YYYY) on the front cover page of each file. (This does not apply to the signed and sealed Contract Plans and Specifications Package deliverables.)

For plan sets, provide individual PDFs for each component set.

Print / plot / export to PDF file format directly from software used to create files.

For design documentation, the PDF file must have either 1) interactive table of contents or 2) bookmarks to assist with navigation.

If the PDF file has bookmarks, ensure the bookmarks tab shows when the PDF file is opened. In Adobe, select File → Properties → Initial View and then change Navigation Tab to “Bookmarks Panel and Page” drop-down option.

**Scanning Requirements:**

Scan pages only if absolutely necessary (ex: scan the manually signed and sealed cover page only, not the entire report).

If scanning a page with a crimped seal, shade the seal to ensure it is visible when scanned.

Set scanner resolution to a minimum of 300 dpi.

Ensure scanned pages have the Optical Character Recognition (OCR) feature enabled (allows searchable text on scanned images).

**File Naming Convention:**

Formula: 7-digit FPID + phase + doc description + date submitted to FTE (YYYY-MM-DD)

Example: 123456-1 PhIV Roadway Plans 2018-09-26.pdf

Example: 123456-1 PhIV Roadway Design Documentation 2018-09-26.pdf

If the document is independent of a phase submittal, use DRAFT, FINAL, or REVISED.

Example: 123456-1 DRAFT Typical Section Package 2018-09-26.pdf

If a document has been signed and sealed, include S+S in the file name as the phase.

Example: 123456-1 S+S Typical Section Package 2018-09-26.pdf

Example: 123456-1 S+S Roadway Design Documentation 2018-09-26.pdf

## 112 Update Engineering Design Process

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 113 Right of Way Requirements

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 114 Resurfacing, Restoration and Rehabilitation (RRR)

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

### 114.1 General

*Add the following paragraphs*

Projects not designated as “RRR” are required to apply new construction criteria for all design elements.

Existing median crossovers on Interstate highway and freeways must be evaluated for conformance to the criteria in **FDM 211.3.2.1**, Crossovers on Limited Access Facilities, and as modified in **TDH 211.3.2.2**. Crossovers that do not meet those criteria must be presented to Turnpike staff for internal review. Turnpike staff will provide direction to either remove or relocate the crossover.

### 114.3 RRR Design Process

#### 114.3.1 Assessment of Existing Conditions

##### 114.3.1.2 Field Reviews

*Add the following sentences to the end of the first paragraph*

Document the field review with either photographs or video and ensure that the date of the field review is documented. Use the field reviews to document deterioration that occurs during the life of the design project, particularly the roadway pavement deterioration.

*Add the following item to list (1)*

- (o) Existing landscaping and natural vegetation

##### 114.3.1.4 Design Exceptions and Design Variations

*Add the following paragraphs*

All Design Exceptions, Formal Design Variations and Project Design Variation Memorandums identified in the Existing Roadway Conditions Assessment Report (ERCAR) must be tabulated with the following data:

- (1) Number; Location
- (2) Element; Criteria
- (3) Estimated Cost
- (4) Explanatory Comments

#### **114.3.1.5 Design Documentation**

***Replace the first paragraph with the following paragraph***

Include in the design an ERCAR that substantiates the design process, evaluates all existing conditions against criteria, provides recommendation, and documents decisions made. It must include the following information:

***Add the following item to the list in the first paragraph***

- (7) [ERCAR Sample Outline](#) can be found on the Turnpike Design website.



## 115 Standard Plans and Standard Specifications

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## **116 Alternative Intersection and Interchange Review**

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 117 Monitor Existing Structures

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 120 Design Submittals

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

### 120.2 Design Documentation Submittals

***Add the following paragraph***

Draft and Final versions of all documents requiring Turnpike approval or concurrence must be submitted to the Turnpike Project Manager for review through the ERC process. Once the ERC process is complete, the Turnpike Project Manager can proceed with obtaining the necessary approvals or concurrence.

#### 120.2.2 Traffic Data

***Add the following item to the list in the second paragraph***

- Truck DDHV (DDHV is the directional design hour volume expressed as vehicles per hour)

### 120.2.3 Typical Section Package

#### 120.2.3.1 Approval Process

***Replace the third paragraph with the following paragraph***

For projects that do not contain a PD&E phase or if significant changes occurred during the design process, a Typical Section Package is prepared by the Design EOR. The draft version must be submitted to the Department for review through ERC prior to the 45% traffic control plan workshop and plans submittal. The final version must be reviewed through ERC and the signed and sealed documents must be signed by the Turnpike Design Engineer before the Phase II plans can be submitted for review. The Phase II plans will not be accepted for review until concurrence is obtained from the Turnpike Design Engineer.

***Add the following paragraph***

When cross roads or other facilities are maintained by another agency, the agency must sign and date their approval on the typical section before Turnpike concurrence. If this is not possible, a letter is sent by the Turnpike to the agency confirming their concurrence

and requesting a concurrence signature. In that case, the design documentation includes a copy of the local agency standard to document design conformance. The maintaining agency does not need to upgrade their typical sections to meet higher Department or Turnpike criteria.

### 120.2.3.3 Typical Section Sheet

*Add the following item to the list in the first paragraph*

- Realigned local roads, frontage roads, cul-de-sacs, railroads, canals, aerial transmission lines, or other facilities that impact the typical cross section.

