

**TURNPIKE SUPPLEMENT
TO THE
FDOT STRUCTURES MANUAL**



**FLORIDA'S TURNPIKE ENTERPRISE
STRUCTURES DESIGN OFFICE**

January 2019

INTRODUCTION

The ***Turnpike Supplement to the Florida Department of Transportation (FDOT) Structures Manual*** provides Turnpike-specific revisions to the ***FDOT Structures Manual***.

The ***Turnpike Supplement to the FDOT Structures Manual*** is updated on an annual basis, following the official revision of the ***FDOT Structures Manual***. Interim updates to the ***Turnpike Supplement to the FDOT Structures Manual*** will be issued as Addenda to the annual update.

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

VOLUME 1 – STRUCTURES DESIGN GUIDELINES (SDG)

The following are Turnpike-specific revisions to the January 2019 FDOT Structures Manual, Topic #625-020-018.

The following supplements Sections 1.4.5 and 7.3.1.C.

Turnpike offers the following guidance as to the implementation of **SDG 1.4.5** and **7.3.1.C**. In certain cases, project specific conditions may dictate that enhanced aesthetic treatments are required. For projects that involve coatings, textures, colors or graphics on any concrete structures, please see the guidance below, request the appropriate approvals as necessary and coordinate with the Turnpike Project Manager. “Coating” refers to coatings, colors, tints, or stains. “Structures” include bridges, retaining walls, noise walls and traffic railings/parapets on bridges/walls.

For projects with steel girders that require painting, coordinate the girder color with the Turnpike Project Manager. Typically, steel girders are painted “Turnpike Green” (Federal Standard 34090).

For historical documentation, the following are the colors that were previously used on Turnpike structures:

1. Light Tan: Federal Standard 23717 for retaining walls
2. Dark Tan: Federal Standard 20475 for traffic railings, copings and slab overhangs
3. Turnpike Green: Federal Standard 34090 for beams

The **Approval Letter for Concrete Surface Finishes** can be found on the Turnpike Design website.

Projects With	Treatment
New Structures	<p>Bridges – no coating, smooth</p> <p>Retaining Walls – no coating, Ashlar Stone (Type B) or Vertical Fractured Fin (Type G) texture per FDOT Standard Plans Index 534-200</p> <p>Noise Walls (ground mounted) – no coating, Ashlar Stone (Type B) or Vertical Fractured Fin (Type G) texture per FDOT Standard Plans Index 534-200</p> <p>Noise Walls (barrier mounted) – no coating, smooth</p>
Bridge Widenings	Follow SDG 7.3.1.C except that removal of Class 5 coating from existing bridge is not permitted without approval. See notes in this table regarding cleaning/recoating of existing concrete.
New Structures Adjacent to Existing Structures	When constructing a new bridge next to an existing bridge that does not have an existing Class 5 coating, follow the requirements of SDG 1.4.5 . When constructing a new bridge next to an existing bridge that has an existing Class 5 coating, coat the new bridge and clean and recoat the existing bridge. Removal of Class 5 coating from existing bridge is not permitted without approval. See notes in this table regarding cleaning/recoating of existing concrete.
Repainting Existing Steel Girders	Clean and recoat the existing concrete. See notes in this table regarding cleaning/recoating of existing concrete.
Aesthetic Commitments	Meet aesthetic commitments.
Other Agencies	No (re)coating. If a local maintaining agency requests (re)coatings then follow SDG 1.4.5.D .
Anti-Graffiti Coating	Do not use.
Textures/Graphics	Use of textures and graphics is acceptable. Approval is required if texture/graphic is not from the Standard Plans per SDG 1.4.5 .
Cleaning/Recoating Existing Concrete	<p>If the concrete has no coating, then the plans should require cleaning.</p> <p>If the concrete has an existing coating, the plans should require the existing concrete be cleaned and recoated. The contract documents should require the Contractor to clean all surfaces first and then have the CEI evaluate if recoating is necessary. Limits of cleaning and recoating should be evaluated on a project-specific basis, but generally should include previously coated components that are visible to the travelling public.</p>

Add the following to Section 1.8.

- C. Turnpike Structures does not overview the design EOR's review of shop drawings or other construction submittals (ex: RFIs) on Design-Bid-Build projects. Please engage Turnpike Structures if there are questions or issues that require Turnpike's attention.

Add the following to Section 2.6.4.E

Every effort should be made to use standard pier protection barriers. Existing pier retrofits/strengthening require approval of the Turnpike Structures Design Engineer.

Add the following to Section 6.7.4.A.2

For a "widening" project, existing bridges should be evaluated against "widening" criteria in this section even if they are not physically widened as a part of the project.

Add the following to Section 6.7.1.F

All bridge traffic railings and parapets must have the maximum number of conduits permitted by the **Standard Plans**. Conduits not intended for current use must be labeled in the plans as "future use". In the case of a parapet and a traffic railing on one side of the structure (ex: sidewalk configuration), conduits are required in whichever feature is located closest to the coping. Median traffic railing must also have the maximum number of conduits permitted by the **Standard Plans**. In the case of adjacent bridges with back-to-back traffic railings with a clear gap of five (5) feet or less, conduits are only required in one traffic railing. These requirements also apply to retaining wall barriers/parapets.

