NOTICE:

Implementation of the attached Overhead Sign Structures Inventory and Inspection Manual (December 2013) shall be concurrent with the availability of the Overhead Sign Structure module of BDIS software. Upon the availability of the software module, the attached 2013 Manual will supersede the current 1999 manual. In the interim period, the 1999 Sign Structures Inventory and Inspection Manual shall remain in effect.
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ACKNOWLEDGMENTS

This document revises and supersedes NYSDOT’s Overhead Sign Structure Inventory and Inspection Manual (April 1999). The revision effort incorporated input and feedback from NYSDOT Main Office, Regions, and Consultants – all with vast experience and working knowledge of NYSDOT’s program and its requirements.

Moreover, the revision incorporates the results of extensive research of program practices and documentation review of States that have active Overhead Sign Structure Inventory and Inspection programs. This effort also is based on FHWA published guidance and manual.
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Alaska DOT’s High Tower Structural Inspection Report (report for an inspection completed in September 2011)

Connecticut DOT’s Bridge Inspection Manual (September 2001)

Connecticut DOT’s Statewide Overhead Sign Structure Inspection – Inspection Report (report for an inspection completed in April 2008)


Florida DOT’s Bridge and Other Structures Inspection and Reporting; Topic No. 850-010-030-h (January 2012)


Hawaii DOT’s Inspection Procedure Manual Interstate Route H1 and H2 Overhead Sign Structures (April 2011)

Illinois DOT’s Sign Structure Inspection Manual (August 1985)

Illinois DOT’s Overhead Sign Structure Designs (September 2005)


New Jersey DOT’s Sign Structure Evaluation Survey Report (report for an inspection completed in August 2008)

NYSDOT’s Overhead Sign Structure Inventory and Inspection Manual (April 1999)

NYSDOT’s Overhead Sign Structure Inventory and Inspection Database Manual (February 2001)

NYSDOT’s Overhead Sign Structure Design Manual (May 2008)


Oregon DOT’s Guidelines for Inventory and Inspection of State of Oregon Overhead Sign Supports (December 2000)

Tennessee DOT’s Sign Inspection Procedures (2012)

Tennessee DOT’s Cantilever Sign Inspection Report (report for an inspection completed in July 2008)
Virginia DOT’s Procedures for Inventory and Inspection of Traffic Control Device Structures (June 2006)
CHAPTER 1 - INTRODUCTION

SECTION 1 – PURPOSE OF PROGRAM

The purpose of the Overhead Sign Structure (OSS) Inventory and Inspection program is to inventory and document the physical characteristics, element conditions and any critical condition findings of an OSS. The data and information collected is utilized for the purpose of managing, maintaining, repairing, and replacing OSS.

SECTION 2 – SCOPE OF PROGRAM

Overhead sign structures include various types of span and cantilever structures, designed to support signs requiring vertical clearance for vehicles to pass underneath. Pole and cable sign supports, bridges which support signs, traffic signal poles which support signs, and standard sign post supports are not covered in this manual. Support frames for bridge-fascia mounted signs (i.e., signs for traffic that passes underneath a bridge) are also not included, as they are inspected and reported with the bridge. However, span and cantilever structures that are mounted to a bridge, for traffic on the roadway passing over the bridge, shall be inspected in accordance with the requirements of The Overhead Sign Structure Inventory and Inspection Manual (“the Manual”). Additionally, the provisions of the Manual shall also apply to the inventory and inspection of mast arms and high mast type structures located on any New York State owned roadway’s Right of Way.

SECTION 3 – PURPOSE OF MANUAL

The Overhead Sign Structure Inventory and Inspection Manual is a guide to obtaining inventory data and performing structural condition inspections of overhead sign structures located within New York State. The Manual explains the procedures required to properly document the inventory and inspection data in standard formats, supplemented by required notes, sketches, and photographs. The Manual does not address safety and work zone traffic control requirements which are integral to the performance of field work. It is required that all field work is performed by qualified and experienced engineering personnel in accordance with applicable Department safety and work zone traffic control standards.
CHAPTER 2 – SIGN STRUCTURE NOMENCLATURE AND GLOSSARY

The information in this chapter is based on FHWA’s Guidelines for the Installation, Inspection, Maintenance and Repair of Structural Supports for Highway Signs, Luminaires, and Traffic Signals (FHWA NHI 05-036, March 2005).

Anchor Rod – The rods that connect the sign structure base to the foundation.

Base Plate – The plate used to connect the post base to the foundation.

Catwalk – The walkway used by maintenance personnel, usually located in front of the sign.

Chords – The main horizontal members of the truss.

Diagonals – The diagonal members of the truss.

Foundation – The portion of the sign structure that directs the load into the ground. Usually are constructed of concrete pedestal on pile, spread, or drilled shaft foundations.

Handhole – An opening in the sign structure post for access. Usually located 3’ above the base plate.

Post or Tower – The vertical supporting members of a sign structure.

Saddles – Bearings that support the chords of truss structures.

Shim Plates – Metal plates used to account for elevation differences in tower to truss supports.

Sign Panels – Sign Panels are usually attached to the structure with a Vertical Support Angle. The vertical support angle is connected to Horizontal Support Angles. Finally, the panel itself is connected to the angle with bolts. Sign Panels can be made as one continuous unit or partial units joined together with Backing Strip connections.

Splice – Usually referred to as the connection between the truss chords. May also occur in long mast arms and high poles.

Truss Seat – The member that supports the vertical load of the truss.

Truss – Superstructure that is composed of truss members. These can be tubular or angular.

U-bolts – Bolts shaped like the letter ‘U’ used to attach sign framing brackets to the sign truss.
Figure 1 – Overhead Sign Structure Nomenclature
Figure 2 – Tower Support Structure Nomenclature
Figure 3 – Chord to Post Connection
CHAPTER 3 – TYPES OF STRUCTURES

A. MATERIALS

Material for post or arm/truss components is typically steel or aluminum. Combinations of material types are possible, for example, a sign structure may be comprised of a steel post with aluminum arm/truss.

B. COATINGS

The surface coating of a sign structure’s elements is typically “galvanized,” “weathering steel,” “painted,” or “unpainted.”

C. SIGN STRUCTURE TYPE

The predominant sign structure types discussed in this manual are classified as “Cantilever,” or “Span.”

A “Cantilever” sign structure is supported on one side of a roadway and extends over one or more traffic lanes.

A “Span” sign structure is supported on both sides of a roadway and extends over one or more traffic lanes.

D. POST

Post configuration may be “Single” or “Trussed.” Post shape may be “round,” “rectangular,” or “I shape.” Posts may also be tapered. Typically, sign structures are anchored to a spread or pier type concrete footing.

E. ARM/TRUSS

The following is a list of common types of arm or truss assemblies:

1. Single Arm
2. Dual Arm
3. Dual Trussed Arm
4. Dual Arm ‘Butterfly’ Type
5. Plane Truss
6. Tri-Truss
7. Four Chord Truss, also referred to as a “Quad-Chord” Truss
Figure 4 – Dual Trussed Arm Cantilever Overhead Sign Structure
Figure 5 – Dual Arm Butterfly Cantilevered Overhead Sign Structure
Figure 6 – Plane Truss Span – Single Posts Overhead Sign Structure
Figure 7 – Four Chord Quad Truss Span Overhead Sign Structure
Figure 8 – High Mast Lighting Support
CHAPTER 4 – INVENTORY

SECTION 1 – GENERAL

This chapter describes the required inventory data which is collected and verified as part of a sign structure inventory. All inventory data items are entered in an electronic format. Data items, related definitions, characteristics, and formats are discussed in this Chapter.

SECTION 2 – SIGN STRUCTURE ORIENTATION AND COMPONENT NUMBERING CONVENTIONS

Sign Structure orientation is established the first time the sign structure is inventoried.

A. The orientation is established according to the following conventions:

1. A sign structure’s nominal orientation shall be based on the nominal direction of the highway feature under the sign structure - such as North, South, East, and West.

2. “Front” and “Back” orientation of the sign structure shall be based on the direction of travel.

3. “Right” and “Left” side orientation of the sign structure shall be based on the direction of travel. See Figures 9 and 10 for a schematic representation of these terms.

4. If a sign structure’s orientation was incorrectly determined and/or recorded on the initial inventory, the recorded orientation shall not be changed without the explicit direction of the Region. In such cases, the inspector shall document the situation with a recommendation for rectifying the situation and alert the Region of the situation as soon as practical.

B. The numbering convention for individual elements/members of a sign structure is established according to the following conventions:

1. Truss Chord Identification

   a. The terms utilized for chord identification of the four (4) chord truss system are (LF) lower front; (UF) upper front; (LB) lower back; and (UB) upper back. The panel points are numbered from left to right and the front side of the truss is established while facing the sign structure in the Direction of Orientation.

   b. The three (3) chord truss system will be treated the same except that the back single chord is referred to as Mid-Chord (M). Example: The interior diagonal from upper chord (U7) to Mid-Chord (M8) should be labeled U7-M8. See Figure 11 for a schematic representation of these terms.

2. Trussed-Post Web Member Identification

   a. Web members (diagonals) of a trussed post are numbered from bottom to top.
Figure 10 – Direction of Orientation (2 of 2)
Figure 11 – Truss Chord Nomenclature
SECTION 3 – INVENTORY PROCEDURE

The collection and verification of all sign structure inventory data is done by field personnel and input into electronic files. Typically, all inventory data will be entered during the first time a sign structure is inventoried. The inventory data shall subsequently be reviewed and, if necessary, updated each time the structure is inspected.

SECTION 4 – INVENTORY DATA

It is noted that inventory data is entered in an electronic format. Data items, related definitions, characteristics, and formats are discussed in this section.

The inventory data is defined as follows:

1. RC CODE – (Example: 01, N4)
The first character of the Region/County Code indicates the New York State Department of Transportation Region and County designated reference codes. (Region codes - 0 for Region 10 and N for Region 11).

2. RES CODE – (Example: 03, 64)
The first digit of the Residency Code indicates the New York State Department of Transportation Region in which the sign structure is located (0 for Region 10 and N for Region 11). The second digit of this code is a number assigned to the specific Residency in which the sign structure is located.

3. SIN – (Example: 01000, N0142, 9H001, 9V001)
The Sign Structure Identification Number (SIN) is a unique five-character alphanumeric designation assigned to each individual sign structure by the Region when the structure is first entered into the inventory system. The first character is the Region number (0 for Region 10 and N for Region 11). The second character may be used by the Region to designate a “High Mast” or a “VMS” type structure with an “H” or “V,” respectively.
Table 1 – REGION AND COUNTY CODE NUMBERS

<table>
<thead>
<tr>
<th>REGION 1 –“1”</th>
<th>REGION 2 –“2”</th>
<th>REGION 3 –“3”</th>
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<td>1 – Cayuga County</td>
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<td>2 – Hamilton County</td>
<td>2 – Cortland County</td>
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<td>3 – Greene County</td>
<td>3 – Herkimer County</td>
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<td>4 – Rensselaer County</td>
<td>4 – Madison County</td>
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<td>5 – Saratoga County</td>
<td>5 – Montgomery County</td>
<td>5 – Seneca County</td>
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<td>6 – Schenectady County</td>
<td>6 – Oneida County</td>
<td>6 – Tompkins County</td>
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<tr>
<td>7 – Warren County</td>
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<td>8 – Washington County</td>
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<td>1 – Cattaraugus County</td>
<td>1 – Allegany County</td>
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<td>2 – Livingston County</td>
<td>2 – Chautauqua County</td>
<td>2 – Chemung County</td>
</tr>
<tr>
<td>3 – Monroe County</td>
<td>3 – Erie County</td>
<td>3 – Schuyler County</td>
</tr>
<tr>
<td>4 – Ontario County</td>
<td>4 – Niagara County</td>
<td>4 – Steuben County</td>
</tr>
<tr>
<td>5 – Orleans County</td>
<td></td>
<td>5 – NOT ASSIGNED</td>
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<td>6 – Yates County</td>
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<td>7 – Wayne County</td>
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<td>1 – Clinton County</td>
<td>1 – Columbia County</td>
<td>1 – Broome County</td>
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<tr>
<td>2 – Franklin County</td>
<td>2 – Dutchess County</td>
<td>2 – Chenango County</td>
</tr>
<tr>
<td>3 – Jefferson County</td>
<td>3 – Orange County</td>
<td>3 – Delaware County</td>
</tr>
<tr>
<td>4 – Lewis County</td>
<td>4 – Putnam County</td>
<td>4 – Otsego County</td>
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<td>5 – St. Lawrence County</td>
<td>5 – Rockland County</td>
<td>5 – Schoharie County</td>
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<td>6 – Ulster County</td>
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<td>6 – Sullivan County</td>
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<td>7 – Westchester County</td>
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<td>1 – Bronx County</td>
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<td>2 – Suffolk County</td>
<td>2 – Kings County</td>
</tr>
<tr>
<td>3 – New York County</td>
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</tr>
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<td>4 – Queens County</td>
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<td>5 – Richmond County</td>
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### Table – 2 RESIDENCY CODE NUMBERS

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<td>1 – Cayuga/Seneca Residency</td>
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<td>2 – Essex Residency</td>
<td>2 – Hamilton Residency</td>
<td>2 – Cortland/Tompkins Residency</td>
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<td>3 – Greene Residency</td>
<td>3 – Herkimer Residency</td>
<td>3 – Onondaga East Residency</td>
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<td>4 – Rensselaer Residency</td>
<td>4 – INTENTIONALLY BLANK</td>
<td>4 – Onondaga West Residency</td>
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<td>5 – Saratoga Residency</td>
<td>5 – Montgomery/Fulton Residency</td>
<td>5 – Oswego Residency</td>
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<td>8 – Washington Residency</td>
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<td>REGION 4</td>
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<td>1 – Cattaraugus Residency</td>
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<td>2 – Livingston Residency</td>
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<td>2 – Steuben Residency</td>
</tr>
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<td>3 – Monroe East Residency</td>
<td>3 – Erie North Residency</td>
<td>3 – Chemung/Schuyler/Yates Residency</td>
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<td>7 – Wyoming Residency</td>
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<td>8 – Wayne/Ontario Residency</td>
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<tr>
<td>REGION 7</td>
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<td>3 – Dutchess South/Putnam Residency</td>
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</tr>
<tr>
<td>4 – Lewis Residency</td>
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<tr>
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<td>6 – Rockland Residency</td>
<td>6 – Schoharie/Delaware North Residency</td>
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<td>7 – Ulster Residency</td>
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<td></td>
</tr>
<tr>
<td>6 – Nassau South Residency</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. **DATE** – (Example 12/03/2013).
   Record the date when the initial or updated inventory was performed in month/day/year format.