*Add the following items to the list in the sixth paragraph*

(g) Truck DDHV

*Add the following paragraph*

If major changes are planned for after initial construction, a separate future typical section drawing must be prepared. Future lanes on proposed crossroad typical sections must be dashed and labeled "Future, By Others".

### 120.2.4 Preliminary Drainage Design

*Add the following paragraph*

Complex projects require a 45% drainage submittal including plans as outlined in **TDH Table 301.2.2** and design calculations. The intent of this submittal is to verify that the design methodology used for stormwater ponds documents compliance with Department, Turnpike, and regulatory stormwater management criteria.

### 120.2.5 Preliminary Geometry and Grades

*Add the following subsection*

#### 120.2.5.1 Turnpike Preliminary Line and Grade Submittal

Submit preliminary (approximately 15%) alignment and grade sketches or computer plots depicting the proposed geometric design. The submittal must include horizontal geometry for all mainline roadways, ramps, cross streets and side roads. Vertical

geometry must be provided for all mainline roadways and cross streets. Vertical geometry for ramps and side roads must be provided if critical to the project. The sketches or computer plots can be in sheet or roll plot form and must be at a reasonable and useable scale. Base clearance water, seasonal high groundwater, and flood plain elevations must be shown in profile view.

Supporting calculations must also be submitted. Specific elements which must be addressed in the supporting documentation include:

- Design speed
- Lane widths
- Shoulder widths
- Bridge widths
- Horizontal and vertical clearances
- Stopping sight distance
- Intersection sight distance
- Aesthetics
- Access management
- Base clearance
- Existing bridge approach slab to remain evaluation

The various elements must be developed to a level of detail consistent with the objectives of the preliminary (15%) submittal as described below. Continued development and refinement of the geometric elements for subsequent phase submittals is anticipated. The primary objectives of the Preliminary (15%) Line and Grade Submittal are to:

- (1) Check consistency with the intent and scope of the Project Concept Report
- (2) Evaluate the impacts of changes to the project concept, resulting from the normal design development process as well as those due to changes in scope and the identification of adverse site conditions
- (3) Verify the geometric viability of the project for the desired design speed and traffic volumes.
- (4) Provide a basis for early coordination with other disciplines
- (5) Provide a basis for early identification of design constraints or problems
- (6) Document off-site and pavement drainage constraints; such as flood plain elevations and base clearance and seasonal high water table.

- (7) Design criteria specific to the project
- (8) Anticipated Design Variations and Design Exceptions that are associated with horizontal and vertical alignment

## 120.2.6 Preliminary Traffic Control Plan

*Add the following subsection*

### 120.2.6.1 Turnpike Preliminary Traffic Control Plan

A preliminary traffic control plan design (45%) must be submitted for review and a traffic control plan workshop with Department production and construction staff must be held following the submission. This workshop will ideally be scheduled about halfway through the Department ERC review period and is intended to facilitate a collaborative discussion of the traffic control plan to work through the proposed design and the complex issues that require Department assistance. The submission will be reviewed in the ERC system and comments will be provided for the EOR's information and consideration. No written responses will be required in ERC for this submittal as they are expected to be addressed in the subsequent Phase submittal.

Deviations from [Turnpike Lane Closure Policy](#) or from the **FDM and TDH 240, 241, 242, or 243** must be identified as part of or prior to the 45% submittal. Approval must be obtained prior to the Phase II submittal.

This submittal must contain the Roadway Plans for reference as outlined in **TDH Table 301.2.2** and design calculations, and include the following items:

- (1) Traffic pacing
- (2) Traffic detours, including lengths and impacts on toll revenue
- (3) Traffic crossovers
- (4) Paving approach and sequence, including proposed cross slope correction
- (5) Lane closure analysis and restrictions, and daytime and weekend considerations
- (6) Construction hauling route restrictions
- (7) For any speed reduction request during the maintenance of traffic operations throughout the project limits not applicable to the use of [FDOT Standard Plans, Index 102-613 Motorist Awareness System](#), a speed reduction Deviation Memorandum must be submitted and approved by the Turnpike Traffic Operations Engineer in addition to the Turnpike Design Engineer.

The preliminary submittal must be on roll plots, in electronic format, and must include:

- (1) Documentation of off-site and pavement drainage constraints
- (2) Critical cross sections at temporary traffic shifts
- (3) Typical sections for each proposed phase
- (4) Traffic pacing and detour analysis as appropriate for the project

Coordinate with the Turnpike Traffic Operations Engineer for an appropriate speed to use in the pacing analysis.

## **120.2.7 Pavement Selection and Design**

***Add the following paragraph***

Within 60 calendar days of Notice to Proceed on any design contract coordinate with the Turnpike Project Manager to schedule a meeting with the Turnpike Materials Team to review the Pavement Survey and Evaluation Report (PSER) and other pavement and subsurface data. The intent of this meeting is for the EOR to summarize their review, prior to the meeting, of all the available data and advise the Turnpike Materials Team on any additional field data that must be gathered to complete the project design.

***Add the following subsections***

### **120.2.7.1 Turnpike Pavement Design Submittals**

[Pavement Design Package Table of Contents](#) and [Pavement Coring and Evaluations Report Table of Contents](#) are available on the Turnpike Design website.

