Hollywood, FL

June 13-14, 2024

2024 TRANSPORTATION SYMPOSIUM

Non-Department Bridges over State ROW/Pedestrian Bridges

Pablo J. Orozco, P.E. & Darren K. Lucas, P.E.

District 6 Maintenance & SDO Plans Review Group

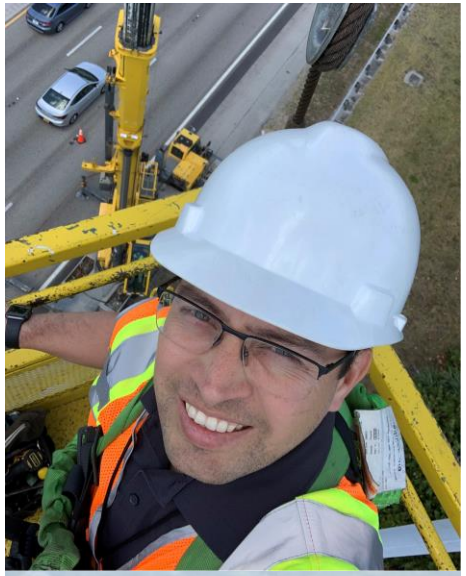
FDOT

Disclaimer

This document shall not be construed as a governing regulation for design or construction purposes. It is the responsibility of the EOR to ensure an adequate design consistent with the project specific contract documents. The images included should not be interpreted as accepted precedents.

Presenters

Pablo Orozco is currently the District Six Structures Maintenance Engineer at FDOT. His responsibilities include overseeing the Structures Maintenance Program for Miami Dade and Monroe Counties. Pablo joined the Department in 2008 as a PE Trainee. He has managed several types of maintenance bridge contracts for bridge inspections, repairs, asset management, rehabilitation design, and special investigation tasks. Pablo is a Florida registered professional Engineer and graduated from Florida International University with a bachelor's degree in Civil Engineering, and a master's degree in Structural Engineering. He is a Certified Bridge Inspector, Certified Tunnel Inspector, and a Certified Public Manager.



Darren Lucas is an Assistant State Structures Engineer in the Structures Design Office acting as the Plans Review Group Section Leader. He has been with the Department since 2018 in various roles within the Plans Review Group. Prior to the Department, he worked around 19 years within the private sector both as a bridge designer and construction engineer on a variety of projects for municipal, state, federal, and private entities. Darren is a graduate of the University of Florida with a bachelor's degree in Civil Engineering and is a Florida registered Professional Engineer.

Outline

Introduction of Bridges within FDOT ROW

- Roadway vs. Pedestrian Bridges
- Public vs. Private Bridges

Presentation of recent public & private bridges

- Roadway
- Pedestrian
- Railroad/Light Rail Transit

Introduction of the current FDOT process/phasing

- Design Review: Introduce items such as submittals, review process (duration), applicable standards, manuals, specifications, requirements. Highlight policy changes. Define Cat 1 & 2 structures per FDM.
- Use & occupancy Agreements: Describe the type of agreement and what will be typically included. This is created by FDOT General Counsel Office and coordinated with the lessee representatives
- Construction Permit: Describe how this process goes and the typical language and requirements included in this document
- Construction Phase: Typical requirements during construction (this will be included on the permit)
- Post Construction Requirements (Typical requirements for inspection and maintenance)

Objective

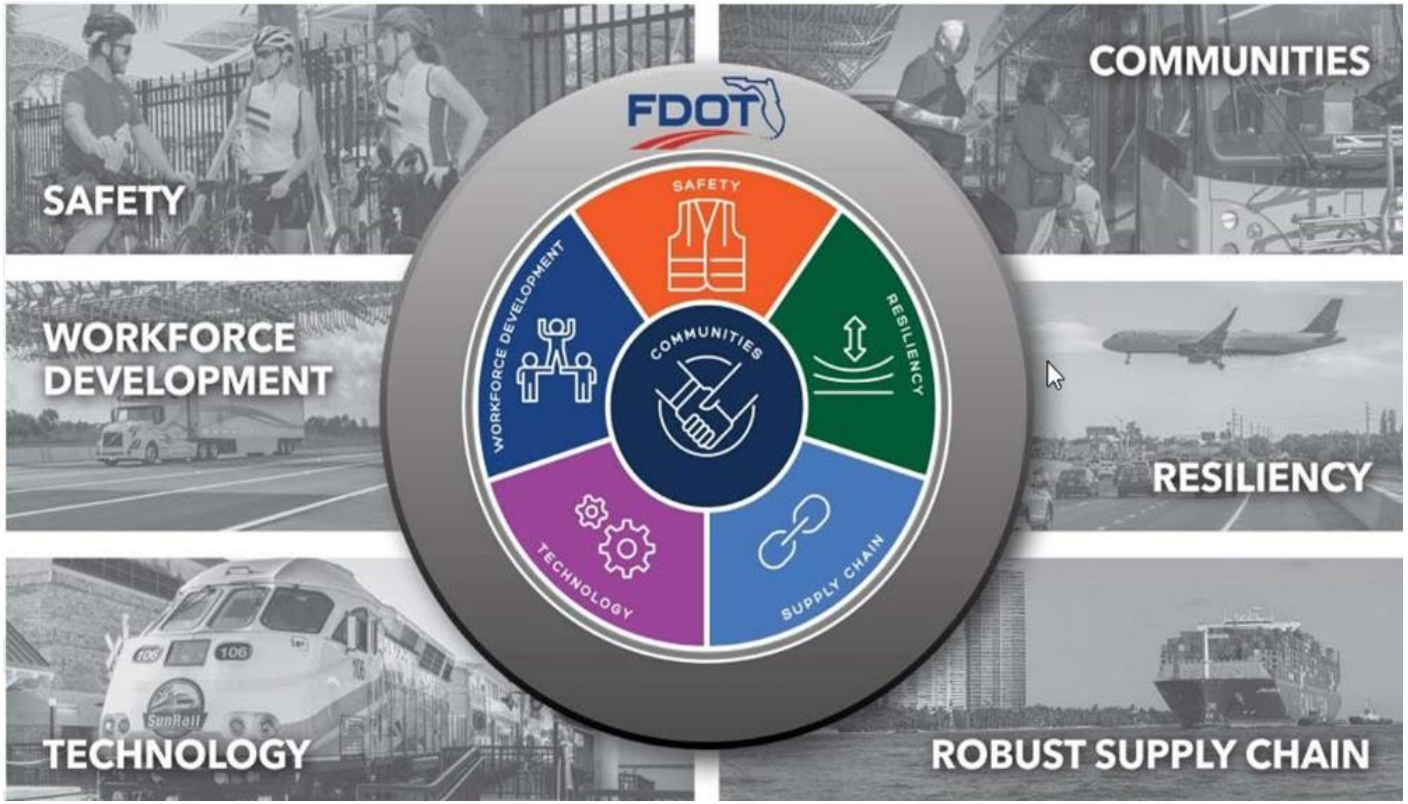
Provide an educational overview to Engineers, Contractors, Owners as to:

- The current FDOT process/phasing when non-FDOT bridges are to be built within FDOT ROW.
- Types of non-Department Bridges.
- Example of recent projects with focus on Pedestrian Bridges.
- Approval processes, applicable criteria and project phases.

Safety Message

Safety Begins with You

- When visiting any construction site, be sure to have all Personal Protection Equipment (PPE's) required. Plan ahead!
- Stay off the cell phone when walking around jobsite. Remove any earpieces that can impair hearing equipment backup alarms. Construction sites can be dangerous, congested places with heavy equipment moving all around.



Introduction to Bridges within FDOT ROW

Location and Types of Bridges

- On State ROW
- Over State Roads
- Over Channels and Rivers
- Over Railroads

Introduction to Bridges within FDOT ROW

Public vs. Private Bridges

- *Private Bridge:* A bridge open to public travel and not owned by a **public authority** as defined in 23 U.S.C. 101. (23 CFR 650.305)
- *Public road:* The term "public road" means any road or street under the jurisdiction of and maintained by a public authority and **open to public travel** as defined in 23 U.S.C. 101(a)(21). (23 CFR 650.305)
- *Public authority* - The term "public authority" means a Federal, State, county, town, or township, Indian tribe, municipal or other local government or instrumentality with authority to finance, build, operate, or maintain toll or toll- free facilities as defined in 23 U.S.C. 101(a)(20). (23 CFR 650.305)

Introduction to Bridges within FDOT ROW

Public vs. Private Bridges

- Private Bridges
  - District Bridge Inventory
  - Maintenance and Operations under bridge owner
  - FDOT oversees that owner meet the requirements for M&O
  - Owner is responsible for Inspection and Structural Analysis
- Public Bridges
  - National Bridge Inventory
  - Maintenance and Operations under bridge owner
  - FDOT is responsible for Inspection and Structural Analysis
  - FDOT had authority to enforce bridge posting and closures
  - FDOT is required to report bridge information to Federal Highway Administration

Recent Public and Private Bridges

Public and
Private Bridges

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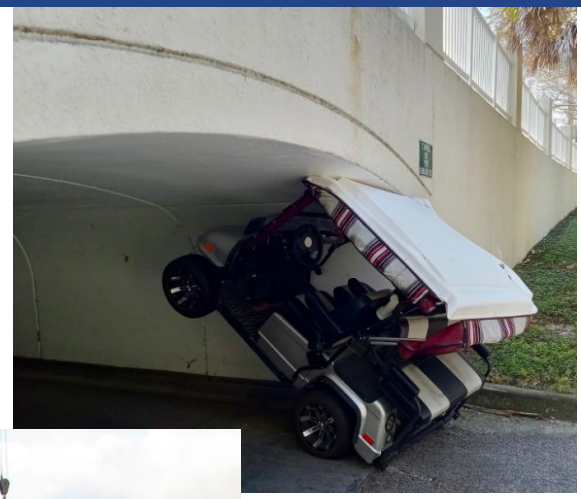
Recent Public and Private Bridges

Roadway Example

Notorious golf cart intersection in
Villages-News.com



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Recent Public and Private Bridges

Pedestrian

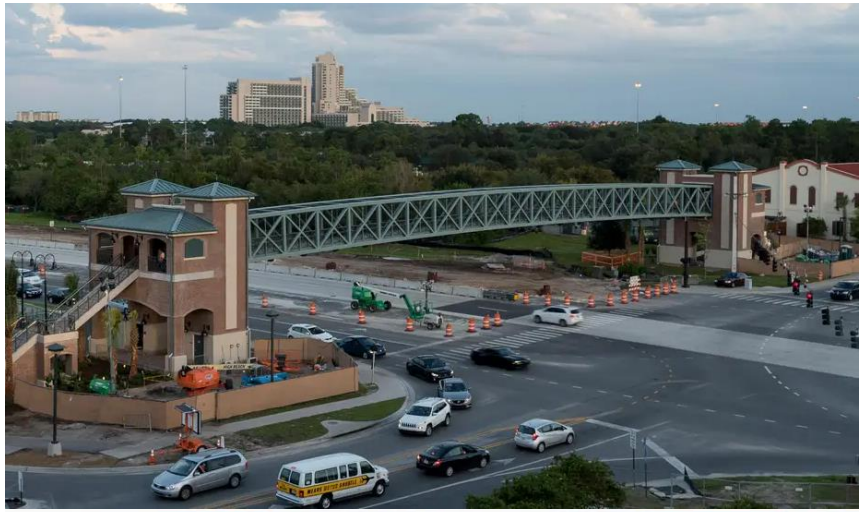
4 PERSPECTIVE VIEW

2 PERSPECTIVE VIEW

3 PERSPECTIVE VIEW

NOTE: ALL 3D IMAGES ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. THEY ARE NOT INTENDED FOR USE IN CONSTRUCTION AND DETAILING OF THE PROJECT