5. **TYPE OF INVENTORY** –
   Record the type of inventory performed on the sign structure. (1 = Create, which is used for an initial inventory; 2 = Update).

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6. **ROUTE NUMBER** – (Example: 908E, 25)
Record the Route Number along which the sign structure is located.

7. **REFERENCE MARKER** – (Example: 2403031103)
Record information from nearest reference marker. The characters shall be entered without any spaces.

8. **YEAR BUILT** – (Example: 1997)
Record the year the sign structure was built, if known.

9. **CONTRACT NUMBER** – (Example: D373203)
Record the contract number under which the structure was constructed, if known. On existing structures, the contract number under which the sign panels were installed is sometimes stamped on the back of the sign(s). This may or may not be the same contract that the structure was built under and must be verified by obtaining and reviewing the corresponding contract plans.

Note: Usually a contract number consists of 7 characters; however there may be exceptions at times when it could be as long as 11 characters.

10. **PLANS AVAILABLE?** – (Example: Y)
Record Y if the original contract plans for the sign structure are in the SIN folder, or available in the Regional Office, or N if not available.

11. **ON BRIDGE** – (Example: Y)
Record Y if the sign structure is on a highway bridge or N if it is not. This does not include fascia mounted signs.

12. **BIN** – (Example: 2133511)
Enter the Bridge Identification Number (BIN) if the sign structure is on a highway bridge.

13. **DIRECTION OF ORIENTATION** – (Example: North)
Record Direction of Orientation for the structure; e.g., North, South, East, or West. (See Chapter 4, Section 2 for detailed description.)

14. **ADDITIONAL LOCATION DESCRIPTION** – (Example: Sand Ave. is nearest cross street)
Document any prominent roadway features, such as cross-streets name, exit numbers, etc., in order to facilitate the process of locating the structure.

15. **SIGN STRUCTURE TYPE** – (Example: Truss-Cantilever)
The sign structure type is classified based on its structural configuration as Truss-Cantilever, Truss-Span, Mast Arm, High Mast, Butterfly, or “Other”.

16. **TRAFFIC UNDER** – (Example: One-Way)
Span type structures are further classified as “One-Way” or “Two-Ways” depending upon the traffic direction(s) under the span.
17. Number of Full Lanes Under – (Example: 2)
Record the number of full traffic lanes under the overhead sign structure.

18. Number of Partial Lanes Under – (Example: 1)
Record the number of partial traffic lanes under the overhead sign structure.

19. Number of Shoulders – (Example: 2)
Record the number of shoulders under the overhead sign structure.

20. Number of Shoulders with a width $\geq 8.00'$ – (Example: 1)
Record the number of shoulders with a width $\geq 8.00'$ under the overhead sign structure.

21. WORK ZONE TRAFFIC CONTROL NEEDED – (Example: Y)
Record the need for work zone traffic control to complete any portion of the inspection. (“Y” = Yes, “N” = No). If “Yes” is used, additional data in needed for Item 22 - Number of WORK ZONE TRAFFIC CONTROL Setups needed.

22. Number of WORK ZONE TRAFFIC CONTROL Setups Needed. – (Example: 4)
Record the number of distinct full lane, partial lane and shoulder work zone traffic control setups needed to complete the inspection. For example, if four distinct work zone traffic control setups are required to inspect a sign structure in its entirety, record “4”.

23. POSTS – (Example: Single Tube – Round, Steel, Unpainted)
This item is used for recording post configuration (Single or Trussed), post shape (round, rectangular or I shape), post material, and post coating.

If the “Other” field is used for Post Type, Post Material Type, or Coating Type, a description of the post type, configuration, material, and coating shall be provided.

Table 3 – POST TYPE

<table>
<thead>
<tr>
<th>POST TYPE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Tube - Round</td>
<td>1</td>
</tr>
<tr>
<td>Single Tube – Rectangular</td>
<td>2</td>
</tr>
<tr>
<td>Single I-Beam</td>
<td>3</td>
</tr>
<tr>
<td>2-Post Truss</td>
<td>4</td>
</tr>
<tr>
<td>Round - Tapered</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
</tr>
</tbody>
</table>
Table 4 – POST MATERIAL TYPE

<table>
<thead>
<tr>
<th>POST MATERIAL</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>1</td>
</tr>
<tr>
<td>Aluminum</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 5 – POST COATING TYPE

<table>
<thead>
<tr>
<th>POST COATING</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painted</td>
<td>1</td>
</tr>
<tr>
<td>Unpainted</td>
<td>2</td>
</tr>
<tr>
<td>Galvanized</td>
<td>3</td>
</tr>
<tr>
<td>Weathering</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
</tr>
</tbody>
</table>

24. FOOTING – (Example: Spread)
Record post footing type: Spread, Drilled Shaft, Other, or “Unknown”.

25. ARM/TRUSS – (Example: Single Arm, Steel, Unpainted)
Record the Arm/Truss configuration, material, and coating.

If the “Other” Arm/Truss Type, Material Type, or Coating Type field is used, a description of the Arm/Truss type, configuration, material, and coating shall be provided.

Table 6 – ARM/TRUSS TYPE

<table>
<thead>
<tr>
<th>ARM/TRUSS TYPE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Arm</td>
<td>1</td>
</tr>
<tr>
<td>Dual Arm</td>
<td>2</td>
</tr>
<tr>
<td>Dual Trussed Arm</td>
<td>3</td>
</tr>
<tr>
<td>Dual Arm – Butterfly</td>
<td>4</td>
</tr>
<tr>
<td>Plane Truss</td>
<td>5</td>
</tr>
<tr>
<td>Tri-Chord Truss</td>
<td>6</td>
</tr>
<tr>
<td>Four-Chord Truss</td>
<td>7</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 7 – ARM/TRUSS MATERIAL TYPE

<table>
<thead>
<tr>
<th>ARM/TRUSS MATERIAL</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>1</td>
</tr>
<tr>
<td>Aluminum</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 8 – ARM/TRUSS COATING TYPE

<table>
<thead>
<tr>
<th>ARM/TRUSS COATING</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painted</td>
<td>1</td>
</tr>
<tr>
<td>Unpainted</td>
<td>2</td>
</tr>
<tr>
<td>Galvanized</td>
<td>3</td>
</tr>
<tr>
<td>Weathering</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
</tr>
</tbody>
</table>

26. SPAN/ARM LENGTH – (Example: 20.50”)  
Record length of Arm/Truss in decimal feet format.

27. TRUSS DEPTH – (Example: 20.50”)  
For span-trussed or cantilever-trussed structures the distance between top and bottom chords (measured centerline to centerline) is recorded as depth of truss in decimal feet format.

28. GEOGRAPHIC LOCATION COORDINATES (NAD 83 UTM) – (Example: 417133 (E), 4662757 (N))  
Record the physical location of the structure using UTM 83, Zone 18 coordinate system. Record both Easterly (6 Digits) and Northerly (7 digits). The coordinates are measured at the “Front,” “Right” post.

29. MINIMUM VERTICAL CLEARANCE – (Example: 16’-10”)  
Record the minimum vertical clearance in feet-inches. This shall be measured from the lowest attachment on the structure to the travel lane between the highway feature’s edge of shoulders.

30. OTHER ATTACHMENTS – (Example: Camera)  
Record any types of attachments mounted on the structure. If the “Other” type field is used, a description of the attachment mounted shall be provided.
Table 9 – OTHER ATTACHMENTS TO SIGN STRUCTURE TYPE

<table>
<thead>
<tr>
<th>OTHER ATTACHMENTS</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damper</td>
<td>1</td>
</tr>
<tr>
<td>Camera</td>
<td>2</td>
</tr>
<tr>
<td>Antenna</td>
<td>3</td>
</tr>
<tr>
<td>Traffic Signal</td>
<td>4</td>
</tr>
<tr>
<td>Flashing Light</td>
<td>5</td>
</tr>
<tr>
<td>Utility Box</td>
<td>6</td>
</tr>
<tr>
<td>Electrical Cables</td>
<td>7</td>
</tr>
<tr>
<td>Electrical Meter</td>
<td>8</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
</tr>
</tbody>
</table>

31. AUXILIARY SIGNS ATTACHED TO POST – (Example: Y)
Record the presence of any auxiliary signs attached to the post. (“Y” = Yes, “N” = No). If “Yes” is used, a description of the sign and its text shall be provided.

32. SIGN LIGHTING – (Example: 2)
Record the number of light fixtures present on the structure
CHAPTER 5 – INSPECTION

SECTION 1 – GENERAL

This chapter describes the inspection procedures, Condition States system, reporting of findings, and corrective actions to be taken as remedial measures on overhead sign structures. All inspections shall be conducted in conformance with requirements of this Manual and applicable Department protocols. The inspections discussed in this Chapter may require the use of special access equipment, such as a bucket truck, platform truck, etc., and may incorporate non-destructive inspection techniques, when and if needed.

SECTION 2 – INSPECTION TEAM AND QUALITY CONTROL ENGINEER, QUALIFICATIONS

All inspection teams must include a Team Leader (TL) and Assistant Team Leader (ATL). The Team Leader is responsible for ensuring that the sign structure is inspected completely and that the inspection reporting conforms with all requirements of this Manual and all applicable Technical Advisories, Engineering Instructions, and Engineering Bulletins. The Assistant Team Leader may inspect and measure components, if working under the Team Leader’s direct supervision. Additional personnel, such as laborers or Assistant Team Leader Trainees, may be added as needed.

A. A Team Leader must meet the following minimum qualifications:
   1. Be currently registered with the New York State Education Department as a Professional Engineer (P.E.). An out-of-state P.E. registration may be substituted for a New York State P.E. provided that the individual received the P.E. based upon satisfactory completion of a 16 hour written examination, has applied for P.E. registration in New York State, and the New York State Education Department has acknowledged receipt of the individual’s intent to practice in New York under subsection (b) of Section 7208 of the Education Law, and
   2. Have at least three (3) years of experience in design, construction, or inspection of transportation structures.

B. An Assistant Team Leader must meet the following minimum qualifications:
   1. Possess a Bachelor of Science Degree in Civil Engineering from an Accreditation Board for Engineering and Technology (ABET) accredited program or an equivalent degree acceptable to the Department, or
   2. Possess an Associate Degree in Civil Engineering Technology or an equivalent Associate Degree determined to be acceptable by the Department, and have one-and-one-half (1 1/2) years of experience in the design, construction, or inspection of transportation structures, or
   3. Have at least three (3) years of experience in design, construction, or inspection of transportation structures.

Quality Control review is a detailed process that includes careful examination of all parts of OSS inspection documentation and field reviews of inspection teams and field procedures. The Quality Control Engineer (QCE) shall review and approve all field inspection reports and shall meet the same
qualifications specified for a Team Leader (Item A in this Section). The QCE shall not be the same individual responsible for performing the inspection or preparing related inspection reports.

SECTION 3 –“SIGN IDENTIFICATION NUMBER” FOLDER

Every sign structure that is inspected shall have a folder identified with the Sign Structure Identification Number (SIN), containing the following items:

1. Report binder containing current and previous inspection reports and inventory forms
2. A folder (or binder) containing current and previous Flags, Repair Request Forms documentation, and correspondence associated with the Flags and Repair Requests
3. Plans (‘as-built,” if available) or sketches in lieu of plans, if plans are not available
4. Photographs
5. All pertinent correspondence

To conduct a thorough inspection of a sign structure, it is necessary to review all available information pertaining to the structure’s history. The SIN folder for the corresponding sign structure shall be reviewed prior to the inspection. Using record plans, if available, (or pictures, if record plans are not available), a comparison shall be made between the existing structure (with sign panels currently in place) and the record plans and/or photos from the last inspection or inventory. The purpose of this check is to verify that the existing structure is carrying the sign panels it was originally designed for. If either the structure size or panel area and locations differ from the record, the existing configuration shall be recorded and the item “Recommend Further Investigation” shall be checked, along with an explanation. The inventory information shall also be reviewed and, if necessary, shall be updated.

SECTION 4 – FIELD INSPECTION EQUIPMENT LIST

An inspection team is required to have the following equipment to be used during overhead sign structure inspections, as necessary:

1. Work-zone protection and traffic control equipment, including, but not limited to signs, traffic cones, and flags.
2. Personal safety equipment, including hard hats with reflectors, reflective high-visibility vests, goggles, face shields, safety harnesses, and lanyards.
3. Basic access equipment, such as a step ladder, extension ladder, and rope.
4. Tools for cleaning, including a whisk broom, wire brush, scraper, shovel, broom, and disk and die grinder.
5. Tools for inspection, including chipping hammers, pocket knives, screwdrivers or awls, magnifying glass, dye-penetrant test kit, flashlights, lead or drop light (including 110 VAC power source), mirrors, etc.
6. Tools for measuring, such as a plumb bob, protractor, levels, folding rulers, laser tapes, calipers, pocket rulers, thickness gages, magnet, electrical circuit tester, D-meter, 25’ collapsible survey rod, etc.
7. Tools for documentation, such as a digital camera with electronic flash, triangles, straight edges, steel scribes center punches, engineer/architect scales, magnetic compass, handheld GPS, etc.
8. Tools for tightening sign structure fasteners, including torque wrench, socket set and ratchet, set of box or open end wrenches, etc.
9. Mobile phone
10. All computer hardware and software which are required to electronically collect, store, transmit, etc., data required in this manual.
11. Personal protective equipment, such as rain suits, gauntlet gloves, rubber boots, etc.
12. Consumable supplies, including lumber crayons, spray paint, zinc-rich primer, dye-penetrant test materials (penetrant, cleaner, developer, rags), camera batteries, disposable dust/nuisance respirators, surveyor’s marking tape, etc.