The draft version of the pavement design submittal must include the following at a minimum:

- (1) Identify if high friction surface treatment is to be used and delineate all locations high friction surface treatment will be used as well as justification why it is needed on the project. The usage must be explicitly approved (email or meeting note documentation is acceptable) by the Department and correspondence showing concurrence from the Roadway, Traffic Operations, and Maintenance departments must be included in the draft pavement design submittal.
- (2) Limits on transitioning from FC-5 and FC-12.5 must be identified on the ramps. Correspondence with Roadway, Traffic Operations, and Maintenance must be included in the draft pavement design submittal.



- (3) Equivalent baseline stations must be shown for each notation of mileposts or mile markers within the package and appendices.

### 120.2.7.2 Cross Slope Analysis During Design

Cross slope analysis on designated RRR projects must use the cross slope ranges defined in **FDM 210.9.2** and **FDM 211.2.2.1**. All non-designated RRR projects require new construction criteria and must use the cross slope tolerances for new construction cross slopes as defined by [FDOT Specifications, Section 330](#).

Existing cross-slopes must be analyzed by averaging the cross slope on a sliding scale and comparing the average cross slope against the appropriate tolerances. For practical construction purposes, Turnpike generally uses 1000 feet on tangent and 500 feet through horizontal curves as the minimum sliding scale lengths. However, lengths may be increased or decreased based on project specific warrants. The Cross Slope Analysis Report will be submitted as an Appendix in the Pavement Design Package. Simplifying the cross slope correction design and providing greater plan clarity is necessary to accomplish cross slope correction in the field. Show milling at specific cross slopes between stations from a single constant depth control point for at least 1000 feet through tangent sections and 500 feet through horizontal curves, followed by constant depth resurfacing.

The draft version of the Cross Slope Analysis Report must include the following at a minimum:

- (1) Existing cross slope analysis spreadsheet that delineates the areas of cross slope correction and areas recommended to match existing that would require a Formal Design Variation or Design Exception.
- (2) Approximately 60% completion level milling and resurfacing details that clearly identify the milling control point.
- (3) Approximately 60% completion level cross slope correction details that clearly identify the milling control point and the methodology for achieving the cross slope correction.
- (4) Approximately 60% completion level shoulder rocking details that clearly identify changes to the shoulder slopes, shoulder breakover, and any changes to the barrier wall reveal.
- (5) Draft of the 45% level TTCP phasing sequence for the paving operations.
- (6) Equivalent baseline stations must be shown for each notation of mileposts or mile markers within the package and appendices.

***Add the following subsection***

## **120.2.9 Roadway Design Documentation**

Roadway design documentation must be provided at Phase I, II, III, IV, and production submittals. The design documentation must include, but is not limited, to the following information as applicable:

- (1) Section 1 - Summary
  - (a) Narrative - summary of existing and proposed design
  - (b) Design Decision Journal
    - Document design decisions for all disciplines both internal and external in tabular format
    - Include Identification Number, Date, Author, Discipline, Subject, Decision, and an Explanation
- (2) Section 2 - Design Documentation
  - (a) Location Map
  - (b) Roadway Design Criteria (***FDM, TDH, & AASHTO*** in tabular format)
  - (c) Horizontal and Vertical Alignments (GEOPAK Output)
  - (d) Design Calculations and Exhibits (Existing, Proposed, and Temporary Traffic Control Conditions)
    - Superelevation
    - Horizontal and Vertical Stopping Sight Distance
    - Vertical Clearance
    - Barrier – Length of Need
    - AutoTURN Analysis
    - Intersection Sight Distance Analysis
    - Cross Slope and Superelevation Analysis
  - (e) MOT
    - Lane Closure Analysis (Final Signed and Sealed)
    - Pacing Analysis
    - Detour Analysis

- Impacts to Toll Facilities
- (f) Typical Section Package (Final Signed and Sealed)
- (g) Pavement Design Package (Final Signed and Sealed)
- (h) Design Exceptions, Formal Design Variations and Project Design Variation Memorandums (Final Signed and Sealed)
- (i) Summary of 5-Year Crash Data
- (j) Existing Roadway Conditions Assessment Report (ERCAR)
- (k) Meeting Minutes/Project Correspondence (Related to Roadway Elements)
- (l) Comments and Responses (Related to Roadway Elements)

The design documentation must include all design notes, data, and calculations to document the design conclusions reached during the development of the contract plans. The design notes, data, and computations must be recorded on size 8 ½" x 11" sheets, titled, numbered, dated, indexed and signed by the designer and the checker. Computer output forms and other oversized sheets are allowed. All documentation must be submitted electronically to the Turnpike Project Manager.

## 120.4 Plans Phase Reviews

***Add the following paragraph***

For each phase submittal review, provide the CADD.zip or BIM.zip as outlined in the [\*\*FDOT CADD Manual\*\*](#).

## 121 Bridge Project Development

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

### 121.9 Bridge Development Report (BDR)/30% Structures Plans

#### 121.9.9 30% Structures Plans

***Add the following sentence to the end of the first paragraph***

For most projects, the BDR contains exhibits/sketches and the 30% Plans are submitted after acceptance of the BDR recommendations.

## 122 Design Exceptions and Design Variations

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

### 122.2 Identification

#### 122.2.2 Design Variations

##### *Add the following paragraphs*

When proposed design elements are only violating the Turnpike specific criteria (TDH) a Project Design Variation Memorandum is required.

Deviations in criteria and procedures defined in the [FDOT Structures Manual](#) and structural sections of the FDM shall be documented and implemented as noted in the [FDOT Structures Manual](#) and structural sections of the FDM.