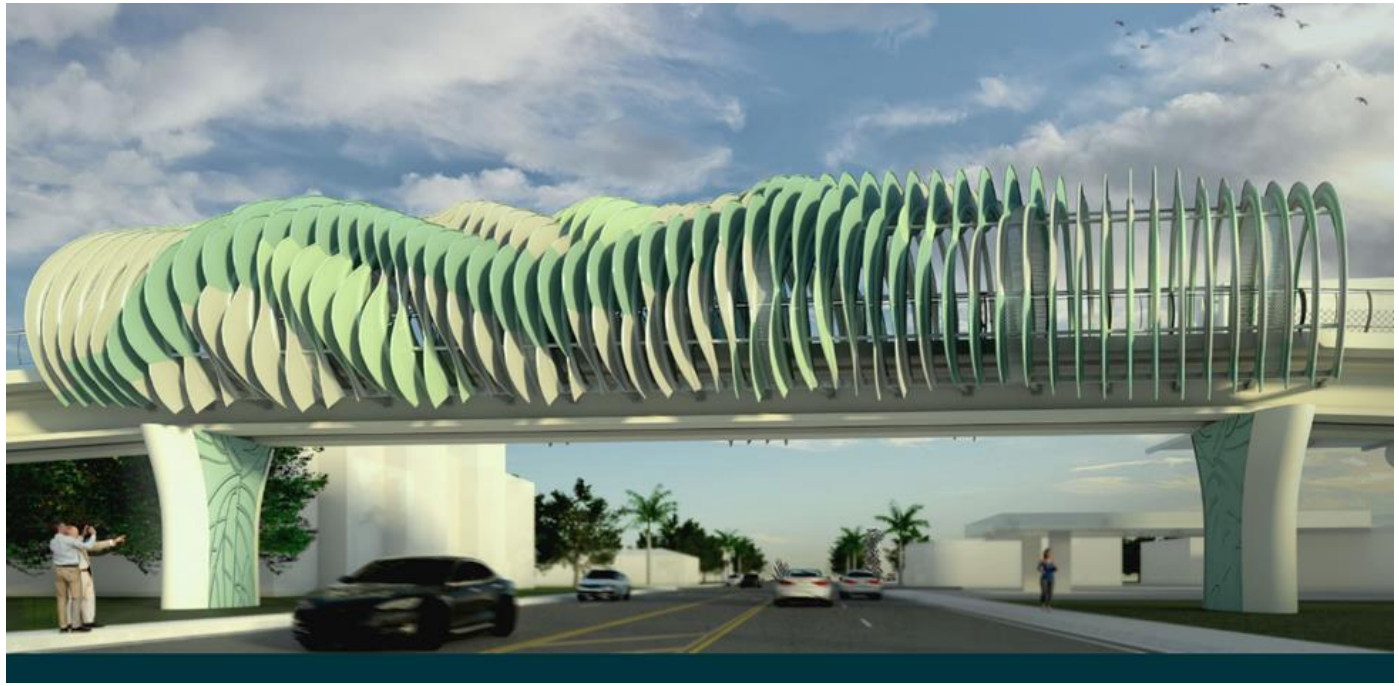
1 PERSPECTIVE VIEW

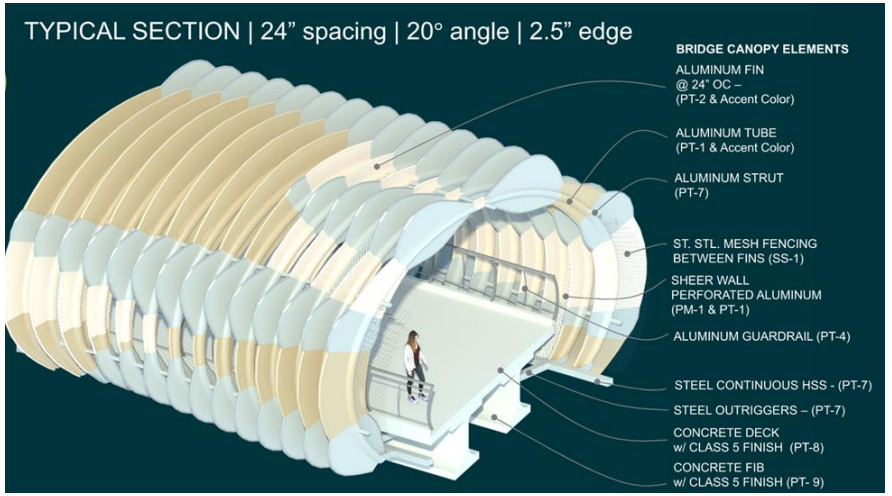


TRANSPORTATION SYMPOSIUM

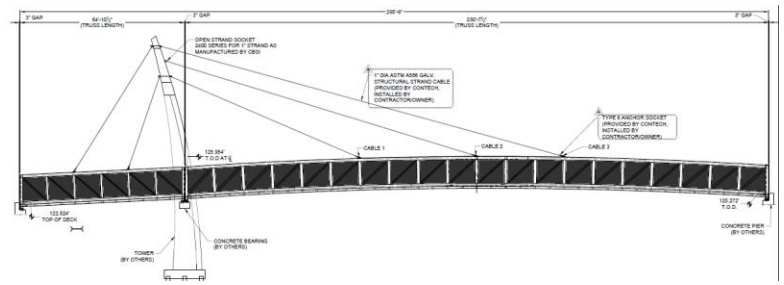
Recent Public and Private Bridges

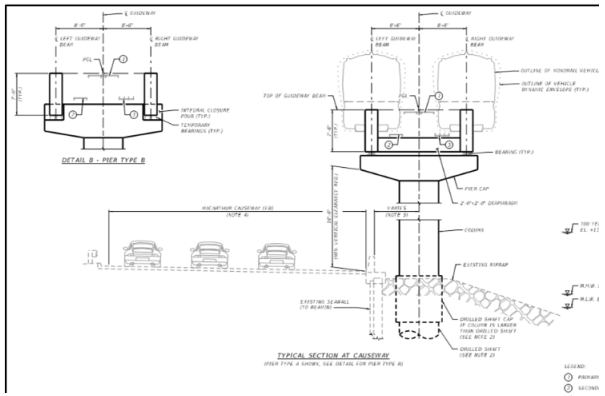
Pedestrian

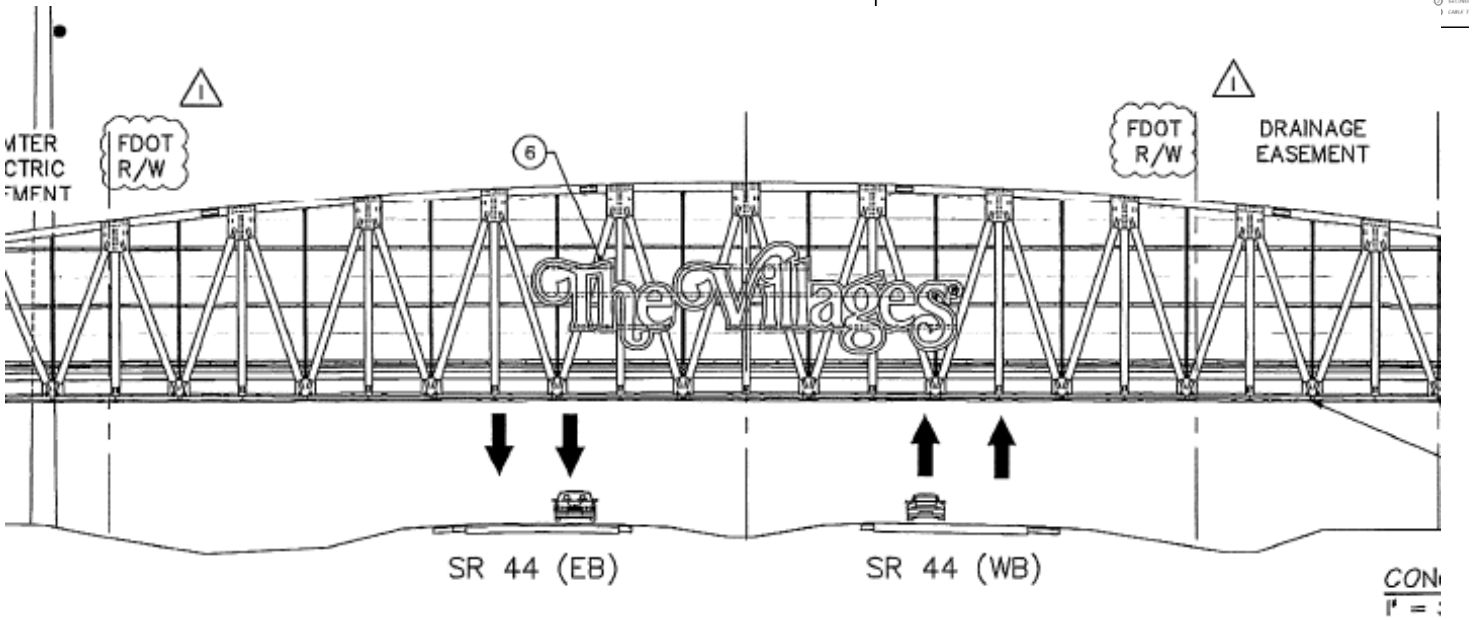


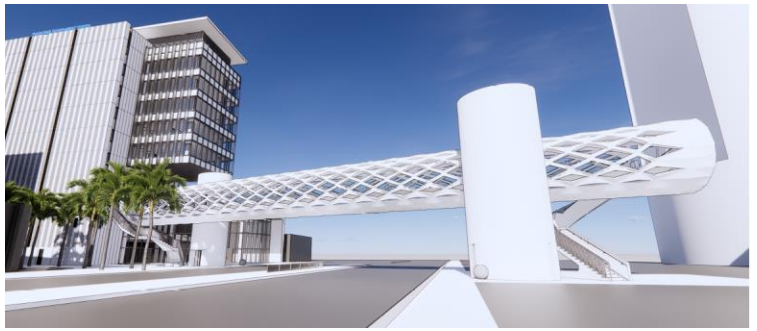


Recent Public and Private Bridges





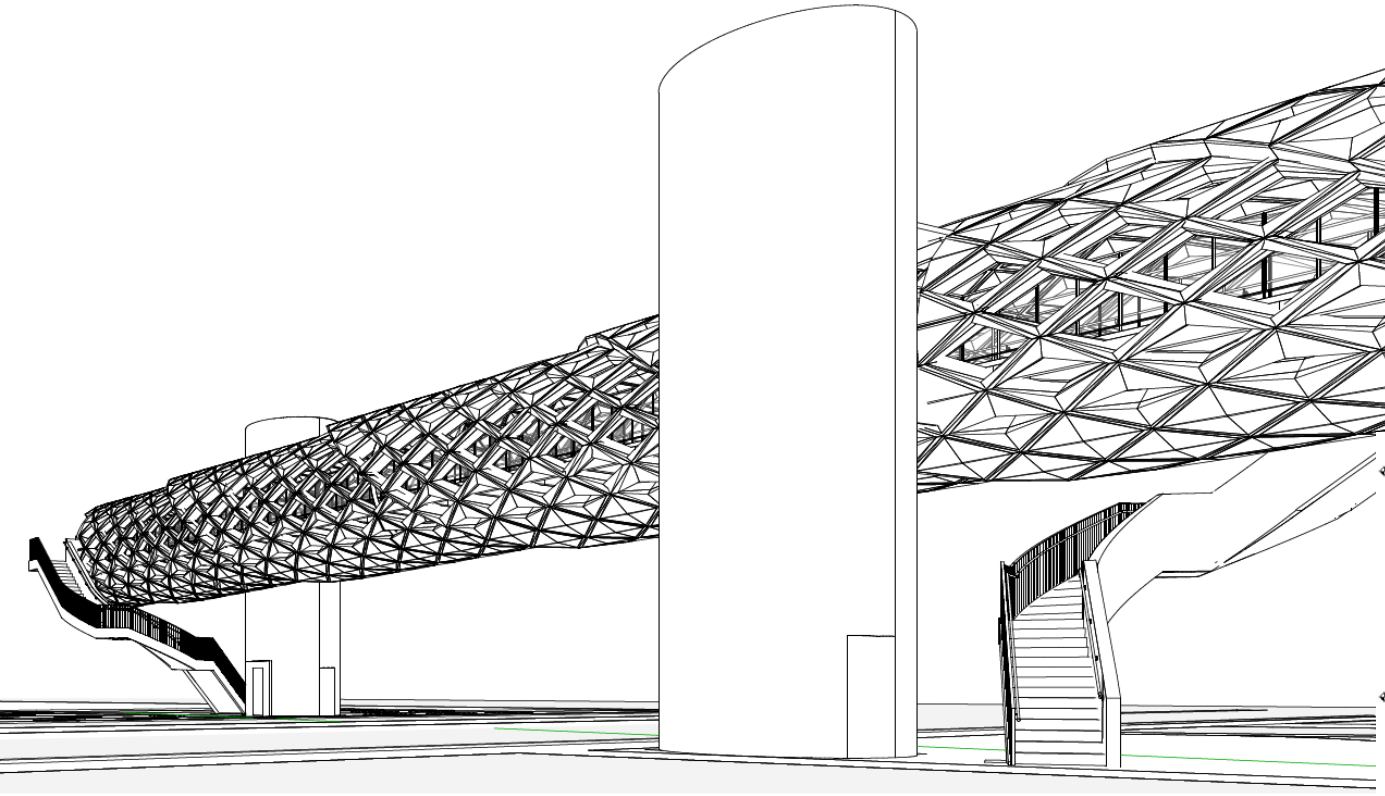