SECTION 5 – INSPECTION ACCESS METHODS

Typically, overhead sign structure inspection will require the use of special access equipment, such as a UBIU, bucket truck, and/or platform truck. The access equipment and its booms shall not extend over or encroach into any adjacent lane which is not closed to traffic.

Access may also be by means of live climbing. Live climbing techniques allow access to truss chords, arms or other structural elements by means of climbing through the truss frame over active highway traffic without access equipment and associated lane closures. Live climbing shall be used only after consultation with and concurrence of the Department.

SECTION 6 – INSPECTION TYPES AND FREQUENCY

A. Inspection Types:

There are four types of inspections:

1. Inspection – Type 1: A visual 100% hands-on inspection of each element/component of a sign structure. A visual 100% hands-on inspection is an in-depth inspection. Such an inspection is a comprehensive detailed inspection of an entire sign structure, involving a 100% hands-on examination of each component, member, fastener, and weld on the structure and may incorporate non-destructive inspection techniques.

2. Inspection – Type 2: A visual 100% hands-on inspection of each element/ component which generally can be accessed and inspected without work zone traffic control. Typically, a Type 2 inspection will assess foundation, post, and arm to truss connection elements. If access to such elements requires work zone traffic control, Type 2 inspections may be used with necessary work zone traffic control.

3. Inspection – Type 3: A visual 100% hands-on inspection of a specific area or condition that, in a previous inspection, has been issued a Flag or has been repaired with a Fiber Reinforced Polymer. The inspected area shall include any affected components in proximity to the principle area of inspection.

4. Inspection – Type 4: This inspection type applies to High Mast type structures only. A visual 100% hands-on inspection of the High Mast structure, up to and including the highest slip joint on the High Mast structure, with a visual assessment of the remaining portion of the High Mast structure.
B. Inspection Frequency:

Given that different overhead sign structure configurations and materials have differing rates of deterioration and modes failure, it is necessary to define inspection frequencies based on a combination of material type as well as configuration and related redundancy considerations.

The following frequencies are the maximum intervals permissible for the respective type/material combination for a given overhead sign structure:

1. Aluminum sign structures (regardless of configuration) – Less than 30 years of in-service age: 4 years, Type 1 Inspection with a mid-cycle (2 years) Type 2 Inspection, if required, as described below.
2. Aluminum sign structures (regardless of configuration) – Greater than 30 years of in-service age: 2 years, Type 1 Inspection.
3. Steel - Cantilever Configurations – 4 years, Type 1 Inspection with a mid-cycle (2 years) Type 2 Inspection, if required, as described below.
4. Steel – Span Configurations – 6 years, Type 1 Inspection with a mid-cycle (3 years) Type 2 Inspection, if required, as described below.
5. High Mast type structures (all materials) – 4 years, Type 4 inspection.

Type 2 inspections shall be required only if:

1. S.01– Foundations, S.02– Anchor Bolts, S.03– Base Plates, S.04– Post/Column Supports, or S.05– Post/Column to Arm/Chord Connections elements is rated in Condition State 4, with a quantity of 45% or more in Condition State 4 or,
2. S.01– Foundations, S.02– Anchor Bolts, or S.03– Base Plates element is rated in Condition State 4 and the aggregate total quantity for the three elements in Condition State 4 is 45% or more or,
3. S.04– Post/Column Supports, or S.05– Post/Column to Arm/Chord Connections is rated in Condition State 4 and the aggregate total quantity for the two elements in Condition State 4 is 45% or more.

The inspection types are not interchangeable. Inspection frequencies shall be adjusted and more frequent inspections (of any type and frequency, as necessary) shall be performed. Factors that shall warrant more frequent inspections:

1. Issuance of a flag on the overhead sign structure. In such cases a Type 3 inspection shall be performed annually within a thirty (30) day period of the flag issuance anniversary date. Annual Type 3 inspections shall continue until the underlying flag condition is addressed and the flag removed. Note: Flags are discussed in Chapter 5, Section 14.

2. An inspector’s recommendation for more frequent inspections. In such cases, the inspector shall provide the rationale for the more frequent inspections, along with the type of inspections required (Type 1, Type 2, or Type 3).

3. In cases where Fiber Reinforced Polymer (FRP) composite materials have been used to repair aluminum sign structures, every joint that has been repaired using FRP composite materials shall be inspected every year – Type 3 inspection, for 2 consecutive years after the installation of the
FRP repair. If both of these inspections reveal that the FRP wrap is functioning as intended, the Type 3 inspection frequency may be increased to a maximum of 4 years. A joint with an FRP wrap that exhibits any sign of failure shall be inspected at least once a year – Type 3 inspection - until the sign structure is removed or repaired. For additional FRP inspection details see Chapter 5, Section 16.

Any recommendation to adjust the inspection frequency shall be reviewed and approved by the Region. It should be noted that since varying inspection frequencies and types of inspections may be required on a given sign structure, it may be more efficient to perform a Type 1 inspection sooner than scheduled in lieu of combining a Type 2 inspection and a Type 3 inspection that are scheduled in a short time span. Good judgment and prudent use of resources will be factors in such determinations. However, in such cases, the requirements of maximum inspection intervals and structure-specific inspection types shall not be waived.

At times, there are circumstances that may impact scheduling of inspections. In such situations, the Region may adjust the inspection schedule, with appropriate justification. Documentation of this justification shall be placed in the SIN folder.

SECTION 7 – INSPECTION PROCEDURE

Before performing an inspection, the inspector shall verify the SIN on the overhead sign structure in the field. The development of an inspection method for each type of sign structure is important. A well planned sequence will provide a working guide for the inspector and will insure a systematic and thorough inspection of all components of the structure. A suggested sequence is as follows:

1. Foundations
2. Base plates and anchor bolts
3. Posts, web members, and connections
4. Connections to posts
5. Truss frame members and their welded/bolted connections, sign panels, and lighting system
6. Surface coating
7. Sign panel and its connection

SECTION 8 – INSPECTION ELEMENTS CONDITION STATES

This section is based on material provided in FHWA’s Guidelines for the Installation, Inspection, Maintenance and Repair of Structural Supports for Highway Signs, Luminaires, and Traffic Signals (FHWA NHI 05-036, March 2005).

This section applies to AASHTO’s Commonly Recognized Structural Elements inspection system (CoRe) to overhead sign structure inspections. The CoRe system as it relates to overhead sign structures shall utilize the following Element Condition States and associated predominant typical feasible corrective actions:
Table 10 – Element Condition States

<table>
<thead>
<tr>
<th>Condition State</th>
<th>Description</th>
<th>Feasible Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not Applicable</td>
<td>Do Nothing</td>
</tr>
<tr>
<td>1</td>
<td>Good: Element functions as designed, with high degree of reliability.</td>
<td>Do Nothing</td>
</tr>
<tr>
<td>2</td>
<td>Fair: Element functions as designed, with a small reduction in reliability.</td>
<td>Do Nothing, Repair, or Increase inspection frequency</td>
</tr>
<tr>
<td>3</td>
<td>Poor: Element functions as designed, with a significant reduction in reliability.</td>
<td>Do Nothing, Repair, or Replace element within a specified time frame</td>
</tr>
<tr>
<td>4</td>
<td>Critical: Element does not function as designed.</td>
<td>Do Nothing, Immediate repair, or Replacement of element</td>
</tr>
<tr>
<td>5</td>
<td>Unknown / Not Inspected</td>
<td>Do Nothing, Recommend Further Investigation</td>
</tr>
</tbody>
</table>

Table 10 provides a general overview of the CoRe system’s Condition States. In Section 9 of this Manual, the CoRe system is applied to each element (listed below) with specific guidance for element Condition States and associated element descriptions and materials, units of measure, condition state descriptions, and feasible corrective actions.

The following CoRe elements shall apply to overhead sign structures:

1. Element S.01 – Foundations  
2. Element S.02 – Anchor Bolts  
3. Element S.03 – Base Plates  
4. Element S.04 – Post/Column Supports  
5. Element S.05 – Post/Column to Arm/Chord Connections  
6. Element S.06 – Arm Chord Members  
7. Element S.07 – Chord Splice Connections  
8. Element S.08 – Span Truss Members  
9. Element S.09 – Sign Frames  
10. Element S.10 – Sign Panels (including VMS)  
11. Element S.11 – Catwalks  
12. Element S.12 – Luminaire  
13. Element S.13 – Sign Attachments  
14. Element S.14 – Slip Joints  
15. Element S.15 – Element Defect Condition Finding

Additionally, it should be noted that the CoRe system provides for the allocation of an element’s quantities to a given Condition State. For example, Element S.08 – Span Truss Members is assigned units of “linear feet.” Thus, for example, for an element with a total length of 20 feet, an inspector finding minor deficiencies on 5 feet of the element shall allocate 15 feet to Condition State 1 and 5 feet to Condition State 2.
The CoRe system also relies on “Smart Flags” (also referred to as “Defect Flags”). This is the mechanism used to identify specific modes of deterioration, such as cracking. In NYSDOT, the nomenclature “Defect Condition Finding” shall be used in lieu of “Smart Flag” or “Defect Flag” to avoid any confusion with critical conditions/findings flag protocols. Therefore, an “Element Defect Condition Finding” shall be used to identify member or connection cracks.

For any element with a Condition State of “5,” the inspector shall provide additional information as to why the Condition State was used. If the inspector is recommending further investigation, the inspector shall provide additional information describing the element and condition requiring further investigation.

For any element requiring quantification of section loss, D-meter readings or other condition appropriate means shall be used to document the section loss in the inspection findings. Please see Chapter 5, Section 13 for the discussion of D-Meter documentation.

SECTION 9 – INSPECTION ELEMENTS DEFINITIONS AND CONDITION STATES

This section is based on material provided in FHWA’s Guidelines for the Installation, Inspection, Maintenance and Repair of Structural Supports for Highway Signs, Luminaires, and Traffic Signals (FHWA NHI 05-036, March 2005).
FOUNDATIONS S.01
Units: Each (EA)

This element includes foundation(s) that are constructed of reinforced concrete or steel. Inspectors should assign Condition States based on the overall condition of the foundation and its ability to function properly. The condition of grout pads, if present, shall also be included in this element.

Condition State Descriptions

1 Good: The element shows no deterioration. There may be discoloration, efflorescence, and/or superficial cracking in the concrete, but without affect on strength and/or serviceability. There is no evidence of active corrosion of the steel. On metal foundations, the surface coatings are sound and functioning as intended.

Feasible Actions: Do Nothing

2 Fair: Minor cracks and spalls may be present in the concrete foundation, but there is no exposed reinforcing or surface evidence of rebar corrosion. Surface rust, surface pitting, has formed or is forming on steel foundation. Protective coatings may have minor areas of deterioration.

Feasible Actions: Do Nothing Seal cracks, minor patch Clean and resurface steel

3 Poor: Some delaminations and/or spalls may be present in the concrete foundation and some reinforcing may be exposed. Corrosion of rebar may be present, but loss of section is incidental and does not significantly affect the strength and/or serviceability of either the element or the sign structure. Protective coatings have failed. Surface pitting may be present, but any section loss due to active corrosion is measurable and does not warrant structural analysis. Weep holes in grout pads are clogged or not present.

Feasible Actions: Do Nothing Clean rebar, patch and/or seal Clean and resurface steel

4 Critical: Advanced deterioration. Corrosion of reinforcement and/or loss of concrete section or sufficient section loss of the steel is sufficient to warrant analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

Feasible Actions: Do Nothing Rehab Unit Replace Unit

5 Unknown: The foundation is buried and/or inaccessible and could not be evaluated.

Feasible Actions: Do Nothing Remove soil and inspect
1 Good: The element shows no deterioration. There may be discoloration, efflorescence, and/or superficial cracking in the concrete, but without affect on strength and/or serviceability. There is no evidence of active corrosion of the steel. On metal foundations, the surface coatings are sound and functioning as intended.

Condition State: 1
Description: No deterioration.

Condition State: 1
Description: No deterioration.

Condition State: 1
Description: No deterioration.

Condition State: 1
Description: Minor mapcracking and efflorescence. Concrete rings solid.
FOUNDATIONS S.01

2 Fair: Minor cracks and spalls may be present in the concrete foundation, but there is no exposed reinforcing or surface evidence of rebar corrosion. Surface rust, surface pitting, has formed or is forming on steel foundation. Protective coatings may have minor areas of deterioration.

Condition State: 2  
Description: Shallow spalling. No reinforcing is exposed.

Condition State: 2  
Description: Minor scaling.

Condition State: 2  
Description: Scaling. Minor void does not significantly affect the element reliability.

Condition State: 2  
Description: Minor cracking. Concrete rings solid.
3 Poor: Some delaminations and/or spalls may be present in the concrete foundation and some reinforcing may be exposed. Corrosion of rebar may be present, but loss of section is incidental and does not significantly affect the strength and/or serviceability of either the element or the sign structure. Protective coatings have failed. Surface pitting may be present, but any section loss due to active corrosion is measurable and does not warrant structural analysis. Weep holes in grout pads are clogged or not present.

