

Chapter 29

Structural Supports for Signs, Luminaires, and Traffic Signals

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Chapter 29

Structural Supports for Signs, Luminaires, and Traffic Signals

29.1 General

The design criteria for the structural design of all sign, signal, and lighting structures shall be in accordance with AASHTO's **2009 Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals**, as modified by the **FDOT Structures Manual, Volume 9**.

Include structural details in the Plans for all sign, signal and lighting structures. Use the **Design Standards** for sign, signal and lighting structures unless site conditions or other considerations require a custom design.

The following sign and signal structure limits apply:

1. **Design Standards, Index 11310**, Span Sign Structure span length: 250 feet
2. **Index 11320**, Cantilever Sign Structure span length: 50 feet
3. **Index 17743**, Standard Mast Arm Assemblies span length: 78 feet
(For longer span lengths use **Index 17745**, Mast Arm Assemblies)
4. **Index 17723** or **Index 17725**, Steel or Concrete Strain Pole with Signal Cable span length: 250 feet

These limits were chosen based on past practice and practical experience. See the **Instructions** for the applicable **Design Standards** for additional information on sign and signal structures.

A Design Variation is required when sign or signal structure limits are exceeded. The design variation documentation shall include the type of structure, height, length, discussion of alternatives and costs.

29.2 Sign Structures

29.2.1 General

FDOT assigns identification numbers to overhead sign structures. See the **Structures Detailing Manual, Chapter 2**, for instructions.

29.2.2 Standard Single Column Ground Signs

Refer to **Design Standards, Index 11860** and its **Instructions**.

29.2.3 Standard Multipost Ground Signs

Refer to **Design Standards, Index 11200** and its **Instructions**.

29.2.4 Standard Overhead Span Sign Structures

The EOR is responsible for the design of all overhead sign structures whether ground mounted or supported on a structure (including bridge structures), unless otherwise directed by the Department. This responsibility is for the entire sign structure, including the supports and foundations, as well as all details necessary to fabricate and erect the sign structures. The EOR is also responsible for the shop drawing review in accordance with **Chapter 28** when sign structure shop drawings are required by the Contract Documents.

In general, however, the designer may refer to the **Design Standards, Index 11320** and its **Instructions**.

29.2.5 Standard Overhead Cantilever Sign Structures

The EOR is responsible for the design of all cantilevered overhead sign structures whether ground mounted or supported on a structure (including bridge structures), unless otherwise directed by the Department. This responsibility is for the entire sign structure, including the supports and foundations, as well as all details necessary to fabricate and erect the sign structures. The EOR is also responsible for the shop

drawing review in accordance with **Chapter 28** when sign structure shop drawings are required by the Contract Documents.

In general, the designer may refer to the **Design Standards, Index 11310** and its **Instructions**.

29.2.6 Custom Designs

If a custom design is required, include a brief written justification with the 30% plans submittal.

The EOR is responsible for the design of the attachment system for signs mounted on bridge structures.

For sign structures mounted on bridge structures, include their plans in the structures plans. Otherwise, include design details in the signing plans.

29.2.7 Dynamic Message Sign (DMS) Structures

Refer to the **Structures Manual, Volume 9** for Dynamic Message Sign Structure requirements.

29.3 Lighting Structures

29.3.1 General

Luminaire Structures may be Standard Aluminum Light Poles, Standard High-Mast Lighting or Custom Designs.

29.3.2 Standard Aluminum Light Poles

Standard aluminum light pole details are shown in the *Design Standards, Index 17515* and its *Instructions*.

For additional design information, see *Chapter 7* of this volume.

29.3.3 Standard High-Mast Lighting

Refer to *Design Standards, Index 17502* and its *Instructions*.

29.3.4 Custom Designs

When custom aluminum light poles are required, or otherwise specifically designated in the contract documents, the EOR is responsible for the structural design of the roadway light poles, foundations and the review of the Shop Drawings.

29.4 Traffic Signal Structures

29.4.1 General

Mast Arm Assemblies may be Standard Mast Arm Signal Structures, Standard Mast Arms for Site-Specific Loadings or Custom Designs.