### 122.3 Justification for Approval

#### 122.3.1 Approval Process

##### *Replace this sub-section with the following paragraphs*

Submit all Design Exceptions, Formal Design Variations, and Project Design Variation Memorandums electronically to the Turnpike Project Manager for review through the ERC process. Refer to **TDH 120.2** for design submittal requirements.

Upon acceptance by Turnpike staff, submit digitally signed and sealed Design Exceptions, Formal Design Variations and Project Design Variation Memorandums to the Turnpike Project Manager who coordinates the appropriate signatures. After receiving the applicable signatures, a copy of the digitally signed document will be returned.

The draft versions must be submitted to the Department for review through ERC prior to the 45% traffic control plan workshop and plans submittal. The final version must be reviewed through ERC and the signed and sealed documents must be signed by the Turnpike Design Engineer before the Phase II plans can be submitted for review. The Phase II plans will not be accepted for review until concurrence is obtained from the Turnpike Design Engineer.

All Design Exceptions and Formal Design Variations must have the appropriate checklist completed and included with the submittal. The [\*\*Request for FTE Design Exceptions & Variations Checklist\*\*](#) and [\*\*Sample Turnpike Design Exceptions and Variations\*\*](#) can be found on the Turnpike Design website.

Design Memorandums should not be confused with Project Design Variation Memorandums. Design Memorandums are not required to be signed by the Turnpike Design Engineer and do not have a specific submittal schedule. Design Memorandums are typically used to document alternative design analysis and follow a submittal schedule that is coordinated with the Turnpike Project Manager.

## **122.4 Documentation for Approval**

***Add the following paragraph***

For Project Design Variation Memorandums coordinate with the applicable Turnpike design discipline lead to determine if additional items and other design documentation need to be included.

## 123 Engineering Design Estimate Process

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

### 123.6      **Alternative Contracting Practices**

***Add the following sentence***

Coordinate with the Turnpike Project Manager to obtain a Contract Construction Memo from the Turnpike Construction Office identifying recommendations for alternative contracting practices.

## 124 QA/QC Management Plan

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

### 124.2 Quality Control Plan

***Add the following paragraph***

Independently and continually ensure that a QC process is implemented on all reports, documents, and plans. Be responsible for the professional quality, technical accuracy, and coordination of all technical reports, surveys, designs, drawings, specifications and other services furnished by the prime consultant and their subconsultant(s).

#### 124.2.1 QA/QC Staffing Plan

***Add the following items to the list in the first paragraph***

- Constructability and Biddability Reviewer
- Maintainability Reviewer

***Add the following sentence to the end of the third paragraph***

The QC Reviewer must have similar or more relevant project experience than the Lead Technical Professional.

***Add the following paragraph after the third paragraph***

The QA Manager must be a Principal or Officer-in-Charge of the Consultant Firm.

***Replace the sixth paragraph with the following paragraph***

For consultant design projects, provide the Turnpike Project Manager with an updated staffing plan for written (e-mail) approval prior to making any staffing changes. Staff replacements must have similar or more relevant project experience than the staff they are replacing. The updated staffing plan must include resumes for the replacement staff and the staff being replaced.

***Replace the seventh paragraph with the following paragraph***

An example of a [QA/QC Project Staffing List](#) is provided on the Turnpike Design website.



## **124.3 QC Review Procedures for Plans and Documents**

***Replace the third paragraph with the following paragraphs***

The deliverable that has completed the Quality Control Review is referred to as the “QC Document”. Documents that contain multidisciplinary information must show documentation of all applicable discipline reviews. All subconsultant deliverables shall be submitted by the subconsultant directly to the prime consultant for their independent Quality Control Review and subsequent submittal to the Department.

A marked up set of prints from a Quality Control Review indicating the reviewers for each component (structures, roadway, drainage, signals, geotechnical, signing and marking, lighting, landscape, surveys, tolling, etc.) and a written resolution of comments on a point-by-point basis will be required with each phase submittal. The responsible Professional Engineer, Architect, or Professional Surveyor and Mapper that performed the Quality Control Review shall sign a statement certifying that the review was conducted and found to meet required specifications. For a paper review, scan the QC Document to PDF.

## **124.5 Certificate of Compliance**

***Add the following paragraph***

A template for the [Certificate of Compliance](#) is provided on the Turnpike Design website. Complete the Certificate of Compliance and submit with each deliverable.

## **124.7 Field Review**

***Add the following sentence to the end of the second paragraph***

An example of a [Field Review Log](#) template is provided on the Turnpike Design website.

***Add the following sections***

## **124.8 Constructability and Biddability Review**

Perform an independent Constructability and Biddability Review that is supplemental to the Quality Control Review. This review is conducted by an independent team of qualified reviewers on specific design elements or portions of a project. Members of the Constructability and Biddability review team are not assigned to the same organizational unit that managed and produced the Plans. The review shall be performed by a person(s) with experience working on Department construction projects (CEI, Contractor, etc.). The

review shall ensure the project can be constructed and paid for as designed. Conduct the reviews prior to the Phase III and Phase IV submittals, using the Phase Review Checklist (Guidance Document 1-1-A) from the [FDOT Construction Project Administration Manual \(CPAM\)](#) as a minimum guideline. Submit this checklist as well as the set of plans marked-up during this review, and review comments and comment responses from any previous reviews. These documents will be reviewed by Turnpike's Design and Construction Offices.