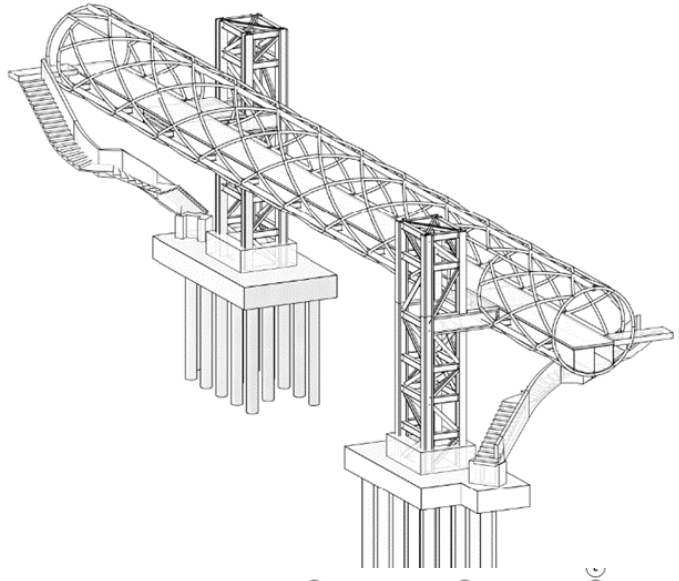


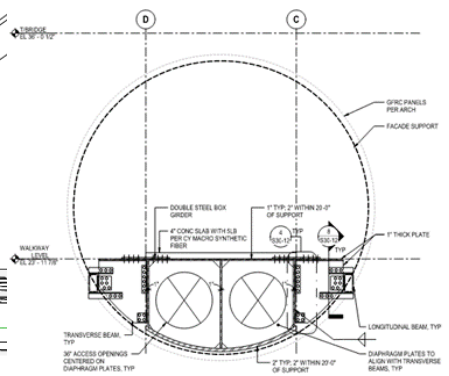
TRANSPORTATION SYMPOSIUM

Recent Public and Private Bridges

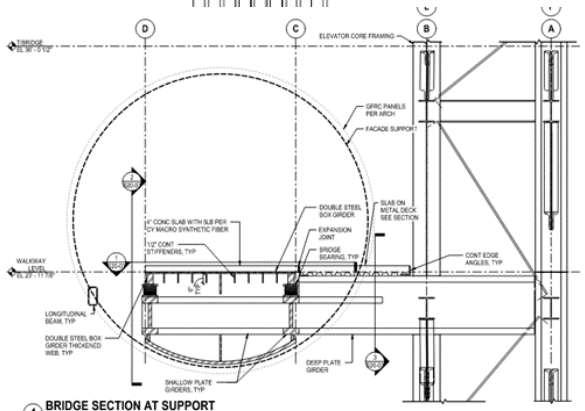
Pedestrian







3 BRIDGE SECTION AT TRANSVERSE BEAMS



4 BRIDGE SECTION AT SUPPORT

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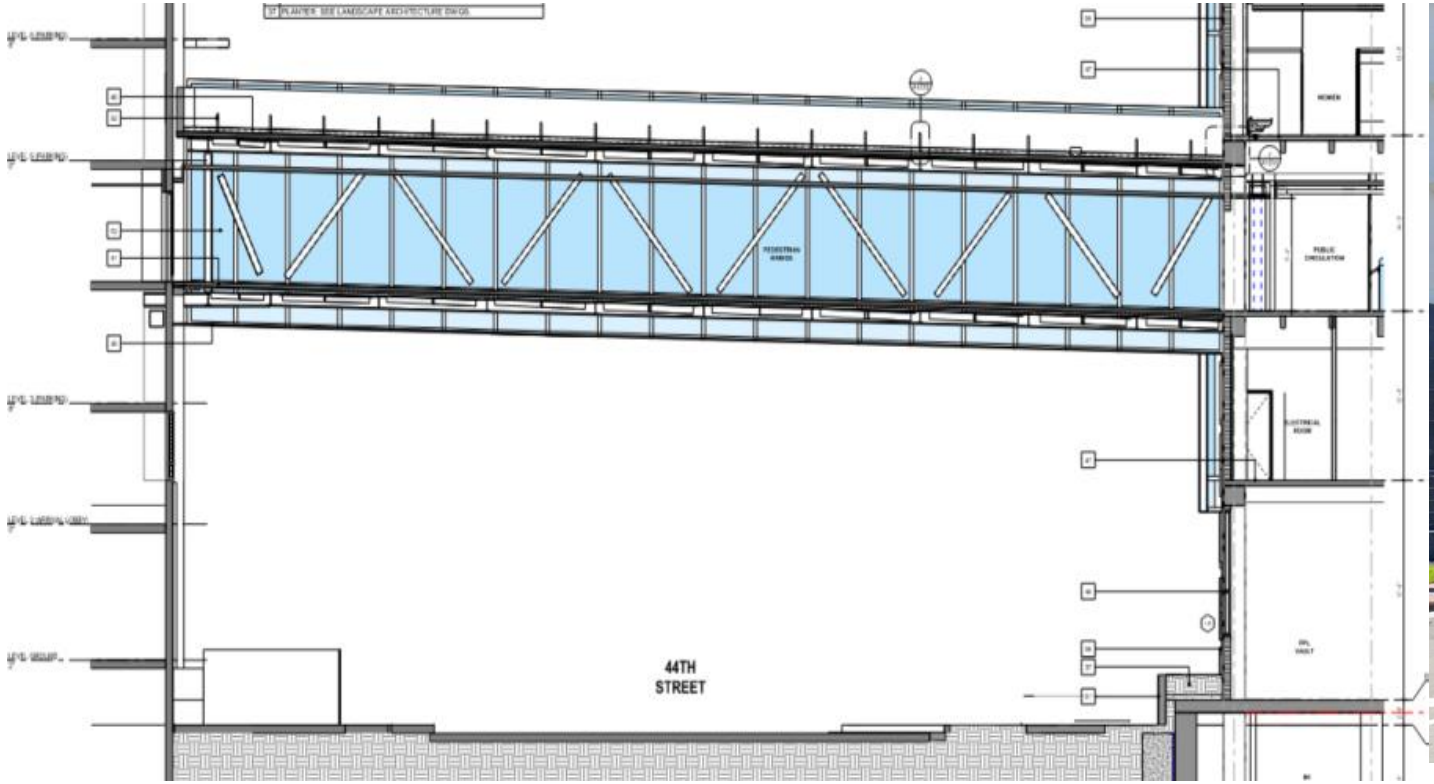
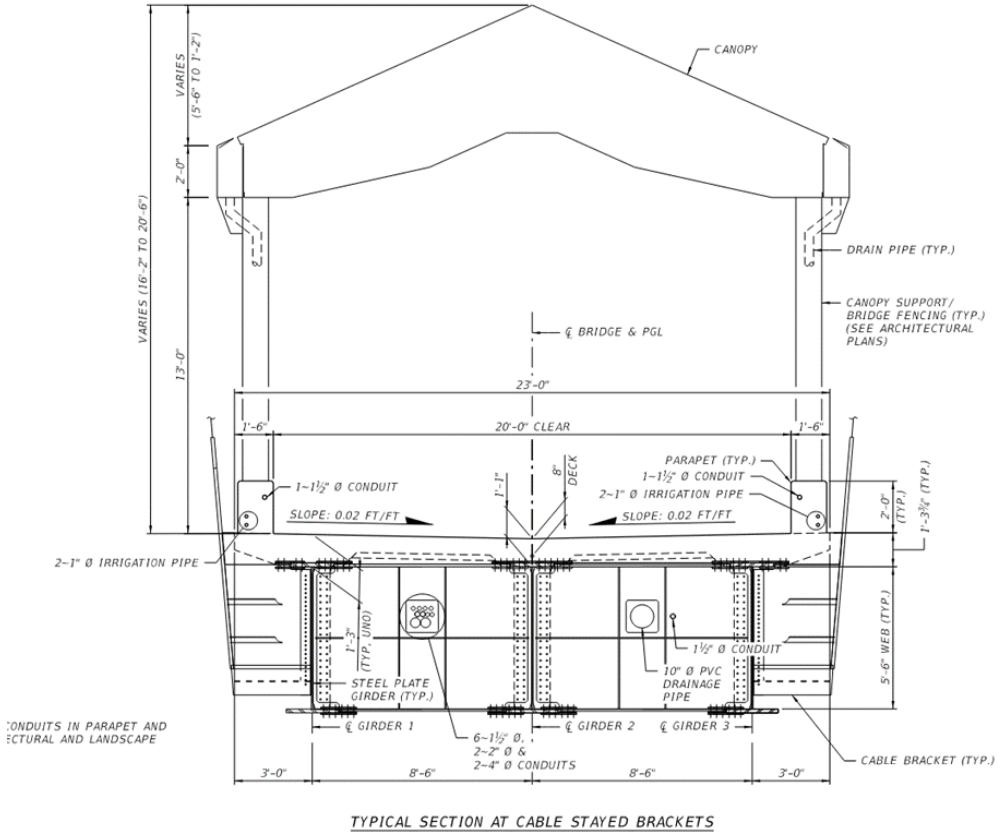
Recent Public and Private Bridges