<table>
<thead>
<tr>
<th>Condition State: 3</th>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Radial cracking at anchor bolt.</td>
<td>Description: Spalled top placement with incidental rebar exposure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 3</th>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Erosion gulley reduces foundation embedment.</td>
<td>Description: Freeze-thaw damage with incidental rebar exposure. Deteriorated mortar pad has exposed anchor bolt.</td>
</tr>
</tbody>
</table>
FOUNDATIONS S.01

4 Critical: Advanced deterioration. Corrosion of reinforcement and/or loss of concrete section or sufficient section loss of the steel is sufficient to warrant analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Highly eccentric placement significantly reduces anchor bolt cover and pull out capacity.</td>
<td>Description: Cracked and spalled mortar pad and foundations. Rebar and anchor rods are exposed and exhibit measurable section loss.</td>
</tr>
<tr>
<td>Description: Spalled mortar pad undermines base plate. Plate thickness and bolt location indicates pad is required for base plate stiffness.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>![Image 1]</th>
<th>![Image 2]</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image 3]</td>
<td>![Image 4]</td>
</tr>
</tbody>
</table>
ANCHOR BOLTS S.02
Units: EA

This element defines anchor bolts, anchor nuts, leveling nuts, and washers connecting the column support members to the foundation.

Condition State Descriptions

1 Good: There is no deterioration or misalignment. The elements are fully engaged, tight, and in new or like-new condition.
Feasible Actions: Do Nothing

2 Fair: Minor corrosion of the elements may be present. The elements are fully engaged.
Feasible Actions: Do Nothing  Tighten/Replace loose hardware

3 Poor: Moderate corrosion of the elements may be present. Anchor nuts are not fully engaged or bolts are misaligned. Washers are missing (if specified on design plans). One or two loose nuts may be observed, but do not significantly affect the strength and/or serviceability of either the element or the sign structure.
Feasible Actions: Do Nothing  Tighten/Replace loose hardware  Replace Element

4 Critical: Heavy corrosion of the elements may be present. Bolts may be cracked/sheared or multiple anchor nuts are loose/missing. There is sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.
Feasible Actions: Do Nothing  Repair Element  Replace Element

5 Unknown: The anchor bolts are buried and/or inaccessible.
Feasible Actions: Do Nothing  Remove soil and inspect element
## ANCHOR BOLTS S.02

1 Good: There is no deterioration or misalignment. The elements are fully engaged, tight, and in new or like-new condition.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Description: No deterioration.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition State: 1</td>
<td>Description: No deterioration.</td>
</tr>
<tr>
<td>Condition State: 1</td>
<td>Description: No deterioration.</td>
</tr>
<tr>
<td>Condition State: 1</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>
ANCHOR BOLTS S.02

2 Fair: Minor corrosion of the elements may be present. The elements are fully engaged.

<table>
<thead>
<tr>
<th>Condition State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Missing flat washer. Lock washer does not cover the base plate hole.</td>
</tr>
<tr>
<td>2</td>
<td>Minor corrosion. No washer under the turned element.</td>
</tr>
<tr>
<td>2</td>
<td>Minor corrosion. No washer under the turned element.</td>
</tr>
<tr>
<td>2</td>
<td>Minor corrosion.</td>
</tr>
</tbody>
</table>
ANCHOR BOLTS S.02

3 Poor: Moderate corrosion of the elements may be present. Anchor nuts are not fully engaged or bolts are misaligned. Washers are missing (if specified on design plans). One or two loose nuts may be observed, but do not significantly affect the strength and/or serviceability of either the element or the sign structure.

<table>
<thead>
<tr>
<th>Condition State: 3</th>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Nut partially engaged. Level of engagement significantly affects the element’s reliability</td>
<td>Description: Excessive anchor bolt exposure under the leveling nut introduces bending stresses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Anchor bolt is misaligned.</td>
</tr>
</tbody>
</table>
ANCHOR BOLTS S.02

4 Critical: Heavy corrosion of the elements may be present. Bolts may be cracked/sheared or multiple anchor nuts are loose/missing. There is sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Description: Loose nut.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition State: 4</td>
<td>Description: Fractured anchor bolt.</td>
</tr>
<tr>
<td>Condition State: 4</td>
<td>Description: Corrosion with significant section loss.</td>
</tr>
</tbody>
</table>
BASE PLATES S.03
Units: EA

This element defines the base plates, flanges, gusset plates, and welds at the connection of the column support(s) to the foundation(s). The elements may be painted, unpainted, or galvanized.

Condition State Descriptions

1 Good: No evidence of active corrosion. Surface coating is sound and functioning as intended to protect the metal surface.

Feasible Actions: Do Nothing

2 Fair: Minor surface corrosion present.

Feasible Actions: Do Nothing Clean and resurface

3 Poor: Any protective coating present has failed. Surface pitting may be present, but any section loss due to active corrosion is measurable and does not warrant structural analysis.

Feasible Actions: Do Nothing Clean and resurface

4 Critical: Cracks may be present on the base plate to column support connection weld. Corrosion is advanced. Section loss is sufficient to warrant structural analysis to ascertain the impact on the ultimate strength and/or serviceability of the element and/or the sign structure.

Feasible Actions: Do Nothing Repair Element Replace Element

5 Not Inspected: Element is buried and/or inaccessible.

Feasible Actions: Do Nothing Remove soil and inspect
BASE PLATES S.03

1 Good: No evidence of active corrosion. Surface coating is sound and functioning as intended to protect the metal surface.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>
BASE PLATES S.03

2 Fair: Minor surface corrosion present.

<table>
<thead>
<tr>
<th>Condition State: 2</th>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Minor corrosion.</td>
<td>Description: Minor corrosion.</td>
</tr>
</tbody>
</table>

Condition State: 2
Description: Minor corrosion.
BASE PLATES S.03

3 Poor: Any protective coating present has failed. Surface pitting may be present, but any section loss due to active corrosion is measurable and does not warrant structural analysis.

<table>
<thead>
<tr>
<th>Condition State: 3</th>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Corrosion and surface pitting.</td>
<td>Description: Corrosion and surface pitting.</td>
</tr>
</tbody>
</table>
BASE PLATES S.03

4 Critical: Cracks may be present on the base plate to column support connection weld. Corrosion is advanced. Section loss is sufficient to warrant structural analysis to ascertain the impact on the ultimate strength and/or serviceability of the element and/or the sign structure.

<table>
<thead>
<tr>
<th>Condition State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Cracked aluminum base plate.</td>
</tr>
<tr>
<td>4</td>
<td>Delaminated corrosion with significant loss of weld throat.</td>
</tr>
<tr>
<td>4</td>
<td>Crack in the base plate to column support element weld.</td>
</tr>
<tr>
<td>4</td>
<td>Broken shear bolt in base casting.</td>
</tr>
</tbody>
</table>
COLUMN SUPPORT(s) S.04
Units: EA

This element includes the vertical posts, truss members, handhole covers, and caps for the column supports on the structure. The element components may be painted/unpainted/galvanized steel or aluminum.

Condition State Descriptions

1 Good: No evidence of deterioration or misalignment. Elements are in new or like-new condition.

Feasible Actions:      Do Nothing

2  Fair: Moderate damage or corrosion is present. Standing water may be observed on the inside of the post. Column supports may be out of plumb.

Feasible Actions:      Do Nothing      Repair/Replace Elements

3 Poor: Heavy damage or corrosion of elements with localized section loss. Elements may be misaligned or have severe impact damage that may warrant structural analysis to ascertain the impact on the ultimate strength and/or serviceability of the element and/or the sign structure.

Feasible Actions:      Do Nothing      Rehab Unit      Replace Unit

4 Critical: Deterioration is so severe that structural integrity is in doubt. Failure may be imminent.

Feasible Actions:      Do Nothing      Remove from service      Replace Unit
COLUMN SUPPORT(s) S.04

1 Good: No evidence of deterioration or misalignment. Elements are in new or like-new condition.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Successful corrosion repair. No significant section loss</td>
<td>Description: Corrosion with no significant section loss.</td>
</tr>
</tbody>
</table>
**COLUMN SUPPORT(s) S.04**

2 Fair: Moderate damage or corrosion is present. Standing water may be observed on the inside of the post. Column supports may be out of plumb.

<table>
<thead>
<tr>
<th>Condition State: 2</th>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Poor post alignment does not significantly affect the column support’s capacity.</td>
<td>Description: Animal remains and minor corrosion with minimal section loss.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Minor impact damage.</td>
</tr>
</tbody>
</table>
**COLUMN SUPPORT(s) S.04**

3 Poor: Heavy damage or corrosion of elements with localized section loss. Elements may be misaligned or have severe impact damage that may warrant structural analysis to ascertain the impact on the ultimate strength and/or serviceability of the element and/or the sign structure.

<table>
<thead>
<tr>
<th>Condition State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Animal remains or nesting debris. D-meter indicates localized section loss.</td>
</tr>
<tr>
<td>3</td>
<td>Standing water &amp; corrosion. D-meter indicates localized section loss.</td>
</tr>
<tr>
<td>3</td>
<td>Moderate impact damage reduces the column support’s reliability.</td>
</tr>
<tr>
<td>3</td>
<td>Poor post alignment reduces the column support’s reliability.</td>
</tr>
<tr>
<td>Condition State</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>4</td>
<td>Heavy corrosion with widespread and significant section loss.</td>
</tr>
<tr>
<td>4</td>
<td>Cracked post.</td>
</tr>
<tr>
<td>4</td>
<td>Severe impact damage.</td>
</tr>
<tr>
<td>4</td>
<td>Hole at base of post.</td>
</tr>
</tbody>
</table>
COLUMN TO ARM/CHORD CONNECTION S.05
Units: EA

This element defines the flange and gusset plates connecting the span arms or chords to the column supports. The element components may be painted/unpainted/galvanized steel, or aluminum.

Condition State Descriptions

1 Good: Elements are in new or like-new condition with no significant deficiencies.

Feasible Actions:  Do Nothing

2 Fair: Significant misalignment of components. Moderate corrosion or damage is present to one or more components.

Feasible Actions:  Do Nothing  Clean and resurface  Repair Unit

3 Poor: Major or multiple element defects or section loss that may significantly impact the serviceability or integrity of the structure.

Feasible Actions:  Do Nothing  Rehab Unit  Replace Unit

4 Critical: Multiple elements warrant ultimate strength and/or serviceability analysis.

Feasible Actions:  Do Nothing  Remove from service  Replace Unit
COLUMN TO ARM/CHORD CONNECTION S.05

1 Good: Elements are in new or like-new condition with no significant deficiencies.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Description: No deterioration.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition State: 1</td>
<td>Description: No deterioration.</td>
</tr>
<tr>
<td>Condition State: 1</td>
<td>Description: No deterioration.</td>
</tr>
<tr>
<td>Condition State: 1</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>
# COLUMN TO ARM/CHORD CONNECTION S.05

2 Fair: Significant misalignment of components. Moderate corrosion or damage is present to one or more components.

<table>
<thead>
<tr>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Corrosion with no significant section loss. One loose lower nut.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Deteriorated &amp; misaligned isolation pads reduce bearing area.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Minor misalignment or fit-up at hinge.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Warped plate causing slight gap at faying surface – bolts are tight.</td>
</tr>
</tbody>
</table>
COLUMN TO ARM/CHORD CONNECTION S.05

3 Poor: Major or multiple element defects or section loss that may significantly impact the serviceability or integrity of the structure.

Condition State: 3
Description: Gap at faying surface affects load transfer through the connection.

Condition State: 3
Description: Nuts are partially engaged. (<75% engagement)

Condition State: 3
Description: Loose connection creates redistribution of loads.

Condition State: 3
Description: 2 of 6 clamping bolts are missing.
COLUMN TO ARM/CHORD CONNECTION S.05

4 Critical: Multiple elements warrant ultimate strength and/or serviceability analysis.

<table>
<thead>
<tr>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Fractured U-bolt and lack of gravity load transfer.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Fractured U-bolts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Deteriorated Aluminum U-bolts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Missing shear bolts at clamp type casting.</td>
</tr>
</tbody>
</table>
ARM/CHORD MEMBER  S.06
Units: Linear Feet (LF) of Length

This element defines the secondary truss frame members: the diagonal, horizontal or vertical struts, the diagonals and cross bracing. The element components may be painted/unpainted/galvanized steel or aluminum. Weld cracks or connection defects on truss members are to be recognized using the Element Defect Condition Finding – S.15

Condition State Descriptions

1 Good: Elements are in new or like-new condition with no significant deficiencies.
Feasible Actions: Do Nothing

2 Fair: Significant misalignment of components. Moderate corrosion or damage is present to one or more components.
Feasible Actions: Do Nothing   Clean and resurface   Repair Unit

3 Poor: Cracks propagating into any truss member. Major or multiple element defects or section loss that may significantly impact the serviceability or integrity of the structure.
Feasible Actions: Do Nothing   Rehab Unit   Replace Unit

4 Critical: Multiple elements warrant ultimate strength and/or serviceability analysis.
Feasible Actions   Do Nothing   Remove from service   Replace Unit
ARM/CHORD MEMBER S.06

1 Good: Elements are in new or like-new condition with no significant deficiencies.

<table>
<thead>
<tr>
<th>Description</th>
<th>Condition State</th>
</tr>
</thead>
<tbody>
<tr>
<td>No deterioration.</td>
<td>1</td>
</tr>
<tr>
<td>Corrosion with no significant section loss.</td>
<td>1</td>
</tr>
<tr>
<td>Minor bubbling / delamination of aluminum surface.</td>
<td>1</td>
</tr>
<tr>
<td>No deterioration.</td>
<td>1</td>
</tr>
</tbody>
</table>
ARM/CHORD MEMBER S.06

2 Fair: Significant misalignment of components. Moderate corrosion or damage is present to one or more components.

Condition State: 2
Description: Moderate corrosion on secondary members – minimal section loss.