The following supplements Section 7.3

SDG 7.3.1 through 7.3.4 applies to all portions of the existing bridge, both superstructure and substructure. Bridge widenings should be "in-kind" with the existing structure. As an example, if an existing end bent has battered piles, then the proposed end bent extension should provide a means of lateral load restraint.

Replace the last sentence of Section 7.3.4.B with the following

Design Variations for overstress will not be granted.

Replace the first sentence of Section 7.3.5.A with the following

Existing asphalt overlays on bridge decks generally should remain provided that the bridge has capacity to support the overlay load. Asphalt overlays on bridge decks should be milled and resurfaced at the same time as the roadway.

Add the following to Section 7.6.D

The Bridge Development Report should include back-up documentation confirming the proposed widening design and details are based on the actual field conditions for the items noted in the commentary section of SDG 7.6.D.

Modification for Non-Conventional Projects:

Add the following to the “blue box” for Section 7.6.D

The 90% submittal should include back-up documentation confirming the proposed widening design and details are based on the actual field conditions for the items noted in the commentary section of SDG 7.6.D.

Add the following to Section 7.7

- G. All new bridge decks (including new decks of bridge widenings) that will not be surfaced with asphalt must be grooved. If an existing bridge deck (including the existing deck of bridge widenings) is not grooved, perform a hydroplaning analysis per **TDH 211.2.3** and add grooving if required by the analysis. Before grooving an un-grooved existing deck, evaluate project specific conditions and consider alternatives to grooving. Grooving an un-grooved existing deck requires approval of the Turnpike Structures Design Engineer.

VOLUME 2 – STRUCTURES DETAILING MANUAL (SDM)

The following are Turnpike-specific revisions to the January 2019 FDOT Structures Manual, Topic #625-020-018.

Add the following to Section 22.5

Please coordinate with the Turnpike Structures Design Engineer if a bridge deck inlet is required to avoid an approach slab inlet.

VOLUME 3 – FDOT MODIFICATIONS TO LRFDLTS-1

The following are Turnpike-specific revisions to the January 2019 FDOT Structures Manual, Topic #625-020-018.

The following supplements Section 1.1

Please refer to **TDH 261** for additional information on existing structures.

The following supplements Section 2.4.2.2

All overhead sign structures including those carrying DMS, must be designed to accommodate 25% extra sign area than what is called for in the plans. Sign structures must be designed for a minimum sign weight of 5 psf for conventional signs and 25% extra dead load for DMS. Please see **Section 2.4.2.4** for more information on DMS. The term “enlarged” sign refers to a sign increased by 25% for the purpose of design.

The requirements for minimum and future sign panels in **Structures Manual Volume 3** also apply. If the “enlarged” sign area is less than the **Volume 3** minimum area, the **Volume 3** minimum area should be used. If signs are not present over lanes, the **Volume 3** minimum sign area should be used. The actual sign dimensions should be used to establish the minimum vertical clearance.

Determine the dimensions of the “enlarged” sign that will create the worst-case loading scenario. For historical documentation, a note must be added to each sign structure cross-section sheet and to the structural table of variable notes that the design accounts for the 25% increase in sign area. For DMS, plan notes should denote the design assumptions of weight and dimensions/area.

“Enlarged” signs are not required when analyzing existing sign structures for re-use.

Verify that the actual sign panel dimensions conform to the **Standard Plans** drawings with regards to vertical hangers, wind beams and luminaire arms (where required). If not, special design and details should be provided in the Signing and Pavement Marking plans.

For projects that involve the re-use of existing sign structures carrying DMS signs, at a minimum, existing U-bolts which connect the truss chords to the upright must be replaced with high-strength U-bolts.

The following supplements Section 2.4.2.4

To account for a 25% increase, the walk-in DMS size should be 9ft H x 28ft W x 5.5ft D with a weight of 6875 lbs.

The following supplements Section 2.6.1

The following applies to existing bridge mounted signs:

- A. Evaluate existing bridge mounted signs per **FDM 261.7**.
- B. Evaluate existing bridge mounted signs against the 'setback distance for discontinuous elements' requirements in **FDM 215.4.6.1**. Remove existing bridge mounted signs not meeting these requirements.
- C. For existing bridge mounted signs attached to a bridge which will be widened:
 1. Proposed signs attached to the widening side must meet the requirements of **Section 2.6.1**.
 2. Existing signs attached to the non-widened side must be evaluated per items A and B above.

Revise the last paragraph of C 3.8 as follows

Based on the ASD-LTS Specifications, the design life for ground mounted sign supports is 10 years. The design life for luminaire supports ≤ 50 ft in height is 25 years. For all other LTS structures, the design life is approximately 50 years.

Replace the first paragraph of Section 18.1 with the following

See FDM 261.7 for requirements for evaluating existing ancillary (sign, signal, lighting, ITS and tolling) structures.

Add the following to the first bullet in Section 18.1

- Use of exposure B is not permitted.

Add the following bullet to Section 18.3

- FDOT minimum sign areas for overhead sign supports are not required.

VOLUME 4 – FIBER REINFORCED POLYMER GUIDELINES (FRPG)

The following are Turnpike-specific revisions to the January 2019 FDOT Structures Manual, Topic #625-020-018.

No changes to the entire Volume