Pedestrian



Recent Public and Private Bridges

Pedestrian



TYPICAL SECTION AT CABLE STAYED BRACKETS

Recent Public and Private Bridges

Pedestrian

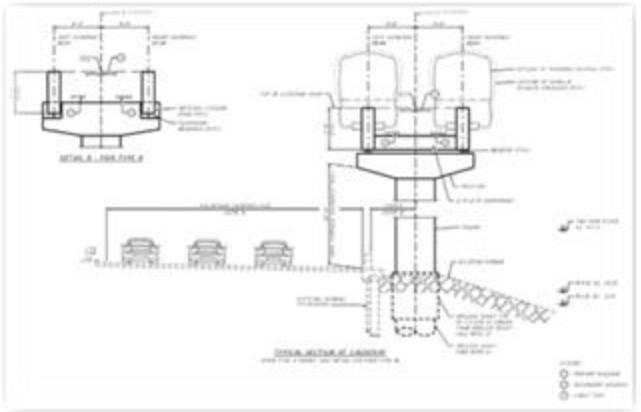
Recent Public and Private Bridges

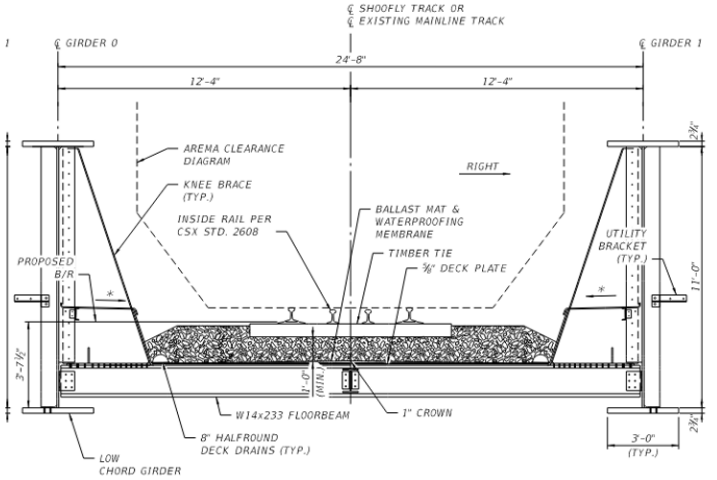
Pedestrian

TRANSPORTATION SYMPOSIUM

Recent Public and Private Bridges

Railroad/Light Rail Train





TRANSPORTATION SYMPOSIUM

Introduction of the Current FDOT Process/Phasing

Major steps:

- **Pre-Application Meeting**
- **Design Phase Reviews**
- **Use and Occupancy Agreement**
- **Construction Permit**
- **Post Construction Requirements**

Introduction of the Current FDOT Process/Phasing

- **Pre-Application Meeting**
  - A pre-application meeting to discuss the proposed pedestrian bridge with Department personnel is required to initiate the process.

    - FDOT PM
    - FDOT District Permit Engineer

    Contact information can be found at FDOT's One Stop Permitting website

Introduction of the Current FDOT Process/Phasing

Design Review

Florida Statute 334.175(2) requires the Department review project design plans for portions of transportation projects on, under, or over Department-owned right-of-way, regardless of funding source, for compliance with Departmental design standards and criteria.

The Department has a policy to require that structures built of the FDOT ROW to be designed, built, and construction in accordance with all FDOT requirements. All requirements are contained with these governing documents:

- **AASHTO LRFD Bridge Design Specifications (9th ed current)**
- **AASHTO Pedestrian Bridge Guide Specifications**
- **Florida Design Manual (FDM)**
- **Structures Manual (4 Volumes)**
- **Local Programs Manual (LAP)**

Introduction of the Current FDOT Process/Phasing

First a couple of quotes:

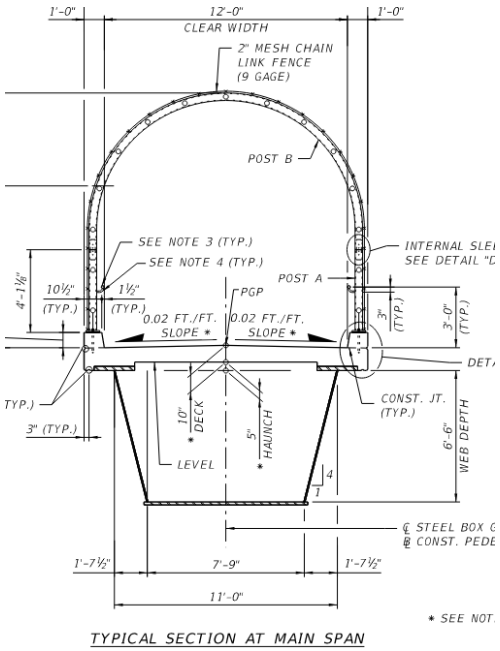
Form follows function – Louis Sullivan (1856–1924)

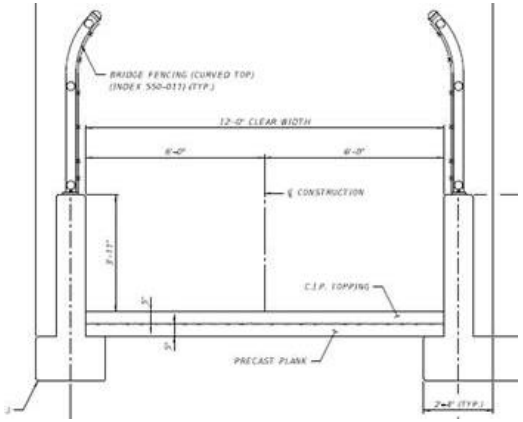
Department should not be required to waive design criteria to accommodate unique form/aesthetics. The purpose of a crossing is to convey vehicles or pedestrians safely across an FDOT facility

Past Performance is not a guarantee of future results – standard investment industry disclaimer

In this context "performance" should be changed to "precedent". A request to waive Department design criteria should not be based on there being a previous example in service.

Recent precedent examples





TRANSPORTATION SYMPOSIUM

Introduction of the Current FDOT Process/Phasing

Design Review

- Phase reviews (30%/Phase I, 60%/Phase II, 90%/Phase III, 100%/Phase IV). See FDM 121.14 for content requirements.
- Design submittals (plans and calculations) must be from an FDOT pre-approved engineering firm. This now includes pedestrian bridges per FDM 266.2.
- The 90% and 100% submissions must include Independent Peer Review certifications. See FDM 121 for specifics.
- Comments must be closed out prior to progressing to next phase.

Most important thing to remember – it's in the EOR's and Owner's best interest to not try skipping phase submittals. Getting FDOT involved late in design process can result in costly rework and schedule impacts.

Introduction of the Current FDOT Process/Phasing

Relevant Policy – FDM 121

Just a reminder that structures are divided into two Categories…

121.3.1 Category 1 Structures

The following structure types are classified as Category 1 Structures:

(1) Box or three-sided culverts
(2) Bridges with simple or continuous span reinforced concrete slab superstructures
(3) Bridges with prestressed concrete slab superstructures
(4) Bridges with simple span non-post-tensioned concrete beam or concrete girder superstructures with cast in place decks
(5) Widenings for the structure types listed above
(6) Prefabricated steel truss pedestrian bridges meeting the Category 1 conditions of ***FDM 266.4***
(7) Retaining walls
(8) Roadway signing, signalization, and lighting supports
(9) Overhead sign structures and toll gantries
(10) Noise walls and perimeter walls

Note that Category 2 structures must be reviewed by SDO and that design schedules will need to accommodate.

121.3.2 Category 2 Structures

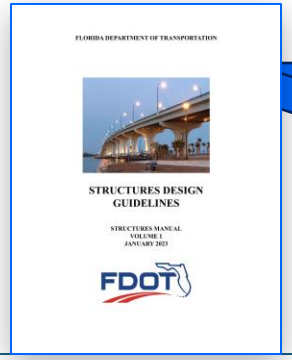
All structure types not listed above are classified as Category 2 Structures unless exempted by the SDO. In addition to, or in lieu of, the criteria listed above, a structure is classified as a Category 2 Structure when any of the following are present:

(1) Bridge substructures containing any of the following:
  (a) Post-tensioned components
  (b) Straddle piers
  (c) Integral caps
  (d) Mildly reinforced pier column with net sustained tension on the extreme fiber under permanent service loads in the final condition
(2) Bridges designed for vessel collision or bridges with superstructures subject to application of wave loads
(3) Bridges with non-redundant foundations, micropiles, or auger cast piles
(4) Any component designed using Fiber Reinforced Polymer (FRP) composite materials except components in the ***Standard Plans*** that include FRP composite materials
(5) Braided underpass structures where the beams or flat slab superstructure element is not oriented parallel to traffic of the overlying roadway and a portion of the superstructure and substructure extends beyond the limits of the overlying traffic barriers
(6) Design concepts, components, elements, details, or construction techniques not normally used by Florida DOT including but not limited to:
  (a) New bridge types
  (b) New materials used to construct bridge components
  (c) New bridge construction methods
  (d) Non-standard or unusual bridge component-to-component configurations and connection details
  (e) Department issued ***Developmental Standard Plans*** or modified versions of Developmental Design Standards
  (f) Items not covered by the Department's ***Standard Specifications***

(h) Prefabricated Bridge Elements and Systems (PBES) not meeting all requirements of Chapter 25 of the ***Structures Detailing Manual***

Introduction of the Current FDOT Process/Phasing

Relevant Policy


FLORIDA DEPARTMENT OF TRANSPORTATION

STRUCTURES DESIGN GUIDELINES

STRUCTURES MANUAL VOLUME 1 JANUARY 2023

FDOT

1.14 NON-FDOT STRUCTURES PLACED OVER, ON, OR UNDER FDOT RIGHT-OF-WAY

See ***FDM*** chapters 121 and 266 for design and review requirements for all non-FDOT structures placed over, on, or under FDOT right-of-way, functioning vehicular roadways, pedestrian walkways, railroads, or navigable waterways.

121.18 Review of Non-Department-Owned Projects (New Construction)

Portions of transportation projects on, under or over a Department-owned right-of-way, regardless of funding source or owner, will be subject to review by the Department. FHWA review will be required whenever a privately funded or LAP structure crosses over an interstate route, or when such work otherwise affects such a route; i.e., lane closures, access, R/W changes. The extent of the Department and FHWA review is that:

(1) Plans will meet all current clearance requirements (vertical and horizontal).

(2) Review and approve the maintenance of traffic scheme for construction.