## **124.9 Maintainability Review**

Perform a documented review prior to the Phase III submittal to determine the ease with which the roadway can be maintained in order to: isolate and correct defects or their cause, repair or replace damaged components, prevent unexpected failures, maximize the facilities' useful life, meet new requirements, make future maintenance easier, and maximize efficiency, reliability, and safety. Submit the marked-up set of plans during this review, review comments, and comment responses with the Phase III submittal.

### **124.10 Quality Process Log**

Use a Quality Process Log to monitor, track, and document the production and review process for each deliverable and support documentation. Quality Process Logs provide a record of the progress of the project and document the completion of each major phase of the submittal production and review process. Submit the current up to date log with each deliverable.

An example of a [Quality Process Log](#) is provided on the Turnpike Design website.

## 125 Quality Assurance

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 126 Lane Repurposing Projects

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 127 Community Aesthetic Features

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 128 Federal-Aid Project Certification

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 130 Signing and Sealing Documents

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 131 Plans Processing

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

### 131.1 General

#### 131.1.1 Definitions

***Replace the following definitions***

- (5) **Plans, Specifications, and Estimates (PS&E) Package:** This package is transmitted by the Turnpike PS&E Team to District Contracts Office for letting. The package consists of signed and sealed Final Plans and BIM.zip, Specification Package, the Estimated Quantities Report, and other contract and transmittal documents. PS&E submittals are numbered consecutively, and re-submittals are required until the project is accepted by the Turnpike PS&E Team.
- (7) **Production Date:** The committed completion date for Final Plans, Specifications Package, and related design documentation to be submitted by the Design Consultant to the Turnpike Design PM.
- (11) **Supplemental Specifications Package:** A signed and sealed document modifying the Specifications Package after construction contract advertisement.

***Add the following definition***

- (12) **PS&E Submittal:** After Phase IV and no later than three weeks before the Production Date, submittal of signed and sealed Final Plans, Specifications Package, and design documents for review by the Turnpike PS&E Team in ERC.

### 131.2 District Plans Processing

***Replace this section with the following paragraphs***

All Turnpike construction contracts are let utilizing Turnpike's Contracts Administration Office. Turnpike does not let projects through the Central Office "Final Plans" section.

Transmit the signed and sealed PS&E Package to the Turnpike Design Project Manager. All deliverables will then be reviewed by the Turnpike PS&E Team. Any comments will be provided and a request will be made to resubmit the updated deliverables. Any questions



about Plans Processing should be vetted through the Turnpike Design Project Manager and Turnpike PS&E Team.

## 132 PS&E Submittal Package Revisions

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 133 Retention of Electronic Documents

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 140 Lump Sum Projects

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 150 Consultant Priority Matrices

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 151 Plan Revisions

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***No changes to this chapter***

## 152 Shop Drawing Submittals

The following are changes, additions or deletions to the January 2022 FDOT Design Manual (FDM), Topic #625-000-002, for use on Turnpike projects only.

***Replace within whole chapter***

Any references outlined within **FDM 152** to the Engineer of Record or EOR shall be replaced with Architect of Record or Engineer of Record (AOR or EOR).

### 152.3 Contractor Information Required

***Replace the first sentence with the following sentence***

A Shop Drawing submittal that omits any of the minimum requirements listed in [FDOT Specifications](#), **Sections 5-1.4.4.1, 5-1.4.4.2 and 5-1.4.6.1** must be returned for resubmittal.

### 152.4 Submittals Requiring a Specialty Engineer or Contractor's Engineer of Record

***Replace the first and second paragraphs with the following paragraphs***

When required, the Specialty Engineer or Contractor's Engineer of Record must provide a digitally signed and sealed Working Drawing submittal. The signed and sealed Shop Drawings, as well as a working copy for comments and stamping, will be retained by the Department as the official, Record Shop Drawing as a portfolio.

Digitally Signed and Sealed Shop Drawing submittals by a Specialty Engineer or Contractor's Engineer of Record typically include Digitally Signed and Sealed drawings and calculations.

### 152.5 Transmittal of Submittals

***Add the following sentence***

Submit Shop Drawings electronically using Turnpike's website, ProjectSolve.

## **152.5.2 Requirements for Consultant EOR (Full Services)**

### **152.5.2.2 Review by Engineer of Record and the Department**

***Replace this subsection with the following paragraph***

On projects where the EOR is a Consultant to the Department and has been retained by the Department to review construction items, submittals (unless otherwise noted below) must be transmitted by the Contractor directly to the Consultant. Upon receipt of the submittal, the Consultant must perform the review, note any comments on the sheets, indicate his disposition by stamping the sheets as described hereinafter, and transmit the sheets to the Turnpike Shop Drawing Review Office for review and distribution. When submittals require a Specialty Engineer, the original digitally signed and sealed submittal forms the official, Record Working Drawing submittal and must be retained by the Department. Upon completion of his review, the Consultant must add his comments to a working copy of the digitally signed and sealed sheet.

## **152.6 Disposition of Submittals**

***Replace the first paragraph with the following paragraph***

The approval or disapproval of shop drawing submittals by the AOR or EOR and the Turnpike Reviewers must be indicated by one of the following designations: "APPROVED" (no further action required), "APPROVED AS NOTED" (comply with comments. No further submission required), "APPROVED AS NOTED-SUBMIT SPECIFIC ITEM" (approval is contingent upon the submission of additional information required to perform a complete review under the submitted Roadway Division or TSP Section), "NOT APPROVED" (Rejected. Submit items for review that meet project requirements under applicable Roadway Division or TSP Section), "NOT REVIEWED-INCOMPLETE" (insufficient data submitted in order to perform a complete review. Resubmit requested data for approval), or "RESUBMIT" (resubmit with noted corrections).