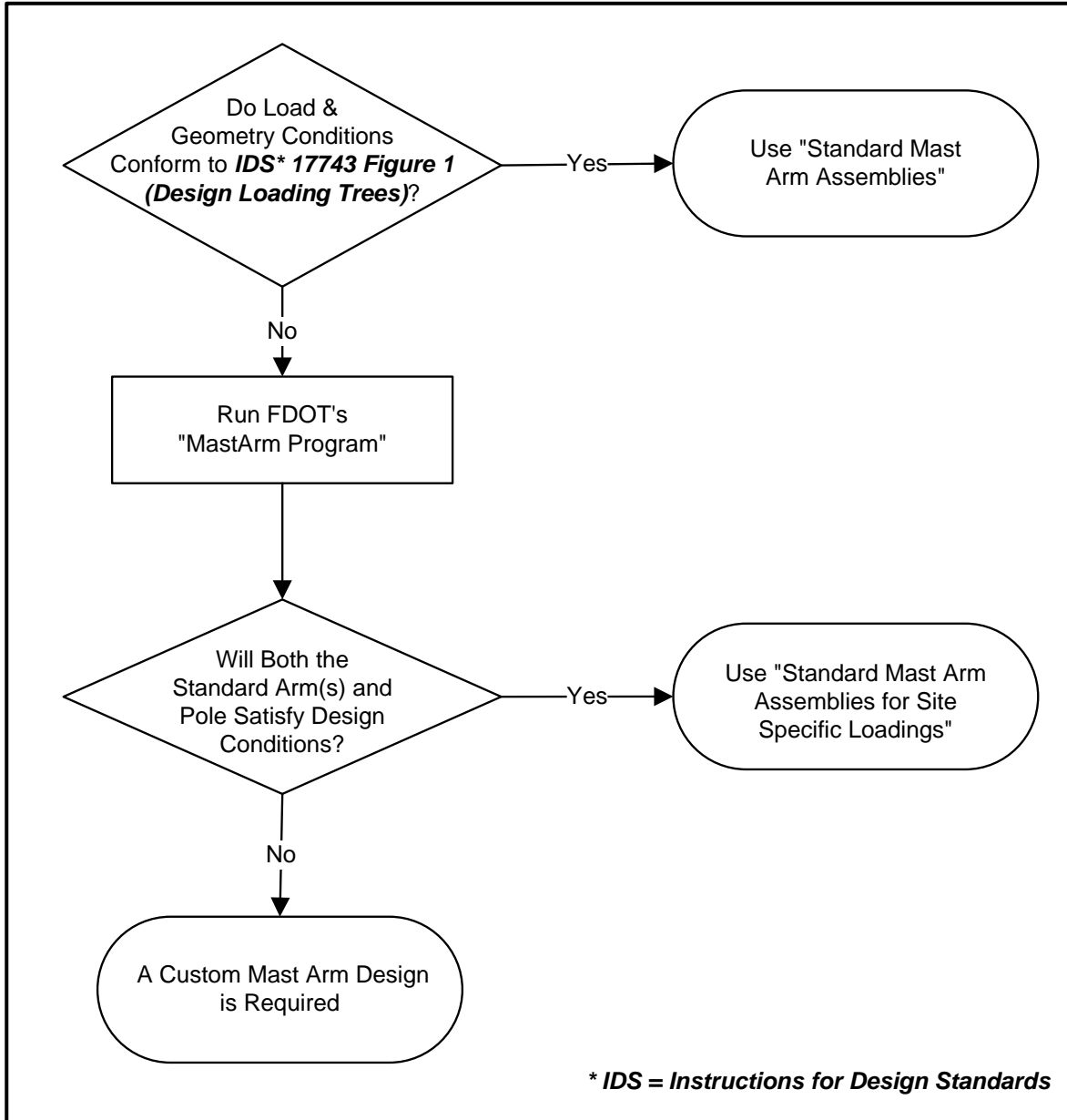
29.4.2 Mast Arm Signal Structures

Design all mast arm traffic signal assemblies with backplates in accordance with **Section 7.4.17**.

Utilize the Flowchart in **Figure 29.1** to determine which type of Mast Arm design is suitable for the particular application.

Refer to **Design Standards, Indexes 17743, 17745** and their **Instructions**.

Figure 29.1 Flowchart for Designing and Detailing Mast Arm Assemblies



29.4.3 Standard Span Wire with Concrete Strain Poles

Refer to *Design Standards, Index 17725* and its *Instructions*.

29.4.4 Standard Span Wire with Steel Strain Poles

Refer to *Design Standards, Index 17723* and its *Instructions*.

29.4.5 Custom Designs

When custom traffic signal structures are required, or otherwise specifically designated in the contract documents, the EOR is responsible for the structural design, foundations, and review of the Shop Drawings.

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