(3) Securely fasten all attachments to the structure over the highway.

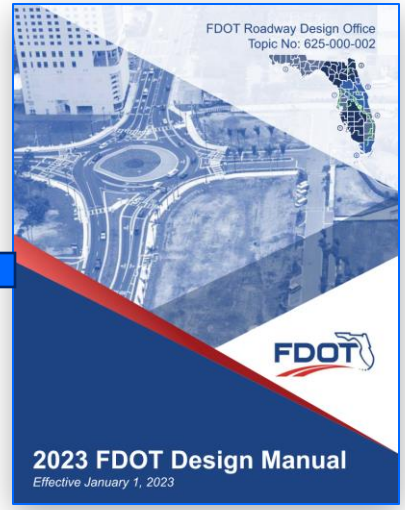
(4) Design will be sealed by a licensed professional engineer employed by a Department prequalified engineering firm.

(5) Designs will be in accordance with applicable Department publications.

(6) Plans will meet all District permit requirements and procedures.

(7) Submit to FHWA for approval only projects over or affecting a NHS facility.

(8) Department review for these structures will be performed by the DSDO for Category 1 and the SDO for Category 2 Structures. Structural reviews will be performed to the same extent as reviews performed on Department projects to assure compliance with the Department's design criteria.



10.16 PERMIT STRUCTURES

A. Provide independent bridge supports whenever possible (i.e., not attached to or integral with a building structure). The Department has design review authority for bridge supports that are outside of the Department right-of-way. See ***FDM*** 121.8 for review of non-Department-owned projects. A private permitted pedestrian bridge to be supported by a building structure requires approval of the SDO. Submit the following to the SDO for review: justification for why independent bridge supports cannot be provided, proposed design code, design methodology, design calculations, and support details. The details must demonstrate that complete access to the supports will be provided for inspection and maintenance.

B. Obtain approval to use ***Developmental Specifications*** on private permitted pedestrian bridges that cross over Department right-of-way. This applies to the supports for the spans that cross Department right-of-way even those supports are outside of Department right-of-way.

C. See ***SDG*** 1.14 for more information regarding permit structures.

Introduction of the Current FDOT Process/Phasing

FDOT Roadway Design Office
Effective January 1, 2024
Roadway Design Bulletin 23-05

- For design submittals, Non-Department structures built over FDOT ROW are reviewed to the same extent regardless of funding source or owner.
- An Independent Peer Review (IPR) is required for Non-Department structures or components (including retrofits and modifications) built over FDOT ROW. Excludes miscellaneous structures.

Important Sections include but are not limited to:

121 Bridge Project Development: Defines Category 1 and 2 structure types. Provides Independent Peer Review (IPR) requirements. Sets forth design phase submissions.

222.4 Pedestrian facilities: Addresses railing requirements.

260 Bridge Structures: Provides geometric requirements

Introduction of the Current FDOT Process/Phasing

FDOT Roadway Design Office
Effective January 1, 2024
Roadway Design Bulletin 23-05

- **260 Table 260.6.1:**

Topic #625-000-002
FDOT Design Manual — January 1, 2024

Table 260.6.1 Minimum Vertical Clearances for Bridges

Type of Crossing	Minimum Vertical Clearance (feet)		
	New Construction		
	New Bridge	Construction Affecting Existing Bridge	RRR
Roadway or Railroad bridge over Limited Access Roadway	16.5	16.0	16.0
Roadway or Railroad bridge over Arterial or Collector Roadway			14.5
Pedestrian bridge over Roadways	17.5	17.0	
Roadway or Pedestrian bridge over Railroad	23.5		
Roadway or Pedestrian bridge over Electrified Railroad	24.25		

Notes:

(1) For construction affecting an existing bridge (e.g., bridge widenings or resurfacing), if the proposed minimum design vertical clearance is between 16 feet and 16 feet 2 inches or if a Design Variation or Design Exception is required, place a note in the plans as shown in ***FDM 914***.

Roadway or Railroad bridge over Arterial or Collector Roadway

(1) Contact the District Structures Design Engineer for further guidance if any sway bracing members over the bridge deck have a clearance of less than 14 feet.

(2) An existing bridge with a vertical clearance less than 14.5 feet requires a Design Variation. See *Traffic Engineering Manual*, ***Section 2.6*** for information on required signing and warning features.

- **266 Bicycle and Pedestrian Bridges:** Important Section !!!

1. Newly added requirement for Designer (EOR firm) pre-qualifications.
2. Provide limitations on using prefabricated steel truss pedestrian bridges

Introduction of the Current FDOT Process/Phasing

FDOT Roadway Design Office
Effective January 1, 2024
Roadway Design Bulletin 23-05

- **266 Bicycle and Pedestrian Bridges:**

Important to note that if a steel truss does not meet the prefabricated steel truss requirements, the superstructure design cannot be deferred to a pre-approved producer but instead must be fully detailed in the design drawings by a prequalified firm.

The following conditions must be met to use the plans development process described in ***FDM 266.4.4*** and for the prefabricated steel truss bridge to be classified as a Category 1 structure:

(1) The bridge lies within a tangent horizontal alignment.

(2) The maximum span[1] length does not exceed 200 feet measured between the centerline of bearings.

(3) The bridge width is constant.

(4) Each span[1] is simply supported (no continuity over supports)

(5) The supports have a skew angle[2] of 20° or less.

Notes:

(1) Span indicates an individual span.

(2) See the ***Structures Detailing Manual*** ***(SDM) Section 2.14*** for the definition of skew angle.

When the above conditions are not met, the plans development process described in ***FDM 266.4.4*** is not permitted, the truss span must be fully detailed in the Structures Plans, and the bridge is classified as a Category 2 structure. This requirement applies to all projects (including permits) involving Department or non-Department owned prefabricated steel truss bridges placed within, under or over State Road right-of-way, as well as Local Authority Projects developed and designed in accordance with Department policies.

Introduction of the Current FDOT Process/Phasing

Daytona Beach Speedway

The Villages Water Lily Bridge over the Turnpike

Introduction of the Current FDOT Process/Phasing

Independent Peer Review for Category 2 structures

- Certifications are required at 90% and 100% design phases for submissions to be deemed complete and able to be reviewed by FDOT.
- IPR requirements for each phase submission are set forth in FDM 121.

Topic #625-000-002
FDOT Design Manual January 1, 2024

121.12 Independent Peer Review of Bridges

An Independent Peer Review (IPR) is used to validate the design of structures or portions thereof as defined below. The designated IPR firm will have no involvement with the project other than conducting the IPR and is required to be pre-qualified in accordance with ***Rule 14-75 of the Florida Administrative Code***. The responsible independent peer review engineer or the IPR Quality Assurance Manager must be on the Department's list of consultant qualifying engineer personnel (as a P.E. Qualifier) for the specific Group 4 work type.

(3) An IPR is required for the following structures and components of non-Department-owned projects constructed within, under or over State Road right-of-way, regardless of funding source:

(a) Category 1 (excluding miscellaneous structures) or Category 2 Structures

(b) Existing bridge retrofits and modifications regardless of bridge category

(c) Bridge cladding components and attachments

The peer review is intended to be a comprehensive, thorough independent verification of the original work. An independent peer review is not simply a check of the EOR's plans and calculations; it is an independent verification of the complete design, including but not limited to an evaluation of all nodal forces, using different programs and independent processes than what was used by the EOR. In addition, all independent peer reviews must include but are not limited to the independent confirmation of the following when applicable:

Introduction of the Current FDOT Process/Phasing

Most important thing to remember – all sections of these volumes apply to non-Department bridges except for Non-Conventional project Blue Boxes. These only apply to Department Non-Conventional projects.

The SM is intended to modify the AASHTO LRFD BDS. Complete Manual is composed of 4 volumes but the main ones pertaining to non-Department bridges are

- Structures Design Guidelines (SDG)
- Structures Detailing Manual (SDM)

Introduction of the Current FDOT Process/Phasing

Table 2.10-1 Redundancy Factors

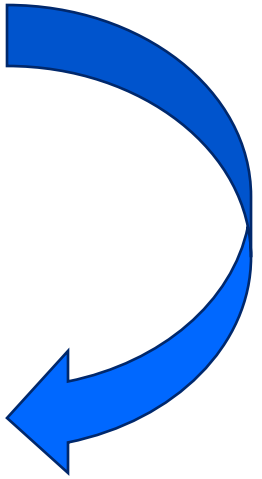
Component	η_R Factor
Steel I-Girders in Two Girder Cross Sections[1]	1.20
Concrete I-Beams in Two Beam Cross Sections[2]	1.10
Truss/Arch Bridges	1.20
Steel Floor beams with Spacing > 12-feet and Non-Continuous Deck[3]	1.20
Steel Floor beams with Spacing > 12-feet and Continuous Deck[3]	1.10
Steel Elements (Integral Caps, Non-integral Caps, Columns, C-piers, Straddle Piers, and Straddle Pier Caps)	1.20
Concrete Elements (C-piers, Integral Caps, Frame Straddle Piers, and Straddle Pier Caps)	1.10

1 With at least three evenly spaced intermediate cross-frames/diaphragms or floor beams (excluding end diaphragms) in each span.
2 Provide full-depth end diaphragms and full-depth intermediate diaphragms at quarter points along the span length.
3 Contact the SDO for direction on non-standard steel floor beams or complex floor systems.

4.1 GENERAL

This Chapter contains information related to the design, reinforcing, detailing, and construction of concrete components. It also contains deviations from ***LRFD*** that are required in such areas as deck reinforcing and construction, pretensioned concrete components, and post-tensioning design and detailing.

A. Only the following non-redundant concrete bridge superstructure systems are permitted:
   1. Non-framed non-integral straddle pier caps
   2. Integral pier caps
   3. Two I-beam cross sections when approved by the SDO. See ***SDG*** 10.2 for pedestrian bridges.
   4. Arch bridges when approved by the SDO.



10.2 DESIGN

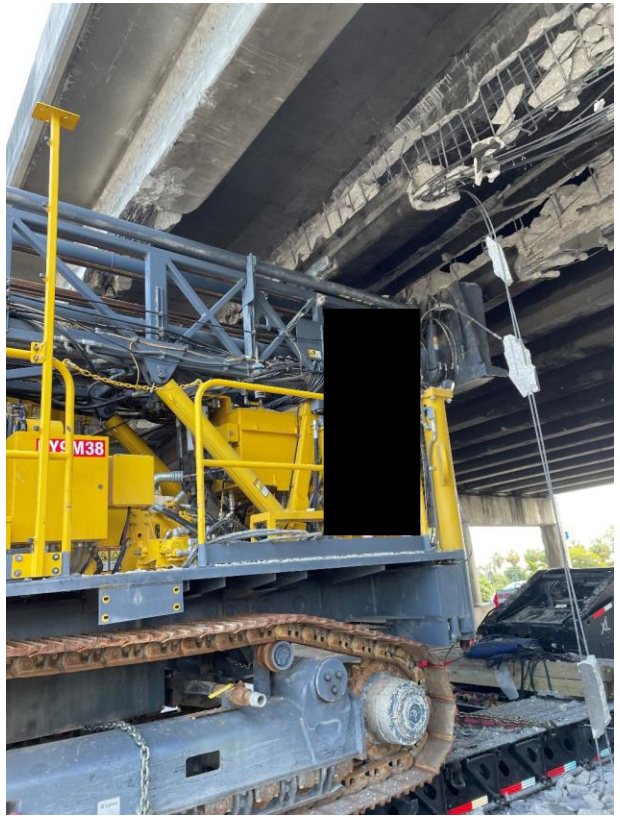
A. Design and detail all pedestrian bridge structures in accordance with the following:
   - ***AASHTO LRFD Bridge Design Specifications (AASHTO)***
   - ***AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges (Guide Spec.)***
   - ***FDOT Design Manual*** (***FDM***)
   - ***FDOT Structures Manual***

B. Design pedestrian bridges with two or more longitudinal primary members or truss lines.

C. Design and detail prefabricated steel truss pedestrian bridges satisfying the Category 1 conditions of ***FDM*** 266.4 as follows:
   1. Fully design and detail foundation and substructure in the plans.
   2. Fully design and detail all approach structures including non-truss approach spans, ramps, steps/stairways, approach slabs, retaining walls, etc. in the plans.
   3. Include general plan and elevation indicating minimum aesthetic requirements for the prefabricated steel truss bridge in the plans (see ***FDM*** Example 266.4.1).