**Modification for Non-Conventional Projects:**

Delete the above paragraph and replace with the following:

The approval or disapproval of submittals by the AOR or EOR must be indicated by one of the following designations: "APPROVED" (no further action required), "APPROVED AS NOTED" (comply with comments, no further submission required), "APPROVED AS NOTED-SUBMIT SPECIFIC ITEM" (approval is contingent upon the submission of additional information required to perform a complete review under the submitted Roadway Division or TSP Section), "RESUBMIT" (make corrections noted and resubmit for approval), or "NOT APPROVED" (rejected - submit items for review that meet project requirements under applicable Roadway Division or TSP Section), "NOT REVIEWED-INCOMPLETE" (insufficient data submitted in order to perform a complete review, resubmit requested data for approval). Only shop drawings that have been "APPROVED", or "APPROVED AS NOTED" must be submitted to the Department for review. Submit copies of QA/QC shop drawing check prints to the CEI along with the shop drawing.

The Department must stamp the drawings "RELEASE FOR CONSTRUCTION", "RELEASE FOR CONSTRUCTION AS NOTED", "RELEASE FOR CONSTRUCTION AS NOTED-SUBMIT SPECIFIC ITEM" or "RESUBMIT". Where possible, mark all necessary requirements on the shop drawing sheet and stamp "RELEASE FOR CONSTRUCTION AS NOTED" instead of requiring a resubmittal.

***Replace item (2) on the list in the eighth paragraph with the following item***

- (2) The Shop Drawings are correctly digitally signed and sealed by the Specialty Engineer or Contractor's Engineer of Record.

## **152.9 Submittal Activity Record (Logbook)**

***Replace this section with the following paragraphs***

The Turnpike Shop Drawing Review Office is the Final Review Office and keeps the Shop Drawing Activity Record (Logbook), using ProjectSolve. An activity log (or Status Report) of submitted working drawings can be generated for each project on a daily basis. The following data is entered and generated within the ProjectSolve System.

- (1) Financial Project ID
- (2) Contract Number
- (3) Roadway Division or Specification Section

- (4) Turnpike Working Drawing Number
- (5) Description of Working Drawing Entry (Title)
- (6) AOR or EOR Submittal Number (if applicable)
- (7) Contractor Submittal Number (if applicable)
- (8) Date Submitted by Contractor to the AOR or EOR
- (9) Date Submitted by AOR or EOR to Florida's Turnpike Enterprise Shop Drawing Review Office
- (10) Date Distributed by the Final Review Office to the Contractor
- (11) AOR or EOR Disposition
- (12) Turnpike Disposition

ProjectSolve gives a historical record of individual working drawing reviews. It can serve as verification of review time, to respond to inquiries regarding a working drawing's status and as a record of manpower effort to aid in estimating and allocating future workload. It is also used as inventory for FDOT Statewide components for future maintenance.

## **152.10 Archiving Record Shop Drawings**

***Replace this section with the following paragraphs***

The ProjectSolve Team is working on an automatic system for archiving Working Drawings once they are processed. They will be working with Turnpike Shop Drawing Review Office to train them on this process. Any previous forms of archiving Working Drawings will be replaced by the new process.

Refer to **TDH 152.9**, which explains the Shop Drawing Activity Record (Logbook).