Condition State: 2
Description: Bent diagonal member. (in tension)

Condition State: 2
Description: Successful FRP crack repairs.
ARM/CHORD MEMBER S.06

3 Poor: Cracks propagating into any truss member. Major or multiple element defects or section loss that may significantly impact the serviceability or integrity of the structure.

<table>
<thead>
<tr>
<th>Condition State: 3</th>
<th>Description: Missing weld (1 of 4) in controlling tension member.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition State: 3</td>
<td>Description: Longitudinal crack in member.</td>
</tr>
<tr>
<td>Condition State: 3</td>
<td>Description: Bent diagonal member subject to axial stress reversal.</td>
</tr>
<tr>
<td>Condition State: 3</td>
<td>Description: Impact gouges in diagonal member.</td>
</tr>
</tbody>
</table>
### ARM/CHORD MEMBER S.06

4 Critical: Multiple elements warrant ultimate strength and/or serviceability analysis.

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Hole in secondary truss member significantly reduces cross section.</td>
<td>Description: Arm is upside down, causing a reversal of intended axial stresses in the secondary members.</td>
</tr>
<tr>
<td>Condition State: 4</td>
<td></td>
</tr>
<tr>
<td>Description: Missing secondary member.</td>
<td></td>
</tr>
</tbody>
</table>
CHORD SPLICE CONNECTION S.07
Units: EA

This element defines the splice(s). The element components may be painted, unpainted, galvanized steel, or aluminum.

Condition State Descriptions

1 Good: Elements are in new or like-new condition with no significant deficiencies.
Feasible Actions: Do Nothing

2 Fair: Significant misalignment of components. Moderate corrosion or damage is present to one or more components.
Feasible Actions: Do Nothing Clean and resurface Repair Unit

3 Poor: Major or multiple element defects or section loss that may significantly impact the serviceability or integrity of the structure.
Feasible Actions: Do Nothing Rehab Unit Replace Unit

4 Critical: Multiple elements warrant ultimate strength and/or serviceability analysis.
Feasible Actions: Do Nothing Remove from service Replace Unit
CHORD SPLICE CONNECTION S.07

1 Good: Elements are in new or like-new condition with no significant deficiencies.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Description: Minor defect on splice plate.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description: Minor corrosion, no significant section loss.</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Description: Minor corrosion, no significant section loss.</td>
</tr>
</tbody>
</table>
CHORD SPLICE CONNECTION S.07

2 Fair: Significant misalignment of components. Moderate corrosion or damage is present to one or more components.

<table>
<thead>
<tr>
<th>Condition State: 2</th>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Moderate corrosion on bolt threads.</td>
<td>Description: Moderate corrosion on bolt threads.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 2</th>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Moderate corrosion on bolt threads.</td>
<td>Description: Moderate corrosion on bolt threads.</td>
</tr>
</tbody>
</table>
**CHORD SPLICE CONNECTION S.07**

3 Poor: Major or multiple element defects or section loss that may significantly impact the serviceability or integrity of the structure.

<table>
<thead>
<tr>
<th>Condition State: 3</th>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Broken Splice Bolt. (1 of 6)</td>
<td>Description: Nuts partially engaged. (&lt;75% engagement)</td>
</tr>
<tr>
<td>Condition State: 3</td>
<td>Description: Partial gap at faying surface.</td>
</tr>
</tbody>
</table>
CHORD SPLICE CONNECTION S.07

4 Critical: Multiple elements warrant ultimate strength and/or serviceability analysis.

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Multiple missing bolts.</td>
<td>Description: 100% gap at faying surface.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: flowered aluminum splice bolt.</td>
</tr>
</tbody>
</table>
SPAN TRUSS MEMBERS S.08
Units: Linear Feet (LF) of Length

This element defines the chord(s). The element components may be painted/unpainted/galvanized steel or aluminum. (Quantities of a section of the element are rounded to the nearest linear foot of the element.) Weld cracks or connection defects on truss members are to be recognized using the Element Defect Condition Finding – S.15

Condition State Descriptions

1 Good: Elements are in new or like-new condition with no significant deficiencies.

Feasible Actions: Do Nothing

2 Fair: Significant misalignment of components. Moderate corrosion or damage is present to one or more components.

Feasible Actions: Do Nothing Clean and resurface Repair Unit

3 Poor: Cracks propagating into any chord. Major or multiple element defects or section loss that may significantly impact the serviceability or integrity of the structure.

Feasible Actions: Do Nothing Rehab Unit Replace Unit

4 Critical: Multiple elements warrant ultimate strength and/or serviceability analysis.

Feasible Actions: Do Nothing Remove from service Replace Unit
### SPAN TRUSS MEMBERS S.08

1 Good: Elements are in new or like-new condition with no significant deficiencies.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>

Condition State: 1
Description: No deterioration.

Condition State: 1
Description: Corrosion with no significant section loss.
<table>
<thead>
<tr>
<th>Condition State: 2</th>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Lower chord is bent from impact (near endspan)</td>
<td>Description: Misalignment of chords.</td>
</tr>
<tr>
<td>Condition State: 2</td>
<td>Condition State: 2</td>
</tr>
<tr>
<td>Description: Corrosion with minor section loss.</td>
<td></td>
</tr>
</tbody>
</table>
SPAN TRUSS MEMBERS S.08

3 Poor: Cracks propagating into any chord. Major or multiple element defects or section loss that may significantly impact the serviceability or integrity of the structure.

<table>
<thead>
<tr>
<th>Condition State: 3</th>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Holes in chord member.</td>
<td>Description: Longitudinal cracks in chord.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Lower chord bent from impact. (near midspan)</td>
</tr>
</tbody>
</table>
**SPAN TRUSS MEMBERS S.08**

4 Critical: Multiple elements warrant ultimate strength and/or serviceability analysis.

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Fractured chord.</td>
<td>Description: Major crack oriented perpendicular to the main stress direction.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Major crack oriented perpendicular to the main stress direction.</td>
<td>Description: Multiple chord fracture from impact.</td>
</tr>
</tbody>
</table>
SIGN FRAME S.09
Units: EA

This element defines the L-brackets, vertical hangers, horizontal braces, and other structural members that mount the sign panels to the sign arms, or chords. Unit quantities should reflect each individual L-bracket or hanger.

Condition State Descriptions

1 Good: The elements are in new or like-new condition with no misalignment.

Feasible Actions: Do Nothing

2 Fair: Significant deterioration or impact damage may be present. Multiple connection components may not be fully engaged. Multiple loose/missing backing strip nuts may be observed that could significantly affect the strength and/or serviceability of either the element or the sign structure. Connection hardware may need replacement.

Feasible Actions: Do Nothing Rehab Unit

3 Poor: Connection components may be cracked, sheared, or missing nuts. Cracks may be observed on the welds. There is sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

Feasible Actions: Do Nothing Replace Unit

4 Critical: Any collision damage or deterioration significant enough to threaten collapse or separation from the sign structure.

Feasible Actions: Do Nothing Remove from service Replace Unit
SIGN FRAME S.09

1 Good: The elements are in new or like-new condition with no misalignment.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>
SIGN FRAME S.09

2 Fair: Significant deterioration or impact damage may be present. Multiple connection components may not be fully engaged. Multiple loose/missing backing strip nuts may be observed that could significantly affect the strength and/or serviceability of either the element or the sign structure. Connection hardware may need replacement.

<table>
<thead>
<tr>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Oversized U-bolt.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Missing or loose hardware causes a minor effect on the load transfer to the structure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Misaligned U-bolts causes a minor effect on the load transfer to the structure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Bent U-bolt and missing isolation pad between dissimilar metals.</td>
</tr>
</tbody>
</table>
SIGN FRAME S.09

3 Poor: Connection components may be cracked, sheared, or missing nuts. Cracks may be observed on the welds. There is sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

| Condition State: 3 |
| Condition State: 3 |
| Condition State: 3 |

Description: Fractured wind-beam causes a moderate effect on the load transfer to the structure.

Description: Missing or loose hanger to wind-beam connection nuts causes a moderate effect on the load transfer to the structure.

Description: Non-functioning U-bolt(s) causes a moderate effect on the load transfer to the structure.

Description: Cracked hanger at wind-beam connection causes a moderate effect on the load transfer to the structure.
SIGN FRAME S.09

4 Critical: Any collision damage or deterioration significant enough to threaten collapse or separation from the sign structure.

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Fractured U-bolt(s) threatens panel collapse or separation.</td>
<td>Description: Cracked mast arm connection bracket threatens panel collapse or separation.</td>
</tr>
</tbody>
</table>
SIGN PANELS S.10
Units: EA

This element defines the sign panel of the sign structure, including legibility of VMS panels (but not include VMS cabinets or electronics). This element’s assessment shall include the legibility of the sign, as well as the condition of the structural elements.

Condition State Descriptions

1 Good: The elements are in new or like-new condition with no misalignment.

Feasible Actions: Do Nothing

2 Fair: Graffiti, vandalism, or collision damage may be present, but not affecting element legibility. Moderate deterioration or impact damage to panels or connecting components.

Feasible Actions: Do Nothing Rehab Unit Replace Unit

3 Poor: Signs are difficult to read for any reason. Significant deterioration or damage to the sign panel and/or connecting components.

Feasible Actions: Do Nothing Replace Unit

4 Critical: Any collision damage or deterioration significant enough to threaten collapse or separation from the sign structure.

Feasible Actions: Do Nothing Remove from service Replace Unit
SIGN PANELS S.10

1 Good: The elements are in new or like-new condition with no misalignment.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>
SIGN PANELS S.10

2 Fair: Graffiti, vandalism, or collision damage may be present, but not affecting element legibility. Moderate deterioration or impact damage to panels or connecting components.

<table>
<thead>
<tr>
<th>Condition State: 2</th>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Cracking, graffiti, and missing reflective buttons.</td>
<td>Description: Missing backing strip splice bolts. (5-20%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 2</th>
<th>Condition State: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Impact damage does not affect sign legibility.</td>
<td>Description: Crazed panel surface.</td>
</tr>
</tbody>
</table>
SIGN PANELS S.10

3 Poor: Signs are difficult to read for any reason. Significant deterioration or damage to the sign panel and/or connecting components.

<table>
<thead>
<tr>
<th>Condition State: 3</th>
<th>Description: non-functioning bulbs in VMS affect legibility.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition State: 3</td>
<td>Description: Severely faded panel.</td>
</tr>
<tr>
<td>Condition State: 3</td>
<td>Description: Damage affects panel legibility.</td>
</tr>
<tr>
<td>Condition State: 3</td>
<td>Description: Missing backing strip splice bolts (20-50%).</td>
</tr>
</tbody>
</table>
SIGN PANELS S.10

4 Critical: Any collision damage or deterioration significant enough to threaten collapse or separation from the sign structure.

Condition State: 4
Description: Impact damage affects panel legibility.

Condition State: 4
Description: High concentration of broken backing strip splice bolts may lead to separation failure.
CATWALK S.11
Units: LF

This element defines the walkway gratings, handrails, safety chains, and connections on the sign structure. The element may be painted, unpainted, or galvanized steel or aluminum.

Condition State Descriptions

1 Good: The connections are in new or like-new condition with no significant deficiencies or evidence of active corrosion.

Feasible Actions: Do Nothing

2 Fair: Moderate deterioration of the connections may be present. Handrails and locking pins may be misaligned or inoperable. Safety chain(s) may be missing or deteriorated.

Feasible Actions: Do Nothing Rehab Unit

3 Poor: Sections of gratings or handrails may be misaligned, unstable, damaged, or missing. Damage is sufficient to warrant structural analysis to ascertain the impact on the ultimate strength and/or serviceability of the element. Heavy deterioration of the connections may be present.

Feasible Actions: Do Nothing Rehab Unit Replace Unit

4 Critical: Any collision damage or deterioration significant enough to threaten collapse or separation from the sign structure.

Feasible Actions: Do Nothing Rehab Unit Replace Unit
1 Good: The connections are in new or like-new condition with no significant deficiencies or evidence of active corrosion.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Description: No deterioration.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition State: 1</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>

CATWALK S.11
CATWALK S.11

2 Fair: Moderate deterioration of the connections may be present. Handrails and locking pins may be misaligned or inoperable. Safety chain(s) may be missing or deteriorated.

Condition State: 2
Description:

CS 2 Example Photo Unavailable
3 Poor: Sections of gratings or handrails may be misaligned, unstable, damaged or missing. Damage is sufficient to warrant structural analysis to ascertain the impact on the ultimate strength and/or serviceability of the element. Heavy deterioration of the connections may be present.

CS 3 Example Photo Unavailable

Condition State: 3
Description:
CATWALK S.11

4 Critical: Any collision damage or deterioration significant enough to threaten collapse or separation from the sign structure.

Condition State: 4
Description: Impact damaged catwalk.
**LUMINAIRE S.12**
Units: EA

This element defines each luminaire in the lighting system on the sign structure.

**Condition state descriptions**

1 *Good*: Luminaire and components is in new or like-new condition with no significant visible deficiencies.

*Feasible Actions*: Do Nothing

2 *Fair*: Light cover latches are broken or rusted shut. Missing cover plates. Loose, broken, or missing sections of conduit. Open electrical boxes.

*Feasible Actions*: Do Nothing    Rehab Unit

3 *Poor*: Broken or missing covers. Missing light fixtures. Exposed wiring or unattached electrical boxes.

*Feasible Actions*: Do Nothing    Rehab Unit    Replace Unit

4 *Critical*: Any collision damage or deterioration significant enough to threaten separation from the sign structure.

*Feasible Actions*: Do Nothing    Rehab Unit    Replace Unit
LUMINAIRE S.12

1 Good: Luminaire and components is in new or like-new condition with no significant visible deficiencies.

Condition State: 1
Description: No deterioration.
LUMINAIRE S.12

2 Fair: Light cover latches are broken or rusted shut. Missing cover plates. Loose, broken or missing sections of conduit. Open electrical boxes.