Introduction of the Current FDOT Process/Phasing

Relevant Policy – redundancy & over-height vehicle impacts



NEWS | TRANSPORTATION

Truck Impact Eyed in D.C. Pedestrian Bridge Collapse Over Highway

By Jim Parsons

The collision appears to have lifted the chain-link enclosed concrete bridge of its moorings, trapping the truck and sending structural debris onto several other vehicles.

Photo courtesy of DC Fire & EMS via Twitter

TRANSPORTATION SYMPOSIUM

Introduction of the Current FDOT Process/Phasing

Temporary Traffic Control Plan

A Temporary Traffic Control Plan (TTCP) is required for minimizing activity-related traffic delay and crashes. The goal of a TTCP is to reduce congestion during construction by managing traffic through the project area.

Refer to **FDM Chapter 240, Section 240.2** for Temporary Traffic Control Plan.

Note that if a bridge includes extensive cladding or enclosures, the TTCP will need to accommodate erection of these elements. Inclusion of a workable erection sequence is a design submission requirement per SDG 6.10C for certain structure types and the Department may require erection plans for structures with extensive cladding/enclosures to demonstrate compatibility with TTCP. Remember that these elements must be designed considering transportation and erection limitations.

Introduction of the Current FDOT Process/Phasing

Non-Department Bridges-Pedestrian Design Comments

Frequently made comments on Design Reviews:

- Substructure outside of R/W supporting a span within FDOT R/W must be submitted for review.
- Structure lacks redundancy and a clear alternate load path.
- Main supporting elements must be readily inspectable. Claddings must accommodate.
- Stormwater runoff must be conveyed off of structure and not discharged onto underlying road. Architectural features and canopies must consider this requirement.
- If cladding or signage is to be included, wind drag effects must be considered in design of super and substructures.
- Signage and cladding connections must be included in design and not delegated to shop drawings.
- IPR must be performed by an FDOT pre-qualified firm.
- Confirm the AASHTO Guide Spec for Pedestrian Bridges' vehicle loads have been accommodated if access is not prevented.
- Canopies subject to FBC need to met the more stringent of FBC or AASHTO/FDOT criteria.
- Minimum concrete deck thickness per SDG has to be met. SIP metal forms are not to be included in capacity calculations.
- Plans are incomplete and do not follow FDOT's plans preparation requirements.

Introduction of the Current FDOT Process/Phasing

Final thought on design:

Not valid reason to request waiving or approval of Design Variations include:

- It's not a Department-owned bridge.
- It was assumed that the Structure Manual was just suggestions and not required criteria.
- Cost.
- Not compatible with aesthetics.
- Schedule does not permit complying with Department criteria.

Note that the higher level of aesthetics or higher complexity of design may warrant further analysis. Prime example is wind analysis to confirm if suspectable to wind induced affects such as vibration or galloping.

Introduction of the Current FDOT Process/Phasing

Use & Occupancy Agreements

- Legal Agreement
  - Prepared and executed by both parties
- ROW needs
  - Right-of-Way Office Coordination
  - Parcel Sketch
  - Approved Design Plans
- Final Document

Introduction of the Current FDOT Process/Phasing

Use & Occupancy Agreements

- Common Sections
  - Recitals
  - Term
  - Use and Occupancy Fee
  - Use, Occupancy, and Maintenance
  - Indemnification
  - Insurance, Performance Bond
  - Default and Termination
  - Eminent Domain
  - Miscellaneous

Introduction of the Current FDOT Process/Phasing

Construction Phase

Governing documents include:

- Construction Agreement
- Standard Specifications for Road and Bridge Construction (Std Spec)
- FDOT Materials Manual
- Construction Project Administration Manual (CPAM)

Introduction of the Current FDOT Process/Phasing

Construction Permit

- One Stop Permitting (https://osp.fdot.gov/#/home)

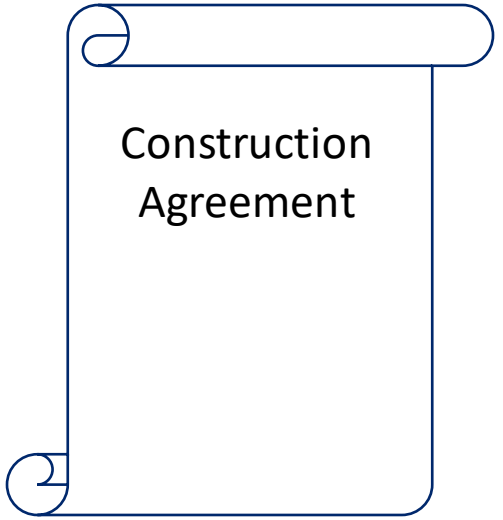
  - Contact the District Permit Office
  - Apply Online
  - Include Approved Design Plans
  - Approval takes 90 days per Florida Status (30 days goal)
  - Once Permit is Approved the Construction Starts

Introduction of the Current FDOT Process/Phasing

Construction Agreement (Form 850-040-89)

Important Sections regarding design & construction:

- Requires design per Department policies/standards and construction per Department specifications (Article 2).
- Allows for Department to reject designs not meeting FDOT standards (Article 3).
- Requires Construction Coordinator to take emergency steps to close a public road whenever there is a risk to life, health, and safety of the traveling public. Also requires notification of the District Maintenance Engineer of all observed defects (Article 9).
- Places responsibility on Construction Coordinator for provision of CEI services and for monitoring construction operations (Article 13).

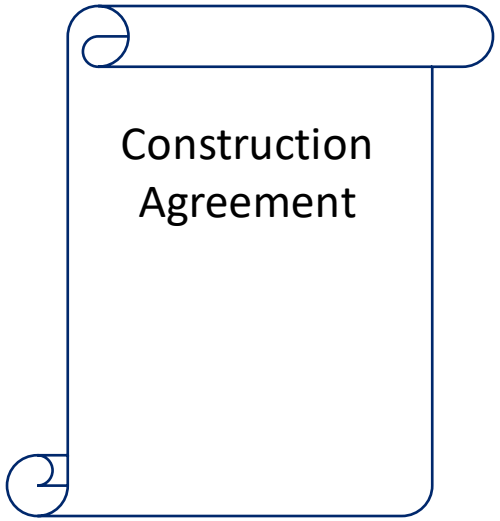


Introduction of the Current FDOT Process/Phasing

Construction Agreement – Special Provisions

Typically, the standard Construction Agreement form is supplemented with a project-specific Special Provisions Exhibit setting forth additional responsibilities of the Construction Coordinator. Some important ones include:

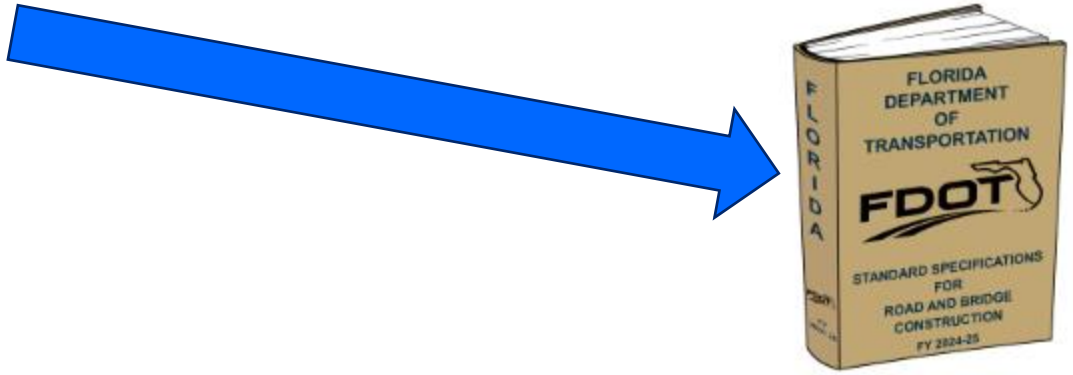
- As-builts
- Material certifications
- Contractor Quality Control (QC) and CEI Verification (VT) certifications
- Specialty Engineer requirements
- Qualified Special Inspector requirements
- Specific MOT requirements
- Performance bond requirements
- Additional MOT and working time restrictions.



Introduction of the Current FDOT Process/Phasing

Construction Phase

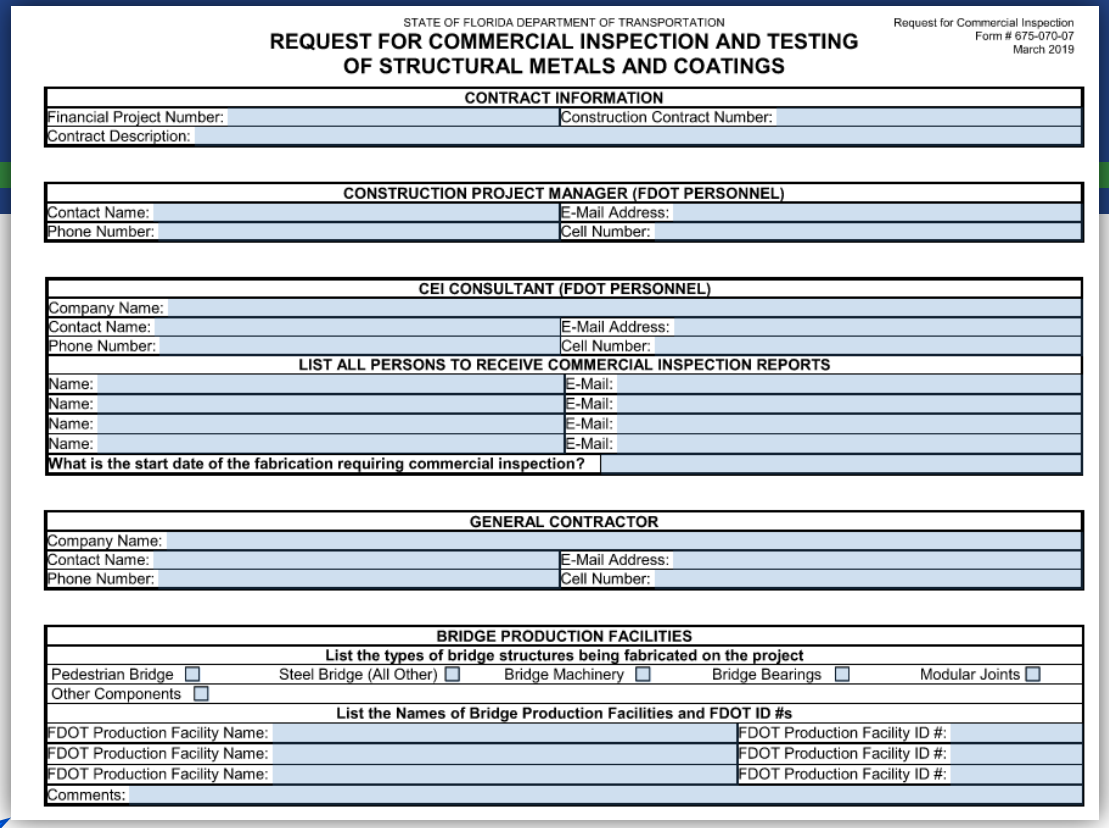
- All section of FDOT's Construction Project Administration Manual (CPAM) are applicable to Non-Department bridges (unless noted otherwise) and are to be adhered to by CEI. This is noted in the Construction Agreement.
- All sections of FDOT's Standard Specifications for Road and Bridge Construction are applicable to Non-Department bridges (unless noted otherwise) and are to be adhered to by CEI.