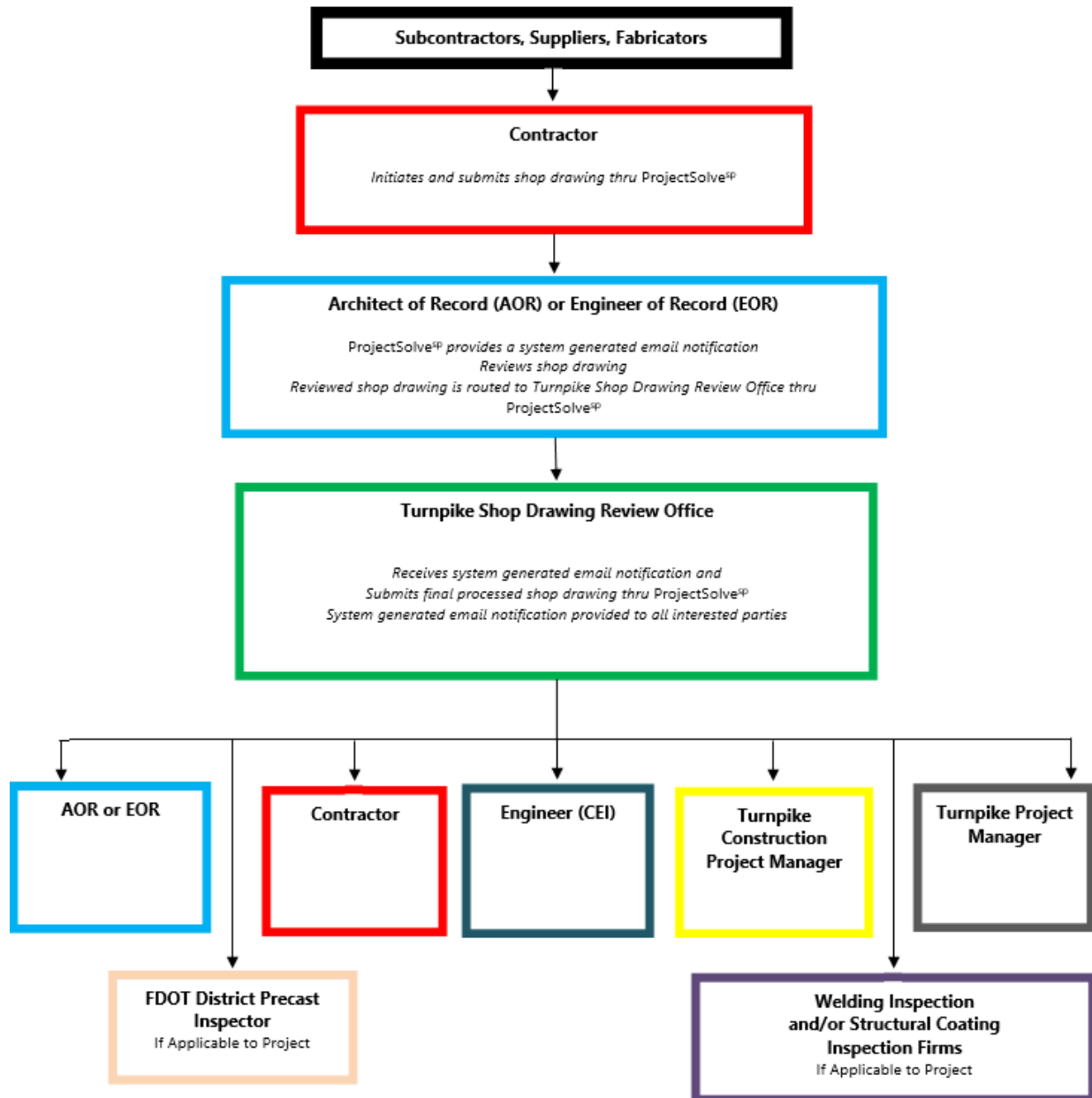
## **152.11 Working Drawing Flow Diagrams**

***Replace the first paragraph with the following paragraph***

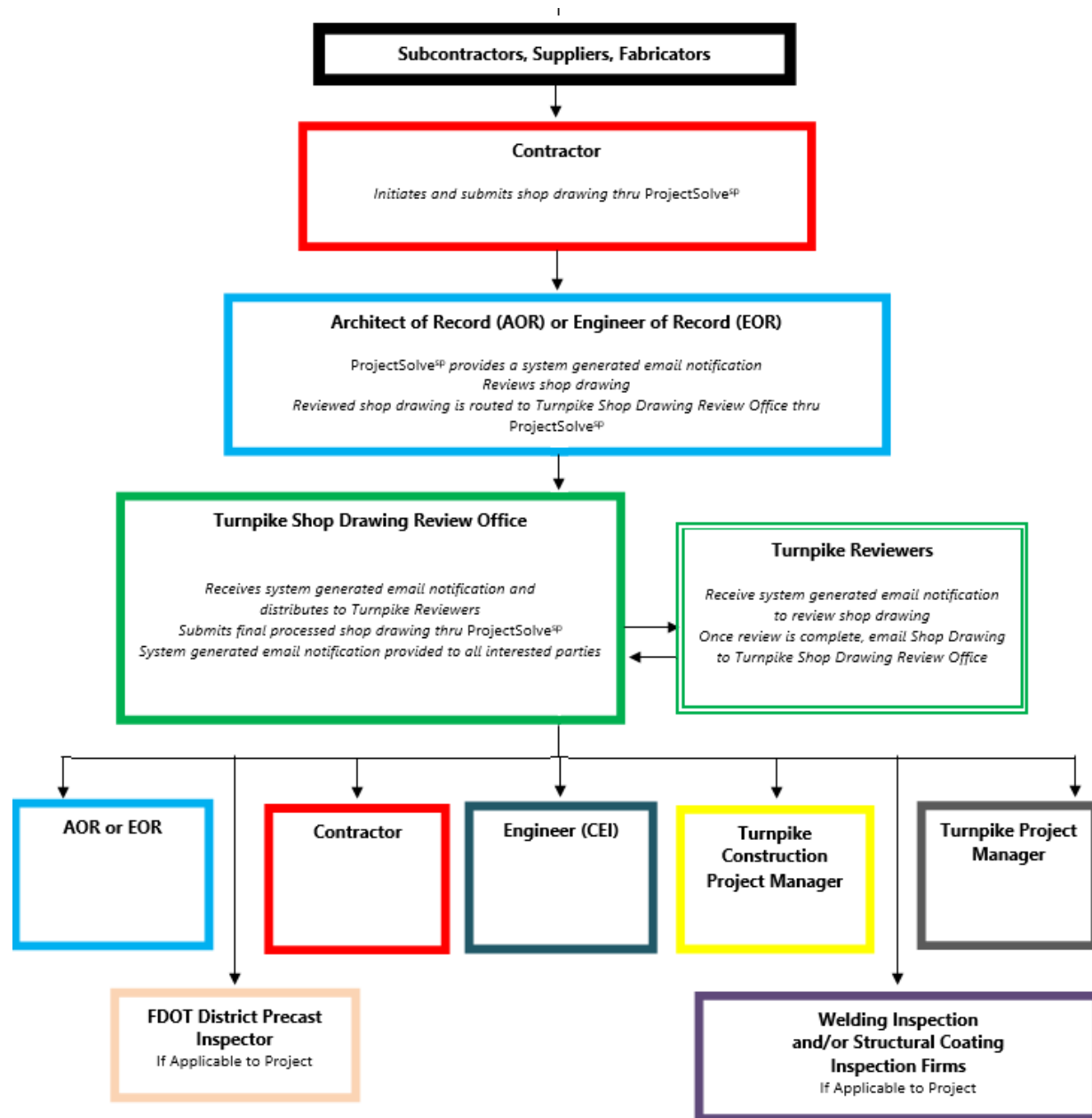
**Figures 152.11.1** through **152.11.4** show the submittal and distributional flow of working drawings for reviews.