CS 2 Example Photo Unavailable

Condition State: 2
Description:
**LUMINAIRE S.12**

3 Poor: Broken or missing covers. Missing light fixtures. Exposed wiring or unattached electrical boxes.

<table>
<thead>
<tr>
<th>Description</th>
<th>Condition State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cracked luminaire support.</td>
<td>3</td>
</tr>
<tr>
<td>Impact Damage.</td>
<td>3</td>
</tr>
</tbody>
</table>

Condition State: 3
Description: Cracked luminaire support.

Condition State: 3
Description: Impact Damage.
LUMINAIRE S.12

4 Critical: Any collision damage or deterioration significant enough to threaten separation from the sign structure.

Condition State: 4
Description: Missing luminaire due to impact.
SIGN ATTACHMENT S.13
Units: EA

This element defines each accessory on the sign structure including dampeners, signs mounted on the column supports, traffic-control devices, and cameras.

Condition State Descriptions

1 Good: Element is fully functional and in new or like-new condition with no significant deficiencies.

Feasible Actions: Do Nothing

2 Fair: Moderate damage or deterioration of element, however the element remains functional.

Feasible Actions: Do Nothing Rehab Unit

3 Poor: Serious damage or deterioration to element is reducing the functional performance of the unit.

Feasible Actions: Do Nothing Rehab Unit Replace Unit

4 Critical: Any collision damage or deterioration significant enough to threaten separation from the sign structure. Any exposed wiring or other dangerous condition.

Feasible Actions: Do Nothing Rehab Unit Replace Unit
SIGN ATTACHMENT S.13

1 Good: Element is fully functional and in new or like-new condition with no significant deficiencies.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Element is fully functional.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Element is fully functional.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Element is fully functional.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Element is fully functional.</td>
</tr>
</tbody>
</table>
**SIGN ATTACHMENT S.13**

2 Fair: Moderate damage or deterioration of element, however the element remains functional.

<table>
<thead>
<tr>
<th>Condition State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Damaged dampener housing / Partially engaged nut. (&gt;75%)</td>
</tr>
<tr>
<td>2</td>
<td>Missing rubber grommet.</td>
</tr>
<tr>
<td>2</td>
<td>Loose mounting screw.</td>
</tr>
<tr>
<td>2</td>
<td>Damaged conduit coupling. Element remains functional.</td>
</tr>
</tbody>
</table>
SIGN ATTACHMENT S.13

3 Poor: Serious damage or deterioration to element is reducing the functional performance of the unit.

<table>
<thead>
<tr>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Missing connection strap. (1 of 3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Impact damage and fading affects legibility.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Sign surface is severely cracked and faded.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Loose bracket is causing misalignment of antenna.</td>
</tr>
</tbody>
</table>
SIGN ATTACHMENT S.13

4 Critical: Any collision damage or deterioration significant enough to threaten separation from the sign structure. Any exposed wiring or other dangerous condition.

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Cracked housing.</td>
<td>Description: Cracked support bracket.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Post mounted electric cable support has broken.</td>
<td>Description: Dampener is in contact with the sign frame and cannot vibrate.</td>
</tr>
</tbody>
</table>
SLIP JOINT S.14
Units: EA

This element defines the slip joint connection on high-mast structures.

Condition State Descriptions

1 Good: Element is in new or like-new condition with no significant deficiencies.

Feasible Actions: Do Nothing

2 Fair: Minor cracking of element or moderate corrosion. There is not sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

Feasible Actions: Do Nothing Repair Unit

3 Poor: Cracking of element or significant corrosion. There is sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

Feasible Actions: Do Nothing Rehab Unit Remove from service

4 Critical: Structure is in imminent danger of collapse. Multiple elements warrant ultimate strength and/or serviceability analysis.

Feasible Actions: Do Nothing Remove from service
**SLIP JOINT S.14**

1 Good: Element is in new or like-new condition with no significant deficiencies.

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condition State: 1</th>
<th>Condition State: 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: No deterioration.</td>
<td>Description: No deterioration.</td>
</tr>
</tbody>
</table>
SLIP JOINT S.14

2 Fair: Minor cracking of element or moderate corrosion. There is not sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

CS 2 Example Photo Unavailable

Condition State: 2
Description:
SLIP JOINT S.14

3 Poor: Cracking of element or significant corrosion. There is sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

CS 3 Example Photo Unavailable

Condition State: 3
Description:
SLIP JOINT S.14

4 Critical: Structure is in imminent danger of collapse. Multiple elements warrant ultimate strength and/or serviceability analysis.

CS 4 Example Photo Unavailable

Condition State: 4
Description:
WELD CRACK (ELEMENT DEFECT CONDITION FINDING) S.15
Units: EA

This Element Defect Condition Finding addresses cracks in welds on any sign structure element, particularly vertical, horizontal, and diagonal truss members. In general, the less redundant an item is, the more critical a deficiency in that item becomes. This Element Defect Condition Finding only refers to weld cracks. Other cracks should be identified in the Condition State for the appropriate element affected.

Condition State Descriptions

1 Good: One or two minor "weld pool" cracks are present. Cracks that are short in length and shallow in depth, which may be grinded out for repair. This Condition State would also encompass incomplete welds or other minor fabrication defects in welded connections of truss members.

Feasible Actions: Do Nothing Monitor condition Repair Unit

2 Fair: Several weld pool cracks are present or a hairline crack exists at one or two redundant members. There is not sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

Feasible Actions: Do Nothing Monitor condition Repair Unit

3 Poor: Several hairline cracks are present, a single crack has visible width, or the welded connection has been severed on a redundant truss member. Any condition where there is sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

Feasible Actions: Do Nothing Repair/Rehab Unit Remove from service

4 Critical: Crack has propagated into a non-redundant structural member (i.e., column or chord), or the welded connection has been completely severed. Multiple cracks on the structure have created a condition such that the structure is in imminent danger of collapse.

Feasible Actions: Do Nothing Remove from service
WELD CRACK (ELEMENT DEFECT CONDITION FINDING) S.15

1 Good: One or two minor "weld pool" cracks are present. Cracks that are short in length and shallow in depth, which may be grinded out for repair. This rating would also encompass incomplete welds or other minor fabrication defects in welded connections of truss members.

Condition State: 1
Description: Minor weld pool crack.

Condition State: 1
Description: Minor weld pool crack.
2 Fair: Several weld pool cracks are present or a hairline crack exists at one or two redundant members. There is not sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

Condition State: 2
Description: Hairline crack at redundant truss member.

Condition State: 2
Description: Hairline crack at redundant truss member.
3 Poor: Several hairline cracks are present, a single crack has visible width, or the welded connection has been severed on a redundant truss member. Any condition where there is sufficient concern to warrant an analysis to ascertain the impact on the strength and/or serviceability of the element and/or the sign structure.

<table>
<thead>
<tr>
<th>Condition State: 3</th>
<th>Description: Crack with visible width.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition State: 3</td>
<td>Description: Crack with visible width.</td>
</tr>
<tr>
<td>Condition State: 3</td>
<td>Description: Redundant truss member is severed.</td>
</tr>
<tr>
<td>Condition State: 3</td>
<td>Description: Redundant truss member is severed.</td>
</tr>
</tbody>
</table>
4 Critical: Crack has propagated into a non-redundant structural member (i.e., column or chord), or the welded connection has been completely severed. Multiple cracks on the structure have created a condition such that the structure is in imminent danger of collapse.

<table>
<thead>
<tr>
<th>Condition State: 4</th>
<th>Condition State: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description: Crack has propagated into bottom chord. Imminent danger of collapse.</td>
<td>Description: Crack has propagated into non-redundant post. Imminent danger of collapse.</td>
</tr>
<tr>
<td>Condition State: 4</td>
<td>Condition State: 4</td>
</tr>
<tr>
<td>Description: Severed bottom chord. Imminent danger of collapse</td>
<td>Description: Crack in weld connecting cantilever arm to non-redundant post.</td>
</tr>
</tbody>
</table>
The Condition Index (CI) is a measure of the structural condition of the critical elements of an overhead sign structure. It is a percentage ranging from 0 (worst) to 100 (best). The Condition Index is calculated based on the fractional distribution of element quantities and their respective condition states. A Condition Index can be calculated for a single element (for example, Anchor Bolts – Element S.02) or a combination of elements (for example, Foundations – Element S.01 combined with Anchor Bolts – Element S.02) or an entire structure with all its elements. NYSDOT, for the purposes of calculating the CI for a given overhead sign structure, will only consider Elements S.01, S.02, S.03, S.04, S.05, S.06, and S.08 – as shown in Table 11. Other elements will not be included in the CI calculations for a given overhead sign structure.

The Condition Index for a given element is calculated using the following formula:

\[ C_e = \left( \frac{\sum k_{cs} * q_e}{\sum q_e} \right) * 100 \]

Where

- \( C_e \) is the Condition Index of a given element
- \( k_{cs} \) is the Condition Index coefficient corresponding to a given Condition State. The coefficient is defined as follows:
  - Condition State 1: \( k=1 \)
  - Condition State 2: \( k=0.66 \)
  - Condition State 3: \( k=0.33 \)
  - Condition State 4: \( k=0 \)
- \( q_e \) is the quantity of the element in a given Condition State

The Condition Index for a given overhead sign structure is calculated using elements S.01 – S.06 and S.08 for the structure in question, using the following formula:

\[ C_s = \frac{\sum \text{all elements } ((k_{cs} * q_e) * w_e)}{\sum \text{all elements } (Q_e * w_e)} \]

Where

- \( C_s \) is the Condition Index of a given structure
- \( Q_e \) is the total element quantity of all the elements existing on the structure
- \( w_e \) is a weighting factor of the relative structural criticality of a given element

Illustrating the CI with a hypothetical example for an overhead sign structure with the data summarized in Table 11 below:
<table>
<thead>
<tr>
<th>Element</th>
<th>Quantity</th>
<th>Weighted Quantity</th>
<th>Weighted CI</th>
<th>Element CI</th>
<th>%</th>
<th>Total LF</th>
<th>Unit Quantity</th>
<th>Weighting Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000 5.363</td>
<td>001 * (1.0 + 0.666 * 10 + 0.333 * 15)</td>
<td>1.166</td>
<td>0.10</td>
<td>3.00</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 6.012</td>
<td>001 * (2.0 + 0.666 * 1)</td>
<td>1.50</td>
<td>0.10</td>
<td>3.00</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 2.025</td>
<td>001 * (2.0 + 0.666 * 6 + 0.333 * 4)</td>
<td>1.332</td>
<td>0.25</td>
<td>2.50</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0.250</td>
<td>001 * (0.1)</td>
<td>0.00</td>
<td>0.25</td>
<td>0.50</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total CI (Structure): 5.363/9.600 = 55.864%
SECTION 11 – RECORDING OF INSPECTION RESULTS

It is noted that inspection data is entered in an electronic format. This Section lists the required inspection data and information to be included in the inspection reports.

1. Date of Inspection
2. Names and Signatures of:
   a. Team Leader
   b. Quality Control Engineer
3. Name of Assistant Team Leader
4. Overhead Sign Structure Inventory Data (See Chapter 4, Section 4)
5. Element Condition State Documentation (See Chapter 5, Section 12)
6. D-meter reading documentation (See Chapter 5, Section 13)
7. Further investigation recommendations and associated information
8. Inspection Frequency Recommendation
9. OSS Condition Index (See Chapter 5, Section 10)
10. Location Plan
11. Any issued flags and repair requests
12. Weather conditions and ambient temperature at the time of inspection
13. Time in/out at the location of inspection using military time format (Example: In: 13:00, Out 15:30)
14. Photos (with date imprinted by camera, numbered, and referenced to an element’s Condition State, as documented in Element Inspection Data and Documentation -Item 4 in this listing).
15. Vertical Clearance measurements and sketches (See Chapter 2, Figure 1)
16. Type of access equipment used for the inspection
17. Notes to Inspector

SECTION 12 – ELEMENT CONDITION STATE DOCUMENTATION

It is noted that inspection data is entered in an electronic format. This Section lists the required element inspection data and information to be included in the inspection reports.

For each element found on the OSS the following information shall be gathered and presented:

1. Element Number and Title
2. Quantity in each Condition State: CS 1, CS 2, CS 3, CS 4. If CS 5 is used, additional information as to applicability of using CS 5 shall be provided in the report.
3. Inspector’s comments/notes for each element

Photo number associated with a given element’s Condition State. Photos shall be required for any element that has any portion in Condition State 3 or 4. All photos shall have the date imprinted by camera. The naming convention shall be as follows:

1. General Photos:
   This type of photo will depict the overall structure and its general location from the front and
back perspectives of the OSS. The photos shall be named using “GEN”. TYPE OF TRUSS_DIRECTION_PHOTO NUMBER_DATE. Where “TYPE OF TRUSS” is the inventoried type, “DIRECTION” is either “Front” or “Back,” “PHOTO NUMBER” using a two digit numeric designation, and “DATE” in mm/dd/yyyy format. For example, GEN_TRICHORDTRUSS_FRONT_09_01012013.

2. Element Condition Photos:
This type of photo will depict a given element’s condition and shall be required for any element which has any portion in Condition State 3 or 4. The photos shall be named using ELEMENT NUMBER_CONDITION STATE_PHOTO NUMBER_DATE. Where “ELEMENT NUMBER” is the element number, “CONDITION STATE” is the inspector assigned Condition State for the element using a two digit designation, “PHOTO NUMBER” using a two digit numeric designation, and “DATE” in mm/dd/yyyy format. For example, S01_01_07_01012013.

SECTION 13 – D-METER READINGS DOCUMENTATION

When Post section loss documentation is necessary, D-Meter measurements shall be taken at locations shown in Figure 12. Each of the 4 “A” and the 4 “B” readings shall be located on the North, South, East, and West sides of the Post.