Introduction of the Current FDOT Process/Phasing

Construction Process- Steel Bridges

- All steel bridge have to undergo Commercial Inspection.
- There are <u>three</u> specific sections related to Commercial Inspection. They are designed to speak to each respective party (Contractor, Fabricator, Project Administration). It outlines who is needed to be approved, most of their qualification requirements, and may be a good resource if someone wants to know how to get on the MAC page for approved producers.



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

REQUEST FOR COMMERCIAL INSPECTION AND TESTING OF STRUCTURAL METALS AND COATINGS

Request for Commercial Inspection
Form # 675-070-07
March 2019

CONTRACT INFORMATION	
Financial Project Number:	Construction Contract Number:
Contract Description:	

CONSTRUCTION PROJECT MANAGER (FDOT PERSONNEL)	
Contact Name:	E-Mail Address:
Phone Number:	Cell Number:

CEI CONSULTANT (FDOT PERSONNEL)	
Company Name:	
Contact Name:	E-Mail Address:
Phone Number:	Cell Number:
LIST ALL PERSONS TO RECEIVE COMMERCIAL INSPECTION REPORTS	
Name:	E-Mail:
Name:	E-Mail:
Name:	E-Mail:
Name:	E-Mail:
What is the start date of the fabrication requiring commercial inspection?	

GENERAL CONTRACTOR	
Company Name:	
Contact Name:	E-Mail Address:
Phone Number:	Cell Number:

BRIDGE PRODUCTION FACILITIES				
List the types of bridge structures being fabricated on the project				
Pedestrian Bridge ☐	Steel Bridge (All Other) ☐	Bridge Machinery ☐	Bridge Bearings ☐	Modular Joints ☐
Other Components ☐				
List the Names of Bridge Production Facilities and FDOT ID #s				
FDOT Production Facility Name:		FDOT Production Facility ID #:		
FDOT Production Facility Name:		FDOT Production Facility ID #:		
FDOT Production Facility Name:		FDOT Production Facility ID #:		
Comments:				

Here is the “request for inspection” form which can be filled out by any project personnel and submitted to begin the inspection process.

Introduction of the Current FDOT Process/Phasing

Construction Process- Steel Bridges

2. Materials Manual 11.1 Vol II (Speaking to the Fabricator)

11.1.13 COMMERCIAL INSPECTION: This section of the Materials Manual discusses the scope, application, and scheduling of Commercial Inspection. The Contractor is responsible for sending the Production Facility's schedule to the Engineer at least 30 days prior to the beginning of fabrication. The components identified in Table 4 require commercial inspection.

Table 4 – Components Requiring Commercial Inspection
Required by Specification
Bridge Bearings (Pot, Disc, Rocker, Roller, Sliding, Spherical, Load Plates)
Bridge Machinery
Overhead Cantilever
Overhead Toll Gantry
Overhead Monotube
Overhead Span
Overhead Truss
Shop Painting
Shop Steel Metalizing
Steel Bridge (Vehicular)

Introduction of the Current FDOT Process/Phasing

Construction Process- Steel Bridges

1. **Standard Specification for Road and Bridge Construction:**

- Section 105-1.2.3 (Speaking to the Contractor)105-1.2.3 Notification of Placing Order: Order materials sufficiently in advance of their incorporation in the work to allow time for sampling, testing and inspection. Notify the Engineer prior to placing orders for materials. Submit to the Engineer a fabrication schedule for all items requiring commercial inspection at least 30 days before beginning fabrication. These items include steel bridge components, moveable bridge components, pedestrian bridges, castings, forgings, structures erected either partially or completely over the travelled roadway or mounted on bridges as overhead traffic signs (some of these may be further classified as cantilevered, overhead trusses, or monotubes) or any other item identified as an item requiring commercial inspection in the Contract Documents.

- 460-1.2 Fabrication Categories: As a prerequisite for being on the Department's Production Facility Listing, fabricators must currently be accredited in accordance with one of the programs in Table 460-1, by fabrication category/categories of the products that they are producing. Fabricators are required to submit their proposed fabrication Quality Control (QC) Plan for review by the Department.

Table 460-1
Fabrication Categories

Structure Type	Accepted Accreditation Program
Simple Steel Bridge: Pedestrian bridge (prefabricated steel truss pedestrian bridges meeting the Category 1 conditions of FDOT Design Manual 266.4), bridge grid decking	AISC Simple Bridge
Steel Bridge: Vehicular bridge, Pedestrian bridge (all others)	AISC Advanced Bridge Fracture Critical Endorsement
Structural Highway Metal Components, Group I: bridge machinery, bridge bearings, modular joints, load plates, laminated bearing pads, cantilever, truss/span, monotube, gantry, mast arms, steel light poles, aluminum light poles, aluminum j-arms, drainage (welded gratings, frames, inlets)	AISC Components Manufacturer or AWS Welding Fabricator
Structural Highway Metal Components, Group II: bridge forgings, bridge castings, steel railing, aluminum railing, castings (manhole, grating, inlet, frame), guardrail, coated steel fence, elastomeric bearing pads, stay in-place forms	ISO 9001

Notes:
An AISC fracture critical (FC) endorsement is required for all FC work.
Other accreditations programs may be submitted to the FDOT State Materials Office for review and consideration in addition to the programs listed in the table above.

Introduction of the Current FDOT Process/Phasing

Construction Process- Steel Bridges

3. CPAM 3.3 (Speaks to Project Administrators)

3.3.5 Contractor's QCP Review and Approval

(A3) Commercial Inspection – On contracts with Steel and Miscellaneous Metals materials that require commercial inspection, the PA must indicate in MAC if an optional inspection is being requested on any items or processes on the contract that do not typically require commercial inspection. The PA must also indicate if there are steel and miscellaneous metal items on the contract that will not be commercially inspected. The PA must ensure that the Contractor attaches the fabrication schedule for items that require commercial inspection and list the production facility or facilities that will be fabricating the items under the appropriate material type(s) 30 days before fabrication has begun per Specifications Section 105-1.2.3.

What is MAC? Materials Acceptance and Certification System

Introduction of the Current FDOT Process/Phasing

Construction Process- Steel Bridges

- Make sure steel components are being sourced from a MAC-listed source.
- If your fabricator is not pre-approved, start application process early.

Materials Acceptance and Certification System

Select Report to View

Production Facility

Active Prod Fcity w/Samples	List of Active Concrete Production facilities that have samples for the date range specified. The first page is a summary. Use the document map to navigate to specific facility and see sample details.
Aggregate Production Facility Listing	Lists all Aggregate Production Facilities
Aggregate Sources Timeline	Lists Approval of Aggregate Production Facility in the Date Range Specified. Reports a summary per year and total summary for the date range.
All Producers (Excel)	Lists all non-expired Production Facilities in an Excel file
Approved Aggregate Products For Friction Course	Lists all Aggregate Friction Course Products by Geological Type and Facility
Approved Aggregate Products From Mines or Terminals Listing	Lists Approved Aggregate Products for Mines or Terminals
Approved Products at Expired Mines or Terminals	A summary report to identify Approved Products at Expired Facilities, and approved Products at Terminals Expired at Mine
Asphalt Production Facility Listing	Lists all Asphalt Production Facilities
Asphalt Recycled Products	Approved Asphalt Recycled Products Report by Plant
Asphalt Targets	A listing of the asphalt gradation and gravity (Gsb) data for Asphalt Products per mine or terminal
Cementitious Materials Production Facility Listing	Lists Cementitious Materials Production Facilities
Coatings Production Facility Listing	Lists all Coatings Production Facilities
Fiber Reinforced Polymer Production Facility Listing	Lists all Fiber Reinforced Polymer Production Facilities
Flexible Pipe Production Facility Listing	Lists all Flexible Pipe Production Facilities
Guardrail Stamp Numbers	This report shows the verified Stamp Numbers for guardrails. The report allows the user to select one or more guardrail Production Facilities from a list. Do not use this report to reject guardrail on a project. If stamp numbers are not on the report, proceed with entering the guardrail sample in MAC.
Incidental Precast Concrete Production Facility Listing	Lists all Incidental Precast Concrete Production Facilities
Inspect/Eval Checklists	This report allows the user to select the most current version of checklist(s) by category for production facility inspections (QCPIR), laboratory evaluations (LQPR) or Independent Assurance technician and equipment evaluations (QPR).
Metals Production Facility Listing	Lists all Metals Production Facilities
Non Structural Concrete Production Facility Listing	Lists all Non Structural Concrete Production Facilities
Pit Proctor	For State Material Office (SMO) Use Only See SMO Website for Official Pit Proctor Report
Precast Pipe and Precast Drainage Structures Production Facility Listing	Lists all Precast Pipe and Precast Drainage Structures Production Facilities
Prestressed Concrete Products Production Facility Listing	Lists all Prestressed Concrete Products Production Facilities
Production Facility Listing	Lists Production Facilities by various parameters
Production Facility Products Listing	Lists Production Facility Products by various parameters
Production Facility QC Manager	Lists Production Facility Quality Control Managers.