***Replace Figures 152.11.1 through 152.11.5 with the following figures***

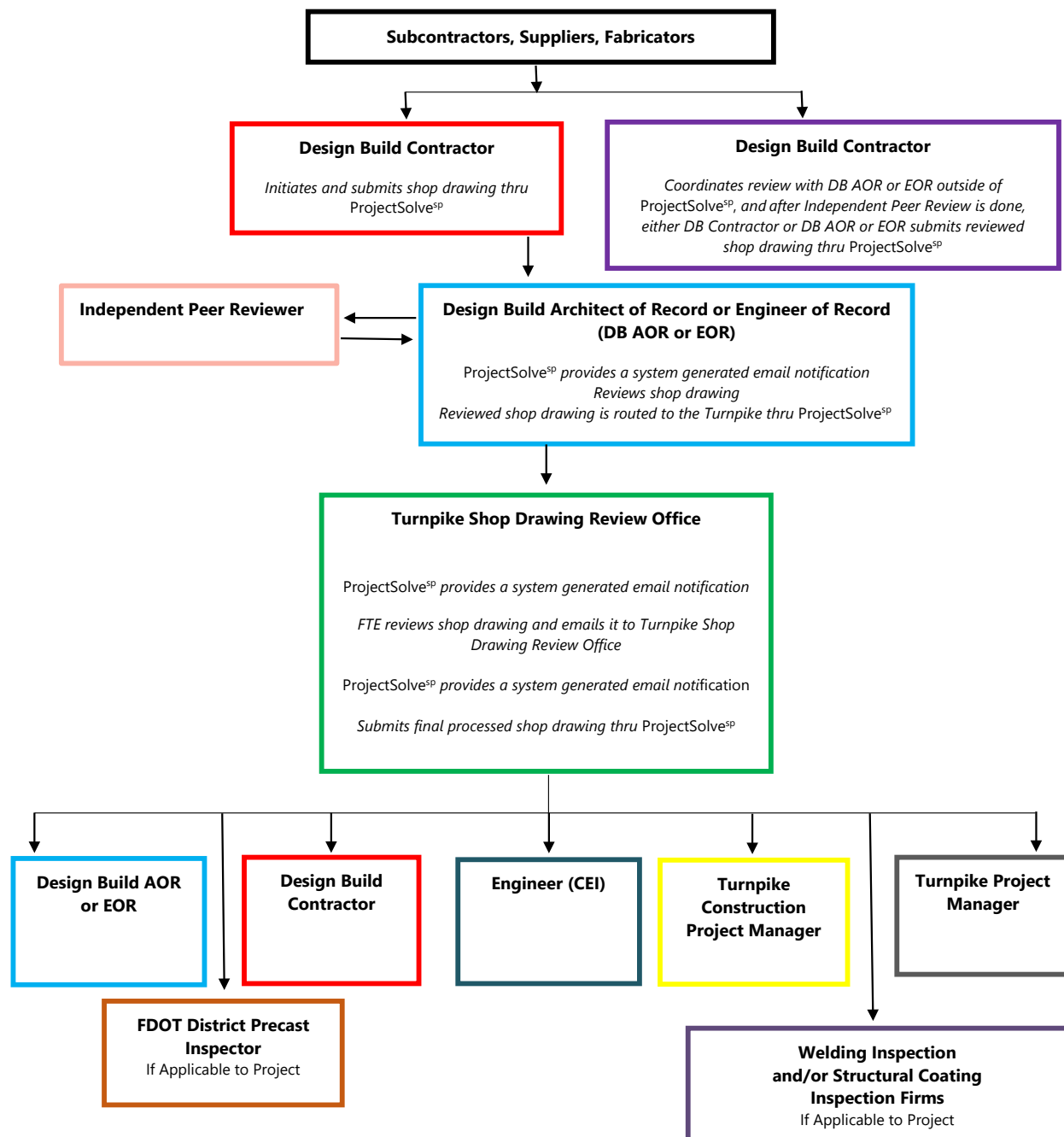
**Figure 152.11.1 Turnpike Working Drawing Flow Chart for Reviews with Consultant EORs without FDOT Review (Design Bid Build/Conventional Projects)**



**Figure 152.11.2 Turnpike Working Drawing Flow Chart for Reviews Performed by Consultant EORs with FDOT Review (Design Bid Build/Conventional Projects)**



**Figure 152.11.3 Turnpike Working Drawing Flow Chart for Design Build/Non-Conventional Projects – Working Drawings Affecting Public Safety**



**Figure 152.11.4 Turnpike Working Drawing Flow Chart for Design Build/Non-Conventional Projects – Working Drawings Not Affecting Public Safety**