![Figure 12 – D-Meter Measurement Locations](image)

Figure 12 – D-Meter Measurement Locations
It is noted that D-meter data is entered in an electronic format. This Section lists the required data and information to be included in the section loss documentation.

The collected data shall include the following:

Using sign structure orientation and component numbering conventions (see Chapter 4, Section 2) enter the following:

1. Post Number – (Example: 2)

2. Post Location – (Example: “Front,” “Right,”)
   Identify location of post using “Front,” “Back,” “Left,” and “Right” For example, for a sign located in the front right side of the sign structure, record “Front” and “Right”

3. D-Meter measurements in decimal inches – (Example: 0.249”)
   Record measurements in decimal format, for locations “A” and “B” shown in Figure 12, using North, South, East and West locations along circumference of the post.

4. Percentage difference in readings – (Example: 10.35%)
   Calculate and record the percentage difference in post thickness measured for respective locations reading “A” and reading “B.” A negative dT indicates that reading “B” is less than reading “A.”

SECTION 14 – CRITICAL INSPECTION FINDINGS – FLAGS

Critical inspection conditions are conditions that pose a clear and present danger or conditions that, if left unattended, would likely become a clear and present danger before the next Type 1 inspection (Type 4 for High Mast type structures). A Flag is not used to report a structural condition of a component whose service life clearly extends well beyond that defined by scheduled inspection intervals nor used to draw attention to any maintenance or routine repair needs where no immediate or potential danger exists.

Appendix A contains the procedures to be followed by inspectors and others in the documentation, processing, resolution, and disposition of OSS flags.

Examples of conditions that warrant Overhead Sign Structure flags:

- Truss/Arm connection crack(s)
- Post base has heavy corrosion with significant section loss, thereby significantly impacting load transfer
- Exposed electrical wiring
- Weld Cracks $\geq \frac{1}{8}$”
• Truss member crack(s)

• Significant number of anchor bolts missing at a given post location, thereby significantly impacting load transfer

• Significant corrosion/section loss of anchor bolts at a given post location, thereby significantly impacting load transfer

• Eccentrically located anchor bolts (≤ 8” measured from centerline of anchor bolt to edge of foundation concrete) and associated base plate on a foundation

SECTION 15 – INSPECTION FINDINGS – REPAIR REQUESTS

This Section describes conditions that, while neither dangerous nor pose an immediate threat to the structure, if left unaddressed will lead to further deterioration and impaired capacity and/or functionality.

Examples of conditions that may be reported in a Repair Request:

• Clean and patch small areas of concrete (with no exposed reinforcement and no cracking).

• Sealing concrete hairline cracks

• Clean and paint areas with newly discovered and measurable section loss

• Repair minor erosion that has not yet started to undermine foundation

• Seal concrete cracks >1/16”

• Tighten loose anchor bolts

Repair Request Documentation:

It is noted that OSS Repair Request Reports data and information will be entered in an electronic format.

This Section lists the required data and information to be included in the OSS Repair Request Report:

REPAIR REQUEST IDENTIFICATION:

Repair Request Number
Flag written by: TL name (first, last)
Date of Repair Request Observation: mm/dd/yyyy
If applicable: This Request supersedes Request Number dated: mm/dd/yyyy
SECTION 16 – INSPECTION PROCEDURES FOR FIBER REINFORCED POLYMER APPLICATIONS

Fiber Reinforced Polymer (FRP) composite materials have been used to repair aluminum sign structures in the State of New York since 2002. FRP systems can be used to affect in-situ repairs to cracked welds of the diagonal to chord connection in aluminum overhead sign structures.

An FRP repair is intended to restore the tensile capacity of secondary members, such as internal truss diagonals. This method of repair is not appropriate for main members such as longitudinal truss chords. Any cracks observed in longitudinal chords shall be flagged as outlined in the Manual and are not repaired with an FRP system. Similarly, the FRP method is not appropriate for damage to the bearing area (of the diagonal and main chord interface) of compression members. This situation, too, must be dealt with by other means.

Every joint that has been repaired using FRP composite materials shall be inspected every year – Type 3 inspection, for two (2) consecutive years after the installation of the FRP repair. If both of these inspections reveal that the FRP wrap is functioning as intended, the Type 3 inspection frequency may be
increased to a maximum of 4 years. A joint with an FRP wrap that exhibits any sign of failure shall be inspected at least once a year – Type 3 Inspection - until the sign structure is removed or repaired.

In order to ensure the on-going quality of the system, the following inspection procedure shall be used. The procedure shall apply to every joint which has been repaired using FRP composite materials. Each joint that has been repaired using FRP materials shall receive a Type 3 inspection as defined in Chapter 5, Section 6 of the Manual. This inspection shall encompass:

1. All joints within one-panel length in either direction from the repaired joint shall be inspected to ensure that these joints have not experienced any negative effects.

2. The entire surface of the FRP wrap shall be inspected. If any of the following conditions are noted, the inspector should issue a repair request following the established procedures:
   a. If there are cracks in the surface paint
   b. If there are any superficial cracks or superficial delaminations observed
   c. If the FRP surface is chalky or flaky (This may be an indication of ultra-violet light damage)

3. If any of the following conditions are noted, the inspector should issue a flag based on the severity of the observed defects:
   a. If there are any cracks or delaminations observed which are determined to be more than superficial
   b. While inspecting the interface between the aluminum sign structure (which includes the chord, diagonals, and struts) and the FRP material, if it is noted that the aluminum tube is sliding in and out of the FRP wrap; i.e., there is a loss of adhesion
   c. Any failure not noted above which will inhibit the ability of the FRP wrap to function as intended

4. In cases of FRP repair deterioration, the inspector may recommend further investigation, including NDT techniques, such as Infrared Tomography, to supplement visual inspection observations.

SECTION 17 – QUALITY CONTROL AND QUALITY ASSURANCE REVIEWS OF INVENTORY AND INSPECTION DATA AND REPORTS

It is noted that OSS inventory data, inspection data, flags, and related information will be entered in an electronic format and reports generated by electronic means. The associated Quality Assurance and Quality Control reviews will also be completed using software tools. This section summarizes the general scope and objectives of Quality Assurance and Quality Control reviews without consideration of the electronic tools utilized in such reviews.

1. Quality Control Review

Quality Control Review is a detailed process that includes careful examination of all parts of OSS inspection documentation and field reviews of inspection teams and field procedures. Quality Control Review encompasses checking each field inspection report and related inventory data for completeness, technical/engineering accuracy and conformance with this Manual, as
well as a review of the contents of the SIN folder ensuring that all required documentation is present and complete. The Quality Control Review effort is augmented by field visits to observe the field inspection work and procedures employed by the inspection teams. The Quality Control Engineer (QCE) must approve all inspection reports to certify that the Quality Control Review has been completed. Inspection reports shall not be submitted to the State if the reports have not been reviewed and approved by the QCE. The QCE is also required to complete a field review summary for each inspection team at least once per year.

The field review summary shall contain the QCE’s observations related to the inspection team’s:

- Preparation for the inspection (Review of SIN folder, plans, previous reports etc…)
- Understanding of the structural behavior and failure mechanisms of the structure
- OSS inspection requirements
- Proper use of D-meters
- Documentation of inspection findings
- Proper application of the element Condition State criteria
- Understanding and implementation of the OSS Flagging Procedure
- Presence and proper use of inspection tools required to perform the inspection
- Presence and proper use of access equipment
- Presence and proper use of safety equipment and procedures

2. Quality Assurance Review

OSS inspection Quality Assurance is the responsibility of the Main Office, Office of Structures Bridge Inspection Unit staff. Quality assurance reviews encompass ensuring compliance with applicable guidelines of this Manual including verification that all OSS due for inspection are inspected and submitted within the prescribed time limits; verification of inspectors’ credentials; ensuring compliance with the OSS Flagging Procedure; compliance and technical/engineering reviews of selected OSS inspection reports and SIN folders as well as performing field reviews of inspection teams.

3. Quality Assurance Engineer Qualifications

The Quality Assurance Engineer shall meet the same qualifications specified for a Quality Control Engineer in Chapter 5, Section 2 of this Manual.
APPENDIX A - FLAGGING PROCEDURE
INSPECTION FLAGGING PROCEDURE FOR OSS

I. INTRODUCTION

This procedure sets forth a uniform method of timely notification to Responsible Parties of overhead sign structures (OSS) deficiencies that require timely attention. It also establishes requirements for certifying that appropriate measures are taken within a specified time frame by a Professional Engineer licensed to practice in New York State.

The procedure shall only be used to report conditions posing a clear and present danger or conditions that, if left unattended, would likely become a clear and present danger before the next scheduled Type 1 or Type 4 inspection. A Flag is not used to report a structural condition of a component whose service life clearly extends well beyond that defined by scheduled inspection intervals nor used to draw attention to any maintenance or routine repair needs where no immediate or potential danger exists. If it is determined that an overhead sign structure is unsafe, the Regional Director shall close any State owned highway or bridge that may be adversely impacted by the failure or partial failure of the unsafe overhead sign structure, at any time, regardless of the steps being followed in this procedure.

II. DEFINITIONS

OSS Flag - A structural flag that is used to report the failure or potential failure of a primary structural component that is likely to occur before the next scheduled Type 1 or Type 4 inspection.

Flagged - General term applied to an OSS which has received a flag or to the specific condition for which a flag is issued.

OSS Flag Documentation - This consists of the "Flagged OSS Report"(FOR), any additional notes or sketches, photos, and any other items needed to document the flagged condition.

Prompt Interim Action (PIA) - A designation that is made by the inspection Team Leader or an engineer when a Flag condition is considered extremely serious and in need of immediate attention. This designation requires a prompt (within 24 hours) action or decision on whether to close or restrict traffic on the bridge or the highway feature under the OSS, make immediate repairs, or to determine that the condition is safe until repairs can be made.

Designated Regional Engineer (DRE) - A Professional Engineer licensed to practice in New York State (NYSPE), who is responsible for ensuring that the OSS Flagging Procedure is followed and monitor the status of the flags. The Regional Director is responsible for designating the DRE for their respective Region. The DRE shall not be the same person designated as the Responsible Party. References to the DRE shall also include the DRE's designee.

Responsible Party - The party (or parties) that have maintenance responsibility for the flagged portion of the OSS. The Regional Director is responsible for designating the “Responsible Party” for the State OSSs in their respective Region. Occasionally, a condition that causes a flag occurs
in a portion of an OSS that is the maintenance responsibility of one party, but protective actions must be taken by a second party. In such cases, the DRE shall identify such situations and notify all responsible parties.

State OSS - Any OSS either partially or wholly owned or maintained by the New York State Department of Transportation (NYSDOT).

Non-State OSS - Any OSS that cannot be defined as a State OSS.

FLAG STATUS:

OSS Flag – An OSS Flag for which a "Flag Removal/Inactivation Report" has not been filed. Active OSS Flags shall be categorized as:

A) Response pending: Status used from flag issuance to until six weeks from the written notification to responsible party unless categorized C thru I noted below.
B) Response overdue: Status used beyond six weeks from written notification to responsible party unless categorized C thru I noted below.

Inactive Flag - A OSS Flagged condition for which a "Flag Removal/Inactivation Report" has been filed indicating "Flag Inactivation." Inactive Flag categories are as follows:

C) Bridge or highway feature under the OSS is temporarily closed or partially closed (e.g., individual lane or shoulder closure).
D) OSS temporarily repaired by temporary shoring or cribbing as designed by a NYSPE.
E) Certified safe by a NYSPE in its current condition for an interim period while subject to pending/scheduled repairs; or certified safe by a NYSPE subject to a defined condition monitoring program being implemented; or temporary repairs made and certified as safe by a NYSPE.

Removed Flag – An OSS Flagged condition for which a "Flag Removal/Inactivation Report" has been filed indicating "Flag Removal." Flag Removals are categorized as follows:

F) OSS is removed.
G) OSS is certified by a NYSPE as "safe," at least until the next scheduled inspection.
H) Permanent repairs have been made and certified by a NYSPE.
I) Flag has been superseded or reclassified.

III. FLAGGING PROCEDURE

The following steps shall be taken to issue OSS Flags. These steps apply to both State and non-State OSS. A copy of the Flag Documentation and all related and subsequent correspondence shall be placed in the SIN folder. This procedure is written for an inspection Team Leader to use during an OSS inspection; however, other Professional Engineers may issue a flag, as needed, by following the appropriate steps.
1. Observation - Immediately after the Flag condition is observed, the inspection Team Leader shall complete Steps 2, 3, and 4.

2. Prompt Interim Action - The inspection Team Leader shall determine if the problem warrants a designation of "Prompt Interim Action." If this designation is made, it shall be included in the verbal notification to the DRE (see Step 4 below). In an extreme case, where an actual failure or clearly perilous condition exists, the Team Leader shall take immediate measures to close the State owned bridge or highway feature under the OSS and, where necessary, prior to notifying the DRE.

3. Prepare Flagged OSS Report (FOR) - The inspection Team Leader shall complete the FOR (see copy attached) and shall attach photographs and other documentation as needed to adequately document the condition. If in the Team Leader's judgment, expediency is required, verbal notification (see Step 4) to the DRE may be made before completing the FOR.

4. Verbal Notification of DRE - The Team Leader shall immediately, upon completing the FOR, telephone the DRE describing the physical condition. The Team Leader shall record the name of the person notified and the date/time of notification on the FOR. The DRE shall determine who is the Responsible Party for the flagged OSS.

5. Verbal Notification of Responsible Party - The DRE shall immediately notify the Responsible Party. The DRE shall make the inspection team and necessary access equipment available at the OSS site to explain the flagged condition, if so requested by the Responsible Party.