Introduction of the Current FDOT Process/Phasing

Construction Process- Steel Bridges

List of Approved Metal Fabricators, Coaters and Timber producers
https://mac.fdot.gov/smoreports

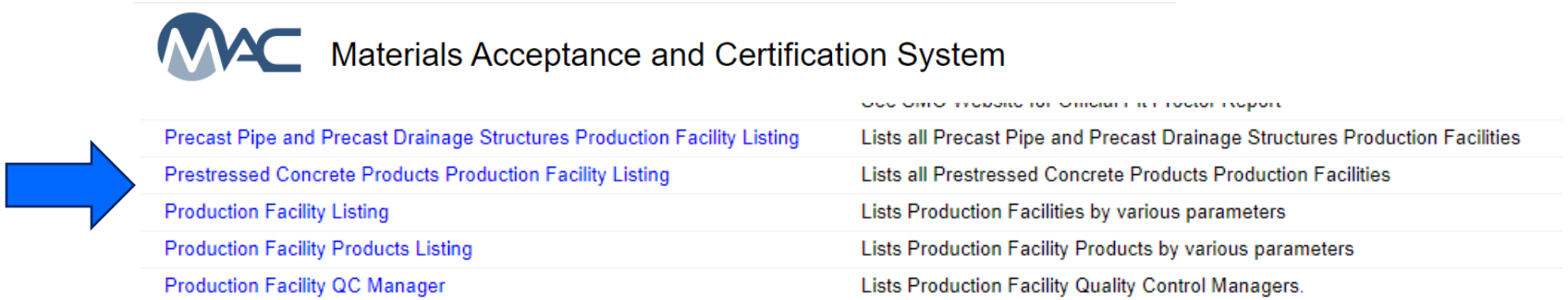
Important FDOT Links (Specifications, Materials Manual, Standard Plans/Designs, Commercial Inspection, Welding Forms, Audit Program, Approved Facilities & QC Managers, Guardrail Reports)
https://www.fdot.gov/materials/structural/fieldoperations/commericalinspection/structural-steel-metals-coatings-timber-audit-program

Introduction of the Current FDOT Process/Phasing

Construction Process

- **Note on Concrete Structures**

If your project includes either precast materials and/or prestress materials, as consistent with steel components, these must be sourced from a pre-approved facility. For questions on applicability, please consult the designated FDOT PM or District Materials Offices.



Note that consistent with steel components, the sections of Standard Spec's perta to construction of concrete structures are all still relevant.

Introduction of the Current FDOT Process/Phasing

Post Construction Requirements

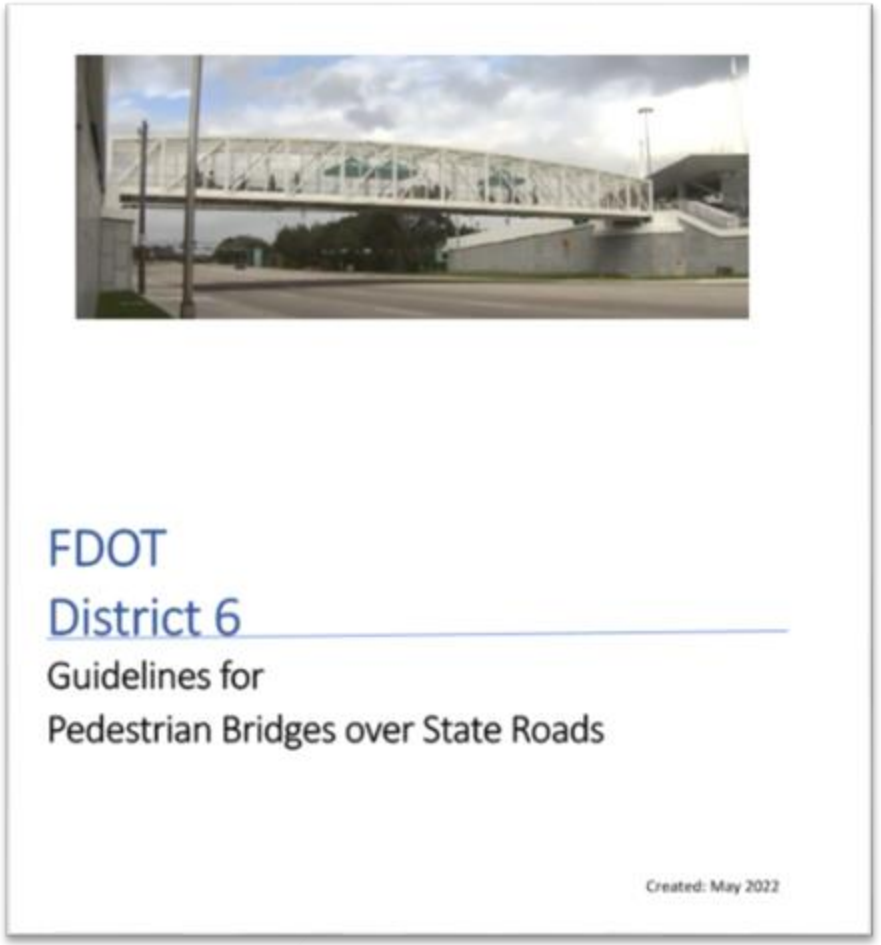
- FDOT Inspection
- Initial Bridge Inspection
  - Procedures 850-030-010
  - Work Types 5.1, or 5.3

Occurs concurrently

- Routine and Special Bridge Inspection
  - Procedures 850-030-010
  - Work Types 5.1, or 5.3
- Routine Maintenance
- Rehabilitation Projects

Future Changes

- Presented process is current practice. In the future, the Department may issue a state-wide policy document generally following this process and phasing.



Lessons Learned

- Meeting with FDOT first is a Must! This action will avoid unnecessary waste of applicant's resources.
- Must follow Department processes prior to design and construction.
- Non-Department bridges are held to same standards as Department-owned structures.
- Reach out to the Department early in the design phase- especially on more complex structures.
- Must allow adequate time in schedule to work through the process.
- Complexity, including cladding and enclosures, generally require additional review duration. The design is most probably going to change.
- Maintainability is a very important factor as all elements of the bridge must be accessible for inspection and maintenance.
- Trying to skip steps will lead to additional cost and schedule delays.

Conclusions

It is hoped that this presentation provided better insight and understanding into the current FDOT approval process/phasing when non-FDOT bridges are to be built within FDOT ROW. As can be seen from the examples bridges that there are a variety of non-Department bridges that can pose unique issues that must be resolve during the review and approval process. This has been especially seen of late with non-FDOT pedestrian bridges. With better understanding of the process and expectations by EOR and Owners, it is hoped that the approval process can be streamline and positive one for all parties involved.

Who to contact with technical/policy questions:

For Category 2 structures

For Category 1 structures

Central Office

Primary Contacts:
Districts (1, 3, & 4) Alex Randell - (850) 414-4275
Districts (2, 5, & 7) Jim Johnston - (850) 414-4074
(6 & Turnpike) Ton Tu - (850) 414-4269

Secondary Contact:
(For all Districts) Darren Lucas - (850) 414-4260

Structures Staff Directory

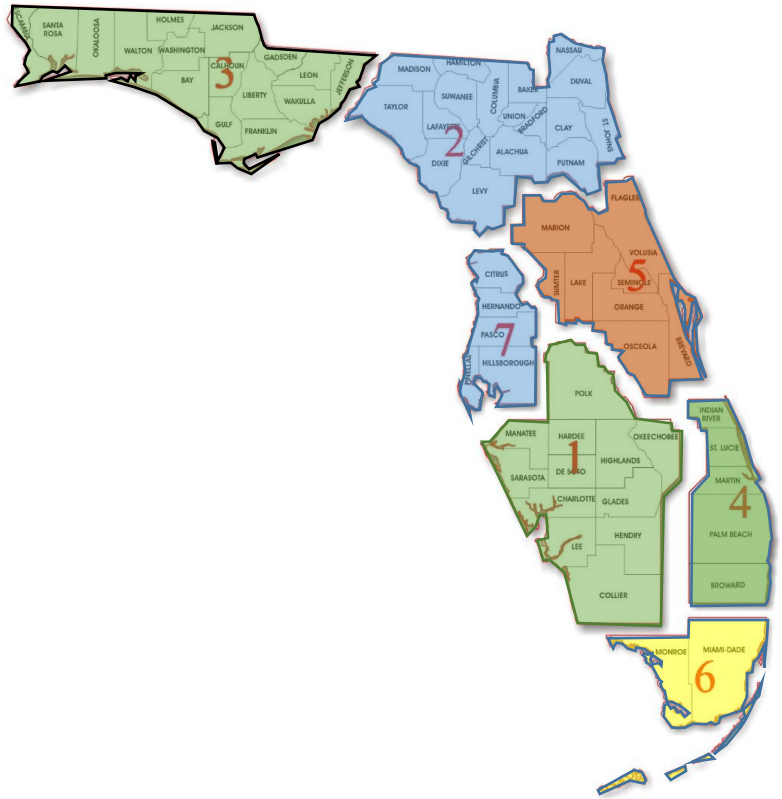
District Structures Design Engineers

District-1 Mark Peronto - (863) 519-2426
District-2 Vacant - (389) 961-****
District-3 Keith Shores - (850) 330-1449
District-4 Ramon Otero - (954) 777-4162
District-5 Gary Skofronick - (386) 943-5424
District-6 Hailing Zhang - (305) 470-5484
District-7 Gautom Dey - (813) 975-6136
Turnpike Russ Snyder - (407) 264-3442

Note that Category 2 reviews require a minimum 20-working day review durations

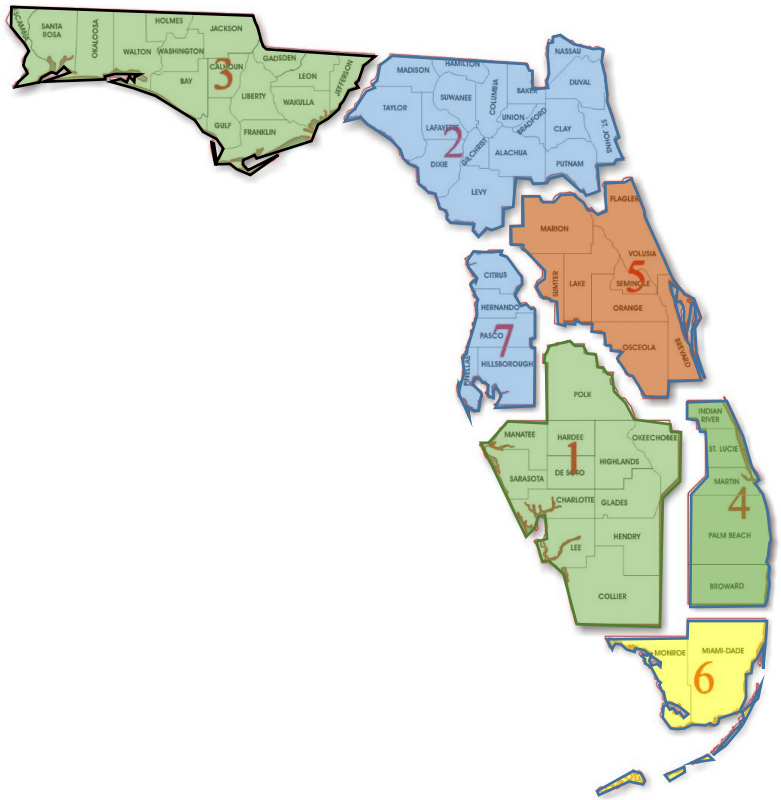
STRUCTURES DESIGN OFFICE
PLANS REVIEW GROUP

The Plans Review Group consists of Area Structures Design Engineers, each one assigned to specific districts that work with the District Structures Design Engineers to review and approve major, complex, and movable bridge plans (referred to as Category 2 Structures). The group ensures that Category 2 bridge plans are in general compliance with Department policies and procedures.



Darren Lucas, P.E. (Section Leader)
Alex Randell, P.E. (Districts 1, 3, & 4)
Jim Johnstone, P.E. (Districts 2, 5 & 7)
Ton Tu, P.E. (Districts 6 & Turnpike)

Maintenance Office



TRANSPORTATION SYMPOSIUM

Contact Us

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