6. Decision on Prompt Interim Action Flags - In case of a “Prompt Interim Action” designation, appropriate action by the Responsible Party is required to address the observed condition within 24 hours. Possible actions include:
   - Fully or partially closing the bridge or highway feature under the OSS
   - Determine that the condition doesn't require Prompt Interim Action Designation and follow normal OSS Flag procedure.
   - Specify when and what actions are needed, if less than 6 weeks

Any action by the Responsible Party must be certified by a NYSPE in writing to the DRE within 24 hours. Any action that is deferred beyond the 24 hours shall also be certified by a NYSPE that the OSS is safe until appropriate action can be taken. The DRE shall document the decision made on any Prompt Interim Action designation in the written confirmation to the Responsible Party.

When the OSS Flag “Prompt Interim Action” designation causes a full or partial closure of a State owned bridge or highway, or affects traffic flow on a State owned bridge or highway feature under the OSS the DRE shall immediately inform the Regional Director and the Director of the Office of Structures in the Main Office.

At the same time, for any OSS flag, related State owned bridge or highway closures, or temporary closures should be updated in the databases and necessary personnel informed.
(including the Main Office Bridge Data Systems Unit within three days) following the established departmental procedures. The DRE is responsible for initiating the appropriate steps to accomplish this.

7. Flag Documentation - The flag documentation shall be completed by the Team Leader and forwarded to the DRE within three working days from the date the flagged condition was observed.

8. Written Notification (Flag Letter) to OSS Owner - The DRE shall transmit a copy of the Flag Documentation by letter or memo to the Responsible Party (see attached Sample #1.) The flag transmittal must accurately state the facts and clearly emphasize the degree of urgency involved. It shall also clearly state that the Responsible Party is solely responsible for addressing the flag condition. As an alternate to restating all the particulars of the flag condition, the transmittal memo may refer to information contained in the Flag Documentation. This written notification shall be sent within a week from the date the flagged condition was observed. The letter shall also request written acknowledgment of receipt of the flagging letter. A signed, certified mail delivery receipt can be substituted for the acknowledgment.

9. Response from Responsible Party to Written Notification - The response shall be signed by a NYSPE, explaining what action is or will be taken and when it will be taken. If no action is being taken, the response will explain the reasons for this decision. All actions proposed or taken, must be certified by a NYSPE. Generally, all actions taken shall be completed within six weeks from the date of Written Notification to the Responsible Party, but if action is deferred, a NYSPE shall certify that the OSS is safe and the flagged condition is not a danger to the traveling public until appropriate action can be taken at a specified date.

This response is required within six weeks of the date of Written Notification to the Responsible Party. If the Responsible Party has not replied within four weeks, the DRE will verbally inform the Responsible Party of the impending deadline. A record of this verbal notification should be kept in the SIN folder. The DRE will monitor action taken on OSS Flags. Follow up may include closing the State owned bridge or highway feature under the OSS if action is not taken.

The DRE shall monitor the lists of OSS with active OSS Flags for receipt of written replies from the Responsible Party. If no reply is received within five weeks of written notification of a flag, the DRE shall send a follow up letter to the Responsible Party, with copies to the Regional Director and, for non-state OSS, to the Chief Executive Officer or Agency Head/Commissioner of the corporation or political jurisdiction which owns the OSS. This letter shall require action within the six week time limit from notification and be followed by a phone call from the DRE. If the second notification does not produce a satisfactory response within the six week time limit and if the OSS is determined to be unsafe by DRE, the Regional Director shall close the bridge or highway feature under the OSS. The Responsible Party shall be made aware of this policy and its implications, especially for traffic and emergency vehicles.
10. Flag Removal/Inactivation - When certified corrective or protective actions are reported by the Responsible Party as completed for all deficiencies causing the OSS Flag, or the OSS condition is certified as safe, the DRE shall remove or inactivate the flag. A flag is removed when the OSS is permanently removed, when the OSS is certified "safe," or when permanent repairs have been certified as adequate at least until the next scheduled inspection by a NYSPE. A flag is made inactive when the bridge or highway feature under the OSS is temporarily closed or partially closed, or when temporary repairs are made and certified as safe by a NYSPE, or certified safe by a NYSPE in its current condition for an interim period while subject to pending/scheduled repairs, or certified safe by a NYSPE subject to a defined condition monitoring program being implemented. The DRE shall complete a Flag Removal/Inactivation Report to remove the flag from the list of active OSS Flags. A copy of the report shall be sent to the Responsible Party and a copy placed in the SIN folder. If the inactivation is valid only for a limited time, the responsible party shall take appropriate actions thereafter.

IV. FLAG CONTINUATION

When an existing flagged condition is found by the Team Leader to remain in a subsequent inspection, the condition shall be reflagged with a new Flagged OSS Report with complete documentation. The new flag shall be assigned a new flag number. All other information shall be completed on the Flagged OSS Report including the superseded flag number. The Flagged OSS Report shall note that an existing flag is being superseded.

V. CLOSING UNSAFE BRIDGES AND HIGHWAYS

For State owned bridges and highways under an OSS, closure proceedings shall be initiated at any point by the DRE, even in cases where this flagging procedure is being followed, when it is evident that the measures being taken by the Responsible Party do not eliminate a clear and present danger. If an OSS Flag is not removed or inactivated within six weeks by appropriate corrective or protective action, and the OSS is determined by the DRE to be unsafe, the Regional Director shall close the State owned bridge or highway feature under the OSS. A State owned bridge or highway under the OSS closed because of a flag shall not be reopened until the structure is certified as safe by a NYSPE.

VI. UNDOCUMENTED REPAIRS

If during an inspection, a Team Leader finds that undocumented repairs have been or are being made to a previously flagged condition, but the flag has not been removed, then one of the following actions shall be taken:

a. If, in the Team Leader's judgment, the repairs are adequate and complete enough to remove the flag, the Team Leader shall document the repairs and remove the flag using a Flag Removal/Inactivation Report.

b. If the Team Leader judges the repairs to be inadequate, then the condition shall be reflagged using a Flagged OSS Report. The superseded flag shall be removed when the new flag is entered.
VII. INTERIM INSPECTIONS

Follow up OSS Type 1, Type 2, Type 3 or Type 4 inspections as described in the Overhead Sign Structures Inspection Manual, Chapter 5, Section 6 shall be scheduled for any OSS with active or inactive OSS Flags. During the inspection, if the Team Leader finds the previously flagged condition has been corrected and is no longer deserving of a flag, the Team Leader shall remove the flag. If this flag was the sole reason for the OSS requiring a follow up inspection, then the follow up inspection should be terminated. The DRE shall remove the flag from the list of active flags and file the Flag Removal/Inactivation Report in the SIN file. If the flagged condition has not been corrected, or there is a new flag condition, the Team Leader shall reflag the OSS.

VIII. FLAG INVENTORY

The DRE shall maintain a current list of active and inactive OSS Flags. The list of flags shall be classified according to “Flag Status,” in Section II of this procedure, as appropriate.

IX. ELECTRONIC COMMUNICATION

Except for the verbal notification required for PIA flags, all other verbal and written correspondence may be substituted with electronic communication such as e-mail. A mechanism should be in place to make sure that the electronic communication has been received and has been reviewed in a timely manner. The Regional Director is solely responsible to ensure that measures consistent with the Flagging Procedure are in place when electronic or other communication methods are adopted. DRE shall clearly document this procedure with all steps and procedures and provide a copy to RD and the Main Office Bridge Inspection Unit. A printed copy of all correspondence shall be placed in the SIN folder. All e-mail correspondence should have the same information that would have been in verbal or paper correspondence.

PE certifications cannot be substituted with verbal assurances. If electronic mail is used to receive the certifications from the Responsible Party or their consultants, all e-mail should come directly from the NYSPE (not from someone in his/her staff on his/her behalf), and the e-mail should contain all the content which is required with a paper certification including the NYSPE’s License Number and NYSPE’s mailing address. A printed copy of the e-mail should be placed in the SIN folder within two weeks after the flag has been addressed.

X. NYSPE LICENSE VERIFICATION

The Department periodically verifies the current registration status of the NYSPEs employed by the Department. The DRE is responsible for making sure that the non-NYSDOT certifying NYSPE has a current registration. This may be accomplished by accessing the State Education Department database that is available on-line.

XI. GUIDELINES

Flags are issued separately for each condition noted on an OSS. Each condition can have only one flag, but it is possible for an OSS to have more than one flag. Multiple occurrences of similar conditions on an OSS requiring an OSS flag may be documented and submitted, using
sound engineering judgment, under one OSS flag as long as every occurrence (location and extent) is explicitly described in the flag details. It should be noted that to remove or inactivate the flag, each condition shall be addressed appropriately with NYSPE certification specifically explaining how each of these conditions were addressed.

All non-NYSDOT NYSPE Certifications shall have the NYSPE’s name, license number, and mailing address.

As a quality control effort, the DRE shall periodically review the Flags Documentation and discuss it with Team Leaders in order to ascertain the effectiveness of the Flagging Procedure; and discuss these findings with the Main Office Bridge Inspection Unit and other DREs. As a quality assurance effort, the Main Office Bridge Inspection Unit shall review selected Flags Documentation and correspondence to evaluate the effectiveness of the inspection program and initiate changes, as needed.

XII. EXAMPLES

Each OSS and its condition are different due to factors such as design, materials used, loadings, and deterioration. Hence, professional judgment by competent personnel is required. The following provides general examples of conditions warranting flags. These examples are not meant to list all situations, but are typical examples of conditions that have occurred in the past. In cases of deterioration (such as section loss), detailed capacity evaluations may be required and can be recommended by the DRE.

Examples that generally warrant Prompt Interim Action designation are noted below. Other listed examples may require Prompt Interim Action designation, if in the judgment of the inspection Team Leader the condition poses an immediate threat to structural stability as well as vehicular and pedestrian traffic.

Examples of conditions that warrant Overhead Sign Structure flags:

- Truss/Arm connection crack(s)
- Post base has heavy corrosion with significant section loss, thereby significantly impacting load transfer
- Exposed electrical wiring
- Weld Cracks $\geq 1/8”$
- Truss member crack(s)
- Significant number of anchor bolts missing at a given post location, thereby significantly impacting load transfer
• Significant corrosion/section loss of anchor bolts at a given post location, thereby significantly impacting load transfer

• Eccentrically located anchor bolts (≤ 8” measured from centerline of anchor bolt to edge of foundation concrete) and associated base plate on a foundation
SAMPLE TRANSMITTAL #1 - "OSS FLAG"

______________, 20 ___

Dear ________________:
This is the written follow-up to the verbal notification made to ______________ on ______ concerning the OSS Flag on SIN ____________. Attached is a copy of the OSS Inspector's Flag Documentation. Our records indicate that you are responsible for taking appropriate corrective action within six weeks from the date of this letter to assure public safety. We request written acknowledgment from you to verify receipt of this notification.

NYSDOT defines an OSS Flag condition as one which reports the actual or imminent risk of failure of a major structural component of an OSS, and requires prompt or short term corrective or protective action to assure safety. We further request a written reply by ________________, 20 ____ stating what action is being taken concerning the OSS Flagged Condition. Such action should be to: 1) Remove, 2) repair, or 3) furnish a written statement that the OSS is capable of sustaining in-service loadings. For those actions which you propose to do in the future, please state what interim action you will implement to ensure the safety of the traveling public.

The OSS Flag status will be removed or inactivated upon receipt of written notification that appropriate corrective or protective action has taken place to remove or inactivate the OSS flag. Such notification shall be accompanied by a certification by a Professional Engineer licensed to practice in New York State, that the corrective or protective actions are appropriate to ensure the safety of the public using the bridge or highway feature under the OSS. Such certification shall document that the corrective or protective actions have been completed and have been inspected or approved, as appropriate, by the engineer. Certification shall include the NYSPE’s name, license number, and mailing address.

Sincerely,

Attachments
cc: SIN File (w/attachments)
   Regional Director
   Main Office Bridge Inspection Unit
FLAGGED OSS REPORT

It is noted that Flagged OSS Reports data and information will be entered in an electronic format. This Section lists the required data and information to be included in the Flagged OSS Report:

FLAG IDENTIFICATION:

Flag Number
If applicable: THIS IS A PROMPT INTERIM ACTION REQUIRED FLAG
Flag written by: TL name (first, last)
Date of Flag Observation: mm/dd/yyyy
If applicable: This flag supersedes Flag Number dated: mm/dd/yyyy

OSS DESCRIPTION:

SIN
Region \\ County
Reference Marker
Feature Crossed
Traffic Direction
Structure Type Description
Structure Material Type

DESCRIPTION OF FLAGGED CONDITION:

Flagged Element Number and Name
Condition Location
Element Condition State
Flag Description Comments
If Photos/Sketches attached: Number of photos/sketches attached

NOTIFICATION:

VERBAL NOTIFICATION If applicable:
To (Name of individual receiving notification) of Regional Office on mm/dd/yyyy at hh:mm AM/PM

FLAG WRITER’S CERTIFICATION:

Flag Written By
Date Written
PE Number
Signature

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OSS FLAG REMOVAL/INACTIVATION REPORT

It is noted that OSS Flag Removal/Inactivation Report data and information will be entered in an electronic format. This Section lists the required data and information to be included in the OSS Flag Removal/Inactivation Report:

FLAG IDENTIFICATION

Flag Number
Date of Flag: mm/dd/yyyy

OSS DESCRIPTION:

SIN
Region \ County
Reference Marker
Feature Crossed
Direction of Orientation
Structure Type Description
Structure Material Type

DESCRIPTION OF FLAGGED CONDITION:

Flagged Element Number and Name
Condition Location (Closest Lane, Side of OSS)
Element Condition State
Flag Description Comments

FLAG DISPOSITION

Flag Removed or Inactivated
Description of action taken leading to flag removal or inactivation

CERTIFICATION

Certification of action leading to flag removal or inactivation provided by
Date of Certification
PE Number
OSS Flag Removal or Inactivation Report completed by
Report completed on (date) mm/dd/yyyy